NAVAL AIR STATION LEMOORE
INSTALLATION MASTER PLAN 2030

JULY 2014

NAS LEMOORE IS THE AIR STATION OF CHOICE FOR AVIATORS, SAILORS, SUPPORT PERSONNEL, AND FAMILIES THAT DESIRE AN UNCOMPRIMISED TRAINING ENVIRONMENT IN A SETTING THAT FOSTERS POSITIVE GROWTH AND DEVELOPMENT OF OUR WAR-FIGHTERS, A STRONG SENSE OF COMMUNITY, AND HEALTHY LIFESTYLE CHOICES FOR ALL.

INSTALLATION MASTER PLAN 2030

NAVAL AIR STATION LEMOORE

JULY 2014

Captain Monty G. Ashliman
Commanding Officer, Naval Air Station Lemoore

NAS LEMOORE INSTALLATION MASTER PLAN 2030

PREPARED FOR

NAVFAC Southwest

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LIST OF ACRONYMS

ac-ft	Acre Feet
ADP	Area Development Plan
AFB	Air Force Base
AICUZ	Air Installation Compatibility Use Zones
ALIS	Autonomic Logistic Information System
AMI	Advanced Metering Infrastructure
AO	Airfield Ops (District)
AOP	Activity Overview Plan
AOS	Airfield Ops Support (District)
APCD	Air Pollution Control District
APE	Aircraft Protection Equipment
APZ	Accident Potential Zone
ARP	Airfield Redevelopment Plan
ASTC	Aviation Survival Training Center
AT	Anti-Terrorism
ATCAA	Air Traffic Controlled Assigned Airspace
AT/FP	Anti-Terrorism/Force Protection
BA	Base Administration (District)
BASH	Bird/Animal Aircraft Strike Hazard
BLM	Bureau of Land Management
BLUF	Bottom Line Up Front
C5ISR	Command, Control, Communications, Computers, Combat Systems, Intelligence, Surveillance, and Reconnaissance
CALA	Combat Aircraft Loading Area
CBMU	Construction Battalion Maintenance Unit (AKA Seabees)
CCN	Category Code Number
CDC	Child Development Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERF	Centralized Engine Repair Facility
CMBRE	Common Munitions Bit/ Reprogramming Equipment
CNATTU	Center for Naval Aviation Technical Training Unit
CNO	Chief of Naval Operations
COA	Course of Action
CPTED	Crime Prevention Through Environmental Design
CRHR	California Register of Historic Resources
CSFWP	Commander, Strike Fighter Wing Pacific
CVN	Nuclear Aircraft Carrier
CVW	Carrier Air Wing
dB	Decibel
DLA	Defense Logistic Agency
DoD	Department of Defense
DoN	Department of Navy
EAP	Encroachment Action Plan
E.O.	Executive Order
EPA	Environmental Protection Agency
EOC	Emergency Operations Center
ES	Energy Sustainability (Network Plan)
ESQD	Explosive Safety Quantity Distance
EUL	Enhanced Use Lease
FFSC	Fleet and Family Support Center
FH	Family Housing (District)
FOD	Foreign Object Debris
FRC-W	Fleet Readiness Center West
FRD	Facility Requirements Document
FRS	Fleet Replacement Squadron
FSSA	Forest Service Special Area
FY	Fiscal Year
GI	Green Infrastructure (Network Plan)
GIS	Geographic Information System
HERF	Hazard of Electromagnetic Radiation to Fuels
HERO	Hazard of Electromagnetic Radiation to Ordnance
HERP	Hazard of Electromagnetic Radiation to People
HVAC	Heating, Ventilation, and Air Conditioning
IAP	Installation Appearance Plan
IDS	Intrusion Detection System
IFOM	Installation Figure of Merit
iNFADS	internet Naval Facilities Asset Data Store
INRMP	Integrated Natural Resource Management Plan
IR	Installation Restoration
JLUS	Joint Land Use Study
JSF	Joint Strike Fighter
JSFSIP	Joint Strike Fighter Strategic Infrastructure Plan
JUT	Joint Use Training (District)
KART	Kings Area Rural Transit
kV	Kilovolt
MALS	Marine Aviation Logistics Squadron
MGD	Million Gallons Per Day
MIA	Military Influence Area
MILCON	Military Construction

ML	Managed Lands (District)
MOA	Military Operations Area
MPH	Miles Per Hour
MSL	Mean Sea Level
MTR	Military Training Route
MWR	Morale, Welfare, and Recreation
MWSS	Marine Wing Support Squadron
NAF	Naval Air Facility
NAS	Naval Air Station
NASL	Naval Air Station Lemoore
NAVAIR	Naval Air Systems Command
NAVFAC	Naval Facilities Engineering Command
NAVHOSP	Naval Hospital
NAVSUP	Naval Supply Systems Command
NEX	Navy Exchange (Exchange)
NMC	Navy Munitions Command
NOSC	Navy Operational Support Center
NRHP	National Register of Historic Places
NRMA	Natural Resource Management Area
NRSW	Navy Region Southwest
OAC	Outdoor Adventure Center
OLF	Outlying Field
ORD	Ordnance (District)
OSHA	Occupational Safety and Health Administration
PAO	Public Affairs Officer
PCI	Pavement Condition Index
POV	Privately Owned Vehicle
PPV	Public Private Venture
PS	Personnel Support (District)
PSD	Personnel Support Detachment
PU	Primary Utility (Network Plan)
PWD	Public Works Department
QOL	Quality of Life
RBL	Required Built-to Line
RFP	Request for Proposal
RIP	Regional Integration Plan
RSL	Ready Service Locker
RTO	Receiver Training Officer
SAPF	Special Access Program Facility
SAR	Search and Rescue
SCA	Shore Capability Area
SCIF	Sensitive Compartmented Information Facility
SDZ	Surface Danger Zone
SECNAV	Secretary of the Navy
SF	Square Feet/Foot
SFWSPAC	Strike Fighter Weapons School Pacific
SJVAB	San Joaquin Valley Air Basin
SoCalGas	Southern California Gas Company
SR	State Route
SRA	Shop Replacement Assemblies
SUA	Special Use Airspace
TDY	Temporary Duty
TFE	Task Force Energy
TIP	Transportation Incentive Program
TOD	Transit oriented development
TP	Transportation Plan (Network Plan)
TSWA	Temporary Secret Working Area
UFC	Unified Facilities Criteria
UH	Unaccompanied Housing
USFS	United States Forest Service
USGS	United States Geological Survey
UST	Underground Storage Tank
VFA	Strike Fighter Squadron
WAPA	Western Area Power Administration
WRA	Weapons Replacement Assemblies
WWD	Westland Water District

EXECUTIVE SUMMARY

Naval Air Station (NAS) Lemoore (NASL) was commissioned in 1961 and remains the Navy's newest, largest, and only west coast Master Jet Base. The Installation's principal mission is to support Strike Fighter Wing, U.S. Pacific Fleet and its mission to man, train, and equip west coast Strike Fighter squadrons.

NAS Lemoore's last Master Plan was completed in 1992. Since that time the number of assigned aircraft and personnel has increased, there have been a variety of new projects executed, and many of the Installation's original facilities and infrastructure have continued to age. All of these factors are driving the need for an updated Master Plan that allows NAS Lemoore to correct current deficiencies while positioning the Installation to respond to anticipated future conditions.

MASTER PLAN PURPOSE

The Master Plan identifies a logical and effective long term development and management plan that improves mission and operational capacity. It captures current and projected mission requirements, identifies ongoing and planned project initiatives, and outlines the courses of action (COAs) that will provide NAS Lemoore with clear guidance to address both functional and fiscal challenges and constraints.

MASTER PLAN VISION

The planning vision was developed through a collaborative effort with NAS Lemoore leadership and stakeholders. Unlike the Installation mission statement, which outlines NAS Lemoore's purpose as a military installation, the planning vision defines the principles that guide development of the Master Plan.

BOTTOM LINE UP FRONT (BLUF)

The Master Plan outlines a deliberate course of action for NAS Lemoore's future, framed by our mission, vision, and end state to which we are working.

NAS LEMOORE MISSION STATEMENT

As the Navy's premier Strike Fighter Master Jet Base, Naval Air Station Lemoore provides the infrastructure, products, and services that enable Commander, Strike Fighter Wing Pacific squadrons to conduct operations in support of National Tasking; enables readiness through quality of life services; fosters and strengthens collaborative community relationships; and achieves installation efficiencies through innovation. We all need to keep this in the forefront of our minds each and every day with everything that we do while upholding the Navy Core Values of Honor, Courage, and Commitment.

PLANNING VISION STATEMENT

NAS Lemoore is the Air Station of choice for Aviators, Sailors, support personnel, and families that desire an uncompromised training environment in a setting that fosters positive growth and development of our war-fighters, a strong sense of community, and healthy lifestyle choices for all.

PLANNING GOALS

Goals and strategies were established to guide development of the Master Plan and to help ensure future projects are consistent with the planning vision. Plan goals include:

- Enhance mission capabilities.
- Promote health and well-being with a multimodal transportation system that provides alternatives to single occupant vehicles.
- Focus development within the core area.
- Continue to foster and strengthen the sense of community.
- Achieve a high level of sustainability.
- Create an environment that cultivates well rounded Sailors through personal and professional growth and development.

KEY CONSIDERATIONS

The Master Plan responds to the following key considerations.

- **Mission Growth**
  Strike Fighter Realignment will place additional F/A-18 aircraft at NAS Lemoore. The anticipated arrival of the new F-35C Joint Strike Fighter (JSF) in August 2016 will also bring more aircraft and personnel. Mission growth puts additional pressure on facilities that are already undersized for current operations. Siting new facilities within the constrained airfield environment is also a challenge.
- **Aged Facilities and Infrastructure**
  A large portion of NAS Lemoore's facilities and infrastructure are original to the Installation's construction and in need of replacement or recapitalization. Minor improvements and work-arounds have been implemented; however these solutions are short sided and fail to address the underlying issues. In addition, hangars were not designed for modern aircraft and are unable to adequately support current maintenance activities.
- **Maintaining Key Capabilities**
  NAS Lemoore provides an optimal training environment with little or no encroachment from the surrounding community. Maintaining and enhancing NAS Lemoore's ability to support current and possible future missions is a focus of the Master Plan.
- **Connections and Mobility**
  Pedestrian and bicycle facilities are limited throughout much of NAS Lemoore, providing personnel, families, and visitors with few options to automobiles. This shortfall is magnified on the Ops Side, where a lack of convenient parking requires personnel to walk between destinations.

CONCEPT PLANS

Master Plan concepts for the Admin and Ops Sides are illustrated in Figures ES-1 and ES-2.

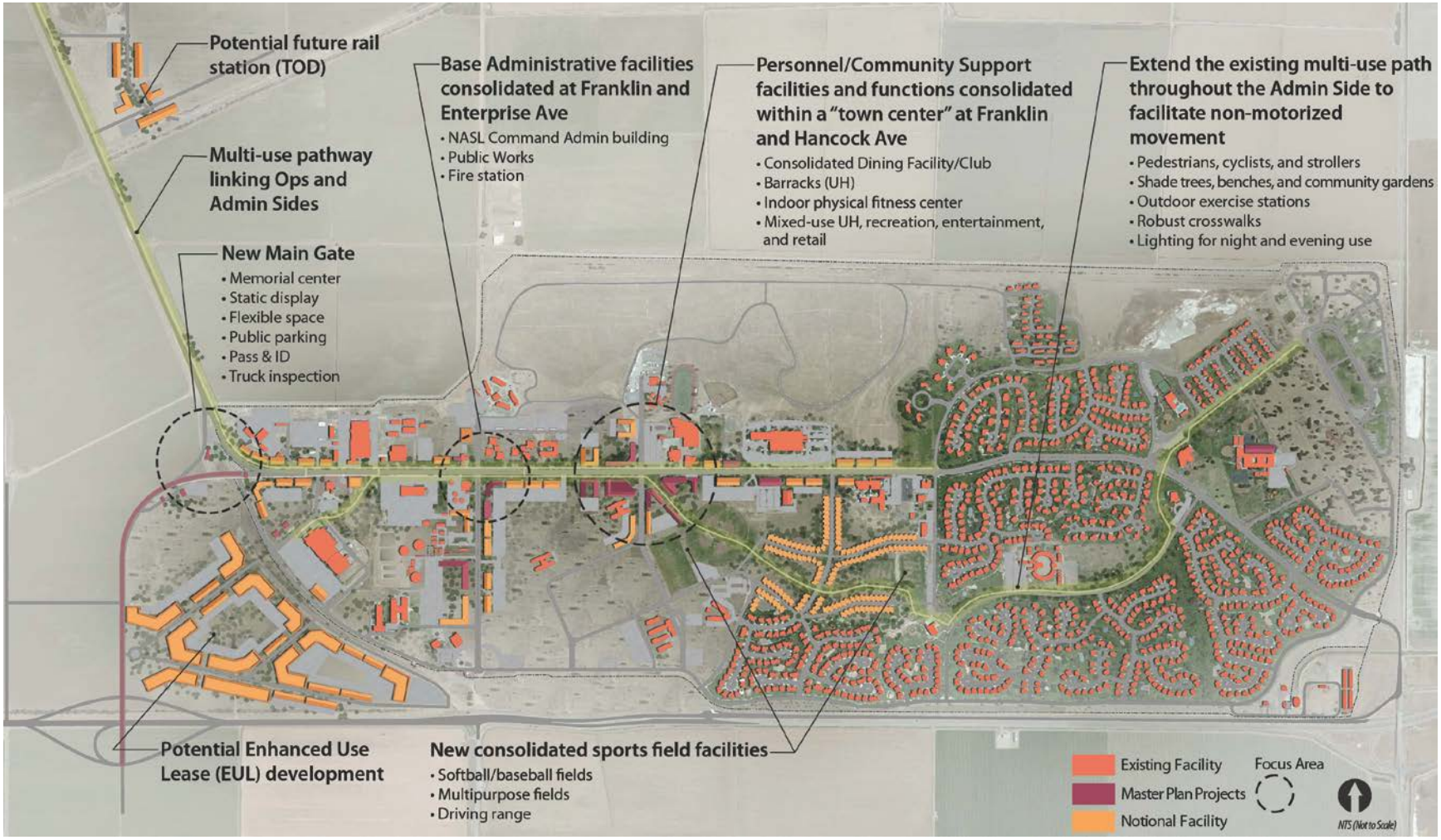

FIGURE ES-1. ADMINISTRATION SIDE MASTER PLAN CONCEPT

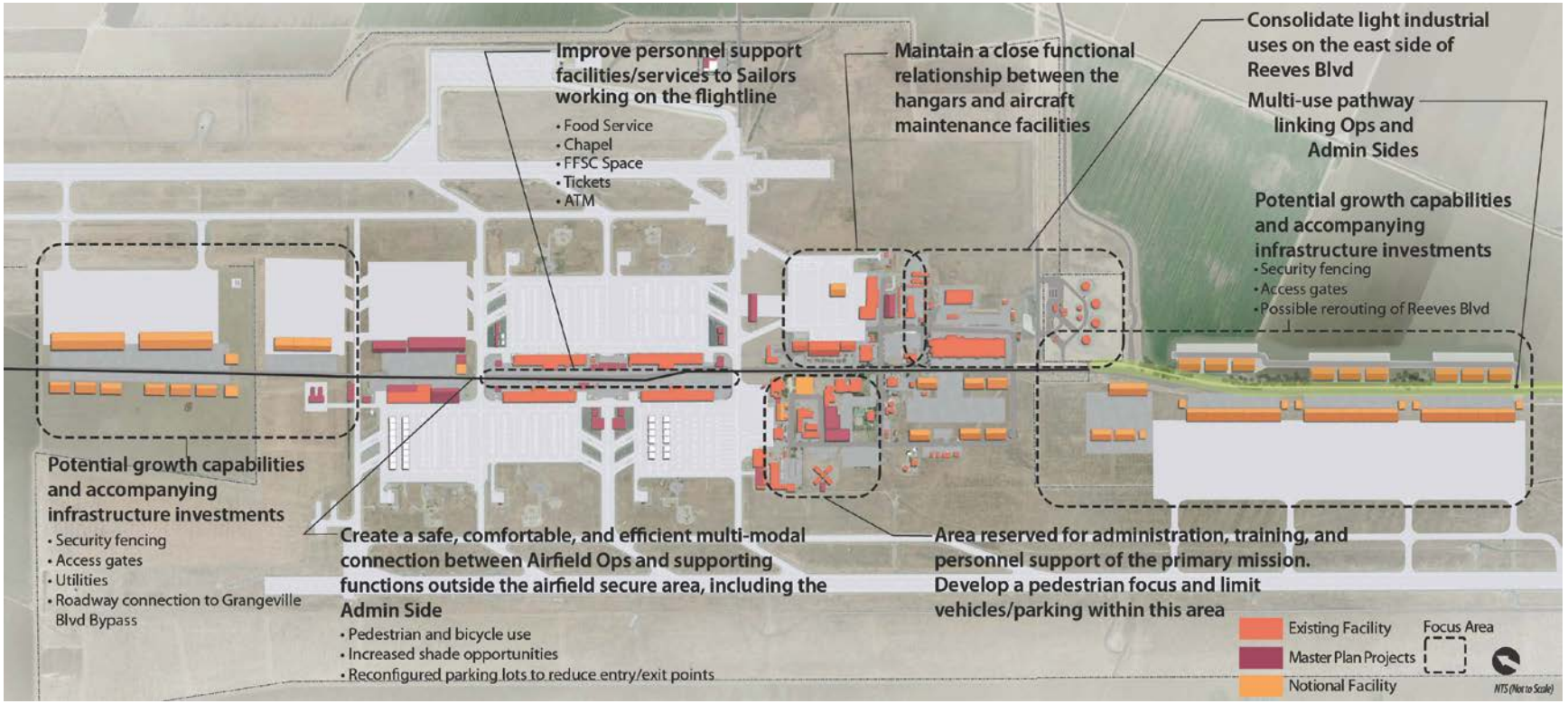

FIGURE ES-2. OPERATIONS SIDE MASTER PLAN CONCEPT

KEY PROJECTS

The Master Plan provides a comprehensive list of action items to address currently known issues and shortfalls. These COAs can be found in the individual Area Development Plans (ADP), or in the Installation Development Program located at the end of the Master Plan.

Table ES-1 summarizes the key COAs supporting the anticipated arrival of F-35C and Master Plan implementation. COA numbers reflect the district or network where they are located. Projects are also illustrated in Figures ES-3 and ES-4.

Districts and Networks

AO Airfield Ops
AOS Airfield Ops Support
BA Base Administration
EUL Enhanced Use Lease
ES Energy Sustainability
FH Family Housing
GI Green Infrastructure
JUT Joint Use Training
ML Managed Lands
ORD Ordnance
PS Personnel Support
PU Primary Utility
TP Transportation Plan

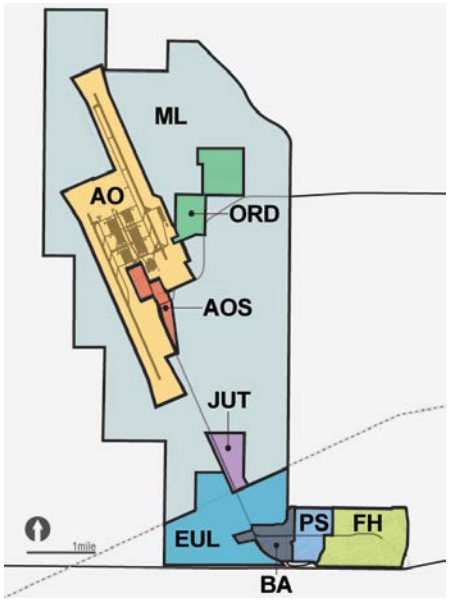

Table ES-1. NAS Lemoore implementation plan

	Master Plan COA No.	Project No.	Project Title
F-35C Projects	AOS-6	P327A	F-35C Academic Training Facility
	AOS-4	P327	F-35C Operational Training Facility
	AO-10	P328	F-35C Facility Addition and Modification (Hangar 5)
	AO-9	P378	F-35C FRS Hangar 5 Additions and Modifications
	AO-5	P218	RTO and Mission Debrief Facility
	AOS-5	P379	F-35C PTC Phase II Bldg 43 Modifications
	AO-4	P380	F-35C Engine Repair and Pilot Fit Facility
	AO-2	P284	F-35C Fleet Hangar 6 Aircraft Maintenance Hangar
	AOS-2	P385	F-35C Admin Dept
	TP-17	P381	Ops Parking Expansion
	AOS-3	P386	F-35C Weapons School Training Facilities
	AO-20	P351	F-35C Facility Upgrade and Addition (Hangar 3)
	AO-21		F-35C Response Team Space
Master Plan Priority Projects	AO-28	P282	F/A-18 Avionics Repair Facility Replacement
	AO-25	P059	Corrosion Control Hangar
	TP-11		Ops Side Pedestrian Improvements and Parking Reconfiguration
	AO-26		Ops Side Fire Station Upgrade
	AO-15	P242	Flightline Dining and Personnel Support Facility
	AOS-7	P377	Addition to Bldg 30 for CVW-14 Restoration
	AOS-1	RM11-95	Renovate Air Ops Building (Bldg 1) and Construct Adjacent Annex
	ORD-1	P276	Replace Missile Maintenance/Assembly Building
	BS-8		Admin Side Fire Station Upgrade
	TP-3		Construct New Main Gate with Pass and ID at Reeves and Franklin
	PS-2		Replace Admin Side Galley and Clubs with Consolidated Facility
	PS-9	P358	Aviation Survival Training Center Replacement
	PS-10	P366	NAVOPSPTCEN Lemoore
	PS-3 / PS-5		Construct Mixed-Use UH, Recreation, and Retail Facilities at Admin Side
	FH-6 / FH-7		Upgrade Karen Mechem Park and Relocate RV Park
	JUT-1 / JUT-2	P382	SAR Multi-Use Training Compound
	TP-1	P326	Commuter Bikeway
	TP-6		Extend Family Housing Multi-Use Path Throughout Admin Side

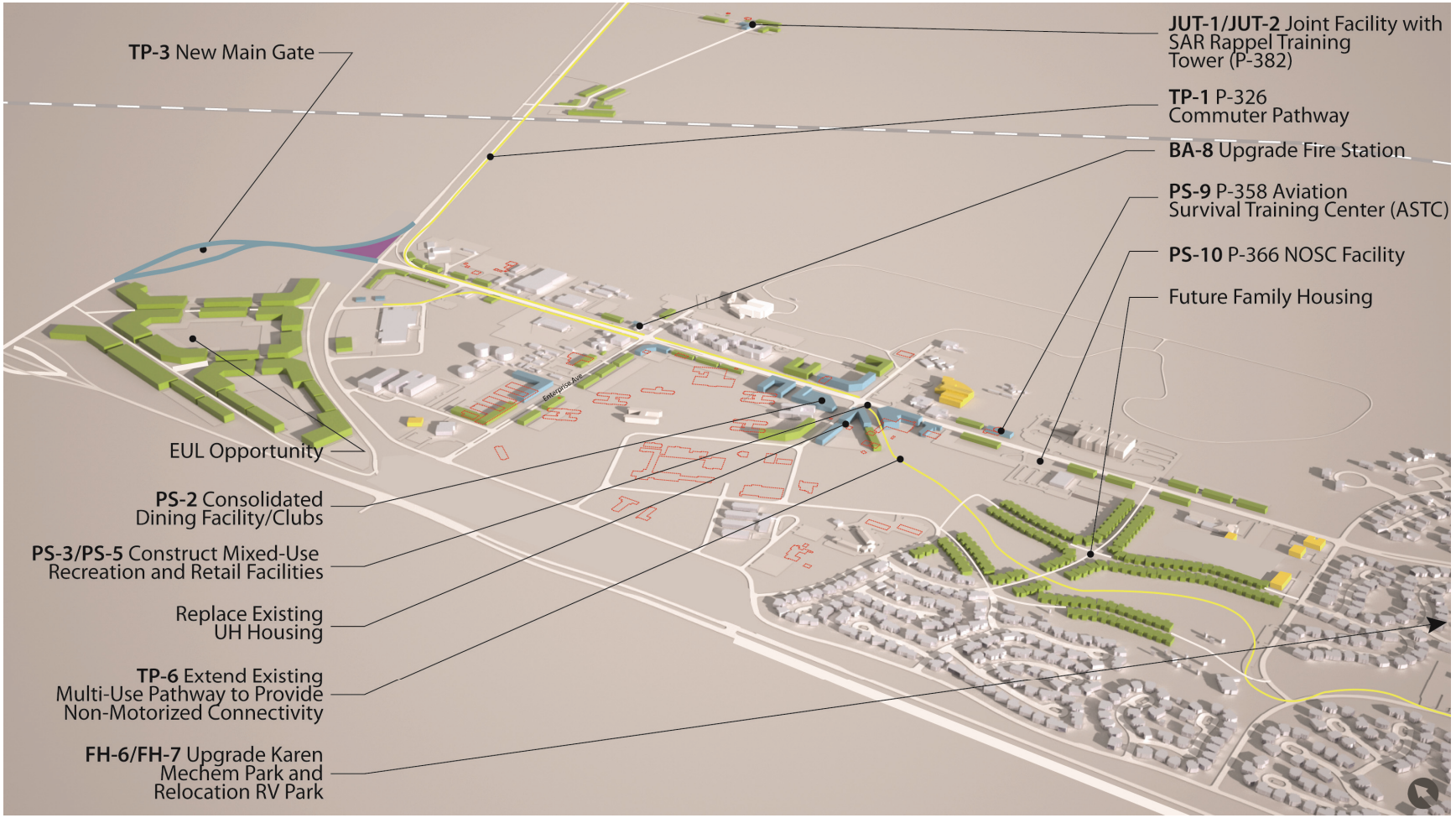

FIGURE ES-3. INSTALLATION IMPLEMENTATION PLAN (ADMIN SIDE)

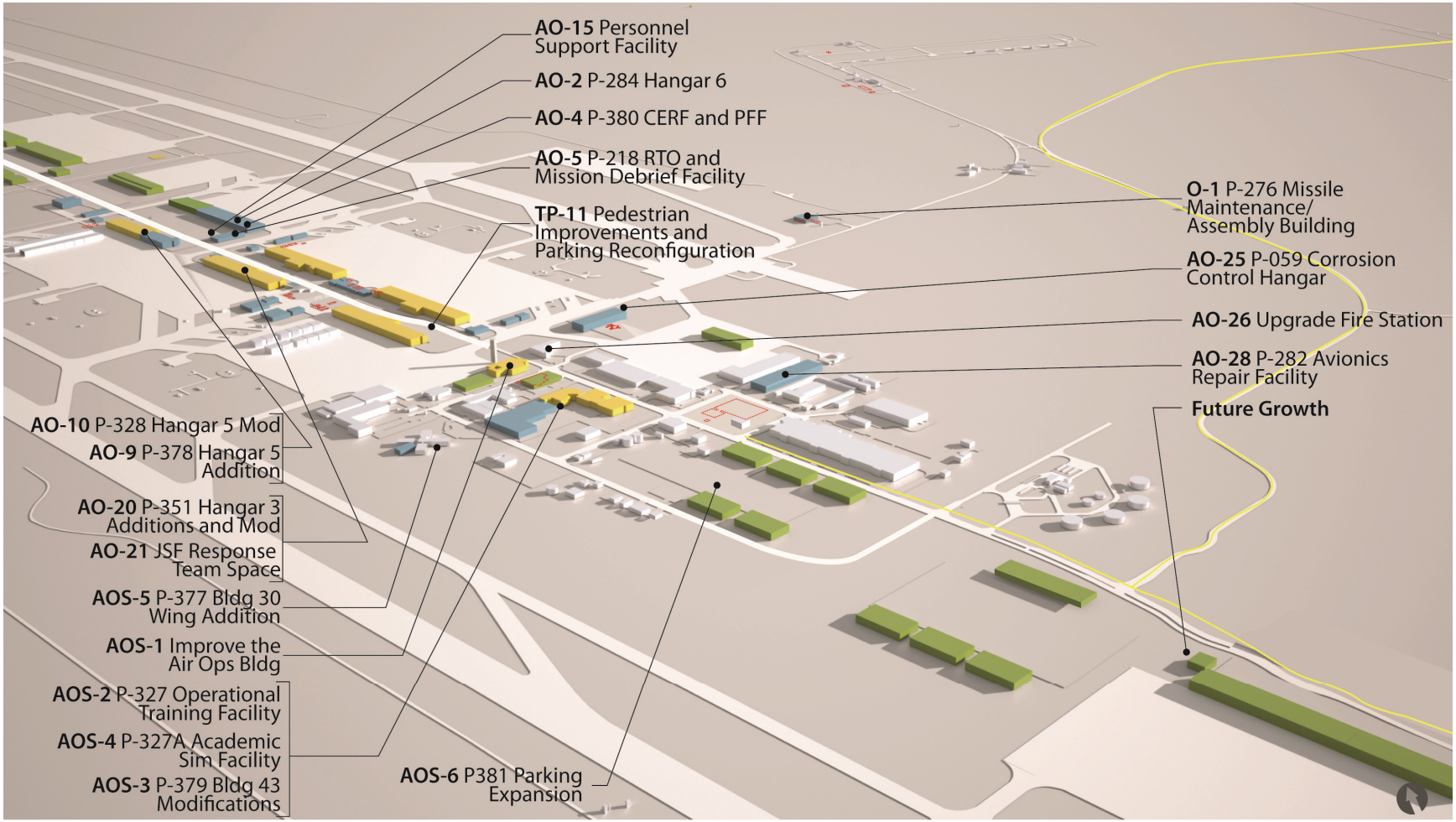

FIGURE ES-4. INSTALLATION IMPLEMENTATION PLAN (OPS SIDE)

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INTRODUCTION

BOTTOM LINE UP FRONT (BLUF)

- The Master Plan outlines a deliberate course of action for NAS Lemoore's future, framed by our mission, vision, and end state to which we are working.

WHY PLAN?

- Mission change is placing increased demand on existing resources and creating new requirements that cannot be met with existing facilities.
- Planning positions NAS Lemoore to seamlessly incorporate or foster the development of changing technologies and weapons systems.
- Provides a coordinated plan to act sensibly and focus on cost-conscious solutions.

Compass rose outside of main galley

Naval Air Station (NAS) Lemoore (NASL) was commissioned in 1961 and remains the Navy's newest, largest, and only West Coast Master Jet Base. The Installation's principal mission is to support Strike Fighter Wing, U.S. Pacific Fleet and its mission to man, train, and equip West Coast Strike Fighter squadrons.

NAS Lemoore's last Master Plan was completed in 1992. Since that time the number of assigned aircraft and personnel has increased, there have been a variety of new projects executed, and many of the Installation's original facilities and infrastructure have continued to age. All of these factors are driving the need for an updated Master Plan that allows NAS Lemoore to correct current deficiencies while positioning the Installation to respond to anticipated future conditions.

PLAN PURPOSE

The Installation Master Plan identifies a logical and effective long term development and management plan that improves mission and operational capacity. It captures current and projected mission requirements, identifies ongoing and planned project initiatives, and outlines the courses of action (COAs) that will provide NAS Lemoore with clear guidance to address both functional and fiscal challenges and constraints.

Issues and considerations that are driving the need for an updated Master Plan include:

- NAS Lemoore is anticipating arrival of the initial F-35C Joint Strike Fighter (JSF) in August 2016. The transition to the F-35C will increase loading by 30 aircraft and 2,320 persons (751 military, contractor/civilian personnel and 1,569 dependents).
- Strike Fighter Realignment will relocate three F/A-18 E/F squadrons to NAS Lemoore and transition existing F/A-18 C squadrons to F/A-18 E/F squadrons, increasing personnel (15%) and aircraft loading.
- The San Joaquin Valley population is expected to grow from 3.3 million to more than 7 million by 2040. With growth come challenges.
- A large portion of NAS Lemoore's facilities and infrastructure are original to the Installation's construction and in need of replacement or recapitalization.
- Constrained budgets have put an emphasis on finding non-traditional funding methods for facility improvement.
- Circulation and parking are being impacted by the standup of Post 3 Alpha (3A), and reduced parking around hangars due to security requirements.

PLANNING GUIDANCE

Unified Facilities Criteria (UFC) 2-100-01, *Installation Master Planning*, was released in May 2012 and provides a previously unavailable level of guidance for master planning at Department of Defense (DoD) installations. The UFC includes an overview of the elements that should be captured in the Master Plan, as a well as a blueprint for the master planning process. Strategies are identified below.

UFC PLANNING STRATEGIES

- Sustainable planning
- Natural, historic, and cultural resource management
- Healthy community planning
- Defensible planning
- Capacity planning
- Area development planning
- Network planning
- Form-based planning
- Facility standardization
- Plan-based programming

PLAN GOALS AND OBJECTIVES

Per UFC 2-100-01, a successful Master Plan shall accomplish the following.

a. Provide timely and correct planning information and real property support for installation missions, and support informed decision-making.

b. Promote cooperative and interactive intra- and inter-service and inter-governmental relationships.

c. Incorporate infrastructure assurance and anti-terrorism considerations.

d. Incorporate environmental planning to identify environmental impacts and protect and enhance natural, cultural, and environmental resources while supporting mission requirements.

e. Support and encourage sustainable and energy-efficient development.

f. Provide scope for all programs involving real property acquisition, design, and construction; real property management and operation; real property facility utilization and accounting; real property sustainment (maintenance and repair); and disposal of land and facilities.

Control Tower

Flightline

g. Maintain an accurate audit trail of master planning and real property decisions.

h. Ensure efficient and compatible land use (identifying and respecting natural and man-made constraints) and maximize facility utilization.

i. Provide input to the privatization of family housing, utilities, and services.

j. Sustain ranges and training areas to meet training and testing missions on a consistent and long-term basis.

k. Identify resource requirements directly and indirectly associated with real property sustainment and development.

l. Protect an installation's long-term viability by providing capability for growth, expansion of requirements, and flexible facility and land-use decisions that can accommodate changes to mission and/or users.

m. Encourage policies and interaction with the local community to avoid encroachment, and maximizes opportunities for joint use, while preserving mission capability and growth potential.

n. Support Federal energy mandates.

o. Help installations create more connected and visually pleasing environments by coordinating development, removing clutter, enforcing consistent architectural themes, creating appropriate pedestrian and vehicle circulation patterns, and focusing attention to installation appearance, which can enhance quality of life and contribute to the overall mission.

p. Inform and be informed by related plans at each installation, to include energy plans, utility capacity plans, range and training plans, anti-terrorism (AT) plans, integrated cultural and natural resource plans, sustainability plans, and transportation plans.

q. Support mitigation of environmental hazards and encroachment as well as effective integration of AICUZ and RAICUZ constraints and mission synergy.

METHODOLOGY

The development of this Master Plan was a collaborative effort between the host command, NAS Lemoore planners, and tenants. It was a multi-phased planning process that included:

1. BACKGROUND REVIEW AND ANALYSIS

The purpose of the planning analysis was to summarize existing facility assets, review current and projected mission requirements, and review ongoing and planned project initiatives, all of which help identify and determine viable COAs in the Master Plan Development phase.

The existing conditions summary is a compilation of data gathered from field investigations, stakeholder interviews, existing studies and reports, review of existing Geographic Information Systems (GIS) data, and internet Naval Facilities Assets Data Store (iNFADS) data. Contents include narrative and graphics which relate to existing manmade and natural conditions and constraints; existing structures and infrastructure; and a description of surrounding areas as well as an understanding of functional and operational needs at NAS Lemoore.

2. VISIONING

The vision, goals, and strategies for NAS Lemoore were developed through an analysis of existing conditions and working with stakeholder groups. A number of open houses and workshops were held with stakeholders to validate the elements of the vision and help prioritize strategies.

3. MASTER PLAN DEVELOPMENT

Master Plan Development involved evaluation of data and information gathered during background review and visioning. Emphasis was placed on conditions that impact current and future physical development and operations.

Best practices for sustainable design and development have been considered in the following areas:

- Land use
- Vehicular, bicycle, and pedestrian circulation
- AT/FP and spatial character
- Destinations for living, working, and recreation
- Landscape, open space, and natural areas

Alternative scenarios for Installation development were identified and evaluated for efficiency, mission attainment, and sustainability principles. These scenarios were presented to stakeholders for refinement into the preferred plan.

The Master Plan is coordinated with and updates relevant existing information provided by the following studies:

- Navy Region Southwest (NRSW) Regional Integration Plan (RIP)
- Activity Overview Plan (AOP)
- Installation Appearance Plan (IAP)
- Integrated Natural Resource Management Plan (INRMP)
- Airfield Redevelopment Plan 2012 (ARP)
- Joint Strike Fighter Strategic Infrastructure Plan (JSFSIP)
- iNFADS and Installation GIS information
- Air Installations Compatible Use Zones (AICUZ)
- Joint Land Use Study (JLUS)
- San Joaquin Valley Blueprint
- 2035 Kings County General Plan
- 2010 Fresno County General Plan
- City of Lemoore 2030 General Plan

Development of the Master Plan included the following tasks:

- Kick-off, site visits, stakeholder interviews, and workshops
- Existing Conditions Report
- Draft Master Plan
- Pre-final and Final Master Plan and Briefs

HOW THIS DOCUMENT IS ORGANIZED

This Master Plan is organized into three primary sections to address key elements that support facility management decision making in both the short- and long-term.

SECTION 1: INTRODUCTION

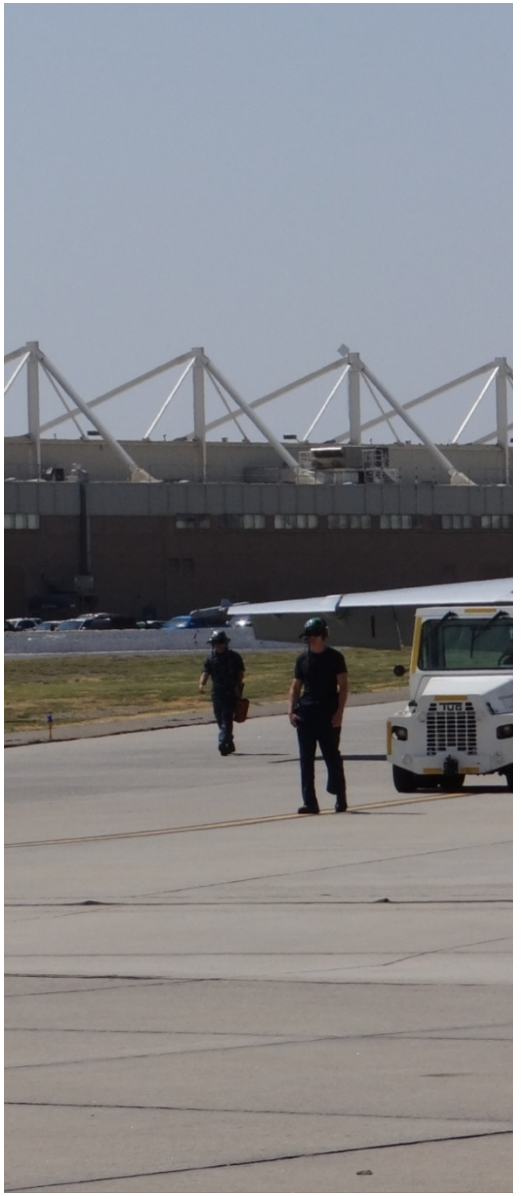
An overview of NAS Lemoore's context, setting, commands, and loading.

SECTION 2: CONSIDERATIONS

A description of the natural, manmade, and operational considerations that have the potential to limit land use development and operational capabilities at NAS Lemoore.

SECTION 3: COMPREHENSIVE PLAN

- Master Plan Vision
- Installation development potential
- Area Development Plans for each district
- Network Plans



Line crew on the flightline

NAS LEMOORE MISSION

NAS Lemoore is the West Coast Master Tactical Air (TACAIR) Base and supports critical Fleet Readiness Center West (FRC-W) avionics for operational units in the Pacific Theater (NRSW 2011). The primary mission when NAS Lemoore was commissioned in 1961 was to support carrier fleet squadrons, and 50 years later that mission remains unchanged: to man, train, and equip West Coast Strike Fighter squadrons. The Installation has been home to the A-1 Skyraider, A-4 Skyhawk, A-7 Corsair, and F/A-18 Hornet before being selected as the West Coast site for F/A-18 E/F Super Hornets in 1998.

NAS Lemoore Main Gate, 1958

LOCATION

NAS Lemoore is centrally located in California's San Joaquin Valley, with San Francisco approximately 150 miles to the northwest and Los Angeles 200 miles south. The majority of the Installation falls within Kings County, with a small portion of real estate falling in the southwest portion of Fresno County. Areas surrounding NAS Lemoore are defined primarily by agricultural production. The San Joaquin region alone produces more in farm sales than any other individual state in the Country.

Interstate 5 is 20 miles to the west and is a major north/south transportation corridor. The nearest community is the City of Lemoore, population 25,000, approximately seven miles to the east. Hanford is the County seat for Kings County and is located 15 miles east of the Installation. Fresno is the largest metropolitan area in the vicinity with a population of 500,000 and is located 40 miles to the north.

NAS Lemoore's central location within California and NRSW facilitate easy access to both land and sea ranges, as well as Fleet operations occurring in San Diego. The location also provides personnel with convenient access to recreational destinations, including San Francisco, Los Angeles, and the Sierra Nevada Mountains. See Figure 1 on Page 8.

NAS LEMOORE BY THE NUMBERS

- 18,784 acres owned by the Navy
- 12,776 acres outleased for agricultural production
- 11,020 acres of privately owned land under flight safety air easement (restricts use to agricultural production)
- 12,075 personnel (2013), including 13,339 (2030) dependents and civilian employees
- 251 aircraft (2013), 267 (2030)
- 4.1 million square feet in facility assets (not including 3.0 million square feet of PPV family housing)
- Two 13,500 foot long runways
- 1.8 million square yards of airfield pavement
- $2.6 billion in assets
- Over $1.0 billion contributed to the local economy annually
- 1,630 family housing units
- 1,826 single Sailor beds

REAL ESTATE

NAS Lemoore consists of three primary developed areas, including the Operations (Ops) Side, Administration (Admin) Side, and Family Housing Area. Admin and Family Housing are immediately adjacent and located within the same fenceline. These areas contain personnel and family support functions, as well as mission support activities that do not require a location on the flightline. The Ops Side is located approximately five miles to the north and within a separate perimeter fence. Two 13,500 foot long parallel runways, hangars, aircraft maintenance shops, supply, and other activities directly supporting the primary mission are located at Ops, along with a limited number of personnel support functions. A Munitions Area is located immediately to the east of the Ops Side.

In total, the Navy owns 18,784 acres of land, including approximately 4,100 acres at the Ops and Munitions Areas and 1,450 acres at the Admin Side/Family Housing Area (see Figure 2).

AGRICULTURAL OUTLEASES

NAS Lemoore operates approximately 53 agricultural outleases on 12,776 acres of its total land holdings, with 16 lessees (see Figure 2).

SAFETY AIR EASEMENTS

11,020 acres to the west of the Installation are under flight safety air easements managed by Naval Facilities Engineering Command (NAVFAC) Southwest, which allows for agricultural uses but precludes development. The easements include a provision that no structure is more than 25 feet in height and that no permanent living quarters be built. The Planning Commissions of the Counties of Kings and Fresno have also established a three mile wide greenbelt buffer zone around NAS Lemoore to alleviate the potential for urban development near the Installation.

NAS Lemoore's Admin Side, Enterprise Avenue

MILITARY INFLUENCE AREA

The Military Influence Area (MIA) extends well beyond the Navy's property line and is approximately 614 square miles (see Figure 2). The MIA is the geographic area where military operations may impact local communities, and conversely, where local activities may affect the military's ability to carry out its mission. The boundary is configured to follow geographical land use boundaries, such as roads, land features, and major waterways. Development within the MIA should receive special consideration by the overseeing planning agency and an extra level of coordination with NAS Lemoore to ensure compatibility with the mission and operations.

OUTLYING AREAS

The NAS Lemoore Forest Service Special Area (FSSA) includes several properties totaling approximately 9,165 acres in Tulare County, California in the Sequoia National Forest (see Figure 1). Originally designated for the Search and Rescue (SAR) Unit to conduct search and rescue survival training, the area has not been used for such activities in the recent past. The FSSA is part of the southern portion of the Giant Sequoia National Monument.

The Navy also uses the Coalinga Hills SAR Training Area, located approximately 30 miles west of NAS Lemoore.

FIGURE 1. REGIONAL CONTEXT

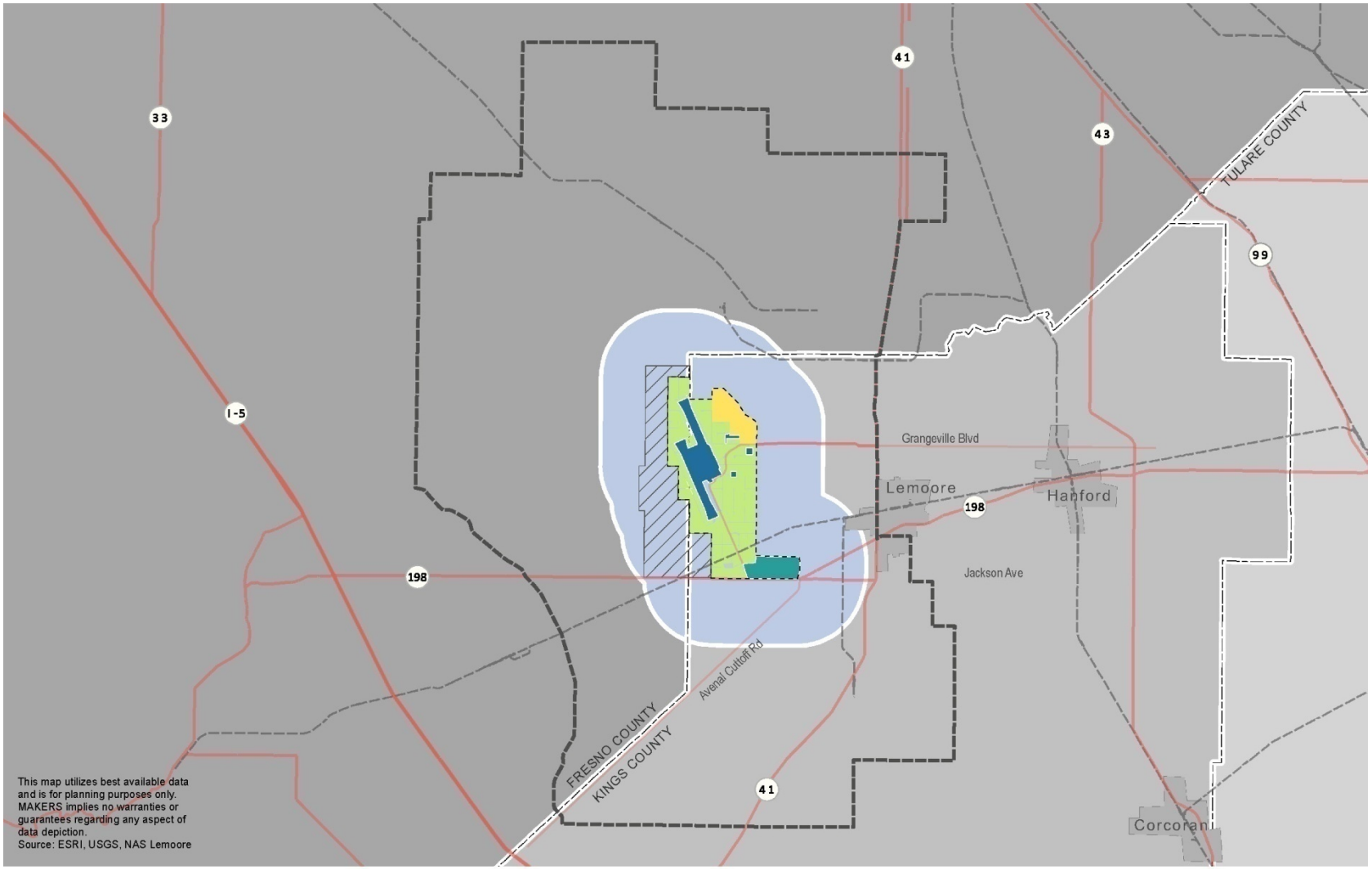


FIGURE 2. LOCAL CONTEXT

PERSONNEL LOADING

NAS Lemoore supports military personnel, dependents, DoD civilians and contractors, transient personnel associated with training activities, and military retirees or disabled veterans who rely on support functions like the Naval Hospital (NAVHOSP), Naval Exchange (NEX), and Commissary. Demographics are summarized in Table 1 and reflect the realignment of Strike Fighter (VFA) squadrons, which will bring two additional squadrons to NAS Lemoore by 2016, and the homeporting of the F-35C.

Table 1. Demographics (2030)

Population	Loading
Military personnel[1]	6,415
Dependents[2]	4,100
DOD civilians and contractors[1]	1,560
Subtotal	12,075
Military retired or disabled veterans[2]	8,713
Transient personnel (training/detachments)[2]	23,456
Subtotal	32,169
Total	**44,244**

1. *Source: US Navy F-35C West Coast Homebasing Draft EIS, February 2013*
2. *Source: NAS Lemoore Demographics presentation, December 6, 2010*

AIRCRAFT LOADING

In addition to homeported F/A-18 Super Hornets, NAS Lemoore is also home to a limited number of MH-60 helicopters flown by the SAR Unit. Projected aircraft loading is summarized in Table 2 below and reflects 17 operational VFA squadrons following realignment in 2016 and the anticipated arrival of F-35C at NAS Lemoore.

Table 2. Projected aircraft loading (2030)

Aircraft	Squadrons	Loading
F/A-18 E (Operational Sqd.)	4	48
F/A-18 F (Operational Sqd.)	6	72
F/A-18 E/F (Fleet Replacement Sqd.)	1	60
F-35C	7	70
F-35C (Fleet Replacement Sqd.)	1	30
Total Fixed Wing		280
MH-60 (Search and Rescue Unit)	1	4
Total Aircraft		**284**

Sources: US Navy F-350 West Coast Homebasing Draft EIS, 2013; CSFWP 2014; NAS Lemoore

FLIGHT OPERATIONS

Squadrons are projected to conduct 159,400 flight operations, or sorties, in 2015, which include all departures, arrivals, and pattern operations (DoN 2013). This represents a significant reduction from the 2004 peak of 240,000 flight operations (DoN 2010). NAS Lemoore Air Operations estimates that up to 500,000 flight operations could be conducted with current facilities. Typical operations involve two pairs of aircraft operating simultaneously.

The Navy and California Air National Guard initiated the establishment of a new Special Use Airspace (SUA) in 2008 consisting of a Military Operations Area (MOA) and Air Traffic Controlled Assigned Airspace (ATCAA) at NAS Lemoore. The airspace is divided into five sectors and enables Navy squadrons at NAS Lemoore and the California Air National Guard to meet mandated U.S. DoD training objectives. Aircraft also utilize the following SUA in the vicinity of NAS Lemoore: R-2508 (China Lake Complex), R-2524 (Superior Valley Range), Lemoore MOA, R-2513 (Hunter MOA), and numerous military training routes (MTRs). See Figure 3.

The SAR Unit will conduct high altitude SAR training at sites in the nearby Sequoia National Forest east of NAS Lemoore and in Coalinga Hills to the west.

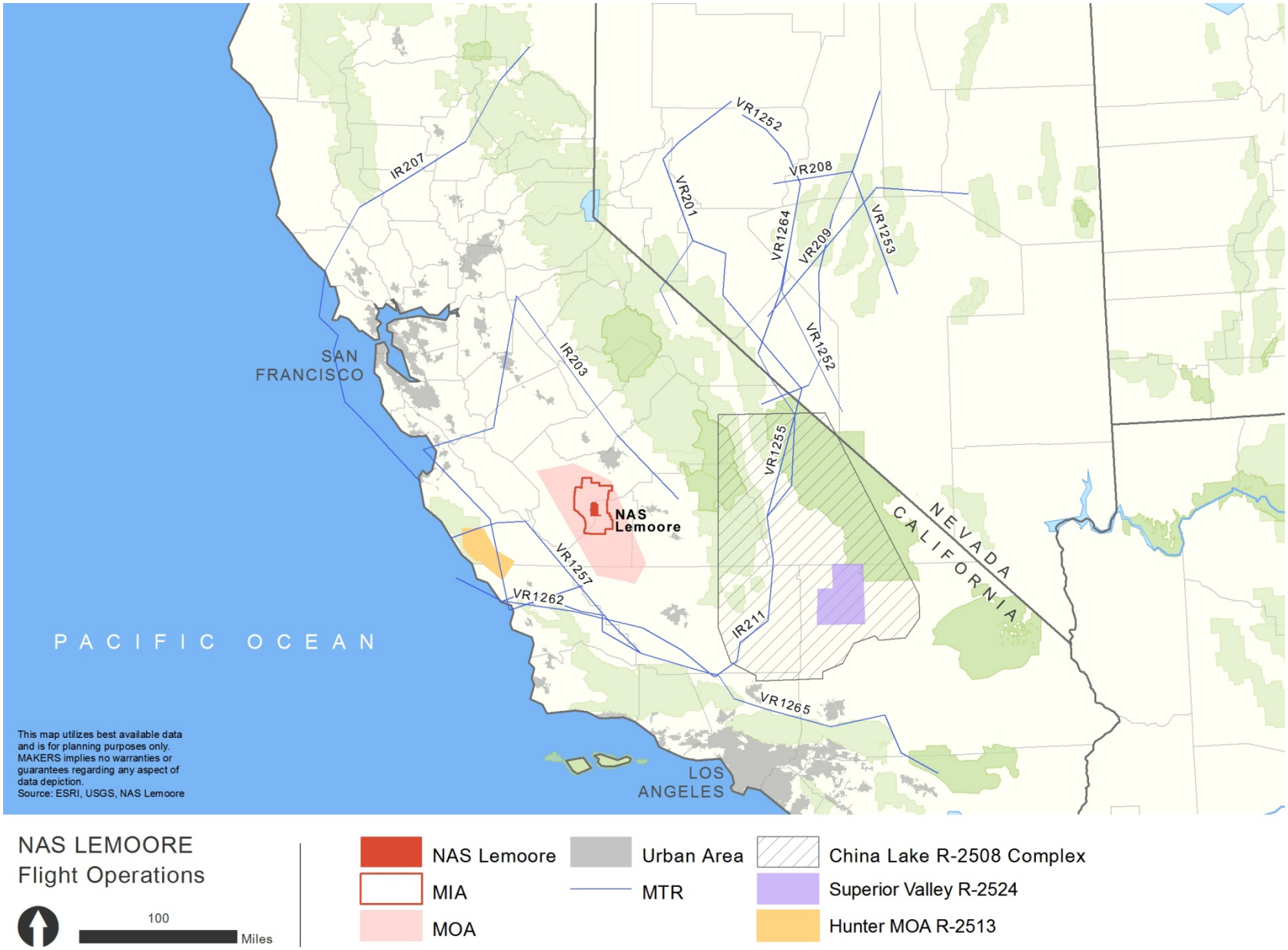


FIGURE 3. TRAINING RANGES AND MILITARY TRAINING ROUTES

TENANT COMMANDS

Table 3 below provides an overview of the major tenant commands operating at NAS Lemoore. Loading is projected to FY 2016 and includes the arrival of two new VFA squadrons as part of Strike Fighter Realignment. NAS Lemoore hosts tenant commands with facilities and operational support to fulfill their primary missions to man, train, and equip west coast Strike Fighter squadrons, as well as a number of other missions located at the Installation. The NAS Lemoore host command population includes: 248 military, 425 civilians, and 29 contractors. Of the tenant commands at NAS Lemoore, approximately forty are Navy commands while the other 20 are supporting commands.

Table 3. NAS Lemoore major tenant commands

Tenant	Mission	2013 Loading
ASTC Aviation Survival Training Center	Provides survival training designed to maximize the performance and survivability of U.S. and Marine Corps aircrew.	16 Military
CBMU 303 Construction Battalion Maintenance Unit 303	When deployed, provides construction and maintenance support of advanced bases and fleet Naval Hospitals. When not deployed, conducts construction readiness training projects at shore activities. CBMU 303 is scheduled to transfer from NAS Lemoore in October 2014.	53 Military
CNATTU Center for Naval Aviation Technical Training Unit	Produce F/A-18 aviation maintenance professionals.	111 Military 24 Civilian 3 Contractor
CSFWP Commander, Strike Fighter Wing Pacific	Conducts primary mission by providing combat-ready Strike Fighter squadrons to the Fleet. Currently supports all F/A-18 operational squadrons at NAS Lemoore.	61 Military 73 Civilian 33 Contractor
CVW Carrier Air Wings 2, 9, 11, 14 (stands up in FY 16), and 17	Performs primary mission with command and control functions for the various aviation squadrons that are assembled for deployable carrier air wings.	132 Military
DeCA Defense Commissary Agency	Sells groceries and household goods to military personnel, retirees, and their families at NAS Lemoore.	47 Civilian
DLA Defense Logistics Agency	Provides a full spectrum of logistics, acquisition, and technical services. Items provided include food, fuel, uniforms, medical supplies, construction equipment, and spare parts.	30 Civilian

Building 1, a decommissioned control tower, displays insignias of tenant commands operating at NAS Lemoore

Table 3. NAS Lemoore major tenant commands (continued)

Tenant	Mission	Current Loading
FRC-W Fleet Readiness Center West	Provides direct intermediate/depot level maintenance support to operational squadrons at NAS Lemoore.	615 Military 18 Civilian 19 Contractor
MWSS 473 Marine Wing Support Squadron 473	Provide all essential Aviation Ground Support requirements to a designated fixed-wing and rotor-wing components of an Aviation Combat Element and all supporting or attached elements of the Marine Air Control Group.	28 Military 150 Reservist
NAS Lemoore SAR Unit NAS Lemoore Search and Rescue Unit	Provides search and rescue capabilities over open water and inland training ranges.	26 Military 41 Contractor 4 MH-60
NAVHOSP Naval Hospital Lemoore	Provides medical care for all active duty, dependents, retirees, and civilian employees at NAS Lemoore.	72 Military 134 Civilian 13 Contractor
NAVSUP Naval Supply Systems Command , Fleet Logistics Center Lemoore	Manages supply chains, inventory, and logistical support for Navy aircraft, surface ships, submarines, and their associated weapons systems and fueling needs.	1 Military 64 Civilian
NEX Navy Exchange	Provide retail and food services and support Navy quality of life programs.	206 Civilian
NMC Navy Munitions Command	Directly supports the primary mission with ammunition management and explosives safety for all aviation operations.	60 Military 15 Civilian
NOSC Navy Operational Support Center	Responsible for the training and administration of Reserve Sailors.	17 Military 1 Civilian 31 Contractor
PSD Personnel Support Detachment	Provides personnel support in the areas of pay, transportation, relocation, ID cards, travel claims, advancements, and reserve support.	1 Military 28 Civilian 10 Contractor
NAVFAC Naval Facilities	Maintains buildings and roads; provides utilities; oversees the construction of new infrastructure; plans for future requirements; prioritizes work based on fiscal constraints; and ensures compliance with environmental laws and regulations.	4 Military 185 Civilian 8 Contractor
SFWSPAC Strike Fighter Weapons School Pacific	Teach graduate level tactics, techniques, and procedures to Pacific Fleet VFA squadrons, including mission planning, tactics, weapons systems, and ordnance handling.	56 Military 5 Civilian 6 Contractor

Sources: NAS Lemoore, 2012; NAS Lemoore Airfield Redevelopment Plan, 2013

Table 3. NAS Lemoore major tenant commands (continued)

Tenant	Mission	Current Loading
VFA Strike Fighter Squadrons 2, 11, 14, 22, 25, 41, 86, 94, 97, 113, 136, 137, 146, 147, 151, 154, 192	Performs primary mission with mission ready aircraft squadrons.	3,781 Military 120 F/A-18 E/F 70 F-35C
VFA FRS VFA Fleet Replacement Squadron	Trains replacement air crews and maintainers for combat operations in both the single and two-seat Super Hornet. A second FRS will stand up with the anticipated arrival of F-35C.	571 Military 130 Civilian 60 F/A-18 E/F 30 F-35C

Sources: NAS Lemoore, 2012; NAS Lemoore Airfield Redevelopment Plan, 2013

Notes: VFA loading reflects Strike Fighter Realignment and the anticipated arrival of the F-35C. Loading is therefore based on 17 operational squadrons at NAS Lemoore, including ten F/A-18 E/F and seven F-35C.

VFA FRS aircraft loading reflects the anticipated arrival of the F-35C.

NAS Lemoore tenant commands are directly involved in the primary mission or support it in some way, as identified in Figure 4.

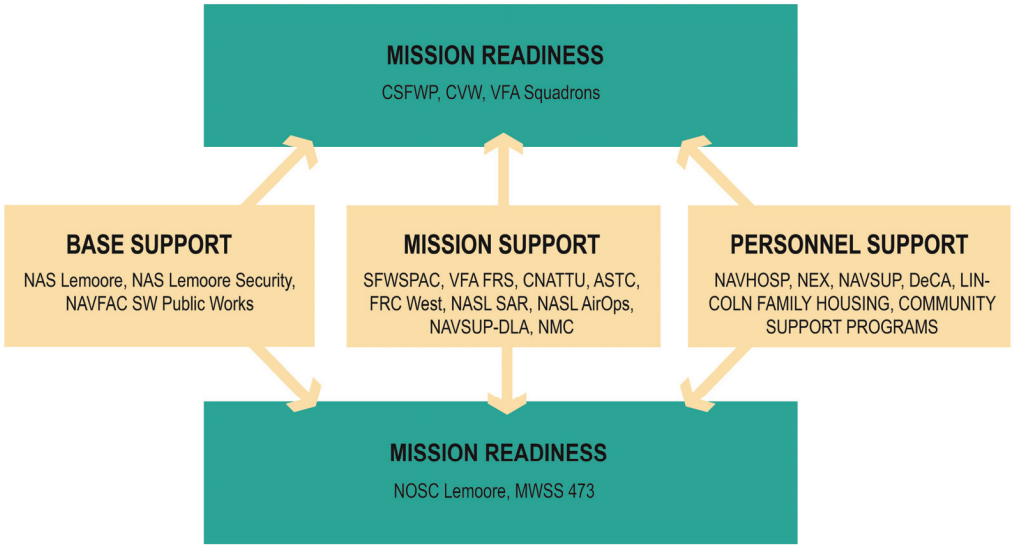


FIGURE 4. INTERFUCTIONAL RELATIONSHIPS DIAGRAM

LOCAL SETTING

POPULATION

The 2010 census identified the combined population of Kings and Fresno Counties as 1,083,000. Between 2000 and 2010 the counties populations grew by 18 percent and 16 percent respectively, which was faster than the State as a whole. Rapid population growth is expected to continue, with Kings and Fresno counties projected to grow by approximately 34 percent and 29 percent, respectively, from 2010 to 2020.

Government is the largest employer in Kings and Fresno Counties, with approximately 80,800 employees (22 percent) as of 2013. Other key industries include agriculture; trade, transportation, and utilities; education and health services; and manufacturing. (California Employment Development Department 2013).

CLIMATE

The San Joaquin Valley region is characterized by dry hot summers and moderate winters with low precipitation. These clear skies and rarity of low cloud cover throughout most of the year makes NAS Lemoore an ideal location for military flight operations. However, these conditions can be interrupted by periods of heavy fog during the rainy season. This atmospheric phenomenon commonly requires aircraft to operate under instrument flight rules.

The rainy season is typically from the beginning of November to the end of March, with occasional monsoon storms from the Gulf of California occurring mid-July through September. Average temperature and precipitation are illustrated in Figures 5 and 6.

ECONOMIC IMPACT

NAS Lemoore annually contributes over $1.0 billion to the local economy. In fiscal year (FY) 2008, NAS Lemoore employed 6,123 military and 1,477 civilian personnel (prior to Strike Fighter Realignment) with payrolls of approximately $557 million (DoN 2009a). Approximately 23,400 transient military and civilian personnel trained at NAS Lemoore in FY 2008, spending an average of 21 days. An economic impact assessment determined that payrolls, procurement contracts, installation expenditures, and military retirement and disability benefits resulted in an additional 4,542 jobs with labor income of approximately $161 million in Fresno and Kings Counties in FY 2008. Tax revenues generated from the economic activity at NAS Lemoore provided approximately $51.6 million to federal government entities and $51.7 million to state and local government entities in 2008 (DoN 2009a).

The growth in personnel numbers resulting in the arrival of the F-35C increases the direct annual income at NAS Lemoore by approximately $36.5 million.

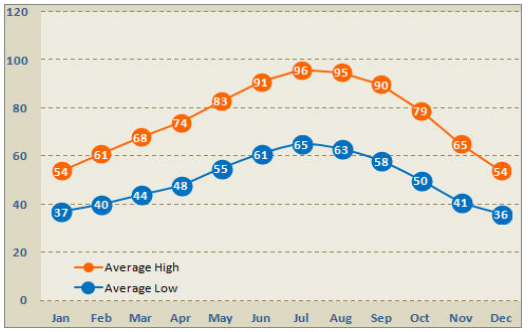


FIGURE 5. AVERAGE MONTHLY TEMPERATURE (FAHRENHEIT)

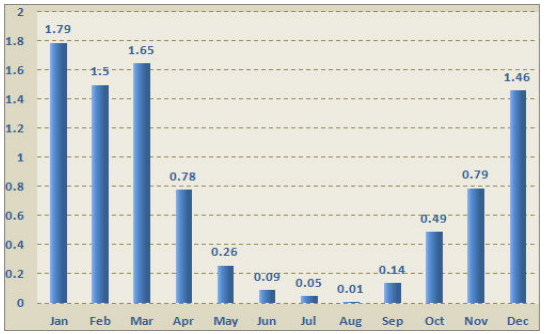


FIGURE 6. AVERAGE MONTHLY PRECIPITATION (INCHES)

Aircraft protection equipment provide weather protection for aircraft and maintenance crews on the flightline

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CONSIDERATIONS

The following natural, manmade, and operational considerations have the potential to limit redevelopment opportunities and operational capabilities at NAS Lemoore.

ENVIRONMENTAL

AIR QUALITY

NAS Lemoore is located within the San Joaquin Valley Air Basin (SJVAB), which ranks as one of the most polluted air basins in California due to its valley topography, temperature inversions that act as a lid on the valley, and proximity to pollution sources, including transportation corridors and agricultural activities (see Figure 7). The San Joaquin Valley Air Pollution Control District (APCD) indicates that the area is currently designated as a Federal nonattainment area for ozone – eight hour and particulate matter with a diameter less than 2.5 microns, meaning air quality is considered worse than the National Ambient Air Quality Standards for these pollutants (San Joaquin Valley APCD 2013). Current ambient air quality standards and valley attainment status are summarized in Table 4.

Emission sources at NAS Lemoore include various stationary sources, aircraft, and motor vehicles. Stationary sources include aircraft engine test cells, portable engines for generators and compressors, fuel storage and handling facilities, boilers, solvents and coatings used for aircraft maintenance, and gasoline stations. In addition to the above mobile and stationary air pollution sources, NAS Lemoore periodically conducts open burning for habitat management and to remove invasive and nonnative plant species as needed. While local governments address the mandatory reductions in emissions in their General Plans (and through California Environmental Quality Act compliance for projects), NAS Lemoore participates in emission reduction to meet Federal standards.

All emissions generated by NAS Lemoore are documented and must comply with State emissions permitting standards. NAS Lemoore purchases emission credits to comply with air quality standards; additional credits may be required to support new or expanded missions.

Table 4. San Joaquin Valley attainment status

	Designation/Classification	
Pollutant	**Federal**	**State**
Ozone - One hour	No Federal Standard	Nonattainment/ Severe
Ozone - Eight hour	Nonattainment/ Extreme	Nonattainment
PM 10	Attainment	Nonattainment
PM 2.5	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/ Unclassified	Attainment/ Unclassified
Nitrogen Dioxide	Attainment/ Unclassified	Attainment
Sulfur Dioxide	Attainment/ Unclassified	Attainment
Lead (Particulate)	No Designation/ Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Source: San Joaquin Valley Air Pollution Control District

TULE FOG

Heavy ground fog called 'tule fog' is a common winter occurrence in the San Joaquin Valley. The reduced visibility also creates safety concerns for personnel commuting from off-site and increases the risk of vehicle/ pedestrian accidents on-site.

SEISMICITY

NAS Lemoore is located within a region of known seismic activity. Although this portion of the California Trough does not contain fault lines, the mountain ranges on either side contain numerous active and inactive faults. The San Andreas Fault is located approximately 60 miles west of the Installation and the Owens Valley Fault group is approximately 80 miles to the east (see Figure 7). All facilities at NAS Lemoore must therefore meet specified seismic requirements.

SOILS

NAS Lemoore is located within the California Trough (Great Valley) Physiographic Section of the Pacific Province (USGS 2004). Soils within NAS Lemoore are from the Lethent series, as well as urban land. Lethent series soils are considered Prime and Important Farmland soils (NRCS 2009). Soils in and around NAS Lemoore are illustrated in Figure 8.

Due to the minimal number of Central Valley waterways that have outlets to the Pacific Ocean, the accumulation of salts and nutrients have become a major issue in the region. This increasing accumulation of salt in the region poses a threat to surface and groundwater quality within the Central Valley, as well as to the soils. The result of this continued impairment is the potential for the loss of freshwater as well as decreases in viable prime agricultural land and food production. The Central Valley Salinity Coalition for Long-Term Sustainability is currently working on long-term solutions for managing the salt and nitrate discharges that may contribute to the accumulation of salt in the region.

DUST ABATEMENT

Blowing dust is frequent at NAS Lemoore due to the semiarid climate, soil conditions, and wind patterns. Dense vegetative cover, such as agricultural crops, aids in preventing wind erosion and dust. In addition to being a foreign object debris (FOD) hazard, dust reduces visibility and increases the risk to aircraft operations. Naval flight regulations require that a pilot must have visibility of at 0.5 mile (0.8 km) to land. When dust reduces visibility below this limit, aircraft must land at an alternate airfield.

Coccidioidomycosis, known as "Valley Fever", is a common fungal infection, which has gained notoriety over the past decade due to the increased incidences and severity. It has become a significant public health concern in the San Joaquin Valley.

There has been an increase in the number and severity of coccidioidomycosis cases among NAS Lemoore personnel. The illness is caused by a fungus found in the soil and dirt. Inhalation of the spores infects the lungs and cause flu-like symptoms or pneumonia. The best way to reduce risk is to avoid breathing in dust or dirt around NAS Lemoore. (National Institutes of Health manuscripts Rachel U Lee, MD and Nancy F Crum–Cianflone, MD MPH, 2008 August.)

TOPOGRAPHY

NAS Lemoore is located in the San Joaquin Valley between the Sierra Nevada Mountains on the east and the California Coast Range on the west. The immediate landform is primarily flat, open, undeveloped lands and wildlife areas, irrigated agricultural fields, and the existing NAS Lemoore. The topography at NAS Lemoore is nearly level, with the elevation decreasing from 340 feet above mean sea level (MSL) in the southwest corner to about 310 feet above MSL in the northeast and southeast corner of the Installation.

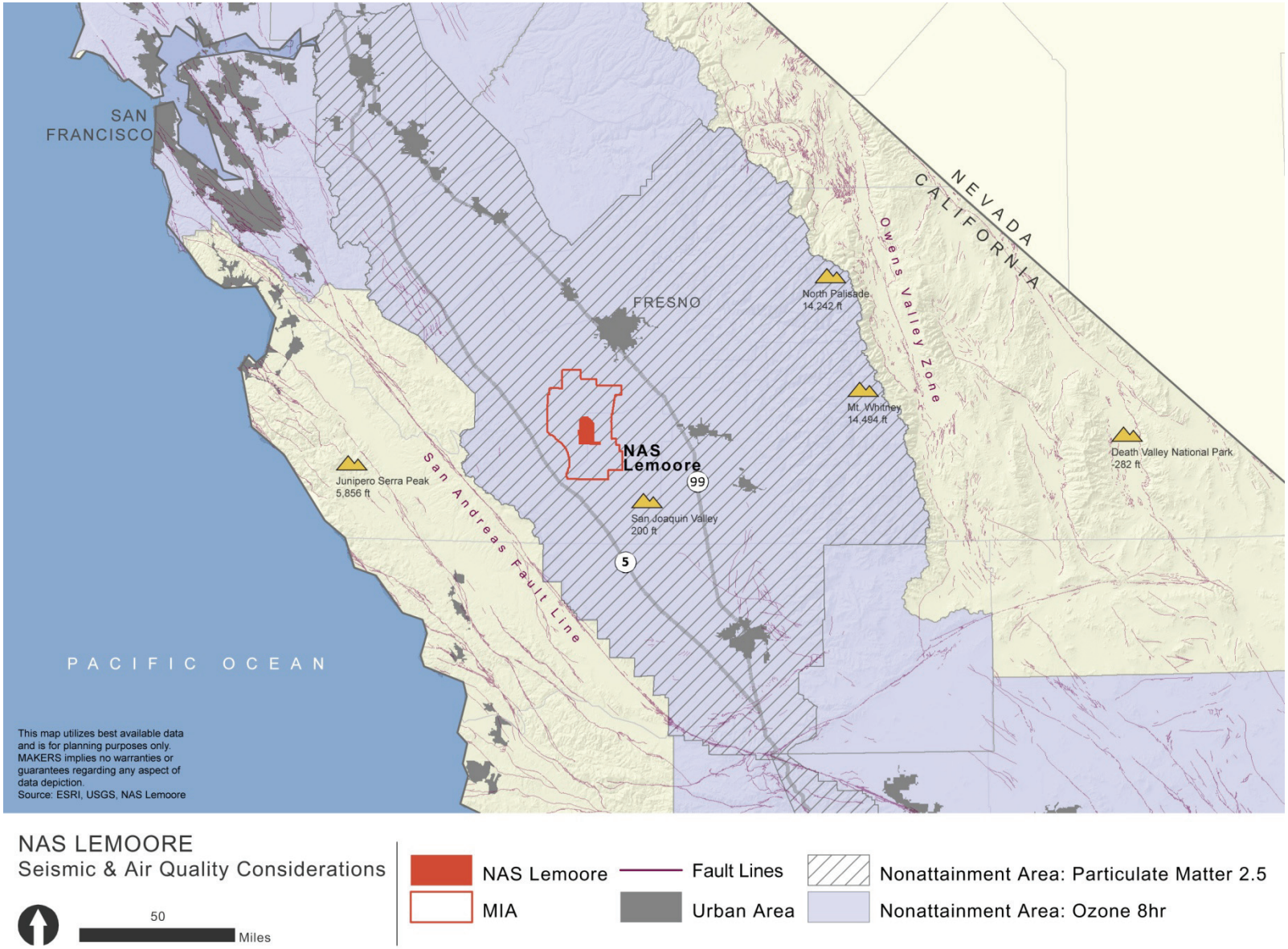


FIGURE 7. SIESMIC AND AIR QUALITY

HYDROLOGY

NAS Lemoore straddles the San Joaquin River and Kings River watershed in the Tulare Lake Hydrologic Region. NAS Lemoore is near the divergence of the Fresno Slough (San Joaquin River Watershed) and the North Fork of the Kings River. The Fresno Slough flows to the north towards the San Joaquin River drainage basin while the North Fork of the Kings River flows southward, eventually joining with the Clarks Fork and the South Fork of the Kings River before draining to Tulare Lake during large flood events.

The Tulare Lake Hydrologic Region overlies several freshwater aquifers ranging in depth from 2-3 feet to 150-200 feet below ground surface. The upper aquifer is highly saline-alkaline and is not suitable as a water resource due to its poor quality, while shallow clay sediments underlying the region limit local recharge to the deeper aquifers.

Groundwater and local surface water are not a primary source of potable water for NAS Lemoore or the surrounding communities. In the western valley area of the Tulare Lake Hydrologic Region, groundwater quality is often poor, and availability is highly variable. In portions of Kings County, elevated concentrations of boron, arsenic, and selenium have historically occurred in groundwater, affecting drinking water supplies (DoN 2001).

Flooding potential exists at NAS Lemoore due to the potential overflow of streams in the coastal range known as the Arroyo Pasajero, located to the southwest, east, and north. The natural 100-year floodplain for these streams lies north of the town of Huron and crosses State Route (SR) 198 immediately west of NAS Lemoore. Floodwaters drain to the Kings River by crossing NAS Lemoore (DoN 2001).

Federal Emergency Management Agency Flood Insurance Rate Maps confirm that the part of the Installation located in Fresno County contains High Risk (one percent annual chance; 100-year), and Moderate-to-Low Risk (0.2 percent annual chance; 500-year) flood areas. Although flood plain studies have not been conducted for NAS Lemoore lands that lie within Kings County, floodplain studies conducted to the east within Kings County suggest that several areas of the Installation in Kings County may be High Risk areas, including a portion between the Admin Side and Housing Area and the runways.

Hydrological conditions in and around NAS Lemoore are illustrated in Figure 8.

WETLANDS

Nearly all NAS Lemoore wetlands are associated with irrigated agriculture, primarily from Westlands Water District irrigation valves and ditches. All but two wetland areas are in engineered excavations. Five of the 43 inventoried wetlands are of sufficient size and permanence to be of significance to wildlife in the area. These are referred to as Sunset Lake wetland (within NRMA 2), East Resource Management Area wetland (within NRMA 1), parcels 55 and 56 wetland (within NRMA 3), main drainage ditch wetland, and north drainage ditch wetland (within NRMA 5). Wetlands are illustrated in Figure 8.

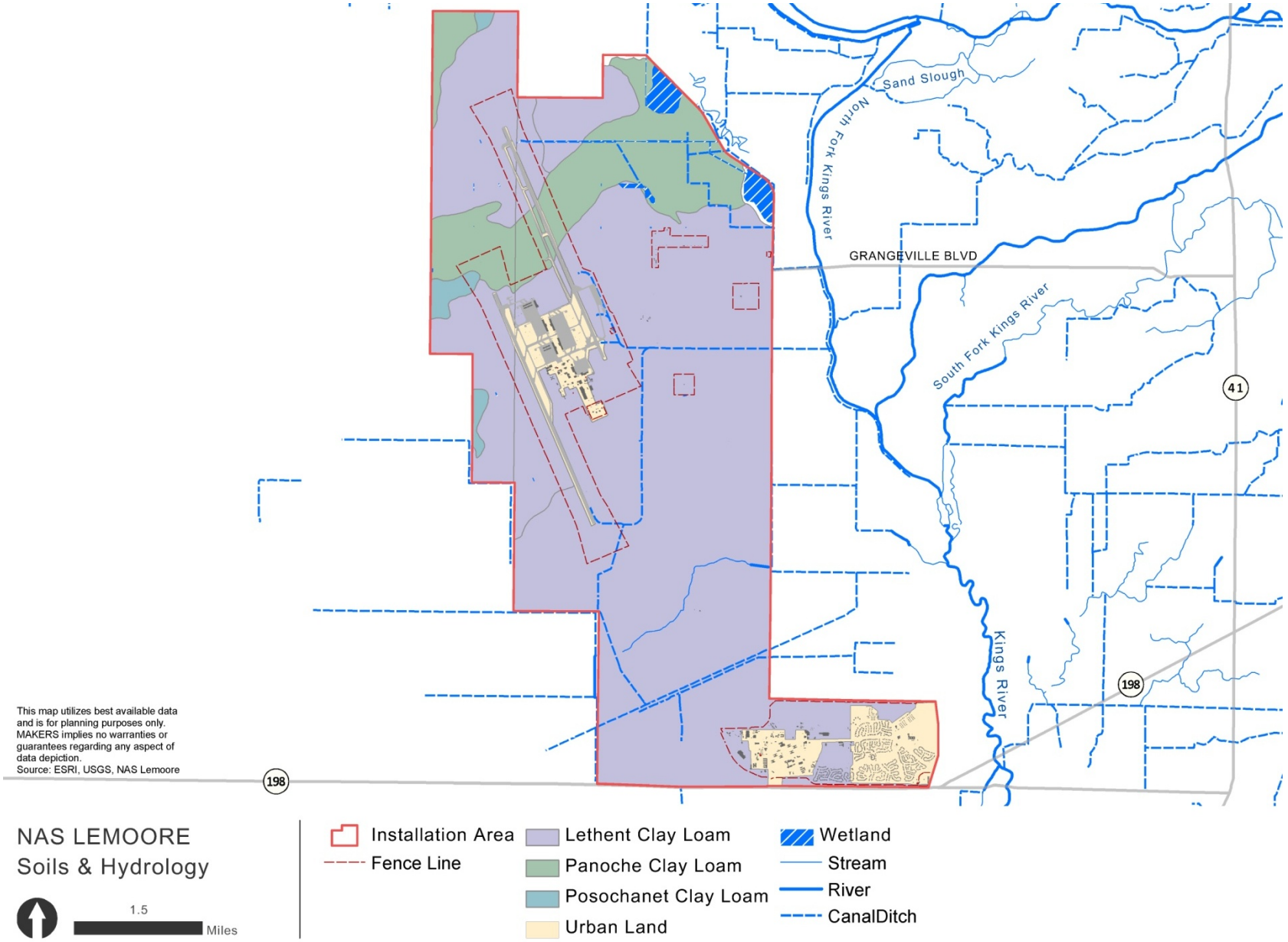


FIGURE 8. SOILS, HYDROLOGY, AND WETLANDS

VEGETATION

Biological Resource Surveys within NAS Lemoore and adjacent portions of Fresno and Kings Counties identified one federally listed plant species, the California Jewel-flower. Sensitive habitats also include native oaks and native trees associated with the Counties' rivers, creeks, and streams.

WILDLIFE

NAS Lemoore provides wildlife habitat for 183 native and migratory species, including endangered species and species of concern. The only federally listed species documented at NAS Lemoore include the San Joaquin kangaroo rat (federally and state endangered) and the California least tern (federally and state endangered), which has been observed as a transient and does not breed on NAS Lemoore. Three other federally listed species with potential to occur at NAS Lemoore include the San Joaquin Kit Fox, Buena Vista Lake Shrew, and Valley Elderberry Longhorn Beetle.

NAS Lemoore is also home to the largest nesting population of burrowing owls in the Central Valley. This population occurs almost entirely within the Ops Side and is actively managed.

San Joaquin Kangaroo Rat (source: Images © Mark A. Chappell; www.faculty.ucr.edu)

Burrowing Owl (source: © Ron Niebrugge, www.WildNatureImages.com)

NATURAL RESOURCE MANAGEMENT AREAS

Six Natural Resource Management Areas (NRMA) totaling 562 acres are managed for the benefit of wildlife and native plant communities at NAS Lemoore (Figure 9). These areas support wildlife viewing and other recreational activities, but otherwise development in and adjacent to the NRMAs is restricted. Table 5 provides a summary of the NRMAs.

Table 5. Natural resource management areas

NRMA	Size (acres)	Description
NRMA 1	164	Ephemeral wetland and grassland
NRMA 2	130	Wetlands and Sunset Lake
NRMA 3	12	Two water retention basins
NRMA 4	31	Grasslands
NRMA 5	106	Grassland and brushland; former motorcycle track
NRMA 6	90	Grassland, bractscale, and eucalyptus

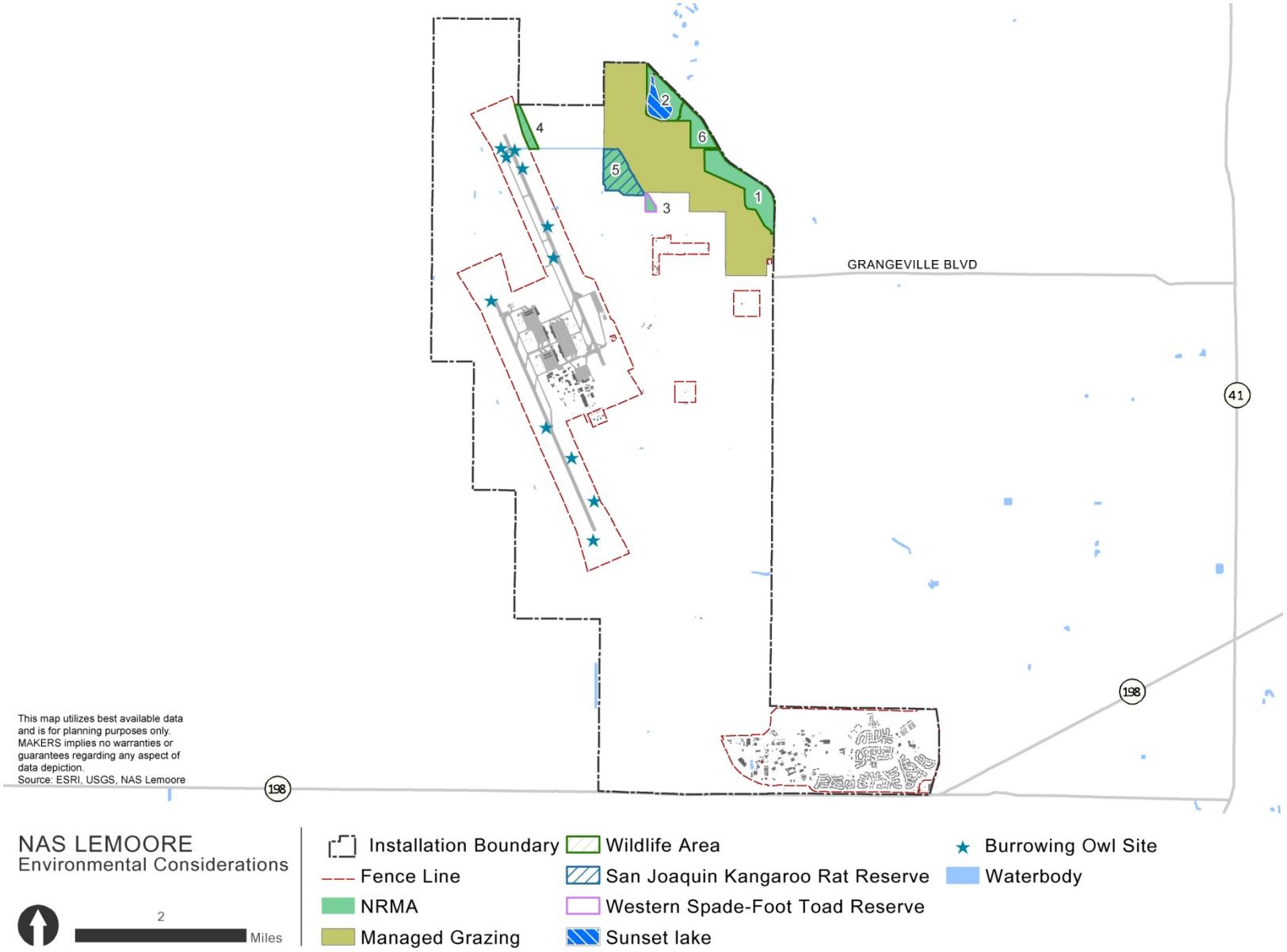


FIGURE 9. NATURAL RESOURCE MANAGEMENT AREAS

MAN MADE

INSTALLATION RESTORATION PROGRAM

Twenty Installation Restoration (IR) sites were identified at NAS Lemoore (Figures 10 and 11). Two of those sites were combined and nine have been closed, leaving ten active IR sites. Eight of the nine closed sites require no further action and can be used for any future military needs. The Navy is addressing contamination at the ninth closed site, a former hazardous waste underground storage tank, with ongoing remedial activities. Eight of the ten active IR sites are being addressed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), while the other two are being addressed according to state law and regulations for the release of petroleum. IR sites are illustrated in Figures 10 and 11 and summarized in Table 6.

LAND USE CONTROLS

Land use controls include fences, signs, and any other type of physical, legal, or administrative mechanism that restricts the use of, or limits access to, real property. Controls may be used to enhance security, limit access to environmentally sensitive areas, and protect personnel from contaminated or hazardous sites.

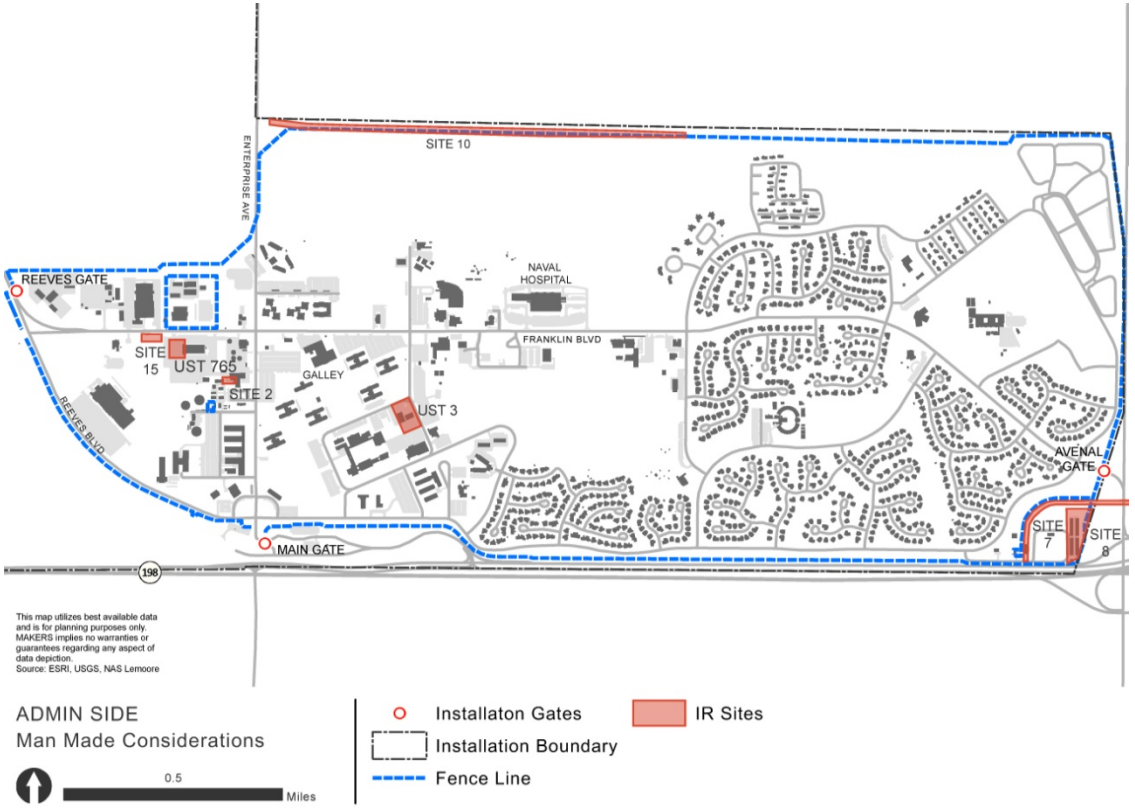


FIGURE 10. MAN MADE CONSIDERATIONS – ADMIN SIDE

Once complete, the Post 3A checkpoint and corresponding fenceline will impact access to the flightline. Fenced areas with limited access include the ordnance storage area, Ops Side fuel farm, and Marine Wing Support Squadron 473 (MWSS) compound on the Admin Side. IR sites exist on both the Admin and Ops Sides and have the potential to limit future development. See Figures 10 and 11.

Future Post 3A

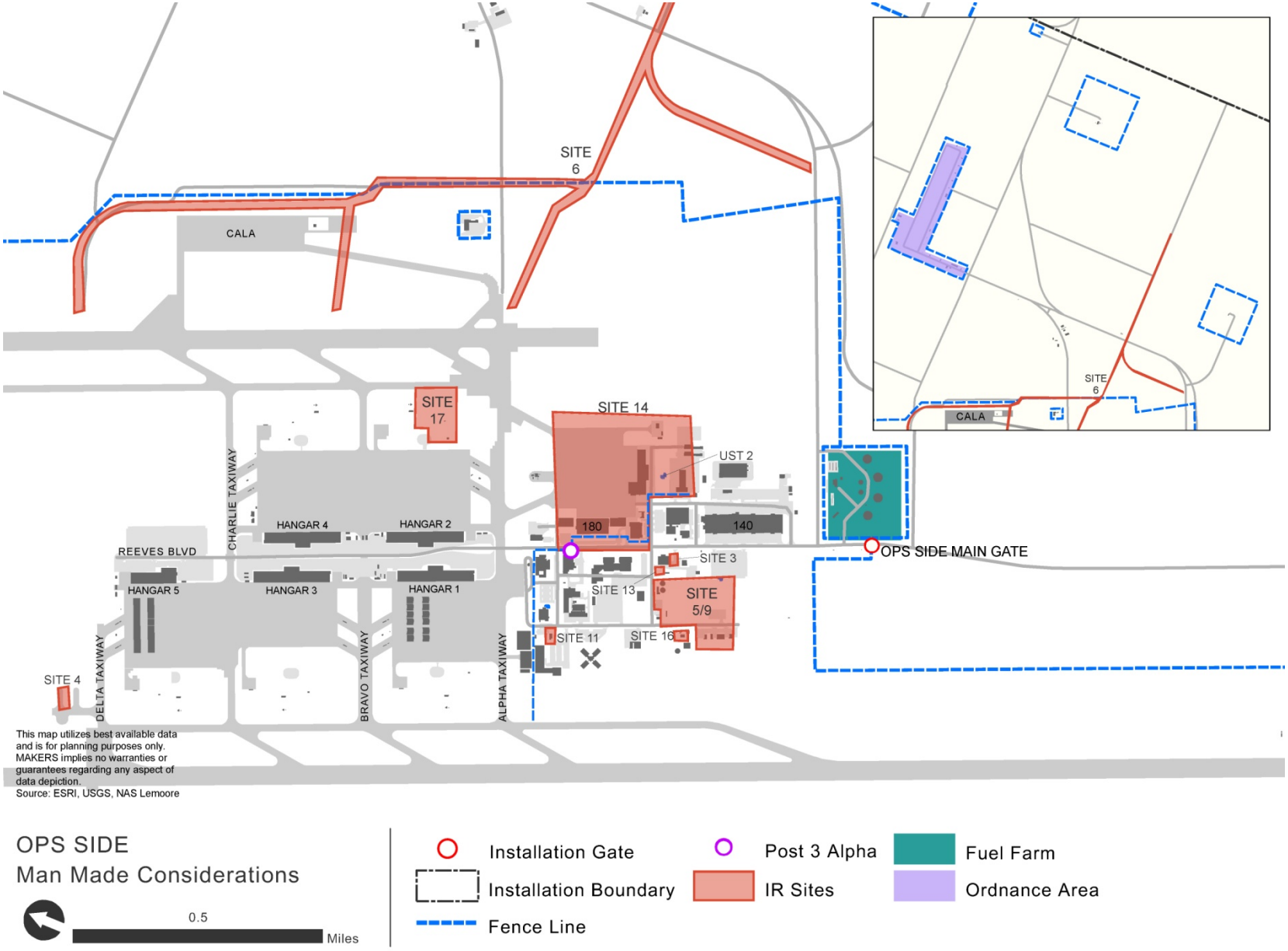


FIGURE 11. MAN MADE CONSIDERATIONS – OPS SIDE

Table 6. Installation restoration sites

Name	Key Problem	Status	Projected Clean-up Date and/or Land Use Controls
Site 1 – Landfill	Varied waste	Post Record of Decision	Landfill was capped in June 1997. Continued annual monitoring of landfill cap and monitoring wells for 30 years. Land Use Controls prohibit any permanent human occupancy.
Site 2 – Pesticide Rinse Area, Bldg. 752	Some contamination with pesticide rinsate	No further action	Site Closed with Record of Decision signed by NAS Lemoore Commanding Officer on October 30, 2012.
Site 3 – Pesticide Rinse Area, Bldg. 50	Low level arsenic in soil	Post Record of Decision signed Dec. 6, 1998	Land use controls for industrial use only.
Site 4 – Old Fire Training Area		No further action	Site Closed with Record of Decision signed by NAS Lemoore Commanding Officer on October 30, 2012.
Site 5/9 – Fire Fighting School, Sludge Drying Ponds, and NEX Gas Station	Fuel, chlorinated solvent plume	Remedial investigation	No determination yet. Will have at least Land Use Controls for industrial use only.
Site 6 – Operations Area Open Ditch		No further action	Closed June 26, 2006.
Site 7 – Housing Area Open Ditch		No further action	Closed June 26, 2006.
Site 8 - Housing Area Sludge Drying Beds	Chromium in soil and TCE in groundwater	Post Record of Decision Signed June 16, 1997.	Land Use Controls for industrial use only.
Site 10 - Pesticide Application Landing Strip		No further action	Closed Dec. 6, 1998.
Site 11 - Transformer Oil Spill, Bldg. 3		No further action	Closed June 26, 1997.
Site 12 - Transformer Oil Spill, Bldg. 468		No further action	Closed June 26, 1997.
Site 13 - Transformer Storage Area, Bldg. 50		No further action	Closed June 26, 1997.
Site 14 - Jet Engine Test Cell (Includes Underground Storage Tank [UST] 1, which is ongoing; and UST 2, which is closed)	Chlorinated solvents. Large amounts of groundwater and soil contamination	Remedial investigation addendum	Remedy not selected yet. Land Use Controls will be implemented for industrial use only.
Site 15 - Franklin Avenue Pesticide Rinse Area, Bldg. 756		No further action	Closed Dec. 6, 1998.
Site 16 - Sludge Beds, Blg. 65	Chlorinated solvent (TCE) and molybdenum in groundwater	Post Record of Decision Signed June 16, 1997	Land Use Controls for industrial use only.
Site 17 - JP-5 Pipeline Fuel Leak	Fuel	Corrective Action Plan completed in May 2011	As of 2012, removal of free product to the maximum extent practicable has been achieved and occasional monitoring will be continued to check for free product rebound.

Table 6. Installation restoration sites (continued)

Name	Key Problem	Status	Projected Clean-up Date and/or Land Use Controls
UST 3 - Administration Area NEX gas station	Leaked gasoline from older USTs under the current gas station	Investigation ongoing	Remedial Action Plan.
UST 765	Dissolved phase hydrocarbons	Monitoring completed	Regional Water Quality Control Board concurred with No Further Action assessment. RWQCB will grant closure after all groundwater monitoring wells are abandoned. Abandonment anticipated in 2013.

Source: Draft Integrated Natural Resource Management Plan, Naval Air Station Lemoore (2013)

NEX gas station, IR site UST 3

FRC-W, site 14

OPERATIONAL

AIRFIELD SAFETY

The Air Installation Compatibility Use Zones (AICUZ) program is used to prevent incompatible development in areas that would expose the public to potential health and safety hazards associated with normal aircraft operations, such as noise, and in areas that would jeopardize pilot safety and operational compatibility of NAS Lemoore. The AICUZ establishes guidelines and provides recommendations for land use planning and policies that affect military installations and surrounding communities.

Potential aircraft mishaps are a key safety concern associated with military training flights. Accident Potential Zones (APZ) and Clear Zones identify the probable impact area if an accident were to occur. Intended to serve as guidelines only, APZs function to heighten the public's awareness of areas where higher risks occur beyond an installation's boundary. They also help local governments identify where to direct zoning regulations and land use standards designed to reduce potential conflicts between airfield operations and civilian populations. In general, an accident is more likely to occur in the Clear Zone at each end of the runway than either of the APZs.

All Clear Zones and the majority of the APZ 1 for both runways are contained within the Installation boundary, while a significant portion of APZ 2 extends in a loop over primarily agricultural land. Development within these areas must be cognizant of the higher potential for accidents and the likely impacts on ground operations. Clear zones and APZs are identified in Figure 12.

OBJECT HEIGHT

The heights of buildings, antennas, power poles, and other structures are restricted around airfields to avoid safety concerns and conflicts with aircraft operations. Areas immediately adjacent to the runway are the most restricted, with allowable heights increasing as one moves away from the landing surface. These restrictions, referred to as imaginary surfaces, are illustrated in Figure 13.

NOISE

Noise impacts are an unavoidable consequence of living and working near an air station. Fortunately, the relatively small population living near NAS Lemoore limits exposure and potential conflicts from aircraft overflight. Noise contours are illustrated in Figure 14. Of the 146,775 acres within the AICUZ noise footprint, 127,443 acres currently contain compatible land uses, 19,178 acres have compatible land uses with restrictions, 43 acres have incompatible land uses with exceptions, and 111 acres are considered to have incompatible land uses. (DoN 2010)

Data collected in conjunction with the US Navy F-35C West Coast Homebasing Draft EIS (DoN 2013) indicates that area-wide, 1,565 people, 1,246 parcels, and an area of 75,446 acres are exposed to noise levels 2 and 3, which include anything above 65 decibels (dB). Normal speech has a noise level of approximately 60 dB.

FIGURE 12. CLEAR ZONES AND ACCIDENT POTENTIAL ZONES

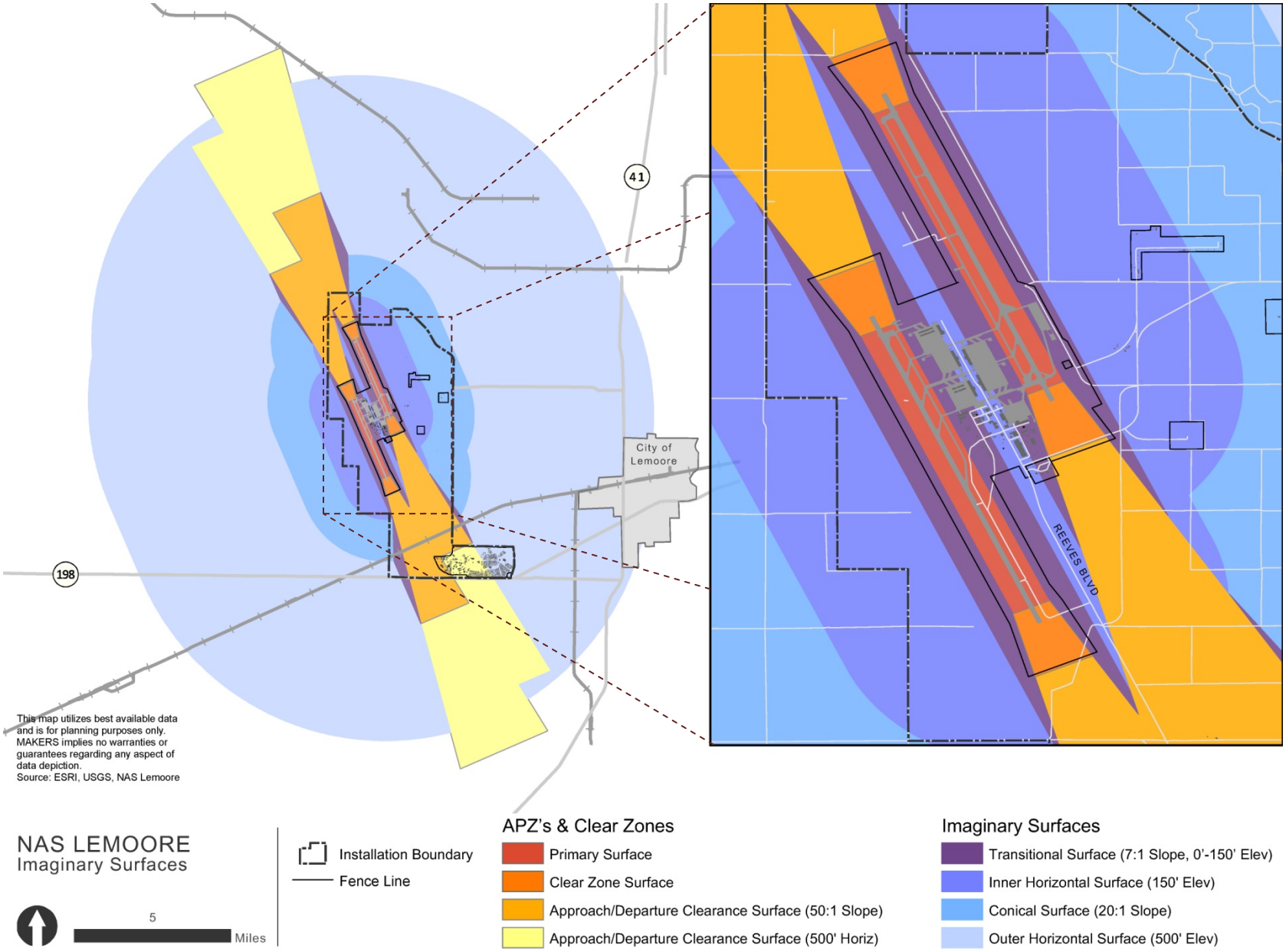


FIGURE 13. IMAGINARY SURFACES

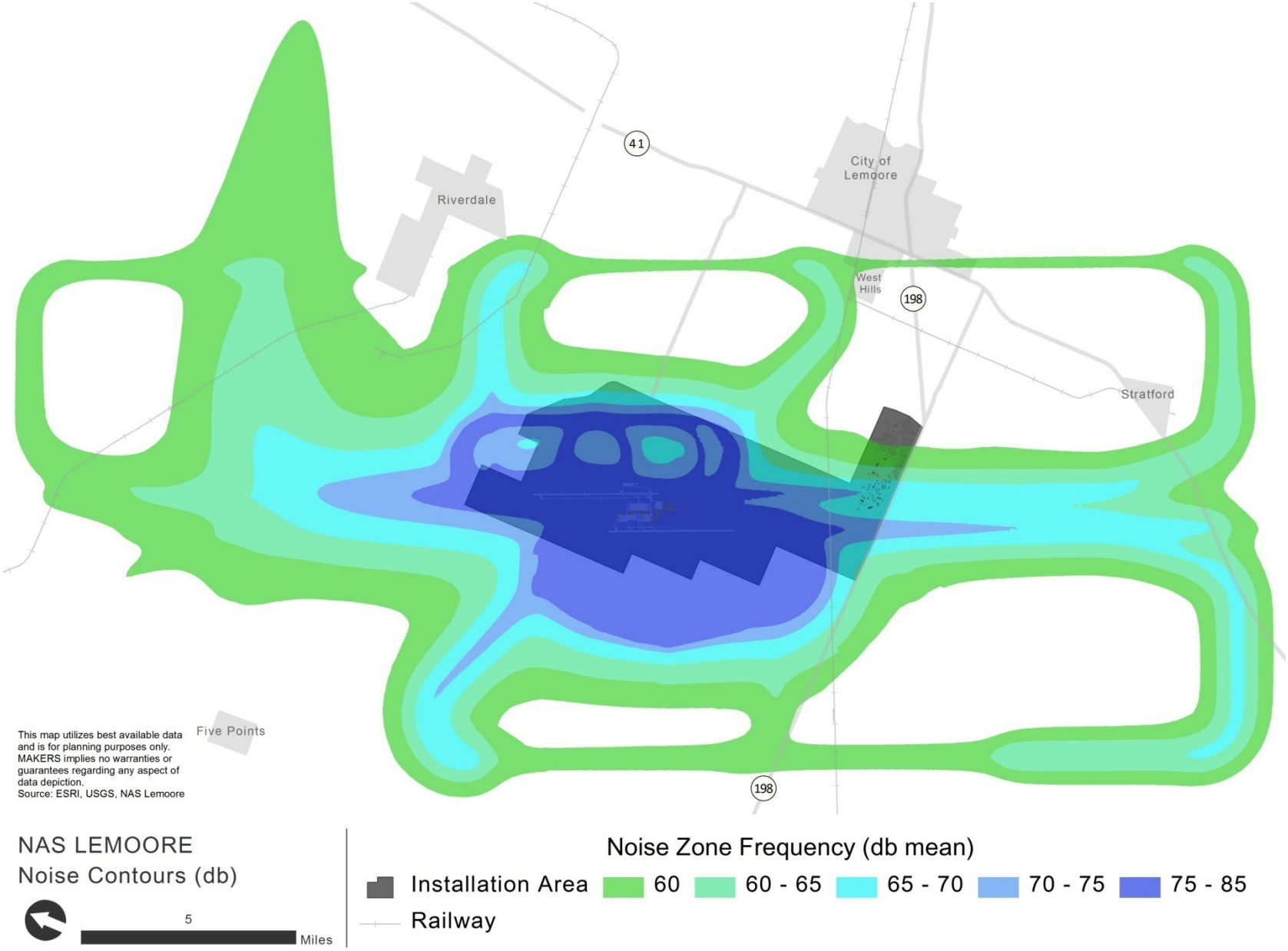


FIGURE 14. NOISE CONTOURS

ORDNANCE OPERATIONS

Ordnance storage, maintenance, and handling facilities are located on the east side of the Ops Side, separated from other facilities and functions. Most of these facilities fall outside the Ops Side fenceline. Facilities include 12 magazines, bomb and missile assembly buildings, ready service lockers at each hangar, and a Combat Aircraft Loading Area (CALA). Explosive Safety Quantity Distance (ESQD) arcs are established around all facilities and preclude uses unrelated to ordnance operations. See Figure 15.

ELECTROMAGNETIC CONSTRAINTS

Depending on the field strength of electromagnetic radiation certain activities can present Hazards of Electromagnetic Radiation to People (HERP), Ordnance (HERO), or Fuels (HERF). Safety arcs are established around electromagnetic radiation producing functions and limit the activities that can occur.

The NAS Lemoore Activity Overview Plan (AOP) identifies two areas with HERO constraints on the Ops Side. These areas include HERO Susceptible (the safety and/or reliability of ordnance adversely affected by radio frequency energy is in jeopardy) and HERO Unsafe (exposure of internal wiring and components to radio frequency energy creates the potential for accidental initiation or detonation) arcs. See Figure 15.

SURFACE DANGER ZONES

All outdoor firing ranges must maintain buffers called Surface Danger Zones (SDZ) around their perimeters to minimize the threat from projectile and fragment ricochets to surrounding land uses. Two small arms ranges exist on the Ops Side in the vicinity of the ordnance storage area. A skeet range operated by the Morale, Wellness, and Recreation (MWR) Department is also located off of Reeves Boulevard between the Admin and Ops Sides. SDZs are identified in Figure 15.

ANTI-TERRORISM/FORCE PROTECTION

Anti-Terrorism/Force Protection (AT/FP) standoff distances are required around facilities to limit vehicle access and possible exposure to vehicle bombs and other terrorist threats. Standoffs can have a significant impact on facility siting and vehicle parking.

UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, identifies minimum standoff requirements. Standoffs range from 13 feet to 420 feet depending the construction type, building use, and whether the facility is inside or outside a controlled perimeter.

BIRD/ANIMAL AIRCRAFT STRIKE HAZARD (BASH)

The Navy has prepared for NAS Lemoore the Integrated Natural Resources Management Plan, Bird/Animal Aircraft Strike Hazard (BASH) plan and other applicable conservation and resource management plans. NAS Lemoore will implement adaptive measures to minimize the potential for BASH. Navy and NAS Lemoore leadership have been proactively working to manage the current drought before it started. Specifically actions include:

- Working with Bureau of Land Management on a Memorandum of Understanding (MOU) that will provide the Installation with a minimum supplement of water on an annual basis to ensure success with NAS Lemoore's agricultural out-lease program.
- Developing an agricultural-well study which will develop the methods/means to divert well water to strategic parcels in order to mitigate BASH.

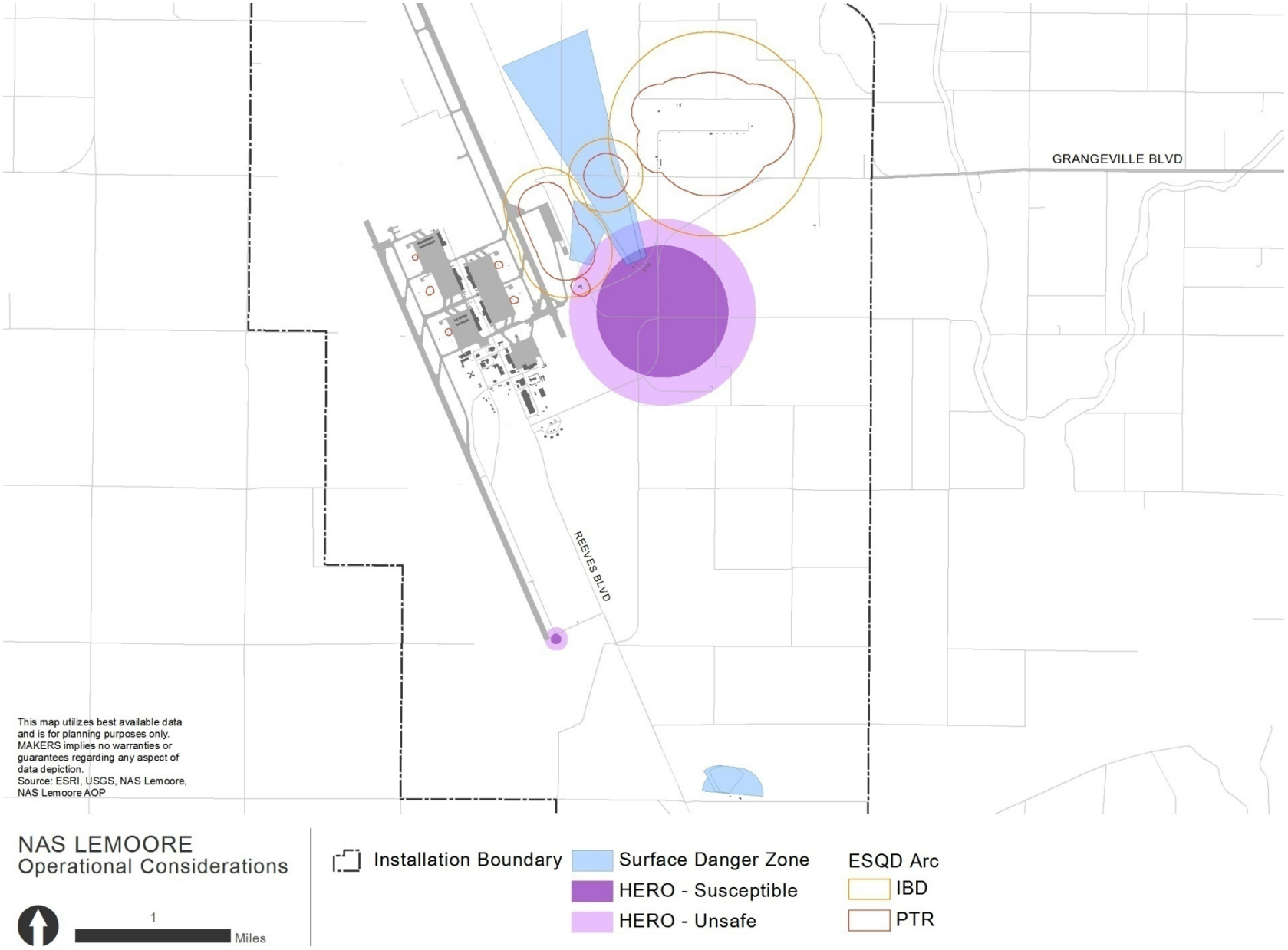


FIGURE 15. OPERATIONAL CONSIDERATIONS

ENCROACHMENT

ON BASE

The separation between the Ops and Admin/Housing Sides limits the potential for encroachment and land use conflicts within the NAS Lemoore fenceline. Encroachment issues that have been identified include the following.

- Outdoor and equipment storage around the hangars is encroaching into airfield safety clear zones due to a lack of more appropriately sited storage locations.
- Operational storage within the hangars occupies a portion of the already undersized high bay space, limiting the number of aircraft that can be accommodated and maintained within the hangars.
- Helicopter parking occurs on a parking apron dedicated to fixed wing aircraft.

Outdoor equipment storage and laydown encroaches onto the hangar access aprons and safety clear zones

Storage located within hangars encroaches on hangar deck space, reducing the amount of space available for aircraft maintenance

The NAS Lemoore SAR Unit occupies a portion of Hangar 4 and the adjacent apron

OFF BASE

Encroachment has been limited by the predominance of agricultural land uses and the amount of land owned by the Navy or restricted through air easements. However, community growth does have the potential to encroach on and impact operations. Proactively partnering with the community and monitoring local development are essential to preserve current and future operational capabilities. Partnering also allows NAS Lemoore to be proactive in air quality measures to address possible new regulations and helps implement the Encroachment Action Plan (EAP), which may include new noise contours associated with the F-35C (NRSW 2011).

Agricultural land uses predominate around NAS Lemoore

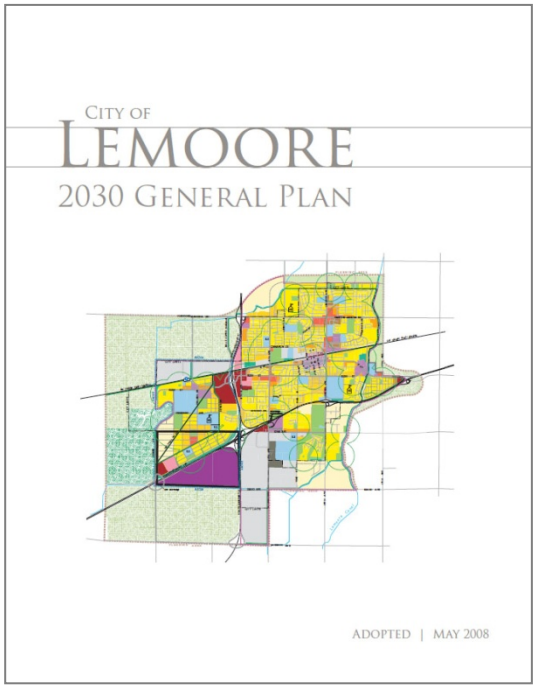
PROTECTION MEASURES

The General Plans for Kings County and Fresno County both provide guidance for future land development in the area of NAS Lemoore, including minimum parcel size and restrictions of usage to low-density agricultural uses (DoN 2010). These plans also include a three mile buffer zone around the Installation to minimize noise and safety conflicts. General Plan guidance includes:

- Fresno County (2010): Zoned agricultural parcel size required to be 40 acres or more.
- Kings County (2010): Exclusive agriculture, parcel size required to be 40 acre or more.

Information from the Navy's AICUZ was utilized by the General Plan for the City of Lemoore to determine proper use of the lands on the west side of the City to preserve the existing noise buffer. Growth in the vicinity of NAS Lemoore is controlled further by the 2010 San Joaquin Valley Blueprint, which discourages growth on prime agriculture lands around NAS Lemoore. Preservation of farmland is also emphasized in the City of Lemoore 2030 General Plan to retain the City's small town character while promoting economic development.

The Naval Air Station Lemoore Joint Land Use Study (JLUS) completed in August, 2011 contains approximately one hundred compatible land use recommendations which support the community's smart growth principles while simultaneously providing NAS Lemoore with a virtual encroachment-free operating environment. The recommendations allow for inter-governmental coordination between the Installation, Kings County, Fresno County and the City of Lemoore. Especially, for those projects located within the Military Influence Area (MIA), which could potentially encroach onto NAS Lemoore's Clear Zones (CZ), Accident Potential Zones (APZ's) and low level Ground Control Approach (GCA) Boxes. The JLUS provides a framework from which to develop compatible land use recommendation which supports the Installation and its partner's goals and objectives.



Local community plans include measures to protect the Navy's mission

ENCROACHMENT CONSIDERATIONS

Encroachment considerations are illustrated in Figure 16.

- The 2030 Lemoore General Plan does include increased residential and community development in the West Hills area as part of its long term build-out plan. Portions of this area lie within the 65 db noise contour interval generated from aircraft operations, creating potential noise conflicts.
- California SR 198 provides access to the Main Gate. The highway is four lanes to the east of NAS Lemoore and two lanes to the west. The 2012 Corridor System Management Plan for SR 198 identifies expanding the highway from two to four lanes on west side of NAS Lemoore as part of its Beyond Twenty Year Improvement Plan. Highway expansion could result in more traffic adjacent to NAS Lemoore and on Reeves Boulevard between the Admin and Ops Sides. The additional traffic on SR 198 may prompt the need for a highway overpass at the Main Gate.
- California's high speed rail plan includes a new high speed line running through the Central Valley to connect southern and northern California. It's possible a feeder line could be established on the existing rail that bisects the Admin and Ops Sides. Security stops traffic when needed to allow trains to pass through the Installation. Automated traffic arms may be needed to reduce Security's manning requirements if train traffic increases.
- The State of California is experiencing water rationing regulations. There is a possibility that new water regulation laws will be implemented in the near future, limiting the availability of water at NAS Lemoore (NRSW 2011). NAS Lemoore is currently negotiating with the US Bureau of Reclamation to obtain a guaranteed minimum entitlement of 7.8 billion gallons (24,000 ac-ft) of agricultural water annually to more consistently support the Installation's agricultural outlease program, which is critical in reducing mishaps associated with BASH since birds tend to be attracted to fallow agricultural fields.

California's proposed statewide high speed rail alignment (source: www.hsr.ca.gov)

FIGURE 16. ENCROACHMENT CONSIDERATIONS

EXISTING LAND USE

NAS Lemoore is comprised of three developed areas each serving a specific mission. The Ops Side is approximately 4,100 acres and contains land uses and functions that directly support air operations, including runways, aprons, hangars and aircraft maintenance facilities, supply, training, weapons handling, limited personnel support, and administration associated with the Carrier Strike Groups and CSFWP. The Admin Side and Family Housing Area are each about 700 acres and support land uses that do not require proximity to the flightline, including training, public works, medical, retail, administration facilities, housing, personnel support, recreational facilities, and other base operations functions.

Undeveloped areas are used primarily for agricultural production, natural resource management, and outdoor recreation. Agriculture is the dominant land use at NAS Lemoore, covering 12,843 acres or about 75 percent of its total acreage. Outleasing these agricultural lands benefits NAS Lemoore by creating a buffer of compatible land uses around the airfield; providing vegetative cover to control dust, fire, BASH, and other hazards; creating revenue; allowing maintenance and stewardship of lands at no cost to taxpayers; and providing employment and revenue generators for the surrounding communities.

Existing land uses are illustrated in Figure 17.

INCOMPATIBLE LAND USE

NAS Lemoore has very few land use conflicts due to the clear separation between operational and support functions. The small Ops Side chapel located along the flightline is the only known incompatible land use and is being considered for relocation.

UNDERUTILIZED LAND AND DEVELOPMENT OPPORTUNITIES

The large undeveloped area between family housing and Hancock Avenue is known informally as Jackrabbit Field. This area has been set aside for future family housing expansion, but could be considered for alternate functions based on operational need. Jackrabbit Field is approximately 40 acres. Smaller sites also exist throughout the Admin Side and could support varying levels of infill and redevelopment.

The north end of the flightline could accommodate additional growth to support air operations. The site opposite Hangar 5 on Reeves Boulevard is being reserved for future Hangar 6 and a hush house has been proposed immediately north of Hangar 5; however lands north of Delta Taxiway are generally available for redevelopment.

Agricultural lands surrounding NAS Lemoore may be underutilized at times due to seasonal water shortages. Solar arrays have been identified as a possible land use for these areas.

The entire stretch of Reeves Boulevard running between the railroad tracks and Admin Side could support a variety of redevelopment projects. This area falls outside the fenceline and could therefore support land uses that are jointly used by the community, including training functions and commercial development. Enhanced use lease (EUL) has been identified as a possible development mechanism for commercial uses, especially around a potential train stop where the rail line crosses Reeves Boulevard.

CULTURAL RESOURCES

There are currently no historic structures at NAS Lemoore. Surveys conducted indicate the likelihood of encountering a buried prehistoric site on the Installation is low and there are no areas within NAS Lemoore designated as having high archaeological sensitivity (NAVFAC Southwest 2012). NAS Lemoore recently completed an additional survey of historical and cultural resources and identified nothing of historical or cultural significance that would be affected by future development. These findings should streamline the facility planning and design process by eliminating the need for surveys during each project.

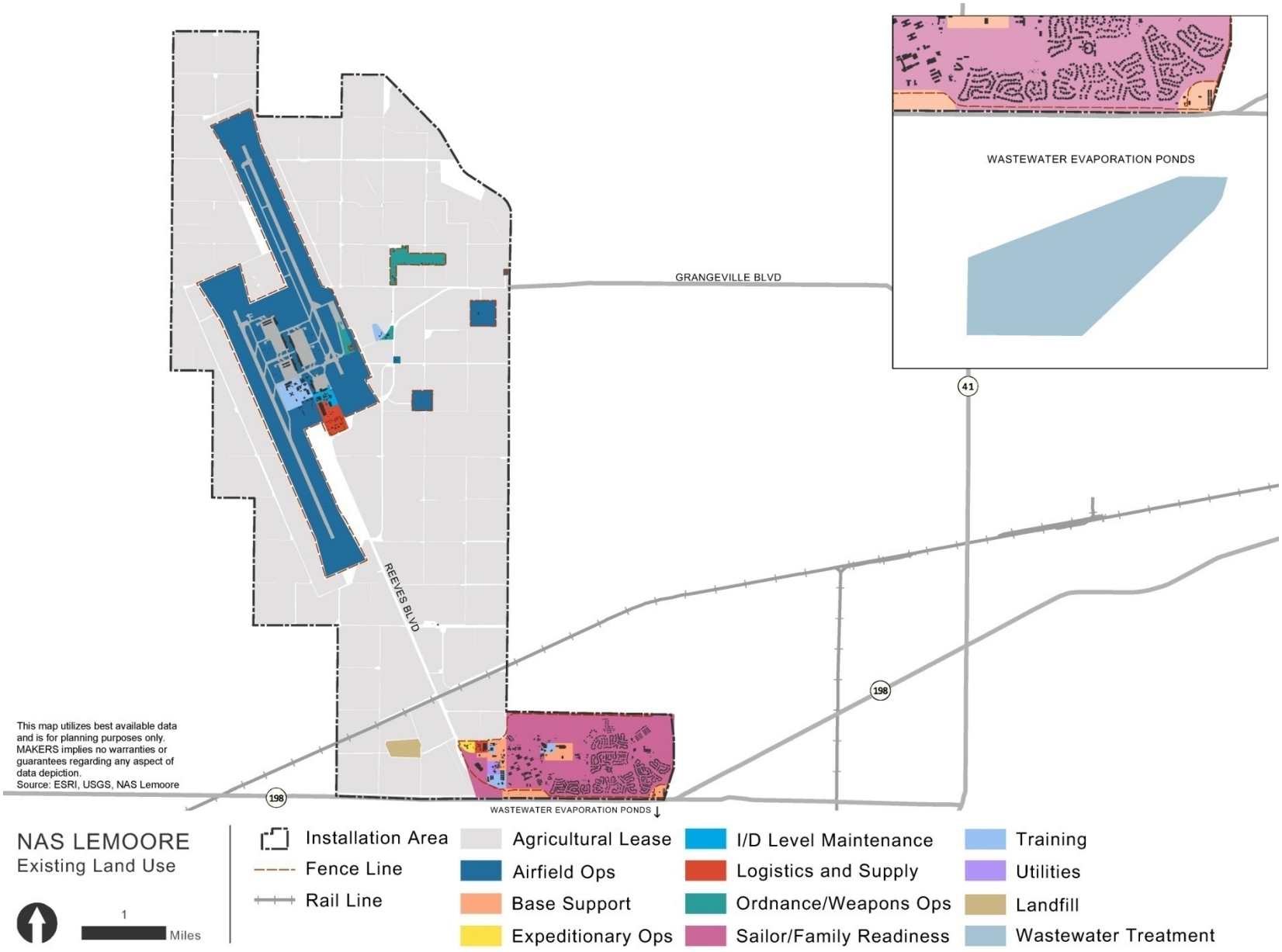


FIGURE 17. EXISTING LAND USE

TRANSPORTATION

Transportation systems include roadways, parking, sidewalks, and bike routes located on NAS Lemoore, as well as highways, transit systems, rail lines, and other regional facilities located outside the fenceline.

ON-SITE

Transportation systems consist primarily of paved roadways in and between the developed areas of NAS Lemoore and unpaved roadways in the undeveloped areas.

VEHICULAR CIRCULATION

The circulation system depicted in Figures 19 and 20 consists of two and four-lane major roadways, two-lane secondary roadways, two-lane local roadways and two-lane residential streets. Franklin and Enterprise Avenues are 4-lane Major roadways with Franklin Avenue serving the highest volumes of traffic at the Admin Side. Reeves Boulevard is a two-lane Major roadway that serves a key function of connecting the Admin and Ops Sides. Avenger Avenue also functions as a 2-lane Major roadway serving both unaccompanied housing (UH) and family housing. On the Admin Side, 2-lane roads such as Hancock Avenue, Hancock Circle, Ranger Avenue, Ticonderoga Avenue, and Community Center Drive all function as Secondary roadways that collect traffic and feed the Major roads.

On the Ops Side, 2-lane roads functioning as Secondary roads include Reeves Boulevard north of L Street, L Street, and Skytrain Avenue from K Street to L Street. Most other roads function as 2-lane local and residential streets.

A network of dirt roadways are principally used to access agricultural outlease lands, NRMAs, and for remote operational uses. These roads also provide limited access to NAS Lemoore from adjacent private lands.

PARKING

Parking lots are provided throughout the Admin Side serving various workplace buildings, service buildings, recreation areas, and UH. Field observations and stakeholder interviews indicate that adequate parking exists within the Admin Side.

On the Ops Side, there are approximately 2,595 parking spaces along the flightline serving Hangars 1 through 5. Approximately 887 of these parking spaces are located in the lot east of Hangar 5. South of the flightline additional parking is provided and serves the remaining Ops Side buildings. This area is also served by a 333 space parking lot west of Reeves Boulevard near Building 140.

The parking lots near Hangars 1 through 4 are usually at or close to capacity while the parking lot near Hangar 5 is underutilized. South of the flightline, available parking areas are heavily utilized near buildings along K Street while the large parking lot near Building 140 is underutilized.

Parking assets on the Admin Side appear to have adequate or excess capacity

Parking along the central flightline is operating at capacity

Parking east of Hangar 5 is underutilized

PEDESTRIAN AND BICYCLE CIRCULATION

The condition of the walking environment varies substantially when comparing the Admin Side to the Ops Side. On the Admin Side, pedestrian walkways are well provided for throughout the family housing area and include both sidewalks and multi-purpose paths. In this area, pedestrian access to the two schools is good. There are also substantial pedestrian walkways provided in the vicinity of UH.

The only street on the Installation that has sidewalks on both sides is Enterprise Avenue between Avenger and Franklin Avenue. On Franklin Avenue, there is a continuous walkway on the south side between Ticonderoga Avenue and Enterprise Avenue. West of Enterprise Avenue, the sidewalk is located on the north side of the street. On Avenger Avenue, there is a continuous sidewalk on the north side of the street east of Enterprise Avenue. The NEX has limited pedestrian access which is mostly located off-street between the NEX and Enterprise Avenue and Franklin Avenue. (See Figure 18).

Pedestrian walkways on the Ops Side are very limited and most of those that do exist are located south of the flightline in the vicinity of the Air Ops building and the Flight Simulator Training building. In the hangar area, walkways are only provided along Reeves Boulevard where it is grade separated from the flightline apron. This requires personnel to walk along the shoulder of Reeves Boulevard and weave through parked cars. This area of the Installation clearly has the most unsafe walking environment for active duty personnel as well as family members and visitors.

Currently bicycle facilities on the Installation are almost non-existent. The only area that can accommodate bicycles safely is in the family housing area where multi-use pathways are provided.

Multi-use paths in the family housing area create a safe environment for pedestrians and cyclists

SHUTTLE SERVICE

The NAS Lemoore Transportation Division provides shuttle bus service Monday through Friday and on Sunday. No Bus service is provided on Saturday or Federal holidays. Monday through Friday bus service is provided between 0545 and 1735. Bus headways vary by time of day. On weekdays during the busiest morning period, bus headways are between 15 and 25 minutes. During the remainder of the day the bus headways vary between 30 and 50 minutes.

The bus route operates westbound on Avenger Avenue between Hancock Circle and Enterprise Avenue; northbound on Enterprise Avenue; westbound on Franklin Avenue; northbound on Reeves Boulevard to Hangar 5; southbound on Reeves Boulevard from Hangar 5; eastbound on Franklin Avenue; turnaround at Naval Hospital stop; southbound on Hancock Avenue; westbound and southbound on Hancock Circle to Avenger Avenue.

Bus stop locations are shown in Figures 21 and 22 along the identified route on the Admin and Ops Sides. On streets along the bus route where the bus travels in both directions (i.e. Franklin Avenue west of Enterprise Avenue and on Reeves Boulevard) physical bus stops are not provided in both directions although the bus will stop opposite each physical bus stop. The physical bus stops include a bench and shelter.

The morning peak between the Admin and Ops Sides has the largest rideshare. During this period the bus makes an additional stop on Avenger Avenue just east of Enterprise Avenue to pick up personnel that come from off-site and arrive by Kings Area Rural Transit (KART) buses or that park at the Main Gate. Most passengers are enlisted personnel, E-6 or below.

The lunch period also serves a significant number of passengers traveling mainly from the Ops Side to the NEX food court. During the lunch period, the busses will divert from the normal route along Avenger Avenue to drop off and pick up passengers at the NEX.

NAS Lemoore shuttle

OFF-SITE

ROADS AND HIGHWAYS

Off-site access for NAS Lemoore is provided by several regional highways including SR 198, Avenal Cutoff Road, Jackson Avenue, and Grangeville Boulevard.

SR 198 is classified as a Freeway/Expressway on the Kings County Circulation Element providing controlled access and grade separated interchanges at major street crossings. SR 198 is an east-west facility and currently transitions from a 4-lane highway to a 2-lane highway just west of the NAS Lemoore Main Gate intersection. A grade separated interchange is provided at Avenal Cutoff Road and the terminus of Jackson Avenue. Existing traffic volumes on SR 198 are approximately 18,500 vehicles per day east of NAS Lemoore and 7,700 vehicles per day west of the Installation. The drop in traffic is partially due to traffic traveling between NAS Lemoore and the Lemoore/Hanford area but also due to traffic traveling from Avenal Cutoff Road and the Lemoore/Hanford area. There are plans underway to widen SR 198 to 4 lanes from the Main Gate to Interstate 5 west of the Installation. Along with this widening would be the abandonment of the existing Main Gate at grade intersection and the construction of a new grade separated interchange for the Main Gate at a point further west in the vicinity of Enterprise Avenue. This issue is discussed in greater detail in the Street and Transit Plan (page 267).

Avenal Cutoff Road is classified as a Minor Arterial and provides a direct connection between Interstate 5 at Avenal and SR 198 at the western boundary of NAS Lemoore. Existing traffic volumes on Avenal Cutoff Road are approximately 5,150 vehicles per day.

Jackson Avenue is an east-west Major Collector road that traverses agricultural areas and connects SR 198 and Avenal Cutoff Road to the Santa Rosa Rancheria area and Tulare/Visalia area further east. Jackson Avenue generally serves traffic volumes less than 1,000 vehicles per day.

Grangeville Boulevard is an east-west Minor Arterial that traverses primarily agricultural land and connects Reeves Boulevard via Gateway Road near the Ops Side of NAS Lemoore to the Hanford area. The Grangeville By-Pass Road passes around the north boundary of NAS Lemoore to connect with State Highway 269 to the west. Grangeville Boulevard serves between 4,500 vehicles per day near NAS Lemoore and 5,300 vehicles per day near Hanford.

BUS TRANSIT

KART is Kings County's public transportation service provider that provides bus service countywide. NAS Lemoore is served by the Hanford-Lemoore-NAS bus route that travels between the AMTRAK Station in Hanford and NAS Lemoore via the Lemoore Depot (see Figure 21). KART bus service is only provided Monday through Friday to the Admin Side only (see Figure 20 for route and bus stop locations). There are two morning busses (0600 and 0720), one midday bus (1310), and two afternoon busses (1610 and 1740).

NAS Lemoore is also serviced by Orange Belt Stages which is a private bus transit service that has a bus stop located at the Installation.

KART VANPOOL

The vanpool program offered by KART provides both 8 and 15 passenger vans for groups that wish to carpool to and from work. While the cost of the van use for most participants depends on the number of passengers and distance traveled each month, State and Military personnel receive a rebate of up to $245 per month through the Federal Transit Voucher Program.

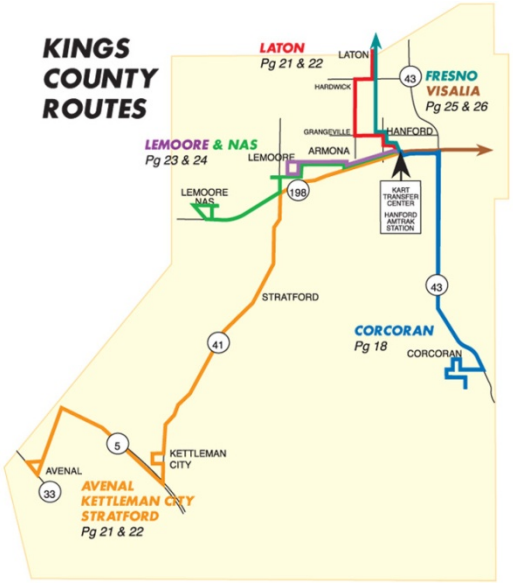


FIGURE 18. KART ROUTES OPERATING IN THE VICINITY OF NAS LEMOORE

RAIL TRANSIT

NAS Lemoore is indirectly serviced by Amtrak passenger rail with the closest train stop in Hanford at the Hanford Depot. At this station, passengers destined to the Installation can transfer to the KART Bus that services NAS Lemoore.

A rail line running from Exeter, California to Huron, California that is managed by the San Joaquin Valley Railroad crosses NAS Lemoore between the Ops and Admin Sides. In 1994, there was a movement started to renovate and upgrade the 44-mile rail line for use by freight train service. The Cross Valley Rail improvement project was completed in 2003. The continued preservation of this east-west rail corridor continues to be a priority in order to keep the option open to potentially use the corridor for passenger rail service in the future. This rail corridor could be used as a feeder line to the California High Speed Rail system that has a possible station proposed in the Visalia-Tulare-Hanford area.

PEDESTRIAN AND BICYCLE FACILITIES

Included in the Kings County Circulation Element is a multi-use trail which runs along the San Joaquin Valley Railroad corridor. The planned Rails-with-Trails facility is envisioned to have a Class I bike path and multi-use trail for pedestrians and equestrians. This plan, which is still in the early stages of development, would provide a continuous non-motorized recreational transportation link between NAS Lemoore and the Cities of Lemoore and Hanford.

Reeves Boulevard is a two-lane major road that runs between the Admin and Ops Sides. Portions of the roadway can become highly congested during peak-use due to a number of sever pinch points, including this stretch that runs under Alpha Taxiway.

The segment running between the Admin and Ops Sides has sufficient right of way to provide a multi-use pedestrian and bicycle path, which could help relieve some of the congestion. There is also an opportunity for a more effective shuttle service between the two Sides.

Franklin Avenue is a four-lane major roadway that bisects a majority of the Admin Side. This roadway appears to be underutilized by automobile traffic and may provide a greater opportunity for multi-modal uses such as bicycle lanes and pedestrian pathways.

Although Enterprise Avenue is one of the more thoughtfully designed sections of roadway at NAS Lemoore, this four-lane major roadway may have been overdesigned and is now underutilized. Reducing the number of travel lanes could help to mitigate future upkeep costs.

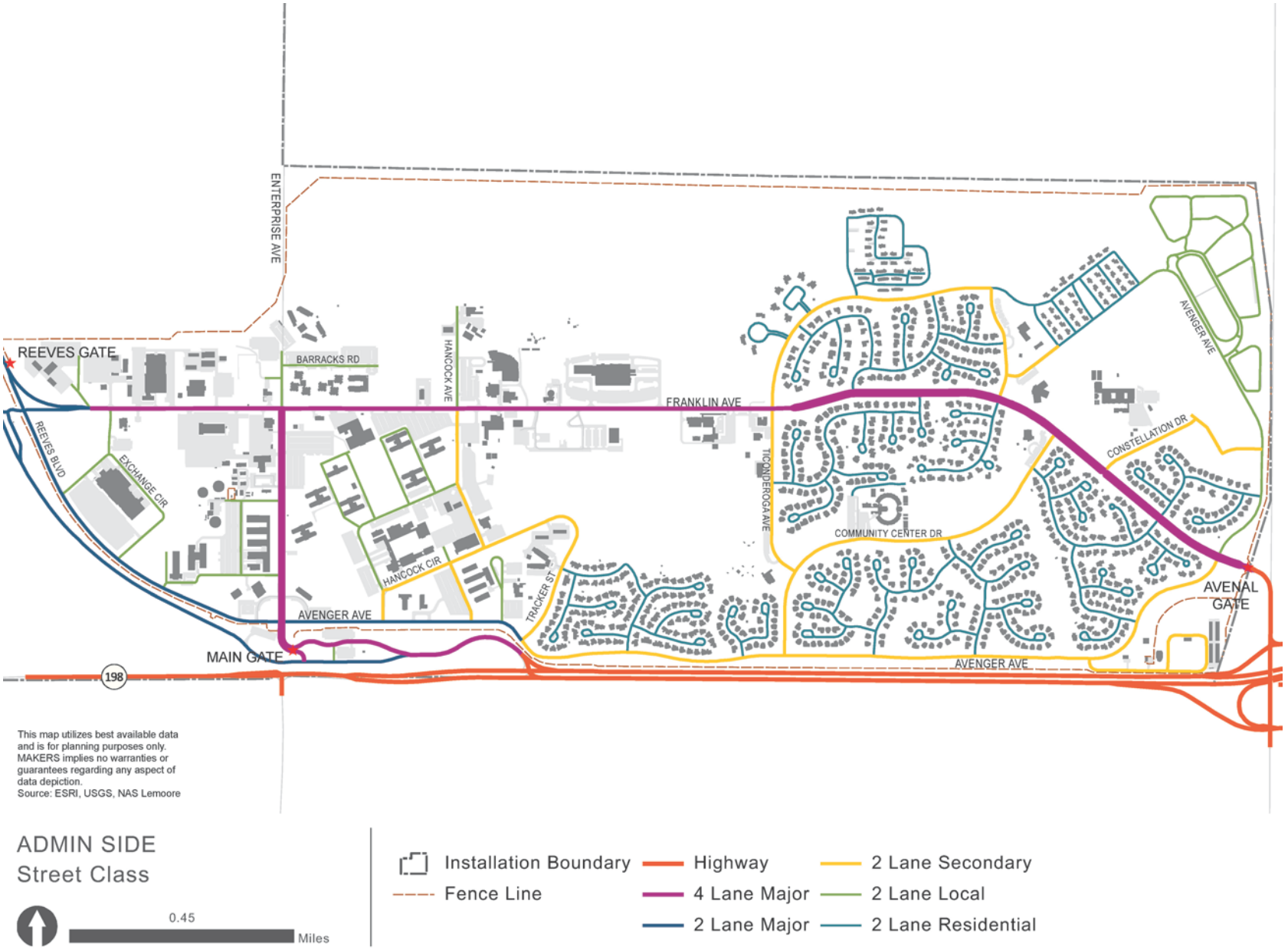


FIGURE 19. STREET CLASSIFICATIONS – ADMIN SIDE

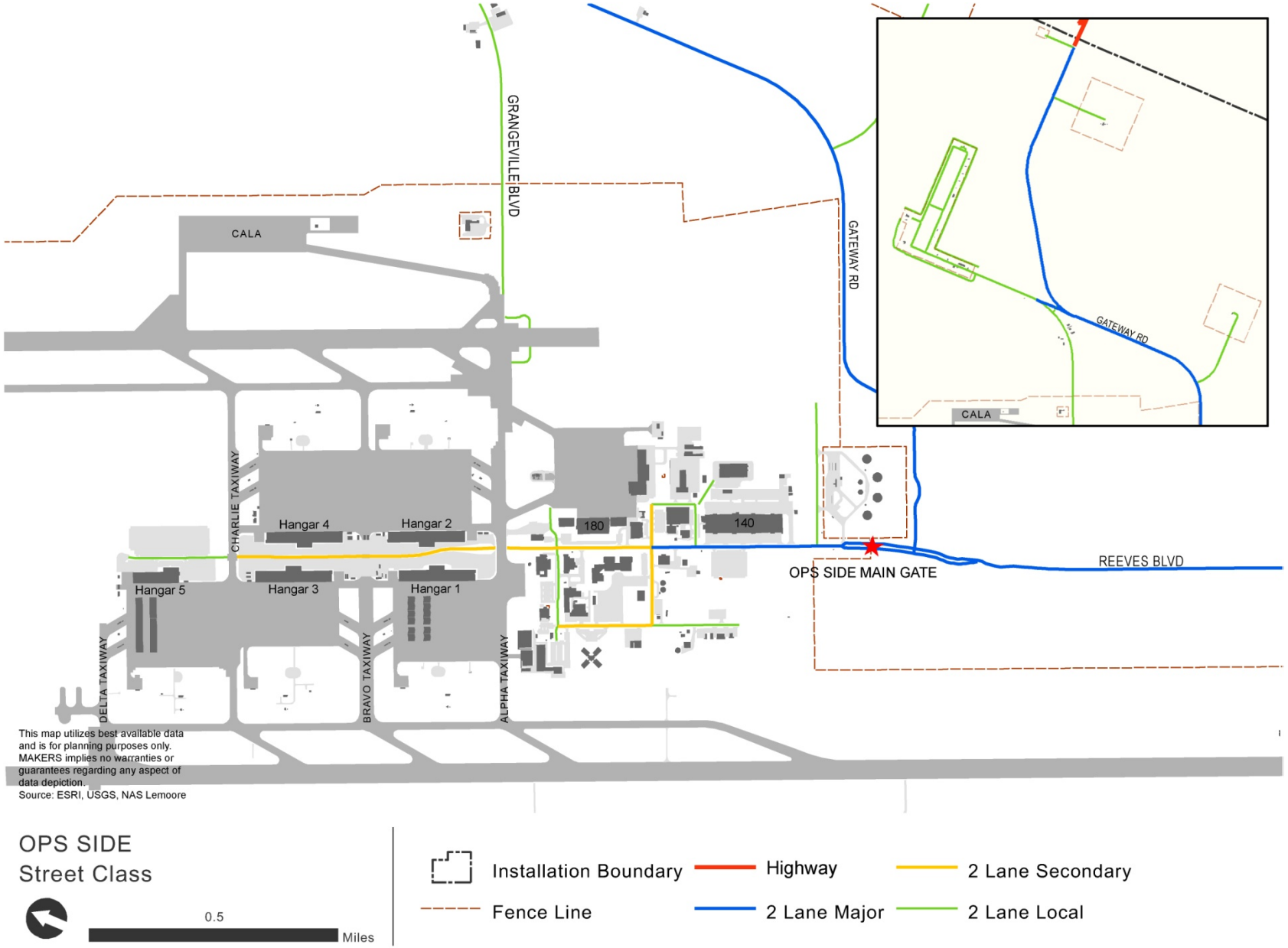


FIGURE 20. STREET CLASSIFICATIONS – OPS SIDE

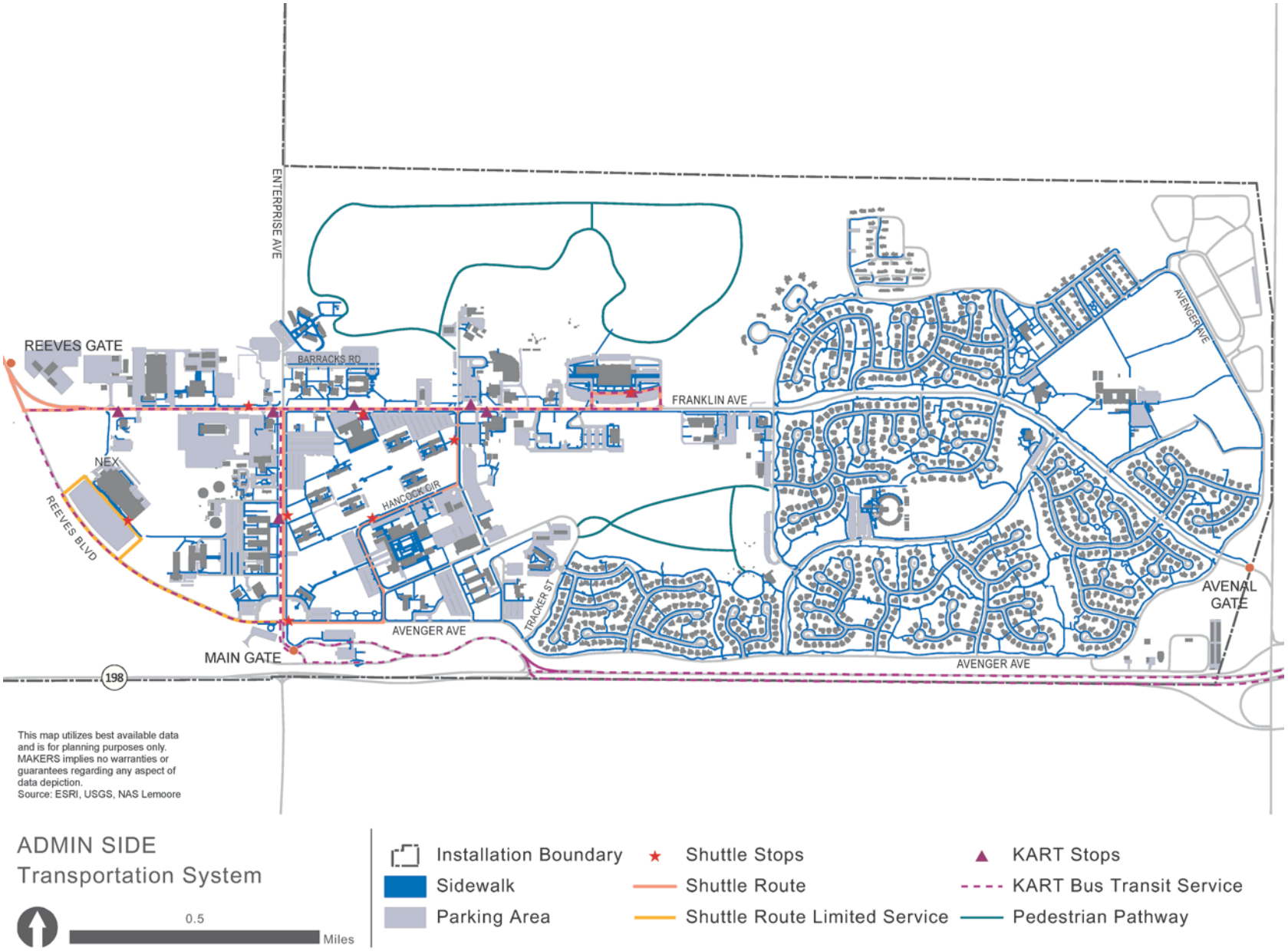


FIGURE 21. TRANSPORTATION FACILITIES – ADMIN SIDE

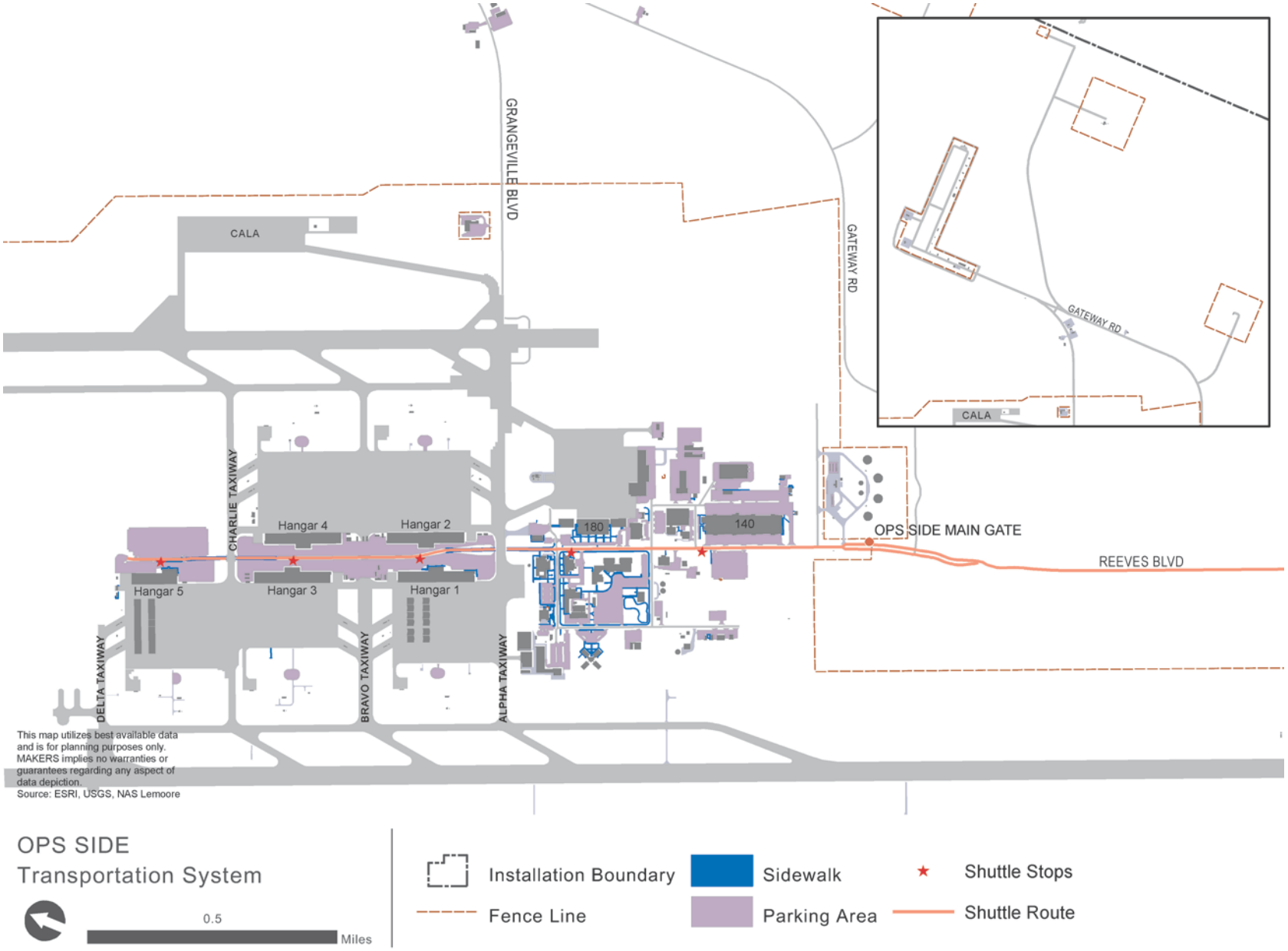


FIGURE 22. TRANSPORTATION FACILITIES – OPS SIDE

UTILITIES

With the exception of utilities in the vicinity of family housing, most utilities at NAS Lemoore are original to the Installation's construction in the early 1960s. Some improvements have been made, including new feeds in the electrical system, new pumps and valves, and new lift stations, but these improvements are isolated and do not address the larger distribution system. These utility systems are showing signs of deterioration and are failing with increased frequency.

The following section provides an overview of the utilities available at NAS Lemoore. See Appendix A for utility maps.

WATER SUPPLY

The water supply for NAS Lemoore, the City of Lemoore, and other municipalities on the west side of the San Joaquin Valley is provided by the Westlands Water District (WWD or the District), who in turn receives its water from the US Bureau of Reclamation's Central Valley Project, a federal water project that stores water in large reservoirs for use throughout California. WWD owns and maintains all distribution pipes, canals, and other associated infrastructure located within the NAS Lemoore. However, NAS Lemoore owns and maintains the potable water distribution system within the Installation.

NAS Lemoore's water supply serves two principal uses, including agricultural and municipal/industrial. The amount of agricultural water available varies from year to year based on a percentage allocation set annually by the Bureau of Reclamation against the land's basic water entitlement. A 100 percent allocation would yield approximately 29,810 acre-feet (ac-ft) for all 11,466 acres of irrigable land on NAS Lemoore that lie within the District. In 2003 NAS Lemoore and the District entered into a Supplemental Water Allocation Agreement to provide the Installation with an additional entitlement of 10,004 ac-ft annually. This supplemental entitlement is also subject to the percentage allocations set annually based on the water supply.

Municipal and industrial water is delivered to NAS Lemoore from the District through connection points at the water treatment plant, located in the southwest portion of the Admin Side, through a 30-inch and a 28-inch lateral line. The amount of municipal and industrial water available to NAS Lemoore annually is up to 1.63 billion gallons (5,000 ac-ft), or approximately 4.46 million gallons per day (mgd). As of 2011, NAS Lemoore uses approximately 3 mgd or 3,400 ac-ft/year of WWD-delivered water to meet its municipal and non-agricultural, operational water supply needs (Corbett et al. 2011).

In addition to this District water entitlement, in 2012 NAS Lemoore began construction on a new domestic water well that, when complete, is expected to produce up to an additional 3,551 ac-ft of municipal and industrial water annually, or approximately 3.17 mgd. It will provide an emergency water source in the event of the loss of the aqueduct and would also help reduce the use of treated WWD water that contains trihalomethane by-products.

WASTEWATER

The treatment and disposal of wastewater at NAS Lemoore occurs at the wastewater treatment facility located in the southeastern corner of the Installation. The system consists of approximately 35 miles of vitrified clay and PVC pipe that range in diameter from 4 inches to 21 inches and treats domestic wastewater, treated industrial wastewater, and some storm drain flow. Industrial wastes (e.g., solvents, grease, and oil) are pre-treated to remove volatile organic chemicals, hydrocarbons, and heavy metals at a site in the southern portion of the Ops Side (DoN 2005). All sanitary sewers on the Installation are directed to one of two oxidation ponds where biological agents are used to degrade organic components. The treated wastewater is then transferred to one of three evaporation basins that cover approximately 429 acres of land located south of the Admin Side.

STORMWATER

The stormwater runoff network at NAS Lemoore occurs primarily underground in the developed areas of the Installation. In the less developed areas, the network consists primarily of swales and open ditches, where stormwater normally dissipates through evaporation and percolation. Stormwater runoff from the Ops Side drains to the east and ultimately discharges to the Kings River during infrequent flooding events. Stormwater associated with the Admin Side and Family Housing Area is collected through a series of storm drain structures that collect water at the Storm Water Station (Building 986) before it is discharged into the Kings River. Stormwater is typically contained within the boundaries of NAS Lemoore for most rain events and only during significant rainfall will discharge directly from the Installation into Kings River (DoN 2009b).

ELECTRICITY

Electricity is provided to NAS Lemoore by the Western Area Power Administration (WAPA). Energy is delivered through a 70 kilovolt (kV) line to the main substation, located on the Admin Side. A second substation is located on the Ops Side. Power is transferred throughout the Installation through overhead and underground lines, including 4.6 miles of 70 kV transmission and 19.8 miles of 12.47 kV distribution lines. NAS Lemoore owns and maintains all transmission lines and related infrastructure within the Installation. Average electricity consumption at NAS Lemoore from FY 2008 through FY 2010 was 89,688,410 kilowatt-hours (DoN 2011b).

NATURAL GAS

Natural gas is provided by Southern California Gas Company (SoCalGas). Gas is supplied through a series of 4-inch, high pressure gas lines entering the Installation at the Family Housing Area and the Main Gate and then distributed to one of three regulator/purchase stations: one on the Admin Side, one on the Ops Side, and one in the Family Housing Area. Average natural gas consumption at NAS Lemoore from FY 2008 through FY 2010 was 186,976.83 cubic ft per year (DoN 2011b).

SOLID WASTE

Solid waste is transported off the Installation to the Avenal Municipal Landfill, approximately 21 miles southwest of NAS Lemoore. A 40-acre landfill was located within NAS Lemoore but was closed when it reached capacity and is now used for the stockpiling of clean fill for use in other projects (DoN 2005). In FY 2010, a total of 2,600 tons was sent to the Avenal landfill. The diversion rate for construction and demolition debris in FY 2010 was 65 percent. NAS Lemoore has instituted a recycling program and currently diverts approximately 45 percent of generated municipal solid waste to recycling centers. Recyclable materials include cardboard, paper, plastics, wood, glass, compost, metal, aluminum cans, used motor oil, antifreeze, and batteries (DoN 2011b). Food waste is currently not recycled. The federal mandate is to reduce waste by 60% by the year 2015.

AMI/SMART ENERGY INFRASTRUCTURE

Advanced Metering Infrastructure (AMI) has been installed on Barracks 10 and 11(Building 840). Solar arrays have been installed in select locations around NAS Lemoore and opportunities are also being explored to tap geothermal energy sources.

NAS Lemoore does not generally compete well against other installations for energy projects due to the availability of relatively inexpensive energy in the Central Valley ($.05/kWh).

POLITICAL CONSIDERATIONS

NAS Lemoore has historically enjoyed a mutually beneficial relationship with the surrounding community. The Navy's economic impact on the local economy is tremendous, totaling $1.0 billion in FY 2014 (NAS Lemoore 2014). At the same time, local surrounding communities and local governments have taken steps to protect the Navy's capabilities and maintain this symbiotic relationship.

PUBLIC PRIVATE VENTURE

Under public private venture (PPV) agreements the Navy enters into an agreement with a private entity that becomes responsible for facility construction, renovation, maintenance, and day-to-day management. The goal is zero out-of-pocket rent expenses for privatized housing residents, who sign a lease with the property management company. Sailors still receive their housing allowance and pay rent directly to the property manager. This model has been used extensively throughout the Navy for the management of family housing; two pilot programs for UH have also been completed. No further PPV projects are planned at this time.

As of 2007, the family housing area has been managed by Lincoln Military Housing through PPV. The current PPV lease will expire in 2057, at which time the housing units and any improvements revert to Federal control. The land remains Federal property and is still subject to Federal natural and cultural resources laws, regulations, executive orders, and instructions.

ENHANCED USE LEASE

Title 10 USC, Section 2667, of the National Defense Authorization Act, authorizes the DoD to make underutilized, non-excess real property available for lease. In return, the government can obtain consideration in cash or in-kind, creating opportunities to support under-funded programs and functions. This authority enables the Navy to maximize the utility and value of installation real property and provide additional tools for managing the installation's real estate assets to achieve business efficiencies. Potential drawbacks to EUL funding include uncertain market demand, loss of use of Navy-owned assets, and security.

Although NAS Lemoore outleases 12,776 acres of property for agricultural production, there are currently no EULs. EUL opportunities are identified in the 2011 NRSW Regional Integration Plan (RIP) and potential sites are illustrated in Figure 23. These EULs opportunities include:

- Light industrial uses to generate revenue.
- A train station to increase transportation options and improve overall quality of life (QOL).
- Photovoltaic fields to support Navy-wide green energy goals.
- Transit oriented development (TOD), especially in conjunction with a potential rail stop.
- New wastewater treatment facilities to eliminate use of existing ponds, which create a dust nuisance near family housing when dry.
- A community center on-site to improve QOL for enlisted personnel living and working at NAS Lemoore.

Existing agricultural lands could support photovoltaic fields

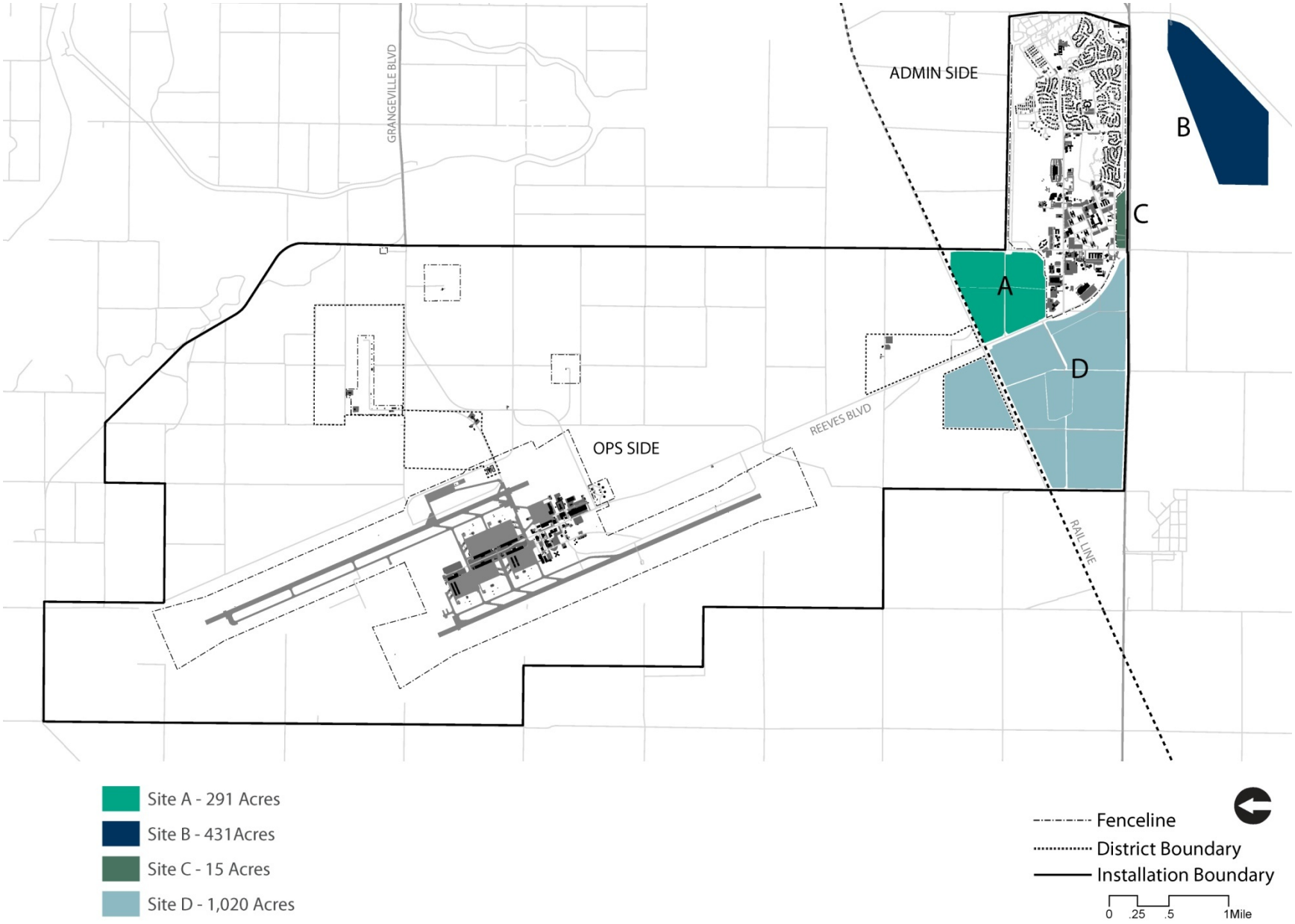


FIGURE 23. POTENTIAL EUL SITES

CONSIDERATIONS SUMMARY

Development and operational considerations are summarized in Table 7 below.

Table 7. Considerations summary

Consideration	Impact on Operations
Air Quality	Emission credits are purchased to comply with air quality standards; additional credits may be required to support new or expanded missions.
Tule Fog	Reduces visibility. Impacts flight operations and pedestrian/vehicular safety.
Seismicity	Facilities must be designed and engineered to seismic standards.
Soils	No significant impact.
Dust Abatement	Dust creates a FOD hazard and health impacts. Reduced water allotments make it more challenging to control dust on agricultural lands.
Topography	No significant impact. Due to this relatively flat topography, drainage within NAS Lemoore is poor in some areas, occasionally resulting in ponding.
Hydrology	No significant impact. Flood risks are low.
Vegetation	No significant impact.
Wildlife	Requires additional management. Limits development in some portions of the Installation.
Natural Resource Management Areas	Development in and adjacent to the NRMAs is restricted.
Wetlands	Development in wetlands requires mitigation and increases construction costs.
Installation Restoration Program	Open IR sites require cleanup prior to redevelopment, some land use controls exist.
Land Use Controls	Requires functions to be sited within the appropriate land use zone.
Airfield Safety	Development within the clear zone and APZs requires additional consideration to ensure compatibility.
Object Height	Limits facility and structure height around the flightline.
Ordnance Operations	Prohibits non-ordnance related development with ESQD arcs.
Electromagnetic Constraints	Limits operations within HERP, HERO, and HERF arcs and creates potential health and safety concerns.
Surface Danger Zones	Prohibits development within the SDZ.
Anti-Terrorism/Force Protection	Requires setbacks around new and renovated facilities to provide separation from roadways and parking.

Table 7. Considerations summary (continued)

Consideration	Impact on Operations
Noise	Development requires additional consideration to ensure compatibility with anticipated noise levels.
Bird/Animal Aircraft Strike Hazard	Creates safety concerns for pilots. Influences how open space and natural areas are managed.
On-Base Encroachment	No significant impact at this time.
Off-Base Encroachment	Has the potential to impact or limit operational capabilities with incompatible development near the Installation. Also has the potential to create additional traffic on roadways around NAS Lemoore.
Cultural Resources	Surveys currently required prior to development in undisturbed sites.
Public Private Venture	Lands are currently controlled by the PPV partner, limiting opportunities for redevelopment. Construction in undeveloped areas controlled by the partner would require modifications to the PPV agreement.

MAJOR SHORE CAPABILITY AREAS PLANNING ANALYSIS

There are over 4.1million square feet (SF) of buildings and structures at NAS Lemoore within nine major Shore Capability Area (SCA), see Table 8. Facilities falling under each SCA are illustrated in Figures 24 and 25. Family housing units account for an additional 3 million SF of facility assets. However, since these facilities are operated and maintained under a PPV agreement, they are not included in the summary.

In addition to buildings and structures, there is nearly 2,000,000 square yards of pavement supporting airfield ops.

This section summarizes the issues impacting mission capabilities and COAs under each SCA. Included in the analysis is a comparison of assets to requirements and identification of asset quality.

CAPABILITY GAP SUMMARY BY SCA

The following provides a brief overview of the issues impacting each SCA. These issues are explored in greater detail in the following sections and then addressed within the ADP sections of the Comprehensive Plan.

Issues were identified through review of the 2011 Navy Region Southwest Regional Integration Plan, Master Plan workshops, stakeholder interviews, existing document review, and iNFADS data.

- **Airfield Ops**
  Expanding mission with Strike Fighter Realignment, new platforms with anticipated arrival of F-35C, and maintaining aging infrastructure to serve these missions
  See page 61
- **Training**
  Increasing requirements for new and/or expanding missions and maintaining aging infrastructure
  See page 66
- **Intermediate/Depot Level Maintenance**
  Aged infrastructure and increased maintenance capability requirements
  See page 70
- **Base Support**
  Base access and pedestrian connectivity shortfalls, aging administrative spaces, and fire station configuration
  See page 74
- **C5ISR Ops**
  Cell phone coverage unreliable on the Ops Side
  See page 79
- **Ordnance/Weapons Ops**
  Aging ordnance storage facilities and guided missile facility shortfall
  See page 81
- **Logistics and Supply**
  Aging and outdated infrastructure creates inefficiencies and large facility footprint requirements (ex: hangar space shortages are forcing a requirement for additional operational storage)
  See page 84
- **Sailor and Family Readiness**
  Aging and outdated dining facilities, UH, MWR clubs and other facilities, chapels, and the auditorium
  See page 88
- **Utilities**
  Deterioration of water, electric, and wastewater systems due to age
  See page 49
- **Family Housing**
  Managed by PPV
  See page 95

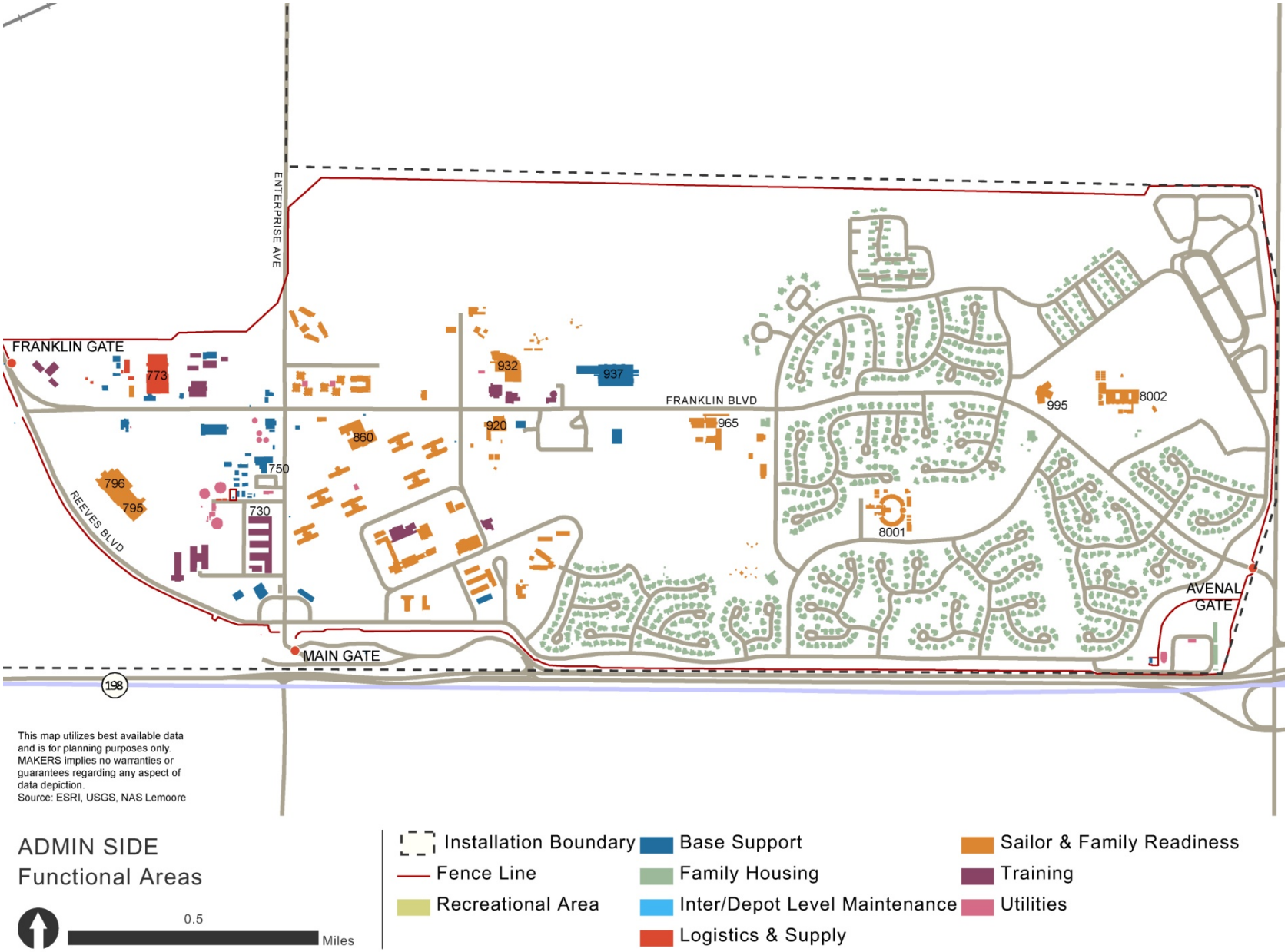


FIGURE 24. ADMIN SIDE FACILITIES BY SHORE CAPABILITY AREA

FIGURE 25. OPS SIDE FACILITIES BY SHORE CAPABILITY AREA

QUALITY RATING SUMMARY

Nearly 56% of facilities have substandard or inadequate condition rating (see Figures 26 and 27). Capability Areas with 50% or more of their facilities (by SF only) in substandard or inadequate condition include:

- Sailor and Family Readiness
- Airfield Ops
- Intermediate/Depot Level Maintenance
- Logistics and Supply

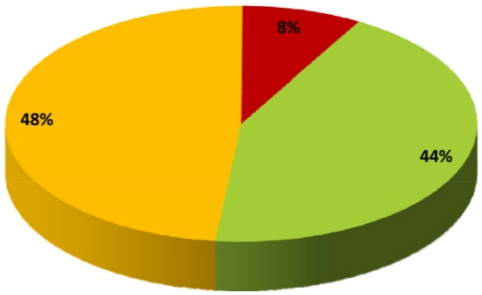


FIGURE 26. BASEWIDE FACILITY QUALITY

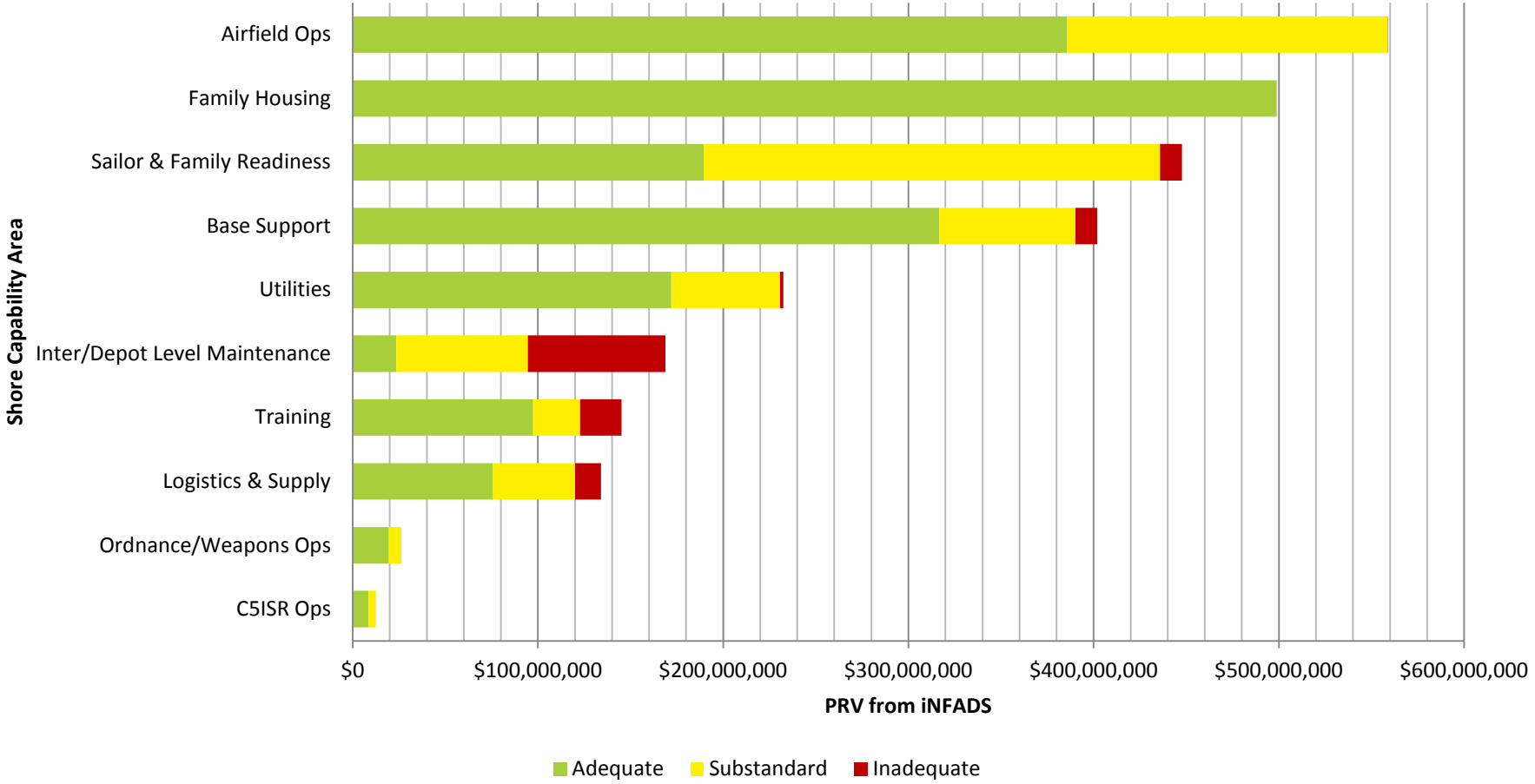
Source: iNFADS January, 2014

Quality ratings are illustrated below for facilities within each SCA. The physical quality rating is the lower of the condition rating and the configuration rating (unless configuration is 0) from iNFADS data, June 2013. Rating definitions include:

Green	Adequate; Quality score of 80 to 100; Minor or some deficiencies with negligible or limited impacts on capability to perform required facility missions
Yellow	Substandard; Quality score of 60 to 79; Significant deficiencies that prevent performing some required facility missions
Red	Inadequate; Quality score of 0 to 59; major deficiencies that preclude satisfactory accomplishment of facility missions

NAS Lemoore Gym, Adequate

FRC-W Facilities, Inadequate



Source: iNFADS January, 2014

FIGURE 27. BASEWIDE FACILITY QUALITY RATING BY SCA

ASSETS TO REQUIREMENTS ANALYSIS SUMMARY

Facility requirement shortfalls exist within nearly every SCA, creating a 15% shortfall overall. Nearly half of the total area shortfall is in Airfield Ops. Refer to Table 8 for a summary of the percentage shortfall. The greatest percentage of area shortfalls occur in the following:

- Ordnance/Weapons Ops
- Logistics & Supply

Shortfalls are based on current requirements only.

Red	Deficiency ≥ 40% of Requirement
Yellow	Deficiency > 20% and < 40% of Requirement
Lt Green	Deficiency > 10% and < 20% of Requirement
Dk Green	Deficiency ≤ 10% of Requirement
Blue	Surplus - Assets Exceed Current Requirement

Table 8. Basewide asset and requirements shortfall summary (buildings only)

Capability Area	BFR (SF)	Assets (SF)	Delta (SF)	% Shortfall
ORDNANCE/WEAPONS OPS	101,360	54,749	(46,611)	46%
AIRFIELD OPS	913,613	594,523	(319,090)	35%
TRAINING	543,582	428,901	(114,681)	21%
UTILITIES	39,432	31,722	(7,710)	20%
INTER/DEPOT LEVEL MAINT	478,730	389,697	(89,033)	19%
LOGISTICS & SUPPLY	240,942	231,324	(9,618)	4%
SAILOR & FAMILY READINESS	1,483,841	1,474,384	(9,457)	1%
BASE SUPPORT	534,105	552,805	18,700	*
C5ISR OPS	32,599	38,129	5,530	*
Total	**4,368,204**	**3,796,233**	**(571,971)**	13%

Source: iNFADS, January, 2014

AIRFIELD OPERATIONS

Airfield Operations facilities consist primarily of the five hangars required by VFA squadrons, the FRS, and NAS Lemoore SAR Unit. All facilities are located on the Ops Side.

Airfield pavements are generally in good condition. However, there are shortfalls for aircraft parking aprons and taxiways.

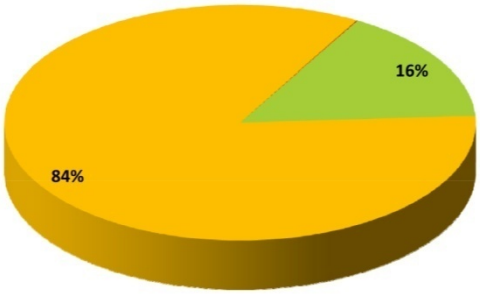


FIGURE 28. AIRFIELD OPS FACILITY QUALITY

Source: iNFADS, January, 2014

NAS Lemoore Airfield

Table 9. Airfield Operations assets and requirements summary (buildings only)

CCN	CCN Description	Assets (SF)	BFR (SF)	% Shortfall
13325	TACAN BUILDING	300	300	0%
13372	MTRACON	2,929	13,200	78%
13375	AIR SURVEILLANCE RADAR FAC	800	800	0%
13380	WHEELS WATCH SHELTER	280	400	30%
14111	AIR PASSENGER TERMINAL	9,270	9,270	0%
14140	ACFT OPS BLDG *EXC 141-70*	12,833	12,637	*
14170	CONTROL TWR ATTD/FREE STD	6,383	6,405	0%
21103	CORROSION CONTROL HANGAR	0	34,879	100%
21105	MAINT HANGAR-O/H SPACE	296,127	432,704	32%
21106	MAINT HANGAR-01 SPACE	141,752	225,497	37%
21107	MAINT HANGAR-02 SPACE	123,629	177,521	30%
Total		**594,523**	**913,613**	35%

Source: iNFADS, January, 2014

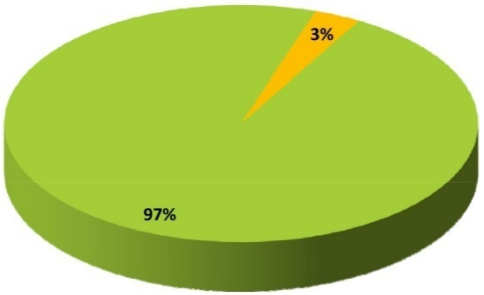


FIGURE 29. AIRFIELD OPS FACILITY QUALITY SUMMARY FOR PAVEMENTS

Source: iNFADS, January, 2014

Table 10. Airfield Operations assets and requirements summary (pavements)

CCN	CCN Description	Assets (SF)	BFR (SF)	% Shortfall
11110	RUNWAY / FW	600,000	600,000	0%
11210	TAXIWAY	494,958	570,571	13%
11320	AIRCRAFT PARKING APRON	533,398	624,267	15%
11340	AIRCRAFT ACCESS APRON	22,406	22,411	0%
11610	AIRCRAFT WASHRACK PAVEMENT	4,365	4,365	0%
11620	ACFT COMPASS CALIBRATE PAD	4,800	4,800	0%
11635	ARMING & DE-ARMING PAD	15,216	16,800	9%
11640	PREC APPR RADAR PAD	954	954	0%
11642	BLAST PROTECTIVE PAVEMENT	165,500	165,500	0%
11650	TOWWAY	1,440	1,440	0%
11660	FIRE / RESCUE VEHICLE PAD	270	325	17%
Totals		**1,843,307**	**2,011,433**	8%

Source: iNFADS, January, 2014

FIGURE 30. AIRFIELD OPS FACILITIES

ISSUES

The following issues have been identified for Airfield Ops.

- Hangars 1, 2, 3, and 4 were constructed in 1961 and have substandard quality ratings. Hangar 5 (1970) has an adequate quality rating. The depth of each hangar is 79 feet while the current UFC requires a depth of 95 feet. If current hangars are expected to house existing and new aircraft and meet UFC requirements, reconfiguration and upgrades will be necessary. F-35C will require 270 VDC power support for aircraft maintenance and unique SAPF requirements which needs to be within the hangar.
- NAS Lemoore is deficient 274,000 SF in aircraft hangar space (CCN's 211-05, 211-06, 211-07). The need for maintenance space will increase when two additional squadrons arrive as part of Strike Fighter Realignment and when F-35C arrives at NAS Lemoore.
- Due to hangar space shortfalls operational gear and equipment is stored on the hangar deck, reducing the amount of space available for aircraft parking and maintenance.
- Drop tanks and ground support equipment are stored within apron and taxiway clear zones due to a lack of suitable storage locations, requiring waivers and creating safety issues throughout the airfield.
- Squadrons conduct corrosion control in the operational hangars, which affects other operations and aircraft maintenance. A 34,879 SF Corrosion Control Hangar (21103 Corrosion Control Hangar) is required.
- Construction of a hush house (21101 A/C Acoustical Enclosure) was agreed upon as part of the Joint Land Use Study (JLUS). There is a shortfall of 12,096 SF.
- The shorter length of Hotel Taxiway limits the amount of aircraft take-offs and landings that can occur safely. Extending Hotel Taxiway to mirror the full length of the adjacent runway will eliminate the need for aircraft to taxi on the runway, which results in delayed take-offs and landings. Additionally, a Chief of Naval Operations (CNO) procedural waiver dated 14 March 1991 is in place for the existing length and the safety issues created when aircraft are backed up on the runway while aircraft are approaching/landing.
- Runway 32L lacks adequate lighting required for aviation training. The lack of Approach Lighting System for RWY32R/RWY14L increases approach visibility minimums by 1/4 mile. RWY32L/RWY14R has an approach lighting system and has lower minimums. Essentially, adding approach lighting on 32R will provide pilots with another visual reference to allow the aircraft to conduct an approach in poorer visibility.
- A Pilot Fit Facility has been identified as a requirement by the F-35 Lightening II Facilities Requirement Document (FRD). A Pilot Fit Facility is necessary to take individual pilot measurements for their unique flying gear. Because F-35C is a new platform there is not an existing Pilot Fit Facility at the Installation.
- Permanent power locations are not available on the aprons for aircraft, requiring the use of mobile power carts that require more manpower to setup and relocate.
- The lack of formally designated hot brake inspection areas means this function occasionally occurs at locations that pose safety risks, such as in front of the hangars.

- Turn Up Pads/Power Check Pads associated with F/A-18 Squadron hangars are near or below the minimum recommended Pavement Condition Index (PCI) per the Airfield Condition Survey conducted in June 2011. A requirement exists for two; therefore check pads at Hangars 1 and 4 are the only pads required while those at Hangars 2, 3, and 5 are available for reutilization.
- A helo pad (100' x 100', 20,000 lbs) is needed to support SAR training.
- Security gates/access currently do not exist along the airfield perimeter fence to allow for direct access by emergency vehicles. A recent aircraft crash just outside the fenceline required the fence to be cut for the fire truck to respond to the crash site.
- Current parking aprons are not configured for F-35C requirements. Aprons 1 through 5, each built before 1965, may need to be reconfigured to meet F-35C aircraft measurements and requirements. Parking requirements have not been determined.
- F-35 Lightening II FRD recommends Aircraft Protection Equipment (APE) for F-35C aircraft to shield planes and maintenance personnel from heat. Sun shades are only a recommendation at the moment. If they become a requirement, Naval Air Systems Command (NAVAIR) will provide equipment (non-facility solution).
- Per JAFAN 6/9, F-35C requires a Response-Force team for surveillance purposes. If an intrusion is detected, the response team or individual must arrive to the area as soon as possible to conduct an internal inspection. Specific facility requirements for the Response-Force team are still unknown.

F-35 C

TRAINING

There are a variety of training facilities required at NAS Lemoore in support of mission readiness, reserve training, professional advancement, and personal growth. NAS Lemoore is home to the following schools:

- Strike Fighter Weapons School Pacific (SFWSPAC)
- Center for Naval Aviation Technical Training Unit (CNATTU) Lemoore

The majority of buildings are in adequate condition as illustrated in Figure 31. The most significant area shortfalls fall under Operational Trainer Facility and Reserve Training Building.

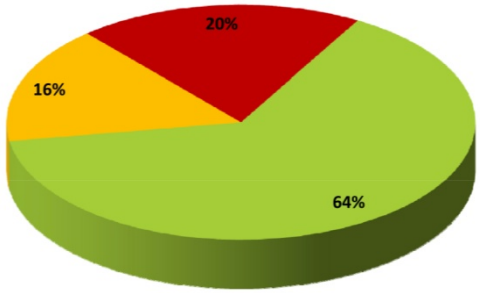


FIGURE 31. TRAINING FACILITY QUALITY

Source: iNFADS, January, 2014

Strike Fighter Weapons School Pacific

Table 11. Training assets and requirements summary

CCN	CCN Description	Assets (SF)	BFR (SF)	% Shortfall
17110	ACADEMIC INSTRUCTION BLDG	43,320	41,548	*
17115	RESERVE TRAINING BUILDING	37,734	62,666	40%
17120	APPLIED INSTRUCTION BLDG	156,067	171,406	9%
17125	GEN PRPSE AUDITORIUM	0	960	100%
17135	OPERATIONAL TRAINER FAC	93,062	155,489	40%
17177	TRNG MATRL STRG	6,404	10,230	37%
17310	RANGE OPERATIONS BLDG	2,077	2,400	13%
17330	COVERED TRAINING AREA	64,965	71,280	9%
74088	EDUCATIONAL SRVCS OFFICE	25,272	27,603	8%
Totals		**428,901**	**543,582**	21%

Source: iNFADS, January, 2014

FIGURE 32. TRAINING FACILITIES – ADMIN SIDE

FIGURE 33. TRAINING FACILITIES – OPS SIDE

ISSUES

The following issues have been identified for Training.

- The existing simulator training in Building 43 (constructed in 1981) is undersized and not configured to accommodate the unique simulators that are scheduled to arrive with the introduction of the first F-35C aircraft. The F-35C Lightening II FRD states an academic training center is a requirement.
- Building 4, the SFWSPAC Weapons School, has an inadequate quality rating. Deficiencies include an inconsistent alarm system, roof leaks, an inoperable fire suppression system, sewer backups in the restroom, inoperable air conditioning in the original portion of the facility, and insufficient electrical capacity, which limits the number of aircraft that can be trained on simultaneously.
- Fire and security personnel require an adequate training facility to simulate performing their missions in an urban environment. Current fire fighting training is conducted in facilities waiting to be demolished or in City of Lemoore owned training facilities.
- A 116 foot rappel tower is required for SAR training. A temporary solution is to use the old Control Tower; however it is only 50 feet tall.

ASTC facility

NOSC facility

- The ASTC Combat Training pool/tank requires replacement because the pool does not meet requirements.
- Navy College would benefit from a biology-chemistry laboratory located somewhere at NAS Lemoore with space for approximately 25 students. The Camp Hansen, Okinawa, Marine Corps Lifelong Learning Center is a good example of a biology laboratory and should be used as a prototype. The lab could be located at Akers Elementary School for daytime use by the school district and evening use by Navy College.
- The existing NOSC is located in Building 910. The facility has substandard condition rating and at 8,900 SF only meets a fraction of the 37,970 SF requirement. Operationally, the existing location is not within walking distance (10 minutes) to regular drill activities at the Hospital.

INTERMEDIATE/DEPOT LEVEL MAINTENANCE

Nearly 500,000 SF is required at NAS Lemoore to support FRC-W's mission. All West Coast F/A-18 and EA-18G aircraft receive critical service at NAS Lemoore, making FRC-W at NAS Lemoore the West Coast single point of failure for the F/A-18 aircraft. FRC-W supports NAS Lemoore's operational VFA squadrons and FRS as well as 102 additional aircraft based in Naval Air Facility (NAF) China Lake, NAS Fallon, and Edwards Air Force Base (AFB).

FRC-W also provides avionics system repair for EA-18G "Growlers" stationed at NAS Whidbey Island. By 2015 it is expected that 79 EA-18G aircraft will receive avionics systems maintenance annually at NAS Lemoore. A Repair and Return function also supports six deployed aircraft carriers (CVN) and Marine Aviation Logistics Squadrons (MALS). All work centers under the Avionics or 600 Division induct, troubleshoots, and repair retrograde material Weapons Replaceable Assemblies (WRA) and Shop Replaceable Assemblies (SRA) from F/A-18 A-G Fleet Squadrons.

Figure 34 illustrates that the majority of existing maintenance facilities are in substandard to inadequate condition. Table 12 identifies an overall area shortfall of 89,033 SF.

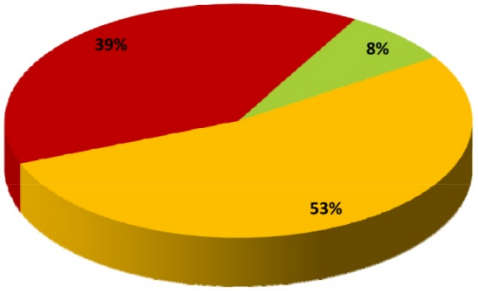


FIGURE 34. INTERMEDIATE/DEPOT LEVEL MAINTENANCE FACILITY QUALITY

Source: iNFADS, January, 2014

FRC-W facility

Table 12. Intermediate/Depot Level Maintenance assets and requirements summary

CCN	CCN Description	Assets (SF)	BFR (SF)	% Shortfall
21101	A/C ACOUSTICAL ENCLOSURE		12,096	100%
21108	AIRFRAMES SHOP (NON-DEPOT)	32,828	27,630	*
21110	A/C OVERHAUL & REPAIR SHOP	77,700	90,300	14%
21115	LINE MAINTENANCE SHELTER	20,652	26,817	23%
21116	AC INTERM MAINT MGMT	10,460	9,875	*
21121	ENGINE MAINTENANCE SHOP	56,557	103,185	45%
21145	AVIONICS SHOP (NON-DEPOT)	58,590	54,633	*
21154	AVIATION ARMAMENT SHOP	46,960	39,984	*
21165	WEAPONS EQUIPMENT SHOP	8,708	8,708	0%
21175	PARACHUTE & SURVL EQUIPT	6,798	6,750	*
21196	MAINT AC SPARE / STOR	11,011	18,032	39%
21210	GUIDED MISSILE INTEGRA FAC	8,780	19,117	54%
21710	ELECNX/COMMS MAINT SHOP	4,785	2,613	*
21850	BATTERY SHOP	1,110	1,110	0%
21860	GRND SUPPRT EQUIP SHP	23,380	31,642	26%
21861	GRND SUPPRT EQUIP HOLDING	21,378	26,238	19%
Totals		**389,697**	**478,730**	19%

Source: iNFADS, January, 2014

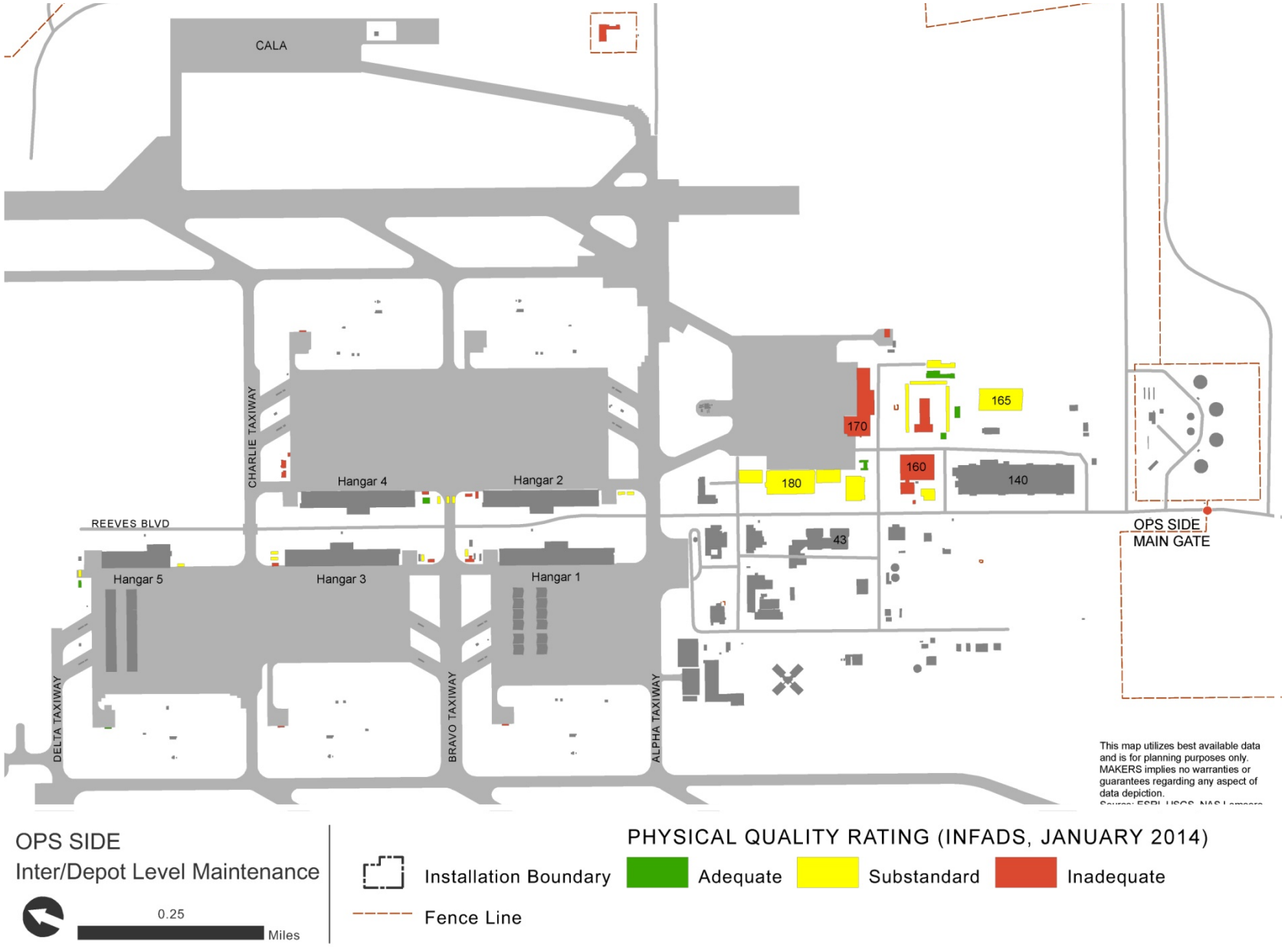


FIGURE 35. INTERMEDIATE/DEPOT LEVEL MAINTENANCE FACILITIES

ISSUES

- FRC-W functions are dispersed in multiple facilities that are rated substandard or poor. Most of these facilities were built before 1970 for the A-7 aircraft. FRC-W requires a modern, consolidated maintenance facility for their mission.
- The avionics shop in Building 160 cannot efficiently support current functions. Constructed in 1975, the facility has inadequate power distribution and an insufficient Heating, Ventilation, and Air Conditioning (HVAC) system. The avionics shop function is essential to FRC-W. The current facility has undergone numerous modifications that have exceeded the original A-7 support design capacity.
- The Jet Engine Repair Facility, Building 170, lacks an effective HVAC system, creating a need for difficult work-arounds to meet mission requirements. Due to insufficient cooling capacity, personnel will only work nightshifts during high heat days in the summer to prevent Occupational Safety and Health Administration (OSHA) violations. HVAC/environmental condition issues negatively impact work.
- P-282, Avionics Repair Facility Replacement, has been discussed for a very long time to address FRC-W facility shortfalls including an area deficit of 100,000 SF. It is important that FRC-W stays operational during implementation.

FRC-W facilities

- F-35C will require a Centralized Engine Repair Facility (CERF) to accommodate platform requirements. FRC-W lacks floor space to accommodate the F-35C requirement for propulsion maintenance. Per the 0+Conops, a CERF is required for F-35C aircraft.
- FRC-W 400 is a single site for F/A-18 E-G F414 engines; the current rate of product exceeds facility capacity. In FY 08-09, 20 engines were produced per month. The production rate has doubled to 40 engines a month.
- Post 3A will impact operational efficiency.
- F-35C will increase FRC-W facility square footage requirement. Without accounting for F-35C, there is a shortfall of 89,033 SF.
- Waivers are required for existing line maintenance facilities to comply with airfield safety clearance/setbacks. Most of the line shelters at NAS Lemoore are listed as substandard or inadequate in iNFADS. This impacts NAS Lemoore's primary mission of supporting F/A-18 squadrons and associated training.

Line maintenance shelter

BASE SUPPORT

The Base Support capability area includes facilities that support tenant commands and their missions. Facilities include fire stations, security, administrative functions, public works, and the Naval Hospital.

Available data indicates 76 percent of existing facilities are adequate (see Figure 36); however there are individual facilities that require upgrades. Shortfalls also exist in limited areas (see Table 13).

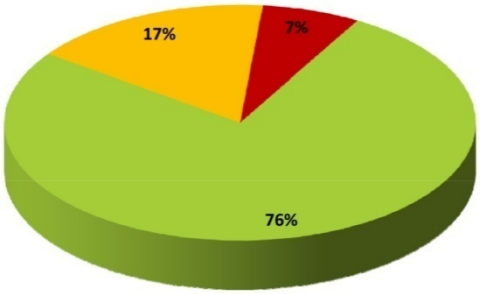


FIGURE 36. BASE SUPPORT FACILITY QUALITY

Source: iNFADS, January, 2014

Ops Side clinic

Main Gate

NAS Lemoore Naval Hospital

Table 13. Base Support assets and requirements summary

CCN	CCN Description	Assets (SF)	BFR (SF)	% Shortfall
12317	OVERHEAD COVER, MISC	9,600	6,000	*
14125	COMBINED FIRE/RESCUE STA	11,341	19,772	43%
14310	EMERGENCY VEHICLE GARAGE	2,080	0	*
21420	AUTO VEHICLE MAINT NONCOMB	43,328	39,777	*
21820	CONSTR/WT HNDLG EQUIP SHOP	4,739	3,000	*
21910	PUBLIC WORKS SHOP	23,486	18,100	*
21977	PW MAINTENANCE STORAGE	14,135	11,400	*
51010	HOSPITAL	202,639	175,000	*
51077	HOSPITAL/MED STRG(MISC)	4,404	7,184	39%
53045	VET TREATMENT FAC	1,656	1,656	0%
53060	MEDICAL WAREHOUSE	2,700	0	*
54010	DENTAL CLINIC	16,900	16,392	*
55010	PRIM CARE CLINIC	16,187	29,118	44%
55030	SUBSTANCE ABUSE REHAB PRGM	3,632	0	*
61010	ADMINISTRATIVE OFFICE	132,806	133,772	1%
61030	CLASSMATTER INCINERTR BLD	3,000	3,000	0%
61040	LEGAL SERVICES FACILITY	10,259	7,781	*
61077	ADMIN STORAGE (MISC)	9,838	7,783	*
73010	FIRE STATION	7,852	11,874	34%
73020	SEC BUILDING	12,402	16,504	25%
73025	GATE / SENTRY HOUSE	595	1,752	66%
73066	MISC PERS WEATHER SHELTERS	2,863	2,863	0%
73076	KENNEL	452	675	33%
73081	REHAB CTR (DRUGS/ALCOHOL)	0	6,065	100%
73082	RECYCLING CTR	8,387	8,387	0%
74018	BANK	1,500	1,500	0%
74019	CREDIT UNION	6,024	4,750	*
Total		**552,805**	**534,105**	*

Source: iNFADS, June 2013

FIGURE 37. BASE SUPPORT FACILITIES – ADMIN SIDE

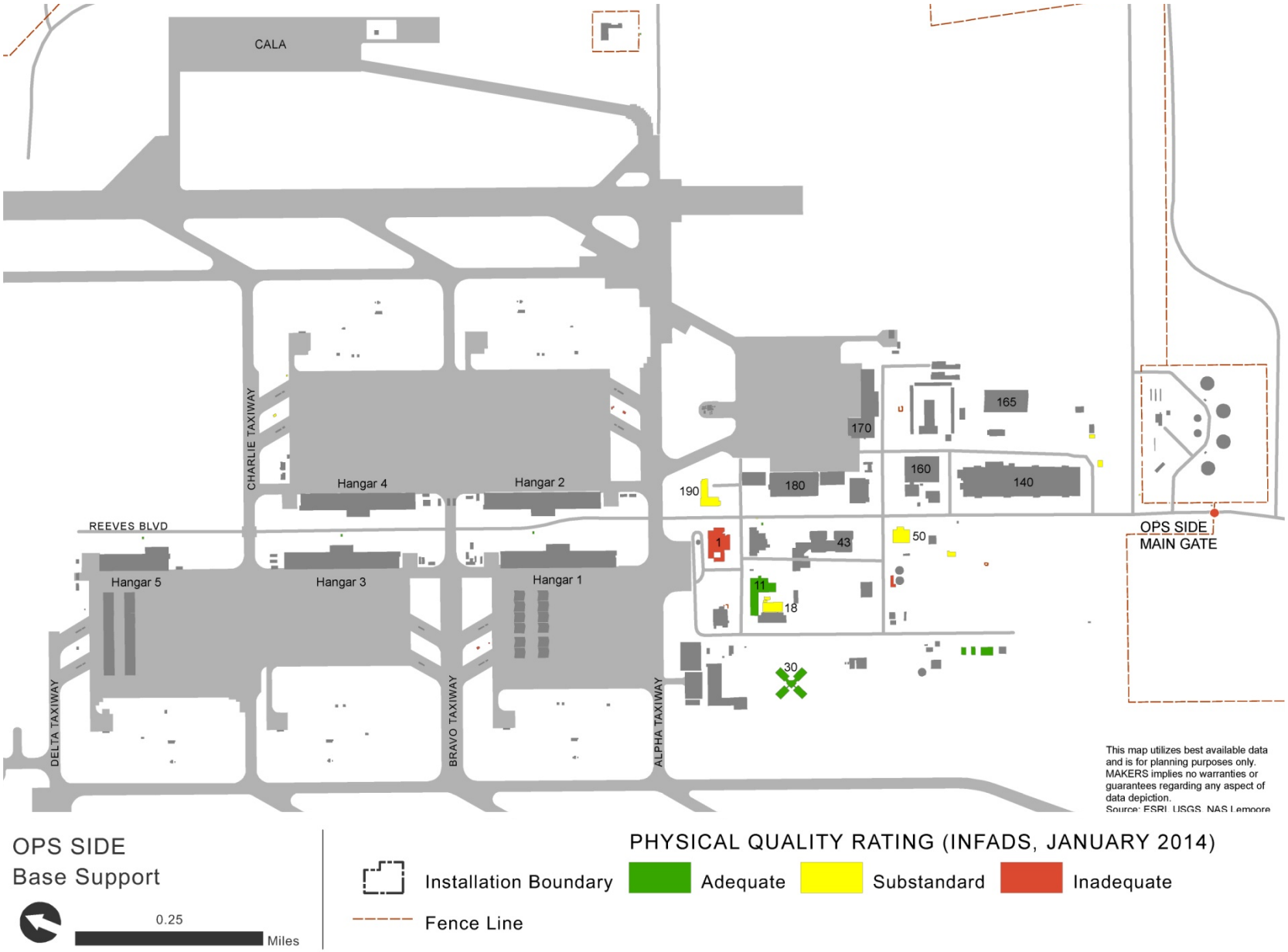


FIGURE 38. BASE SUPPORT FACILITIES – OPS SIDE

ISSUES

- Air Operation in Building 1 on the Ops Side has a poor condition rating and has only received periodic maintenance and minor improvements since its construction over 50 years ago. The building is not configured to accommodate CSFWP and Air Operation personnel. The facility provides a Military Terminal Radar Approach Control, in support of safe and effective air traffic control under all weather conditions; CSFWP HQ administration office in support of carrier-based attack, fighter and support mission training and squadron coordination; and flight operation functions, including flight control communications and weather services. In addition, the building serves as a gateway for personnel accessing the flightline along Reeves Boulevard and for VIP's arriving by plane at the adjacent passenger terminal.
- NAS Lemoore's existing fire stations are undersized and not designed to house modern fire-fighting equipment. Current fire-fighting vehicles fit into the bays but do not meet required three foot walking space clearance.
- The police station is experiencing a 4,000 SF deficiency. Emergency response services are not centrally located to meet ideal response times.
- Constructed in 1984, Building 736 is not properly configured to accommodate security requirements and is undersized for the number of personnel assigned to the Personnel Support Detachment (PSD). The current building has limited storage space and does not provide enough workspace. Reconfiguration is required to provide additional space for increased functions and to properly support the PSD mission.
- The Pass and ID facility is not properly configured or sized to support the current function. All visitors coming to NAS Lemoore are required to stop at the Pass and ID facility for processing. Currently, there is not enough room to support more than two personnel in the facility. The facility shortfall 1,157 SF.
- The UH parking lots on the Admin Side have poor outdoor lighting, resulting in poor visibility and decreased safety to Sailors during night hours.
- The military working dog kennels do not adequately meet requirements and have a space shortage of 223 SF. They lack required quarantine space and climate controlled food storage and prep areas.
- There are options to either locate a satellite security facility on the Ops Side or create an addition to the existing facility.

C5ISR OPS

A small number of facilities support Command, Control, Communications, Computers, Combat Systems, Intelligence, Surveillance, and Reconnaissance (C5ISR) at NAS Lemoore. As illustrated in Figure 39, 38 percent are in adequate condition.

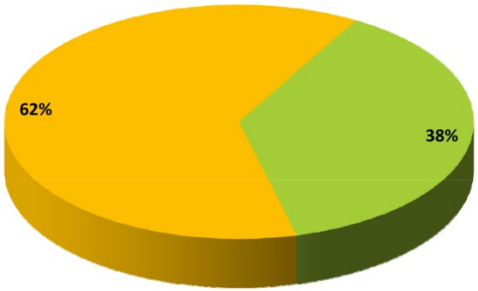


FIGURE 39. C5ISR OPS FACILITY QUALITY

Source: iNFADS, January, 2014

ISSUES

- Cell phone reception is poor on the Ops Side.

Table 14. C5ISR Ops assets and requirements summary

CCN	CCN Description	Assets (SF)	BFR (SF)	% Shortfall
13115	COMMUNICATIONS CENTER	19,791	19,104	*
13122	VHF/UHF COMMS FAC	120	120	0%
13135	RECEIVER BUILDING	1,188	1,188	0%
13140	TELEPHONE EXCHANGE BLDG	4,533	2,687	*
13150	TRANSMITTER BUILDING	7,485	7,485	0%
14365	OPCON CTR FOR FLEET OPS	5,012	2,015	*
Totals		**38,129**	**32,599**	*

Source: iNFADS, June 2013

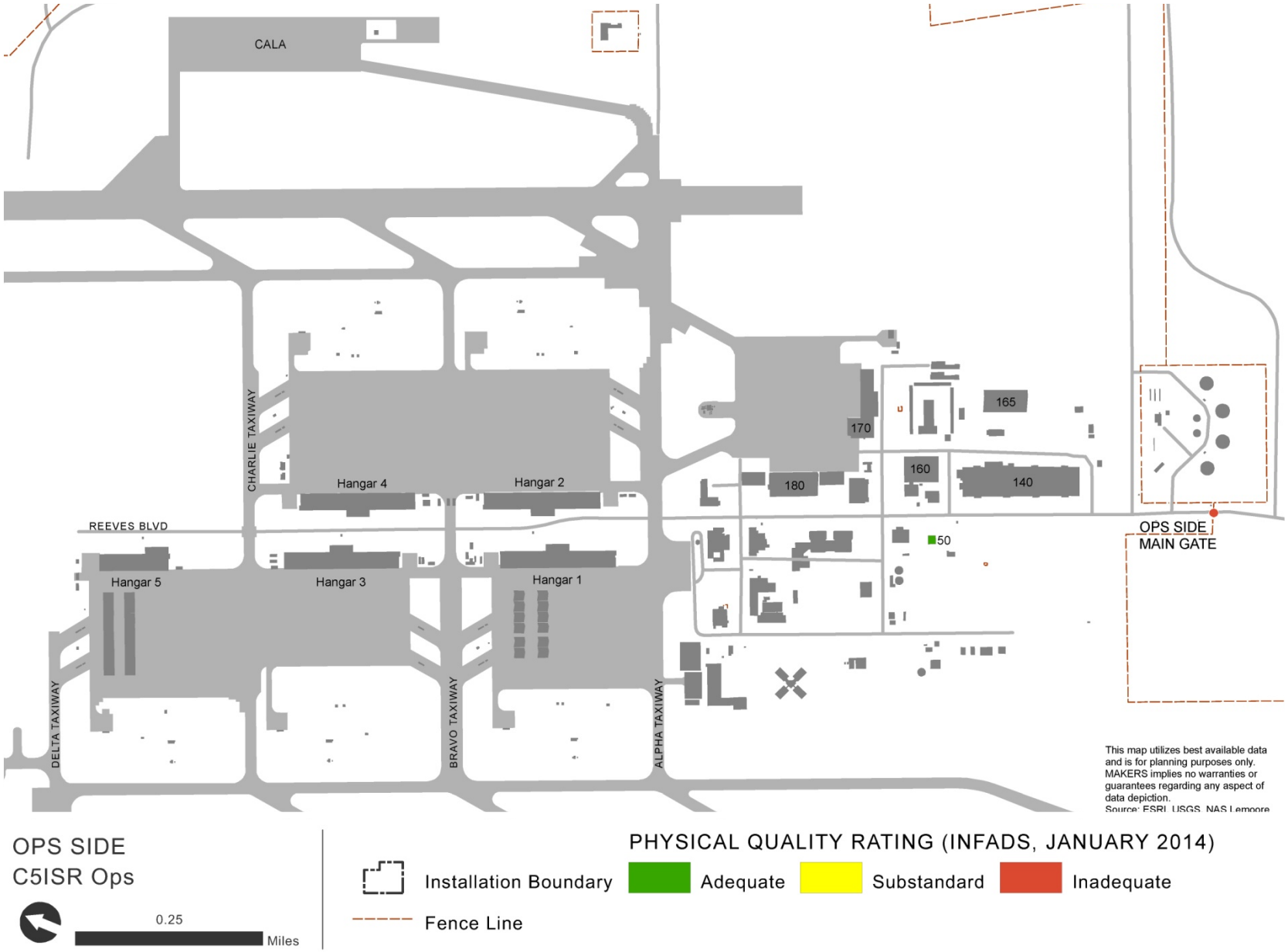


FIGURE 40. C5ISR FACILITIES

ORDNANCE/WEAPONS OPS

Ordnance facilities include magazines, ready service lockers, armories, and shops. Most of these facilities are located with a secure enclave outside the main Ops Side fence line. The majority of existing facilities are in adequate condition; however 40 percent of the current inventory is classified as substandard (Figure 41).

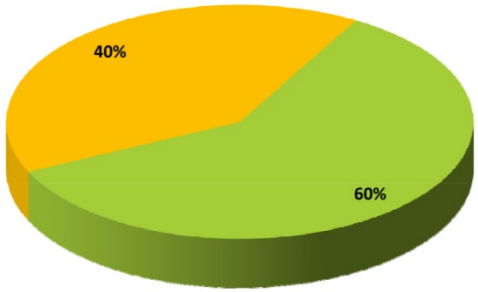


FIGURE 41. ORDNANCE/WEAPONS OPS FACILITY QUALITY

Source: iNFADS, January, 2014

Small arms firing range

Table 15. Ordnance/Weapons Ops assets and requirements summary

CCN	CCN Description	Assets (SF)	BFR (SF)	% Shortfall
14320	ORDNANCE OPERATIONS BLDG	6,219	6,500	4%
14345	ARMORY	540	1,200	50%
14360	EXPLOSIVES SHIP/TRAN DEP	4,628	7,938	42%
21605	CHANGE / RELIEF HOUSE	984	984	0%
21655	AIR/UNDRWTR WPNS SHOP	10,779	33,000	67%
42112	FUSE & DETONATOR MAGAZINE	308	500	38%
42122	HIGH EXPLOSIVE MAGAZINE	15,891	12,375	*
42132	INERT STOREHOUSE	12,850	32,850	61%
42135	READY MAGAZINE	1,175	4,500	74%
42148	SMALL ARMS/PYROTECHNIC MAG	1,375	1,513	9%
Totals		**54,749**	**101,360**	**46%**

Source: iNFADS, January, 2014

FIGURE 42. ORDNANCE/WEAPONS OPS FACILITIES

ISSUES

- The Guided Missile Facility in Building 472 is not configured to meet current operational requirements. Issues include limited operating space, low ceiling heights, no climate control, and limited outdoor staging space. The facility violates basic explosive safety principals, and is incapable of supporting 1.1 and 1.2 hazard class explosives. If building systems fail it causes a single point of failure for the Common Munitions Bit/Reprogramming Equipment (CMBRE) testing. The current facility was constructed to support A-1 & A-4 A/C "free fall/dumb bombs with advanced technology" and now is incapable of supporting weapons systems used on F/A-18 and future aircrafts. P-276 has been developed to replace the existing facility and relocate it to the main ordnance area to improve operational efficiency.
- Ordnance operations facilities fall outside the Ops Side controlled perimeter fence. The existing 11,850 feet of fencing should be evaluated to determine if it meets security requirements for ordnance storage and handling facilities.
- Ready Service Lockers (RSLs) at all five hangars are at least 43 years old and incapable of supporting growing airfield requirements. With the integration of three additional F/A-18 squadrons and F-35C, it is expected that current RSLs will not be able to support all airfield functions.

LOGISTICS AND SUPPLY

Logistics and supply facilities are required by organizations like NAVSUP and Defense Logistics Agency (DLA) that provide customer service and material support to the Installation and their tenant commands. These facilities include general warehouse space as well as special storage areas for fuels, gases, and other hazardous materials.

Approximately 42 percent of the facilities are in adequate condition as illustrated in Figure 43. Significant shortfalls exist under operational storage. This shortfall is associated with the need for squadron storage space on the flightline.

General purpose warehouse on the Ops Side

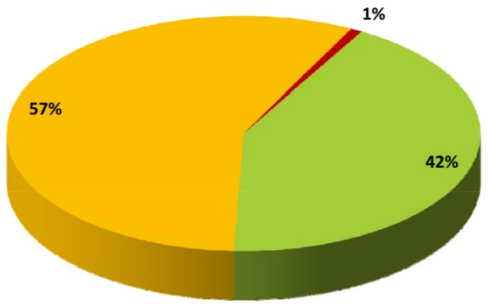


FIGURE 43. LOGISTICS AND SUPPLY FACILITY QUALITY

Source: iNFADS, January, 2014

Table 16. Logistics and Supply assets and requirements summary

CCN	CCN Description	Assets (SF)	BFR (SF)	% Shortfall
12520	SHLTR FOR PUMP STA	300	3,994	92%
14187	LIQUID OXY/NIT FAC(NONIND)	2,185	2,185	0%
14375	POL OPN/SAMPLING/TEST BLDG	2,591	2,338	*
14377	OPERATIONAL STORAGE	7,695	39,328	80%
21430	REFUELING VEHICLE SHOP	904	1,800	50%
44110	GENERAL PURP WAREHOUSE	182,013	156,248	*
44130	HAZARDOUS/FLAMMABL STRHSE	4,000	4,000	0%
44135	GENERAL STORAGE SHED	12,944	12,170	*
44172	SERVMART	18,692	18,942	1%
	Totals	**231,324**	**240,942**	4%

Source: iNFADS, January, 2014

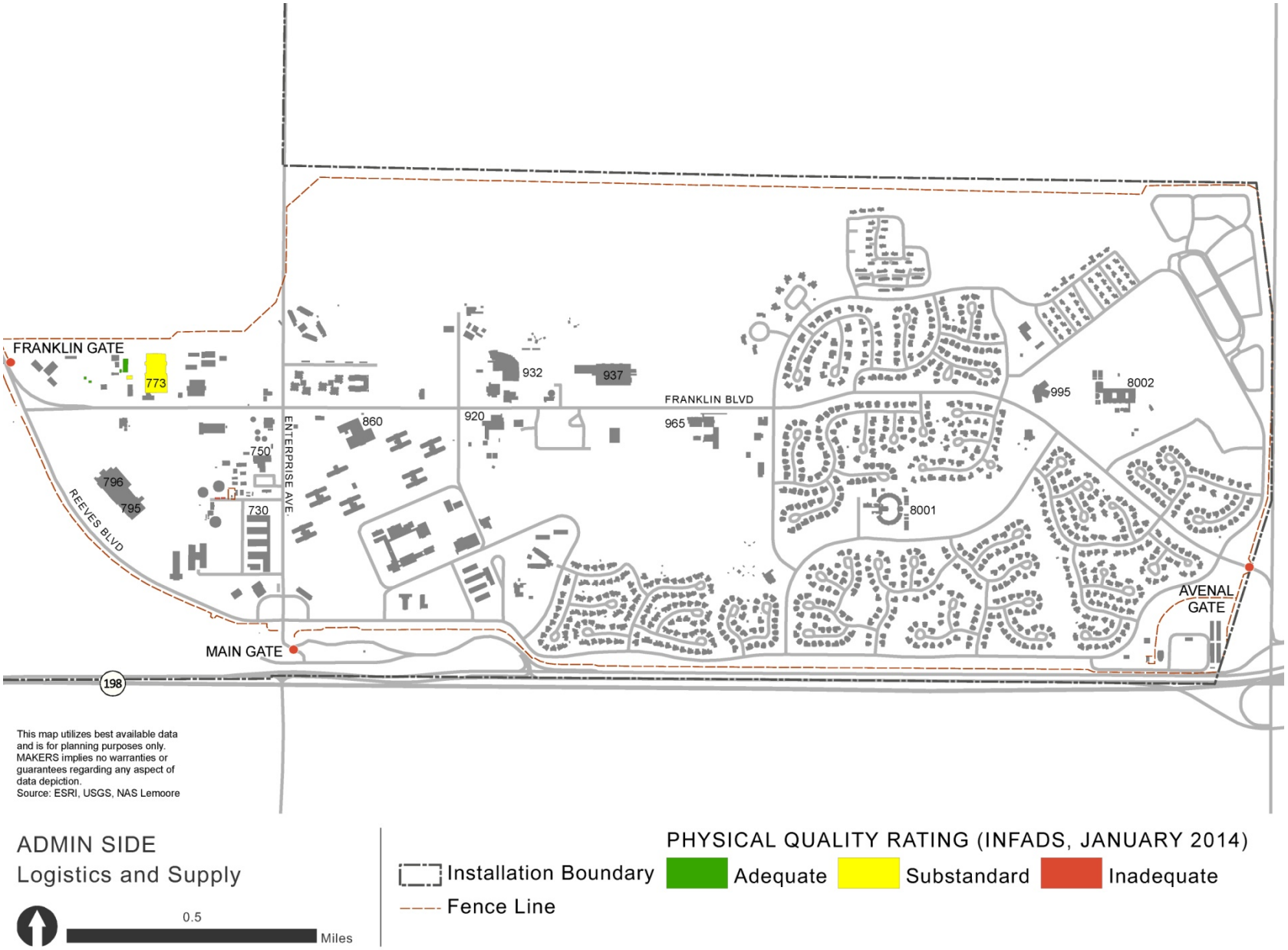


FIGURE 44. LOGISTICS AND SUPPLY FACILITIES – ADMIN SIDE

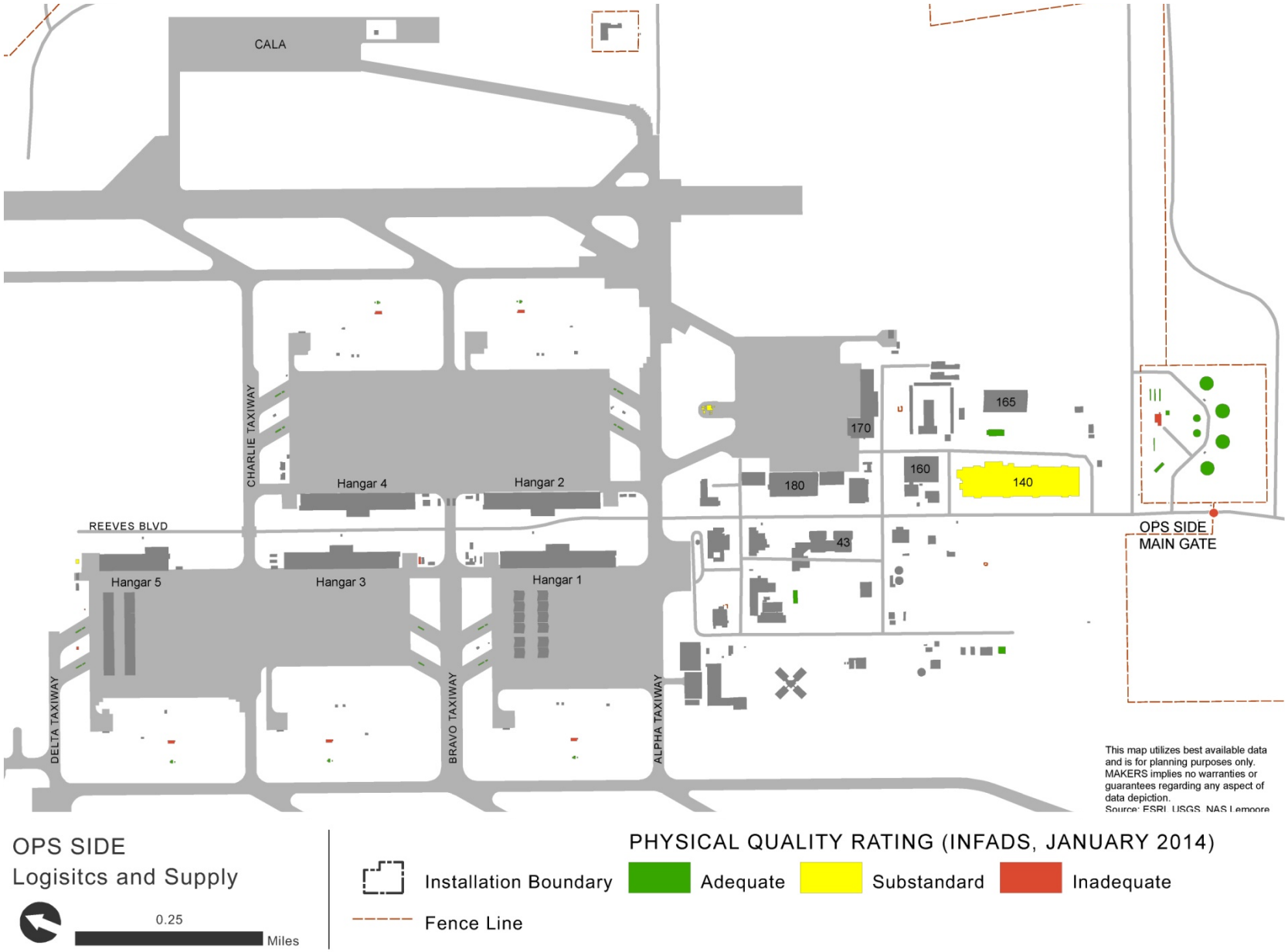


FIGURE 45. LOGISTICS AND SUPPLY FACILITIES – OPS SIDE

ISSUES

- NAS Lemoore's bulk fuel storage facilities and distribution system is incapable of supporting all of the Installation's airfield requirements due to its deteriorating physical condition. P-1508 is a FY15 project to replace the five underground tanks with three above ground and the 50 year old piping system.
- Cogenics and LOX facilities are operated by the Fuel Department. They receive nitrogen from a provider and they fill the pressurized flasks at the facility. A DLA study is underway to determine the future of this service.
- Operational Storage is undersized by 80%. Requirement is driven by shortfalls in the hangars.

Aircraft fueling trucks

SAILOR AND FAMILY READINESS

Facilities supporting Sailor and family readiness at NAS Lemoore include UH, the commissary and exchange facilities, religious facilities, and morale, welfare and recreation (MWR) facilities.

UNACCOMPANIED HOUSING (UH)

In support of its single Sailor population, NAS Lemoore operates 16 UH buildings that can accommodate approximately 1,800 personnel. The occupancy rate averages 89 percent for junior enlisted personnel and 50 percent for officers/senior enlisted personnel (DoN 2011a). Several projects are currently underway that will convert 20 percent of UH from two to one person per rooms, while leaving 80 percent of UH as two person rooms. These conversions will continue through 2017 and will result in a total of 1,600 spaces (DoN 2011a).

FOOD SERVICE

NAVSUP manages food service at NAS Lemoore. As of 2014, there is a large galley on the Admin Side that serves three meals per day. There is a smaller galley on the Ops Side that serves two meals per day.

A plan is in place to close the Admin Side galley in 2015 and merge the function with the existing club (Spud's Restaurant and Brew Pub).

EXCHANGE SERVICES

Navy Exchange Service Command (NEXCOM) is a retailing operation that provides goods and services to the military personnel at NAS Lemoore. NEXCOM is a self-supporting organization with the following retail and service departments (some provided through concession agreements) at NAS Lemoore:

- Navy Lodge
- Main store retail
- Bank
- Food court
- Auto repair and wash
- Mini mart (Jet Mart)
- Gas station
- FlyBy Diners
- Furniture store
- Uniform shop
- McDonald's

NAVY GATEWAY INNS & SUITES

Navy Gateway Inns & Suites (NGIS) is the lodging choice for temporary duty (TDY) travelers. They operate 141 effectively brand new guest rooms for transient visitors. A $28 million redesign and refitting project was completed in 2014.

COMMUNITY SUPPORT PROGRAMS

Community Support Programs (CSP) provides Sailors, Marines, families, retirees, reserves, and other eligible visitors with many recreational opportunities throughout the year. CSP includes the Fleet and Family Support Center (FFSC), UH, food and beverage, and child-youth programs. Facilities include:

- Movie theater
- Auto hobby shop
- Bowling alley
- Flying club
- RV park
- Outdoor Adventure Center (OAC)
- Outdoor parks and picnic areas
- Information tickets and travel
- Gym and pool
- Child and youth centers
- RV & boat storage
- Deployment parking
- Fleet and Family Support Centers
- The Oasis Club (Officers lounge and CPO lounge)
- Spud's Restaurant and Brew Pub
- UH
- Dining services

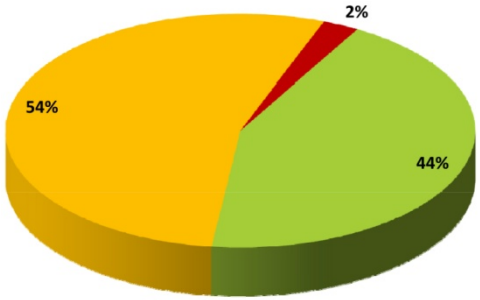


FIGURE 46. SAILOR AND FAMILY READINESS FACILITY QUALITY

Sources: iNFADS, January, 2014

Table 17. Sailor and Family Readiness assets and requirements summary

CNN	CNN Descriptions	Assets (SF)	BFR (SF)	% Shortfall
71432	COMMUNITY CENTER	7,418	7,418	0%
71433	HOUSING WELCOME CTR (HWC)	7,100	7,100	0%
72111	BEQ E1/E4	657,591	664,710	1%
72140	DISCIPLINARY BARRACKS	3,600	4,515	20%
72210	ENLISTED DINING FACILITY	68,028	60,520	*
72260	CONFERENCE CENTER BQ	8,233	8,233	0%
72360	TROOP HSG OTHER DET BLDG	9,220	1,400	*
72377	TROOP HSG STRG(MISC)	6,120	6,120	0%
73055	DEPENDT SCOL,GRADE SCOL	99,408	99,408	0%
73075	PUBLIC TOILET	1,191	1,191	0%
73083	RELIGIOUS MINISTRY FAC	17,303	24,838	30%
73085	POST OFFICE	2,834	4,500	37%
74001	EXCHANGE RETAIL STORE	57,584	57,584	0%
74002	LOCATION EXCHGE	31,173	31,173	0%
74003	EXCHGE CENTRL ADMIN	2,850	2,850	0%
74004	EXCHANGE / MWR FOOD SVC	8,697	7,806	*
74009	EXCHANGE SERVICE OUTLETS	9,147	8,884	*
74012	RED CROSS/NAVY RELIEF	1,634	1,776	8%
74013	EXCHANGE LAUNDRY DRY CL	635	635	0%
74016	EXCHANGE MAINTENANCE SHOP	1,681	3,341	50%
74020	TEMPORARY LODGING NVY LDG	44,332	44,332	0%
74023	COMMISSRY INC BACKUP STRG	44,153	55,191	20%
74025	FAMILY SERVICES CNTR	6,682	6,682	0%
74026	INSTALLATION REST (MWR)	4,262	4,262	0%
74030	EXCHGE AUTO REPAIR STA	6,324	5,724	*
74034	THRIFT SHOP	5,461	5,461	0%
74037	MWR OUTDOOR REC CTR	3,111	3,111	0%
74038	MWR AUTO SKILLS CTR	7,876	7,876	0%
74040	BOWLING CENTER	16,167	16,167	0%

Table 17. Sailor and Family Readiness assets and requirements summary (continued)

CNN	CNN Descriptions	Assets (SF)	BFR (SF)	% Shortfall
74044	INDOOR PHYSICAL FIT CTR	64,823	58,240	*
74047	INFO, TKT TRAVEL OFFICE	1,410	1,410	0%
74052	GUN/SKEET/TRAP BLDG	1,498	1,498	0%
74054	MWR MIL REC CENTER	5,713	5,713	0%
74055	YOUTH & SAC (6-18 YRS)	26,722	26,722	0%
74056	THEATER	17,200	17,200	0%
74060	COMMISSIONED OFF CLUB	11,008	11,008	0%
74067	ALL HANDS CLUB	30,420	30,420	0%
74074	CHILD DEVELOPMT CENTER	46,022	46,022	0%
74075	NAVY FLYING CLUB FACILITY	1,920	1,920	0%
74077	MWR READY STOR	9,153	2,537	*
74078	RECREATION PAVILION	11,200	11,200	0%
74086	EXCHANGE INSTALLATION WHSE	32,037	41,700	23%
74091	MWR CAR WASH	2,825	2,825	0%
74092	MWR RV SUPPORT BLDG	1,200	1,200	0%
74094	VIS QTR (NGIS SINGLE RMS)	53,178	53,178	0%
74095	VIS QTR (NGIS SUITES)	17,640	17,640	0%
74096	VIS QTR (NGIS DV SUITES)	600	600	0%
Total		**1,474,384**	**1,483,841**	1%

Source: iNFADS, January, 2014

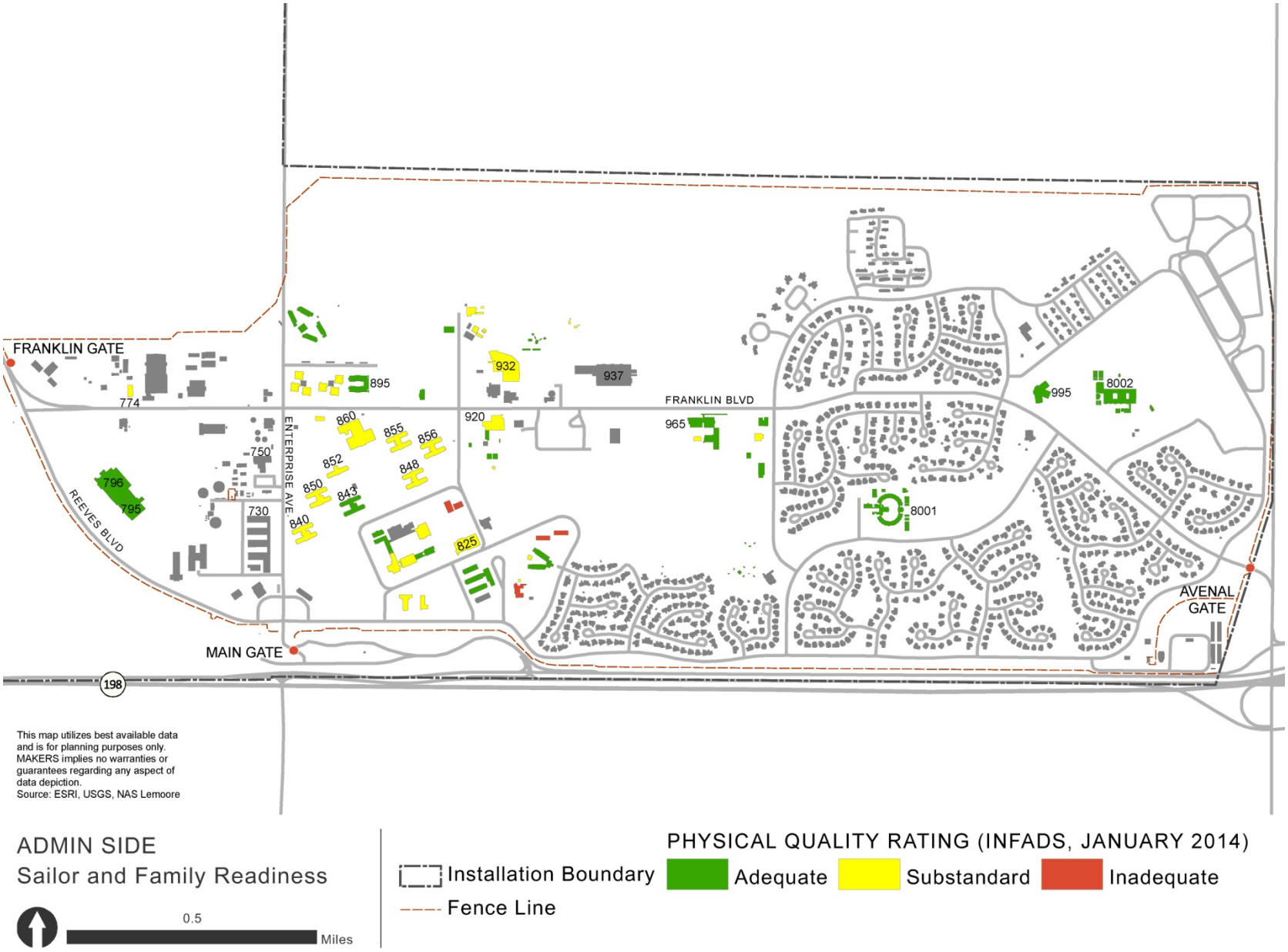


FIGURE 47. SAILOR AND FAMILY READINESS FACILITIES – ADMIN SIDE

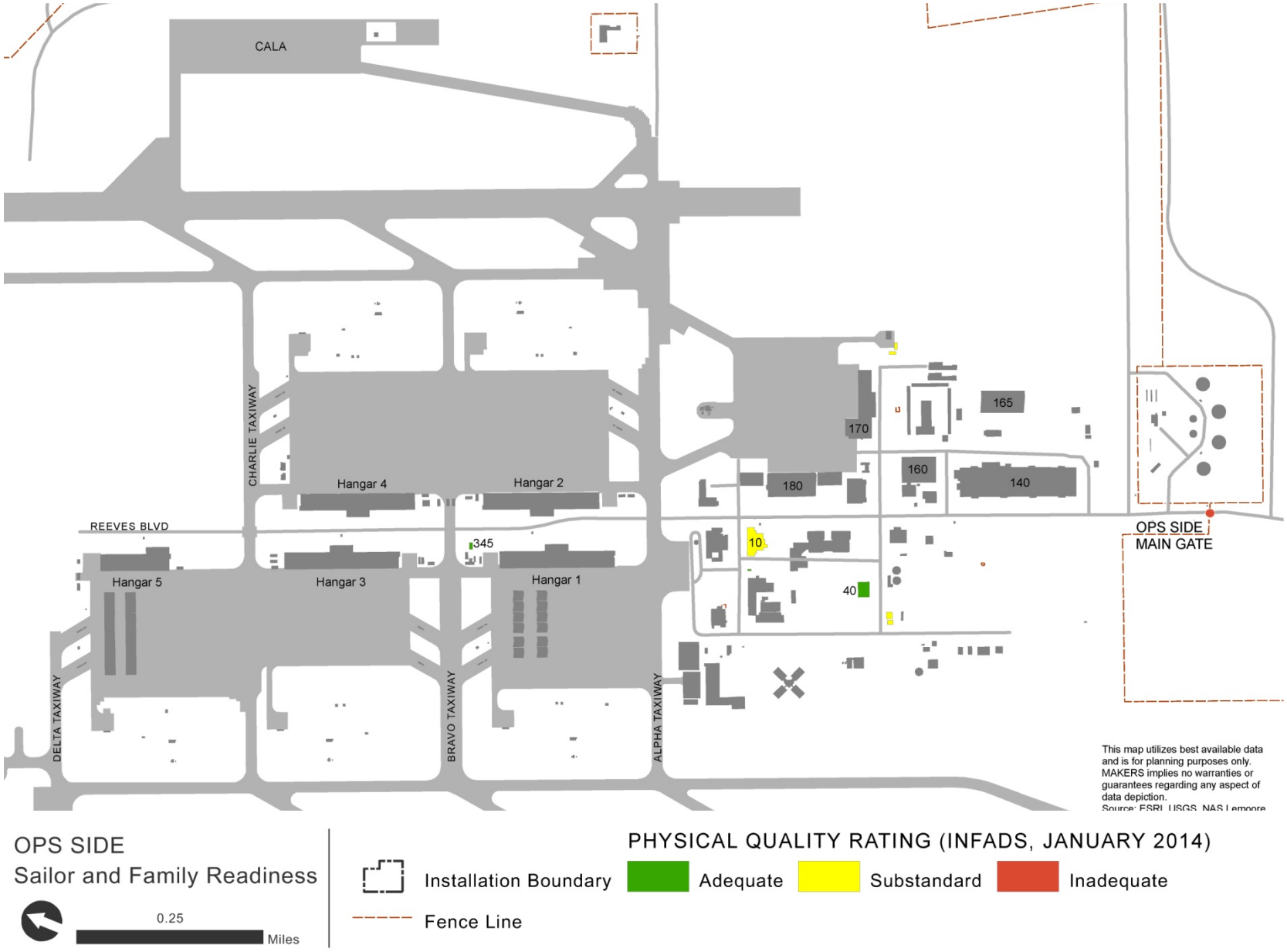


FIGURE 48. SAILOR AND FAMILY READINESS FACILITIES – OPS SIDE

ISSUES

UNACOMPANIED HOUSING

- Most UH was built in the 1960's and has substandard quality rating. The R-19 currently shows a surplus, however the R-19 is being updated and is expect to show a small deficit. A bed deficiency is expected to occur with the integration of current Navy standard module requirements.

FOOD SERVICE

- The Admin Side galley, Building 860, serves approximately 12,000 to 15,000 meals per month. It was constructed prior to 1961, has a substandard quality rating, and is significantly oversized for the number of meals served. The working and food prep areas are inefficient.
- The Ops Side galley, Building 10, was constructed in 1961 and provides meals in the galley and through a flightline delivery service that allows operations/ maintenance to continue uninterrupted. On average 9,100 meals are served per month by the Ops Side galley. This facility has a substandard quality rating and inefficient working and food prep layout.
- Easy and healthy food service options for single Sailors are limited on the flightline. The distance between the Admin and Ops Sides and the limited amount of time available during the day precluded travel between the operating areas for lunch. The NEX dinners within Hangars 1 and 3 have a limited fast food selection that cannot be purchased with a Sailor's food allowance.

Main galley

NEX

EXCHANGE SERVICES

- A drive-through car wash is considered a viable asset. A site needs to be identified.
- The existing NEX gas station and auto repair shop is in poor condition and on a contaminated site.

FAMILY SUPPORT

- In the past, the Child Development Center (CDC) was undersized and did not meet demand. In 2011 the CDC was expanded to add an infant wing and there is currently capacity for an additional 100 children.
- The Teen Center, Building 970, was built in 1971 and is nearly at the end of its useful life with a substandard rating. The facility is undersized, with only a half basketball court, two active rooms, and a band room. Modern amenities like a computer lab are needed.
- FFSC is not configured properly to provide private offices required for counseling offered to military personnel and their families. Additionally, the number of staff will be increasing from 29 to 34, which may create a space shortfall. An additional facility on the Ops Side would increase services to military personnel. The small chapel on the Ops Side is currently used by FFSC for a few hours every week for counseling.

PERSONNEL SERVICES

- The Installation auditorium located in Building 822 (built in 1961) has a substandard rating. The auditorium needs to be improved to better serve active duty Sailors at NAS Lemoore, as 83% of the building's hours of operation is dedicated for command gatherings. The facility averages 17 uses monthly or 204 uses yearly for training, deployment briefs, and all hands activities for groups of up to 1,000. No other building has a seating capacity of more than 250 people. With additional squadrons coming to NAS Lemoore by FY2016, it is anticipated that the auditorium use will increase proportionally for large groups. If the auditorium is closed, large command gatherings would take place in hangar deck space. This would result in time wasted in the preparation of the event (i.e. removing aircrafts, bringing in equipment, setting up chairs, and cleaning up the hangar), which disrupts squadron operations and impacts aircraft maintenance activities. The auditorium is oversized as an installation theater and could have a theater capacity closer to 250 seats.
- Current religious ministry activities are held in Buildings 810 and 811 on the Admin Side and Building 345 on the Ops Side. At the Admin Side there is a deficiency of 8,415 SF in the religious ministry function (CCN 730-83). Buildings 810 and 811 are also in substandard condition. Religious services are conducted outside most of the time because current facilities are not configured correctly and have limited capacity.
- The Ops Side chapel is within the security enclave in an area that would be better utilized by airfield operations. The primary users of the chapel are located within the Airfield Ops area.

MWR

- Outdoor recreational facilities throughout the Installation lack support facilities, including shade structures to provide shelter from harsh sun and heat common to the Central Valley. Restroom facilities are also lacking.
- All MWR buildings original to the Installation have been renovated, however the infrastructure is aging. Overall the buildings may only have about 5-10 more years of operational use left, regardless of renovations. Opportunities should be explored to replace multiple MWR facilities with a multipurpose facility.
- The Liberty Center has been closed and consolidated into Spuds Restaurant, which provides similar amenities for single Sailors. Community Programs is retaining the former Liberty Center for a future use that has not yet been identified.
- The theater/bowling alley/Navy College complex would benefit from additional uses that would activate the courtyard space during the day. Offices and retail should be considered as possible uses.
- The RV park needs power and other improvements, possibly including a skate park, increased shade structures, and restroom improvements.
- Community Support has a need for more storage space for items they periodically utilize including furniture, equipment, play items, and maintenance materials.
- The "O" (Officers) club does not perform well for MWR. Options should be considered to make these types of facilities more viable for MWR to operate.
- Karen Mechem Park should be upgraded with enhanced shade options, restrooms, and wind protection. Options should also be considered for relocating the RV park to a site at or near Karen Mechem Park.

FAMILY HOUSING

There are 1,630 housing units within seven communities serving families at NAS Lemoore. Family housing is managed by Lincoln Military Housing through a PPV with the Navy. There are also two family centers, Linoln Center North and South, within the family housing area.

ISSUES

- The family housing area is currently 94% to 96% occupied with 125 families on the waitlist. Community housing is also operating near capacity, forcing some families to look outside the market area to find housing in south Fresno and high-rent neighborhoods in Visalia. This results in longer commutes (up to one-hour), safety concerns (thick fog on the highways during parts of the year), and affordability issues. Mission growth will force more families to find housing outside the market area.

Existing family house

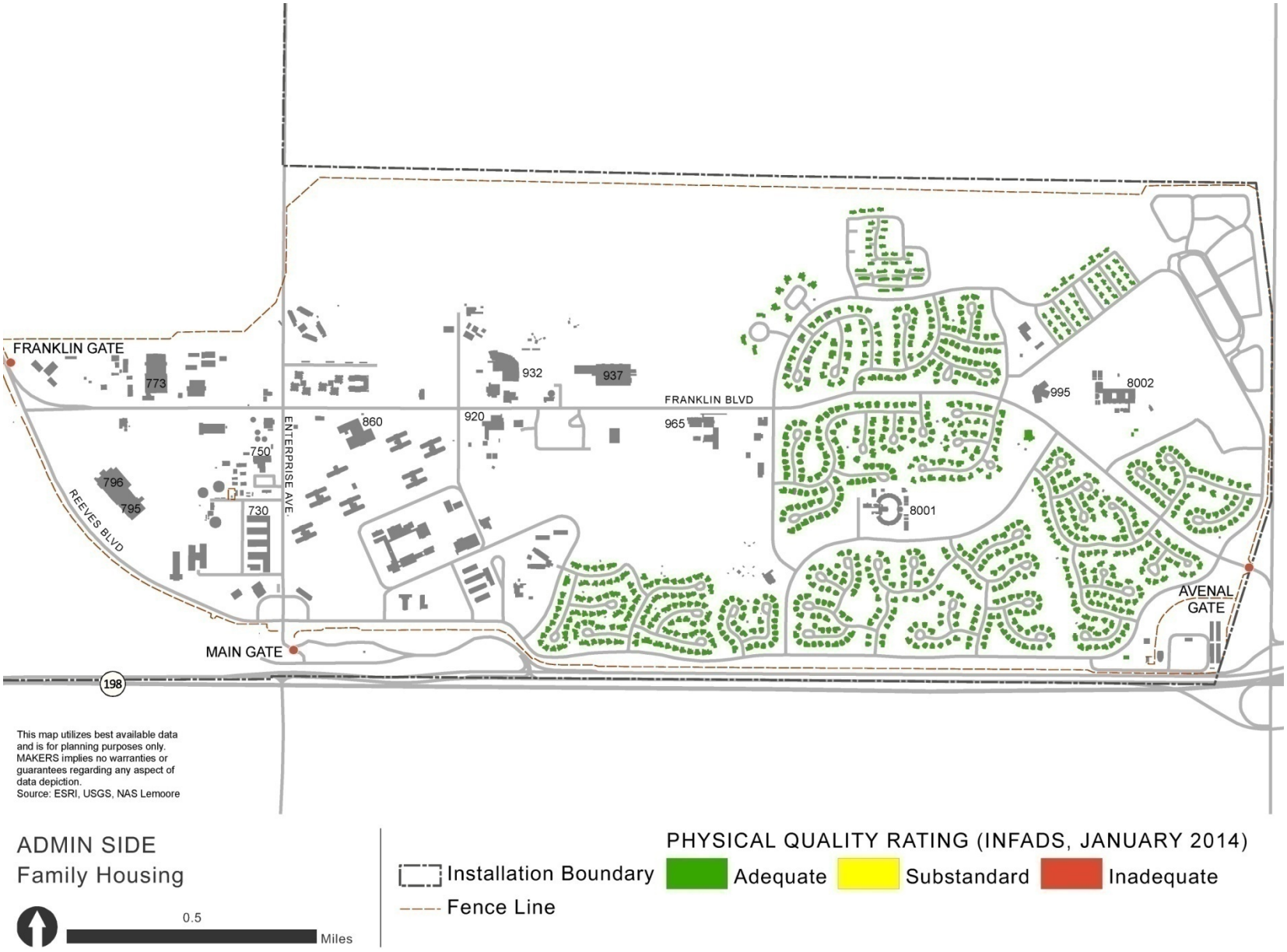


FIGURE 49. FAMILY HOUSING FACILITIES

COMPREHENSIVE PLAN

The Comprehensive Plan provides a blueprint for NAS Lemoore's future. It provides a vision for the Installation, as well as the guidance needed to achieve that vision.

The Comprehensive Plan will most frequently be used when siting new facilities or missions. Planners will use the Plan to answer the following questions.

- What district is appropriate for the facility?
- Are there any development constraints within the district?
- Which sites within the district are designated for the intended use?
- Do any of these sites have the required development capacity?
- What building standards should be applied to ensure the facility meets planning goals?

In addition to siting new facilities, stakeholders might also use the Plan in a variety of other ways.

Installation Snapshot
The Plan provides a summary of facility occupants and condition, as well as a broader overview of the issues and opportunities impacting operations.

Opportunity Identification
Identifying and capitalizing on opportunities allows NAS Lemoore to stay ahead of the curve and maximize available resources.

Development Capacity
Development capacity of the Installation as a whole as well as individual districts is included as part of the planning analysis. This data can be used to support future data calls related to mission growth at NAS Lemoore.

Project Design
Design teams can use the planning and building design standards to ensure projects meet the intent of the vision.

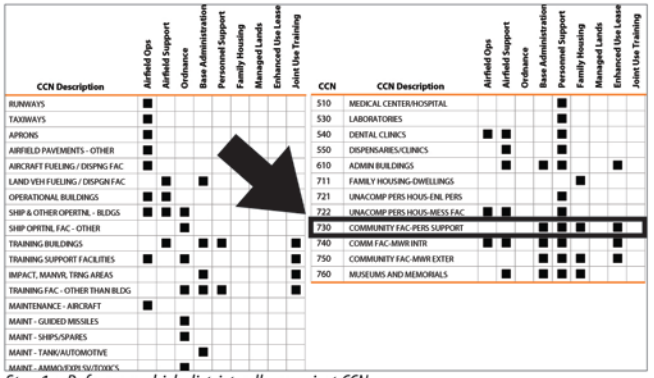
Figure 50 describes how planners will use the Installation Development Plan to site future projects in a manner consistent with the Master Plan vision. Initially, Table 19 should be referenced to determine which district is most appropriate for the project. Once the district has been identified, the district's Regulating Plan can be used to select a specific site, guide facility orientation on the site, and identify relevant design standards based on the building use.

If you are having difficulty selecting the appropriate district for your project, contact NAVFAC for assistance.

Step 1: Identify Appropriate Area Districts for Project Siting

Begin by referencing the Permitted Uses Table and Framework Plan to identify which district or districts are appropriate for the project. Once the appropriate district is selected for the use, proceed to Step 2 for instructions on how to properly site the project.

Example: The MWR Library is permitted in the Base Administration District ADP, Personnel Support District ADP, and Family Housing District. Based on its proximity to unaccompanied housing, the Personnel Support District is selected as the preferred District.



CCN Description	Airfield Ops	Airfield Support	Ordnance	Base Administration	Personnel Support	Family Housing	Managed Lands	Enhanced Use Lease	Joint Use Training
RUNWAYS	■								
TAXIWAYS	■								
APRONS	■								
AIRFIELD PAVEMENTS - OTHER	■								
AIRCRAFT FUELING / DISPNG FAC	■								
LAND VEH FUELING / DISPGN FAC		■		■					
OPERATIONAL BUILDINGS	■	■							
SHIP & OTHER OPERTNL - BLDGS	■	■	■						
SHIP OPRTNL FAC - OTHER			■						
TRAINING BUILDINGS		■		■	■				■
TRAINING SUPPORT FACILITIES	■		■						■
IMPACT, MANVR, TRNG AREAS				■					■
TRAINING FAC - OTHER THAN BLDG			■	■	■				■
MAINTENANCE - AIRCRAFT	■								
MAINT - GUIDED MISSILES			■						
MAINT - SHIPS/SPARES			■						
MAINT - TANK/AUTOMOTIVE				■					
MAINT - AMMO/EXPL SV/TOXICS			■						

CCN	CCN Description	Airfield Ops	Airfield Support	Ordnance	Base Administration	Personnel Support	Family Housing	Managed Lands	Enhanced Use Lease	Joint Use Training
510	MEDICAL CENTER/HOSPITAL					■				
530	LABORATORIES					■				
540	DENTAL CLINICS		■	■		■				
550	DISPENSARIES/CLINICS			■		■				
610	ADMIN BUILDINGS			■	■	■				■
711	FAMILY HOUSING-DWELLINGS						■			
721	UNACOMP PERS HOUS-ENL PERS					■				
722	UNACOMP PERS HOUS-MESS FAC	■	■			■				
730	COMMUNITY FAC-PERS SUPPORT				■	■	■			■
740	COMM FAC-MWR INTR	■	■		■	■				■
750	COMMUNITY FAC-MWR EXTER				■	■	■			■
760	MUSEUMS AND MEMORIALS		■		■	■	■			

Step 1a: Reference which districts allow project CCN

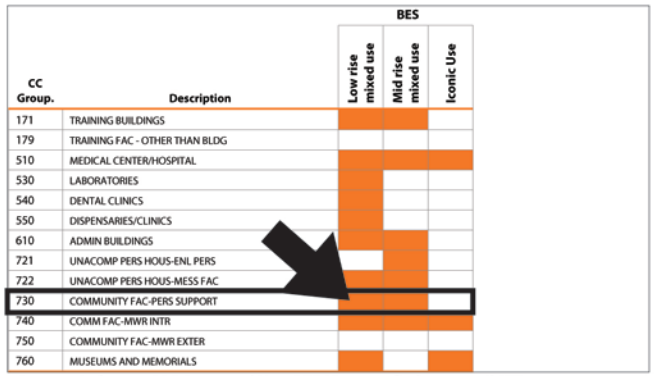
Step 1b: Reference Framework Plan to identify the location of each district

FIGURE 50. HOW TO USE THIS MASTER PLAN TO SITE NEW FACILITIES

Step 2: Select Appropriate Site for Development

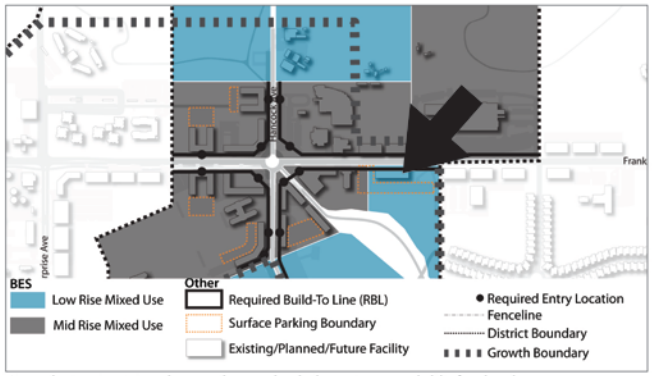
Reference the District Permitted Uses Building Envelope Standard (BES) Matrix to find which permitted BES type (or types) align with the use. Once the BES type is found, select an available site or sites with that BES within the district, using the Regulating Plan. When the ideal site or sites have been selected proceed to Step 3.

Example: After reviewing the Low Rise Mixed Use sites within the Personnel Support District, it is determined that it should be located adjacent to the future unaccompanied housing project on a small Low Rise Mixed Use parcel central to the core area.



CC Group.	Description	BES: Low rise mixed use	BES: Mid rise mixed use	BES: Iconic Use
171	TRAINING BUILDINGS	■	■	
179	TRAINING FAC - OTHER THAN BLDG			
510	MEDICAL CENTER/HOSPITAL	■	■	■
530	LABORATORIES	■		
540	DENTAL CLINICS	■		
550	DISPENSARIES/CLINICS	■		
610	ADMIN BUILDINGS	■	■	
721	UNACOMP PERS HOUS-ENL PERS		■	
722	UNACOMP PERS HOUS-MESS FAC	■	■	
730	COMMUNITY FAC-PERS SUPPORT	■	■	
740	COMM FAC-MWR INTR	■	■	■
750	COMMUNITY FAC-MWR EXTER			
760	MUSEUMS AND MEMORIALS	■		■

Step 2a: Reference ADP Permitted Uses BES Matrix to find permitted BES category



Step 2b: Use ADP Regulating Plan to check that site is available for development

Step 3: District Design Guidelines

Once the site is selected, use the District Regulating Plan to establish where the building should face and the location of parking. Additionally, use both the Illustrative Plan and building standards to establish building form, streetscaping, landscaping, and architectural character.

Example: Upon selection of the project site, the building form is then determined by following the guidelines of the District Regulating Plan, Illustrative Plan, and design standards.

Step 3: Reference ADP Illustrative Plan to assist with project design

Step 3 continued: Reference ADP Design Guidelines for detailed guidance on architectural and site design

VISION PLAN

The Vision Plan section includes the following:

- **Planning vision statement**
  Describes a desired end-state that the Master Plan should support
- **Planning goals and objectives**
  Identifies the goals and strategies that support fulfillment of the planning vision
- **Developable area analysis**
  Illustrates the overall development capacity of NAS Lemoore
- **Framework plan**
  Establishes districts, key transportation and land use concepts, and other significant features that guide plan development

Planning goal: enhance the mission

PLANNING VISION

The planning vision was developed through a collaborative effort with NAS Lemoore leadership and stakeholders. Unlike the Installation mission statement, which outlines NAS Lemoore's purpose as a military Installation, the planning vision defines the principles that guide development of the Master Plan.

PLANNING GOALS

Adherence to the planning goals and strategies helps ensure that all future projects are consistent with Master Plan objectives and contribute to fulfillment of the planning vision. Planning goals are general in nature, while the strategies provide specific guidance to facilitate implementation. Goals and strategies are summarized in Table 18.

Planning goal: compact development with pedestrian connections and integrated open space

NAS LEMOORE MISSION STATEMENT

As the Navy's premier Strike Fighter Master Jet Base, Naval Air Station Lemoore provides the infrastructure, products, and services that enable Commander, Strike Fighter Wing Pacific squadrons to conduct operations in support of National Tasking; enables readiness through quality of life services; fosters and strengthens collaborative community relationships; and achieves installation efficiencies through innovation. We all need to keep this in the forefront of our minds each and every day with everything that we do while upholding the Navy Core Values of Honor, Courage, and Commitment.

PLANNING VISION STATEMENT

NAS Lemoore is the Air Station of choice for Aviators, Sailors, support personnel, and families that desire an uncompromised training environment in a setting that fosters positive growth and development of our war-fighters, a strong sense of community, and healthy lifestyle choices for all.

Table 18. Planning goals and objectives

Goals	Planning Strategies
1. Enhance mission capabilities	• Provide facilities that create a productive and enjoyable workplace for NAS Lemoore personnel executing the mission • Replace facilities in poor condition or nearing the end of their service life with new facilities that align with the Master Plan vision • Identify projects to address current shortfalls • Pursue opportunities to strengthen NAS Lemoore's potential to accommodate mission growth, joint basing, and/or partnerships with private industry • Incorporate defensible strategies to protect critical infrastructure and personnel
2. Promote health and well-being with a multimodal transportation system that provides alternatives to single occupant vehicles	• Enhance and expand existing pedestrian networks • Promote walkability by clustering development within walking distance • Install a multi-use pathway between Admin and Ops Side • Remove large underutilized areas of surface parking within core area and replace with infill/redevelopment, usable open space, or sustainable landscaping • Consider the climate by incorporating facility design features to protect pedestrians and provide comfort • Connect housing areas and key destinations with safe and comfortable pedestrian routes • Explore the feasibility of bike-share and car-share programs
3. Focus development within the core area	• Cluster new facilities around a walkable core area • Include uses that activate the area throughout the day and into the evening • Incorporate housing with other uses where appropriate • Limit vehicular traffic in the core area
4. Continue to foster and strengthen the sense of community	• Create a positive visual character through a coordinated architectural style, improved streetscape and landscaping, and other aesthetic improvements • Establish gathering places that promote community interaction • Support the Ops Side community with facilities that enhance quality of life during work hours • Create a town center on the Admin Side
5. Achieve a high level of sustainability	• Create compact, infill, and transit-oriented development over time • Promote mixed-use developments • Create flexible facilities that can adapt to fluctuations in mission requirements • Use sustainable landscaping • Emphasize energy and water conservation • Promote effective land stewardship and management • Promote awareness of Military Operations Areas, Military Influence Areas, Search and Rescue Training Areas, and Ground Control Approach Boxes located off Installation boundaries • Pursue Advance Readiness and Environmental Protection Initiative projects
6. Create an environment that cultivates well-rounded Sailors (Sailorization) through opportunities for personal and professional growth and development	• Provide opportunities for higher and continuing education • Maintain facilities to provide a high quality work and living environment that gives Sailors pride in their daily activities • Offer a mix of activities, facilities, and programs to provide Sailors with constructive recreational, educational, social, and spiritual outlets • Maintain high-quality recreational facilities to promote mental health and wellness

DEVELOPABLE AREA

The developable area map illustrates NAS Lemoore's capacity to absorb additional mission growth. It is based on the planning vision, current facilities, land use patterns, constraints, and opportunities. Development potential is classified as follows:

Immediately developable
Sites require minimal site preparation, relocation of existing uses, or facility demolition. This includes undeveloped sites, surface parking areas, underutilized ball fields, and agricultural lands.

Conditionally developable
Sites require relocation of existing uses, facility demolition, and/or site preparation. These areas include facilities that have exceeded their service life and require replacement, ball fields that would require replacement, and sites requiring environmental remediation prior to development. Existing facilities that can be repurposed for alternate functions are also conditionally developable.

Undevelopable
Sites are not suitable for development due to specific land use controls or the presence of major facilities with remaining service life.

It is important to keep in mind that immediately developable sites are not necessarily good candidates for development in the near term. While the Admin Side has a significant amount of open land around the periphery, placing new facilities in these areas would not be consistent with the planning vision and goals that call for compact development within the core area.

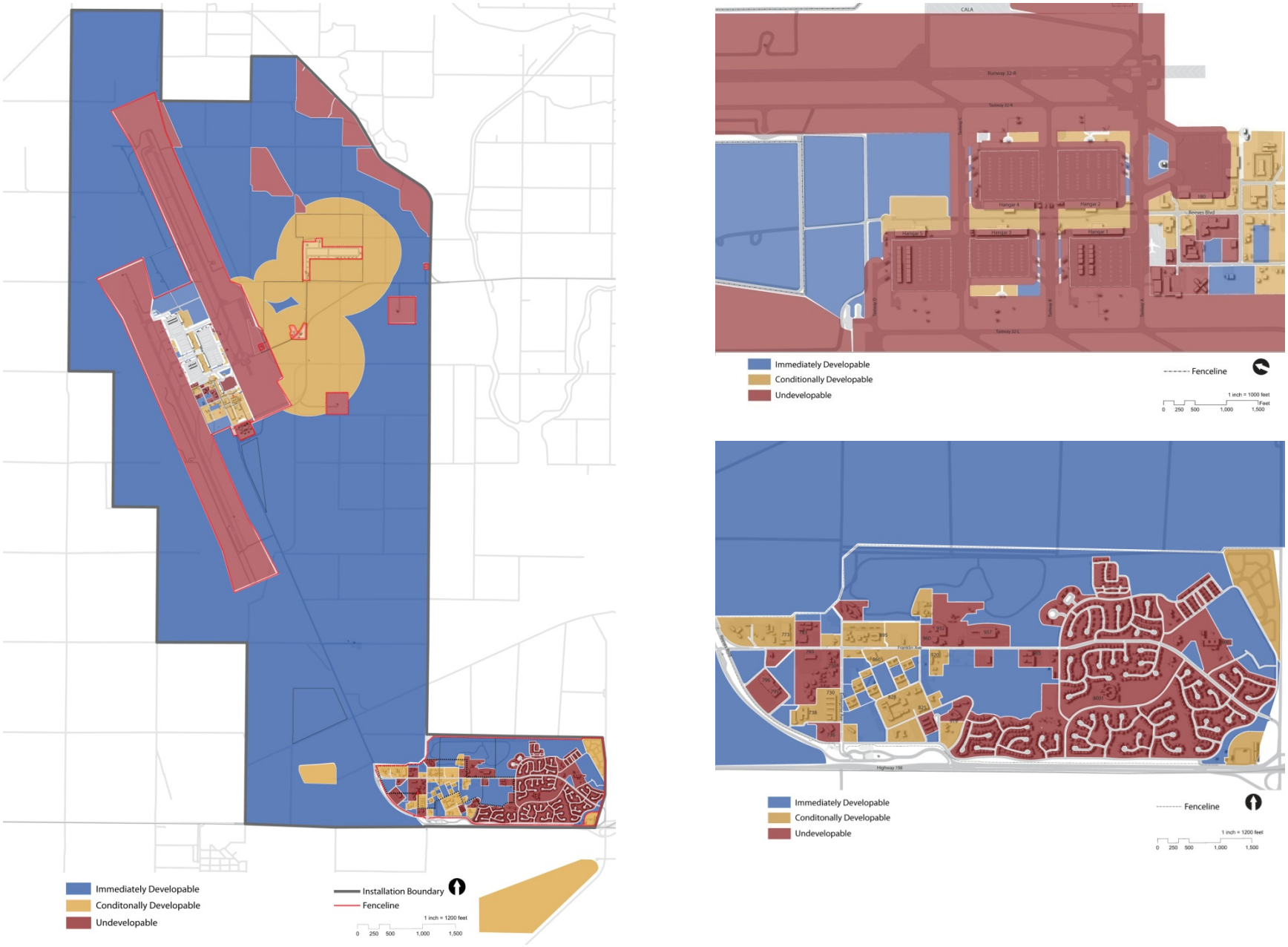


FIGURE 51. DEVELOPABLE AREA

FRAMEWORK PLAN

The Framework Plan is developed by applying the planning vision and goals within the context of NAS Lemoore's existing land use and transportation system. Elements of the Framework Plan include:

- **Permitted uses**
  The permitted uses table identifies which uses are permitted in each of NAS Lemoore's planning districts.
- **District identification**
  Nine districts have been established based on the unique operations and activities occurring across the Installation. Each district offers a different design context based on the land uses being supported. Districts are summarized in Table 20. Additional guidance relating to the design character of each district can be found in the Installation Planning Standards.
- **Transportation concepts**
  The Framework Plan identifies key elements of the transportation system, including both vehicular and pedestrian/bike routes.
- **Growth boundary**
  A growth boundary is established on the Admin Side to ensure future development is consistent with the planning vision and goals for a compact and walkable Installation. Future facilities should be located within the growth boundary unless operational requirements necessitate otherwise.

PERMITTED USES

The uses permitted in each district are identified in Table 19 below. In some cases uses may be permitted in multiple districts, even though one of the districts may be better suited to meet operational objectives and the planning vision. For this reason the table below serves only as a general guide to start the facility siting process.

Table 19. Permitted uses by district

CCN	CCN Description	Airfield Ops	Airfield Support	Ordnance	Base Administration	Personnel Support	Family Housing	Managed Lands	Enhanced Use Lease	Joint Use Training
111	RUNWAYS	■								
112	TAXIWAYS	■								
113	APRONS	■								
116	AIRFIELD PAVEMENTS - OTHER	■								
121	AIRCRAFT FUELING / DISPNG FAC	■								
123	LAND VEH FUELING / DISPGN FAC		■		■					
141	OPERATIONAL BUILDINGS	■	■							
143	SHIP & OTHER OPERTNL - BLDGS	■	■	■						
148	SHIP OPRTNL FAC - OTHER			■						
171	TRAINING BUILDINGS		■		■	■				■
173	TRAINING SUPPORT FACILITIES	■		■						■
174	IMPACT, MANVR, TRNG AREAS				■					■
179	TRAINING FAC - OTHER THAN BLDG			■	■	■				■
211	MAINTENANCE - AIRCRAFT	■								
212	MAINT - GUIDED MISSILES			■						
213	MAINT - SHIPS/SPARES			■						
214	MAINT - TANK/AUTOMOTIVE				■					
216	MAINT - AMMO/EXPLSV/TOXICS			■						
218	MAINT - MISC MATL & EQUIPT	■								
219	MAINT - INSTAL REPAIR & OPER		■		■					
421	AMMO STORAGE DEP/INSTLN			■						
441	GEN SUPPLY STORG DEP/INSTLN		■		■				■	
451	STORAGE - OPEN DEPOT/INSTLN		■		■					

CCN	CCN Description	Airfield Ops	Airfield Support	Ordnance	Base Administration	Personnel Support	Family Housing	Managed Lands	Enhanced Use Lease	Joint Use Training
510	MEDICAL CENTER/HOSPITAL					■				
530	LABORATORIES					■				
540	DENTAL CLINICS	■	■			■				
550	DISPENSARIES/CLINICS		■			■				
610	ADMIN BUILDINGS		■		■	■			■	
711	FAMILY HOUSING-DWELLINGS						■			
721	UNACOMP PERS HOUS-ENL PERS					■				
722	UNACOMP PERS HOUS-MESS FAC	■	■			■				
730	COMMUNITY FAC-PERS SUPPORT				■	■	■		■	
740	COMM FAC-MWR INTR	■	■		■	■			■	
750	COMMUNITY FAC-MWR EXTER				■	■	■		■	
760	MUSEUMS AND MEMORIALS		■		■	■	■			

Table 20. District summary

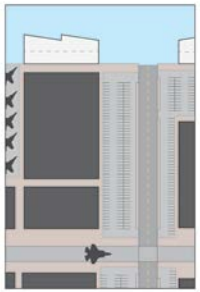
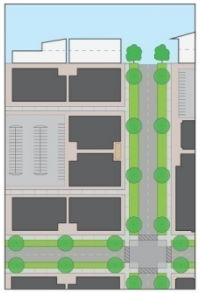
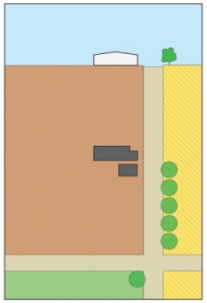
District	Description
Ops Side Districts	
Airfield Ops (AO) 	Airfield Ops consists of industrial uses that directly support the primary mission. Typical buildings include hangars, line maintenance shelters, and shops. Buildings are usually orientated toward the aircraft aprons and flightline to facilitate operations. Airfield safety setback requirements govern building siting. *Vision: Support efficient and effective execution of the primary mission at NAS Lemoore with maintenance facilities and airfield pavements that accommodate current airframes and aircraft loading.*
Airfield Ops Support (AOS) 	Airfield Ops Support includes a mix of operational and personnel support facilities directly related to the activities occurring on the flightline. Uses include industrial, training, administrative, and personnel support functions at a medium density. *Vision: Support the primary mission with the right mix of light industrial, administrative, training, and personnel support facilities organized in a manner that maximizes operational efficiency without sacrificing Sailor quality of life.*
Ordnance (ORD) 	Ordnance includes low density areas dedicated to facilities required for weapons handling, maintenance, and storage, as well as lands falling within ESQD arcs that are only suitable for agricultural uses. *Vision: Support the primary mission with ordnance handling and storage facilities that meet current requirements while preserving capacity to accommodate the weapons systems and missions of tomorrow.*

Table 20. District summary (continued)

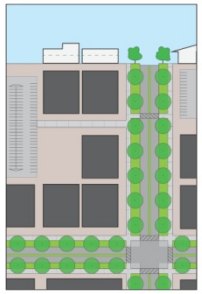
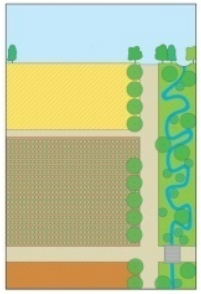
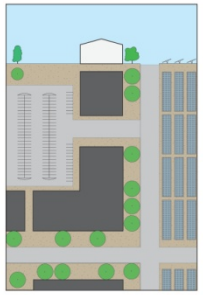
District	Description
Admin Side Districts	
Base Administration (BA) 	Base Administration includes a medium density arrangement of buildings that accommodate administrative, training, and base support/industrial uses with a wide range of building types and configurations. Streets have consistent street tree plantings and sidewalks to facilitate pedestrian mobility. Buildings are set close to the sidewalk with parking consolidated at the rear. High occupancy uses are located around the intersection of Franklin and Enterprise, while industrial, operational, or auto-oriented commercial uses with limited pedestrian generating activity are located elsewhere within the district. *Vision: The Base Administration District is envisioned to become the core area for the business of base and mission support. Low rise buildings will be anchored by pedestrian orientated storefronts on the ground floor and concentrated around the central core area.*
Personnel Support (PS) 	Personnel Support is defined by a mix of uses organized around a residential town center concept. Primary uses include UH, the galley, recreation, commercial, entertainment, the hospital, administrative functions related to personnel support, and Navy College. Development is focused around the intersection of Franklin and Hancock and is characterized by multistory, compact facilities connected by a robust pedestrian network. Streets feature continuous tree plantings, buildings are set close to the sidewalks, and parking is located behind buildings. *Vision: The personnel support district shall promote a healthy and sustainable NAS Lemoore community.*
Family Housing (FM) 	Family Housing includes a combination of single family units and multifamily duplexes. Other uses include child development centers, youth centers, and neighborhood commercial (i.e. mini-marts). Landscaping is naturalistic and housing units are set back from the street. Blocks may be large and the road system is irregular to create a residential character. The pedestrian network includes sidewalks adjacent to the roadway as well as separated paths. *Vision: Provide a walkable district with integrated amenities and strong pedestrian and bicycle connections to destinations both inside and outside the district boundaries.*

Table 20. District summary (continued)

District	Description
Special Purpose Districts	
Managed Lands (ML) 	Managed Lands consist of open or cultivated spaces surrounding the operational area and functioning as a buffer from encroachment. These areas include agricultural land, managed grazing areas, natural resource management areas, and photovoltaic (PV) energy development. Agricultural lands may provide both short term (5 year) and long term (20 year) leases. *Vision: Open spaces with farm land, wildlife areas, PV arrays, and other uses that maintain the undeveloped character of the area.*
Enhanced Use Lease (EUL) 	Enhanced Use Lease areas provide opportunities to team with private industry while leveraging the value of Navy property. Potential EUL opportunities include PV energy development, light industrial and commercial development around a potential commuter rail stop. *Vision: A mixed use district with a variety of land uses and building forms that is aesthetically compatible with the adjacent Admin Side.*
Joint Use Training (JUT) 	Joint Use Training areas create opportunities to partner with local organizations to meet common readiness objectives. Fire fighter training has been identified as a possible joint training function and would serve both NAS Lemoore and local community fire departments. *Vision: A joint use training development with a mix of training buildings, outdoor training areas, mockups, and other facilities supporting a diverse training curriculum.*

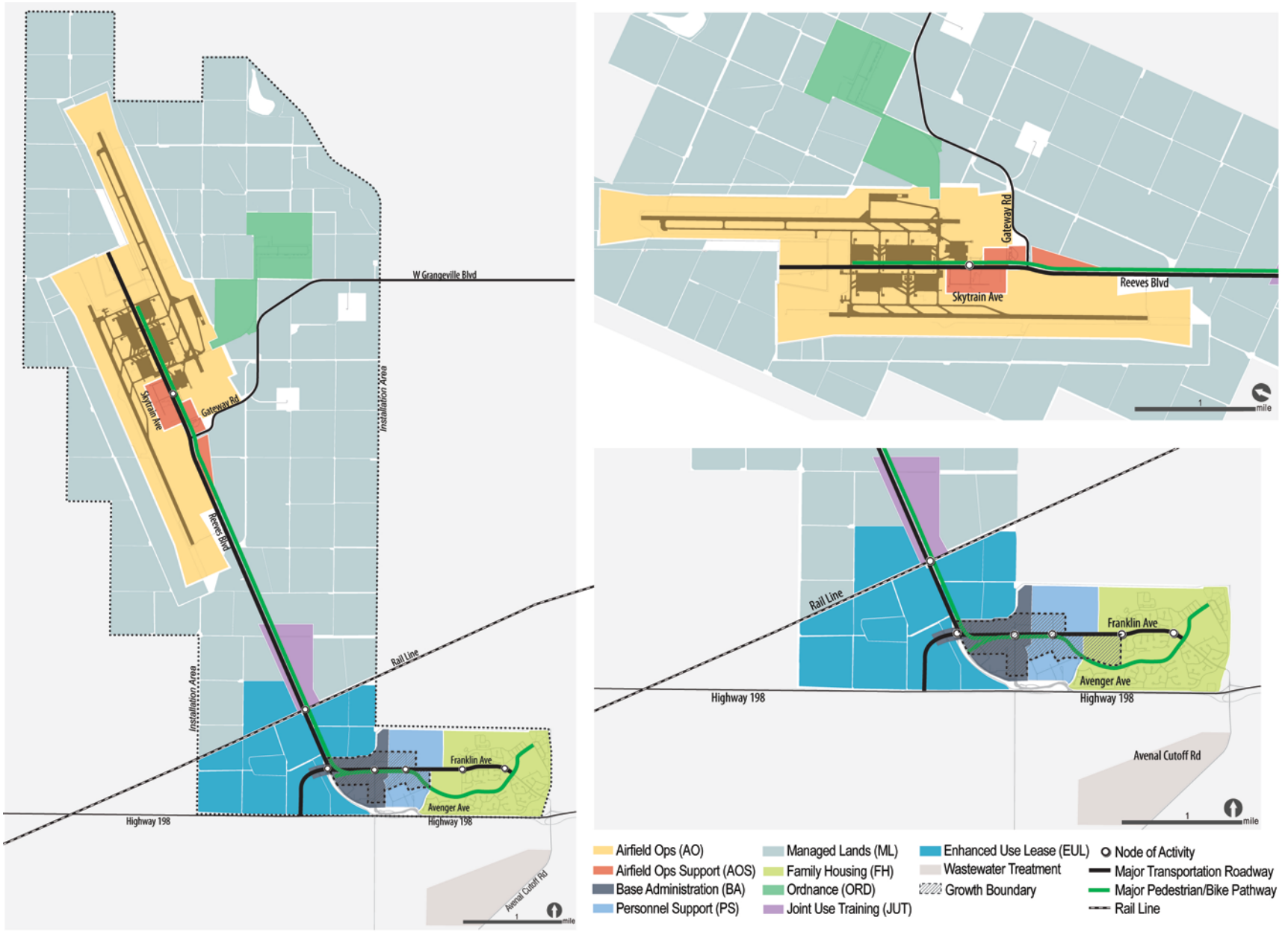


FIGURE 52. FRAMEWORK PLAN

BUILDING ENVELOPE STANDARDS

Each Building Envelope Standard (BES) introduces a form based code approach to facility and land use planning at NAS Lemoore. These standards offer flexibility to support a variety of uses, but also provide enough guidance to ensure a consistent character across the Installation. Application of these guidelines facilitates the achievement of Master Plan objectives, including compact and mixed use development, walkability, and a distinct visual character.

Table 21 identifies Building Envelope Standards (BES) recommended at NAS Lemoore and the districts where they may occur. The regulating plans within each district identify appropriate locations for each BES.

Table 21. Building Envelope Standards (BES) summary

			Districts								
BES	**Description**	**Uses**	**Airfield Ops**	**Airfield Ops Support**	**Ordnance**	**Base Administration**	**Personnel Support**	**Family Housing**	**Managed Lands**	**Enhanced Use Lease**	**Joint Use Training**
Airfield Industrial	Large industrial facilities oriented toward the aircraft aprons and focused primarily on mission objectives and operational efficiency	Hangars	✓								
Light Industrial	Low and high bay facilities oriented toward operational areas and functions	Shops, warehouses, HAZMAT, recycling center	✓	✓	✓	✓				✓	✓
Low Rise Mixed Use	One- and two-story development that is compact and walkable with horizontal and vertical mixed use; buildings are oriented toward the street and integrated with adjacent open space; delineation of pedestrian access areas is a key consideration	Admin, training, retail, personnel support	✓	✓		✓	✓	✓		✓	✓
Mid Rise Mixed Use	Two- and three-story town center development that is compact and walkable with vertical and horizontal mixed use; architectural design and pedestrian facilities are a high priority; buildings are oriented toward the street and pedestrian entrances receive special design attention	Retail, personnel support, unaccompanied housing					✓			✓	
Family Housing	Single family, duplex, and townhouse style housing	Family housing						✓			
Destination Commercial	Auto oriented commercial; typically “big box” design	Exchange, commissary				✓				✓	

INSTALLATION DEVELOPMENT PLAN

The Installation Development Plan (IDP) contains Area Development Plans (ADP) for each of NAS Lemoore's nine districts, as well as Network and Energy Sustainability Plans for the entire Installation.

ADPs for the Airfield Ops and Airfield Ops Support Districts have been developed in more detail due to the number of planned projects supporting the F-35C and Strike Fighter Realignment. All other ADPs provide a solid framework to facilitate updates as planners identify areas that need attention due to changes in mission, requirement, or command priority.

Each ADP includes the following sections.

- **District mission and vision:** Describes the vision, goals, and objectives for each district. Primary tenants and the facilities they occupy are also identified.
- **Visual character:** Illustrates the desired character for facilities, streets, landscaping, and other physical elements.
- **Planning considerations:** Summarizes the key planning issues and other constraints including a summary of facility condition. Opportunities, COAs, and known projects that must be considered are also identified.

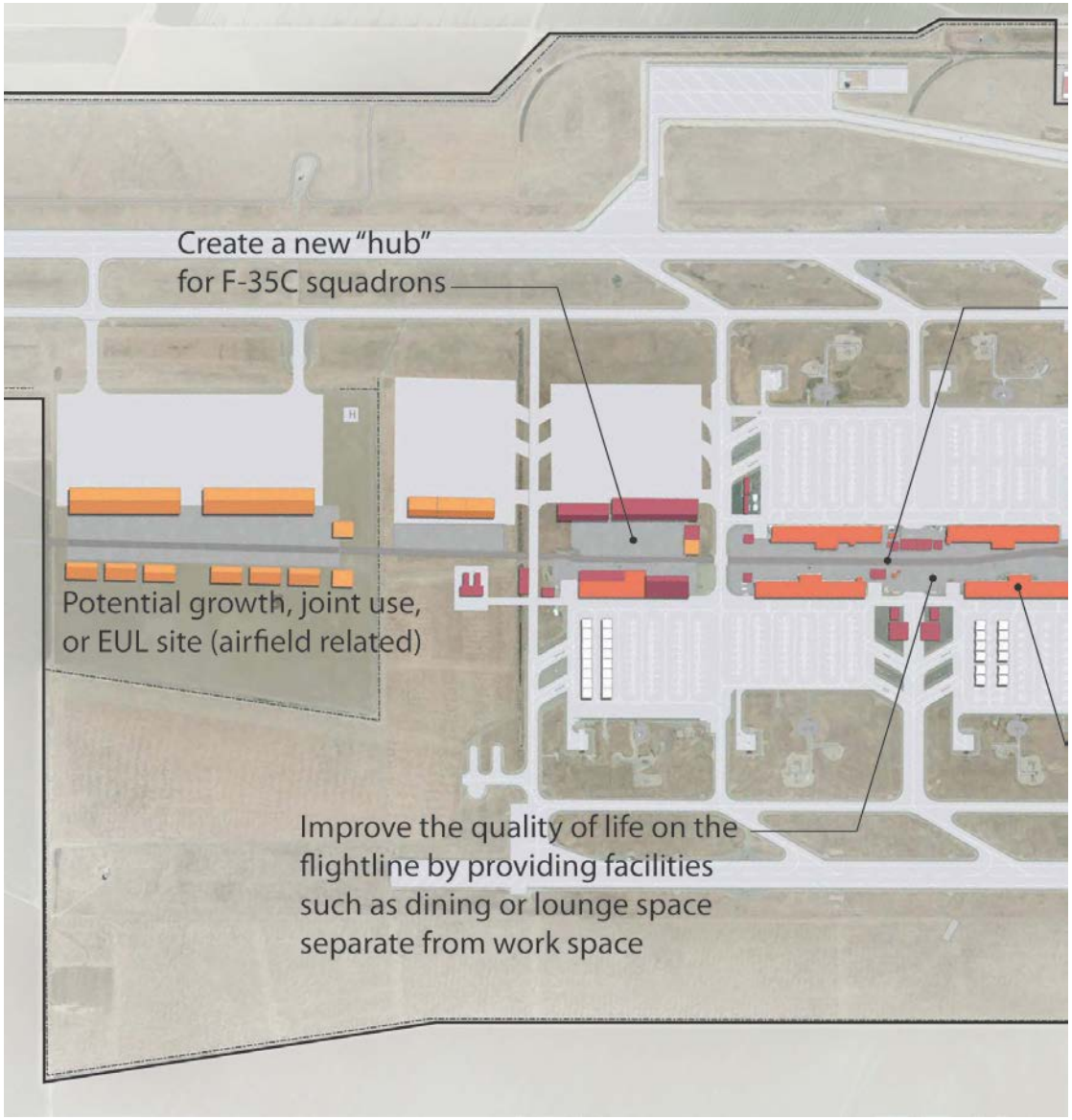


FIGURE 53. ILLUSTRATIVE PLAN DIAGRAM

- **Illustrative Plan:**
  Graphically depicts projects within each district in a way that conforms to the vision, planning goals, and guidelines established for each site. In addition to known projects, the Illustrative Plan also shows notional building footprints to identify development capacity. Specific elements of the Illustrative Plan are shown in Figure 53.
- **Regulating Plan:**
  Provides guidance on permitted uses, development capacity, and siting standards. The Regulating Plan identifies where future projects should be located and appropriate building form. This includes building orientation, AT/FP setbacks, building height, and development capacity. Each district is divided into sites with assigned BESs, Required Build-to Line (RBL) and parking areas. Specific elements of the Regulating Plan are illustrated in Figure 54. The RBL typically runs parallel to the street and is established to create a generally consistent building line.
- **Implementation Plan:**
  Provides a sequenced list of projects (key relocation, demolition, construction and other action items) required to implement the Illustrative Plan.

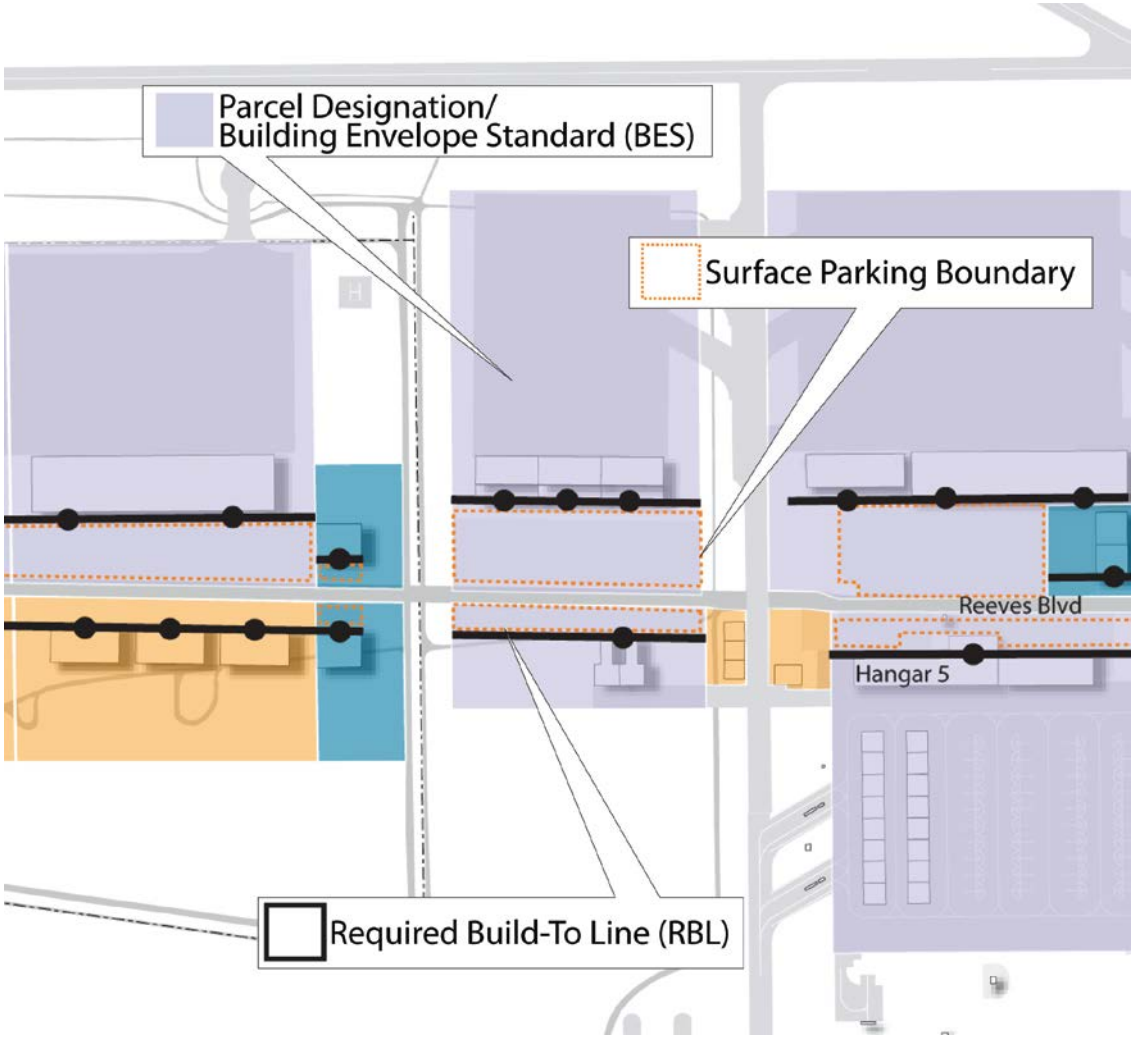
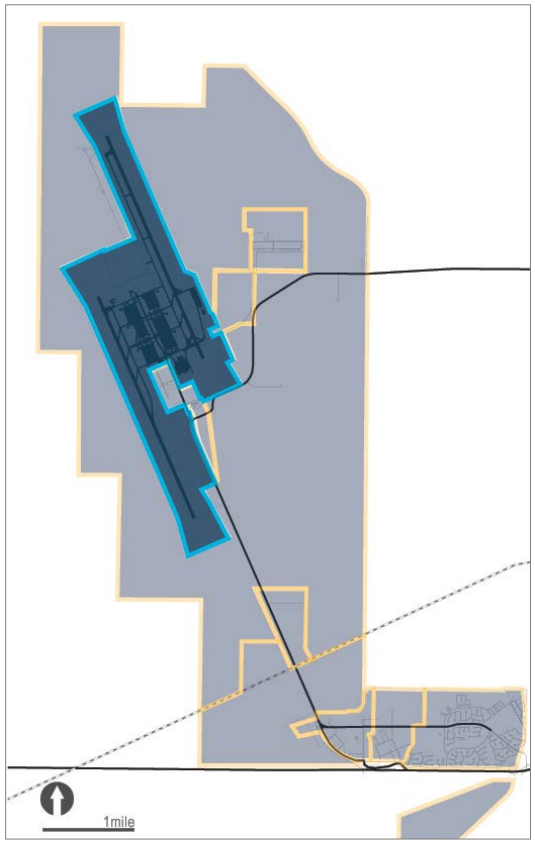


FIGURE 54. REGULATING PLAN DIAGRAM

AIRFIELD OPS ADP

MISSION AND VISION

The Airfield Ops District is a 2,621 acre area that includes aircraft hangars and maintenance facilities, aprons, taxiways, and runways.



GOALS AND OBJECTIVES

Planning area goals and objectives for the District are summarized below.

- Protect future growth capacity by maximizing utilization of existing developed areas and preserving high value real estate for expanded Navy missions.
- Recognize the value of hangars, aprons, taxiways, and runways as an interrelated unit. Preserving the functionality and capabilities of these facilities is the primary objective within the District.
- Improve the quality of life for Sailors on the flightline by providing limited personnel support functions in the vicinity of the hangars, including food options.
- Provide transportation options along the flightline to improve pedestrian mobility and reduce pressure on limited parking resources.
- Preserve capabilities for joint utilization or EUL to the north of the flightline.
- Establish a long term plan to upgrade or replace hangars for current airframes.

DISTRICT MISSION

To provide the maintenance facilities necessary to keep homeported aircraft operational and the airfield pavements required to support ongoing training.

DISTRICT VISION

Support efficient and effective execution of the primary mission at NAS Lemoore with maintenance facilities and airfield pavements that accommodate current airframes and aircraft loading.

PERMITTED BUILDING ENVELOPE STANDARDS

Permitted BESs within the Airfield Ops District are identified below. Standards are discussed on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards section and in the NAS Lemoore Installation Appearance Plan (IAP).

- Airfield Industrial
- Light Industrial
- Low Rise Mixed Use

PRIMARY TENANTS AND OPERATIONS

Primary tenants located within the District are identified below and illustrated in Figure 55. A more detailed description of their mission and loading can be found in the Tenant Commands section.

- **Strike Fighter Squadrons (VFA)**
  A total of 15 squadrons currently occupy space in Hangars 2 through 5 and the adjoining parking aprons. Two additional squadrons are scheduled to arrive at NAS Lemoore in 2016. Line shelters located throughout the flightline are also used by the squadrons.
- **VFA Fleet Replacement Squadron**
  VFA 122 occupies all five modules in Hangar 1 and the adjoining parking apron. A second FRS is scheduled to arrive in 2016 to support the F-35C and will move into Hangar 5, displacing the current operational squadrons.
- **NAS Lemoore SAR Unit**
  The NAS Lemoore SAR Unit occupies one module in Hangar 4. Four helicopter parking spots are provided on the adjoining apron.
- **Fleet Readiness Center West**
  FRC-W occupies multiple facilities at the south end of the flightline. The parking apron adjoining Buildings 180 and 170 is also used for aircraft parking and equipment laydown.
- **Navy Exchange**
  NEX operates two small food counters in Hangars 1 and 3.
- **Contractors**
  Contractors occupy space in and around Hangar 1.
- **NAS Lemoore Fire Department**
  The Ops Side fire station is located along Reeves Boulevard at Alpha Taxiway, providing immediate access to the runways, flightline, and operational support areas.

BY THE NUMBERS

- 5,300 day time users (approximate)
- 248 F/A-18 (FY15 projection)
- Four MH-60
- Five operational hangars totaling 572,300 square feet
- Two 13,500 foot long runways
- 2,621 acres

VFA hangar bay

FRC-W facilities

NAS Lemoore SAR Unit

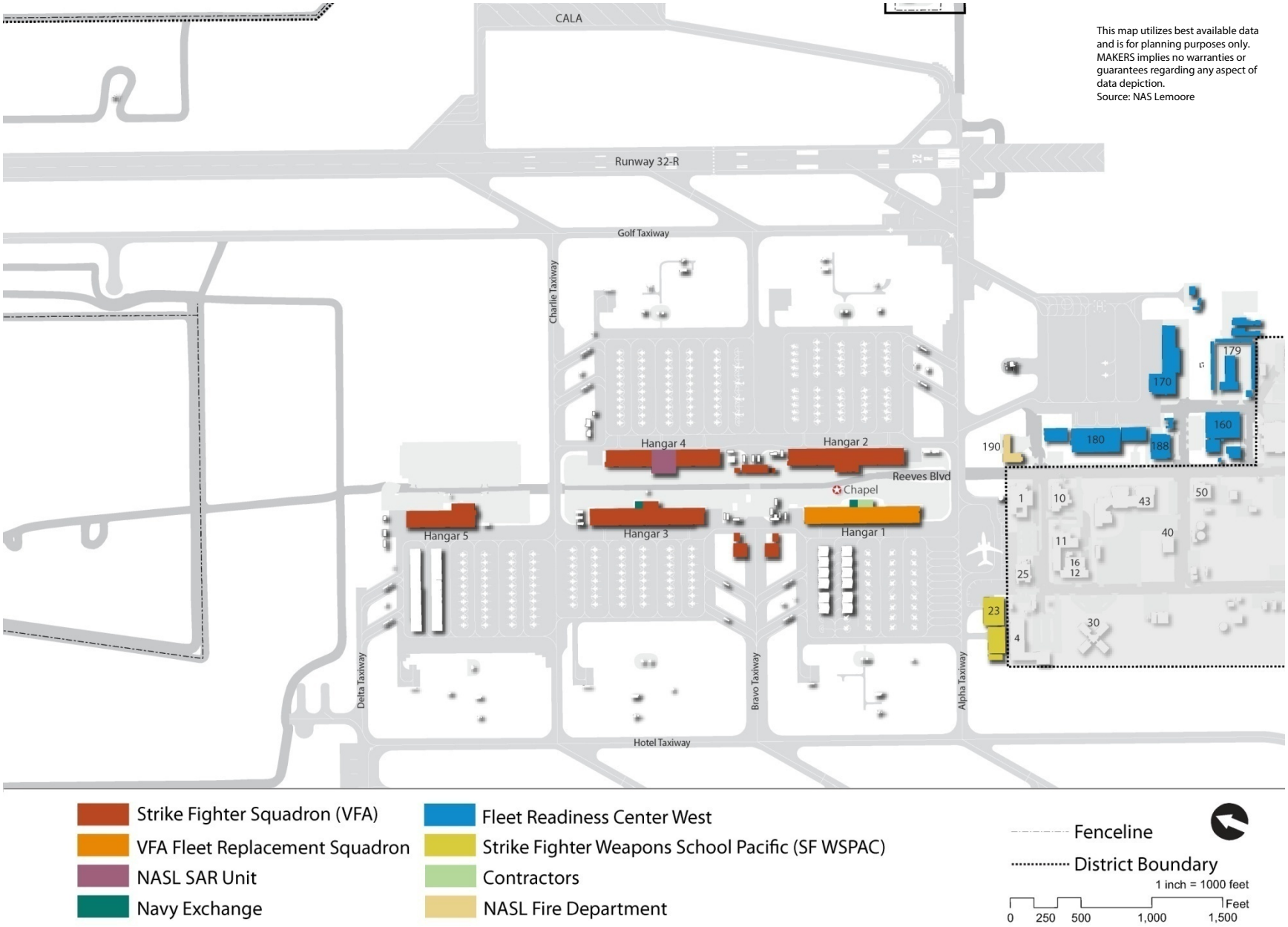


FIGURE 55. AIRFIELD OPS DISTRICT PRIMARY TENANTS (2014)

VISUAL CHARACTER

The airfield is NAS Lemoore's most distinctive operational feature. The design standards for this District are intended to convey a sense of the scope and importance of Strike Fighter operations with an emphasis on the industrial nature of the facilities. Elements that will contribute to the District's visual character are illustrated in Figure 56 and include:

- Hangars are the prominent facility type and should be differentiated from other facilities. Encourage the use of "grand" roof forms on hangars to create a sense of prestige and hierarchy on the flightline.
- Site layouts that provide well defined pedestrian routes and building points of entry to facilitate safe and efficient movement.
- Personnel support facilities that are distinct from other operations and provide flightline personnel with a place to temporarily retreat from their work tasks.
- A sense of continuity and permanence achieved through the use of durable and high quality building materials that require reduced maintenance.

FIGURE 56. AIRFIELD OPS DISTRICT VISUAL CHARACTER

PLANNING CONSIDERATIONS

ISSUES

Key issues that impact operations within the Airfield Ops District are identified below. For a more comprehensive list of issues refer to the Major Shore Capabilities Areas Planning Analysis section.

- **Aging Facilities**
  Hangars 1-4 were constructed in 1961, while Hangar 5 was built nine years later in 1970. These facilities predate current UFC standards and therefore were not designed for F/A-18 aircraft. As a result they do not provide the required hangar bay depth to efficiently maintain aircraft. In addition, four of the hangars are in substandard condition and require significant investments to meet ongoing operational requirements. Facility condition is summarized in Figure 58.
- **Facility Shortfalls**
  Hangars are undersized by approximately 274,000 square feet.
- **Joint Strike Fighter**
  The anticipated arrival of F-35C at NAS Lemoore beginning in August 2016 is generating additional requirements for aircraft maintenance, training, operational, and personnel support facilities. Siting these facilities within the constrained airfield environment is a challenge. Maintaining F-35C aircraft within existing hangars also poses a challenge due to limited maintenance bay depth.
- **Strike Fighter Realignment**
  Facility requirements are increasing as Strike Fighter assets are realigned between the east and west coasts. Mission growth at NAS Lemoore puts additional pressure on facilities that are already undersized for current operations.

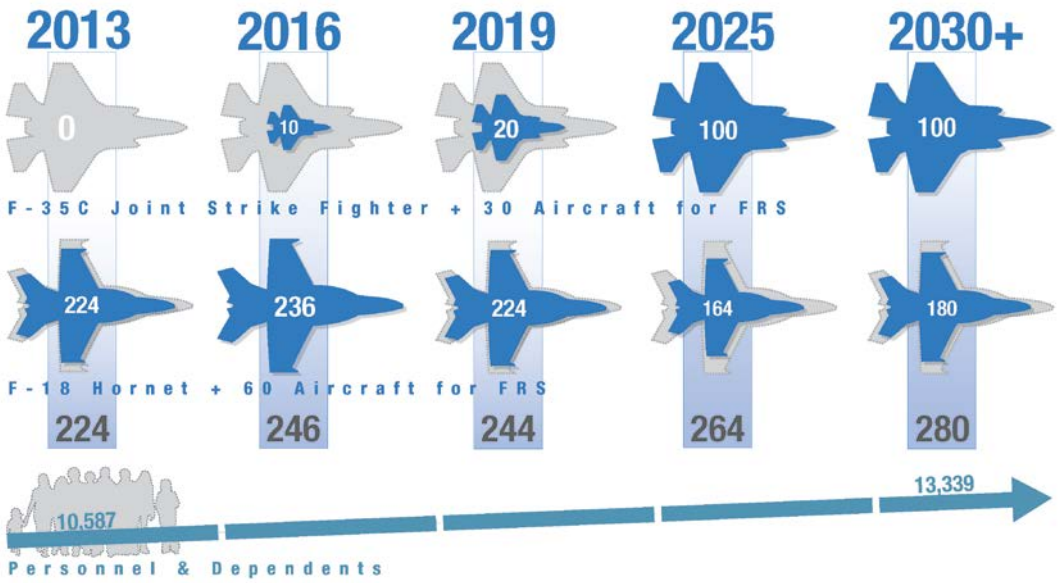


FIGURE 57. STRIKE FIGHTER REALIGNMENT AND F-35C LOADING IMPACTS

- **SAR Loading**
  F-35C will likely utilize open ocean Warning Areas more than current F/A-18 aircraft due to the need for larger training airspaces in support of certain maneuvers. Flying over open ocean requires the NAS Lemoore SAR Unit to forward deploy one helo to the Marina Municipal Airport in Monterey during training operations. The existing unit at NAS Lemoore can provide overwater SAR for a maximum of 10 hours per day. If F-35C over water training is significantly larger additional SAR aircraft and personnel may be required.
- **Personnel Support**
  Personnel support facilities within the Airfield Ops District are limited to two NEX food counters. A galley and small gym are located in the adjacent Airfield Support District; however distance makes it a challenge to efficiently access these facilities during lunch breaks.
- **Circulation**
  Movement within the District and between adjacent districts is heavily reliant on personal vehicles. Shuttle service along Reeves Boulevard is limited and pedestrian facilities are largely nonexistent. In particular, sidewalks under Alpha and Charlie Taxiways are extremely narrow (approximately 3 feet) and make it difficult for Sailors to pass each other. The standup of Post 3A could increase transportation challenges by creating vehicular backups at the checkpoint.
- **Encroachment**
  Growth in the surround community could impact the aviation training environment.
- **Airfield Operations**
  Flight characteristics of the F-35C are currently not defined. If performance characteristics are significantly different from F/A-18 and speeds differ by 10 knots or more extended patterns will be required to support aircraft arriving on the same runway. This extends flight patterns and currently established operations, which may limit runway availability to conduct field carrier landing practice (FCLP). There is not currently an outlying field (OLF) or other alternate facility in the area to support FCLPs.

FIGURE 58. AIRFIELD OPS DISTRICT FACILITY QUALITY RATING

CONSTRAINTS

Natural and manmade constraints have the potential to limit redevelopment opportunities on and near the flightline. Constraints that must be considered when siting future projects within the Airfield Ops District are described below and illustrated in Figures 61 through 64.

Manmade Constraints

- **Explosive Safety Quantity Distance (ESQD) Arcs**
  ESQD arcs are established clear zones around ordnance handling and storage facilities intended to protect personnel and assets in the event of an explosive mishap or fire. Arcs are present on the flightline around RSLs and limit redevelopment in those areas. These arcs are dependent on continued use of the RSLs.
- **Installation Restoration Sites**
  The IR Program was initiated to identify, assess, characterize, and clean up or control contamination caused by past hazardous waste disposal practices and hazardous material spills. There are currently four IR sites within the District that would impose additional requirements, costs, and time restrictions on redevelopment, including Sites 4, 6, 14, and 17. Site 14, located around FRC-W facilities, has the greatest potential to limit future development. Land use controls will be implemented to limit the site to industrial uses only.
- **Anti-terrorism/Force Protection (AT/FP)**
  AT/FP standoff distances are required around facilities to limit vehicular access and possible exposure to vehicle bombs and other terrorist threats. Standoffs can have a significant impact on facility siting and vehicle parking.

Standoffs illustrated in Figure 59 below assume reinforced masonry construction for hangars and girt construction for future line shelter pre-engineered buildings (PEBs). Hangars are primary gathering buildings (more than 50 occupants) while line shelters are inhabited buildings (more than 11 occupants).

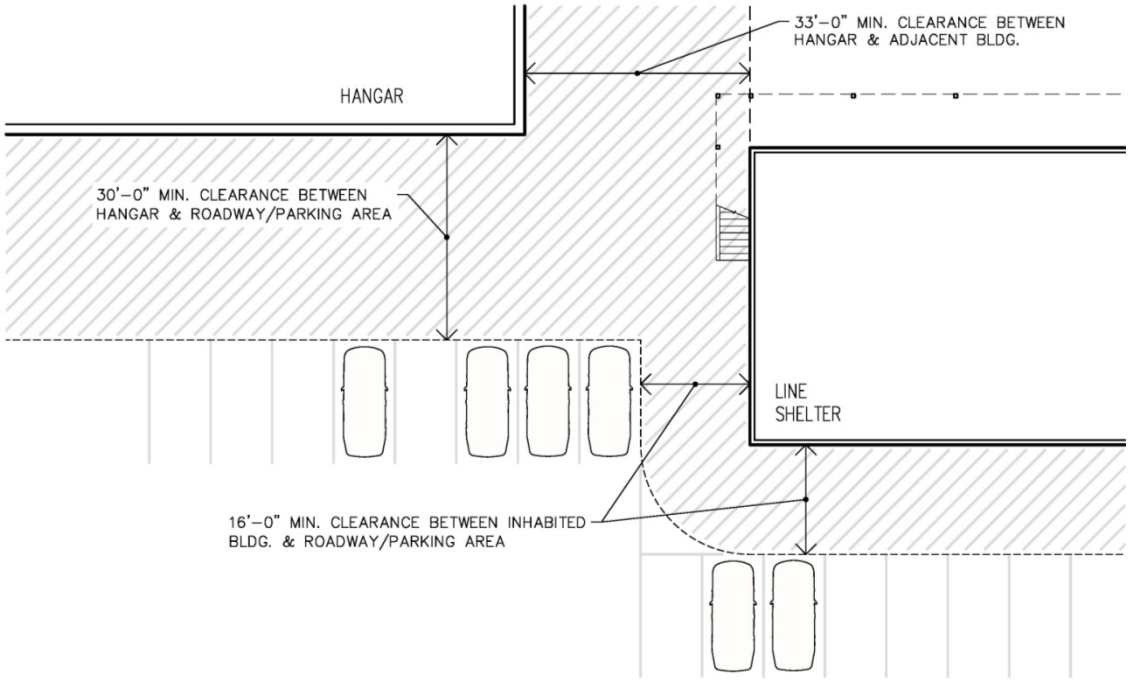
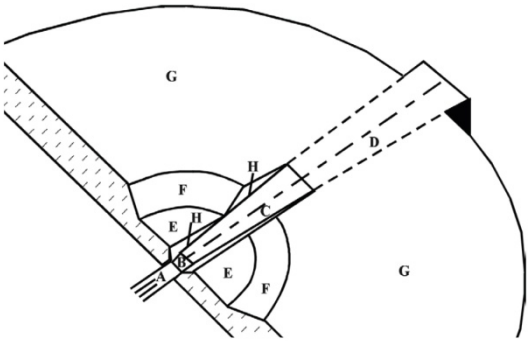


FIGURE 59. AT/FP STANDOFF DISTANCES IN AIRFIELD OPS DISTRICT

- **Level Two Security**
  Implementation of Post 3A will put the entire District within a heightened security enclave. Access will be restricted to only those personnel who work on the flightline or otherwise require access.
- **Airfield Imaginary Surfaces**
  Facility heights are restricted around airfields to avoid safety concerns and conflicts with aircraft operations. Areas immediately adjacent to the runway are the most restricted, with allowable heights increasing as one moves away from the landing surface. Areas considered for redevelopment in this plan are outside of the Primary Surface and do not generate any conflicts with clear zone requirements.

  Imaginary surfaces limit east/west expansion within the District as illustrated in Figure 60.



A. Primary Surface
B. Clear Zone Surface
C. Approach-Departure Clearance Surface
D. Approach-Departure Clearance Surface (Horizontal)
E. Inner Horizontal Surface (150' above airfield)
F. Conical Surface (20:1 slope)
G. Outer Horizontal Surface (500' above airfield)
H. Transitional Surface

Imaginary surfaces (source: UFC 3-260-01)

- **Aircraft Clear Zone Requirements**
  Land uses are restricted around aircraft parking aprons, taxiways, and towways to provide minimum setbacks and allow for safe aircraft circulation. Large portions of the District immediately adjacent to the aprons and hangars are therefore unable to support facilities. The potential closure of Bravo Taxiway at Reeves Boulevard would reduce restrictions in this part of the airfield and potentially increase development opportunities.

Line shelters and outdoor storage are currently located within apron, taxiway, and hangar clear zones

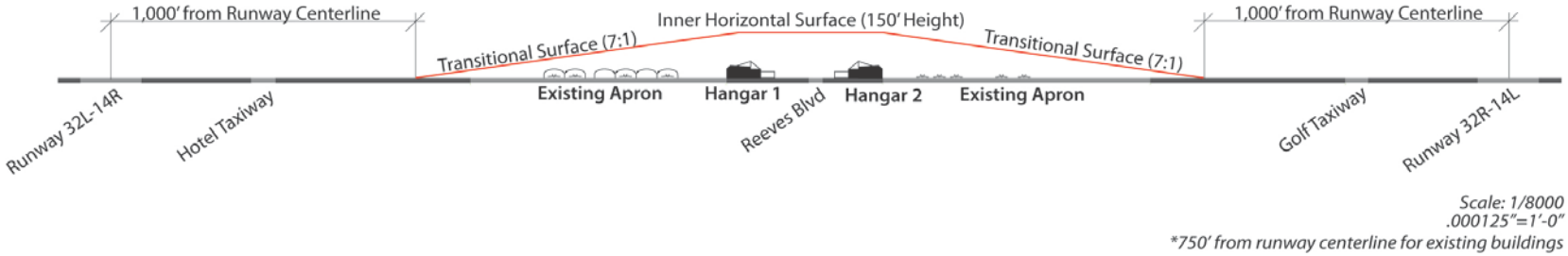


FIGURE 60. NAS LEMOORE IMAGINARY SURFACE

Natural Constraints

- **Cultural Resources**
  Cultural resources include sites, structures, buildings, or other objects that possess historic or architectural value and integrity. Hangars at NAS Lemoore were constructed over 50 years ago, however a 2009 assessment found that they do not possess historic significance and therefore do not require listing in the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR).

- **Seismic**
  There are no significant known active geologic faults in the immediate vicinity of NAS Lemoore. However, the active San Andreas Fault is approximately 50 miles to the west of NAS Lemoore. The Owens Valley Fault group is approximately 80 miles to the east. All facilities at NAS Lemoore must therefore meet specified seismic requirements.

- **Endangered and Threatened Species**
  Kangaroo rats, burrowing owls, and other endangered or threatened species are found near the airfield and must be considered when siting future projects.

- **Air Quality**
  NAS Lemoore falls within the San Joaquin Valley Air Pollution Control District. In general, California requires pollution control and prevention measures which are more stringent than those mandated by the Environmental Protection Agency (EPA). NAS Lemoore must comply with Federal, State, and San Joaquin Valley Air Pollution Control District regulations pertaining to air emissions.

Construction of a corrosion control hangar within the District could impact the air permitting process

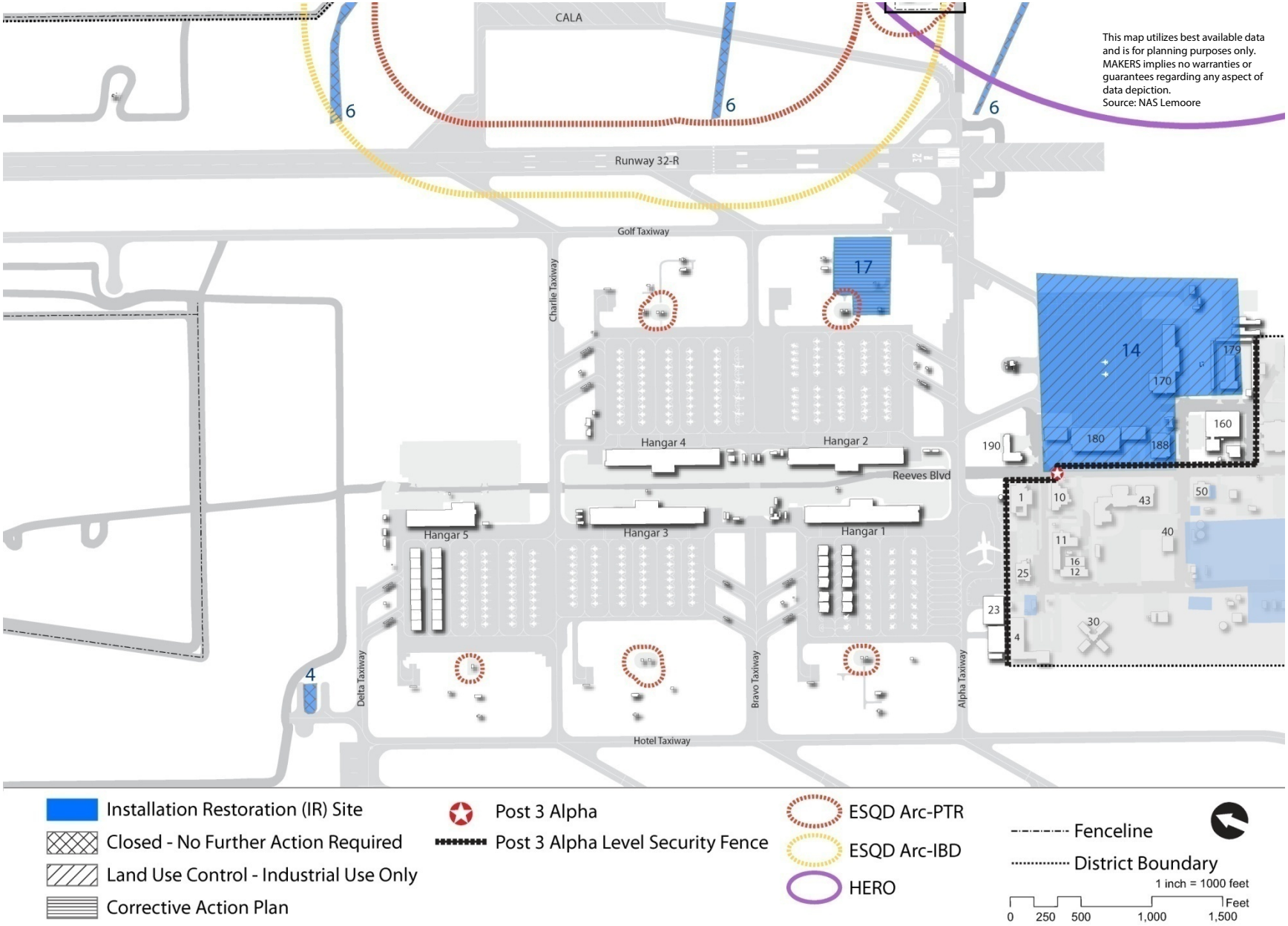


FIGURE 61. AIRFIELD OPS DISTRICT CONSTRAINTS (AREA A)

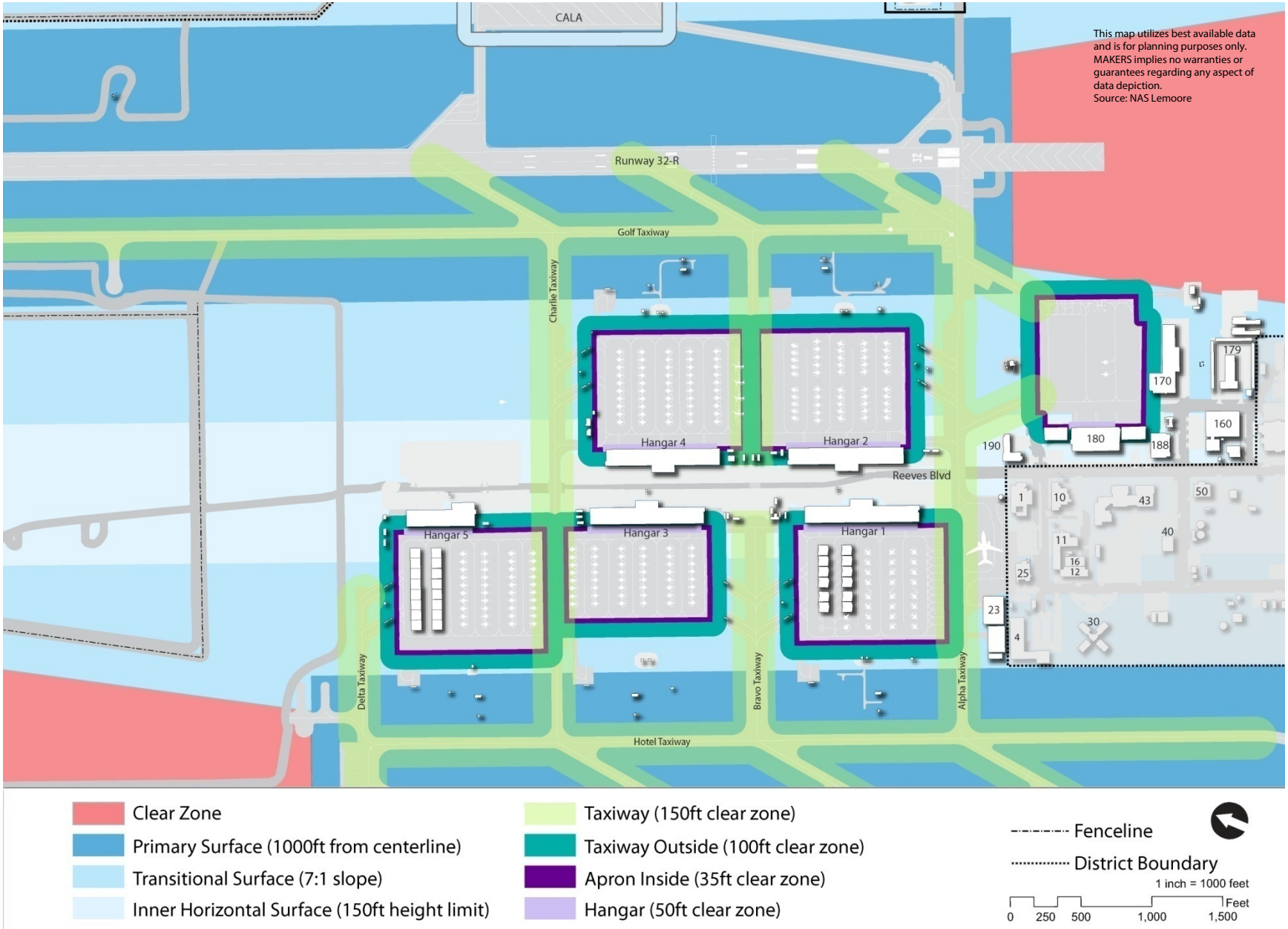


FIGURE 62. AIRFIELD OPS DISTRICT AIRFIELD SAFETY CONSTRAINTS (AREA A)

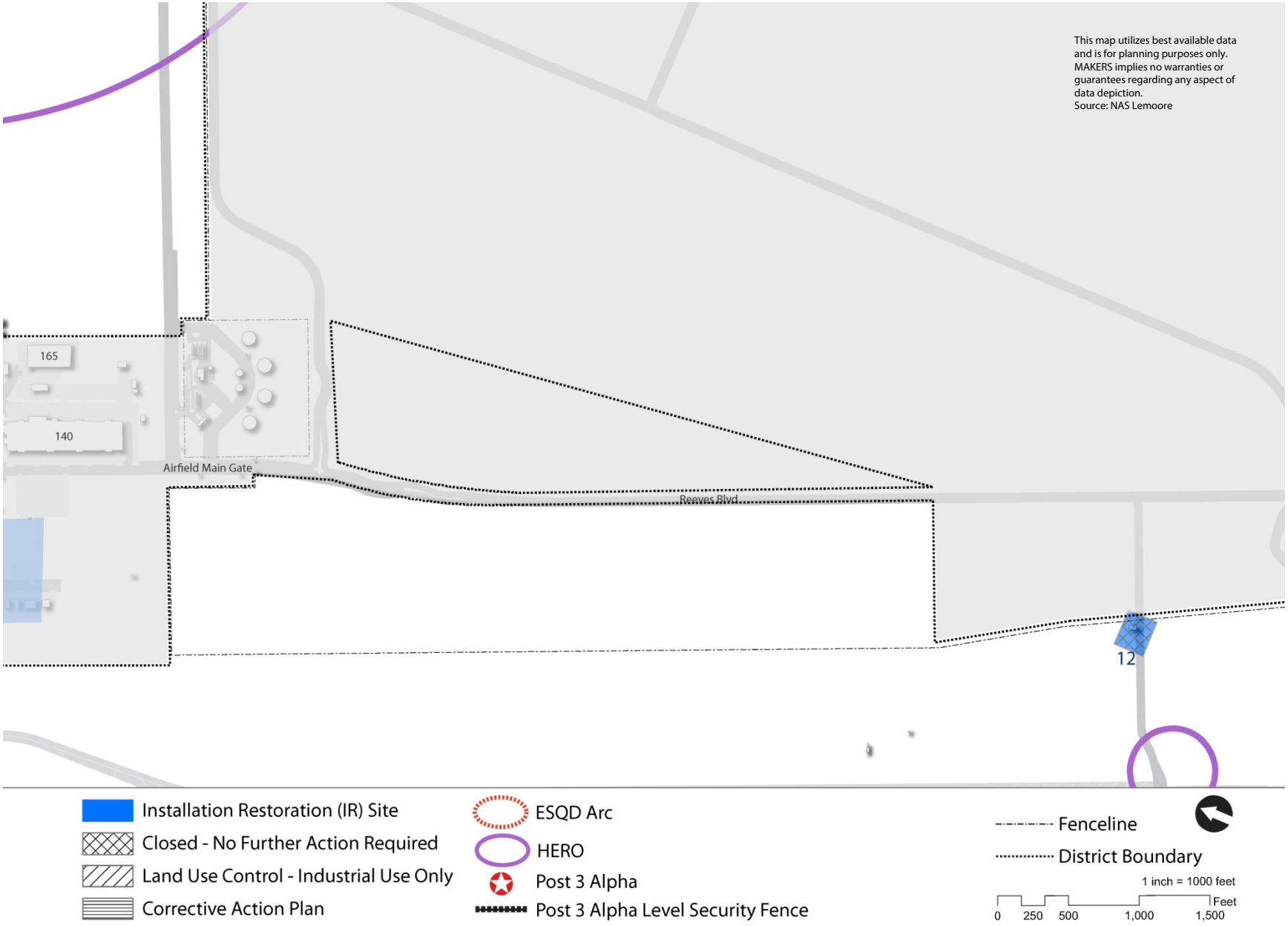


FIGURE 63. AIRFIELD OPS DISTRICT CONSTRAINTS (AREA B)

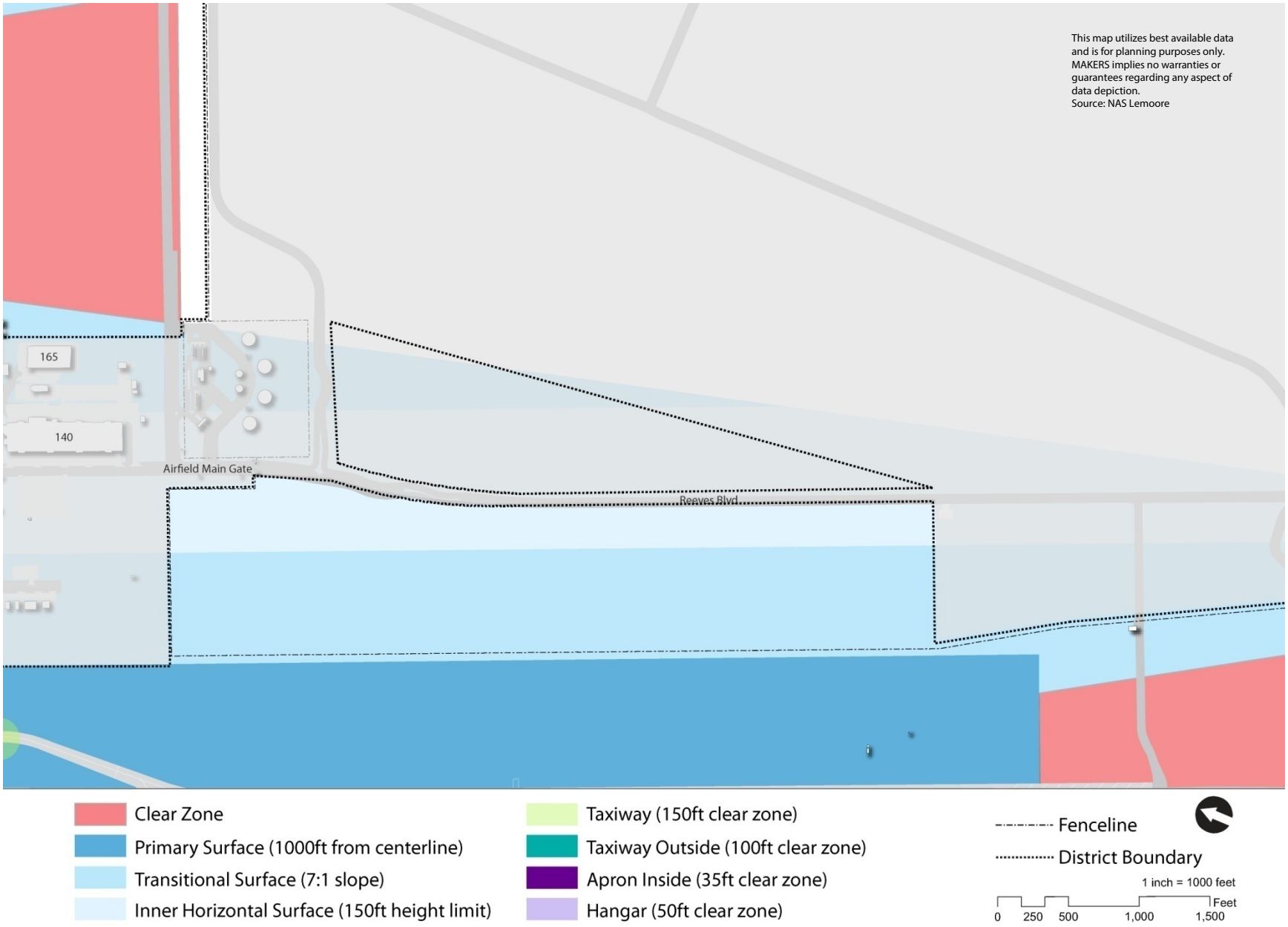


FIGURE 64. AIRFIELD OPS DISTRICT AIRFIELD SAFETY CONSTRAINTS (AREA B)

ALTERNATIVES

Alternatives were evaluated for key Master Plan opportunities. In some cases alternatives have also been identified for previously developed projects or COAs. These alternatives are summarized below.

Ops Side Galley

The Ops Side galley is in poor condition and appears to have excess capacity based on the number of meals being served at peak times. In addition, the location is inconvenient for Sailors working in hangars due to distance and the lack of pedestrian linkages. A strategy is needed for the repair or replacement of this facility.

Alternatives should also be considered to modify the galley's operating model for increased efficiency. The facility is currently operated by NAVSUP as a traditional galley; however it may be feasible to operate the galley as a food court through partnerships with private industry.

Three alternatives were considered to address the condition and location of the galley. In all alternatives the food court model is preferred due to reduced operating costs and greater meal options for Sailors.

1. Renovate the existing Ops Side galley (Building 10). Identify alternate uses for excess portions of the building.

2. Construct a new facility with the right square footage and configuration in the vicinity of the existing galley (Building 10), outside of Post 3A.

3. Construct a new galley on a site more centrally located on the flightline.

Preferred COA: Constructing a new facility on the flightline is preferred since it provides greater accessibility for Sailors working in adjacent hangars. This reduces the number of daily vehicle trips along Reeves Boulevard and through Post 3A while minimizing walking distances for Sailors without vehicles.

Interest from private industry must be determined by issuing a request for proposal (RFP) and evaluating offers. If viable, pursue partnerships to operate a food court. If the food court model is not viable the facility will continue to be operated by NAVSUP.

The facility should be designed to accommodate a range of uses, including indoor and outdoor dining space, lounge space, ticket sales, the Ops Side Chapel, NEX mini-mart, and other limited personnel support functions that improve Sailor QOL. NEX food counters in Hangars 1 and 3 can be closed and incorporated with the new facility.

Hangar Upgrade or Replacement

Existing hangars were constructed in 1961 and were not designed for F/A-18 aircraft. They do not provide the required hangar bay depth to efficiently maintain aircraft and lack sufficient support space, including operational storage and line crew staging. In addition, four of the hangars are in substandard condition and require significant investments to meet ongoing operational requirements.

Two alternatives have been identified, including upgrade and expansion of existing hangars and replacement with facilities designed for current aircraft.

1. Upgrade and expand existing hangars to improve facility condition and provide required maintenance bay depth for current and anticipated future aircraft.

2. Replace existing hangars with facilities that meet current requirements and design specifications for Strike Fighter hangars.

Preferred COA: Replace existing hangars. Preliminary analysis indicates that expansion and renovation of existing hangars to meet requirements would be cost prohibitive.

Response Force

Per JAFAN 6/9, stationing of the F-35C requires immediate response and internal inspection following an intrusion. This requirement brings additional billets and increased response times (RIP COA 470).

Two alternatives have been identified.

1. Expand the existing Security Building on the Admin Side to accommodate the Response Force. This alternative assumes personnel deploying from the Admin Side can meet response time requirements on the Ops Side.

2. Identify a location on the Ops Side for the Response Force to occupy on a continuous basis.

Preferred COA: Identify a location on the Ops Side for the Response Force to occupy on a continuous basis. This ensures immediately and timely response.

ILLUSTRATIVE PLAN

The Illustrative Plan provides a graphic representation of the District's possible future based on the vision, desired visual character, constraints, opportunities, known projects, possible future projects, and the guidelines established for each site (see the Regulating Plan in the following section). The Airfield Ops District Illustrative Plan is illustrated in Figure 65.

Airfield Ops design concept with a multi-use pathway along Reeves Boulevard

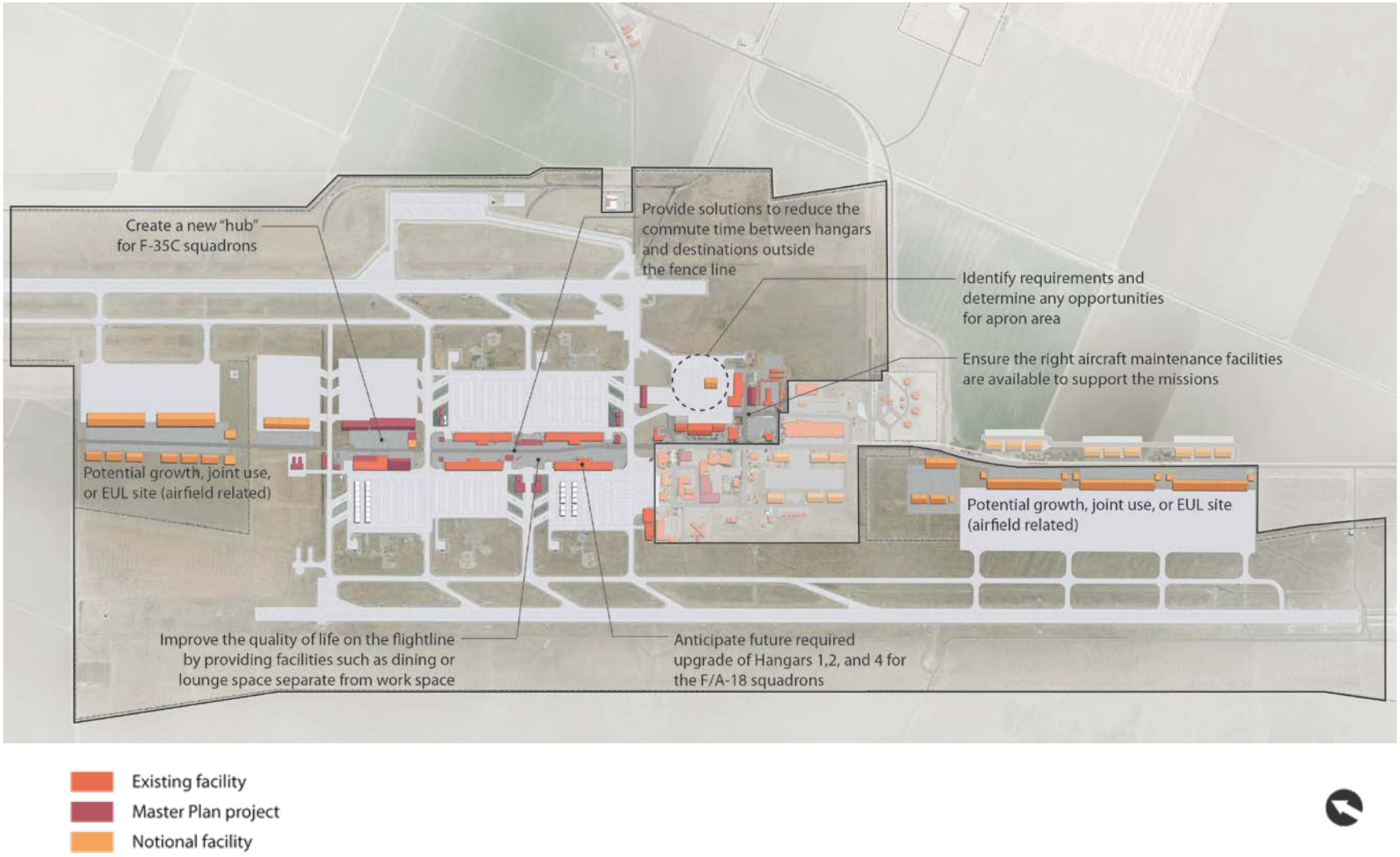


FIGURE 65. AIRFIELD OPS DISTRICT ILLUSTRATIVE PLAN

REGULATING PLAN

The Regulating Plan provides additional guidance on the uses that are permitted within the District, where those uses should be located, and how facilities should be situated on potential sites to align with the Master Plan vision. The Airfield Ops District Regulating Plan is illustrated in Figures 66 and 67. Other siting considerations are provided below.

PERMITTED USES

Permitted uses include those directly related to the Strike Fighter mission and requiring proximity to the flightline to meet operational requirements. A limited number of personnel support uses are also permitted to enhance QOL along the flightline. Table 22 identifies uses permitted within the District along with the appropriate BES. BESs were previously defined on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards section and in the NAS Lemoore IAP.

Appendix D provides a more comprehensive list of permitted uses for each district, including conditional uses that may be permitted under special circumstances.

Table 22. Airfield Ops District permitted uses/BES matrix

		BES		
CC Group	Description	Airfield Industrial	Light Industrial	Low rise mixed use
111	AIRFIELD PAVEMENTS - RUNWAYS			
112	AIRFIELD PAVEMENTS - TAXIWAYS			
113	AIRFIELD PAVEMENTS - APRONS			
116	AIRFIELD PAVEMENTS - OTHER			
121	AIRCRAFT FUELING / DISPNG FAC		■	
141	OPERATIONAL BUILDINGS (AIRFIELD RELATED)		■	
143	OPERATIONAL STORAGE		■	
211	MAINTENANCE - AIRCRAFT	■		
218	MAINT - MISC MATL & EQUIPT (GSA RELATED)		■	
730	COMMUNITY FAC-PERS SUPPORT			■

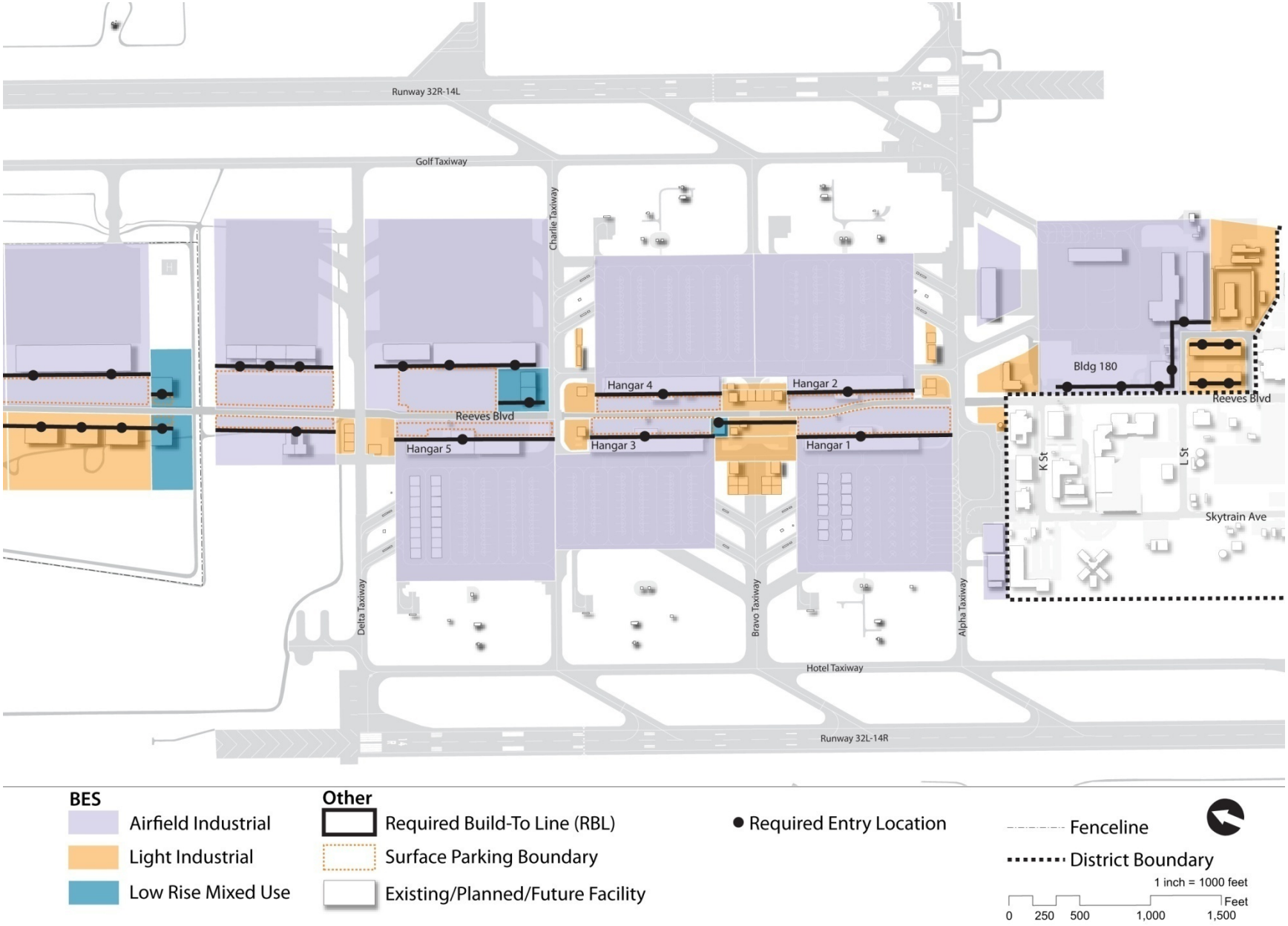


FIGURE 66. AIRFIELD OPS DISTRICT REGULATING PLAN (AREA A)

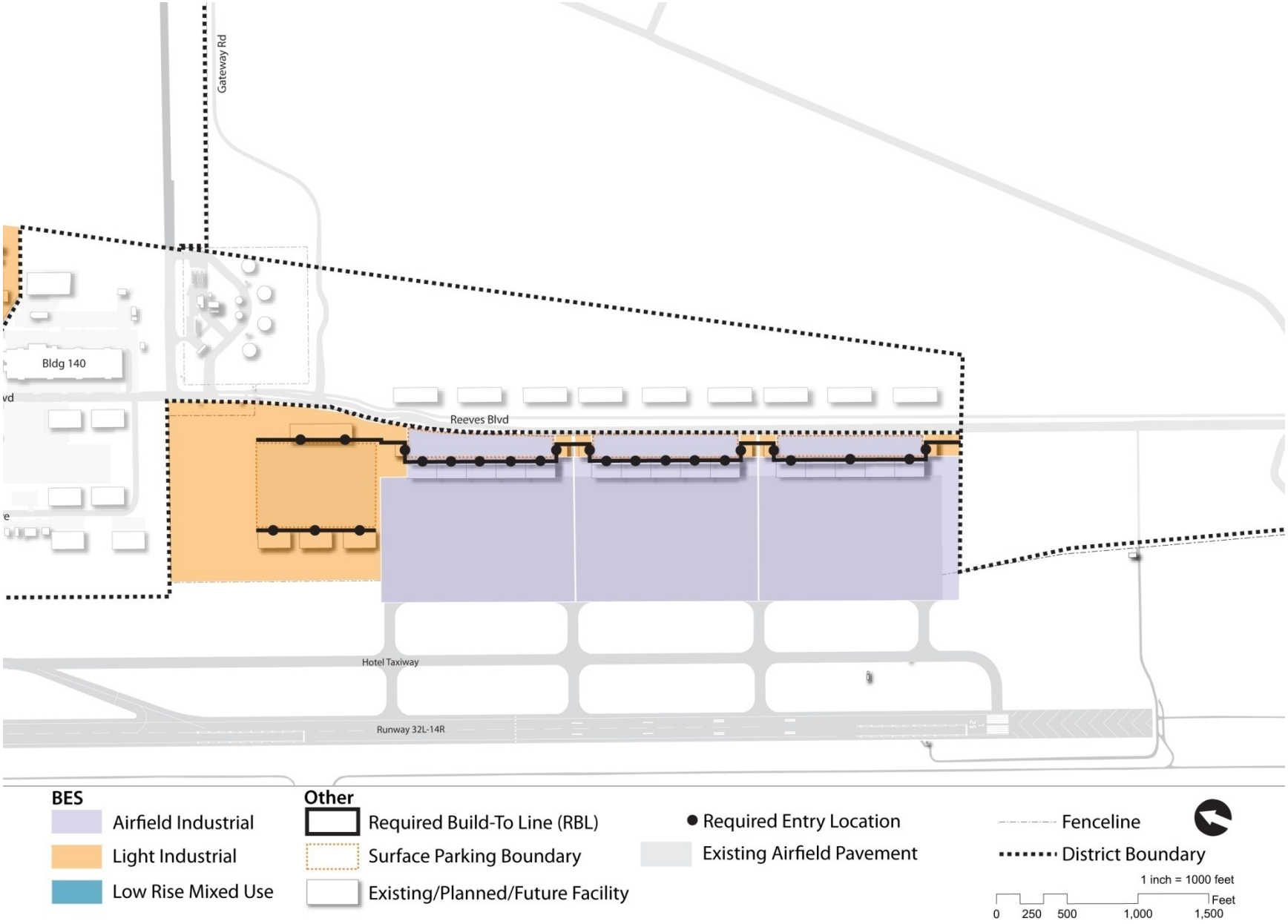


FIGURE 67. AIRFIELD OPS DISTRICT REGULATING PLAN (AREA B)

DEVELOPABLE AREA AND GROWTH CAPABILITY

Undeveloped land between the parallel runways has the capacity to support additional development in support of Navy mission growth, joint basing, or EUL with private industry. There is also the potential for small scale infill development along portions of the flightline.

Developable areas are identified as part of the Regulating Plan in Figures 66 and 67. These areas can support the following growth.

- The runways are currently not utilized to their full capacity based on historic records. Under the current flight training schedules the number of squadrons could be doubled.
- Up to five additional hangar modules can be constructed within the existing fenceline at the north end of the flightline after P-284 is constructed. Two of the modules would be associated with Apron 6, while additional hangars would include apron area.
- The north fence line can be relocated to accommodate up to thirteen additional hangar modules, apron area, and associated support facilities including Privately Owned Vehicle (POV) parking.
- At a minimum, up to 350 acres of additional airfield ops support space can be located in the area between Reeves Boulevard and Hangar 6.
- There is growth capacity of at least 8,000 acres of airfield ops support space along with associated apron areas and aircraft access surrounding the area to the north of Delta Taxiway.
- At least fifteen hangar modules, aprons and related support spaces can be located in a currently undeveloped area at the south end of Runway 32L, to the west of Reeves Boulevard.
- Approximately 5,000 acres at the north end and 6,000 acres at the south end of the flightline are undeveloped and well suited for an EUL with private industry that relates to the airfield operations.

RESOURCES AND REFERENCES

Operations within the Airfield Ops District must adhere to a number of criteria and guidelines. Appendix C identifies the UFC, manuals, and other resources that should be consulted when planning within the District.

DEVELOPMENT STANDARDS

Development standards provide specific guidance on building orientation, architectural character, relationships between adjacent uses, streetscape conditions, parking placement, and other features that affect the look and feel of a district. These standards should be consulted in conjunction with facility siting and design, roadway projects, pedestrian improvements, and other projects impacting the built environment.

Standards for each BES appear later in the Master Plan and address:

- Building height and scale
- Building siting and placement
- Orientation to adjacent uses
- Location of parking

IMPLEMENTATION PLAN

Projects in the Airfield Ops District support ongoing fulfillment of the current mission while protecting the flexibility and capacity to support future growth. These projects address capacity and condition shortfalls in the existing hangars, quality of life issues along the flightline, and circulation along Reeves Boulevard.

The Implementation Plan is summarized in Table 23 and illustrated in Figures 68 through 69. Transportation projects occurring within the District are also illustrated (depicted at "TP" projects); information on these projects can be found in the Street and Transit Network Plan. Additional information for most COAs can be found in the corresponding Shore Capability Area section of the Master Plan.

Table 23. Airfield Ops District implementation plan

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
AO-1		Construct NAS Lemoore SAR Unit helo pad	NAS Lemoore SAR Unit does have a dedicated location for SAR training. The apron at FRC-W is currently used for this function, which creates operational conflicts and FOD concerns with mixing rotary wing and fixed wing aircraft.	Airfield Ops
AO-2	P284	F-35C Fleet Hangar 6 Aircraft Maintenance Hangar	Constructs a four module hangar to meet F-35C requirements.	Airfield Ops
AO-3		Place APEs on F-35C apron spots	Protects aircraft from heat and ultraviolet radiation, as recommended by the JSF Facility Requirement Document. Personnel would also be protected. APE acquisition can be included with P380 and P378.	Airfield Ops
AO-4	P380	F-35C Engine Repair & Pilot Fit Facility	F-35C will require a Centralized Engine Repair Facility (CERF) and a Pilot Fit Facility to accommodate platform requirements.	Airfield Ops
AO-5	P218	RTO and Mission Debrief Facility	Constructs a new RTO and mission debrief facility on the flightline.	Airfield Ops
AO-6	P375	Construct hush house	Constructs a two-cell hush house at the north end of flightline. Construction of a hush house was agreed upon as part of the Joint Land Use Study (JLUS) prepared in conjunction with the surrounding communities.	Airfield Ops
AO-7		Construct line maintenance shelters with operational storage	Replaces shelters that have reached the end of their service life, are in poor condition, and fall within apron and taxiway clear zones. Constructs 20 shelters totaling 28,250 square feet. Operational storage is located on the ground floor, allowing high value hangar space to be used for aircraft parking and maintenance.	Airfield Ops
AO-8		Designate open storage areas for squadrons	Improves airfield safety and complies with airfield planning standards by consolidating drop tanks and ground support equipment outside of apron and taxiway clear zones. Each squadron is provided with a secure space.	Airfield Ops
AO-9	P378	F-35C FRS Hangar 5 Additions & Modifications	Provides modifications in anticipation of the initial F-35C squadron arriving at NAS Lemoore in 2016.	Airfield Ops
AO-10	P328	F-35C Facility Addition and Modification	Provides additions to Hangar 5 in anticipation of the initial F-35C squadron arriving at NAS Lemoore in 2016.	Airfield Ops

Table 23. Airfield Ops District implementation plan (continued)

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
AO-11		Determine F-35C parking requirements; upgrade aprons as needed	Current parking aprons are not configured for F-35C requirements.	Airfield Ops
AO-12		Designate hot brake inspection	Designate up to seven hot brake inspection areas around the flightline and provides a personnel shelter for the Apron 1 inspection area. The lack of formally designated hot brake inspection areas means this function occasionally occurs at locations that pose safety risks.	Airfield Ops
AO-13		Identify a future use for power check pads at Hangars 2, 3, and 5	Three of the five existing power check pads are no longer required, creating opportunities to reuse this space adjacent to the aprons.	Airfield Ops
AO-14	P242	Galley Replacement	Construct a dining facility along the flightline with space for other personnel support functions. Improves quality of life for junior Sailors working in the hangars by providing additional dining options and a location where personnel can take a break from the workday. Existing NEX food counters in Hangars 1 and 3 can be consolidated in the facility, allowing hangar space to be repurposed for operational functions.	Airfield Ops
AO-15		Construct additional Apron 2 and 4 apron access taxiways	Additional apron access taxiways at Aprons 2 and 4 would provide alternate ramp access to increase operational efficiencies.	Airfield Ops
AO-16		Install flightline power and air	Underground power and air distribution systems on each apron will increase efficiencies.	Airfield Ops
AO-17		Install secure spaces in each hangar	Squadrons require secure spaces within each hangar to comply with facility requirements.	Airfield Ops
AO-18	P351	F-35C Facility Upgrade and Addition	Provides required upgrades to Hangar 3 to support four F-35C squadrons.	Airfield Ops
AO-19		Provide space for the Response Force Team	Provides up to 500 SF of space for the F-35C Response-Force team to occupy on a continuous basis. Existing NEX food counters in Hangars 1 and 3 would become available if a consolidated dining facility is constructed on the flightline.	Base Support
AO-20		Formally close portions of Bravo Taxiway; reclassify taxiway between Hangars 1 and 3 as a towway	Allows for redevelopment of Bravo Taxiway in the vicinity of Reeves Boulevard to support airfield operations. Reclassification as a towway reduces safety clear zone setbacks, further enhancing redevelopment potential.	Airfield Ops
AO-21		Construct additional Apron 1 and 3 apron access taxiways	Additional apron access taxiways at Aprons 1 and 3 will be required to provide a fueling skid bypass if portions of Bravo Taxiway are closed for outdoor storage.	Airfield Ops
AO-22		Evaluate feasibility to upgrade and expand existing hangars	Existing hangars are undersized and poorly configured for both current and anticipated future aircraft. Evaluating upgrade and expansion capabilities allows for informed planning and decision making.	Airfield Ops

Table 23. Airfield Ops District implementation plan (continued)

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
AO-23	P059	Corrosion Control Hangar	Provides a dedicated facility for corrosion control, allowing this function to relocate out of the operational hangars.	Airfield Ops
AO-24		Modernize and expand Ops Side fire station	Modernizes the Ops Side fire station (Building 190) to provide continued service.	Base Support
AO-25		Establish Level Two security area	Brings airfield into compliance with security requirements for current and future aircraft.	Airfield Ops
AO-26	P282	F/A 18 Avionics Repair Facility Replacement	Replaces the existing avionics shop in Building 160 that is in substandard condition and was not designed for current electronics packages.	Inter/Depot Level Maint
AO-27	P278	Extend Hotel Taxiway Parallel	Improves efficiency and addresses safety issues by eliminating the need for aircraft to taxi on the runway, which results in delayed take-offs and landings.	Airfield Ops
AO-28		Replace Runway 32L lighting	Improves airfield safety by replacing inadequate lighting.	Airfield Ops

FIGURE 68. AIRFIELD OPS DISTRICT IMPLEMENTATION PLAN

FIGURE 69. AIRFIELD OPS DISTRICT DEMOLITION PLAN

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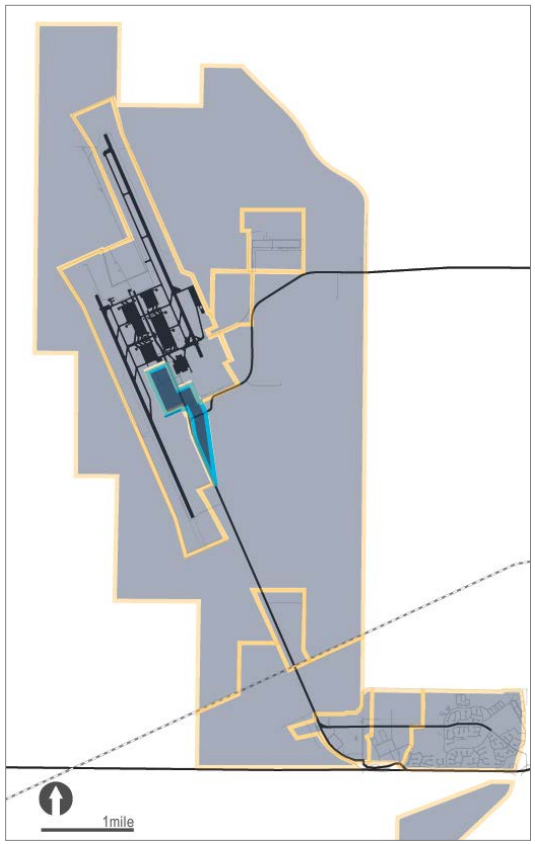
AIRFIELD OPS SUPPORT ADP

MISSION AND VISION

The Airfield Ops Support District is a 195 acre area that includes a variety of functions supporting operations on the flightline, including administrative, training, warehouse, light industrial, and personnel support.



GOALS AND OBJECTIVES

Planning area goals and objectives for the District are summarized below.

- Replace deteriorated facilities, including Building 1 (Air Operations) and Building 10 (Ops Side galley).
- Create a consolidated administrative, training, and personnel support campus within the District.
- Improve pedestrian facilities within the District and along Reeves Boulevard to provide connections with the Airfield Ops District.
- Concentrate light industrial uses on the east side of Reeves Boulevard around the aviation warehouse (Building 140).
- Develop the District in a manner that best supports the primary mission occurring in the Airfield Ops District. Recognize the value and importance of building sites immediately adjacent to Post 3A and ensure they are developed for the highest and best use.
- Preserve the ability to expand the District south along the east side of Reeves Boulevard.

DISTRICT MISSION

To provide the administrative, training, storage, and personnel support functions necessary for day-to-day operations on the flightline.

DISTRICT VISION

Support the primary mission with the right mix of light industrial, administrative, training, and personnel support facilities organized in a manner that maximizes operational efficiency without sacrificing Sailor quality of life.

PERMITTED BUILDING ENVELOPE STANDARDS

Permitted BESs within the Airfield Ops Support District are identified below. Standards are discussed on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

- Light Industrial
- Low Rise Mixed Use

PRIMARY TENANTS AND OPERATIONS

Primary tenants located within the District are identified below and illustrated in Figure 70. A more detailed description of their mission and loading can be found in the Tenant Commands section.

- **Commander, Strike Fighter Wing Pacific**
  CSFWP occupies Building 1 and is comprised entirely of administrative space. Operational trainers in Building 43 also fall under CSFWP.
- **Carrier Air Wings**
  CVWs 2, 9, 11, and 17 utilize administrative space in Building 30. CVW 14 will arrive at NAS Lemoore in 2015.
- **Strike Fighter Weapons School Pacific**
  SFWSPAC occupies training spaces in Building 4.
- **Naval Supply Systems Command**
  Building 140 is a 167,000 square foot warehouse supporting operations on the flightline. NAVSUP also operates the Ops Side galley in Building 10 and the air passenger terminal in Building 25.
- **Morale, Welfare, and Recreation**
  MWR operates the Ops Side gym in Building 40.
- **Naval Hospital**
  The NAVHOSP Ops Side dental clinic is located in Building 11.
- **Defense Logistics Agency**
  DLA oversees aircraft fuel storage and delivery. A project is currently underway to replace six existing underground storage tanks with three above ground tanks (P-1508).

BY THE NUMBERS

- 210 day time users within the District (approximate)
- 243,000 square feet of admin, training, and personnel support space
- 167,000 square foot warehouse
- 195 acres

Ops Side galley (front) and simulator building (back)

Outdoor recreation at the Ops Side gym

Aviation supply warehouse

NAS Lemoore dental clinic

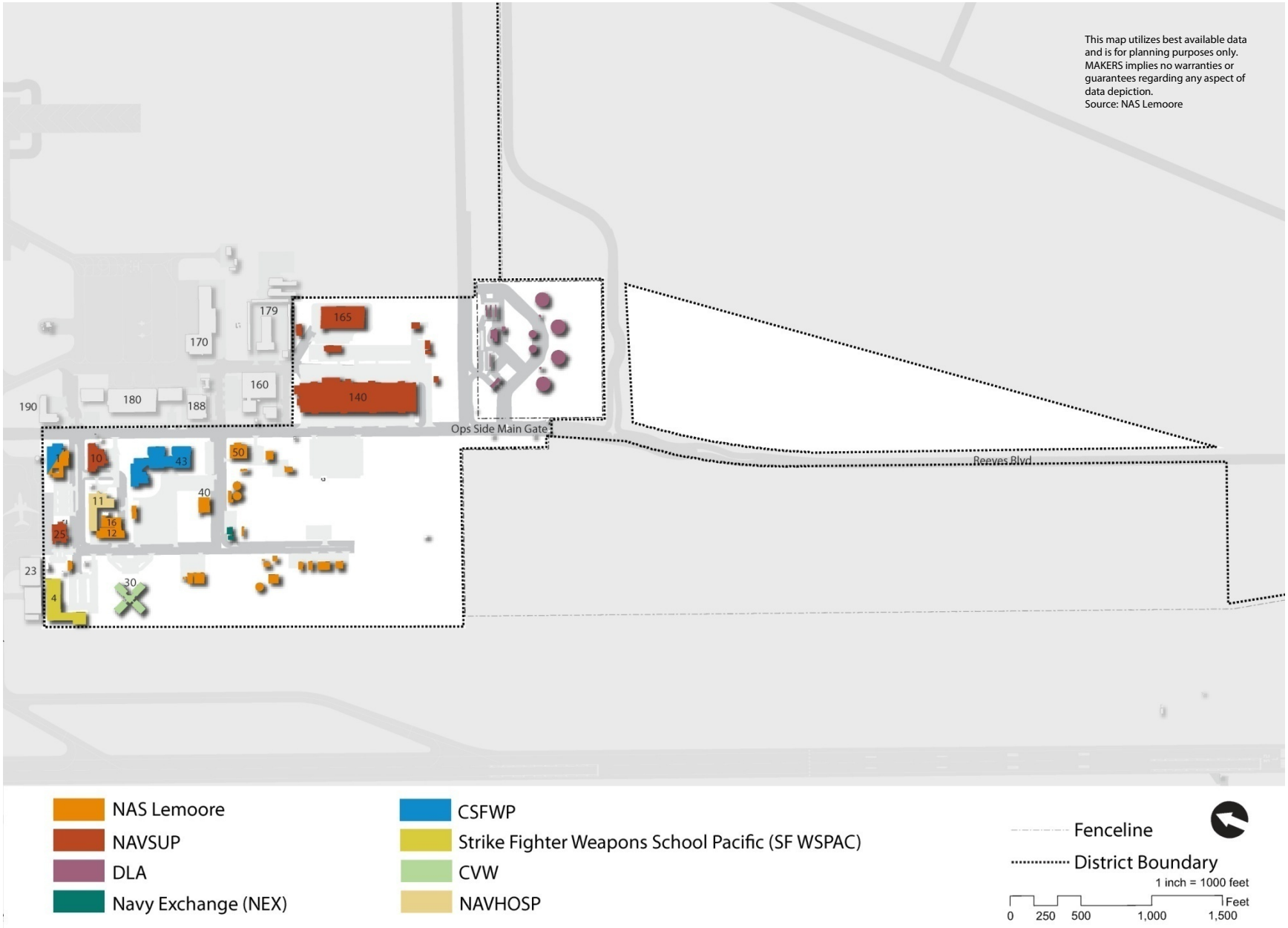


FIGURE 70. AIRFIELD OPS SUPPORT DISTRICT PRIMARY TENANTS (2014)

VISUAL CHARACTER

The visual character of the Airfield Ops Support District emphasizes the area's unique and important proximity to the flightline and the essential support provided for those operations. Reeves Boulevard forms a natural barrier between uses, with big block buildings on the east side and administrative and personnel support uses on the west side.

Elements that should contribute to the District's visual character are illustrated in Figure 71 and include:

- The Control Tower should be a key iconic feature of the District.
- If the Air Ops Building is replaced or expanded utilize an iconic design to create a sense of prestige and hierarchy within the District.
- Modulate building mass and create variation and visual interest at the human scale for new buildings along Reeves Boulevard to balance their composition and neutralize their expansiveness.
- Vehicle parking is located behind facilities so that parking is not the predominate land use when entering the District.
- Dependency on vehicles for movement within the District is reduced through the relationship of buildings, roadways, and well defined pedestrian walkways and bikeways.
- The District should be comprised of one to two-story structures focused along Reeves Boulevard.
- Typical character-defining architectural features for the low rise mixed use and light industrial buildings are flat, gable, or shed roof forms of corrugated metal or standing-seam roof materials, with metal panel exterior siding.

FIGURE 71. AIRFIELD OPS SUPPORT DISTRICT VISUAL CHARACTER

PLANNING CONSIDERATIONS

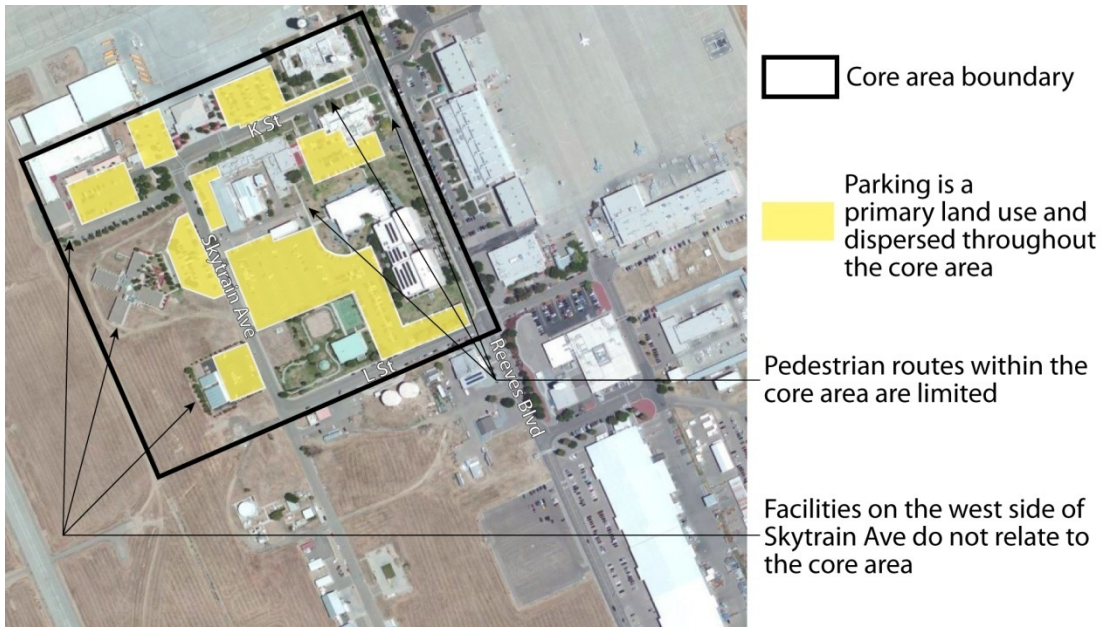
ISSUES

Key issues that impact operations within the Airfield Ops Support District are identified below. For a more comprehensive list of issues refer to the Major Shore Capabilities Areas Planning Analysis section.

- **Aging Facilities**
  Building 1 was constructed in 1961 and requires replacement or major upgrade. The facility is at the end of its anticipated life and is in poor condition. Facility condition is summarized in Figure 72.
- **Post 3A Vehicle Delays**
  Standup of Post 3A is expected to create traffic backups along Reeves Boulevard, with possible delays of up to 20 minutes. Access to facilities with driveways along Reeves could be impacted. Shuttles providing service between the Admin and Ops Sides could also be delayed.

Post 3A

- **Broken Pedestrian Network**
  Sidewalks exist throughout much of the District but the network has gaps in several locations. In addition, sidewalks along Reeves Boulevard are immediately adjacent to the street, putting pedestrians in close proximity to high traffic volumes and creating an environment that does not encourage walking.
- **Uncoordinated Development in Core Area**
  Uses and facilities in the core area west of Reeves Boulevard and North of L Street are not well coordinated. Facilities generally stand alone and have no relation to one another. Parking is a primary land use within this area.



Airfield Ops Support core area

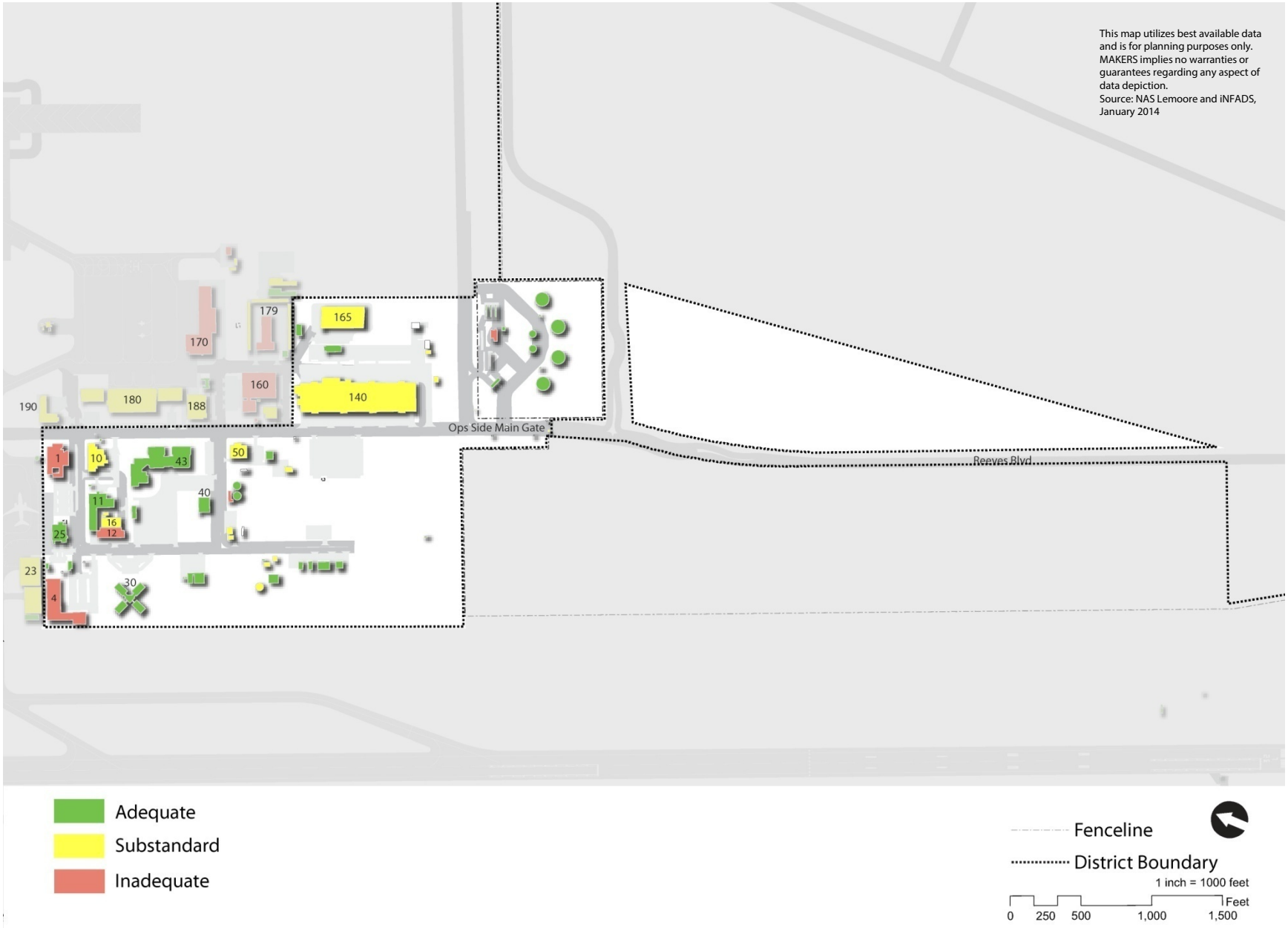


FIGURE 72. AIRFIELD OPS SUPPORT DISTRICT FACILITY QUALITY RATING

CONSTRAINTS

Natural and manmade constraints have the potential to limit redevelopment opportunities within the District. Constraints that must be considered when siting future projects within the Airfield Ops Support District are described below and illustrated in Figure 74.

Manmade Constraints

- **Imaginary Surfaces**
  Facility heights are restricted around airfields to avoid safety concerns and conflicts with aircraft operations. Areas immediately adjacent to the runway are the most restricted, with allowable heights increasing as one moves away from the landing surface.

  Imaginary surfaces limit east/west expansion within the District as illustrated in Figure 73. Construction within the transitional surface may still be possible; however a waiver would be required.

- **Installation Restoration Sites**
  Five IR sites exist within the District, including Sites 3, 5/9, 11, 13, and 16. Site 5/9 is the largest of the sites and could limit development in the open areas south of L Street to industrial uses only. Sites 11 and 13 are closed, while Sites 3 and 16 are restricted to industrial uses only.

- **Anti-terrorism/Force Protection (AT/FP)**
  AT/FP standoff distances are required around facilities to limit vehicular access and possible exposure to vehicle bombs and other terrorist threats. Standoffs can have a significant impact on facility siting and vehicle parking.

- **Noise Contours**
  Normal airfield operations generate significant noise impacts. The entire Airfield Ops Support District falls within the 75-85 db noise contour. Uses must be compatible with these noise levels.

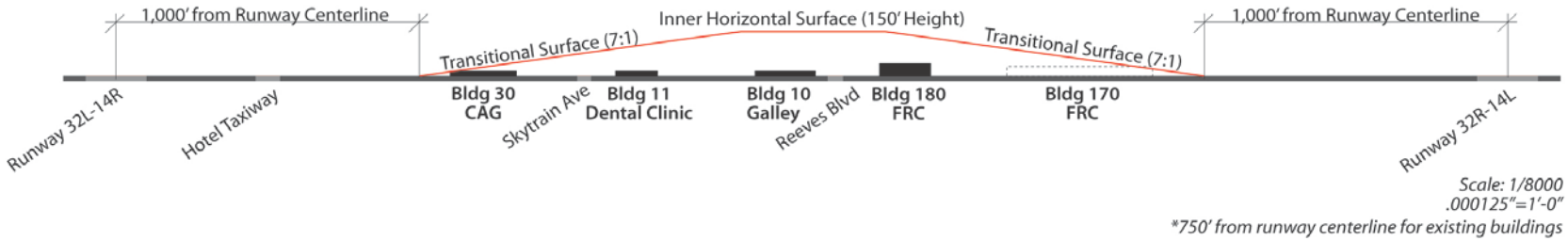


FIGURE 73. AIRFIELD OPS SUPPORT DISTRICT IMAGINARY SURFACE

Natural Constraints

- **Cultural Resources**
  Cultural resources include sites, structures, buildings, or other objects that possess historic or architectural value and integrity. There are currently no known cultural resources within the District.
- **Seismic**
  There are no significant known active geologic faults in the immediate vicinity of NAS Lemoore. However, the active San Andreas Fault is approximately 50 miles to the west of NAS Lemoore. The Owens Valley Fault group is approximately 80 miles to the east. All facilities at NAS Lemoore must therefore meet specified seismic requirements.
- **Endangered and Threatened Species**
  Kangaroo rats, burrowing owls, and other endangered or threatened species are found near the airfield and must be considered when siting future projects.
- **Air Quality**
  NAS Lemoore falls within the San Joaquin Valley Air Pollution Control District. In general, California requires pollution control and prevention measures which are more stringent than those mandated by the EPA. NAS Lemoore must comply with Federal, State, and San Joaquin Valley Air Pollution Control District regulations pertaining to air emissions.

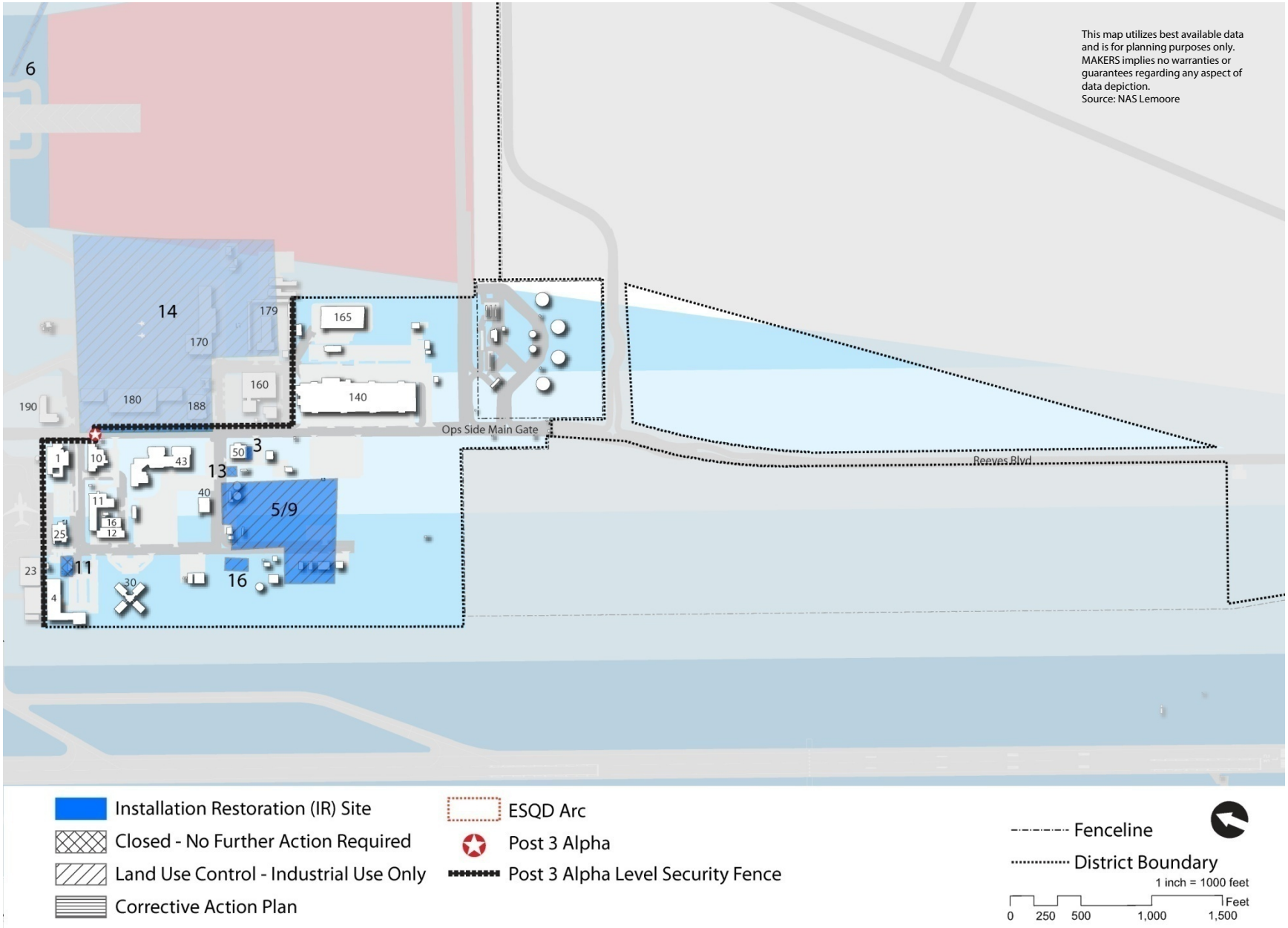


FIGURE 74. AIRFIELD OPS SUPPORT DISTRICT CONSTRAINTS

ALTERNATIVES

Alternatives were evaluated for key Master Plan opportunities. In some cases alternatives have also been identified for previously developed projects or COAs. These alternatives are summarized below.

Ops Side Galley

The Ops Side galley is in poor condition and appears to have excess capacity based on the number of meals being served at peak times. In addition, the location is inconvenient for Sailors working in hangars due to distance and the lack of pedestrian linkages. A strategy is needed for the repair or replacement of this facility.

Alternatives should also be considered to modify the galley's operating model for increased efficiency. The facility is currently operated by NAVSUP as a traditional galley; however it may be feasible to operate the galley as a food court through partnerships with private industry.

Preferred COA: The preferred COA is to relocate the galley to a site more centrally located on the flightline and apply a foot court concept for facility operation. Alternatives are discussed in greater detail in the Airfield Ops District since the facility is relocated out of the Airfield Ops Support District.

Air Ops Building

Building 1 was constructed in 1961 and has received only minor improvements and periodic maintenance since its construction. The facility is also undersized by approximately 20,000 square feet for current uses. Facility improvement alternatives include recapitalization with expansion or replacement.

1. Recapitalize Building 1 and provide additional footprint for CSFWP and NAS Lemoore Air Ops.

2. Replace Building 1 with facilities that meet the entire 41,624 square foot requirement.

Preferred COA: Recapitalization of Building 1 is preferred. The facility is in an ideal location and provides an interface between the Airfield Ops and Airfield Ops Support Districts. Up to 20,000 square feet of additional footprint is provided in an annex occupying the current Ops Side galley site.

Air Ops Building (Building 1)

ILLUSTRATIVE PLAN

The Illustrative Plan provides a graphic representation of the District's possible future based on the vision, desired visual character, constraints, opportunities, known projects, possible future projects, and the guidelines established for each site (see the Regulating Plan in the following section). The Airfield Ops Support District Illustrative Plan is illustrated in Figure 75.

Airfield Ops Support core area campus concept

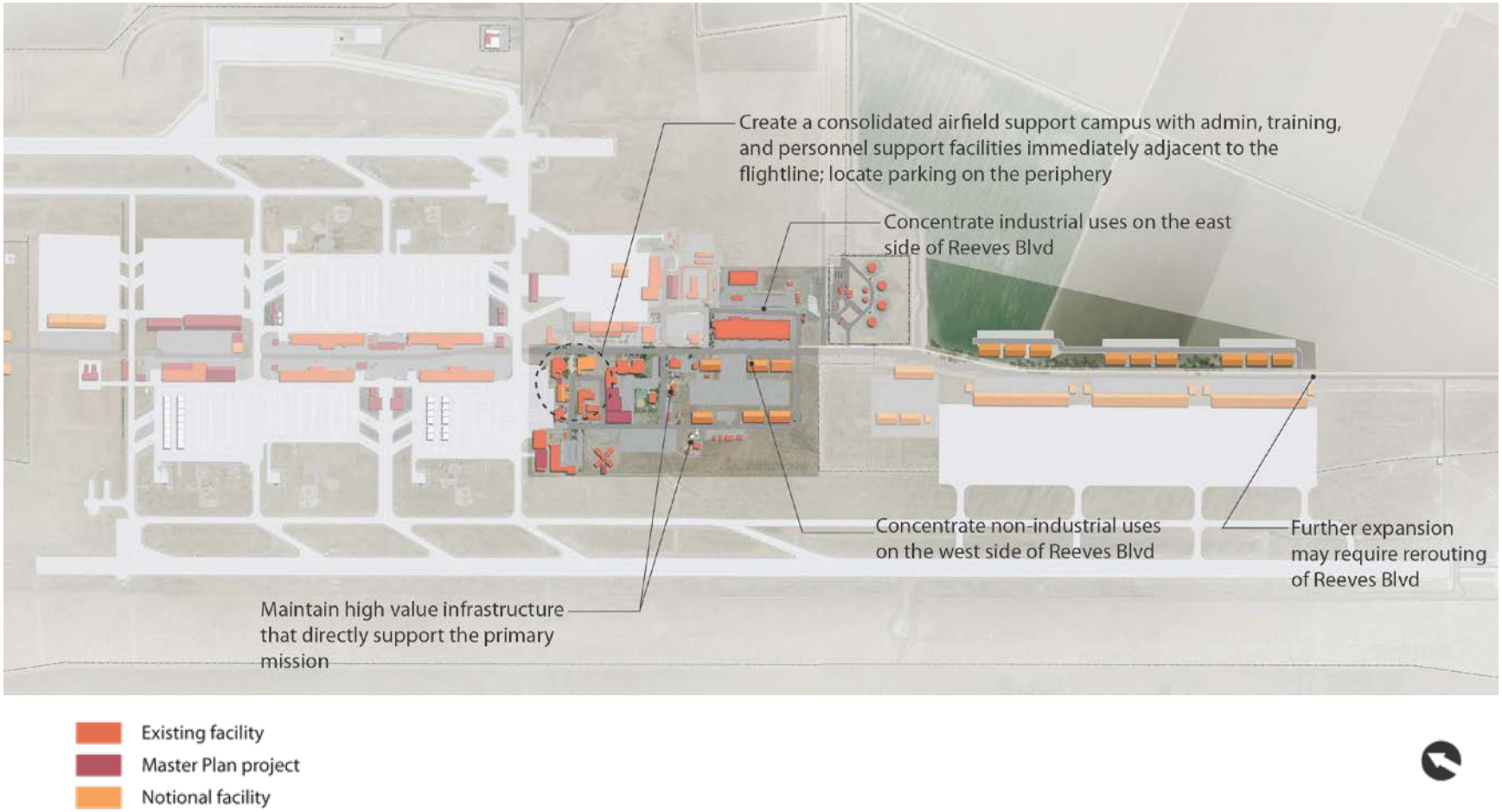


FIGURE 75. AIRFIELD OPS SUPPORT DISTRICT ILLUSTRATIVE PLAN

REGULATING PLAN

The Regulating Plan provides additional guidance on the uses permitted within the District, where those uses should be located, and how facilities should be situated on potential sites to align with the Master Plan vision. The Airfield Ops Support District Regulating Plan is illustrated in Figure 76. Other siting considerations are provided below.

PERMITTED USES

Permitted uses include those directly supporting operations on the flightline but not requiring immediate proximity to the hangars. Table 24 identifies uses permitted within the District along with the appropriate BES. Building standards were previously defined on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

Appendix D provides a more comprehensive list of permitted uses for each district, including conditional uses that may be permitted under special circumstances.

Table 24. Airfield Ops Support District permitted uses

CC Group	Description	BES: Light Industrial	BES: Low rise mixed use
123	LAND VEH FUELING / DISPGN FAC	■	
141	OPERATIONAL BUILDINGS	■	■
143	SHIP & OTHER OPERTNL - BLDGS	■	
171	TRAINING BUILDINGS		■
219	MAINT - INSTAL REPAIR & OPER	■	
441	GEN SUPPLY STORG DEP/INSTLN	■	
451	STORAGE - OPEN DEPOT/INSTLN	■	
540	DENTAL CLINICS		■
550	DISPENSARIES/CLINICS		■
610	ADMIN BUILDINGS		■
722	UNACOMP PERS HOUS-MESS FAC		■
740	COMM FAC-MWR INTR		■
760	MUSEUMS AND MEMORIALS		■

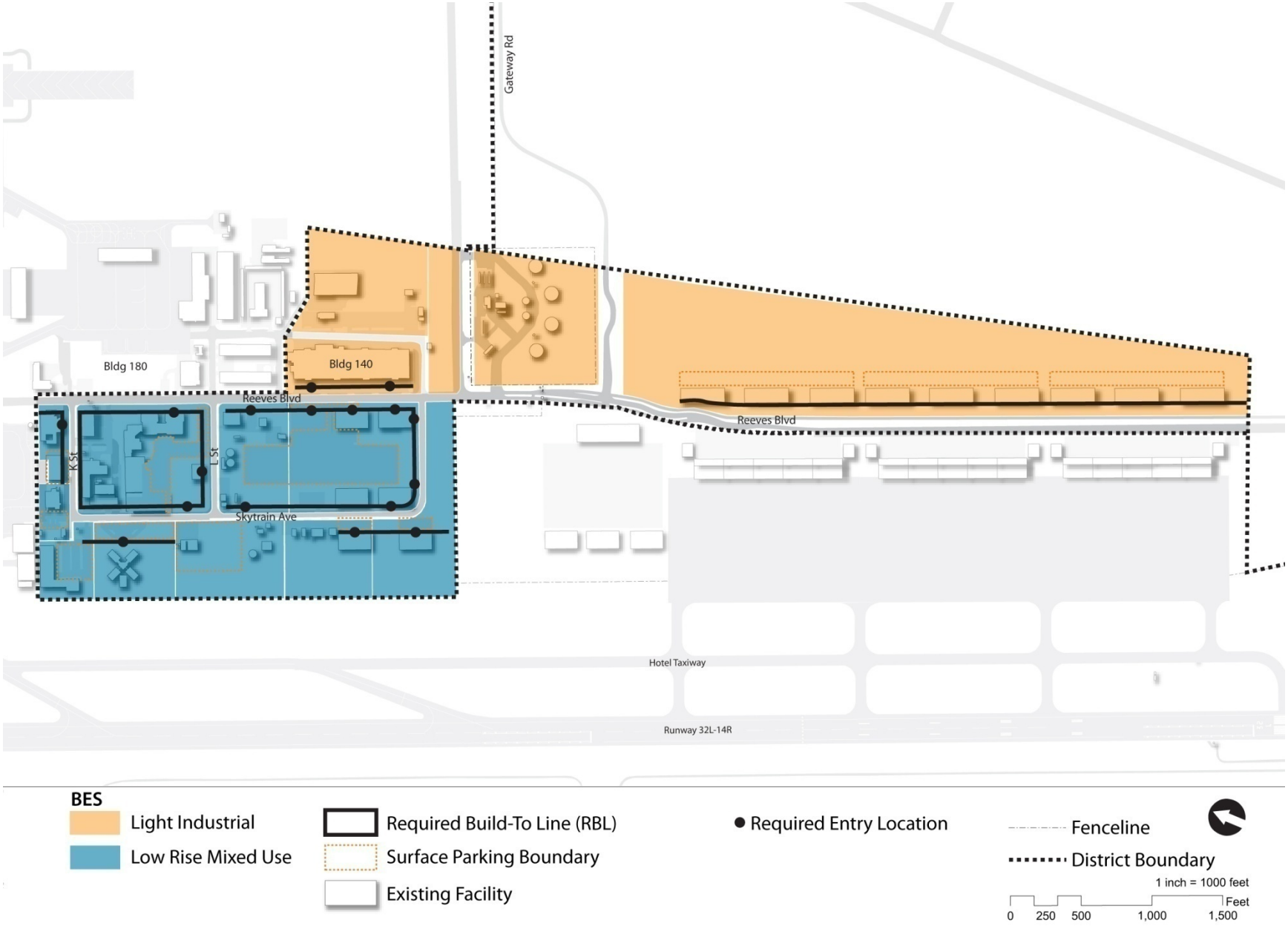


FIGURE 76. AIRFIELD OPS SUPPORT DISTRICT REGULATING PLAN

DEVELOPABLE AREA AND GROWTH CAPABILITY

Small scale infill development can occur within built up areas of the Airfield Ops Support District core. Larger undeveloped sites elsewhere in the District also present opportunities for new facilities or operations.

Developable areas are identified as part of the Regulating Plan in Figure 76. These areas can support the following growth.

- Approximately 350,000 SF of light industrial space could be accommodated in the nearly 200 acre area of agricultural land just outside of the Main Gate to the east of Reeves Boulevard.
- Approximately 250,000 SF of low rise mixed use area can be accommodated within the District on primarily undeveloped land.

RESOURCES AND REFERENCES

Operations within the Airfield Ops Support District must adhere to a number of criteria and guidelines. Appendix C identifies the UFC, manuals, and other resources that should be consulted when planning within the District.

DEVELOPMENT STANDARDS

Development standards provide specific guidance on building orientation, architectural character, relationships between adjacent uses, streetscape conditions, parking placement, and other features that affect the look and feel of a district. These standards should be consulted in conjunction with facility siting and design, roadway projects, pedestrian improvements, and other projects impacting the built environment.

Standards for each BES appear later in the Master Plan and address:

- Building height and scale
- Building siting and placement
- Orientation to adjacent uses
- Location of parking

IMPLEMENTATION PLAN

Projects in the Airfield Ops Support District satisfy facility shortfalls and deficiencies while establishing a compact core area that embodies the Master Plan vision and goals.

The Implementation Plan summarized in Table 25 identifies projects within the District. Projects are illustrated in Figures 77 and 78 below. Transportation projects occurring within the District are also illustrated (depicted at "TP" projects); information on these projects can be found in the Street and Transit Network Plan. Additional information on most COAs can be found in the corresponding Shore Capability Area section of the Master Plan.

Table 25. Airfield Ops Support District implementation plan

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
AOS-1	RM11-95	Renovate Air Ops Building (Bldg 1) and Construct Adjacent Annex	Renovate and modernize Building 1 to support ongoing operations. Facility houses CSFWP, which is a critical function on the flightline. Up to 20,000 square feet of additional space can be provided in an adjacent annex to address shortfalls.	
AOS-2	P385	F-35C Admin Dept	Constructs a ne w facility to offset the 20,000 square foot shortfall in the existing Air Ops Building (Bldg 1).	Airfield Ops
AOS-3	P386	F-35C Weapons School Training Facilities	Constructs ne w canopies to support outdoor training at SFWSPAC.	
AOS-4	P327	F-35C Operational Training Facility	Constructs ne w facilities to support F-35C flight simulators for the initial F-35C squadron scheduled to arrive at NAS Lemoore by 2016.	Airfield Ops
AOS-5	P379	P-35C PTC Phase II Bldg 43 Modifications	Modifies Building 43 to accommodate F-35C training and simulators.	Airfield Ops
AOS-6	P327A	F-35C Academic Training Facility	Constructs ne w facilities to support F-35C flight simulators for F-35C squadrons scheduled to arrive at NAS Lemoore by 2023.	Airfield Ops
AOS-7	P377	Additions to Bldg 30 for CVW-14 Restoration	Constructs an additional wing on Building 30 to accommodate CVW-14, scheduled to arrive at NAS Lemoore in FY 2016.	

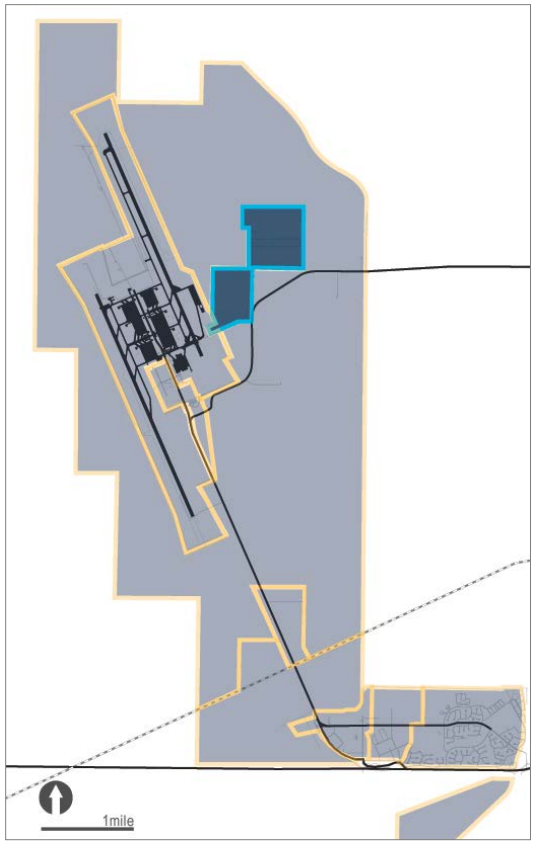
FIGURE 77. AIRFIELD OPS SUPPORT DISTRICT IMPLEMENTATION PLAN

FIGURE 78. AIRFIELD OPS SUPPORT DISTRICT DEMOLITION PLAN

ORDNANCE ADP

MISSION AND VISION

The Ordnance District is a 520 acre area that includes weapons handling, storage, and maintenance facilities. Outdoor shooting ranges and offices supporting ordnance operations also fall within the District.



GOALS AND OBJECTIVES

Planning area goals and objectives for the District are summarized below.

- Provide facilities that meet safety and operational requirements associated with ordnance and weapons handling.
- Protect expansion capabilities of the District to support possible mission growth.

DISTRICT MISSION

To provide the weapons handling and storage facilities required to support Strike Fighter operations at NAS Lemoore.

DISTRICT VISION

Support the primary mission with ordnance handling and storage facilities that meet current requirements while preserving capacity to accommodate the weapons systems and missions of tomorrow.

PERMITTED BUILDING ENVELOPE STANDARDS

Permitted BESs within the Ordnance District are identified below. Standards are discussed on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

- Light Industrial

PRIMARY TENANTS AND OPERATIONS

Primary tenants located within the District are identified below and illustrated in Figure 79. A more detailed description of their mission and loading can be found in the Tenant Commands section.

- **Naval Munitions Command**
  NMC conducts ordnance handling, storage, and maintenance operations. Facilities include magazines, operations buildings, and office space.
- **NAS Lemoore Security**
  Security operates an outdoor pistol and rifle range with 12 firing points.

BY THE NUMBERS

- 75 day time users (approximate)
- 13 magazines
- 12 firing point small arms range
- 520 acres

FIGURE 79. ORDNANCE DISTRICT PRIMARY TENANTS (2014)

VISUAL CHARACTER

The Ordnance District has a distinctive visual character generated by the siting and building design requirements associated with weapons storage, handling, and maintenance. Elements that contribute to the District's visual character are illustrated in Figure 80 and include:

- The dispersed site layout of small buildings specifically designed for the functions within is the primary visual character.
- Character defining architectural features for light industrial structures located outside of ESQD arcs include flat, gabled, or shed roof forms of corrugated metal or standing-seam roof materials with cost-effective, prefabricated, and pre-engineered metal cladding.
- Building entrances and windows provide a human scale within an otherwise industrial district. Locate entrances to provide easy access. Entries should be weather protected with covered or recessed entrances.
- The circulation system consists of long, narrow roadways connecting facilities. There are no pedestrian pathways. While the magazines are arranged in a grid pattern, facilities used for maintenance and administrative functions are grouped in areas away from the magazines at the edges of the District.
- Landscaping is limited and only provided where appropriate.

FIGURE 80. ORDNANCE DISTRICT VISUAL CHARACTER

PLANNING CONSIDERATIONS

ISSUES

Key issues that impact operations within the Ordnance District are identified below. For a more comprehensive list of issues refer to the Major Shore Capabilities Areas Planning Analysis section.

- **Missile Maintenance/Assembly**
  Building 472 is undersized by approximately 10,300 square feet (54 percent), has limited operating space, low ceiling heights, no climate control, and minimal outdoor staging space. The facility was constructed to support A-1 & A-4 A/C "free fall/dumb bombs with advanced technology" and is not properly configured to support F/A-18 and future aircrafts. Space limitations require personnel to double and triple handle ordnance to complete daily operations, resulting in safety concerns and work arounds that add approximately one hour to each build-up evolution. In addition, the facility is remotely located from the main ordnance compound, further reducing operational efficiency.
- **Foreign Object Debris**
  Gravel roads located within the ordnance area and adjacent to the CALA create FOD concerns as ordnance vehicles track rocks onto the flightline. The proximity to agricultural production areas also creates FOD concerns.
- **Outdoor Storage and Laydown**
  Outdoor storage areas for inert equipment do not provide any shade or weather protection. These materials should be stored under cover.

CONSTRAINTS

Natural and manmade constraints have the potential to limit redevelopment opportunities within the District. Constraints that must be considered when siting future projects within the Ordnance District are described below and illustrated in Figures 82 and 83.

Manmade Constraints

- **ESQD Arcs**
  Most of the District is encumbered by ESQD arcs, which preclude uses unrelated to ordnance operations.
- **Surface Danger Zones**
  The small arms range SDZ includes the area between the firing line and the target line, an impact area, a ricochet trajectory area, and a secondary danger area. Land uses within the SDZ are restricted to protect Navy personnel as well as the general public. Areas falling within the SDZ are currently used for agricultural.
- **Electromagnetic Radiation**
  The 2005 NAS Lemoore Activity Overview Plan identifies HERO arcs within the District originating from the Airport Surveillance Radar. These arcs may limit certain ordnance operations in some locations.

Natural Constraints

- **Air Quality**
  NAS Lemoore falls within the San Joaquin Valley Air Pollution Control District. In general, California requires pollution control and prevention measures which are more stringent than those mandated by the EPA. NAS Lemoore must comply with Federal, State, and San Joaquin Valley Air Pollution Control District regulations pertaining to air emissions.
- **Seismic**
  There are no significant known active geologic faults in the immediate vicinity of NAS Lemoore. However, the active San Andreas Fault is approximately 50 miles to the west of NAS Lemoore. The Owens Valley Fault group is approximately 80 miles to the east. All facilities at NAS Lemoore must therefore meet specified seismic requirements.
- **Endangered and Threatened Species**
  Kangaroo rats, burrowing owls, and other endangered or threatened species are found near the airfield and must be considered when siting future projects.

FIGURE 81. ORDNANCE DISTRICT FACILITY QUALITY RATING

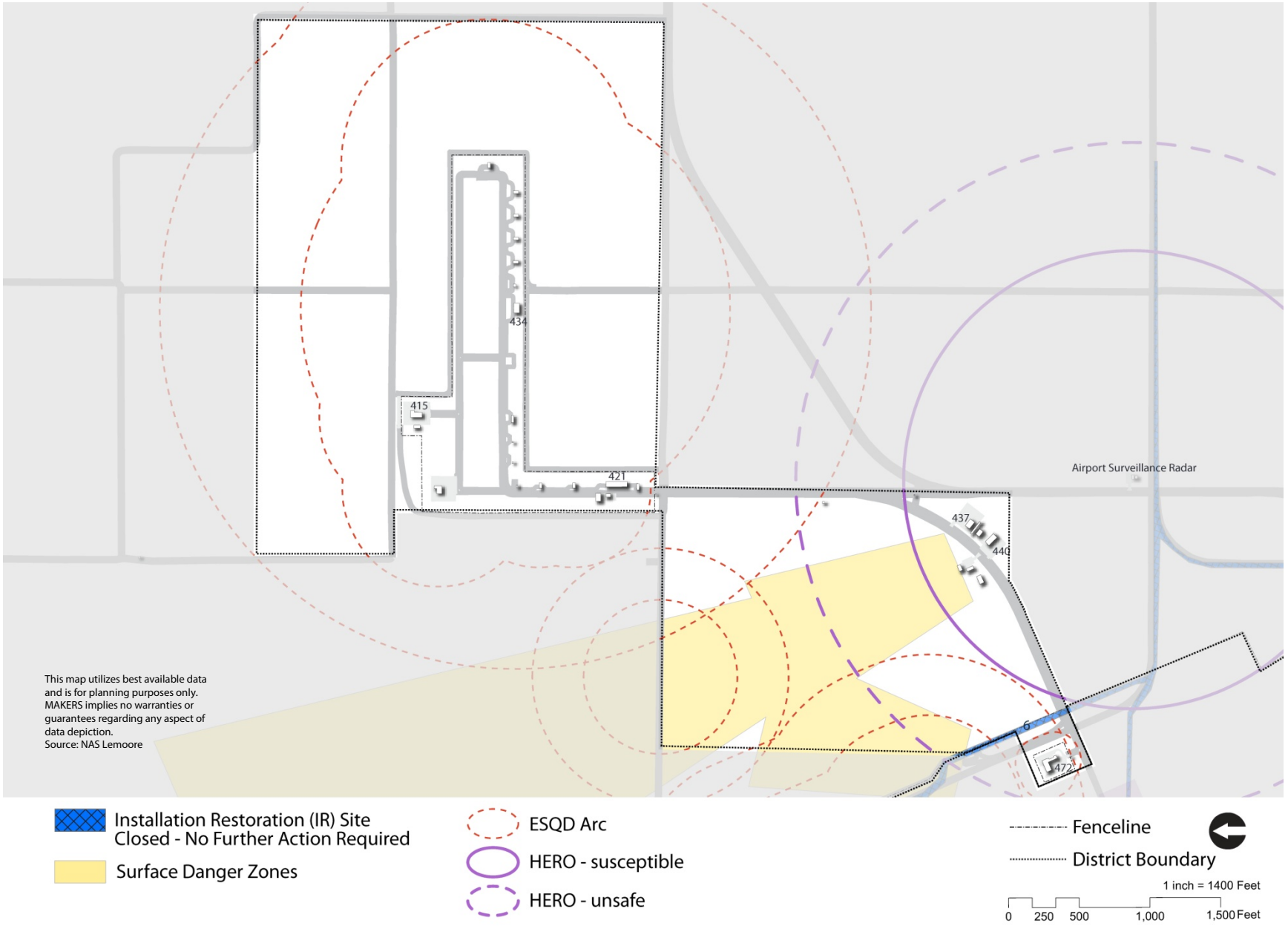


FIGURE 82. ORDNANCE DISTRICT CONSTRAINTS

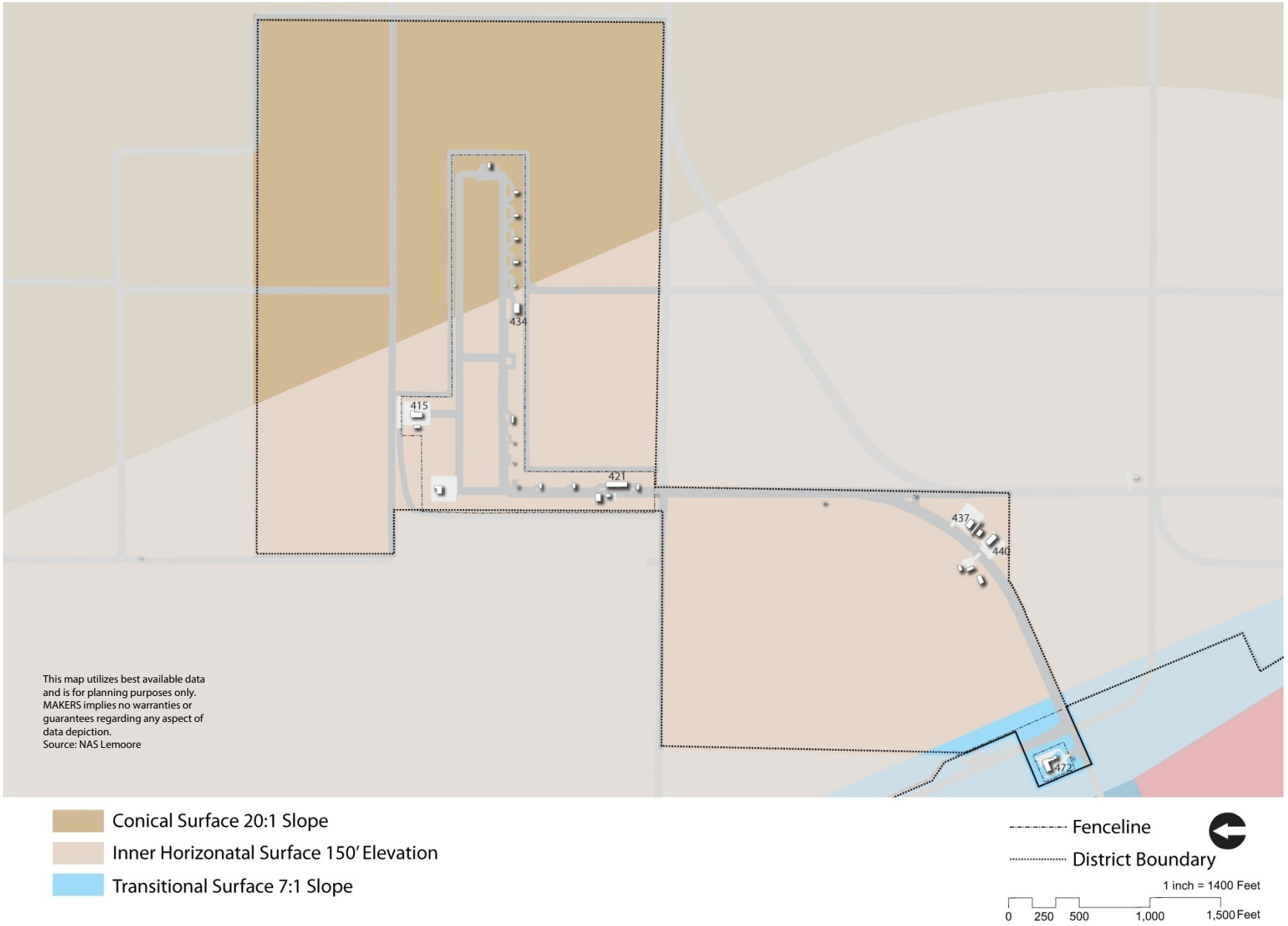


FIGURE 83. ORDNANCE DISTRICT AIRFIELD SAFETY CONSTRAINTS

ALTERNATIVES

Alternatives were evaluated for key Master Plan opportunities. In some cases alternatives have also been identified for previously developed projects or COAs. These alternatives are summarized below.

Inert Material and Equipment Storage

Outdoor storage and staging areas at Buildings 415 and 472 are exposed to the elements. Covered storage should be provided for inert materials and equipment.

1. Provide cover and weather protection for inert materials.

2. Continue as status quo.

Preferred COA: Provide a covered storage area for inert material.

Foreign Object Debris

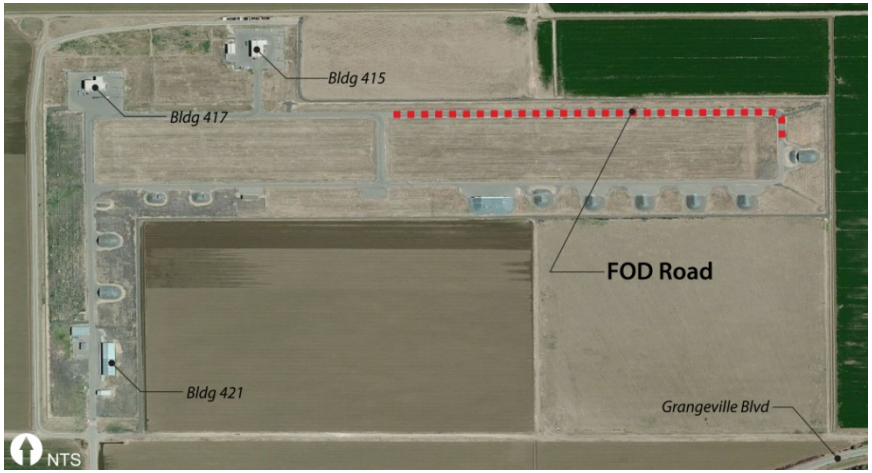
Gravel roads located within the ordnance area and adjacent to the CALA create FOD concerns as ordnance vehicles track rocks onto the flightline. Two alternatives have been identified to address this issue.

1. Pave approximately 1,900 linear feet of gravel road within the ordnance area.

2. Install a vehicle shaker at the entrance to the CALA to remove gravel and other small debris from trucks accessing the flightline.

Preferred COA: Installation of a shaker would provide FOD control for all vehicles accessing the CALA, regardless of point of origin. A shaker is therefore preferred and if FOD concerns persist additional measures will be considered.

Controlling FOD on the airfield requires ongoing vigilance



Gravel road within the ordnance area

ILLUSTRATIVE PLAN

The Illustrative Plan provides a graphic representation of the District's possible future based on the vision, desired visual character, constraints, opportunities, known projects, and possible future projects. The Ordnance District Illustrative Plan is illustrated in Figure 84.

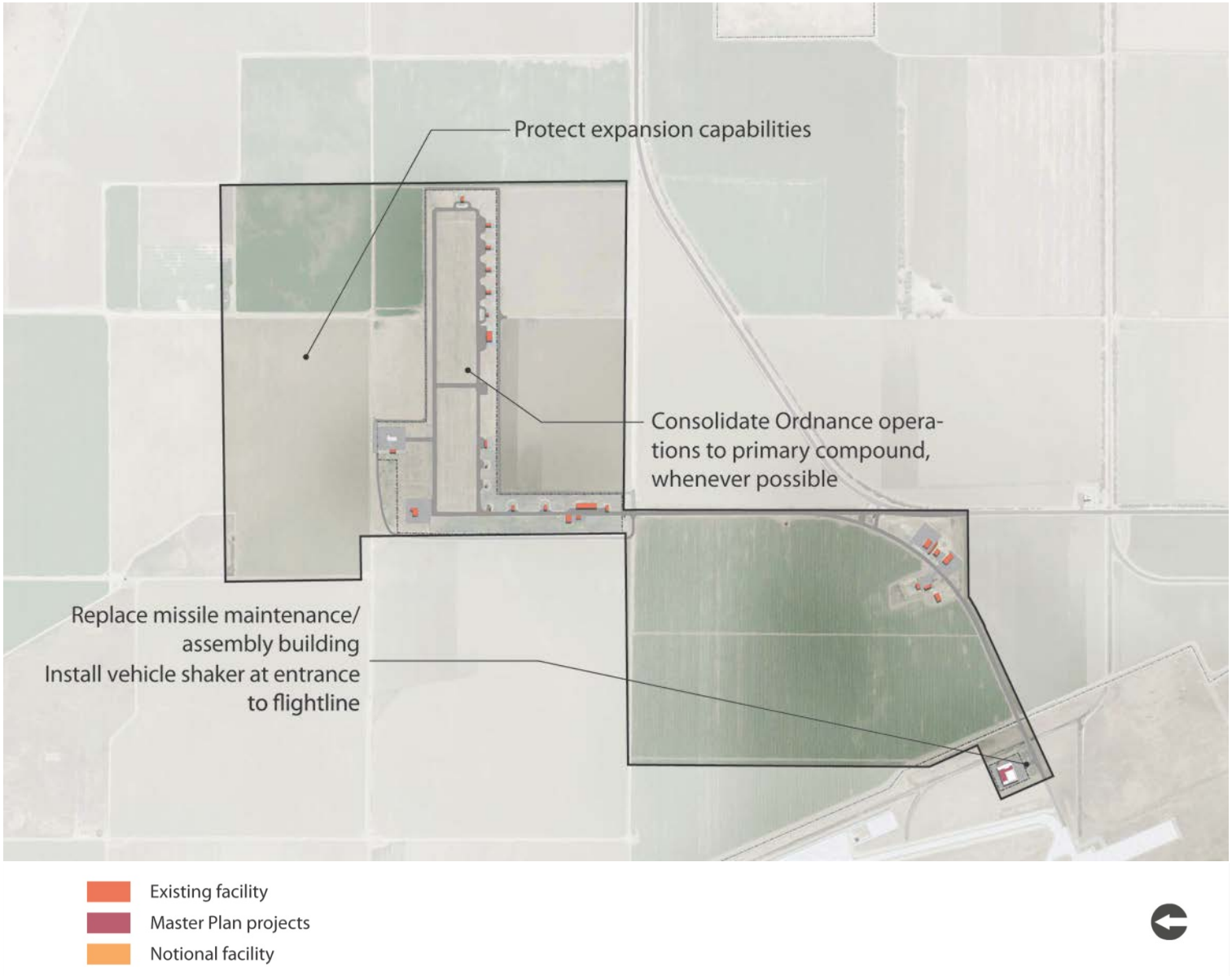


FIGURE 84. ORDNANCE DISTRICT ILLUSTRATIVE PLAN

REGULATING PLAN

The Regulating Plan provides additional guidance on the uses that are permitted within the District. A graphic regulating plan is not provided for the District since facility siting and orientation is driven by explosive safety guidelines.

PERMITTED USES

Permitted uses include those directly supporting ordnance operations and small arms training. Table 26 identifies uses permitted within the District along with the appropriate BES. Building standards were previously defined on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

Appendix D provides a more comprehensive list of permitted uses for each district, including conditional uses that may be permitted under special circumstances.

DEVELOPABLE AREA AND GROWTH CAPABILITY

The Ordnance District has large areas of undeveloped land currently under agricultural lease; however much of this land falls within ESQD arcs or the small arms range SDZ, which limits or prohibits development options. Future expansion of the ordnance area would likely occur to the north to avoid conflicts with the SDZ.

Developable areas can support the following growth.

- The weapons storage area is surrounded by agricultural lease parcels that can be converted to support expanded ordnance operations. Growth potential will vary depending on the type and volume of material being stored.

Table 26. Ordnance District permitted uses

CC Group	Description	BES: Light Industrial
143	SHIP & OTHER OPERTNL - BLDGS	
148	SHIP OPRTNL FAC - OTHER	
173	TRAINING SUPPORT FACILITIES	
179	TRAINING FAC - OTHER THAN BLDG	
212	MAINT - GUIDED MISSILES	
213	MAINT - SHIPS/SPARES	
216	MAINT - AMMO/EXPLSV/TOXICS	
421	AMMO STORAGE DEP/INSTLN	

RESOURCES AND REFERENCES

Operations within the Ordnance District must adhere to a number of criteria and guidelines. Appendix C identifies the UFC, manuals, and other resources that should be consulted when planning within the District.

DEVELOPMENT STANDARDS

Development standards provide specific guidance on building orientation, architectural character, relationships between adjacent uses, streetscape conditions, parking placement, and other features that affect the look and feel of a district. The Ordnance District does not require these standards since development is regulated by explosive safety guidelines.

IMPLEMENTATION PLAN

Projects in the Ordnance District satisfy facility shortfalls and deficiencies while maintaining required operability and safety standards.

The Implementation Plan summarized in Table 27 identifies projects within the District. Projects are illustrated in Figures 85 and 86 below. Additional information on most COAs can be found in the corresponding Shore Capability Area section of the Master Plan.

Table 27. Ordnance District implementation plan

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
ORD-1	P276	Replace Missile Maintenance/ Assembly Building	Building 472 is undersized by approximately 10,300 square feet (54 percent) and is poorly configured. Space limitations require personnel to double and triple handle ordnance, resulting in safety concerns and work arounds that add approximately one hour to each build-up evolution. A new facility will correct space shortfalls and operational limitations.	Ordnance/ Weapons Ops
ORD-2		New reconfigurable magazines	Existing magazines (Buildings 421, 420, 418, and 416) do not meet mission requirements.	Ordnance/ Weapons Ops
ORD-3		Perimeter fence at ordnance magazine compound	The ordnance compound lacks a perimeter fence. Currently the ordnance compound has a fence around the magazines but additional security features are required.	Ordnance/ Weapons Ops
ORD-4		Inert material weather protection	Outdoor storage and staging areas at Buildings 415 and 472 are exposed to the elements. Covered storage should be provided for these materials.	Ordnance/ Weapons Ops
ORD-5		Install vehicle shaker at entrance to flightline	Gravel and rock trapped in the tires of ordnance vehicles is inadvertently deposited on the flightline, creating a FOD hazard. Installation of a vehicle shaker near the entrance to the CALA would remove FOD from trucks before driving onto the flightline.	Ordnance/ Weapons Ops

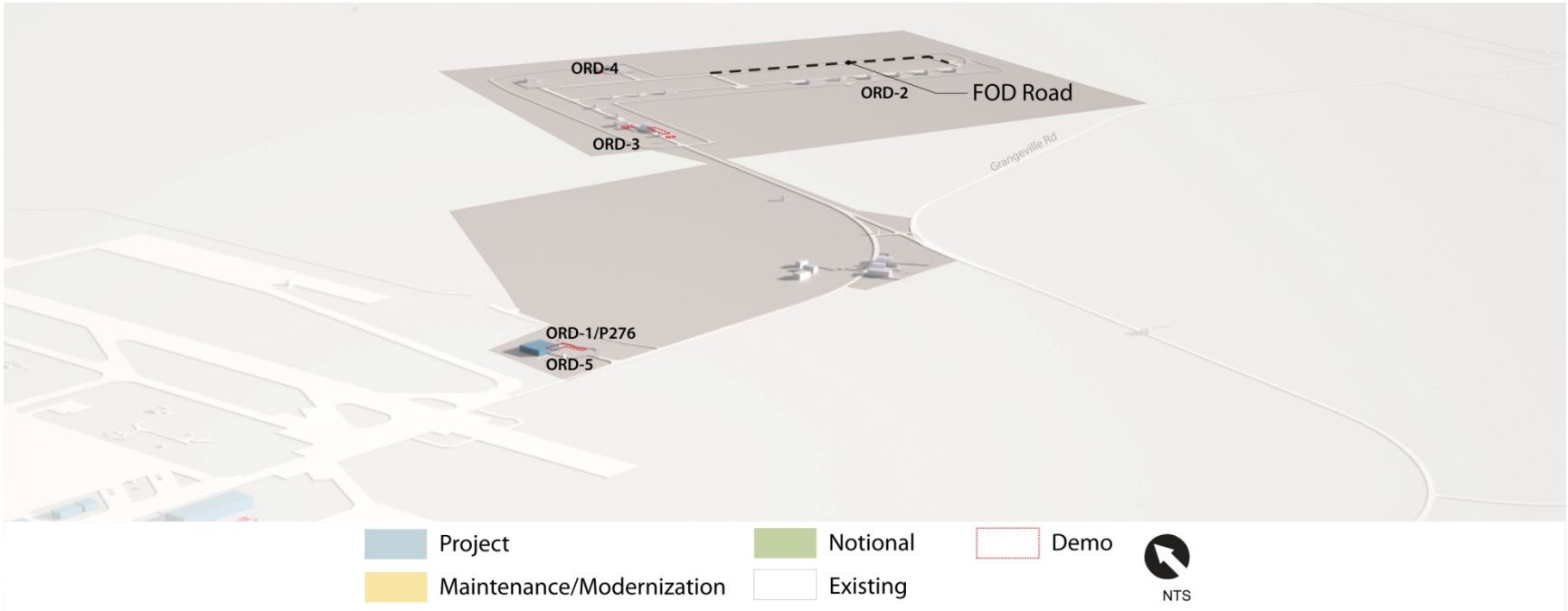


FIGURE 85. ORDNANCE DISTRICT IMPLEMENTATION PLAN

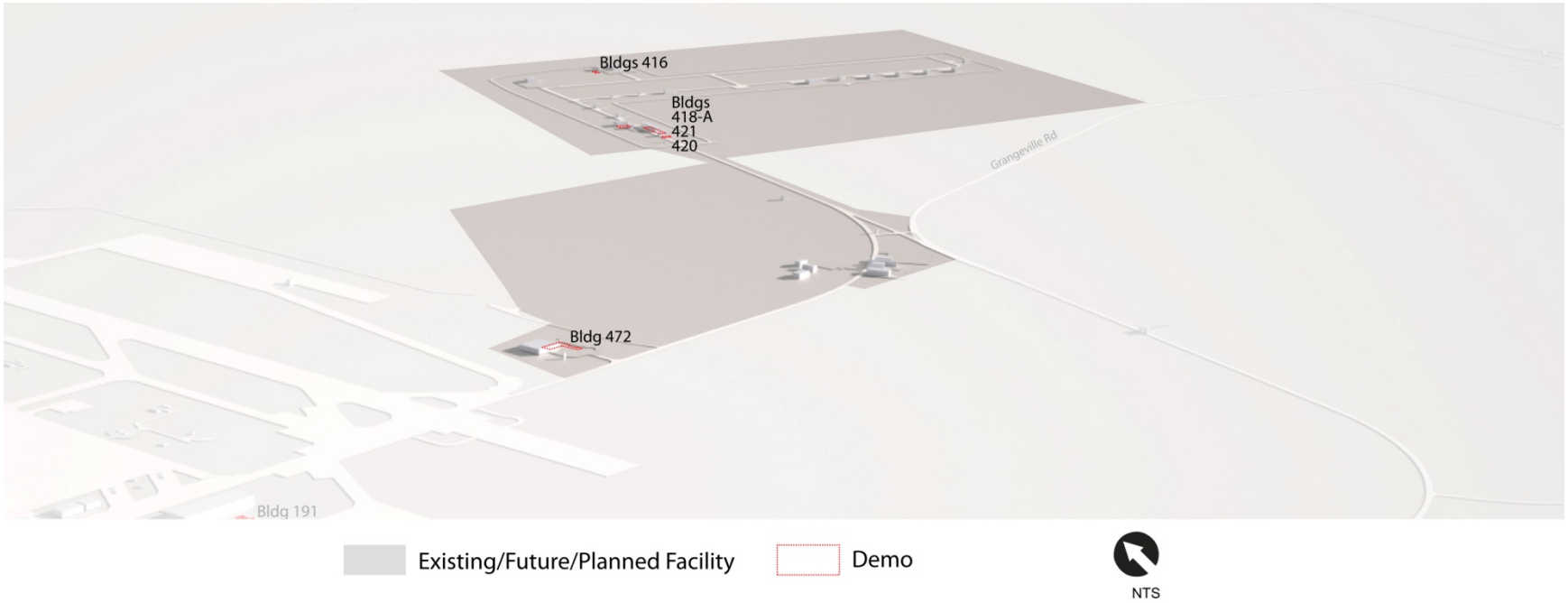


FIGURE 86. ORDNANCE DISTRICT DEMOLITION PLAN

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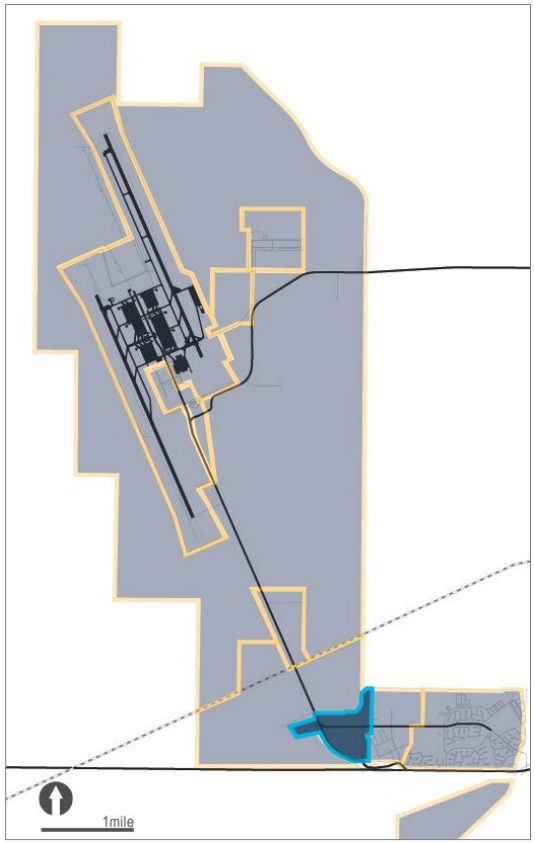
BASE ADMINISTRATION ADP

MISSION AND VISION

The Base Administration District is a 220 acre area that includes a variety of functions supporting operations throughout NAS Lemoore, including administrative, training, public works, security, warehouse, light industrial, and auto-oriented retail.



GOALS AND OBJECTIVES

Planning area goals and objectives for the District are summarized below.

- Replace deteriorated facilities that are inadequate now or will have exceeded their useful life within the planning timeframe, including Buildings 700, 730, 840, 850, 860, 861, and 880.
- Consolidate other auto-oriented functions with the NEX and Commissary, including a NEX gas station and car wash.
- Improve pedestrian facilities within the District and connections to the adjacent Personnel Support District.
- Utilize multi-story construction and clustered facilities to create a compact, walkable environment at the core of the District around the intersection of Franklin and Enterprise Avenues while preserving real estate outside the core are for future development.

DISTRICT MISSION

Provide the administrative, public works, storage and other support for day to day operations in a mission supporting role.

DISTRICT VISION

The Base Administration District is envisioned to become the core area for the business of base and mission support. Low rise buildings will be anchored by pedestrian orientated storefronts on the ground floor and concentrated around the central core area.

PERMITTED BUILDING ENVELOPE STANDARDS

Permitted BESs within the Base Administration District are identified below. Standards are discussed on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

- Light Industrial
- Low Rise Mixed Use
- Destination Commercial

PRIMARY TENANTS AND OPERATIONS

Primary tenants located within the District are identified below and illustrated in Figure 87. A more detailed description of their mission and loading can be found in the Tenant Commands section.

- **NAS Lemoore**
  Base Command is located in Building 700.
- **NAVFAC SW (Public Works)**
  NAVFAC SW utilizes several facilities clustered around Buildings 750 and 765.
- **Public Safety**
  Security and the Fire Department are in Buildings 782 and 770, respectively.
- **Community Programs**
  Eleven UH facilities with a total capacity of 805 PN fall within the District. UH should be located in the Personnel Support District.
- **Naval Supply Systems Command**
  NAVSUP operates a 93,000 square foot warehouse in Building 773, as well as the Admin Side galley in Building 860. The galley should be located in the Personnel Support District.
- **Center for Naval Aviation Technical Training Unit**
  CNATTU utilizes training and administrative space in Buildings 739, 799, and 730. Building 730 is shared with a variety of other users.

BY THE NUMBERS

- 1,000 day time users (approximate)
- 77,000 square feet of admin space
- 165,000 square feet of training space
- 93,000 square foot warehouse
- 128,000 square feet of retail
- 805 beds in UH
- 220 acres

- **Personnel Support Detachment**
  PSD is located near the front gate in Building 736.
- **Construction Battalion Maintenance Unit 303**
  CBMU 303 is located in a compound at the northwest corner of the Admin Side. The unit is expected to leave NAS Lemoore and vacate these facilities in October 2014.
- **Marine Wing Support Squadron 473**
  MWSS 473 conducts training and administrative support in Building 783. Five canopies behind the building provide shelter for operational vehicles and other equipment. Facilities are utilized once per month for drill weeks and support a small full time staff the remainder of the time.
- **Defense Commissary Agency & Navy Exchange**
  DeCA and NEX are collocated in Buildings 795 and 796. NEX includes a food court.

NEX and Commissary

NAS Lemoore Security

CBMU 303 complex

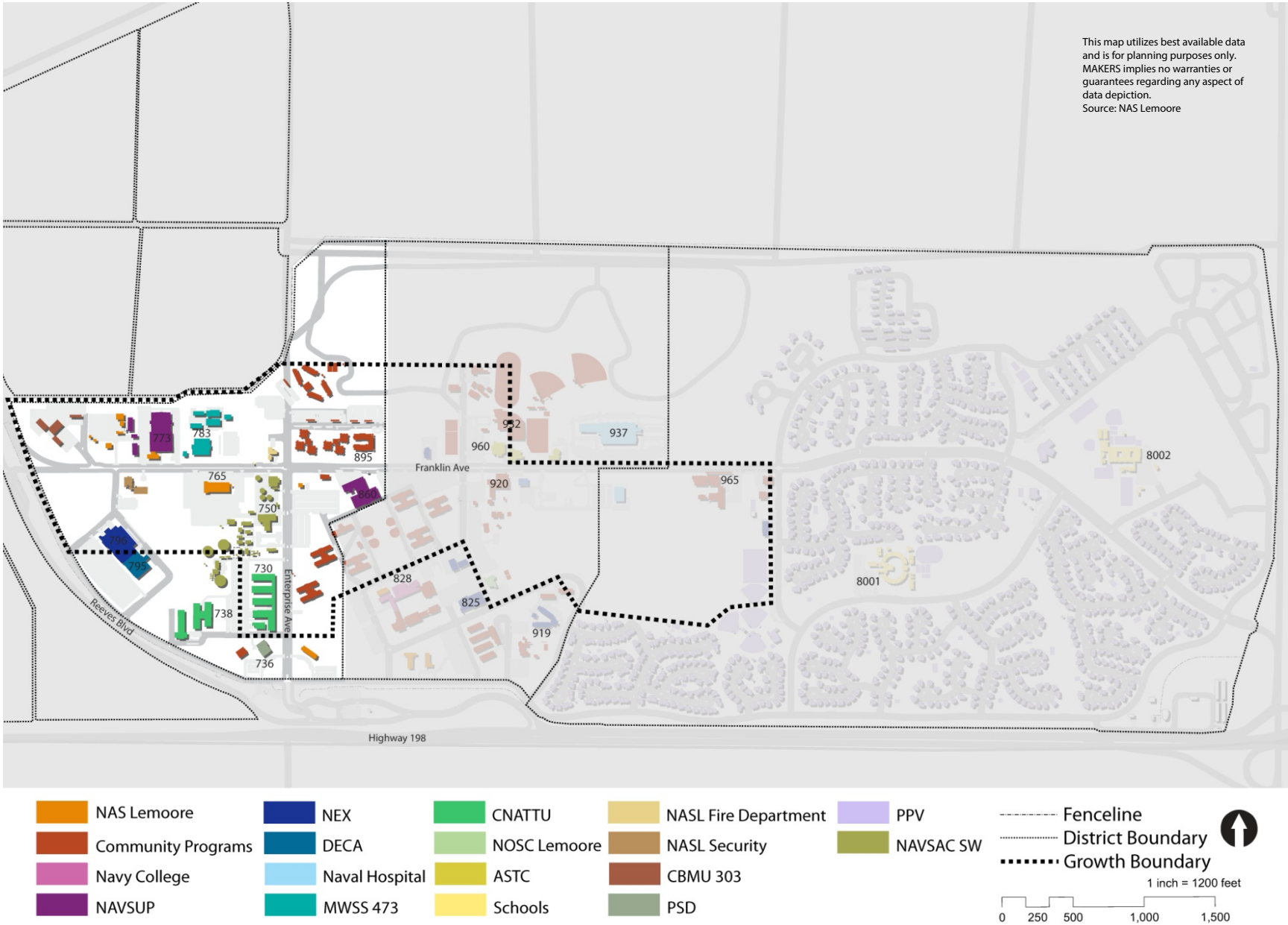


FIGURE 87. BASE ADMINISTRATION DISTRICT PRIMARY TENANTS (2014)

VISUAL CHARACTER

The Base Administration District is an activity hub that provides essential services to all tenant commands. Design standards for this District are intended to convey the importance of the support provided by NAS Lemoore. Elements that contribute to the District's visual character are illustrated in Figure 88 and include:

- A new Command Building should be designed to create a visually interesting and iconic feature at the intersection of Franklin and Enterprise Avenue.
- The Franklin Avenue streetscape should be enhanced to make this area more convenient, safe and visually attractive as a primary east/west pedestrian connection.
- Site layout should provide well defined pedestrian routes and building points of entry to facilitate safe and efficient movement. Parking lots should be consolidated and shared as much as possible between key destinations.
- Locate service entries, utilities, and parking access to maximize pedestrian safety.
- New buildings should be sited along street fronts to create a continuous building face with storefronts on the ground level.
- Building entrances should be reinforced architecturally to provide building identity and strengthen the sense of support provided by the District. Administrative entrances tend to be public while operational functions have limited access and should be designed accordingly.
- New and renovated buildings should be designed to create a cohesive district through the use of consistent architectural themes and building proportions. Building design elements, details, and materials should create a proportional and pedestrian scale building form.

FIGURE 88. BASE ADMINISTRATION DISTRICT VISUAL CHARACTER

PLANNING CONSIDERATIONS

ISSUES

Key issues that impact operations within the Base Administration District are identified below. For a more comprehensive list of issues refer to the Major Shore Capabilities Areas Planning Analysis section.

- **Aging Facilities**
  Several facilities are original to NAS Lemoore's construction and are nearing the end of their service life. Repairs have kept the facilities in adequate condition, as reflected in Figure 89, however a plan should be identified to replace these facilities over the near- to mid-term.
- **Pedestrian Connections**
  East/west pedestrian connections through the District are limited, with utility areas, public works yards, parking lots, and large buildings creating physical barriers. Many Sailors walk between UH (east) and the NEX/Commissary complex (west).

Pedestrian connections are limited

- **Incremental Development**
  Primary facilities within the District were constructed in four primary phases, including early 1960s, mid 1980s, late 1990s, and the 2000s. Without a clear vision or plan for the District much of this development appears disjointed and unconnected.
- **Front Gate Deficiencies**
  The front gate does not meet operational requirements. There is not a space for truck inspections and truck drivers do not have an efficient way to park their vehicles at Pass and ID. In addition, access will be impacted if SR 198 is expanded to four lanes, as is currently being planned by the State. An overpass would be required; however the gate is in a confined location with limited flexibility.
- **Low Density Development**
  Most facilities within the District are single story, resulting in a low density and dispersed development pattern. Not only is this an inefficient use of land resources, but it also detracts from the walkable and compact development vision for the District.
- **Security Concerns**
  The proximity of several buildings to the controlled perimeter creates a security concern. These include Buildings 700 (Base Command), 736 (PSD), 737 (Community Programs), and 810/811 (chapel).

Building 783 (Marine Corps Reserve Center) was constructed in 2011 and has no connection with adjacent facilities

The front gate lacks space for truck inspections, requiring an auxiliary gate to be operated to the north

FIGURE 89. BASE ADMINISTRATION DISTRICT FACILITY QUALITY RATING

CONSTRAINTS

Natural and manmade constraints have the potential to limit redevelopment opportunities within the District. Constraints that must be considered when siting future projects within the Base Administration District are described below and illustrated in Figure 90.

Manmade Constraints

- **Installation Restoration Sites**
  Three IR sites exist within the District, including Sites 2, 15, and UST 756. All sites have been closed and no longer create a development constraint.
- **Anti-terrorism/Force Protection (AT/FP)**
  AT/FP standoff distances are required around facilities to limit vehicular access and possible exposure to vehicle bombs and other terrorist threats. Standoffs apply to vehicle parking, roadways, and perimeter fences. These standoffs can have a significant impact on facility siting and vehicle parking.
- **Noise Contours**
  Normal airfield operations generate significant noise impacts. The Base Administration District falls within the 65-70 db noise contour. Uses must be compatible with these noise levels.

Natural Constraints

- **Cultural Resources**
  Cultural resources include sites, structures, buildings, or other objects that possess historic or architectural value and integrity.
- **Seismic**
  There are no significant known active geologic faults in the immediate vicinity of NAS Lemoore. However, the active San Andreas Fault is approximately 50 miles to the west of NAS Lemoore. The Owens Valley Fault group is approximately 80 miles to the east. All facilities at NAS Lemoore must therefore meet specified seismic requirements.
- **Air Quality**
  NAS Lemoore falls within the San Joaquin Valley Air Pollution Control District. In general, California requires pollution control and prevention measures which are more stringent than those mandated by the EPA. NAS Lemoore must comply with Federal, State, and San Joaquin Valley Air Pollution Control District regulations pertaining to air emissions.

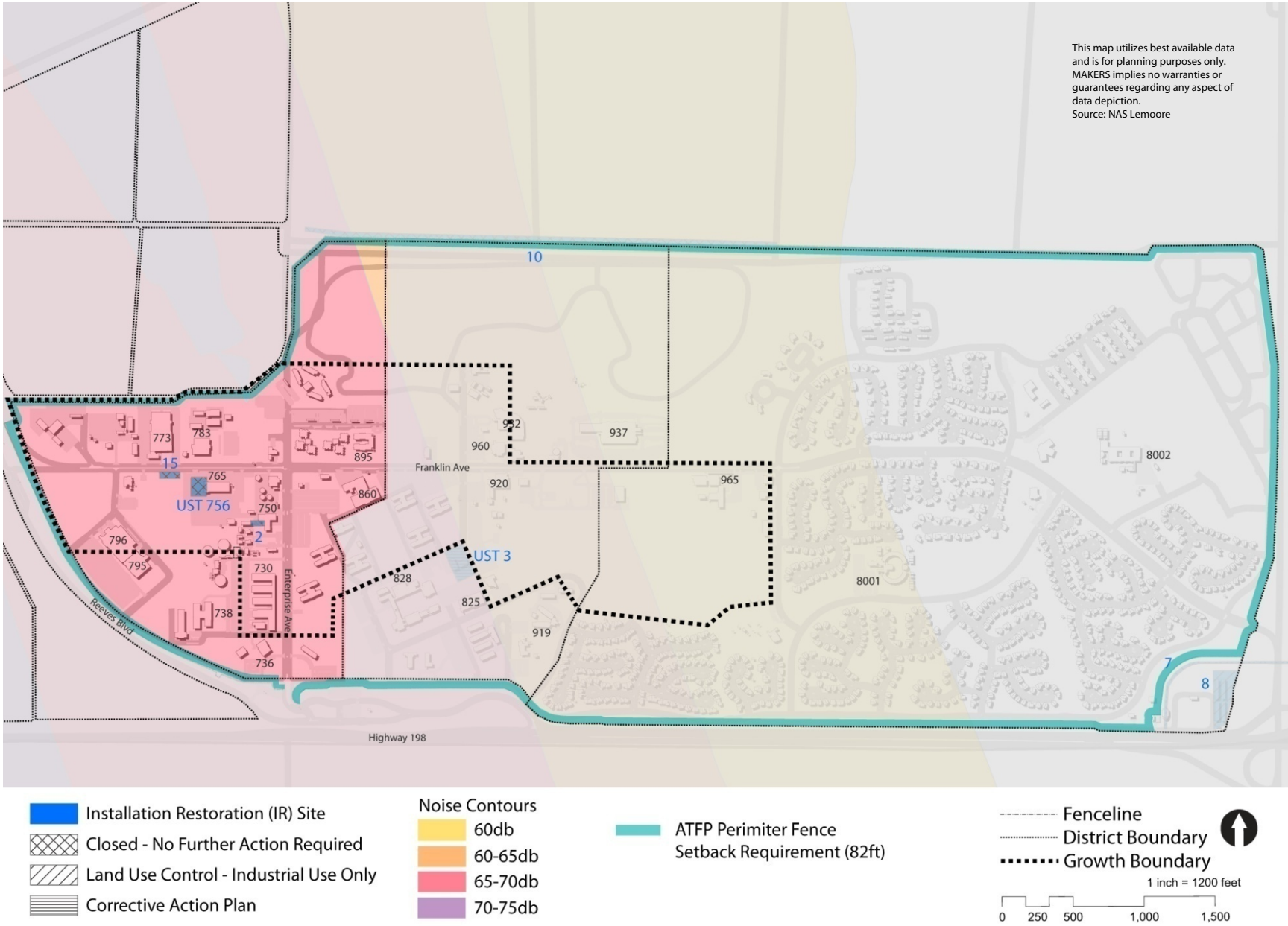


FIGURE 90. BASE ADMINISTRATION DISTRICT CONSTRAINTS

ALTERNATIVES

Alternatives were evaluated for key Master Plan opportunities. In some cases alternatives have also been identified for previously developed projects or COAs. These alternatives are summarized below.

Personnel Support Detachment (PSD) Facility

PSD (Building 736) is not properly configured to accommodate operational requirements. The building has limited storage and improperly configured personnel workspaces that adversely affects the service provided to military personnel.

Two alternatives have been identified.

1. Reconfigure the existing facility and construct additional space on the Admin Side to accommodate the entire PSD requirement.

2. Provide a satellite PSD space on the Ops Side to improve service for personnel on the flightline and reconfigure Building 736 to meet functional needs on the Admin Side (dependants and retirees).

Preferred COA: Establishing a satellite PSD office on the Ops Side is preferred due to the improved customer service it provides to flightline personnel. This space should be collocated with the new dining and personnel support facility planned for the Airfield Ops District. Reconfiguration of Building 736 is also recommended.

Fire Station 61

Building 770 Fire Station 61 was built in 1960 and requires modernization or replacement. While current firefighting apparatus do fit into the bays, they do not meet the required three foot walking space clearances. There is a current deficiency of 7,650 square feet (RIP COA 132).

Two alternatives have been identified.

1. Renovate and expand the existing facility to meet mission requirements.

2. Build a new fire station in a nearby location.

Preferred COA: Renovate and expand the existing facility. The facility is appropriately sited within the District and the site offers expansion capabilities.

Fire Station 61 (Building 770)

Drive-through Car Wash

A drive-through carwash does not currently exist at NAS Lemoore. NEX believes this would be a viable service. Two alternatives have been identified.

1. Construct a new carwash adjacent to the planned NEX gas station.

2. Continue to operate the MWR hand car wash. An NEX drive through carwash is not constructed.

Preferred COA: Construction of a drive-through carwash is consistent with the Master Plan vision to consolidate auto oriented uses around the NEX. If the existing hand wash (Building 877) continues to be well utilized the function should be relocated to a site near the NEX and connected to a purple water system. If utilization does not warrant retention of the hand wash the facility can be demolished.

Military Working Dog Kennels

Military working dog kennels do not meet operational requirements and have a space shortage. They lack required quarantine space and climate controlled food storage and prep areas. Two alternatives have been identified.

1. Address kennel shortfalls with a renovation, upgrade, and possible expansion of the existing facility (Building 782).

2. Evaluate options to jointly use the nearby veterinary clinic in Building 780 to support military working dogs.

Preferred COA: Utilization of the veterinary clinic to support working dog quarantine requirements is preferred since it maximizes utilization of existing facilities. If joint utilization is not feasible additional footprint will be required at Building 782. Upgrades to Building 782 are required in either scenario to provide climate controlled food storage and prep areas.

Recycling Center

Drainage around the recycling center shed causes flooding and damage to materials during rain storms. Damaged materials cannot be recycled, resulting in additional waste.

Three alternatives have been identified.

1. Enclose the existing recycling center shed (Building 788).

2. Relocate the recycling center to a site in the Enhanced Use Lease District or the Joint Use Training District.

3. Conduct a cost benefit and feasibility analysis to determine if recycling can be contracted to private industry.

Preferred COA: Contracting recycling operations with a private partner is preferred. Solid waste is currently contracted out. If this is not feasible the recycling center should be relocated since the function does not require a location within the Admin Side. Moving the center to a site between the Admin and Ops Sides may also create efficiencies for recycling operations since materials are collected from both sites.

CBMU Compound Reuse

CBMU 303 will transfer from NAS Lemoore in October of 2014, leaving the existing compound available for another use. This site will be highly visible from the proposed new Main Gate and will serve as a gateway into the Admin Side. Alternatives include the following.

1. Reuse CBMU facilities for an appropriate function that is consistent with the site's prominent location at the Main Gate.

2. Divest the facilities and reuse the site for an alternate function.

Preferred COA: Existing facilities have remaining service life and should be retained. Identify possible uses for the facilities.

Building 773, NAVSUP Warehouse

Building 773 is in substandard condition and is not fully utilized by NAVSUP. Alternatives seek to increase utilization or divest the facility.

1. Upgrade Building 773 and identify additional uses on the Admin Side, including Community Programs storage.

2. Consolidate all NAVSUP storage into Building 140 on the Ops Side and demolish Building 773.

Preferred COA: Upgrade Building 773 to retain warehouse capabilities on the Admin Side.

New Admin and Training Buildings

Existing administrative Buildings 700 and 730 will reach the end of their useful life within the planning timeframe. The administrative functions located in each of the buildings can be consolidated. The core area of the Base Administration District has been identified as a preferred location for an iconic structure housing NAS Lemoore Command.

1. Construct a new Admin Building for NAS Lemoore Command and other uses currently located in Buildings 700 and 730 (approximately 45,000 SF) and a new training building for CNATTU uses currently located in Building 730 (approximately 60,000 SF).

2. Construct a new Admin Building for NAS Lemoore Command and other administrative functions located in Building 730. Demolish portions of Building 730 and retain sections occupied by CNATTU.

3. Recapitalize Buildings 700 and 730 for continued use.

Preferred COA: Buildings 700 and 730 are not viable for continued long term use due to facility age and configuration. Replacement of both facilities is therefore preferred.

Building 700

Building 730

New Public Works Admin Building

The Public Works administration building (Building 750) is in adequate condition; however it is over 50 years old and poorly configured for its use.

1. Construct a new consolidated administration space (17,580 SF) for Public Works.

2. Recapitalize Building 750 for continued use.

Preferred COA: Building 750 is not expected to provide adequate service over the planning timeframe. Facility replacement is therefore preferred.

ILLUSTRATIVE PLAN

The Illustrative Plan provides a graphic representation of the District's possible future based on the vision, desired visual character, constraints, opportunities, known projects, possible future projects, and the guidelines established for each site (see the Regulating Plan in the following section). The Base Administration District Illustrative Plan is illustrated in Figure 91.

Base Administration design concept depicting a new Command Building at the intersection of Franklin and Enterprise Avenues

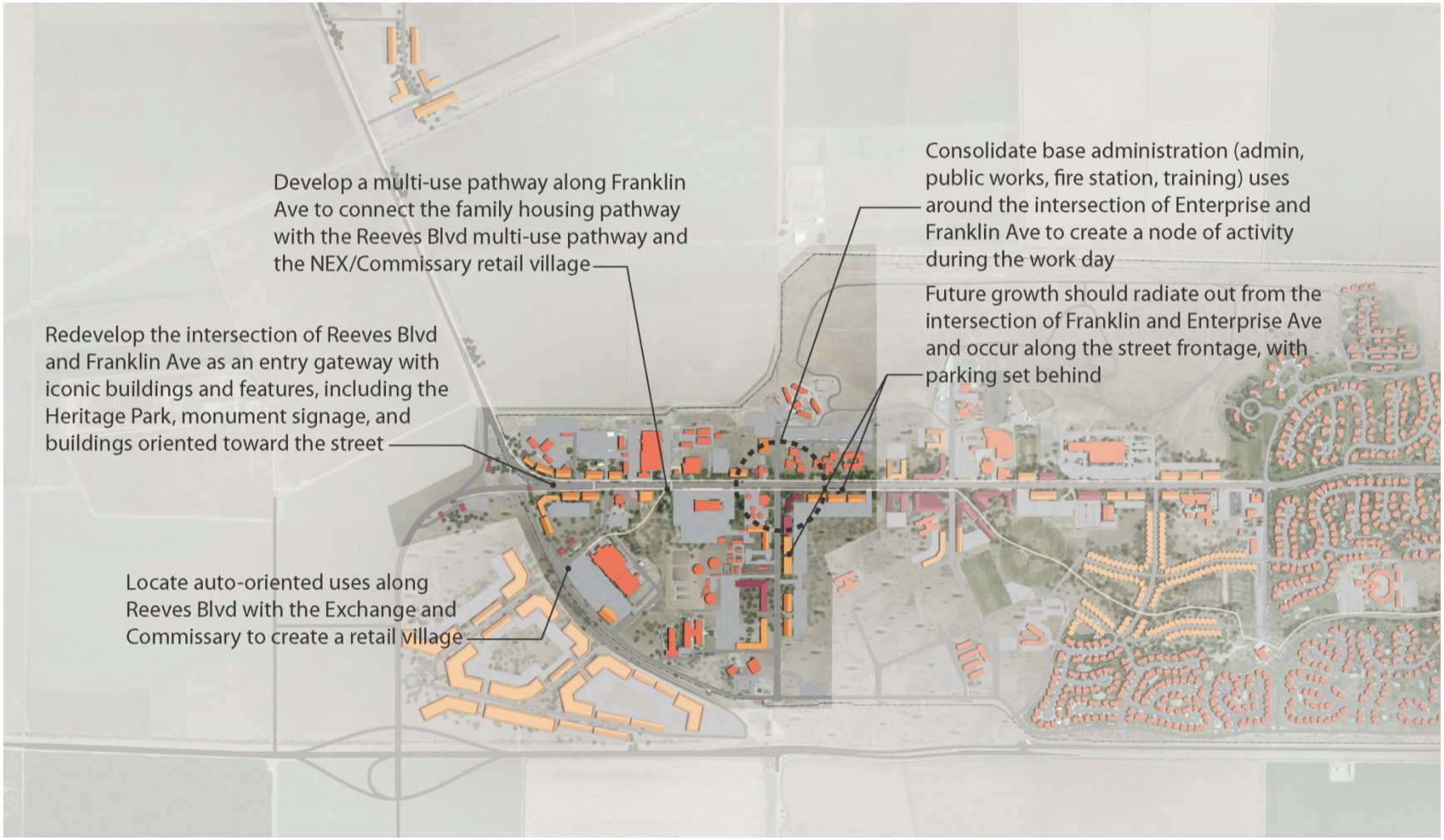


FIGURE 91. BASE ADMINISTRATION DISTRICT ILLUSTRATIVE PLAN

REGULATING PLAN

The Regulating Plan provides additional guidance on the uses that are permitted within the District, where those uses should be located, and how facilities should be situated on potential sites to align with the Master Plan vision. The Base Administration District Regulating Plan is illustrated in Figure 92. Other siting considerations are provided below.

PERMITTED USES

Permitted uses include those related to Installation operations and the day-to-day activities that keep NAS Lemoore running. Training functions are also permitted within the District. Table 28 identifies uses permitted within the District along with the appropriate BES. Building standards were previously defined on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

Appendix D provides a more comprehensive list of permitted uses for each district, including conditional uses that may be permitted under special circumstances.

Table 28. Base Administration District permitted uses

CC Group	Description	BES: Light Industrial	BES: Low rise mixed use	BES: Destination Commercial
123	LAND VEH FUELING / DISPGN FAC	■		
171	TRAINING BUILDINGS		■	
174	IMPACT, MANVR, TRNG AREAS			
179	TRAINING FAC - OTHER THAN BLDG			
214	MAINT - TANK/AUTOMOTIVE	■		
219	MAINT - INSTAL REPAIR & OPER	■		
441	GEN SUPPLY STORG DEP/INSTLN	■		
451	STORAGE - OPEN DEPOT/INSTLN			
610	ADMIN BUILDINGS		■	
730	COMMUNITY FAC-PERS SUPPORT	■	■	
740	COMM FAC-MWR INTR		■	■
750	COMMUNITY FAC-MWR EXTER			
760	MUSEUMS AND MEMORIALS		■	

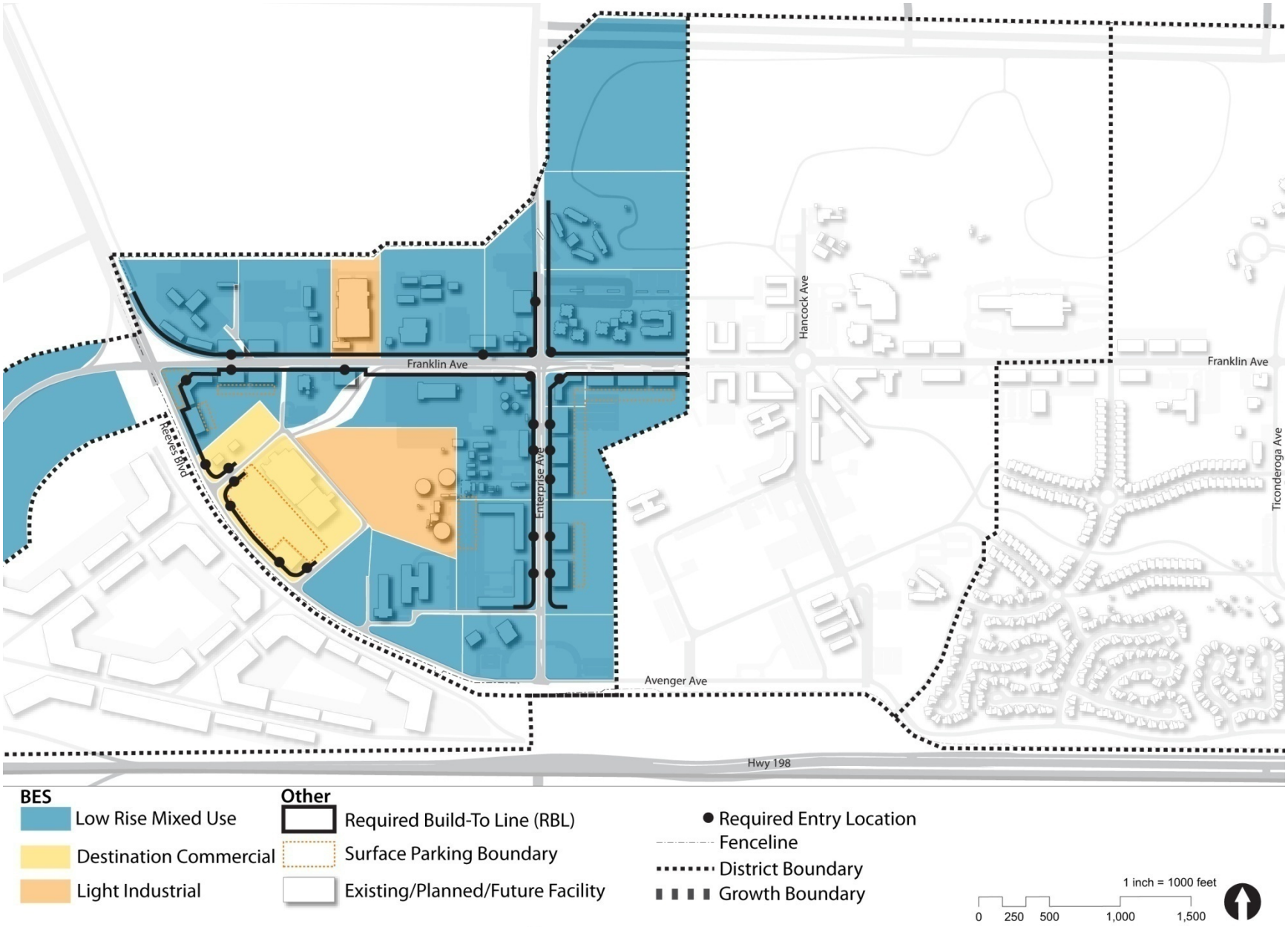


FIGURE 92. BASE ADMINISTRATION DISTRICT REGULATING PLAN

DEVELOPABLE AREA AND GROWTH CAPABILITY

Infill development can occur within built up areas of the Base Administration District. As older facilities reach the end of their service life there are also opportunities to increase development capacity with multistory structures.

Developable areas are identified as part of the Regulating Plan in Figure 92. These areas can support the following growth.

- A new Main Gate at the intersection of Reeves Boulevard and Franklin Avenue. Space exists to accommodate a Pass and ID office that meets requirements, truck inspections, ATFP guidelines, and vehicular circulation.
- Low rise mixed use can be supported at the intersection of Reeves Boulevard and Franklin Avenue. This six acre site is currently undeveloped and would be appropriate for uses benefiting from a location near the front gate.
- The Enterprise Avenue corridor offers a combination of infill and redevelopment opportunities. Surface parking lots and lawn areas can support new mixed use development immediately. Other portions of the corridor can support redevelopment to replace older facilities. Uses include an Emergency Operations Center (EOC), Public Works offices, and CNATTU training facilities.
- The southeast corner of Enterprise and Franklin Avenue can support a new combined admin building. The site is approximately one acre and occupies a prominent location. Possible uses include NAS Lemoore Command, Public Affairs, and Legal Services.
- Relocation of the recycling center would create an opportunity to redevelop a six acre site near the new Main Gate with low rise mixed use development.

RESOURCES AND REFERENCES

Operations within the Base Administration District must adhere to a number of criteria and guidelines. Appendix C identifies the UFC, manuals, and other resources that should be consulted when planning within the District.

DEVELOPMENT STANDARDS

Development standards provide specific guidance on building orientation, architectural character, relationships between adjacent uses, streetscape conditions, parking placement, and other features that affect the look and feel of a district. These standards should be consulted in conjunction with facility siting and design, roadway projects, pedestrian improvements, and other projects impacting the built environment.

Standards for each BES appear later in the Master Plan and address:

- Building height and scale
- Building siting and placement
- Orientation to adjacent uses
- Location of parking

IMPLEMENTATION PLAN

Projects in the Base Administration District replace facilities at the end of their service life while establishing a node of activity at the intersection of Franklin and Enterprise Avenues.

The Implementation Plan summarized in Table 29 identifies projects within the District. Projects are illustrated in Figures 93 and 94. Transportation projects occurring within the District are also illustrated (depicted at "TP" projects); information on these projects can be found in the Street and Transit Network Plan. Additional information on most COAs can be found in the corresponding Shore Capability Area section of the Master Plan.

Table 29. Base Administration District implementation plan

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
BA-1		CBMU compound reuse (October 2014)	Reuse the existing CBMU compound area at the planned new front gate with an appropriate function. This site will be highly visible from the Main Gate and should be considered as a gateway into the Admin Side.	
BA -2	N452714	NEX gas station	Constructs a new NEX gas station adjacent to the NEX. The existing NEX gas station and auto repair is in poor condition and is on a contaminated site. It is also an inappropriately located auto orientated use within the central core of the Installation.	Sailor and Family
BA -3		NEX drive-through car wash	Constructs a drive-through car wash near the new NEX gas station. Following completion monitor usage of the existing MWR hand wash facility (Building 877). If utilization warrants retention of the hand wash, relocate the function next to the drive-through car wash and tie it into a purple water system. Otherwise, demolish Building 877.	Sailor and Family
BA -4	P349	Expand Security Building	The security facility has a 4,000 SF deficiency and emergency response services are not centrally located to meet required response times.	Base Support
BA -5		Address kennel shortfalls	Determine feasibility of using nearby quarantine space at the Vet Clinic (Building 780) to support military working dogs. Upgrade Building 782 to provide climate control in food storage and prep areas.	Base Support
BA -6		Upgrade NAVSUP warehouse Building 773 and identify additional uses	Upgrades building to correct substandard condition rating. Additional uses should be identified to capitalize on underutilized storage capacity.	Base Support
BA -7		Analyze recycling center alternatives	Conduct a cost benefit and feasibility analysis to determine viability of contracting out recycling operations. If the function cannot be contracted, relocate the recycling center to a site in the Enhanced Use Lease District or the Joint Use Training District. Relocation allows the existing site to be converted to a higher and better use that is compatible with the Master Plan vision.	Base Support

Table 29. Base Administration District implementation plan (continued)

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
BA -8		Upgrade and expand Fire Station 61	Upgrades existing facility and provides additional space for apparatus. Building 770 Fire Station 61 does not accommodate modern firefighting apparatus; vehicles fit into the bays but do not meet the required three foot walking space clearance. There is a 7,650 SF deficiency.	Base Support
BA -9	P300	Consolidate Base Operations Functions	Constructs a consolidated admin building for NAS Lemoore Command and other uses currently located in Buildings 700 and 730 (approximately 45,000 SF). The core area of the Base Administration District has been identified as a preferred location for an iconic structure housing NAS Lemoore Command.	Base Support
BA -10		New Public Works admin building	Constructs a new consolidated admin space for Public Works (17,580 SF).	Base Support
BA -11		New training building	Constructs a new training building to support training functions currently in Buildings 730 (approximately 60,000 SF). Project scope requires further evaluation to determine CNATTU's long term requirement at NAS Lemoore.	Training
BA -12		Upgrade Building 736 and provide satellite PSD offices on the Ops Side	Upgrades and reconfigures Building 736 to more efficiently support PSD operations. Satellite space is also provided on the Ops Side to serve active duty personnel working on the flightline.	Base Support

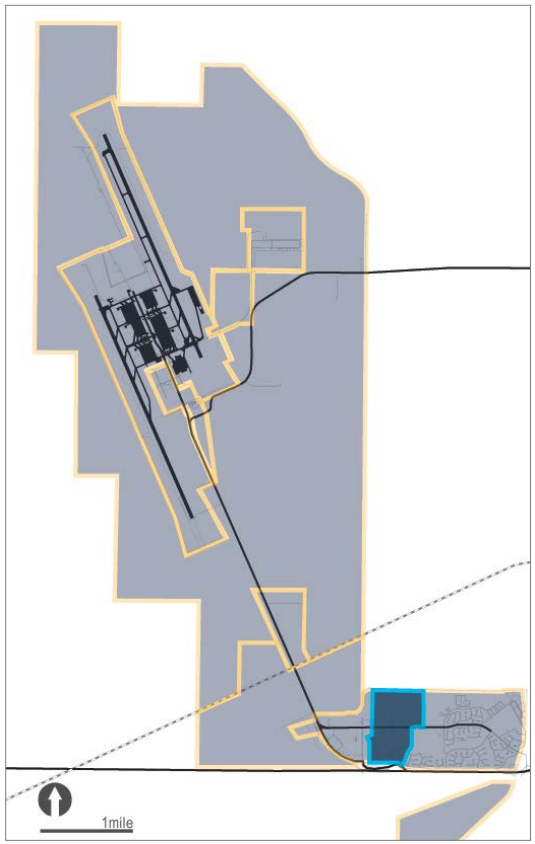
FIGURE 93. BASE ADMINISTRATION DISTRICT IMPLEMENTATION PLAN

FIGURE 94. BASE ADMINISTRATION DISTRICT DEMOLITION PLAN

PERSONNEL SUPPORT ADP

MISSION AND VISION

The Personnel Support District is a 297 acre area that includes a variety of functions supporting Sailor and family quality of life, including UH, MWR, Navy College, and the Naval Hospital.



GOALS AND OBJECTIVES

Planning area goals and objectives for the District are summarized below.

- Establish a replacement plan for UH that cannot be economically upgraded.
- Create a town center with compact and walkable development centered on the intersection of Franklin and Hancock Avenue. Connect the town center with Family Housing and Base Administration Districts with an enhanced pedestrian multi-use path.
- Emphasize vertical and horizontal mixing of uses.
- Provide pedestrian and bicycle connections with the adjacent Base Administration and Family Housing Districts.
- Preserve areas at the District periphery for future growth and mission expansion. To the greatest degree possible, concentrate development within the growth boundary.

DISTRICT MISSION

To provide quality of life functions that enrich the lives of personnel while creating a positive experience during their tour at NAS Lemoore.

DISTRICT VISION

The personnel support district shall promote a healthy and sustainable NAS Lemoore community.

PERMITTED BUILDING ENVELOPE STANDARDS

Permitted BESs within the Personnel Support District are identified below. Standards are discussed on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

- Light Industrial
- Mid Rise Mixed Use

PRIMARY TENANTS AND OPERATIONS

Primary tenants located within the District are identified below and illustrated in Figure 95. A more detailed description of their mission and loading can be found in the Tenant Commands section.

- **Naval Hospital**
  The Naval Hospital at Building 937 was constructed in 2000.
- **Community Programs**
  Community Programs operates a variety of facilities within the District, including the gym (932), Spuds restaurant (920), eight UH facilities, the Officers' Club (900), movie theater (822), bowling center (823), an RV park, and a golf driving range.
- **Navy College**
  Navy College is located in Buildings 826 and 828.
- **Navy Exchange**
  NEX operates the Navy Lodge located in Building 919, as well as the furniture store (825) and gas station (829). Plans are currently underway to move the gas station to the Base Administration District. (Note: the NEX main retail store is located in the Base Administration District.)
- **Naval Operations Support Center**
  NOSC Lemoore is in Building 910 and holds drill weekends once per month. A plan is currently being developed to construct a new facility for NOSC on the south side of Franklin Avenue near the gym and hospital (P-366).
- **Aviation Survival Training Center**
  ASTC utilizes multiple facilities for its training curriculum, including Buildings 960, 961, and 962,

BY THE NUMBERS

- 500 day time users (approximate)
- 1,021 beds in UH
- 200,000 square foot hospital
- 58,000 square foot gym
- 75,000 square feet of training space
- 297 acres

Unaccompanied housing

Naval Hospital Lemoore

Spuds restaurant

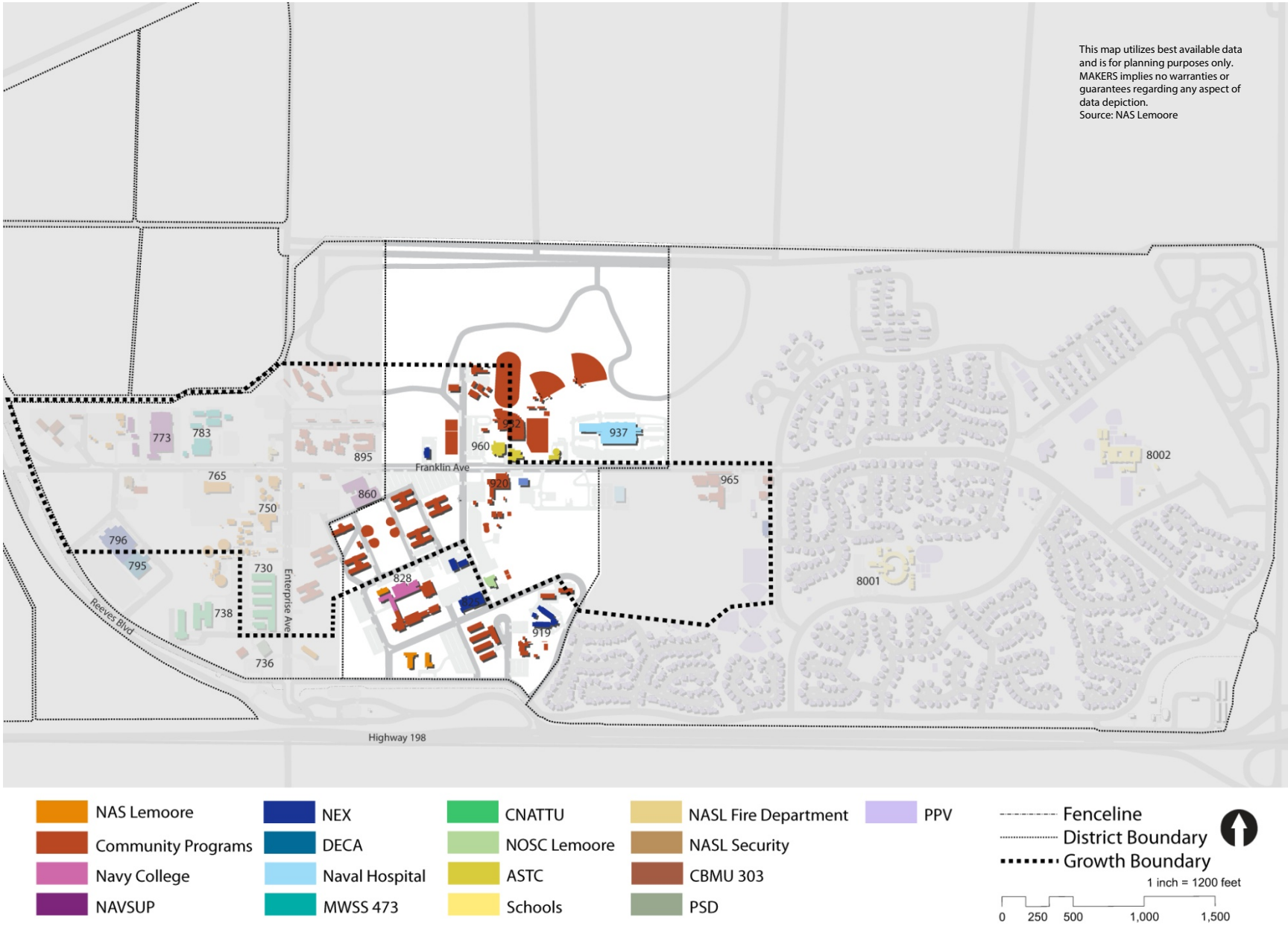


FIGURE 95. PERSONNEL SUPPORT DISTRICT PRIMARY TENANTS (2014)

VISUAL CHARACTER

The District should be a focal point and a hub of pedestrian activity that supports nearly 1,700 single Sailors and 1,630 families living nearby, as well as the 1,600 employees that work on the Admin Side. Elements that contribute to the District's visual character are illustrated in Figure 96 and include:

- Design attention should be placed on the uses and buildings at the intersection of Franklin and Hancock Avenues. Consolidate and strengthen activity at this intersection with multi-story, mixed use buildings and interesting corner designs.
- Create a town center featuring a mix of uses, coordinated design theme, special lighting, paving, signage, and landscaping, rich architectural detailing, public spaces, and a unique ambience.
- The District should be a comfortable place for pedestrians with outdoor seating areas, shade, wide pathways, windows and openings along pedestrian routes, outdoor dining, and other activity areas.
- New buildings should be sited along Franklin Avenue in a compact arrangement with active façades, visible entrances, and pedestrian amenities to invite use, define the spaces, and stimulate activity.
- Uses within the District should be easy to access. Parking should be clearly marked and within close proximity while not being visually dominating. Parking lots should be consolidated and shared as much as possible between key destinations.
- Design buildings to create a cohesive district through consistent architectural themes and building proportions. Building design elements, details, and materials should create a proportional and pedestrian scale building form.
- Architectural design characteristics include flat, gable, or shed roof forms, metal roofs, and exteriors of concrete, CMU, glass curtain wall, metal panel, or stucco.

FIGURE 96. PERSONNEL SUPPORT DISTRICT VISUAL CHARACTER

PLANNING CONSIDERATIONS

ISSUES

Key issues that impact operations within the Personnel Support District are identified below. For a more comprehensive list of issues refer to the Major Shore Capabilities Areas Planning Analysis section.

- **Aging Facilities**
  Several facilities are original to NAS Lemoore's construction and are nearing the end of their service life. Many of these facilities are in substandard or inadequate condition, as reflected in Figure 97, and should be replaced over the near- to mid-term.
- **Unaccompanied Housing**
  Most UH is in need of modernization or replacement to improve condition and meet current design standards. The dispersed nature of UH also makes it a challenge to create a compact community within the District.
- **Low Density Development**
  Facilities are spread out with a large amount of unused open space filling the voids. Not only is this an inefficient use of land resources, but it also detracts from the walkable and compact development vision for the District.
- **Surface Parking**
  Parking lots are a prevalent land use along Franklin Avenue and define the visual character of the District. Ideally this use should be located behind buildings to create a high quality and walkable streetscape environment.
- **Recreation Facilities**
  A variety of recreational outlets exist within the District; however many of these facilities are not heavily utilized by the single Sailor population. Competition from off-site venues is a major contributor, although the mix of available on-site recreation activities may also be out of alignment with Sailor interests.
- **Landscaping**
  Existing landscaping within the District is water intensive and is therefore not maintained. The result is unused, brown lawns throughout large stretches of the District.

Lawns are not irrigated regularly and are underutilized, creating large barren areas within the District

Large parking lots along Franklin Ave do not contribute to the District's visual character

The Liberty Center was recently closed and consolidated with Spuds restaurant due to low usage

FIGURE 97. PERSONNEL SUPPORT DISTRICT FACILITY QUALITY RATING

CONSTRAINTS

Natural and manmade constraints have the potential to limit redevelopment opportunities within the District. Constraints that must be considered when siting future projects within the Personnel Support District are described below and illustrated in Figure 98.

Manmade Constraints

- **Installation Restoration Sites**
  Two IR sites exist within the District, including Sites 10 and UST 3. Site 10 has been closed and requires no further action. Site investigations are ongoing at UST 3 to determine the extent of leaded gas from underground tanks at the gas station.
- **Anti-terrorism/Force Protection (AT/FP)**
  AT/FP standoff distances are required around facilities to limit vehicular access and possible exposure to vehicle bombs and other terrorist threats. Standoffs apply to vehicle parking, roadways, and perimeter fences. These standoffs can have a significant impact on facility siting and vehicle parking.
- **Noise Contours**
  Normal airfield operations generate significant noise impacts. The Personnel Support District falls within the 60-70 db noise contour range. Uses must be compatible with these noise levels.

Natural Constraints

- **Cultural Resources**
  Cultural resources include sites, structures, buildings, or other objects that possess historic or architectural value and integrity.
- **Seismic**
  There are no significant known active geologic faults in the immediate vicinity of NAS Lemoore. However, the active San Andreas Fault is approximately 50 miles to the west of NAS Lemoore. The Owens Valley Fault group is approximately 80 miles to the east. All facilities at NAS Lemoore must therefore meet specified seismic requirements.
- **Air Quality**
  NAS Lemoore falls within the San Joaquin Valley Air Pollution Control District. In general, California requires pollution control and prevention measures which are more stringent than those mandated by the EPA. NAS Lemoore must comply with Federal, State, and San Joaquin Valley Air Pollution Control District regulations pertaining to air emissions.

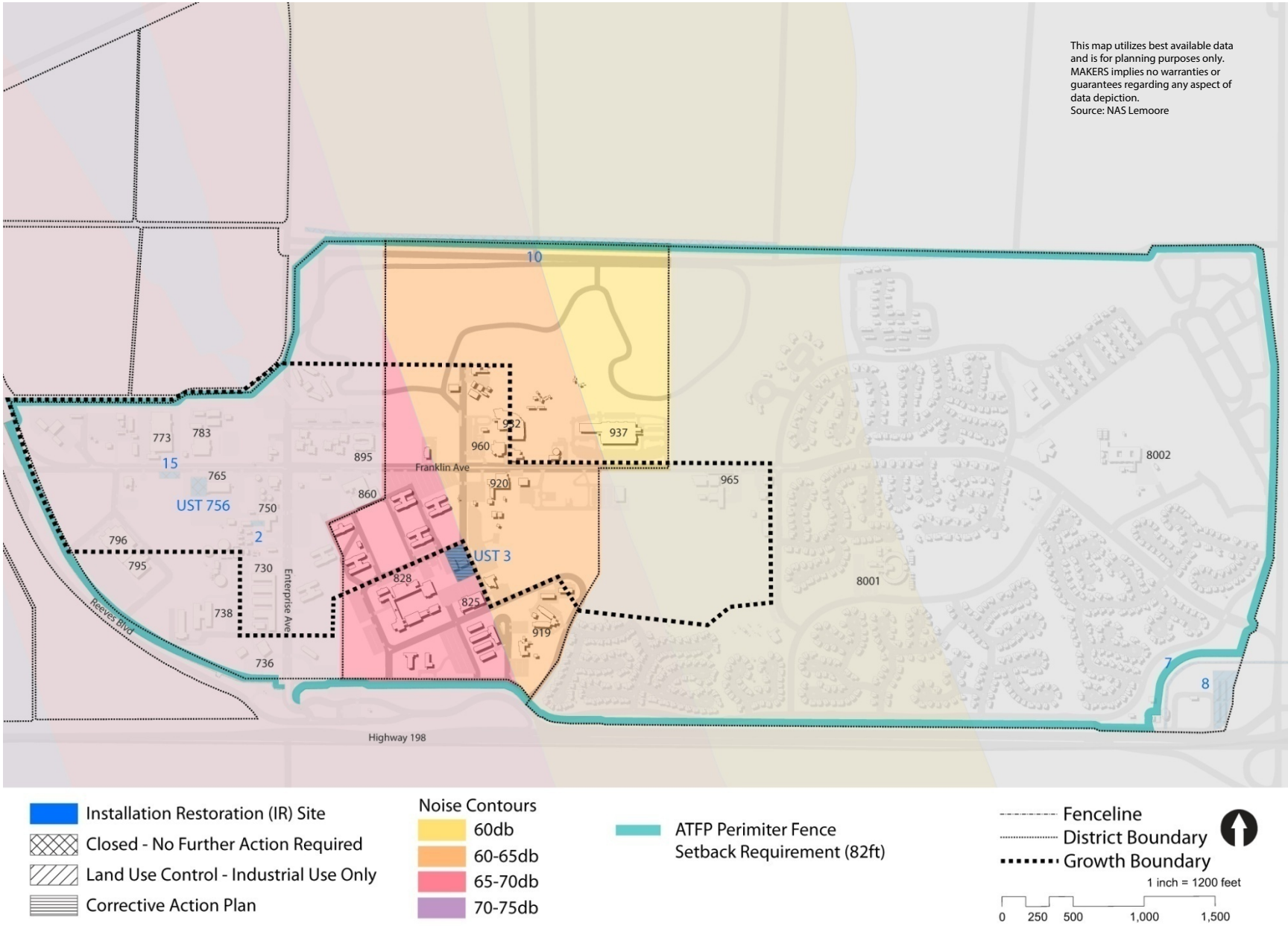


FIGURE 98. PERSONNEL SUPPORT DISTRICT CONSTRAINTS

ALTERNATIVES

Alternatives were evaluated for key Master Plan opportunities. In some cases alternatives have also been identified for previously developed projects or COAs. These alternatives are summarized below.

New Unaccompanied Housing

Per *DNS Memo 11103 Ser DNS/ 11U106028 of 24 Mar 11 Subj: JUNIOR SINGLE SAILOR ASSIGNMENT AND CONSTRUCTION POLICY* the UH requirement at NAS Lemoore is 1,693 PN (projected to 2016, budget year 2013). This includes E1 through E4 with less than four years of service (E4<4), Resident Advisors (RA) at five percent of the permanent party E1-E3 requirement, and No Cost Transients calculated at five percent of the E1-E4<4 population.

Existing assets provide 1,793 beds under current assignment policies and room configurations, resulting in a surplus of 100 beds. Table 30 summarizes the UH inventory and reflects utilization as of September 2012.

UH within the central area of the Personnel Support District are approximately 45 years old and have quality ratings of substandard. The UH located north of Franklin Avenue were constructed in the mid 1980s and have adequate ratings. See Table 30 and Figure 97 for condition ratings.

Table 30 illustrates how UH is utilized to house permanent party personnel. These facilities were constructed based on housing design criteria that is now nearly fifty years old. Many of the rooms are undersized for double occupancy and are therefore assigned to one resident, which creates excess square footage that is expensive to operate and maintain. Current UH construction standards recommend 265 GSF of building area per bed.

Note: The inventory reflects an awarded FY15 project to renovate Building 856 (RM09-400).

Source: Utilization and capacity was taken from the R-19 Unaccompanied Housing Requirements Determination Report, Budget Year 2013

Table 30. UH inventory and configuration

Fac No.	Des.	Design Code	SF/ Rm	# Rms	# Beds
840	E4-E9	1+0	180	128	128
843	E1-E3	2+0	220	52	104
	E1-E3	2+0	180	76	152
848	E1-E3	2+0	220	8	16
	E1-E3	2+0	180	240	240
850	E4-E9	1+0	180	128	128
852	E1-E3	2+0	220	64	128
855	E4-E9	1+0	180	128	128
856	E4-E9	1+0	180	128	128
881	E4-E9	1+0	180	42	42
882	E4-E9	1+0	164	36	36
	E4-E9	1+0	166	6	6
883	E4-E9	1+0	164	36	36
	E4-E9	1+0	166	6	6
886	E4-E9	1+0	180	36	36
	E4-E9	1+0	166	6	6
892	E4-E9	1+0	180	38	38
893	E1-E3	2+0	180	38	76
895	E4-E9	1+1/ 1+1E	155	132	132
896	E1-E3	2+0	180	36	72
897	E1-E3	2+0	180	27	54
	E4-E9	1+0	180	9	9
908	E1-E3	2+0	300	24	48
909	E1-E3	2+0	270	22	44

Total # of Beds	1,793
Total Gross Area	628,899 SF
Area per bed	350 GSF

Recent housing upgrades at NAS Lemoore provide an indication of the expected cost to renovate substandard UH. Buildings 801, 802, 803, and 804 (NGIS), and 908 and 909 (UH) were upgraded in 2013 for the following costs:

- Buildings 801, 802, 803, and 804: $254/SF
- Buildings 908 and 909: $237/SF

Based on this project data, the average cost to upgrade all substandard UH (359,540 SF) is estimated at $245/SF or a total cost of $88.1M.

Per Facility Price Guidance the cost to construct new UH at NAS Lemoore is $303/SF. Current UH design standards call for market style modules with 1,060 GSF of building area per module (UFC 4-721-10N, May 2014). Each module contains two bedrooms and two bathrooms and can house four E1-E3 or two E4 and above Sailors.

It is estimated that 289 new market style modules (306,605 SF) would be required after all existing adequate UH is assigned to E4 and above Sailors. This generates a total construction cost of $92.9M.

Two alternatives have been identified to address UH within the Personnel Support District.

1. Renovate and upgrade substandard UH to meet standards, including Buildings 840, 848, 850, 852, 855, 881, 882, 883, and 886. The alternative renovates 359,540square feet of space and has an estimated cost of $88.1M. Excess UH is retained to support potentially increasing requirements associated with Strike Fighter Realignment and the arrival of F-35C.

2. Replace substandard UH (Buildings 840, 848, 850, 852, 855, 881, 882, 883, and 886) with new multi-use style facilities in the core of the Personnel Support District. The alternative constructs 306,605 square feet of space and has an estimated cost of $92.9M.

Preferred COA: New construction has a higher initial investment cost, however it is likely that a life cycle cost analysis would show the alternative has a lower total cost due to increased operating efficiency and a higher remaining residual value, as compared to renovation. New construction provides facilities that meet current design standards and also has the benefit of allowing facilities to be sited in a manner that meets the Master Plan's design vision for the Admin Side, which includes a compact and walkable core area with mixed use facilities that generate pedestrian interest and activity.

Constructing new UH is preferred based on current data and planning level cost estimates. A more thorough analysis should be conducted to evaluate theses alternatives and provide a UH Master Plan for NAS Lemoore.

Additional UH will be required with Strike Fighter Realignment and the anticipated arrival of F-35C at NAS Lemoore. Strategies should be reevaluated once these requirements are defined.

Galley and Consolidated Clubs

Food service is required for the 1,693 single Sailors that live on NAS Lemoore. The galley (Building 860) has reached the end of its useful service life and requires upgrade or replacement. Low utilization has also been an issue, leading to the Admin Side galley's planned closure in FY2015.

Both the Oasis Club ("O" Club; Building 900) and Spuds (all hands club; Building 920) are in facilities that have reach the end of their useful life and require substantial facility recapitalization. In addition, it is not viable for MWR to operate both clubs out of separate facilities.

Alternatives look for opportunities to improve facility condition and operational efficiencies.

1. Renovate and upgrade the galley to address deficiencies and correctly size and configure the facility. Continue to operate as a traditional galley. Renovate excess space in Building 860 for a consolidated club.

2. P-242 has been developed to replace the existing galley with a facility better suited to support the dining needs for everyone at the Installation, not just single Sailors. A new approach to food service for Navy patrons would be ideally located at the core of the Personnel Support District as an anchor to the envisioned level of activity.

Preferred COA: Construct a new consolidated facility for food service and clubs as a primary element of the mixed use redevelopment at the core of the Personnel Support District. In the interim, provide food service out of the existing clubs following the galley's closure in FY2015.

The All American Restaurant at Naval Station Everett serves cafeteria-style breakfast and lunch and full service meals for dinner. The facility is open to all users and Sailors who use a meal pass eat for free.

Consolidated Personnel Support Facility

The theater/credit union/bowling alley/Navy College complex buildings are in substandard condition and located outside the personnel support core area. Consolidating these uses with UH and the galley would create a viable personnel support neighborhood with a mix of pedestrian activity generating uses.

1. Consolidate personnel support activities to the District's core area to create a mixed use development with UH and other activity generating uses.

2. Renovate existing facilities.

Preferred COA: A new personnel support complex is preferred to implement the Master Plan vision.

Community Programs

Community Programs requires storage for periodically utilized items, including furniture, equipment, play items, and maintenance materials.

Alternatives seek to utilize existing facilities for Community Programs storage.

1. Continue to utilize Building 821 (4,992 SF) for Community Programs storage. The facility formerly served as the Liberty Center; however that function was relocated into Building 930 (Spuds/consolidated club) due to low usage.

2. Consolidate Community Programs storage into Building 773, a NAVSUP warehouse with excess storage space.

Preferred: Utilize available storage space in Building 773 and demolish Building 821.

Reserve Training Building for NOSC Lemoore

Building 910 is substandard and significantly undersized. Operationally, the existing location is not within walking distance (10 minutes) to regular drill activities at the gym or physicals at the Hospital. Two alternatives have been identified.

1. Construct a new NOSC that meets the full training requirement (37,970 SF) and demolish Building 910.

2. Construct a new NOSC and collocate the facility with other training functions to reduce the total requirement. Demolish Building 910.

Preferred COA: Constructing a new NOSC that meets the full requirement is preferred. The project should be sited and designed in a manner that allows for use by other training providers during the week.

ILLUSTRATIVE PLAN

The Illustrative Plan provides a graphic representation of the District's possible future based on the vision, desired visual character, constraints, opportunities, known projects, possible future projects, and the guidelines established for each site (see the Regulating Plan in the following section). The Personnel Support District Illustrative Plan is illustrated in Figure 100.

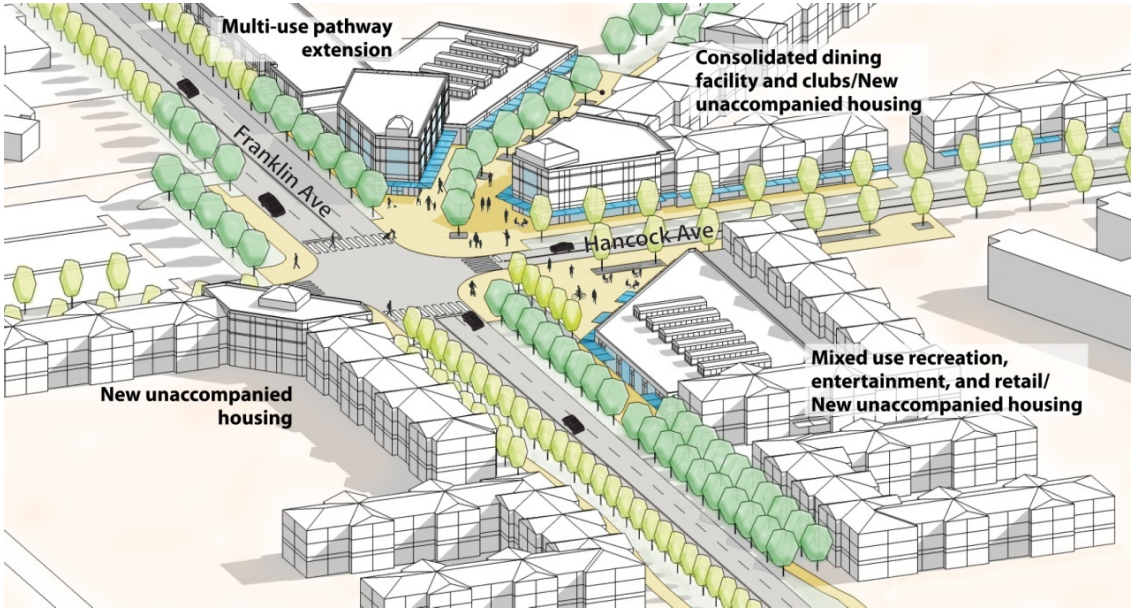


FIGURE 99. PERSONNEL SUPPORT CORE AREA

FIGURE 100. PERSONNEL SUPPORT DISTRICT ILLUSTRATIVE PLAN

REGULATING PLAN

The Regulating Plan provides additional guidance on the uses that are permitted within the District, where those uses should be located, and how facilities should be situated on potential sites to align with the Master Plan vision. The Personnel Support District Regulating Plan is illustrated in Figure 101. Other siting considerations are provided below.

PERMITTED USES

Permitted uses include UH as well as a wide range of single Sailor and family support functions. Training uses are also compatible. Table 31 identifies uses permitted within the District along with the appropriate BES. Building standards were previously defined on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

Appendix D provides a more comprehensive list of permitted uses for each district, including conditional uses that may be permitted under special circumstances.

Table 31. Personnel Support District permitted uses

CC Group	Description	BES: Low rise mixed use	BES: Mid rise mixed use
171	TRAINING BUILDINGS	■	■
179	TRAINING FAC - OTHER THAN BLDG		
510	MEDICAL CENTER/HOSPITAL	■	■
530	LABORATORIES	■	
540	DENTAL CLINICS	■	
550	DISPENSARIES/CLINICS	■	
610	ADMIN BUILDINGS	■	■
721	UNACOMP PERS HOUS-ENL PERS		■
722	UNACOMP PERS HOUS-MESS FAC	■	■
730	COMMUNITY FAC-PERS SUPPORT	■	■
740	COMM FAC-MWR INTR	■	■
750	COMMUNITY FAC-MWR EXTER		
760	MUSEUMS AND MEMORIALS	■	

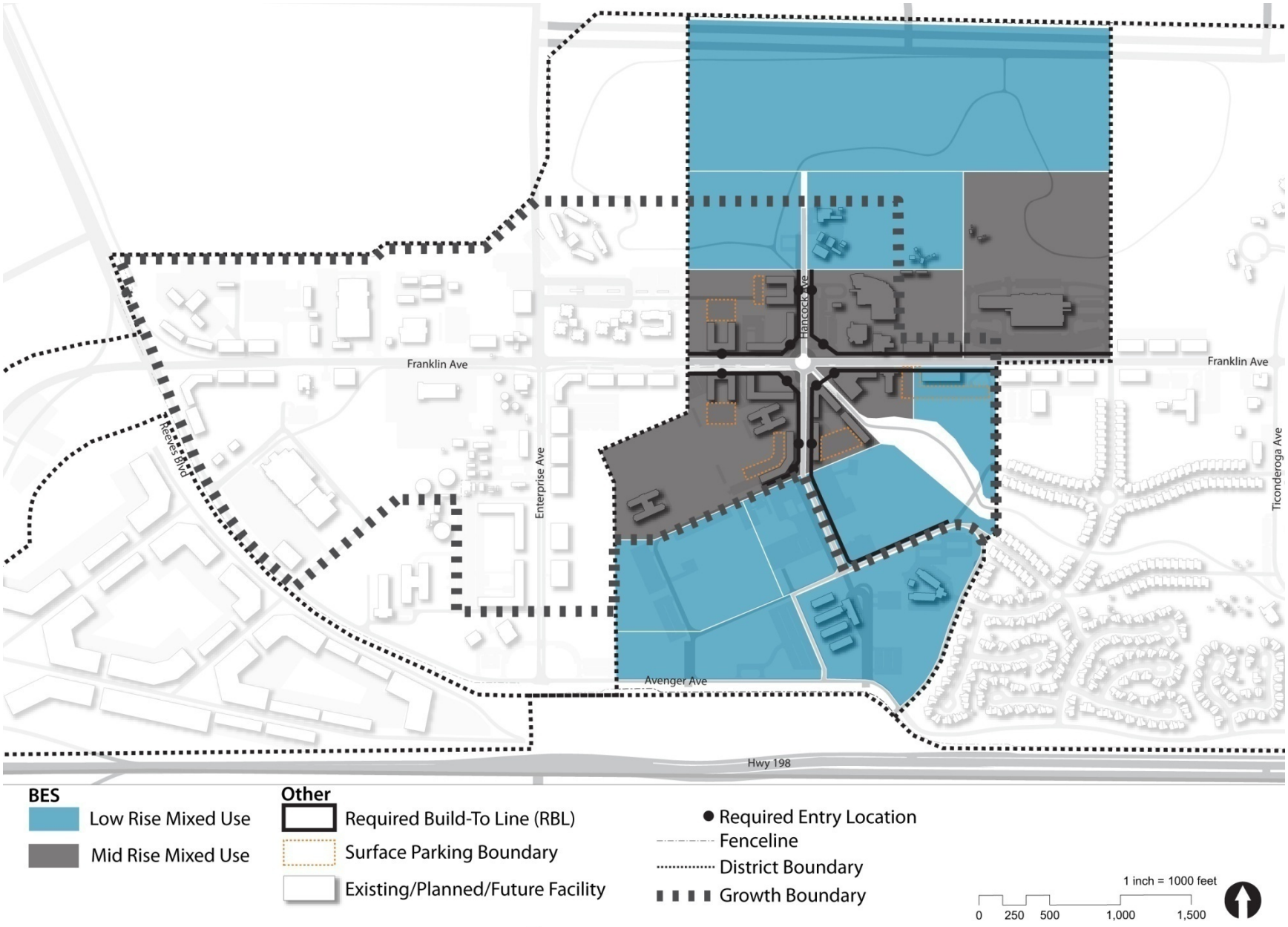


FIGURE 101. PERSONNEL SUPPORT DISTRICT REGULATING PLAN

DEVELOPABLE AREA AND GROWTH CAPABILITY

The District offers tremendous opportunities for infill development on unutilized ball fields, redevelopment of surface parking lots, replacement of outdated facilities with structures that meet the District vision, and new construction on vacant lands, including portions of Jackrabbit Field.

Developable areas are identified as part of the Regulating Plan in Figure 101. These areas can support the following growth.

- Currently undeveloped sites within the District core area can support up to four new UH facilities similar in size to the current structures.
- The consolidation of UH and personnel support functions around the intersection of Franklin and Hancock Avenue creates other development opportunities within the District. Approximately 12 acres of land in the central core would become available for new development.
- Redevelopment of the existing surface parking lot along Franklin Avenue would allow for immediate construction of a new combined galley/club facility.

RESOURCES AND REFERENCES

Operations within the Personnel Support District must adhere to a number of criteria and guidelines. Appendix C identifies the UFC, manuals, and other resources that should be consulted when planning within the District.

DEVELOPMENT STANDARDS

Development standards provide specific guidance on building orientation, architectural character, relationships between adjacent uses, streetscape conditions, parking placement, and other features that affect the look and feel of a district. These standards should be consulted in conjunction with facility siting and design, roadway projects, pedestrian improvements, and other projects impacting the built environment.

Standards for each BES appear later in the Master Plan and address:

- Building height and scale
- Building siting and placement
- Orientation to adjacent uses
- Location of parking

IMPLEMENTATION PLAN

Projects in the Personnel Support District satisfy facility shortfalls and deficiencies while establishing a compact town center that embodies the Master Plan vision and goals.

The Implementation Plan summarized in Table 32 identifies projects within the District. Projects are illustrated in Figures 102 and 103 below. Transportation projects occurring within the District are also illustrated (depicted at "TP" projects); information on these projects can be found in the Street and Transit Network Plan. Additional information on most COAs can be found in the corresponding Shore Capability Area section of the Master Plan.

Table 32. Personnel Support District implementation plan

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
PS-1		Retain UH	Currently underutilized UH is retained to support future loading increases from Strike Fighter Realignment and arrival of F-35C.	Sailor & Family Readiness
PS-2		Galley replacement and club consolidation	Constructs a new galley and consolidated club. Buildings 860 (galley), 920 (Spuds/ all hands club), and 900 ("O" Club) are demolished.	Sailor & Family Readiness
PS-3		Construct new UH	Replace substandard UH with facilities that meet current design criteria and create a compact, pedestrian friendly personnel support neighborhood at the center of the Personnel Support District. Demolish Buildings 840, 848, 850, 852, 855, 856, and 883. Prepare a UH Master Plan for NAS Lemoore to more fully evaluate alternatives.	Sailor & Family Readiness
PS-4		Provide indoor physical fitness space with new UH	Incorporates additional physical fitness space with new UH. Current area deficit is 5,240 SF. This deficit is expected to expand with personnel increases from Strike Fighter repositioning and the anticipated arrival of F-35C.	Sailor & Family Readiness
PS-5		Construct new theater/credit union/post office/Navy College/ recreational facilities	Constructs new personnel support facilities in the personnel support node at Franklin and Hancock Avenues, contributing to the new "town center" development. Theater should be designed as a multi-use facility.	Sailor & Family Readiness
PS-6	P235	Religious Education Facility	Constructs new religious ministry facilities in the personnel support core area. Current religious ministry activities are held in buildings 810, 811, and 345; the majority of space has a substandard quality rating. There is a current area deficit of 8,415 SF.	Sailor & Family Readiness
PS-7		Relocate Community Programs storage to Building 773	Relocates Community Programs to the existing NAVSUP warehouse, Building 773. The warehouse has excess capacity. Building 821 is currently used for storage and can be demolished.	Sailor & Family Readiness
PS-8	P311	Retractable Lap Pool Enclosure	Constructs a retractable roof to provide weather protection at the NAS Lemoore pool. The pool is collocated with the gym, Building 932.	Sailor & Family Readiness
PS-9	P358	Aviation Survival Training Center Replacement	The ASTC Combat Training pool/tank requires replacement because the pool does not meet requirements.	Training
PS-10	P366	NAVOPSTCEN Lemoore	Constructs a new 37,975 SF facility to meet the full NOSC requirement. Building 910 is demolished.	Training

FIGURE 102. PERSONNEL SUPPORT DISTRICT IMPLEMENTATION PLAN

FIGURE 103. PERSONNEL SUPPORT DISTRICT DEMOLITION PLAN

FAMILY HOUSING ADP

MISSION AND VISION

The Family Housing District is a 766 acre area comprised of family housing and related functions, including elementary schools, youth and community centers, the child development center, and ball fields.

GOALS AND OBJECTIVES

Planning area goals and objectives for the District are summarized below.

- Preserve the most valuable areas for future family housing growth.
- Establish a multi-use path that connects family housing with the adjacent Personnel Support District. In addition to a multi-use path, the corridor could also include picnic areas, outdoor recreation, and community gardens.
- Identify alternative housing types, including townhouses, for portions of the District.
- Maintain a high visual character through landscaping, streetscape improvement, and facility architecture.
- Connect future development with the existing network of pedestrian and bicycle paths.

DISTRICT MISSION

To provide a high quality, safe, and enjoyable living experience for families stationed at NAS Lemoore.

DISTRICT VISION

Provide a walkable district with integrated amenities and strong pedestrian and bicycle connections to destinations both inside and outside the district boundaries.

PERMITTED BUILDING ENVELOPE STANDARDS

Permitted BESs within the Family Housing District are identified below. Standards are discussed on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

- Low Rise Mixed Use
- Family Housing

PRIMARY TENANTS AND OPERATIONS

Primary tenants located within the District are identified below and illustrated in Figure 95. A more detailed description of their mission and loading can be found in the Tenant Commands section.

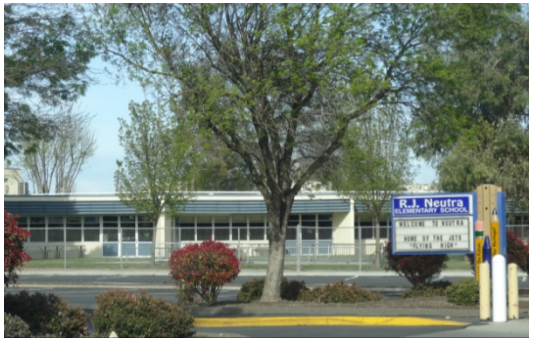
- **Lincoln Family Housing**
  Lincoln Family Housing is the PPV operator at NAS Lemoore. Lincoln maintains 1,630 family housing units, as well as community centers, ball fields, sports courts, and picnic areas.
- **Community Programs**
  Community Programs utilizes the Youth Center (970) and CDC (965). Administrative space for FFSC is located in Building 966.
- **Elementary Schools**
  Two elementary schools are owned and operated by the local school district. These include Richard Neutra Elementary (8001) and Akers Elementary (8002).
- **Navy Exchange**
  The NEX Jet Mart is located in Building 977 and serves as a minimart for the family housing area.

BY THE NUMBERS

- 100 employees (approximate)
- 1,630 family housing units
- Two elementary schools
- 766 acres

NEX Jet Mart

Youth Center



Neutra Elementary

Family housing at NAS Lemoore

Fleet and Family Support Center, Building 966

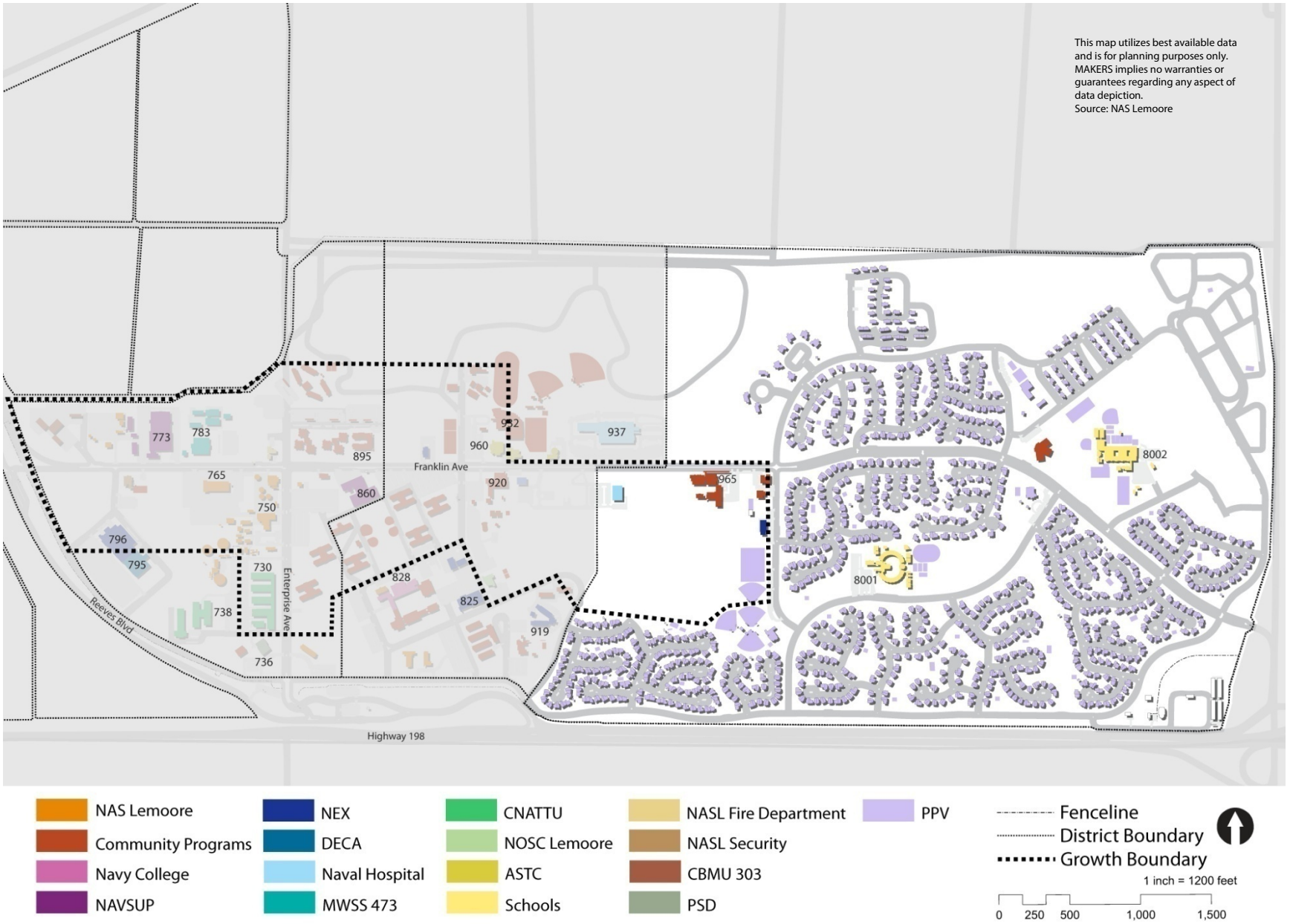


FIGURE 104. FAMILY HOUSING DISTRICT PRIMARY TENANTS (2014)

VISUAL CHARACTER

The visual character of the Family Housing District has been well established with development that has occurred over the past 20 years. Elements that contribute to the District's visual character are illustrated in Figure 105 and include:

- Ensure new residential lots are compatible with existing development patterns to enhance and maintain a cohesive community appearance and character.
- Enhance compatibility of residential areas with adjacent agricultural uses.
- Preserve open space areas to promote active and passive recreational activities that enhance quality of life.
- Align and construct roadways to be consistent with the existing community character.
- Provide adequate on-site parking that minimizes the visual impacts of parked vehicles.
- Future townhouse development should respect the single-family character of the existing community and be designed to appear as detached single-family homes.
- Minimize size, bulk, and scale through appropriate roof style and pitch, form and materials, varied setbacks, window treatment and location, and door size and type.
- A variety of architectural elements may be utilized to provide façade articulation, but should be visually compatible and match the overall architectural style of the building.

FIGURE 105. FAMILY HOUSING DISTRICT VISUAL CHARACTER

PLANNING CONSIDERATIONS

ISSUES

Key issues that impact operations within the Family Housing District are identified below. For a more comprehensive list of issues refer to the Major Shore Capabilities Areas Planning Analysis section.

- **Proximity to Services**
  Family housing is somewhat isolated from amenities in the personnel support core area, including Spuds restaurant, theater, post office, and bowling alley. This distance is compounded by a lack of pedestrian and bike routes linking family housing with these uses.
- **Housing Availability**
  Housing runs at approximately 94% occupied with 120 families on the wait list. Demand may exist for additional on-site housing.
- **Building Condition**
  The Teen Center (970) has a substandard quality rating and does not provide spaces aligned with program needs.
- **Fleet and Family Support Center**
  FFSC is not configured for the private counseling offered to military personnel and their families. In addition, the number of FFSC staff is increasing from 29 to 34, resulting in space shortfalls.
- **Schools**
  If an additional school is warranted by mission growth at NAS Lemoore the facility would have to be constructed by the Navy. State funding is limited and a bond is unlikely to gain community support.
- **Karen Mechem Park**
  The park requires shade structures, restrooms, and wind protection. Improvements could be made in conjunction with relocating the RV park out of the Personnel Support District.

Karen Mechem Park

FIGURE 106. FAMILY HOUSING DISTRICT FACILITY QUALITY RATING

CONSTRAINTS

Natural and manmade constraints have the potential to limit redevelopment opportunities within the District. Constraints that must be considered when siting future projects within the Family Housing District are described below and illustrated in Figure 107.

Manmade Constraints

- **Installation Restoration Sites**
  Two IR sites exist within the District, including Sites 7 and 8. Site 7 has been closed and requires no further action. Site 8 has land use controls in place limiting it to industrial uses.
- **Anti-terrorism/Force Protection (AT/FP)**
  AT/FP standoff distances are required around facilities to limit vehicular access and possible exposure to vehicle bombs and other terrorist threats. Standoffs apply to vehicle parking, roadways, and perimeter fences. These standoffs can have a significant impact on facility siting and vehicle parking.
- **Noise Contours**
  Normal airfield operations generate significant noise impacts. The Family Housing District falls in or below the 60-65 db noise contour. Uses must be compatible with these noise levels.

Natural Constraints

- **Cultural Resources**
  Cultural resources include sites, structures, buildings, or other objects that possess historic or architectural value and integrity.
- **Seismic**
  There are no significant known active geologic faults in the immediate vicinity of NAS Lemoore. However, the active San Andreas Fault is approximately 50 miles to the west of NAS Lemoore. The Owens Valley Fault group is approximately 80 miles to the east. All facilities at NAS Lemoore must therefore meet specified seismic requirements.
- **Air Quality**
  NAS Lemoore falls within the San Joaquin Valley Air Pollution Control District. In general, California requires pollution control and prevention measures which are more stringent than those mandated by the EPA. NAS Lemoore must comply with Federal, State, and San Joaquin Valley Air Pollution Control District regulations pertaining to air emissions.

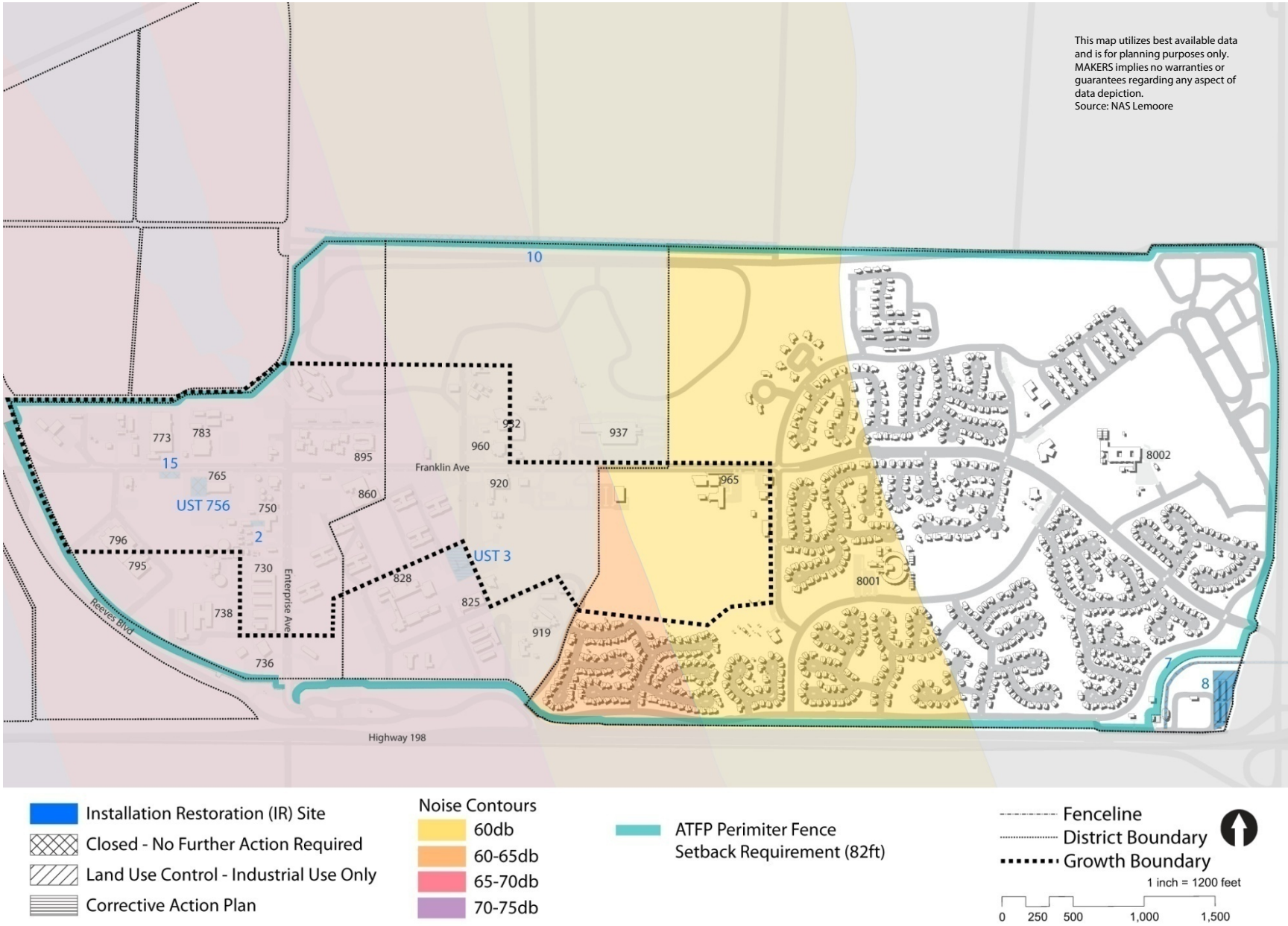


FIGURE 107. FAMILY HOUSING DISTRICT CONSTRAINTS

ALTERNATIVES

Alternatives were evaluated for key Master Plan opportunities. In some cases alternatives have also been identified for previously developed projects or COAs. These alternatives are summarized below.

Teen Center

The Teen Center (Building 970) was built in 1971 and has a substandard quality rating. The facility does not provide adequate spaces aligned with program needs.

1. Upgrade and reconfigure the facility to align spaces with current program needs.

2. Continue to operate the current Teen Center without improvements.

Preferred COA: Upgrade the Teen Center to provide improved amenities for teens living on NAS Lemoore.

Fleet and Family Support Center

FFSC (Building 966) is not configured to provide required counseling spaces. In addition, a shortfall will be created when the number of staff increases from 29 to 34 employees.

1. Reconfigure and expand the existing facility to meet requirements.

2. Reconfigure the existing facility and providing a satellite space on the Ops Side.

Preferred COA: Reconfigure the existing facility and provide a satellite FFSC office on the Ops Side. This alternative addresses configuration issues while improving service to flightline personnel. The satellite space should be collocated with the new dining and personnel support facility planned for the Airfield Ops District.

Additional School

Mission growth could generate requirements for an additional school. Two potential locations have been identified for a new school.

1. Near the east side of Jackrabbit Field with access from Ticonderoga Avenue.

2. As an addition to Akers Elementary.

Preferred COA: Construct an addition to Akers Elementary. The addition could serve as additional elementary school space or as a middle school.

Karen Mechem Park

Karen Mechem Park requires upgrades to better serve park users, including riders from the adjacent equestrian center. Improvements include enhanced shade options, restrooms, and wind protection.

1. Upgrade the existing park.

2. Status quo.

Preferred COA: Implement improvements within the park. Any improvements should be implemented in concert with relocation of the RV park.

RV Park

The RV park occupies space at the center of the Installation that may have a more valuable long-term use. Additionally, the existing park requires power and other improvements, possibly including a skate park, additional shade structures, and restroom improvements.

1. Upgrade the existing RV park.

2. Relocate the RV park to a site in or near Karen Mechem Park at the northeast edge of the Admin Side.

Preferred COA: Relocate the RV park to a site adjacent to Karen Mechem Park. The RV park is well utilized and should be retained.

ILLUSTRATIVE PLAN

The Illustrative Plan provides a graphic representation of the District's possible future based on the vision, desired visual character, constraints, opportunities, known projects, possible future projects, and the guidelines established for each site (see the Regulating Plan in the following section). The Family Housing District Illustrative Plan is illustrated in Figure 108.

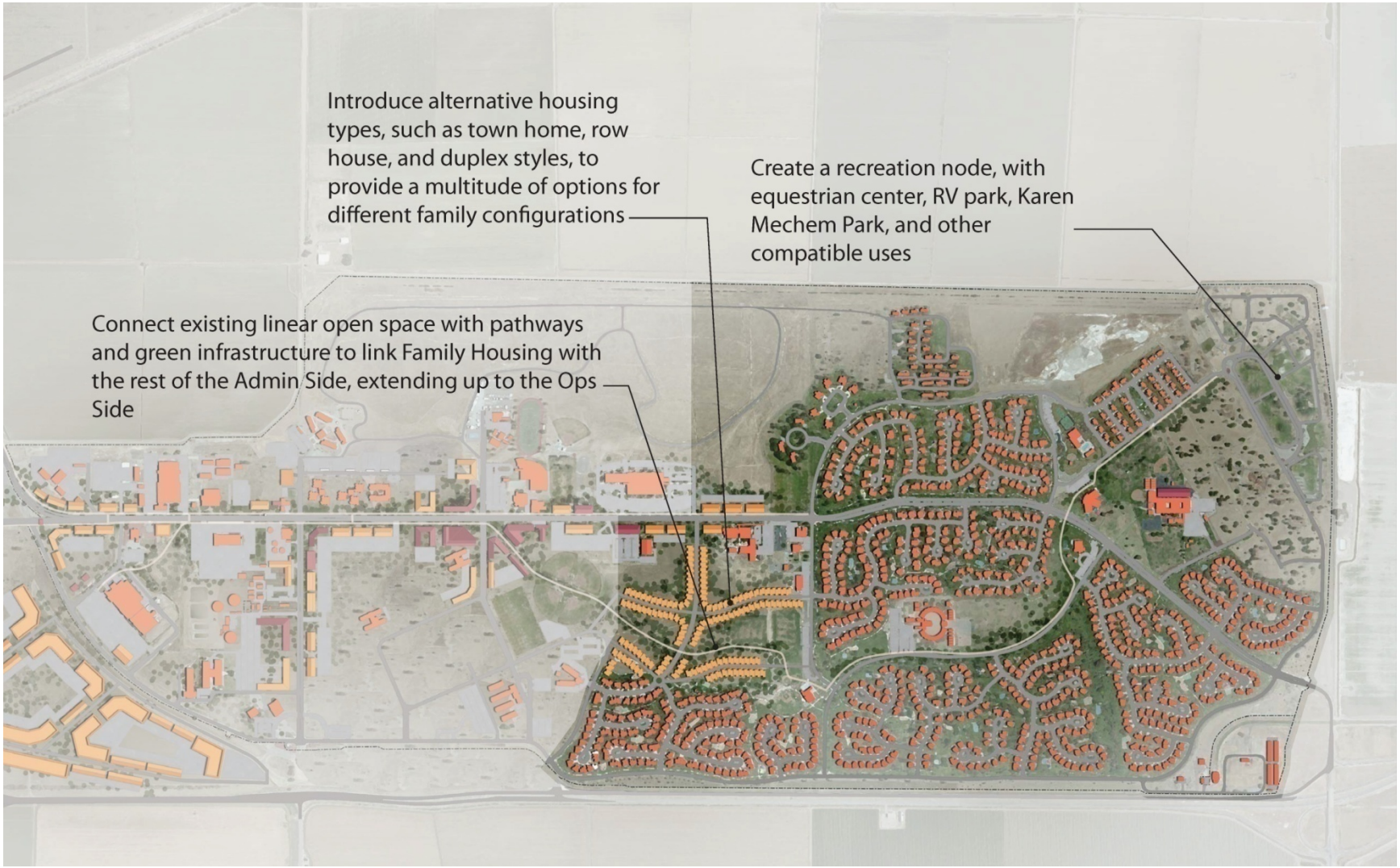


FIGURE 108. FAMILY HOUSING DISTRICT ILLUSTRATIVE PLAN

REGULATING PLAN

The Regulating Plan provides additional guidance on the uses that are permitted within the District, where those uses should be located, and how facilities should be situated on potential sites to align with the Master Plan vision. The Family Housing District Regulating Plan is illustrated in Figure 109. Other siting considerations are provided below.

PERMITTED USES

Permitted uses include family housing and related support functions. Table 33 identifies uses permitted within the District along with the appropriate BES. Building standards were previously defined on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

Appendix D provides a more comprehensive list of permitted uses for each district, including conditional uses that may be permitted under special circumstances.

Table 33. Family Housing District permitted uses

CC Group	Description	BES: Low rise mixed use	BES: Family Housing	BES: Light Industrial
219	MAINTENANCE-INSTALLATION REPAIR AND OPERATION			■
711	FAMILY HOUSING-DWELLINGS		■	
730	COMMUNITY FAC-PERS SUPPORT	■		
750	COMMUNITY FAC-MWR EXTER			
760	MUSEUMS AND MEMORIALS	■		

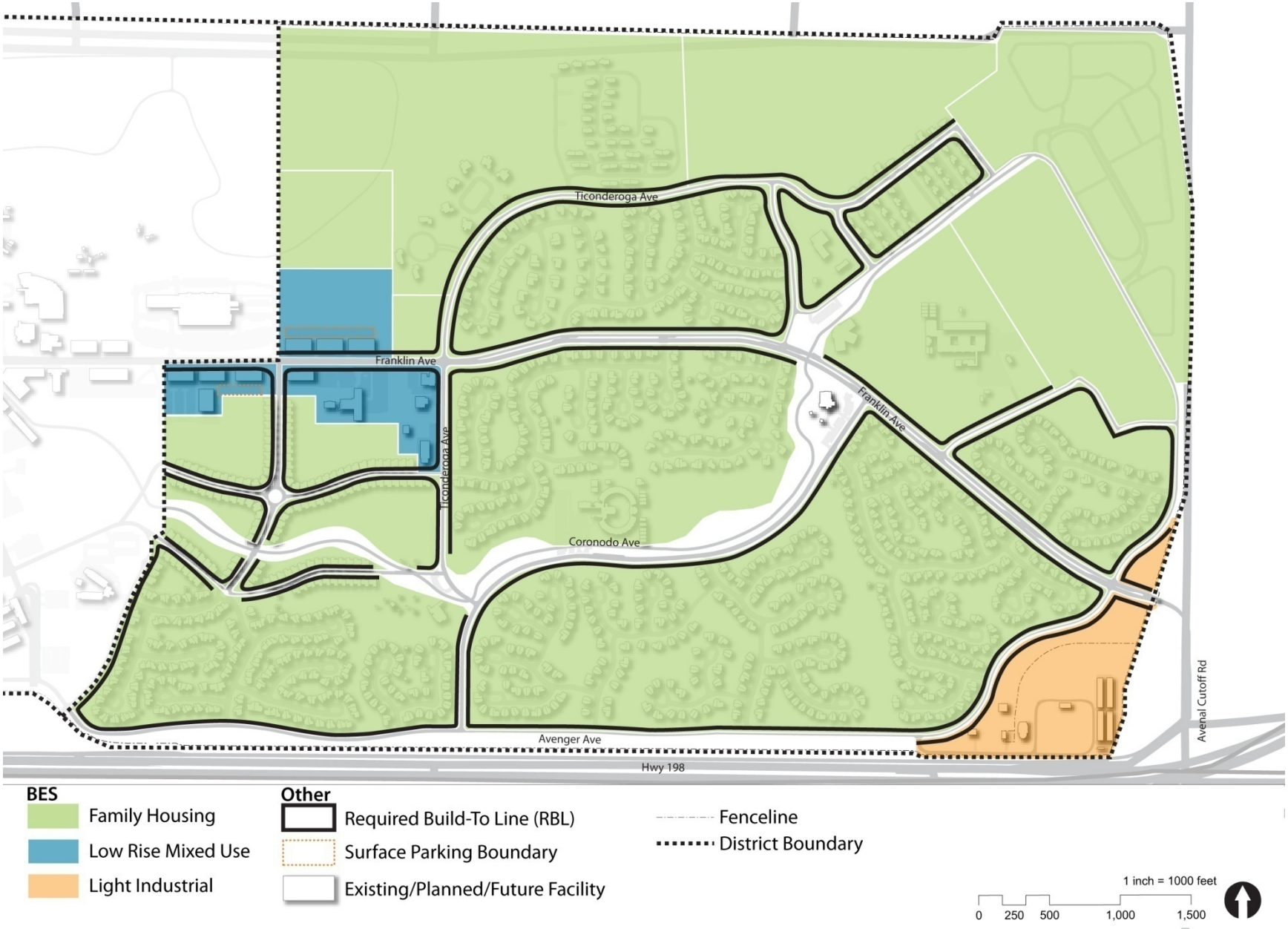


FIGURE 109. FAMILY HOUSING DISTRICT REGULATING PLAN

DEVELOPABLE AREA AND GROWTH CAPABILITY

The District has large undeveloped areas that could support future family housing and other compatible uses.

Developable areas are identified as part of the Regulating Plan in Figure 109. These areas can support the following growth.

- The District has large tracts of undeveloped land that could support additional housing. Approximately 200 new units could be accommodated along the north edge of the District.
- A new elementary or middle school can be accommodated in multiple locations within the District.
- The Franklin Avenue corridor has capacity to accommodate additional low rise mixed use development on undeveloped sites.

RESOURCES AND REFERENCES

Operations within the Family Housing District must adhere to a number of criteria and guidelines. Appendix C identifies the UFC, manuals, and other resources that should be consulted when planning within the District.

DEVELOPMENT STANDARDS

Development standards provide specific guidance on building orientation, architectural character, relationships between adjacent uses, streetscape conditions, parking placement, and other features that affect the look and feel of a district. These standards should be consulted in conjunction with facility siting and design, roadway projects, pedestrian improvements, and other projects impacting the built environment.

Standards for each BES appear later in the Master Plan and address:

- Building height and scale
- Building siting and placement
- Orientation to adjacent uses
- Location of parking

IMPLEMENTATION PLAN

Projects in the Family Housing District preserve and enhance the high quality of life currently enjoyed by NAS Lemoore families. Emphasis is placed on walkability, enhancing community support facilities, and improving connections with amenities in the Personnel Support District.

The Implementation Plan summarized in Table 34 identifies projects within the District. Projects are illustrated in Figure 110 below. Transportation projects occurring within the District are also illustrated (depicted at "TP" projects); information on these projects can be found in the Street and Transit Network Plan. Additional information on most COAs can be found in the corresponding Shore Capability Area section of the Master Plan.

Table 34. Family Housing District implementation plan

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
FH-1		Third party Child Development Center (CDC) Services	Continue to promote in-home CDC programs while partnering with CDC businesses in the community. Although the CDC is right sized for the current population demand may increase as a result of the Strike Fighter repositioning and the anticipated arrival of F-35C.	Sailor & Family Readiness
FH-2		Reconfigure building 966 for Fleet and Family Support Center (FFSC) and provide a facility on the Ops Side to better serve flightline personnel	FFSC (Building 966) is not configured properly to provide required counseling spaces. In addition, the number of staff is increasing from 29 to 34 which will create a space shortfall. Providing a satellite space on the Ops Side will address shortfalls while providing better service to the large number of personnel working on the flightline.	Sailor & Family Readiness
FH-3		Teen Center Upgrade	Renovate the Teen Center to expand the gym and provide a computer lab. The Teen Center (Building 970) was built in 1971 and has a substandard quality rating. The facility does not provide adequate spaces aligned with program needs.	Sailor & Family Readiness
FH-4		Expand Akers Elementary	Construct an addition to Akers Elementary. The addition could serve as additional elementary school space or as a middle school.	Sailor & Family Readiness
FH-5		Create a biology-chemistry lab	Both Navy College and the school district curriculums could benefit from access to a biology-chemistry lab on-site. This facility could be jointly utilized since the two organizations conduct training at different times of the day.	Training
FH-6		Relocate the RV park to Karen Mechem Park	The RV park is typically at capacity and occupies space at the center of the Installation that may have a more valuable long-term use. Additionally, the existing park requires power and other improvements, possibly including a skate park, additional shade structures, and restroom improvements.	Sailor & Family Readiness
FH-7		Upgrade Karen Mechem Park	Karen Mechem Park requires upgrades to better serve the military population that uses the park, including enhanced shade options, restrooms, and wind protection. These improvements should be implemented in concert with relocation of the RV park and should take into account use by riders from the adjacent equestrian center.	Sailor & Family Readiness

FIGURE 110. FAMILY HOUSING DISTRICT IMPLEMENTATION PLAN

MANAGED LANDS ADP

MISSION AND VISION

The Managed Lands District is a 12,078 acre area used to provide a buffer around the NAS Lemoore Ops Side. Land uses include agricultural, managed grazing lands, and natural resource management areas.

GOALS AND OBJECTIVES

Planning area goals and objectives for the District are summarized below.

- Maintain the viability of agricultural land uses through restructured lease agreements and other paradigm shifts.
- Manage wildlife habitat in a manner consistent with airfield operations.
- Maximize available water resources to preserve agricultural functions.

DISTRICT MISSION

To provide a buffer that protects NAS Lemoore's flightline from encroachment and incompatible land uses that could limit operational capabilities.

DISTRICT VISION

Open spaces with farm land, wildlife areas, PV arrays, and other uses that maintain the undeveloped character of the area.

PERMITTED BUILDING ENVELOPE STANDARDS

Building standards are not applicable to the Managed Lands District since facilities are discouraged. Permitted facilities may include portable restrooms directly related to agricultural production.

PRIMARY TENANTS AND OPERATIONS

The Managed Lands District does not support any NAS Lemoore tenants or operations.

BY THE NUMBERS

- 12,078 acres
- Six natural resource management areas accounting for 562 acres

VISUAL CHARACTER

The visual character of the Managed Lands District is primarily agricultural, scenic, environmental, and rural in character. Elements of the visual character include:

- Wide open vistas across the valley and to the mountains in either direction dominate this District. Future uses should take this into consideration.
- Much of the landscape is characterized by arable land, roadway corridors organized on a grid, and irrigation ditches.
- Conserve the ecological integrity of the agricultural areas and ensure appropriate management.
- Explore opportunities for extending the ecological resource by reversion of arable land to grassland to increase the variety of habitat in predominantly arable areas.
- Consider opportunities for creating renewable energy projects. Limit the visual impact of these developments.

Agriculture is the predominant land use

Natural resource management areas at the north end of NAS Lemoore

PV arrays would be compatible with the District's visual character

PLANNING CONSIDERATIONS

ISSUES

Key issues that impact operations within the Managed Lands District are identified below.

- **Water Resources**
  Water allotments for irrigation recently declined throughout California's Central Valley, making it more difficult to maintain agricultural land uses within the District. Farm operators have little incentive to invest in more efficient irrigation systems since existing lease agreements are only five years.
- **Reeves Boulevard Multi-use Path**
  Options are being explored for a pedestrian and bike path along Reeves Boulevard between the Admin and Ops Sides. The path's alignment could conflict with adjacent agricultural activities where tractors and other equipment would drive over the path.
- **Bird/Animal Aircraft Strike Hazard (BASH)**
  Reduced water allotments will result in more agricultural lands laying fallow, which attracts ground squirrels and mice. This in turn attracts more birds of prey to areas around the airfield, creating increased BASH concerns.

CONSTRAINTS

Natural and manmade constraints have the potential to limit activities within the District. Constraints that must be considered within the Managed Lands District are described below.

Manmade Constraints

- **Noise Contours**
  Normal airfield operations generate significant noise impacts. Noise contours within the Managed Lands District range from 60-85 db. Uses must be compatible with these noise levels.

Natural Constraints

- **Cultural Resources**
  Cultural resources include sites, structures, buildings, or other objects that possess historic or architectural value and integrity. There are currently no sites identified within the District.

Hawks are captured, tagged, and relocated to reduce BASH (source: Ezra David Romero/KVPR)

- **Surface Danger Zones**
  The small arms range SDZ includes the area between the firing line and the target line, an impact area, a ricochet trajectory area, and a secondary danger area. Land uses within the SDZ are restricted to protect Navy personnel as well as the general public. Areas falling within the SDZ are currently used for agricultural.
- **Air Quality**
  NAS Lemoore falls within the San Joaquin Valley Air Pollution Control District. In general, California requires pollution control and prevention measures which are more stringent than those mandated by the EPA. NAS Lemoore must comply with Federal, State, and San Joaquin Valley Air Pollution Control District regulations pertaining to air emissions.
- **Seismic**
  There are no significant known active geologic faults in the immediate vicinity of NAS Lemoore. However, the active San Andreas Fault is approximately 50 miles to the west of NAS Lemoore. The Owens Valley Fault group is approximately 80 miles to the east. All facilities at NAS Lemoore must therefore meet specified seismic requirements.
- **Bird/Animal Aircraft Strike Hazard**
  Agricultural activities and other functions occurring around the airfield are restricted to minimize the potential for BASH.

ILLUSTRATIVE PLAN

The Illustrative Plan illustrates the District's possible future based on the vision, desired visual character, constraints, opportunities, known projects, possible land use shifts, and potential modifications to lease agreements. The Managed Lands District Illustrative Plan is illustrated in Figure 111.

Development plans within the Managed Lands District should be reevaluated regularly as opportunities, PV and agricultural market conditions, and other conditions change. The illustrative plan depicted here only represents one scenario and could be modified to reflect changing objectives.

REGULATING PLAN

The Managed Lands District does not require a Regulating Plan since facilities are generally prohibited and land uses are heavily restricted. Permitted uses include:

- Agriculture
- Grazing lands
- Natural resource management areas
- PV development

DEVELOPABLE AREA AND GROWTH CAPABILITY

The District is intentionally undeveloped to protect against encroachment and preserve operational capabilities. At over 12,000 acres the District has tremendous growth capacity; however the uses permitted for these lands are restricted. With that in mind, the District can support the following growth.

- Up to 3,000 acres of PV development.
- Up to 2,750 acres converted to 20 year agricultural leases.

RESOURCES AND REFERENCES

Operations within the Managed Lands District must adhere to a number of criteria and guidelines. Appendix C identifies the UFC, manuals, and other resources that should be consulted when planning within the District.

DEVELOPMENT STANDARDS

Development standards do not apply since facilities are not currently permitted within the District. Facilities are limited to portable toilets, water tanks, and other small structures sited to meet the needs of agricultural functions. Roadways are configured to divide sites and provide access for tractors, trucks, and other vehicles related to these activities.

FIGURE 111. MANAGED LANDS DISTRICT ILLUSTRATIVE PLAN

IMPLEMENTATION PLAN

The Implementation Plan for the Managed Lands District captures action items that should be pursued to preserve and enhance the District's value to NAS Lemoore while embodying the Master Plan vision and goals for this area. These action items are summarized in Table 35 below.

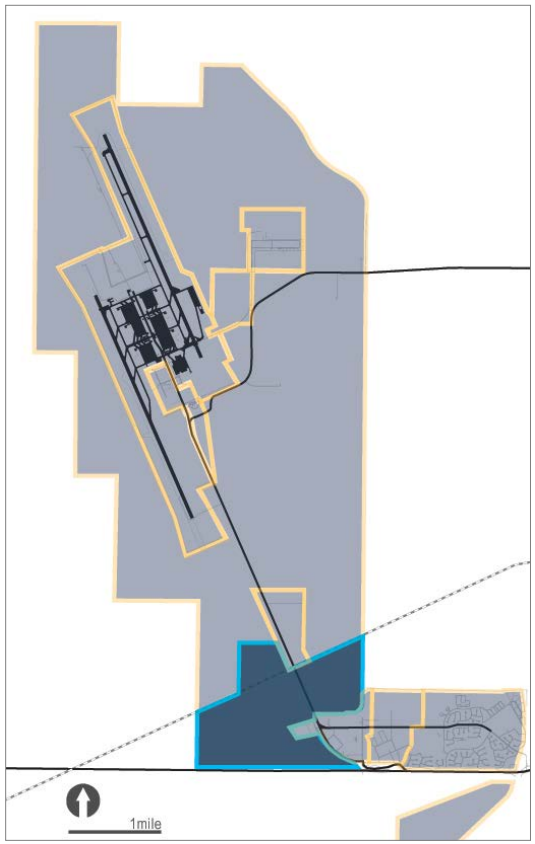
Table 35. Managed Lands District implementation plan

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
ML-1		Modify lease agreements	Current agricultural leases are five years, giving famers little incentive to invest in infrastructure improvements that would reduce water requirements. Longer leases of up to 20 years would provide that incentive and keep these lands in agricultural production.	

ENHANCED USE LEASE ADP

MISSION AND VISION

The Enhanced Use Lease District is a 1,307 acre area located to the west and north of the Admin Side. The area is currently used for agricultural purposes and also contains a closed landfill.



GOALS AND OBJECTIVES

Planning area goals and objectives for the District are summarized below.

- Ensure uses are compatible with the Navy mission and do not limit operational capabilities.
- Establish lease agreements that provide financial value to NAS Lemoore.
- Facilities and land uses located along the access road to the proposed new front gate should provide a positive image for the Installation.
- Identify uses that can enhance QOL for NAS Lemoore personnel.
- Ensure EULs do not interfere with economic development or comprehensive plans in local communities. Uses that could be located within existing urban areas should not be sited at NAS Lemoore.

BY THE NUMBERS

- Two miles of railroad frontage
- Two miles of highway frontage
- 1,307 acres

DISTRICT MISSION

Generate revenue streams through leases and private development that is compatible with Navy operations.

DISTRICT VISION

A mixed use district with a variety of land uses and building forms that is aesthetically compatible with the adjacent Admin Side.

PERMITTED BUILDING ENVELOPE STANDARDS

Permitted BESs within the Enhanced Use Lease District are identified below. Standards are discussed on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

- Light Industrial
- Low Rise Mixed Use
- Mid Rise Mixed Use
- Destination Commercial
- PV development

PRIMARY TENANTS AND OPERATIONS

The Enhanced Use Lease District does not support any NAS Lemoore tenants or operations.

VISUAL CHARACTER

The visual character of the Enhanced Use Lease District should be compatible with surrounding agricultural lands as well as reflective of the location at the main entrance to the Installation. Elements that will contribute to the District's visual character are illustrated in Figure 56 and include:

- Ensure facilities are compatible with adjacent development patterns to enhance and maintain a cohesive district appearance and character.
- Enhance compatibility of development with adjacent agricultural uses.
- Align and construct roadways to be consistent with surrounding character.
- Provide adequate on-site parking that minimizes the visual impacts of parked vehicles.
- Minimize size, bulk, and scale through appropriate roof style and pitch, form and materials, varied setbacks, window treatment and location, and door size and type.
- The architectural design elements and site orientation of new development should be of a high standard and not degrade or conflict with the Installation appearance.
- The area may exhibit an industrial aesthetic, generally characterized by bulky single- and multi-story buildings with large floor plates, industrial sash windows, roll-up garage doors, and delivery bays. Materials should include metal clad siding.
- Introduce landscape buffers between industrial uses and the Installation.

FIGURE 112. ENHANCED USE LEASE DISTRICT VISUAL CHARACTER

PLANNING CONSIDERATIONS

ISSUES

Key issues that impact operations within the Enhanced Use Lease District are identified below.

- **Water Resources**
  Agriculture is currently the only land use within the District. Water allotments for irrigation recently declined throughout California's Central Valley, making it more difficult to maintain agricultural land uses.
- **Bird/Animal Aircraft Strike Hazard**
  Reduced water allotments will result in more agricultural lands laying fallow, which attracts ground squirrels and mice. This in turn attracts more birds of prey to areas around the airfield, creating increased BASH concerns.

CONSTRAINTS

Natural and manmade constraints have the potential to limit activities within the District. Constraints that must be considered within the Enhanced Use Lease District are described below.

Manmade Constraints

- **Noise Contours**
  Normal airfield operations generate significant noise impacts. Noise contours within the Enhanced Use Lease District range from 60-75 db. Uses must be compatible with these noise levels.
- **Installation Restoration Sites**
  One site exists within the District. Site 1 is NAS Lemoore's former landfill and was capped in 1997. Land use controls prohibit any permanent human occupancy.

Natural Constraints

- **Cultural Resources**
  Cultural resources include sites, structures, buildings, or other objects that possess historic or architectural value and integrity. There are currently no sites identified within the District.
- **Air Quality**
  NAS Lemoore falls within the San Joaquin Valley Air Pollution Control District. In general, California requires pollution control and prevention measures which are more stringent than those mandated by the EPA. NAS Lemoore must comply with Federal, State, and San Joaquin Valley Air Pollution Control District regulations pertaining to air emissions.
- **Seismic**
  There are no significant known active geologic faults in the immediate vicinity of NAS Lemoore. However, the active San Andreas Fault is approximately 50 miles to the west of NAS Lemoore. The Owens Valley Fault group is approximately 80 miles to the east. All facilities at NAS Lemoore must therefore meet specified seismic requirements.
- **Bird/Animal Aircraft Strike Hazard**
  Agricultural activities and other functions occurring around the airfield are restricted to minimize the potential for BASH.

ILLUSTRATIVE PLAN

The Illustrative Plan provides a graphic representation of the District's possible future based on the vision, desired visual character, constraints, opportunities, known projects, possible future projects, and the guidelines established for each site (see the Regulating Plan in the following section). The Enhanced Use Lease District Illustrative Plan is illustrated in Figure 113.

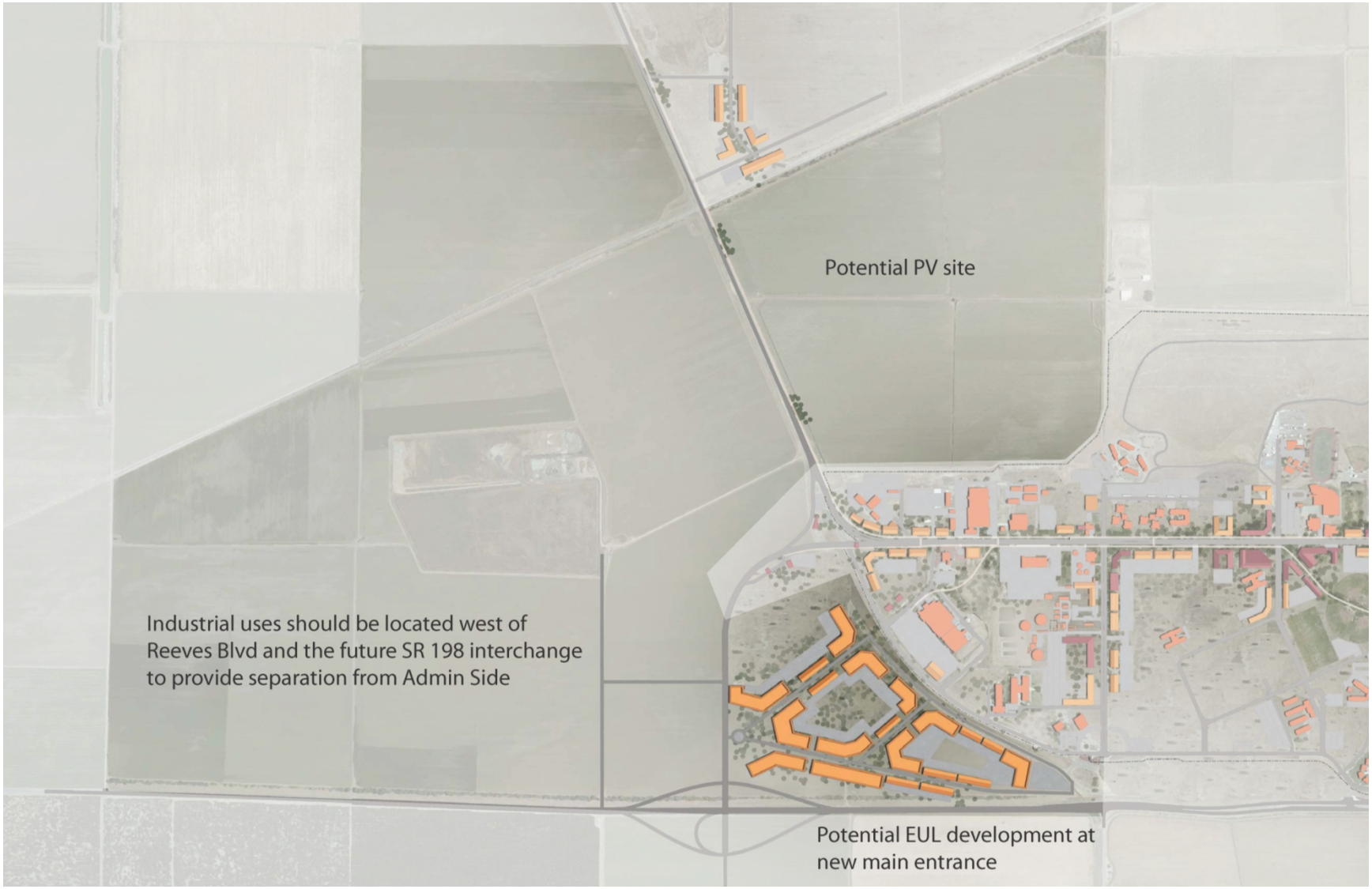


FIGURE 113. ENHANCED USE LEASE DISTRICT ILLUSTRATIVE PLAN

REGULATING PLAN

The Regulating Plan provides additional guidance on the uses that are permitted within the District, where those uses should be located, and how facilities should be situated on potential sites to align with the Master Plan vision. The Enhanced Use Lease District Regulating Plan is illustrated in Figure 114. Other siting considerations are provided below.

PERMITTED USES

Permitted uses might include warehousing, distribution centers, and other light industrial functions; office parks and schools; commercial and retail uses; or PV development. Table 36 identifies uses permitted within the District along with the appropriate BES. Building standards were previously defined on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

Appendix D provides a more comprehensive list of permitted uses for each district, including conditional uses that may be permitted under special circumstances.

Table 36. Enhanced Use Lease District permitted uses

		BES			
CC Group	Description	Light Industrial	Low rise mixed use	Mid rise mixed use	Destination Commercial
441	GEN SUPPLY STORG DEP/INSTLN	■			
610	ADMIN BUILDINGS		■	■	
730	COMMUNITY FAC-PERS SUPPORT		■	■	
740	COMM FAC-MWR INTR		■	■	■
750	COMMUNITY FAC-MWR EXTER				

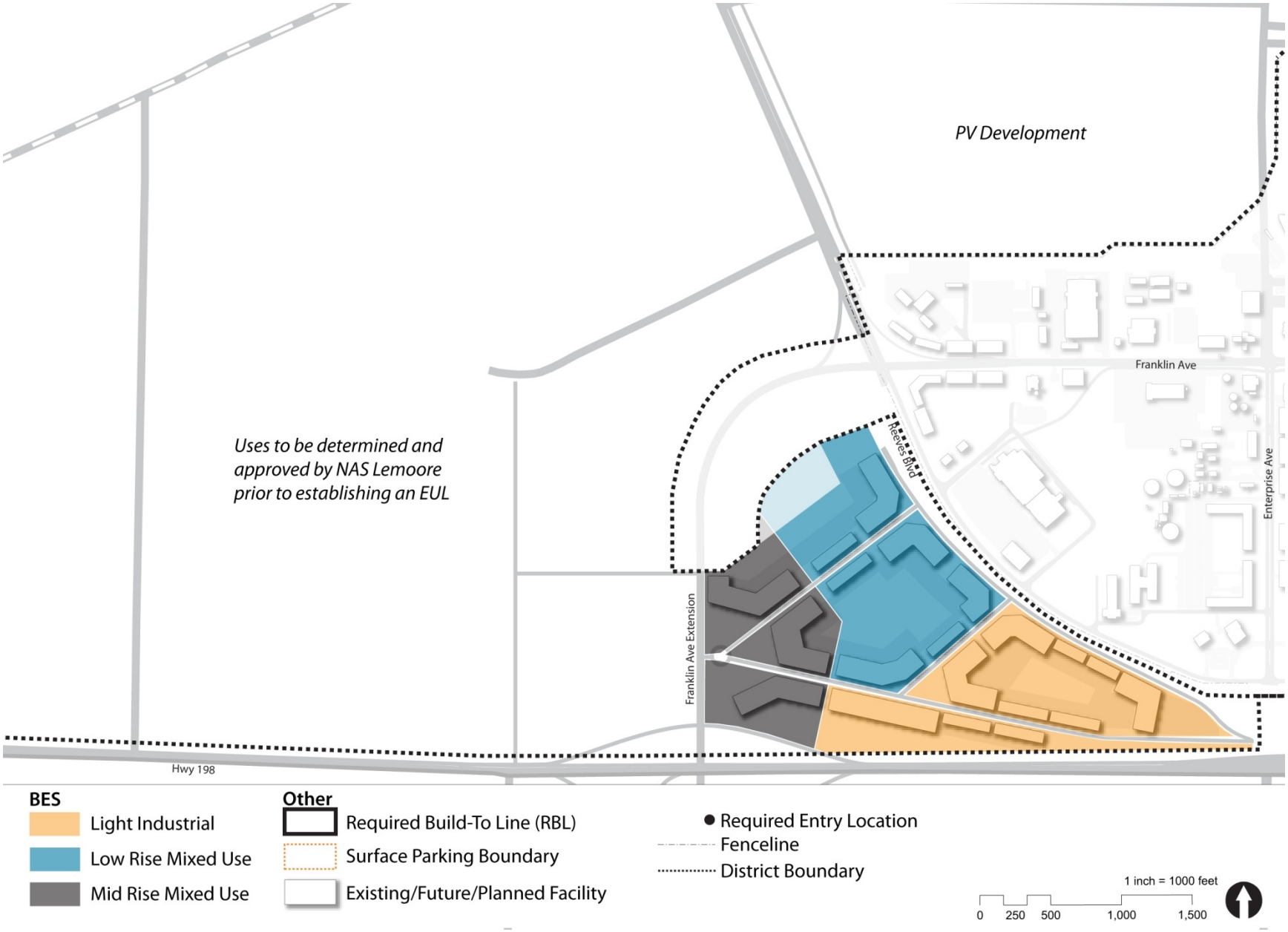


FIGURE 114. ENHANCED USE LEASE DISTRICT REGULATING PLAN

DEVELOPABLE AREA AND GROWTH CAPABILITY

The District has remained intentionally undeveloped to protect against encroachment and preserve operational capabilities. At over 1,300 acres, however, the District has capacity to support a variety of EUL opportunities that are compatible with base operations. The following growth potential has been identified.

- Approximately 50 acres available for a mix of uses near the proposed Admin Side main entrance.
- Approximately 300 acres designated for PV development.

RESOURCES AND REFERENCES

Operations within the Enhanced Use Lease District must adhere to a number of criteria and guidelines. Appendix C identifies the UFC, manuals, and other resources that should be consulted when planning within the District.

DEVELOPMENT STANDARDS

Development standards provide specific guidance on building orientation, architectural character, relationships between adjacent uses, streetscape conditions, parking placement, and other features that affect the look and feel of a district. These standards should be consulted in conjunction with facility siting and design, roadway projects, pedestrian improvements, and other projects impacting the built environment.

Standards for each BES appear later in the Master Plan and address:

- Building height and scale
- Building siting and placement
- Orientation to adjacent uses
- Location of parking

IMPLEMENTATION PLAN

The Implementation Plan for the Enhanced Use Lease District captures action items that should be pursued to preserve and enhance the District's value to NAS Lemoore while embodying the Master Plan vision and goals for this area. These action items are summarized in Table 37 below. Notional projects were illustrated in the Illustrative Plan (Figure 113).

Table 37. Enhanced Use Lease District implementation plan

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
EUL-1		Explore EUL partnerships	EUL provides an alternative to agricultural use while still maintaining compatibility with NAS Lemoore operations. Interest from the business community needs to be evaluated.	

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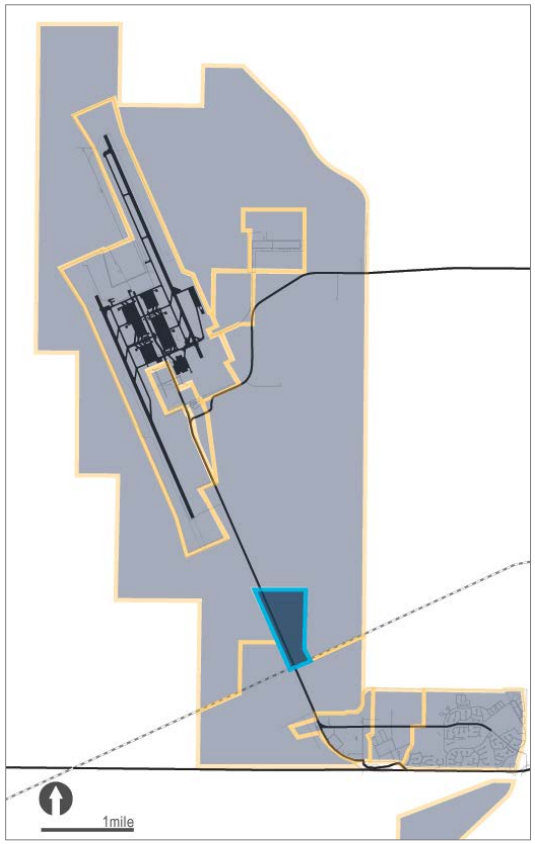
JOINT USE TRAINING ADP

MISSION AND VISION

The Joint Use Training District is a 221 acre area comprised of firefighter training, a skeet range, and an off road motorcycle course.



GOALS AND OBJECTIVES

Planning area goals and objectives for the District are summarized below.

- Develop a regional training asset that can be shared with the local community and other agencies.
- Allow for transit oriented development (TOD) around a possible commuter rail stop on Reeves Boulevard.
- Accommodate a multi-use path connecting the Admin and Ops Sides.

DISTRICT MISSION

To provide consolidated training activities for NAS Lemoore and other community partners.

DISTRICT VISION

A joint use training development with a mix of training buildings, outdoor training areas, mockups, and other facilities supporting a diverse training curriculum.

PERMITTED BUILDING ENVELOPE STANDARDS

Permitted BESs within the Joint Use Training District are identified below. Standards are discussed on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

- Light Industrial
- Low Rise Mixed Use

PRIMARY TENANTS AND OPERATIONS

Two commands currently operate within the District. A more detailed description of their mission and loading can be found in the Tenant Commands section.

- **NAS Lemoore**
  NAS Lemoore operates a skeet range for recreational use. Motorcycle training is also conducted on a nearby parking lot.
- **Center for Naval Aviation Technical Training Unit**
  The CNATTU firefighter training school is located in Building 559. The school also uses an adjacent burn pit for hands on training.

BY THE NUMBERS

- 4,600 feet of frontage along Reeves Blvd
- 221 acres

CNATTU firefighter school, Building 559

VISUAL CHARACTER

The visual character of the Joint Use Training District should be compatible with surrounding agricultural lands as well as reflective of its location adjacent to Reeves Boulevard between the Admin and Ops Sides. Elements that will contribute to the District's visual character are illustrated in Figure 115 and include:

- Design new development patterns to enhance and maintain a cohesive district appearance and character.
- Enhance compatibility of development with adjacent agricultural uses.
- Align and construct roadways to be consistent with surrounding character.
- Provide adequate on-site parking that minimizes the visual impacts of parked vehicles.
- Minimize size, bulk, and scale through appropriate roof style and pitch, form and materials, varied setbacks, window treatment and location, and door size and type.
- The architectural design elements and site orientation of new development should be of a high standard and not degrade or conflict with the Installation appearance.
- The area may exhibit a light industrial aesthetic, generally characterized by pitched or gables roofs and metal clad siding.
- Introduce landscape as needed.

FIGURE 115. JOINT USE TRAINING DISTRICT VISUAL CHARACTER

PLANNING CONSIDERATIONS

ISSUES

Key issues that impact operations within the Joint Use Training District are identified below. For a more comprehensive list of issues refer to the Major Shore Capabilities Areas Planning Analysis section.

- **Facility Condition**
  The current firefighter training facility (Building 559) is scheduled for demolition due to condition.

CONSTRAINTS

Natural and manmade constraints have the potential to limit redevelopment opportunities within the District. Constraints that must be considered when siting future projects within the Joint Use Training District are described below.

Manmade Constraints

- **Anti-terrorism/Force Protection (AT/FP)**
  AT/FP standoff distances are required around facilities to limit vehicular access and possible exposure to vehicle bombs and other terrorist threats. Standoffs apply to vehicle parking, roadways, and perimeter fences. These standoffs can have a significant impact on facility siting and vehicle parking.
- **Noise Contours**
  Normal airfield operations generate significant noise impacts. The Joint Use Training District falls in the 75-85 db noise contour. Uses must be compatible with these noise levels.

Natural Constraints

- **Cultural Resources**
  Cultural resources include sites, structures, buildings, or other objects that possess historic or architectural value and integrity. There are currently no historic structures or sites within the District.
- **Seismic**
  There are no significant known active geologic faults in the immediate vicinity of NAS Lemoore. However, the active San Andreas Fault is approximately 50 miles to the west of NAS Lemoore. The Owens Valley Fault group is approximately 80 miles to the east. All facilities at NAS Lemoore must therefore meet specified seismic requirements.
- **Air Quality**
  NAS Lemoore falls within the San Joaquin Valley Air Pollution Control District. In general, California requires pollution control and prevention measures which are more stringent than those mandated by the EPA. NAS Lemoore must comply with Federal, State, and San Joaquin Valley Air Pollution Control District regulations pertaining to air emissions.

ALTERNATIVES

Alternatives were evaluated for key Master Plan opportunities. In some cases alternatives have also been identified for previously developed projects or COAs. These alternatives are summarized below.

Joint Use Training Facility

Fire and security personnel require a training facility to simulate mission activities in an urban environment. Current fire fighting training is conducted in facilities scheduled for demolition or in City of Lemoore-owned training facilities.

1. Construct a new joint use training facility in partnership with local governments and other agencies.

2. Continue to utilize community facilities or facilities scheduled for demolition.

Preferred COA: Construction of a joint use training facility is preferred. The facility would enhance capabilities at NAS Lemoore and is an ideal use for the Joint Use Training District.

SAR Rappel Tower

The NAS Lemoore SAR Unit requires a rappel tower to support their training curriculum. The old Air Ops control tower is currently used for rappel training; however the facility does not meet operational requirements. Two locations have been identified.

1. Construct a rappel tower on the Admin Side.

2. Construct a rappel tower in the Joint Use Training District.

Preferred COA: Constructing the rappel tower in the Joint Use Training District is preferred since it allows for greater use and availability by community partners. Siting will require a thorough analysis of airfield height restrictions. Project P-382 has been developed for the rappel tower.

ILLUSTRATIVE PLAN

The Illustrative Plan provides a graphic representation of the District's possible future based on the vision, desired visual character, constraints, opportunities, known projects, possible future projects, and the guidelines established for each site (see the Regulating Plan in the following section). The Joint Use Training District Illustrative Plan is illustrated in Figure 116.

Joint Use Training design concept with a future rail stop and TOD

FIGURE 116. JOINT USE TRAINING DISTRICT ILLUSTRATIVE PLAN

REGULATING PLAN

The Regulating Plan provides additional guidance on the uses that are permitted within the District, where those uses should be located, and how facilities should be situated on potential sites to align with the Master Plan vision. The Joint Use Training District Regulating Plan is illustrated in Figure 117. Other siting considerations are provided below.

PERMITTED USES

Permitted uses include training facilities and related support functions. Commercial uses would also be permitted around the future commuter rail stop to create a node of activity. Table 38 identifies uses permitted within the District along with the appropriate BES. Building standards were previously defined on page 110. Additional guidance on landscape, street, and building standards are available in the Installation Planning Standards and in the NAS Lemoore IAP.

Appendix D provides a more comprehensive list of permitted uses for each district, including conditional uses that may be permitted under special circumstances.

Table 38. Joint Use Training District permitted uses

CC Group	Description	BES: Light Industrial	BES: Low rise mixed use
171	TRAINING BUILDINGS		
173	TRAINING SUPPORT FACILITIES		
174	IMPACT, MANVR, TRNG AREAS		
179	TRAINING FAC - OTHER THAN BLDG		

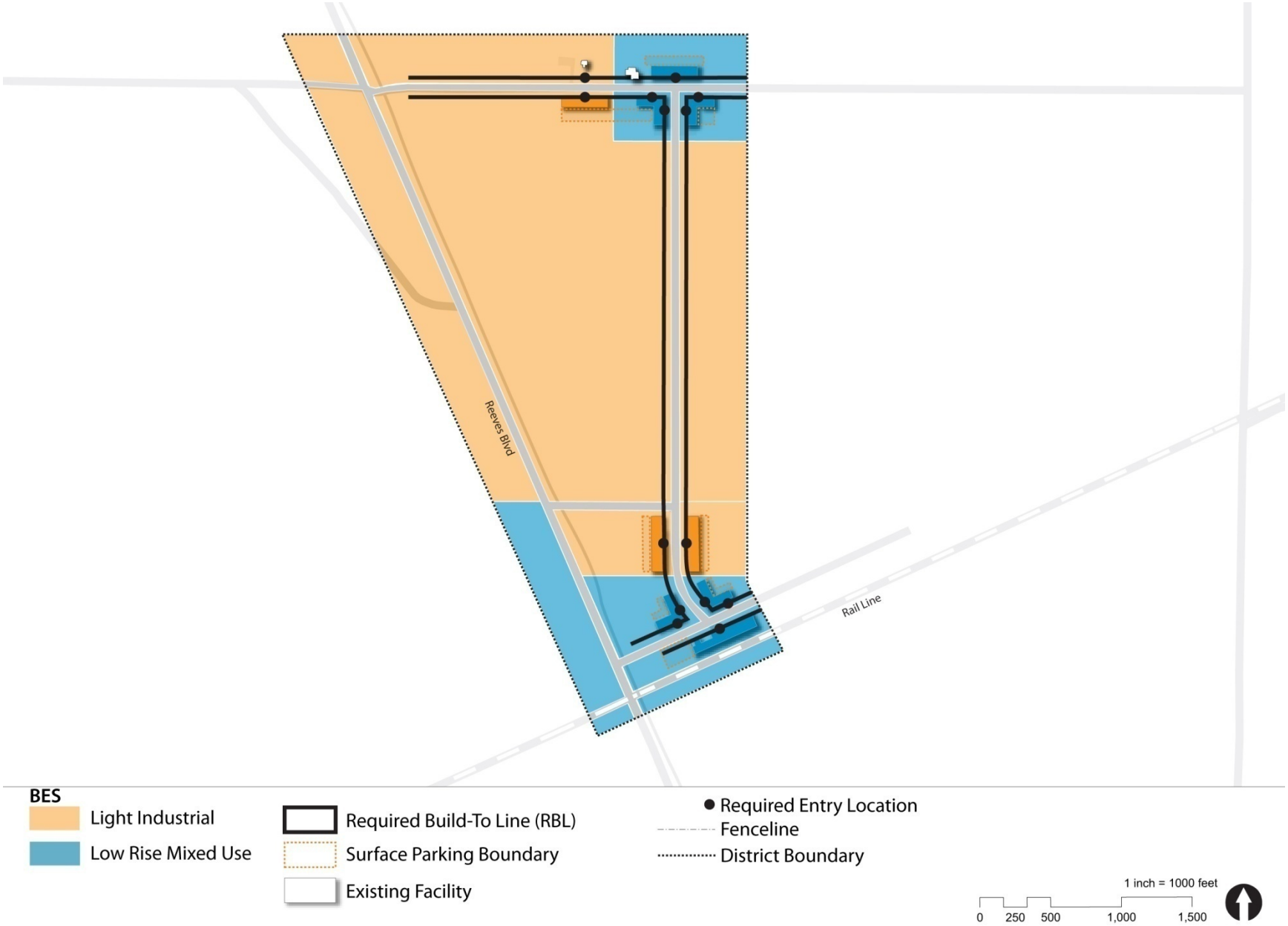


FIGURE 117. JOINT USE TRAINING DISTRICT REGULATING PLAN

DEVELOPABLE AREA AND GROWTH CAPABILITY

The District is generally undeveloped and can support a wide range of training uses.

Developable areas are identified as part of the Regulating Plan in Figure 117. These areas can support the following growth.

- Multiple low rise mixed use facilities near the proposed commuter rail stop. Total square footage will vary based on facility size and scope.
- A 10 acre training compound at the north end of the District. This area can be expanded to accommodate additional training activities.
- Approximately 190 acres of light industrial development.

RESOURCES AND REFERENCES

Operations within the Joint Use Training District must adhere to a number of criteria and guidelines. Appendix C identifies the UFC, manuals, and other resources that should be consulted when planning within the District.

DEVELOPMENT STANDARDS

Development standards provide specific guidance on building orientation, architectural character, relationships between adjacent uses, streetscape conditions, parking placement, and other features that affect the look and feel of a district. These standards should be consulted in conjunction with facility siting and design, roadway projects, pedestrian improvements, and other projects impacting the built environment.

Standards for each BES appear later in the Master Plan and address:

- Building height and scale
- Building siting and placement
- Orientation to adjacent uses
- Location of parking

IMPLEMENTATION PLAN

Projects in the Joint Use Training District establish a regional training center capable of serving NAS Lemoore, the local community, and other agencies.

The Implementation Plan summarized in Table 39 identifies projects within the District. Projects are illustrated in Figure 118 below. Transportation projects occurring within the District are also illustrated (depicted at "TP" projects); information on these projects can be found in the Street and Transit Network Plan.

Table 39. Joint Use Training District implementation plan

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
JUT-1		Construct a joint use training facility	Fire and security personnel require an adequate training facility to simulate performing their missions in an urban environment. Current fire fighting training is conducted in facilities waiting to be demolished or in City of Lemoore-owned training facilities	Training
JUT-2	P382	SAR Multi-Use Training Compound	The NAS Lemoore SAR Unit requires a rappel tower for training.	Training
JUT-3		Commuter rail stop and TOD	If a commuter rail line is established to provide connections with California's high speed rail a new station could be constructed where Reeves Boulevard intersects the current tracks. The station could include a mix of commercial facilities.	

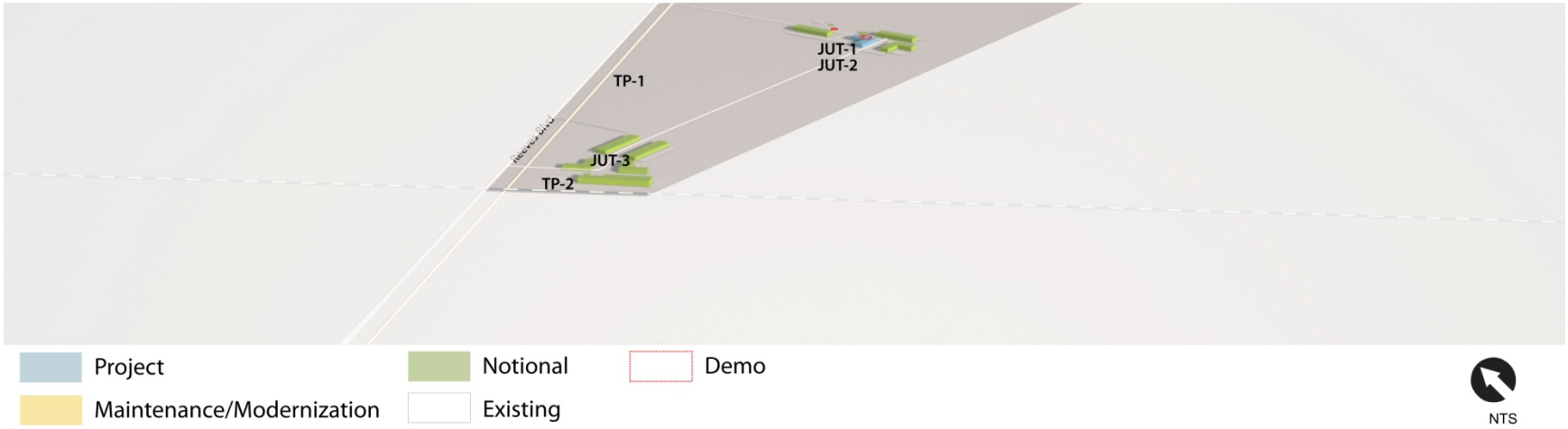


FIGURE 118. JOINT USE TRAINING DISTRICT IMPLEMENTATION PLAN

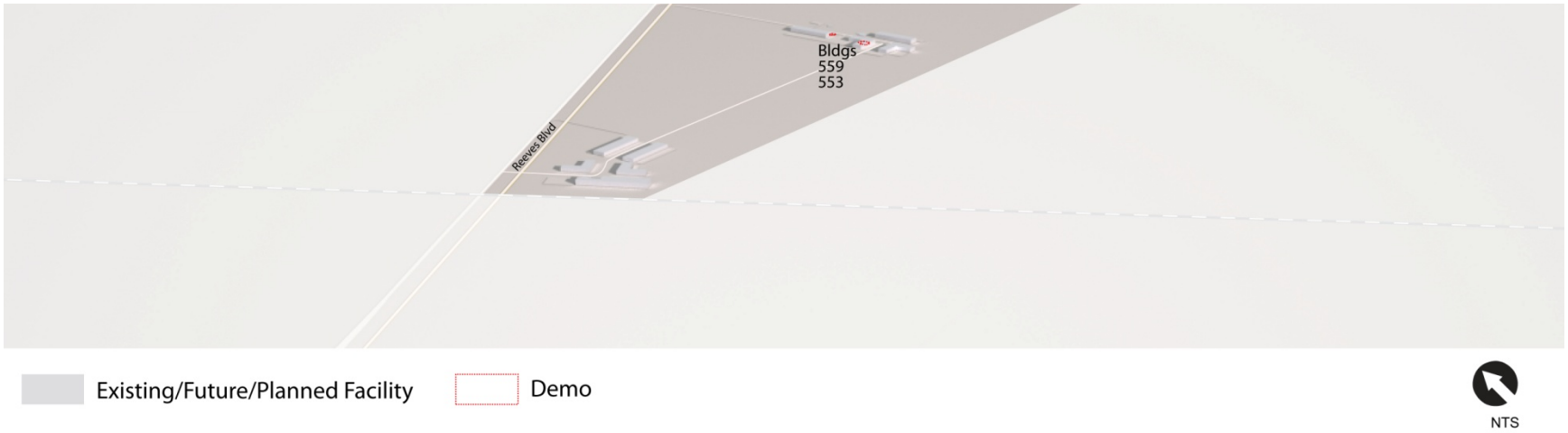


FIGURE 119. JOINT USE TRAINING DISTRICT DEMOLITION PLAN

INSTALLATION NETWORK PLANS

Network Plans illustrate future development of the Installation as a whole and include known, recommended, and notional projects. Installation Network Plans include:

- Illustrative Plan
- Regulating Plan
- Implementation Plan
- Transportation Plan
- Green Infrastructure Plan
- Primary Utility Plan

These Network Plans cross district boundaries and are more appropriate to be considered from an Installation-wide perspective, even though improvements may be implemented with individual projects within each district.

ILLUSTRATIVE PLAN

The Installation Illustrative Plan illustrates planned, recommended, and notional projects across NAS Lemoore. In addition to capturing current and planned projects, the Illustrative Plan provides a sense of how future growth can be accommodated in a manner consistent with the Master Plan vision. The Illustrative Plan is illustrated in Figures 120 and 121.

REGULATING PLAN

The Installation Regulating Plan illustrates how adjacent districts relate to each other by identifying BES requirements for the entire Installation. Regulating Plans for the Admin and Ops Sides are illustrated in Figures 122 and 123.

IMPLEMENTATION PLAN

The Installation Implementation Plan summarizes key COAs supporting the anticipated arrival of F-35C and Master Plan implementation. COA numbers reflect the district or network where they are located. The Implementation Plan is summarized in Table 40 and illustrated in Figures 124 and 125.

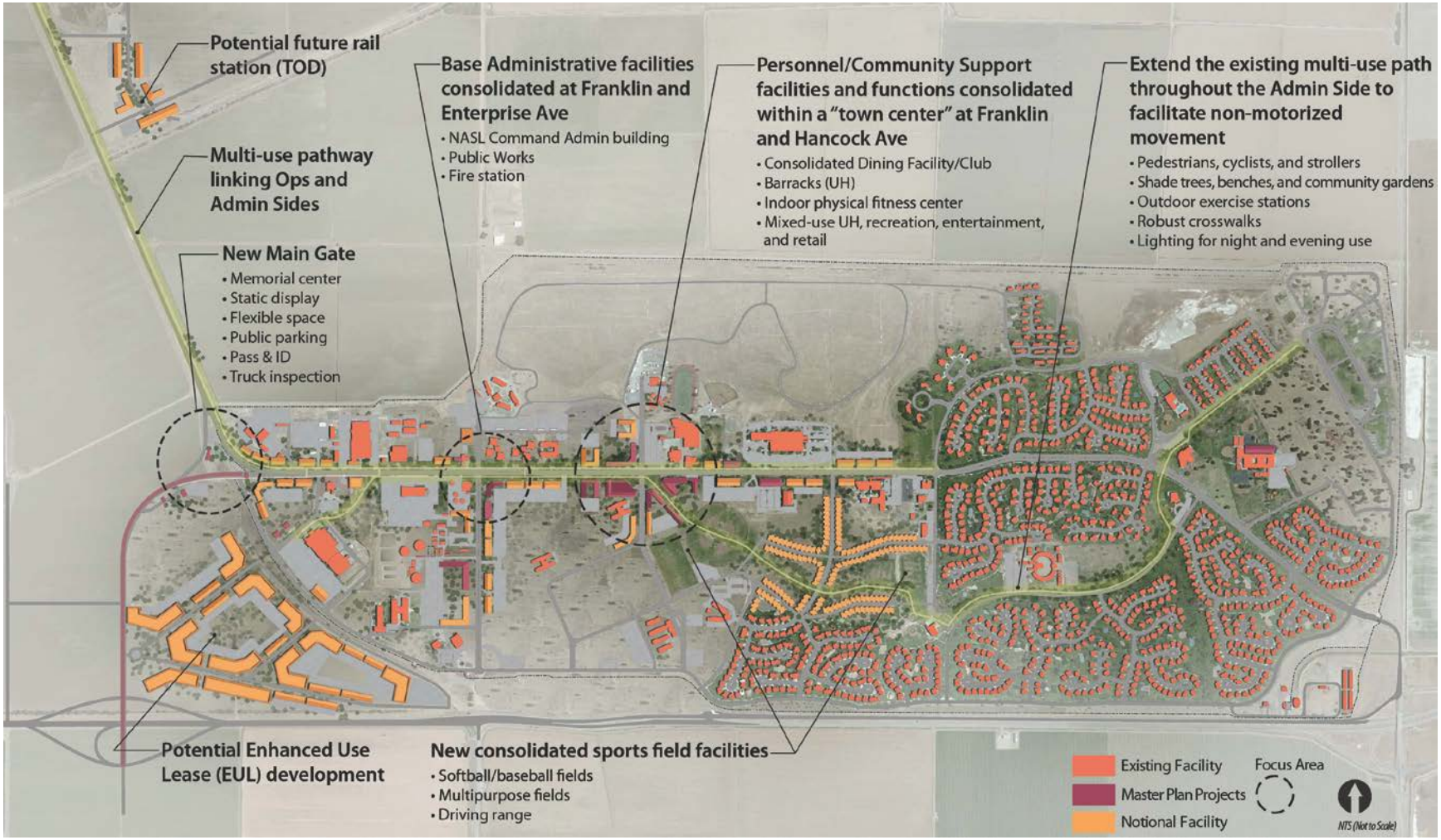


FIGURE 120. INSTALLATION ILLUSTRATIVE PLAN (ADMIN SIDE)

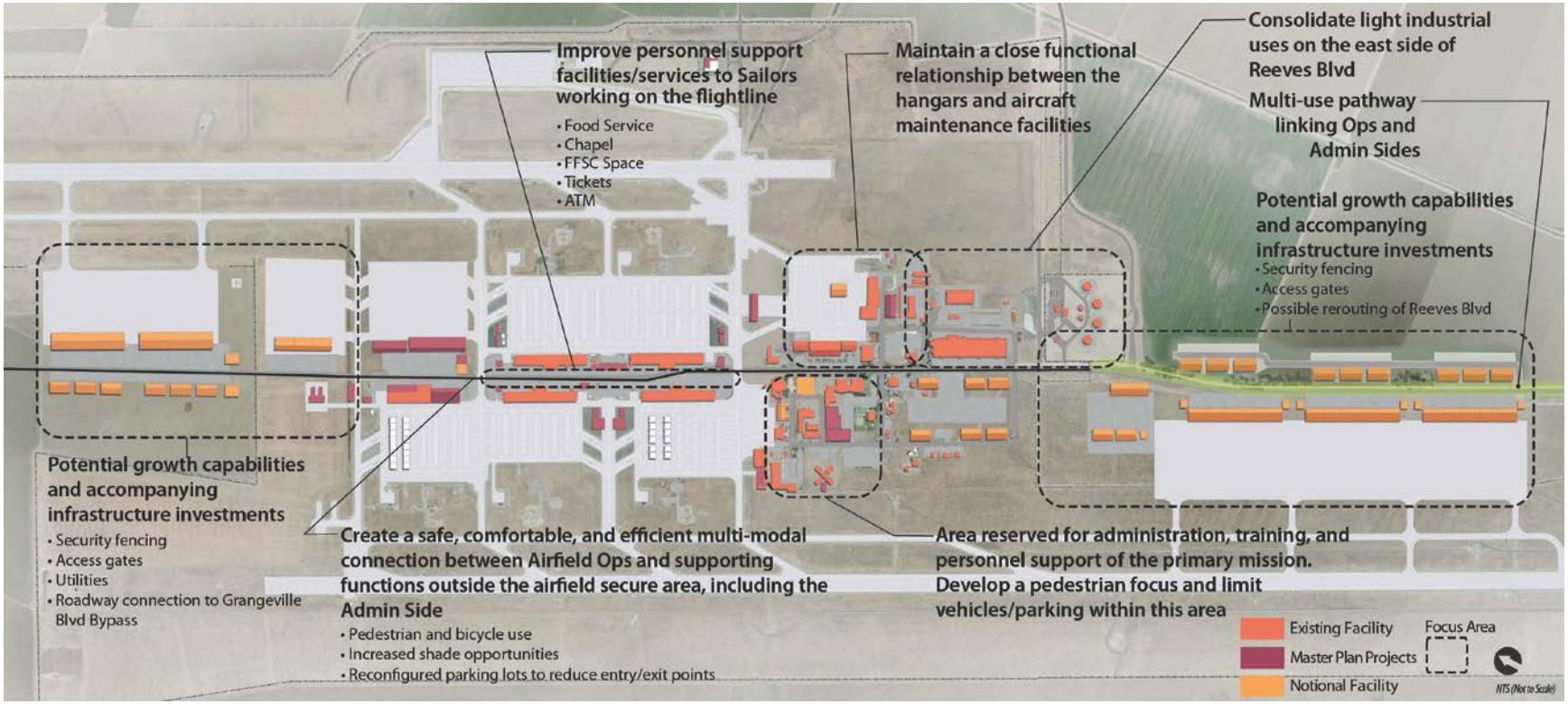


FIGURE 121. INSTALLATION ILLUSTRATIVE PLAN (OPS SIDE)

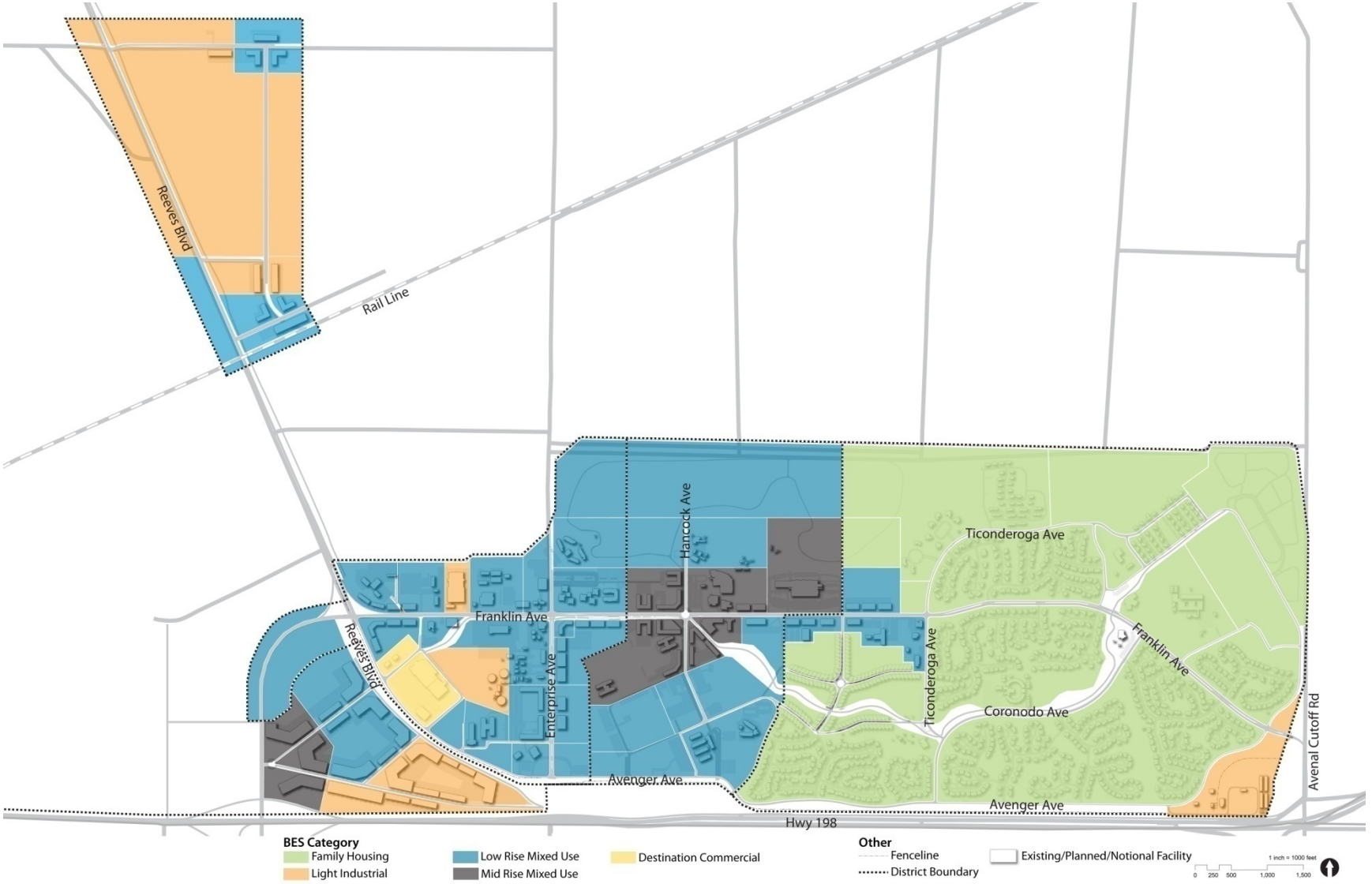


FIGURE 122. INSTALLATION REGULATING PLAN (ADMIN SIDE)

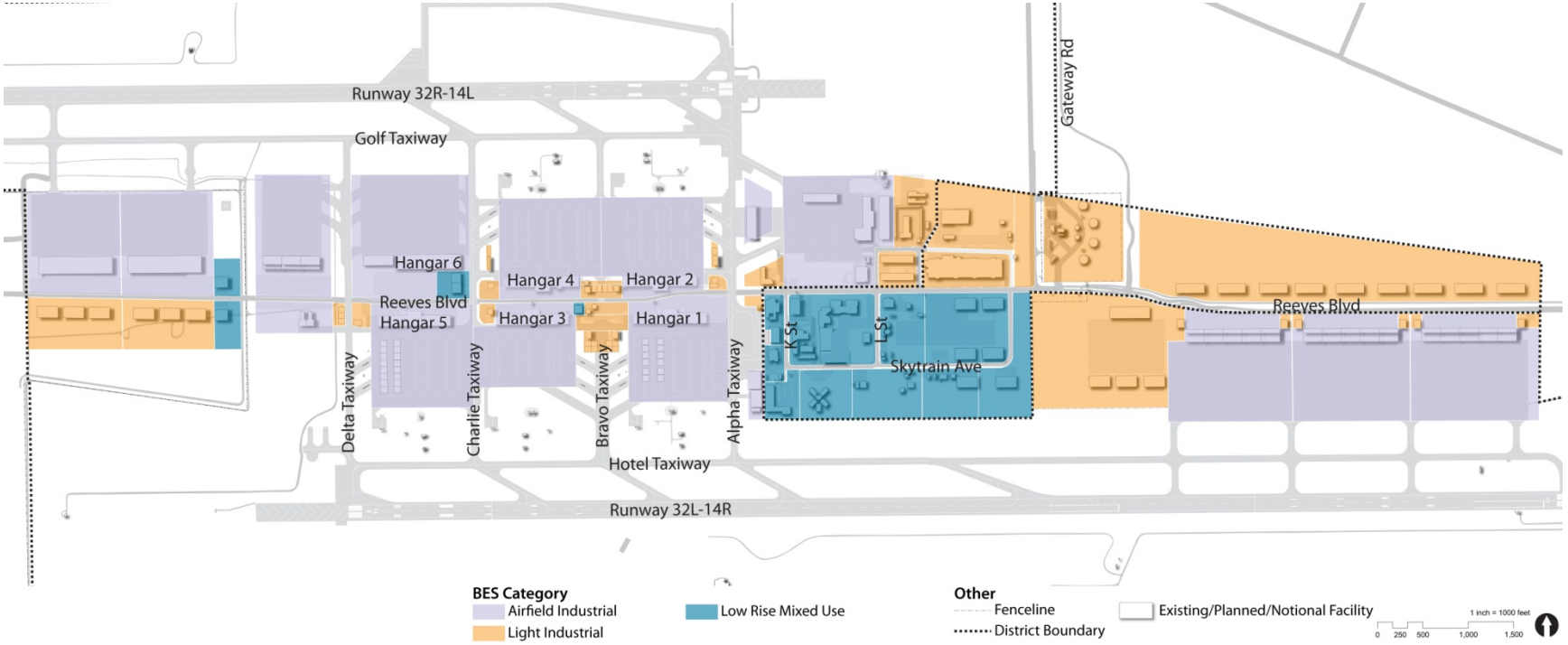


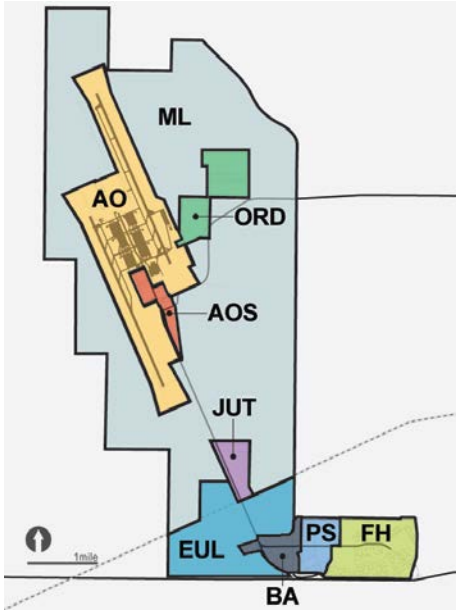
FIGURE 123. INSTALLATION REGULATING PLAN (OPS SIDE)

Table 40. NAS Lemoore implementation plan

	Master Plan COA No.	Project No.	Project Title
F-35C Projects	AOS-6	P327A	F-35C Academic Training Facility
	AOS-4	P327	F-35C Operational Training Facility
	AO-10	P328	F-35C Facility Addition and Modification (Hangar 5)
	AO-9	P378	F-35C FRS Hangar 5 Additions and Modifications
	AO-5	P218	RTO and Mission Debrief Facility
	AOS-5	P379	F-35C PTC Phase II Bldg 43 Modifications
	AO-4	P380	F-35C Engine Repair and Pilot Fit Facility
	AO-2	P284	F-35C Fleet Hangar 6 Aircraft Maintenance Hangar
	AOS-2	P385	F-35C Admin Dept
	TP-17	P381	Ops Parking Expansion
	AOS-3	P386	F-35C Weapons School Training Facilities
	AO-20	P351	F-35C Facility Upgrade and Addition (Hangar 3)
	AO-21		F-35C Response Team Space
Master Plan Priority Projects	AO-28	P282	F/A-18 Avionics Repair Facility Replacement
	AO-25	P059	Corrosion Control Hangar
	TP-11		Ops Side Pedestrian Improvements and Parking Reconfiguration
	AO-26		Ops Side Fire Station Upgrade
	AO-15	P242	Flightline Dining and Personnel Support Facility
	AOS-7	P377	Addition to Bldg 30 for CVW-14 Restoration
	AOS-1	RM11-95	Renovate Air Ops Building (Bldg 1) and Construct Adjacent Annex
	ORD-1	P276	Replace Missile Maintenance/Assembly Building
	BS-8		Admin Side Fire Station Upgrade
	TP-3		Construct New Main Gate with Pass and ID at Reeves and Franklin
	PS-2		Replace Admin Side Galley and Clubs with Consolidated Facility
	PS-9	P358	Aviation Survival Training Center Replacement
	PS-10	P366	NAVOPSPTCEN Lemoore
	PS-3 / PS-5		Construct Mixed-Use UH, Recreation, and Retail Facilities at Admin Side
	FH-6 / FH-7		Upgrade Karen Mechem Park and Relocate RV Park
	JUT-1 / JUT-2	P382	SAR Multi-Use Training Compound
	TP-1	P326	Commuter Bikeway
	TP-6		Extend Family Housing Multi-Use Path Throughout Admin Side

Districts and Networks

AO Airfield Ops
AOS Airfield Ops Support
BA Base Administration
EUL Enhanced Use Lease
ES Energy Sustainability
FH Family Housing
GI Green Infrastructure
JUT Joint Use Training
ML Managed Lands
ORD Ordnance
PS Personnel Support
PU Primary Utility
TP Transportation Plan



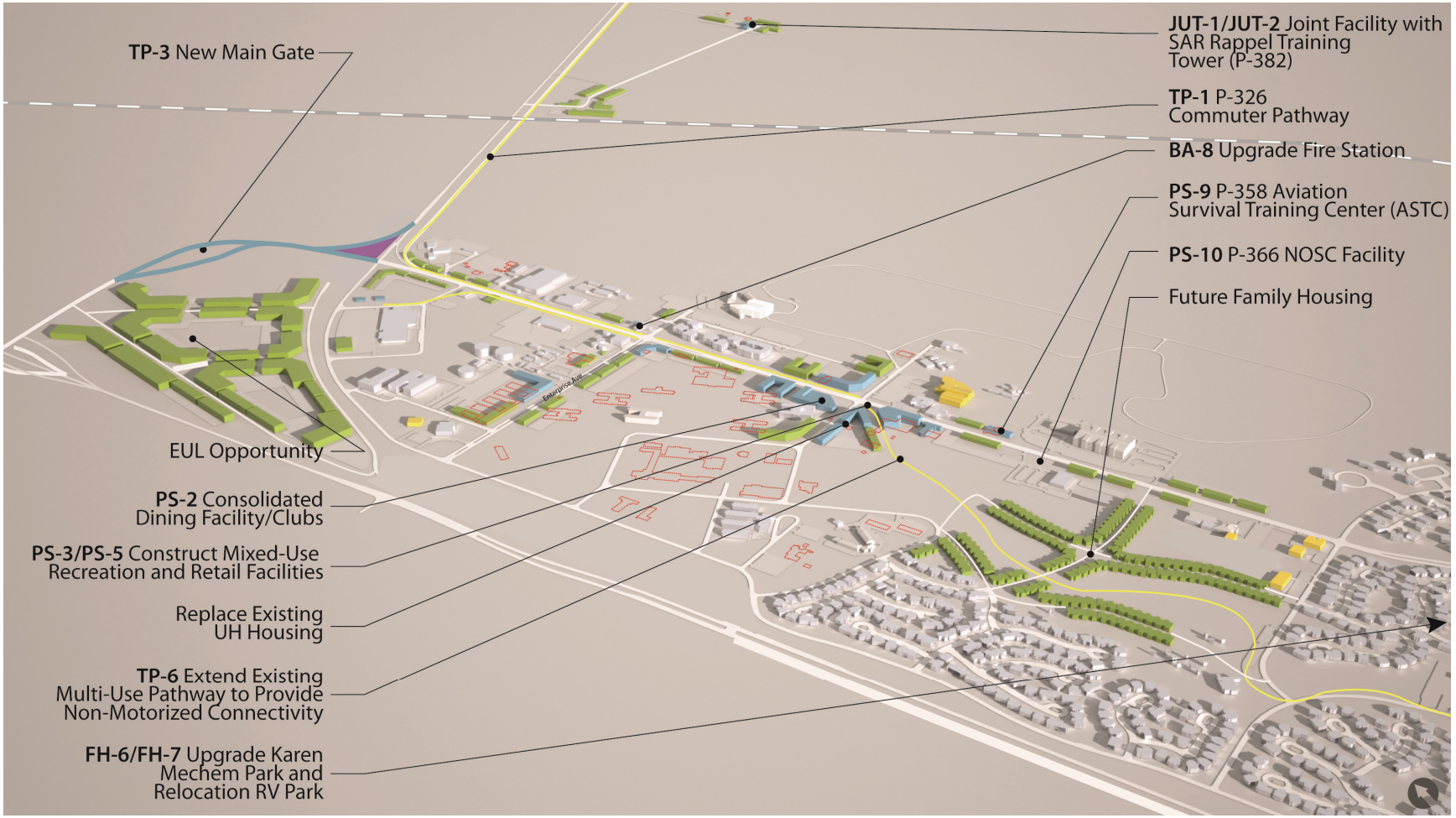


FIGURE 124. INSTALLATION IMPLEMENTATION PLAN (ADMIN SIDE)

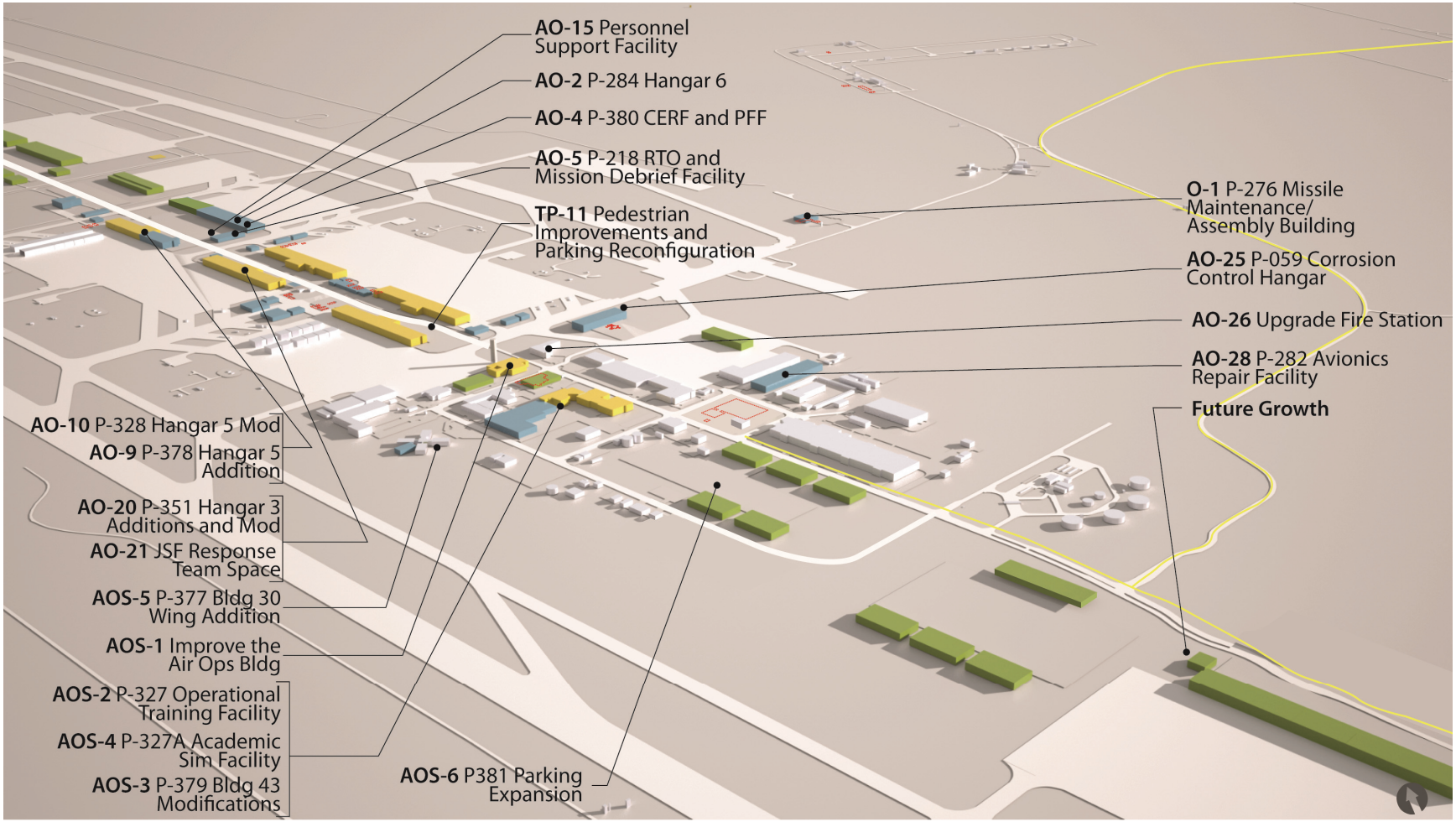


FIGURE 125. INSTALLATION IMPLEMENTATION PLAN (OPS SIDE)

TRANSPORTATION PLAN

NAS Lemoore's street and transit system is unique in that it not only supports circulation within the Admin and Ops Sides, but also provides a five mile public roadway between the two operating areas. Many other Navy installations operate at multiple sites, however it is rare that the Navy owns and operates the connecting roadways. Traffic utilizing Reeves Boulevard between both Sides is predominately NAS Lemoore traffic.

The existing pedestrian and bicycle system is varied, with an extensive pathway system near family housing and virtually no sidewalks along the flightline. NAS Lemoore streets and roadways serve a variety of users and functions. Roads within family housing support relatively small traffic volumes and slow travel speeds, while Reeves Boulevard has a speed limit of 55 MPH and carries a continuous stream of vehicles between the Admin and Ops Sides.

NETWORK VISION

GOALS AND OBJECTIVES

Planning goals and objectives for the Transportation Network are summarized below.

- Provide a safe and efficient network between destinations for pedestrians and bicyclists.
- Increase shuttle ridership between the Admin and Ops Sides.
- Reduce the number of single occupant vehicles driving to and parking on the flightline.

STANDARDS

Pathway and roadway standards are included in the Installation Planning Standards section of the Master Plan. Additional guidance on roadway width, parking lot configuration, paving types, and other elements related to streets and pathways can be found in the NAS Lemoore IAP.

BY THE NUMBERS

- 120 miles of roadway
- Five miles between the Admin and Ops Sides
- 12,900 parking spaces on the Admin Side
- 8,200 parking spaces on the Ops Side
- Approximately 3,600 vehicles travel between the Admin and Ops Sides in each direction every day
- Approximately 1,200 vehicles enter the Ops Side from Grangerville Blvd each weekday

Note: The number of parking spaces was estimated using the total surface area designated as parking and a planning standard of 325 SF per space.

PLANNING CONSIDERATIONS

ISSUES

The following issues were identified through stakeholder interviews, field work, and an evaluation of regional transportation initiatives.

- Shuttle service does not operate in the Family Housing Area. The closest stop is at the Naval Hospital which is a little more than 1/2 mile (10 minute walk) from the middle of family housing.
- The current shuttle is expensive for NAS Lemoore to operate and has low ridership. The shuttle is primarily setup for single Sailors living in UH. Currently the parking at the hangars is unrestricted so there is no incentive for Sailors to ride the shuttle.
- A truck turn-around is needed at the Family Housing gate since truck access is unavailable at this location and delivery trucks periodically confuse this gate as the Main Gate (Google maps identifies the Family Housing gate as NAS Lemoore).
- Truck parking is needed in the area of Pass and ID since this is where paperwork is issued for base access.
- Parking immediately around the Ops Side galley, clinic, gym, and Building 1 is limited.
- The programmed security enclave around the airfield will require an additional security gate (Post 3A) located just north of K Street. It is anticipated that the time needed to process the security checks will cause traffic queues to form along the northbound side of Reeves Boulevard in advance of the security gate. These vehicle queues may block the intersection of L Street and access to Skytrain Avenue.
- Once Post 3A is operational, parking on the flightline will be limited to 75 vehicles per squadron.
- Parking capacity in front of individual hangars has been an on-going issue. The number of existing parking spaces on the flightline (2,600 or 162 per squadron) meets the requirement. However, the spaces are poorly configured and in some cases not conveniently located immediately adjacent to the hangars.
- Access to and from the Main Gate will be impacted if SR 198 is expanded to four lanes along the southern boundary of NAS Lemoore, as is currently being planned by the State. It is anticipated that an overpass will be needed to provide access. There is not sufficient site area around the existing Main Gate for an overpass.
- The only way to travel between the Admin and Ops Sides is by vehicle. Bicycles are prohibited from traveling on Reeves Boulevard due to safety concerns.
- Safe pathways for young people living on NAS Lemoore are needed between family housing and key destinations in the Personnel Support District.
- The lack of safe and efficient pathways in some parts of the Installation results directly in increased use of vehicles, even for short trips.
- As concluded in the NAS Lemoore Airfield Redevelopment Plan, pedestrian mobility needs to be improved on the Ops Side and in particular along the flightline. Sidewalks are nonexistent around the hangars and current parking configurations create multiple driveway crossing for pedestrians walking along Reeves Boulevard.

OPPORTUNITIES

Opportunities were identified to address issues and improve the NAS Lemoore roadways, transit, pedestrian, and biking network.

- Utilization of existing parking near Hangar 5 and the overflow lot near Building 140 might be increased by improving pedestrian and bicycle facilities in the area. Space is available to expand the existing lot near Building 140.
- Enterprise Avenue provides excess capacity with its current four lane alignment. Reducing the number of through lanes to two (one in each direction) creates opportunities for other improvements, including bike lanes, on street parking, and/or an expanded median. Roadway reduction also has the potential to reduce maintenance costs.
- A consolidated Main Gate and truck inspection could be constructed near the intersection of Reeves Boulevard and Franklin Avenue. The existing truck inspection gate would be closed, reducing the number of manned gates. Developable area exists in this area to accommodate a highway overpass, which would be required in conjunction with the planned SR 198 expansion.
- A rail line exists through NAS Lemoore between the Ops and Admin Sides that connects to the future California high speed rail line. As a long-term consideration, a commuter rail connection could be located at the intersection of Reeves Boulevard and the existing rail line to serve personnel that commute to the Installation during the week as well as military personnel and families traveling away from the Installation on weekends.
- Excess parking encourages single occupancy vehicles, contributes to the 'heat island' effect, and increases water run-off. Opportunities may exist to reduce the amount of parking maintained by NAS Lemoore.
- A pathway currently exists through the middle of family housing and connects the equestrian center and Karen Mechem Park, elementary schools, and community centers. This corridor can be extended through undeveloped areas in the center of the Admin Side (Jackrabbit Field) to connect family housing and activity centers in the Personnel Support District with a safe, multi-use pathway. Other uses can be incorporated along the pathway, including sports courts, exercise stations, picnic areas, seating, and community gardens.
- A 2.4 mile unimproved jogging track currently exists in the undeveloped area north of the gym. Additional jogging routes can be incorporated with pedestrian routes and multi-use paths through the Admin Side. These routes would promote healthy lifestyles within family housing while allowing single Sailors to enjoy the neighborhood environment within the housing area.
- The number of van and carpools driving onto the flightline might be increased by offering additional incentives, including a dedicated lane at Post 3A and designated parking spots near the hangars. There is currently no incentive to form van and carpools.
- The Transportation Incentive Program (TIP) provides financial assistance to cover the cost of transit fares and vanpools. All active duty and federal civilian employees are eligible. This program does not appear to be fully leveraged at NAS Lemoore and could be used to set up low or no cost vanpools for personnel working on the flightline.
- Circulation within the flightline might be improved with a dedicated shuttle that runs between Post 3A and Hangar 5. This shuttle would not exit the Level Two security area.

ALTERNATIVES

Alternatives were identified for key Master Plan opportunities. These alternatives are summarized below.

Admin Side Main Gate

All visitors and deliveries to NAS Lemoore are required to stop at Pass and ID to obtain paperwork required for entry to the Installation. The existing facility size limits service to no more than two visitors at a time. Additionally, the site configuration does not allow efficient or safe truck parking. There are currently four manned gates into the Admin Side, including the Main Gate, the Truck Inspection Gate, the Reeves Gate, and the Family Housing Gate. Manning multiple gates is inefficient and costly for the Installation (RIP COA 134).

Two alternatives have been identified.

1. Retain the four existing gates and make improvements at the Main Gate to include truck parking and an addition to the Pass and ID facility. ATFP issues will remain.

2. Construct a new Main Gate and 1,592 square foot Pass and ID facility at Reeves Boulevard and Franklin Avenue. Truck inspections would be accommodated at the gate.

Preferred COA: Construct a new Main Gate to address ATFP shortfalls and create efficiencies by allowing one existing manned gate to be closed. The figure to the right illustrates a concept for the new Main Gate, traffic flows and controls will need to be analyzed as the design progresses.

The location of the new gate allows an overpass to be constructed on SR 198. An overpass will be required to provide base access if SR 198 expands to a four lane highway.

Opportunities exist to incorporate public spaces with the new Main Gate, including a static display park, a museum or memorial, and a flexible space for ceremonies, media engagements, a farmers market, and other events.

FIGURE 126. PROPOSED NEW MAIN GATE AT ADMIN SIDE

Enterprise Avenue Configuration

With four lanes Enterprise Avenue provides excess capacity for current traffic volumes. Traffic levels would decrease further if the Main Gate is relocated to Reeves Boulevard and Franklin Avenue. Reducing the number of through lanes to two (one in each direction) creates opportunities for other improvements, including bike lanes, on street parking, and/or an expanded median which would reduce the recurring costs associated with maintaining the roadway.

Two alternatives have been identified.

1. Reduce the number of travel lanes and convert this space to on street parking, bikes lanes, and/or a wider median.

2. Retain the current configuration with two travel lanes in each direction.

Preferred COA: Reduce the number of travel lanes to bring the roadway into alignment with actual traffic volumes.

Potential Enterprise Avenue reconfiguration

Reeves Boulevard Multi-use Path

Driving is currently the only option for traveling between the Admin and Ops Sides. Stakeholders have indicated a strong desire to construct a pathway between the two Sides for pedestrian and bicycle traffic. Base policy currently prohibits pedestrians and cyclists along the portion of Reeves Boulevard due to safety concerns.

Two alternatives have been identified.

1. Status quo. Personal vehicles and the NAS Lemoore shuttle will continue to be the only options for commuting between the Admin and Ops Sides.

2. Construct a multi-use path parallel to Reeves Boulevard.

Preferred COA: A multi-use path between the Admin and Ops Sides has broad support from a variety of stakeholders. The pathway reduces traffic volumes on Reeves Boulevard and parking demand along the flightline while providing healthy transportation options to NAS Lemoore personnel. The path would also provide a connection between regional bike routes. A rest station could be included within the Joint Use Training District, which is approximately halfway between the Admin and Ops Sides.

Potential multi-use pathway between the Admin and Ops Sides

Ops Side Gate

The straight alignment of Reeves Boulevard at the Ops Side Gate creates security concerns as it allows vehicles to approach the gate at high speeds. The current capacity with three inbound lanes can also create lengthy backups during peak morning times.

Three alternatives have been identified.

1. Status quo. Maintain the current roadway alignment and gate configuration.

2. Realign Reeves Boulevard to connect with Gateway Road further to the east. This would require northbound drivers to make a left on Gateway and a right on Reeves.

2. Realign Reeves Boulevard as it approaches the Ops Side Gate to reduce vehicle speeds. Additional inbound lanes can be added to meet requirements.

Preferred COA: Realigning Reeves Boulevard as it approaches the gate is preferred since it improves security with the least amount of roadway construction.

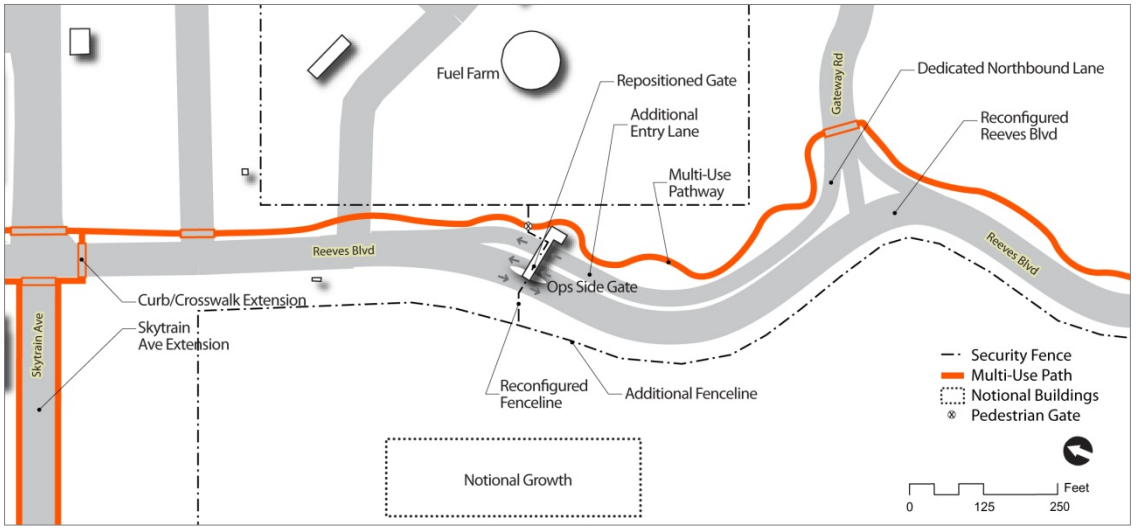


FIGURE 127. OPS SIDE GATE RECONFIGURATION

Flightline Non-motorized Circulation

Pedestrian routes are limited along the flightline, forcing pedestrians to walk along the edge of Reeves Boulevard or weave their way through parking lots. This creates unsafe conditions, especially where walkers must cross multiple parking lot entrances and exits along Reeves.

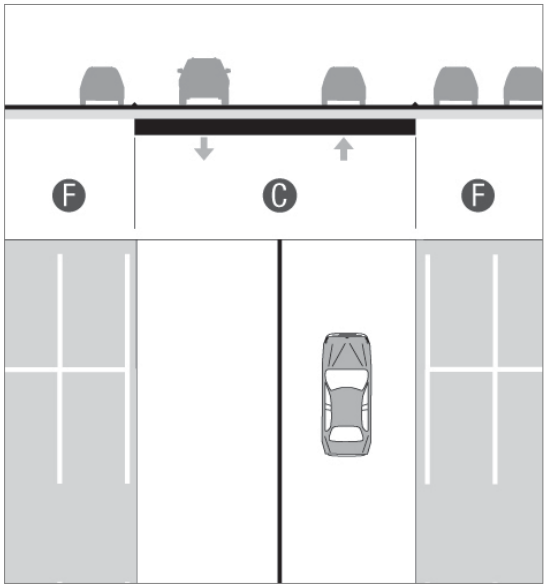
Three alternatives have been developed. Each alternative includes the reconfiguration of existing parking lots to reduce the number of driveways opening onto Reeves Boulevard as well as designated pedestrian crossings and the location of shuttle stops at the crossings. Sufficient street width exists to provide the paths without impacting traffic flow.

1. Designate a pathway along one side of Reeves Boulevard separated from the street with a curb. Sufficient street width exists to provide the path without impacting traffic flow.

2. Designate an eight foot wide pedestrian path on both sides of Reeves Boulevard. Raised sidewalks are not required; however the paths can be separated from the street with a curb.

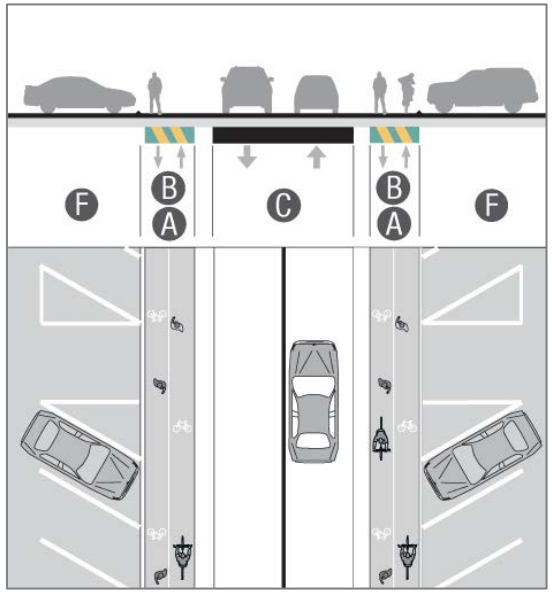
3. Utilize the existing fire lanes along hangars for pedestrian movement and provide improved connections with crosswalks on Reeves Boulevard and sidewalks going underneath Alpha and Charlie Taxiways.

<u>Preferred COA:</u> Designate multi-use pathways along Reeves Boulevard.

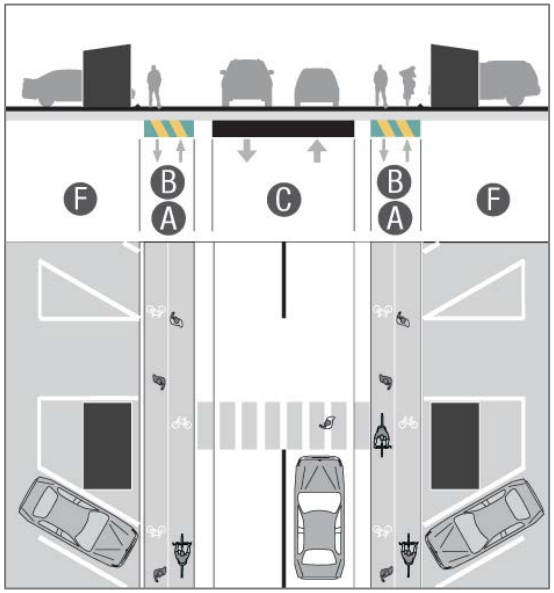


A. Bikeway
B. Sidewalk
C. Roadway
F. Parking
Note: Configurations for Planning Purposes Only

Existing configuration of Reeves Boulevard and adjacent parking lots



Multi-use pathways along Reeves Boulevard



Multi-use pathway along Reeves Boulevard with shuttle stop and crosswalk

Ops Side Campus Improvements

The area around K Street is a high pedestrian activity area with personnel accessing Building 1, the galley, the clinic, and the gym. Through traffic also exists with pedestrians traveling from the flightline to the Weapons School and Simulator Buildings. Limiting parking and vehicular traffic in this area will improve the pedestrian environment as well as create opportunities for future growth that requires close proximity to the flightline.

Preferred COA: Create a pedestrian environment with safe walkways. Move parking out of the core area and limit vehicle access to essential personnel and vehicles.

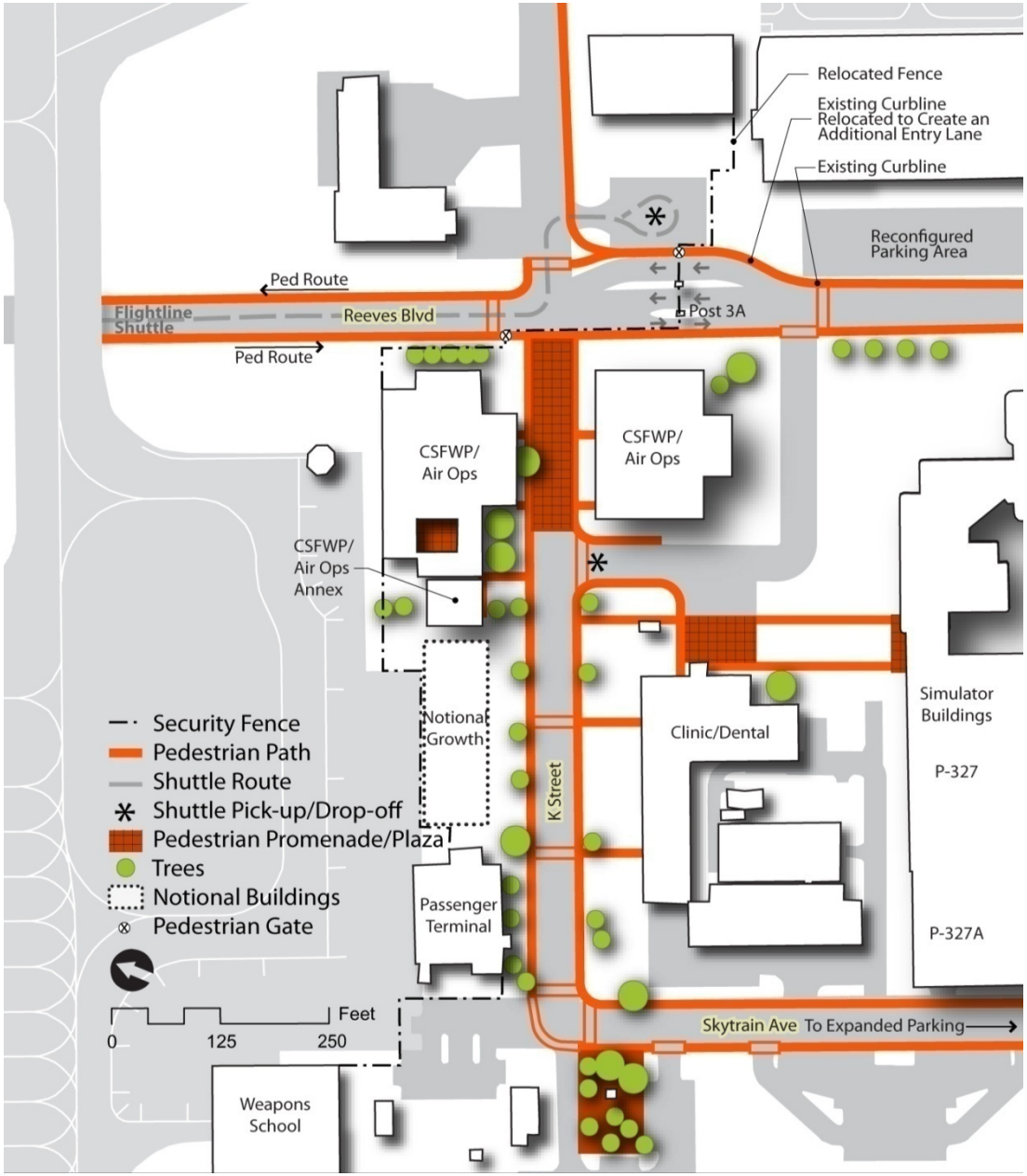


FIGURE 128. AIRFIELD OPS SUPPORT DISTRICT PEDESTRIAN IMPROVEMENTS

Post 3A Configuration

Standup of Post 3A is expected to generate traffic delays on Reeves Boulevard as vehicles queue up at the checkpoint. Post 3A is currently designed with one inbound travel lane. Inbound pedestrians must pass the guard shack to have their badge scanned by security personnel. Outbound pedestrians can use an exit only turnstile on the west side of Reeves Boulevard.

Two alternatives have been identified for the configuration of Post 3A.

1. Retain the existing configuration with one inbound and one outbound vehicle lane.

2. Reconfigure the gate and surrounding site to provide a second inbound vehicle lane. A second travel lane would eliminate some adjacent parking at Building 180; however the oversized ATFP standoff on the west side of Building 180 could be converted into parking to offset the loss. A turnstile for inbound pedestrians would also be provided.

<u>Preferred COA:</u> Providing a second inbound travel lane increases throughput capacity and reduces backups. The second lane could handle all traffic, or it could be designated for the NAS Lemoore shuttle, carpools, vanpools, and cyclists to provide an incentive for personnel who choose not to drive alone.

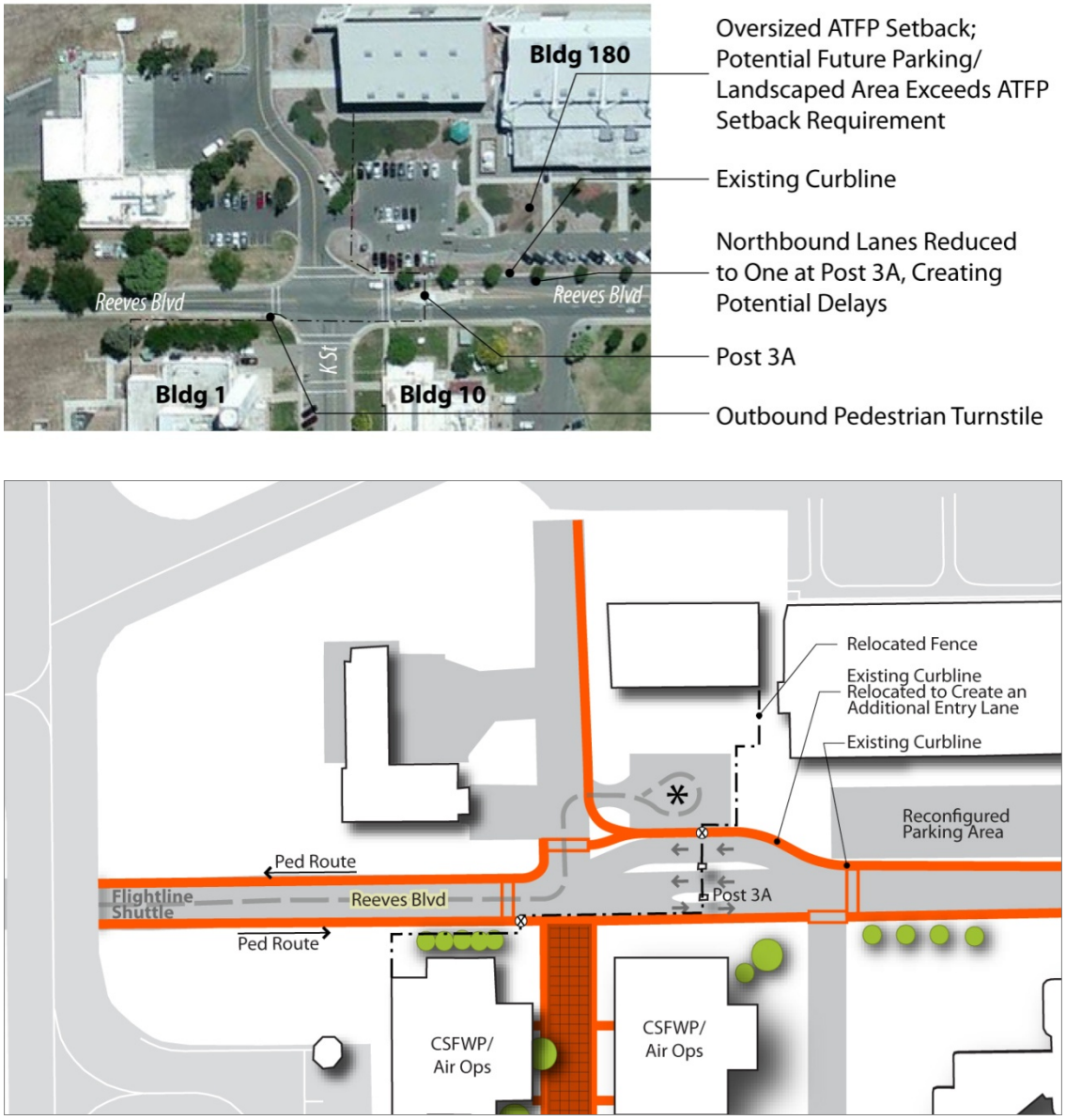


FIGURE 129. POST 3A GATE RECONFIGURATION

IMPLEMENTATION PLAN

Transportation Plan COAs improve safety, efficiency, and sustainability at NAS Lemoore. COAs include projects and physical improvements, as well as policies designed to reduce vehicle trips and single occupant vehicles. COAs are summarized in Table 41 and illustrated in Figures 130 through 132 below.

The plans illustrate existing conditions, as well as proposed improvements. Corresponding street standards can be found in the Installation Planning Standards.

Table 41. Transportation implementation plan

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
TP-1	P326	Commuter Bikeway	Constructs a multimodal path along Reeves Boulevard between the Admin and Ops Sides. Sufficient right-of-way exists along Reeves Boulevard for construction of the path. The existing right of way (include gravel shoulders) between the Admin and Ops Sides is approximately 40 feet.	
TP-2		Commuter rail connection	Constructs a rail stop where Reeves Boulevard and the rail line intersect. The project could be constructed as an EUL and could include a variety of uses, including commercial.	
TP-3		New Main Gate and Pass and ID	Constructs a new Main Gate and 1,592 SF Pass and ID facility at Reeves Boulevard and Franklin Ave. Truck inspection facilities are included, allowing the existing truck gate to be closed. Public spaces are provided outside the gate for a static display park, museum or memorial, and public gatherings.	Base Support
TP-4		SR 198 interchange	Constructs a new highway interchange in conjunction with expansion of SR 198. Note this project would be constructed by the State.	
TP-5		Enterprise Ave reconfiguration	Reduces the number of travel lanes from four to two. This reduction provides space for on street parking, bike lanes, wider sidewalks, or other improvements.	
TP-6		Multi-use pathway extension throughout Admin Side	Extends the existing multi-use path from the Family Housing District to the rest of the Admin Side. The path provides a non-motorized connection between key destinations as well a key organizational element for the redevelopment of the Admin Side	
TP-7		Admin Side pathway system	Constructs additional pathways to improve pedestrian circulation, provide alternatives to vehicular transportation, and connect personnel and families with key destinations throughout the Admin Side.	
TP-8		Develop a truck parking area at Pass and ID	Constructs a short-term parking area at Pass and ID for truck drivers who need to acquire paperwork before entering the Installation.	Base Support
TP-9		Family Housing Gate truck turnaround	Constructs a truck turnaround for trucks that mistakenly try to access NAS Lemoore via the Family Housing Gate. Signage should also be improved along SR 198 and Avenal Cutoff Road to more effectively direct trucks toward the Main Gate.	Base Support
TP-10		Regional bike trail extension	Create connections with regional bike trails at the Admin and Ops Sides.	

Table 41. Transportation implementation plan (continued)

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
TP-11		Flightline pedestrian improvements	Provides a multi-use pathway to provide a safe walking environment and improve efficiency for personnel walking or biking between destinations on the Ops Side. Existing POV parking around the hangars is reconfigured to reduce the number of parking lot entrances that pedestrians must cross.	Airfield Ops
TP-12		Flightline circulator shuttle	Operates a circulator shuttle between Post 3A and Hangar 5. The circulator will serve personnel who walk onto the flightline from parking lots outside Post 3A. Since the circulator only runs along the flightline it will not be subject to delays at Post 3A.	Airfield Ops
TP-13		Car and vanpool policies	Provide incentives for flightline personnel to commute via can and vanpools. Incentives may include preferred parking near their hangar or expedited access through Post 3A.	
TP-14		Ops Side pedestrian campus	Provides an improved pedestrian environment in the core area with new street crossings, enhanced pedestrian spaces, a shuttle stop, increased landscaping, and reduced traffic.	
TP-15		Post 3A improvements	Modifies Post 3A to provide a second access lane. Oversized ATFP setbacks in front of Building 180 or converted to parking to offset parking eliminated as a result of the new travel lane.	
TP-16		Shuttle passenger stop outside Post 3A	Establishes a shuttle stop outside Post 3A near Building 1. This shuttle stop allows personnel to walk onto the flightline and avoid potential backups at Post 3A.	Base Support
TP-17	P381	Ops Parking Expansion	Expands the existing parking lot on the west side of Reeves Boulevard. The lot will serve personnel who do not have parking privileges on the flightline as well as those who choose to walk to the flightline to avoid backups at Post 3A.	Airfield Ops
TP-18		Skytrain Avenue extension south toward the Ops Side Gate	Connects the southern terminus of Skytrain Avenue with Reeves Boulevard to provide an alternate route for personnel accessing the Weapons School, Carrier Air Wing, Air Ops, and other nearby facilities. Standup of Post 3A is expected to create backups on Reeves Boulevard and this roadway expansion provides a bypass.	Airfield Ops Support
TP-19		Ops Side Gate Reconfiguration	Realign Reeves Boulevard to reduce traffic speeds as vehicles approach the Ops Side Gate. Additional inbound capacity can also be provided.	

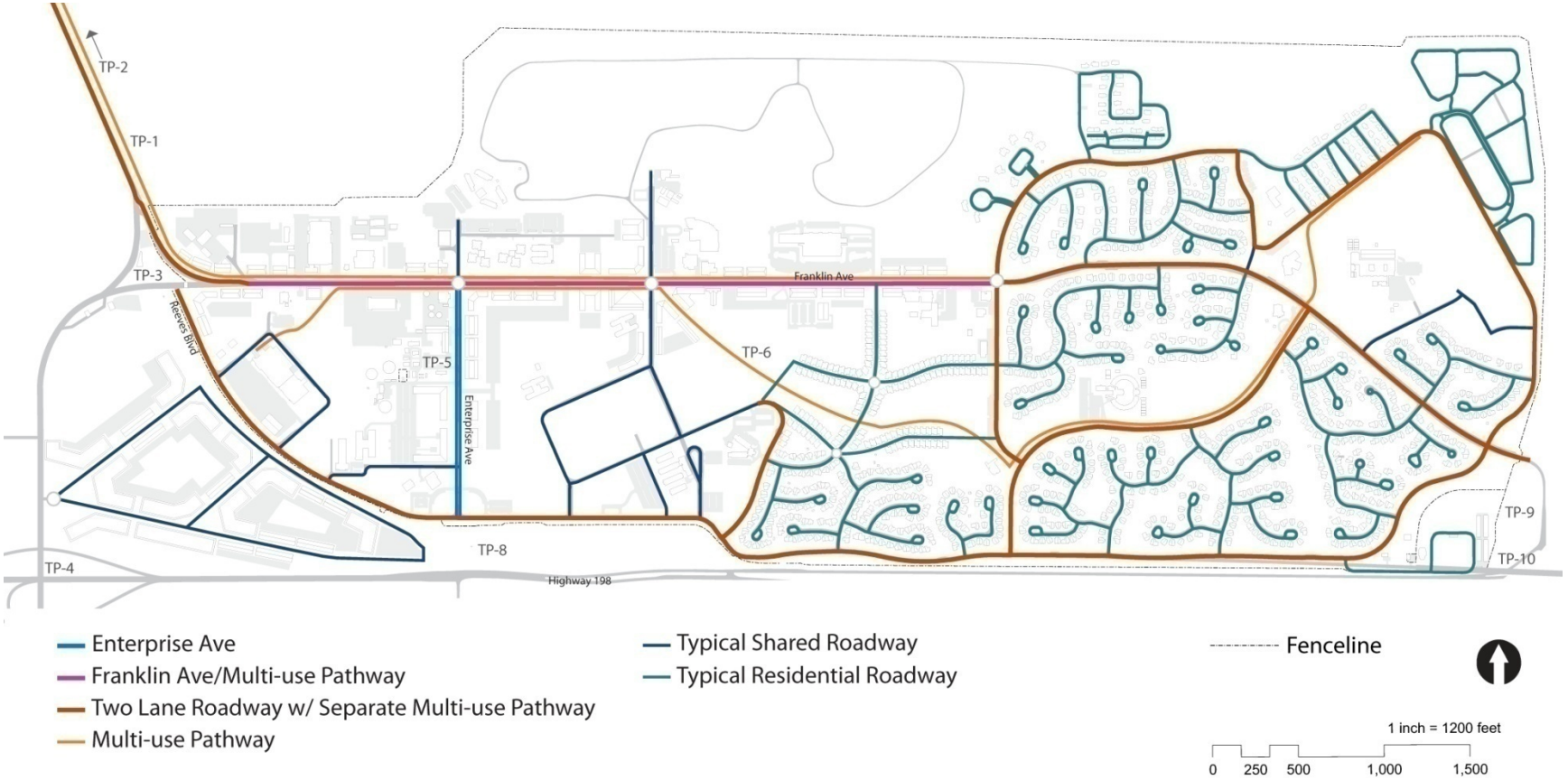


FIGURE 130. INSTALLATION STREET AND TRANSIT PLAN (ADMIN SIDE)

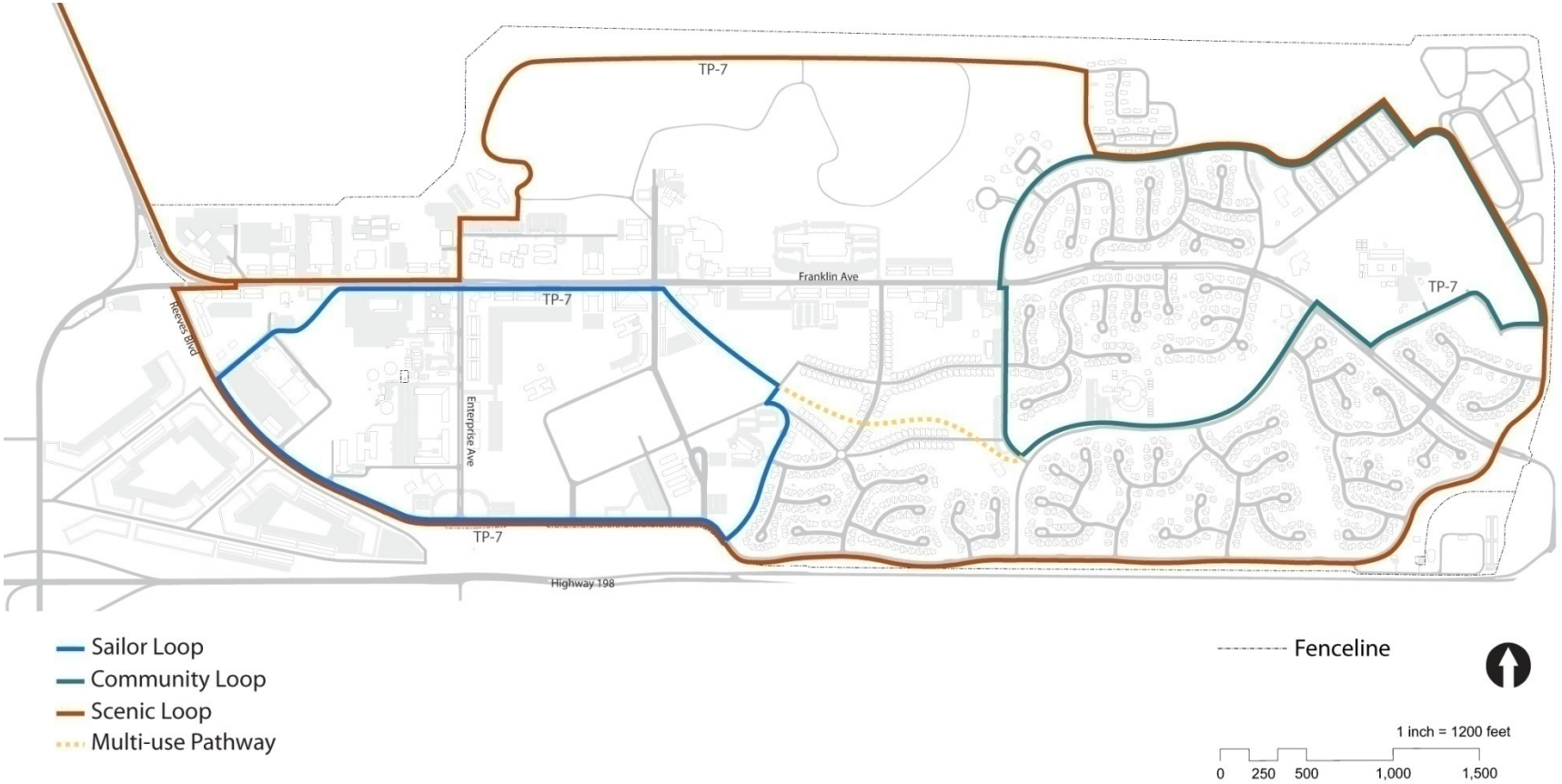


FIGURE 131. INSTALLATION PATHWAY PLAN (ADMIN SIDE)

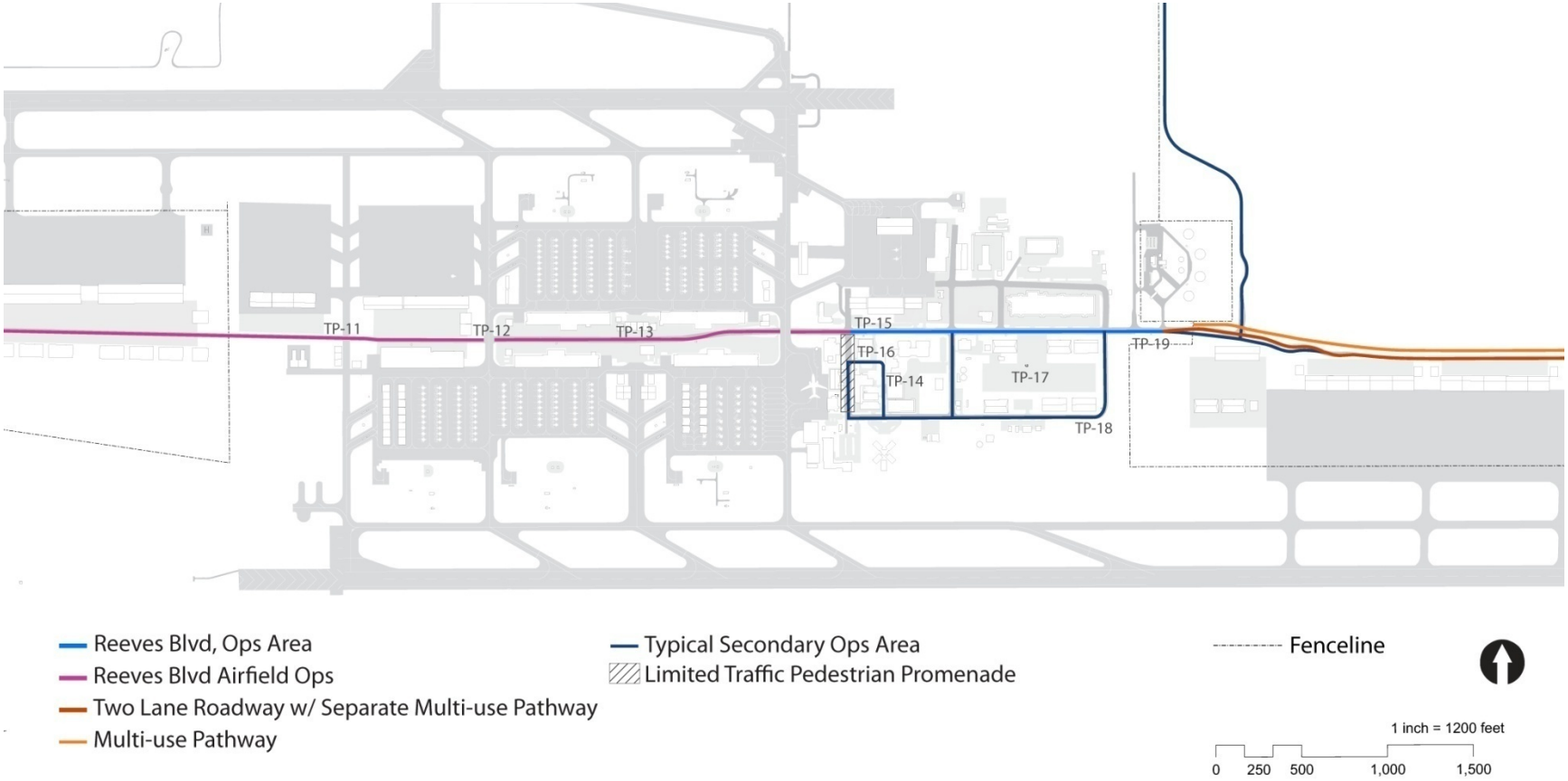


FIGURE 132. INSTALLATION STREET AND TRANSIT PLAN (OPS SIDE)

GREEN INFRASTRUCTURE PLAN

The Green Infrastructure Plan identifies all major park and open space elements, including:

- Current and proposed parks and open spaces
- Riparian corridors
- Wetlands
- Significant water bodies

BY THE NUMBERS

- 83 playgrounds
- 62 play courts
- 20 ball fields
- 167 acres of wetlands
- One golf driving range
- 30 horse stables with 10 acres of associated facilities
- Seven acre park (Karen Mechem)

The NAS Lemoore Green Infrastructure Plan is illustrated in Figures 133 and 134 below.

NETWORK VISION

GOALS AND OBJECTIVES

Planning goals and objectives for the Green Infrastructure Network are summarized below.

- Provide sufficient outdoor recreational opportunities that are convenient and accessible.
- Provide a mix of outdoor spaces to support both active and passive recreational uses.
- Protect the environmental quality of riparian corridors and wetlands.
- Sustainably manage grazing lands at the north end of the Installation.
- Incorporate green infrastructure elements along the proposed multi-use path on the Admin Side. Uses include picnic tables, playgrounds, exercise stations, and community gardens.
- Build on existing outdoor recreation facilities in the northeast corner of the Admin Side to create a recreational node. Current assets include Karen Mechem Park and an equestrian center, which provides stables for up to 30 horses and offers family ride days and open houses.

NAS Lemoore equestrian center

Karen Mechem Park

Family housing pathways

FIGURE 133. INSTALLATION GREEN INFRASTRUCTURE PLAN (ADMIN SIDE)

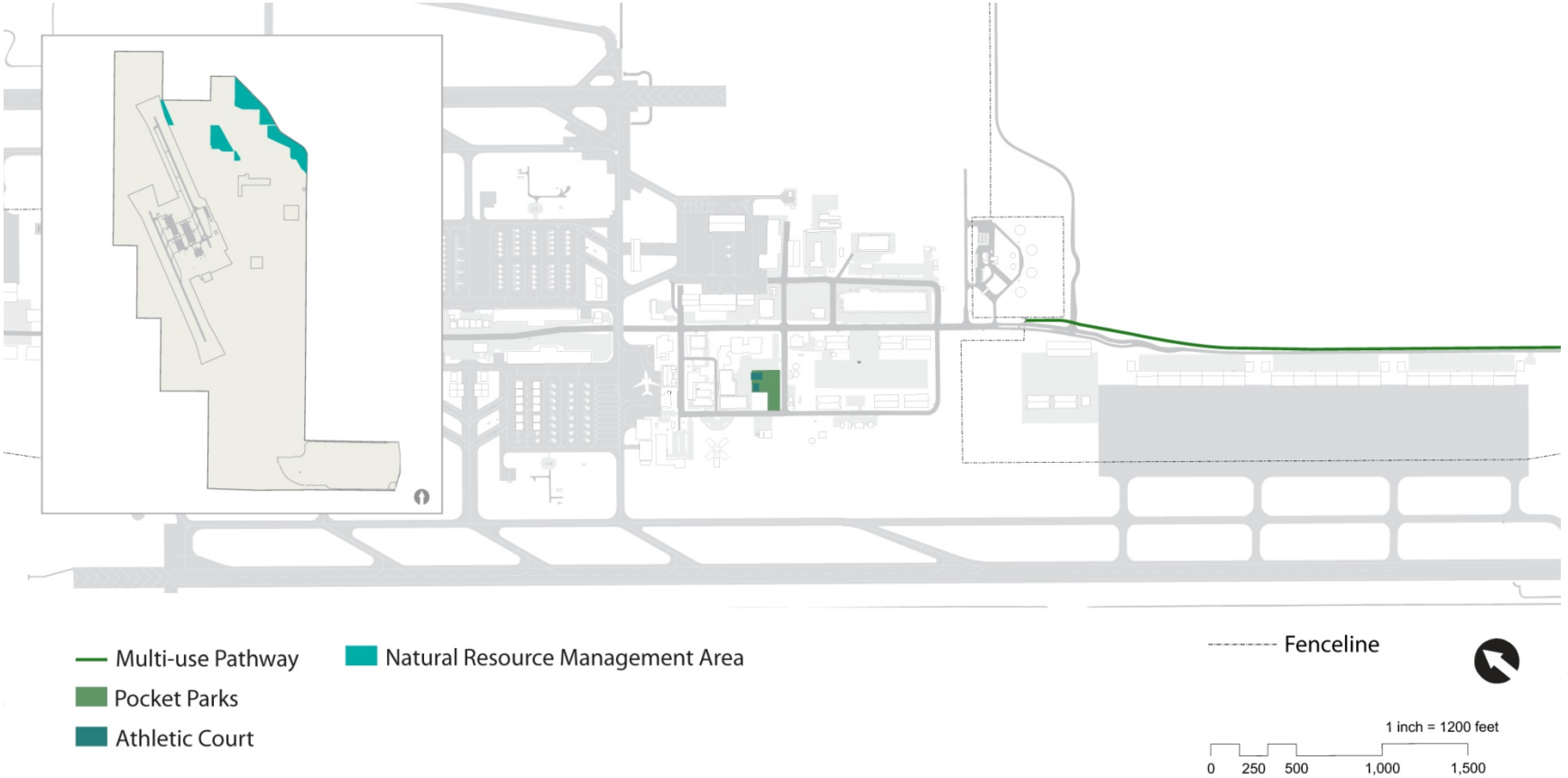


FIGURE 134. INSTALLATION GREEN INFRASTRUCTURE PLAN (OPS SIDE)

PRIMARY UTILITY PLAN

The Installation Primary Utility Plan includes current and proposed utility systems for the Master Plan. NAS Lemoore utilities include:

- Water
- Wastewater
- Industrial wastewater
- Natural gas
- Compressed air
- Power
- Communications
- Stormwater
- Solid waste
- Recycling

NETWORK VISION

GOALS AND OBJECTIVES

Goals and objectives are used to guide utility related decision making, identify measurable outcomes, analyze alternatives, and develop an investment strategy.

- Provide infrastructure that supports current and future missions in an efficient and equitable manner that is consistent with environmental and facility management policies.
- Ensure that NAS Lemoore has an adequate water supply to provide for mission capabilities.
- Ensure that there is adequate water and wastewater available to serve existing missions and new development by monitoring usage and capacity.
- Ensure that there is adequate water and wastewater available to serve existing areas and new development by proactively maintaining infrastructure systems.
- Ensure that there is adequate water and wastewater available to serve future growth areas by studying the capacity of existing systems and the feasibility of expanding those systems.
- Encourage new development to occur within areas that are already served by necessary utility and infrastructure systems (e.g., water supply, storm drainage, etc.), or where systems can be realistically expanded.
- Locate infrastructure facilities to optimize services to the Installation.
- Reduce operating costs where possible through PPV.

BY THE NUMBERS

- Potable Water Line – 421,000 LF
- Natural Gas Line – 244,000 LF
- Electrical Line – 573,000 LF
- Storm Water Line – 293,000 LF
- Sewage and Waste Line – 233,000 LF
- Waste Water Evaporation Ponds – 430Acres

PLANNING CONSIDERATIONS

ISSUES

Key issues impacting the utility network are summarized below. Most utility systems are original to the construction of NAS Lemoore in the early 1960s. Some improvements have been made, including new electrical system feeds, new water pumps and valves, and new wastewater lift stations, however these improvements are isolated and do not address the overall condition of each utility. Secure, dependable, and reliable energy and water systems are critical to mission support.

A number of the issues were taken from the Draft Joint Strike Fighter Strategic Infrastructure Plan (JSIP) Utility Study NAS Lemoore (2011).

Water

- NAS Lemoore's water distribution system is in many places 50 plus years old, deteriorating, and has multiple water leaks. The water leaks cause hundreds of gallons of water to go to waste yearly and do not allow for the required water pressure within the distribution system, which is a requirement for fire prevention safety.
- The Water Treatment Plant (WTP) is currently unable to meet water quality requirements.
- 2012 to 2014 have been drought years, significantly limiting the availability of water within the Central Valley. The University of California estimates that the reserves are decreasing by 800 billion gallons a year as the number of wells has doubled during this same time period. Over pumping lowers the water table, collapses land at the surface, and reduces water quality. The ongoing drought periods and groundwater pumping is creating a long-term decline in groundwater levels.
- A recent vulnerability assessment confirmed the need for a backup water supply for emergencies when the main water source is disrupted or reduced.
- Fire and domestic water are on the same system. As a result, water lines are sized too big for day to day use. The closed loop system also causes chlorine to collect in the system. To address this NAS Lemoore must flush the water lines on a periodic basis.

Wastewater

- The sanitary sewage collection system, associated piping, and lift stations have exceeded their service life and are in need of frequent repairs. Most parts of the system need to be replaced to avoid health and safety hazards.
- Existing leachate collection piping has collapsed or on the verge of failure in most areas. A 1999 report on Evaporative Ponds indicated inadequate groundwater collection by the Leachate Collection System resulted in increased local ground water levels within approximately 500 feet of the pond perimeter. Furthermore, the intrusion of pond water into the ground water has caused the ground water level to rise in the immediate vicinity of sewage ponds which has been an ongoing concern of the farmers of the adjacent field.

Industrial Wastewater

- The industrial waste system lift station pumps need frequent repair due to incompatible designs. Most of the piping and manholes are 50 plus years old. Interruption of industrial wastewater system operations will affect aircraft maintenance operations. Failure of the industrial wastewater system may cause industrial wastewater to contaminate the ground water which can result in potential health and safety risk.

Natural Gas

- The government-owned natural gas distribution system is 50 years old and has reached its planned service life. A leak study performed by Strata Analysis Group on the gas distribution system in 2010 identified 214 leaks.

Compressed Air

- The compressed air distribution system on the Ops Side is over 50 years old and has reached its planned service life. Redundancy at the source (Building 50) and additional storage capacity are required to avoid shutdown of the entire system for repair and maintenance.

Power

- Many components of the electrical distribution system are deteriorated and nearing the end of their service life. The electrical system on the Admin and Ops Sides does not provide flexibility or redundancy for proper repair and maintenance.

Communications

- The existing communications infrastructure at NAS Lemoore includes telephone and network exchange equipment in Buildings 740 and 80 and fiber and copper distribution in a duct-bank/manhole system throughout the Admin and Ops Sides. Equipment in Building 740 is connected to an outside POP using fiber optic cable. System documentation is maintained by NAS Lemoore personnel and by NMCI.
- Arrival of the F-35C will require upgrades to the communications system.

Stormwater

- The underground stormwater collection system of catch basins and reinforced concrete pipe was installed in the 1960s. There are cracks in some drainage pipes. Stormwater on the Ops Side is transported to drainage ditches that ultimately flow to the Kings River. The collection system on the Admin Side transports stormwater to the wastewater treatment facility.

Solid Waste

- Solid waste is operated by a contractor; there are no associated planning considerations.

Recycling

- NAS Lemoore operates an integrated Solid Waste Management Program that collects, sorts, and stages materials before selling to the highest bidder. The program is operated out of Buildings 790 and 788. Annually the NAS Lemoore recycling program generates $250K and $300K by recycling 660 tons of paper and cardboard, 150 tons of metal, and an unknown amount of plastics and wood pallets.
- Executive Order (E.O.) 13514 states that at least 50% of non-hazardous solid waste should be diverted from landfills by the end of FY 2013. The diversion rate increases to 60% by FY 2015. NAS Lemoore currently recycles 56% of non-hazardous solid waste.

OPPORTUNITIES

The following opportunities exist to address issues affecting primary utilities at NAS Lemoore.

- Evaluate non-traditional project alternatives including decentralized wastewater solutions and green infrastructure for stormwater.
- Evaluate partnership opportunities for both system expansion and continued operations. In particular, the water treatment plant and the wastewater treatment facility could be operated through partnership with the surrounding community.
- Implement proactive measures to stormwater retention and treatment to better treat runoff as well as provide water for agricultural use.
- Reduce water consumption.
- Utilize treated waste and stormwater for irrigation, including on-site landscaping and leased agricultural land. NAS Lemoore produces approximately 1,000,000 gallons of waste water per day.
- Contract recycling to a private industry.

ACTION ITEMS

Primary Utility Plan COAs provide necessary improvements to support ongoing operations at NAS Lemoore. COAs are summarized in Table 42 below. Utilities are illustrated in Figures 135 and 136.

Table 42. Primary Utility implementation plan

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
Potable Water-Supply-Treatment-Storage				
PU-1		Study impacts of California Water Code Section 10608.16	The 2009 California Water Code Section 10608.16 requires the state to achieve a 20% reduction in urban per capita water use by December 31, 2020. This may reduce the amount of water NAS Lemoore will receive through its contract with WWD.	
PU-2		Study storm water catchment and a purple water system	Purple water (also referred to gray water and reclaimed water) has the potential to serve as an alternative water source to address reductions in available water from WWD.	
PU-3		Develop a water conservation plan	A water conservation plan with prioritized projects would further reduce water consumption in the largest water-demand areas including irrigation and public use.	
PU-4		Modify the WWD annual raw water contract	Increase the WWD annual raw water contract to an average demand of 3.0 MGD if alternate water sources and water usage reduction measures do not meet requirements.	
PU-5		Provide a second water treatment plant clarifier	A second water treatment plant clarifier will act in parallel with the existing clarifier allowing the sedimentation process to continue during maintenance of one clarifier.	
PU-6		Develop a water distribution system recapitalization plan	Study the Asbestos Cement Pipe (ACP) in the Ops Side water distribution system further and develop a recapitalization plan prioritizing the replacement of deteriorated ACP.	
PU-7		Replace defective water distribution system shutoff valves	The defective water distribution system shutoff valves will be replaced throughout the Ops and Admin Sides.	
PU-8		Provide required fire flow and pressures at aircraft hangars	Provide required fire flow and pressures at aircraft hangars. Three options are available for meeting stricter fire protection requirement at the Ops Side hangars: 1. Use the current water distribution system. This would require replacing the fire pumps in Building 50 and verifying that the ACP will support the increased flow and pressure requirement. 2. Provide flows at less pressure through the existing water distribution system and meet the high-pressure requirement using fire pumps at the hangars. 3. Provide a dedicated, looped, high-pressure fire distribution system with storage in the hangar area separate from domestic water system.	

Table 42. Primary Utility implementation plan (continued)

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
Potable Water-Supply-Treatment-Storage				
PU-9		Install fire booster pumps at the new F-35C Hangar 6 and Hangar 3	NAS Lemoore has chosen to provide fire protection requirements with booster pumps. The new F-35C Hangar 6 and Hangar 3 projects will require fire pumps to boost the pressure to meet fire protection criteria.	
PU-10		Replace domestic and fire pump controls in Building 50	The domestic and fire pump controls in Building 50 are defective and outdated.	
PU-11		Develop a water distribution system model and prepare a water system Master Plan	A water distribution system model predicts how the water system will respond to high levels of demand, fire flows, and extended periods of high demand. The model estimates system pressure, tank level fluctuations, pumping capacities, and pump run times. Elements of the system can be replaced in the model with new elements of differing characteristics (size, capacity, or height). The model will estimate the effect of the change on the system before making expensive changes in the field.	
PU-12		Repair the main wastewater pumping station (Building 980) and pond deficiencies	The probability exists that a system failure of the pumping station may result in an unlawful discharge of raw sewage at the site of the pumping station. Additionally, such an event may result in a potential threat to contaminate the nearby Kings River. No holding tanks of significant capacity exist at NAS Lemoore.	
Sewage and Waste				
PU-13		Repair Ops Side main sewage pump station (Building 66)	The Ops Side main sewage pump station (Building 66) pumps and controls have exceeded their useful service life.	
PU-14		Repair existing leachate collection piping at the waste water treatment ponds	The existing leachate collection piping has collapsed or is on the verge of failure in most areas. A 1999 report on Evaporative Ponds indicated inadequate groundwater collection by the Leachate Collection System resulted in increased local ground water levels within approximately 500 feet of the pond perimeter. Furthermore, the intrusion of pond water into the ground water has caused the ground water level to rise in the immediate vicinity of the ponds which has been an ongoing concern of farmers in the adjacent field.	
PU-15		Replace the waste water lift station pump at Bldg 60.	The waste water lift station pump at Building 60 has exceeded its useful service life. Lift station pumps are critical to VFA and FRC-W aircraft maintenance	
PU-16		Replace the sewage collection system lift station pumps	Sanitary sewage collection system, associated piping, and lift stations have exceeded their service life and are in need of frequent repairs. Most parts of the system need to be replaced to avoid health and safety hazards. Sewage lift station pumps need to be replaced with grinder pumps (i.e. Bldg #282, #201, #1011, & #61).	
PU-17	P345	Purple pipe irrigation system	Create a purple water system in conjunction with other utility projects to reutilize treated storm and waste water.	

Table 42. Primary Utility implementation plan (continued)

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
Natural Gas				
PU-18		Repair and replace natural gas distribution pipe lines	The government-owned natural gas distribution system is 50 years old and has reached its planned service life. A leak study performed by Strata Analysis Group on the gas distribution system in 2010 identified 214 leaks. Since then two thirds of the leaks have been repaired.	
PU-19		Provide thermal heating systems	Provides thermal heating systems for Buildings 10 (galley) and 43 (operational trainer facility) on the Ops Side and Buildings 860 (galley), 885 (barracks), and 895 (barracks) on the Admin Side. A solar energy system provides hot water for space heating and to supply domestic hot water, reducing natural gas consumption.	
PU-20		Prepare for increased natural gas utilization	Coordinate any future increases of natural gas capacity requirement with Southern California Gas Company (SCGC) and extend service to new facilities.	
Compressed Air				
PU-21		Develop a compressed air system recapitalization plan	The compressed air distribution system on the Ops Side is over 50 years old and has reached its planned service life. Redundancy at the source (Building 50) and additional storage capacity are required to avoid shutdown of the entire system for repair and maintenance.	
Electrical Power				
PU-22		Develop a power transmission system recapitalization plan	Transmission lines and transformers are 50+ years old and need major repairs and modernization. If electrical system deficiencies are not addressed it will continue to degrade, impeding training and air operations due to power outages.	
PU-23		Replace electrical switch gear	The electrical switch gear in Buildings 50 and 760 is obsolete and needs replacement.	
PU-24		Replace airfield lighting vaults	Airfield lighting vaults are obsolete and need repair by replacement.	
PU-25		Investigate substation transformers for a fault condition	NAS Lemoore has electrical substations and a 12.47 kV distribution system with adequate capacity to serve the anticipated new loads. However, at least one of the existing substation transformers on the Admin Side shows signs of a fault condition that should be investigated.	
PU-26		Upgrade Ops Side substation to provide redundancy	The Ops Side substation is adequate for the existing and proposed loads but does not have redundancy. If a transformer failed the Ops Side distribution system could not be adequately served. Improvement provides redundancy for uninterrupted service.	
PU-27		Hangar 6 utility improvements	Hangar 6 (P-284) is located at the north end of the existing flightline facilities beyond the existing utility main lines. Project extends the electrical distribution system and installs a new 15 kV pad-mounted switch and 1,000 kVA transformer at Hangar 6.	

Table 42. Primary Utility implementation plan (continued)

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
Electrical Power				
PU-28		Flight Simulator Training Center (Building 43) utility improvements	Each full mission simulator (FMS) to be installed in the addition to Building 43 (P-327) will require a 125 A, 480 V service. Project installs a new 15 kV pad-mounted switch and a new 500 kVA transformer at the expanding Flight Simulator Training Center (Building 43).	
PU-29		Install day lighting and solar photovoltaic		
PU-30		Photovoltaic carports at Enterprise Avenue		
PU-30		Energy efficient building exterior lighting		
PU-31		Energy efficient street lights and wall packs		
Communications				
PU-32		F-35C hangar communications improvements	The existing communications infrastructure does not meet new SAPF spaces requiring network connections for the F-35C Autonomic Logistics Information System (ALIS). Project provides a new fiber optic cable backbone and a central communications facility to control communications to provide communication service to F-35C hangars.	
PU-33		Install Ops Side cell tower	Cell phone coverage is unreliable on the Ops Side. A cell tower or repeater will improve the service. The existing 150′ tower or the existing beacon could be used.	
Storm Water				
PU-34		Repair Admin and Ops Sides storm water drainage pipes	Repairs cracked and collapsed storm water drainage pipes. Violations of the Regional Water Quality Control Board Waste Discharge Permit and NAS Lemoore's NPDES permit occur when groundwater high in salinity infiltrates the storm drains.	
PU-35		Incorporate required LID criteria in future projects	Low-impact development mitigates the adverse effects of construction projects on water quality by cost effectively reducing the volume and pollutant loading of storm water.	
PU-36		Enclose open storm drainage ditches surrounding the airfield	Conduct a study to identify strategies to reduce the occurrence of BASH originating from the open drainage ditches surrounding the runways.	
PU-37		Install retention pond at the Admin and Ops Sides	NAS Lemoore is close to exceeding storm water discharge limits. Installation of storm water retention and treatment ponds will reduce the amount of discharge to the Kings River and the amount of storm water treated at the waste water treatment facility. Ponds will be located on an existing agricultural parcel outside of the BASH zone.	

Table 42. Primary Utility implementation plan (continued)

Master Plan COA No.	Project No.	COA	Description	Shore Capability Area
Recycling				
PU-38		Relocate the recycle center to a site between the Admin and Ops Sides	Relocating the recycle center to a site between the Admin and Ops Sides may allow for better service and streamlined operations. The recycle center does not require a location inside the fence line. Relocation would free up the approximately 7 acre site for an alternate use.	
PU-39		Analyze operating recycling program by a contract	A cost benefit analysis will compare operation by a contractor to continued operation by NAS Lemoore.	

NAS Lemoore has recently increased recycling efforts

FIGURE 135. PRIMARY UTILITY PLAN (ADMIN SIDE)

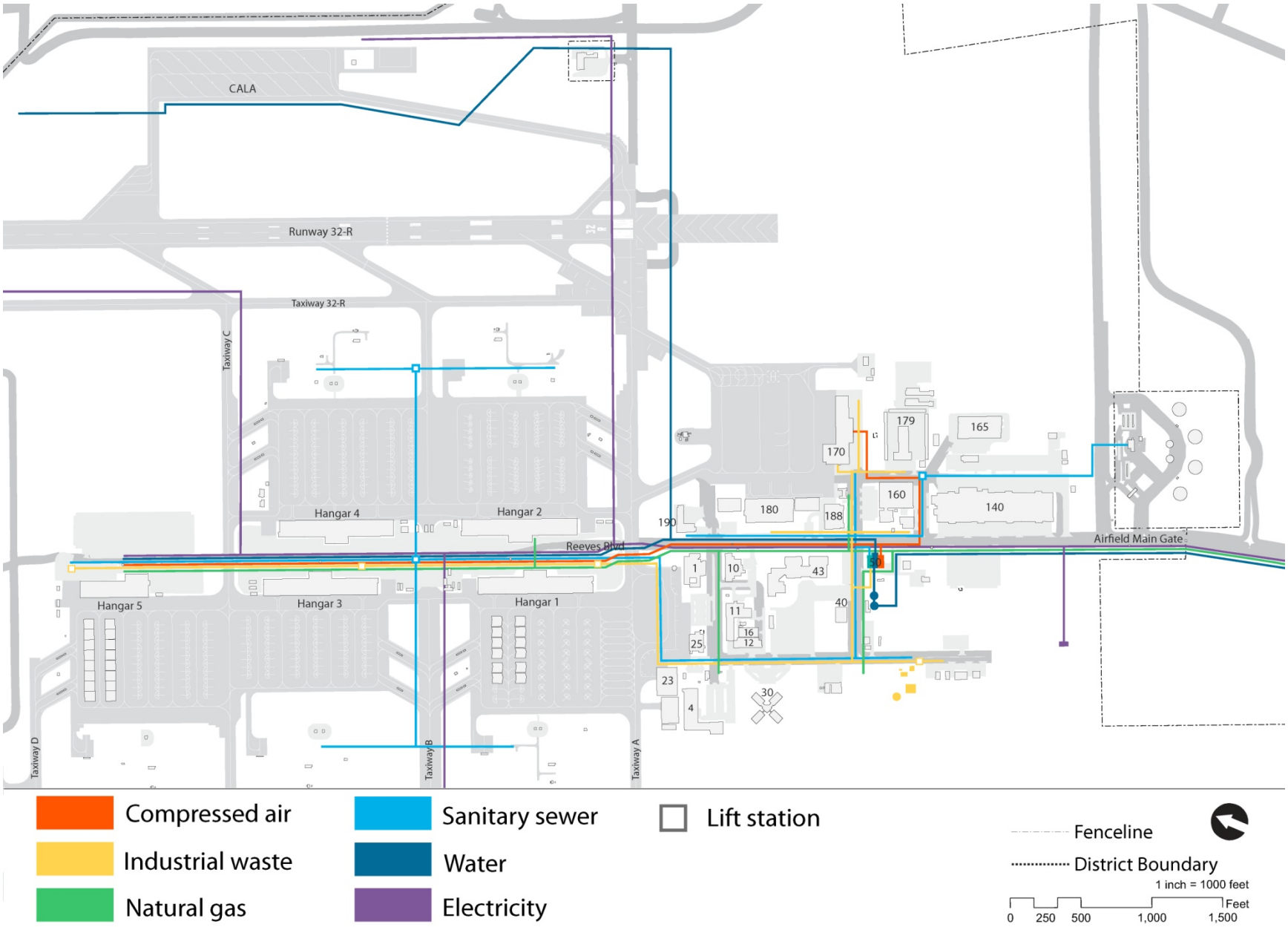


FIGURE 136. PRIMARY UTILITY PLAN (OPS SIDE)

ENERGY SUSTAINABILITY PLAN

The CNO's "Navy Energy Vision" supports energy sustainability by promoting a culture that values energy as a strategic resource, understands how energy security is vital to executing the Navy's mission, and is resilient to any future energy challenge. The CNO's energy initiatives are managed under the auspices of Task Force Energy (TFE). TFE drives the design and implementation of initiatives to meet energy saving goals both ashore and afloat, across maritime, expeditionary, and aviation units.

The Secretary of the Navy (SECNAV) has set forth five energy goals to reduce the Department of the Navy's (DoN) overall consumption of energy, decrease its reliance on petroleum, and significantly increase its use of alternative energy. Goals include:

- Energy Efficient Acquisition. Evaluation of energy factors will be mandatory when awarding contracts for systems and buildings.
- Sail the "Great Green Fleet". DoN will demonstrate a Green Strike Group in local operations by 2012 and sail it by 2016.
- Reduce Non-Tactical Petroleum Use. By 2020, DoN will produce at least 50% of shore based energy requirements.
- Increase Alternative Energy Ashore. By 2020, 50% of total DoN energy consumption will come from alternative sources.
- Increase Alternative Energy Use DoN-Wide. By 2015, DoN will reduce petroleum use in the commercial vehicle fleet by 50% from alternative sources; 50% of DON installations will be net-zero.

Energy sustainability efforts at NAS Lemoore focus on the following strategies:

- Use of renewable energy sources to reduce dependence on fossil fuels. PV is already being used on rooftops and parking canopies at NAS Lemoore.
- Increased building efficiency to reduce the amount of energy consumed through day to day operations.
- Compact development to promote walkability and reduce dependence on automobiles for short trips.
- Upgrading and repairing utility systems to eliminate waste and ensure maximum efficiency.

PLANNING CONSIDERATIONS

ISSUES

- Energy reduction and increased use of renewable energy is a mandated DoD initiative. The energy mandate is an overall reduction of 30% between 2005 and 2015, or 3% each year. This reduction rate is getting harder to achieve since energy projects are not being funded.
- Advanced Metering Infrastructure (AMI) has not been installed in all the barracks. Barracks 10 and 11 have AMI, but the newer barracks do not. There is a small amount of control in Barracks 14 and 15 but none at the individual room level. It is important for the Navy to know how much energy they are using before they can recommend improvements.
- NAS Lemoore competes with other bases for energy project money and there are a growing number of projects submitted each year. Additionally, recent budget cuts include a reduction of 10% for energy reduction projects. The Energy Return On Investment (EROI) is how the Navy sorts projects and since Lemoore's electricity rate is only $.05 /KWHr (very low) it is very hard for NAS Lemoore projects to compete.
- Based on the age of the infrastructure it is estimated that there is a lot of line loss.

OPPORTUNITIES

- The Navy has a renewable energy goal of 50% by 2020. NAS Lemoore has some big renewable energy projects and Power Purchase Agreements (PPA) may be an opportunity to meet this goal. Westlynn is proposing a solar array that may reduce the profitability of a Navy PPA.
- Any time a new building is constructed or an existing facility is renovated, the structure needs to maintain a high level of energy reduction and savings. There are typically very few projects that have energy reduction measures put in place. There should be better mandates or strategies for future reductions in energy that are part of every RFP.

INSTALLATION PLANNING STANDARDS

The purpose of the Installation Planning Standards is to guide and maintain a cohesive and predictable form as NAS Lemoore develops over time. Standards are intended to ensure that projects:

- Meet sustainability and energy reduction requirements
- Improve the functionality of installation operations
- Promote visual order and architectural consistency
- Enhance man-made and managed natural environments

Basic form giving elements that can be applied to future projects include the following.

BUILDING ENVELOPE STANDARDS

Building Envelope Standards (BES) define the height and bulk of future buildings. Specific elements include:

- Building placement
- Building height
- Building types
- Use requirements
- Parking requirements

STREET STANDARDS

Street Standards define streets and roadways to help planners and designers understand the relationship between "public spaces" and buildings/facilities. These principles describe parameters for the placement of sidewalks, landscaping, and other amenities (benches, signs, street lighting) to establish an environment that is safe, comfortable, pleasant, and interesting to encourage pedestrian and non-motorized use.

LANDSCAPE STANDARDS

Landscape Standards provide an integrated approach to the landscape design of outdoor areas. The standards support viable, attractive landscapes that are appropriate for the NAS Lemoore environment.

Applying these Planning Standards to any sized project is essential during the early stages of development and design. If meeting a standard is not feasible an alternate approach may be suggested to meet the Master Plan intent, subject to approval from the NAS Lemoore community planner.

NAS Lemoore has developed incrementally over the past six decades. The Installation has a sprawling, car centric layout and a contemporary style architectural theme, with many of the buildings sharing similar characteristics to create a cohesive visual image.

The NAS Lemoore Installation Appearance Plan (IAP) is a tool that establishes visual continuity and defines architectural standards for future projects. Refer to the IAP Section 3.0 Installation Wide Design Guidelines for additional guidance on visual improvements at NAS Lemoore.

BUILDING ENVELOP STANDARDS

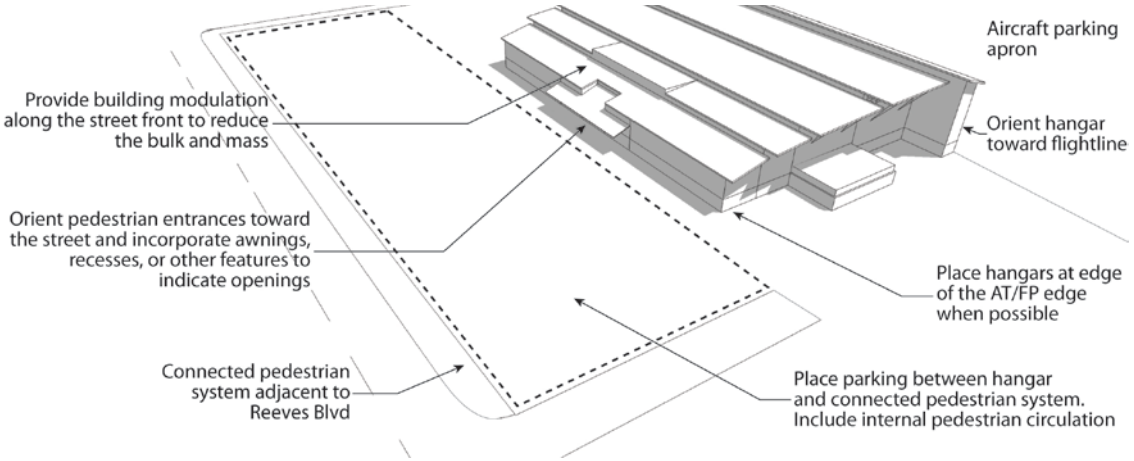
The BES provide the basic building form for all sites identified in the district Regulating Plans. Many of the BES apply uniformly to all project types and districts. In some instances, however, these standards vary depending on the unique district vision and mission. BES are summarized below and Table 21 identifies the BES for each district.

- **Airfield Industrial.** Large industrial facilities oriented toward the aircraft aprons and focused primarily on mission objectives and operational efficiency.
- **Light Industrial.** Low and high bay facilities oriented toward operations.
- **Low Rise Mixed Use.** One and two-level development that is compact and walkable with horizontal and vertical mixed use; buildings are oriented toward the street and integrated with adjacent open space; delineation of pedestrian access areas is a key consideration.
- **Mid Rise Mixed Use.** Two and three-level town center-style development that is compact and walkable with vertical and horizontal mixed use; architectural design and pedestrian facilities are a high priority; buildings are oriented toward the street and pedestrian entrances receive special design attention.
- **Family Housing.** Single-family, duplex, and townhouse-style housing.
- **Destination Commercial.** Auto-oriented commercial; typically "big box" retail-design.

AIRFIELD INDUSTRIAL

INTENT

To provide large industrial facilities orientated toward the aircraft aprons and focused primarily on mission objectives and operational efficiency.



I. BUILDING PLACEMENT

See UFC 3-260-01 Airfield and Heliport Planning and Design

BUILD-TO-LINE:

Primary Street: Build to AT/FP minimum setback from street

SETBACK:

Required setback for front and side depend on adjacent uses

II. BUILDING FORM

HEIGHT:

Building Height:	20' Min; 60' Max
First Floor Ceiling Height:	15' Min; 20' Max
Upper Floor Ceiling Height:	12' Min; 15' Max

BUILDING FOOTPRINT:

See UFC 4-211-01N Aircraft Hangar Design

III. BUILDING TYPES

Aircraft hangars
See UFC 4-211-01N Aircraft Hangar Design and F-35C Hangar Supplement.
See the IAP for additional details on building and site design.

IV. USE REQUIREMENTS

Ground Floor Use:	Aircraft maintenance
Upper Floor Use:	Admin and personnel support

V. PARKING REQUIREMENTS

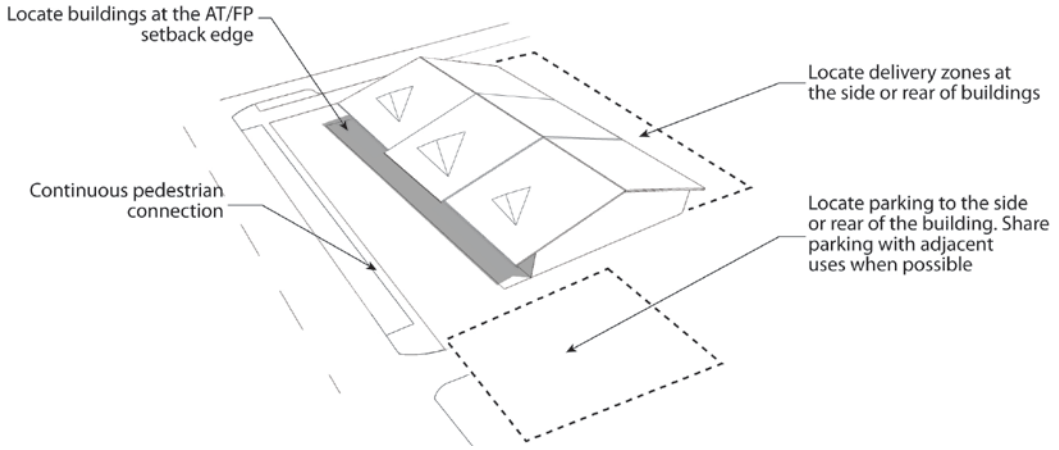
LOCATION:

See siting standards

LIGHT INDUSTRIAL

INTENT

Low and high bay facilities oriented toward operational areas and functions.



I. BUILDING PLACEMENT

BUILD-TO-LINE:

Primary Street: Build to AT/FP minimum setback from street

SETBACK:

Required setback for front and side depend on adjacent uses

II. BUILDING FORM

HEIGHT:

Building Height:	15' Min; 30' Max
First Floor Ceiling Height:	12' Min; 15' Max
Upper Floor Ceiling Height:	12' Min; 15' Max

BUILDING FOOTPRINT:

Primary Street:	75% Min
Side Street:	50% Min

III. BUILDING TYPES

Light industrial

See the IAP for additional details on building and site design.

IV. USE REQUIREMENTS

Ground Floor Use: Shops, warehousing, and other light industrial

Upper Floor Use: Admin

V. PARKING REQUIREMENTS

LOCATION:

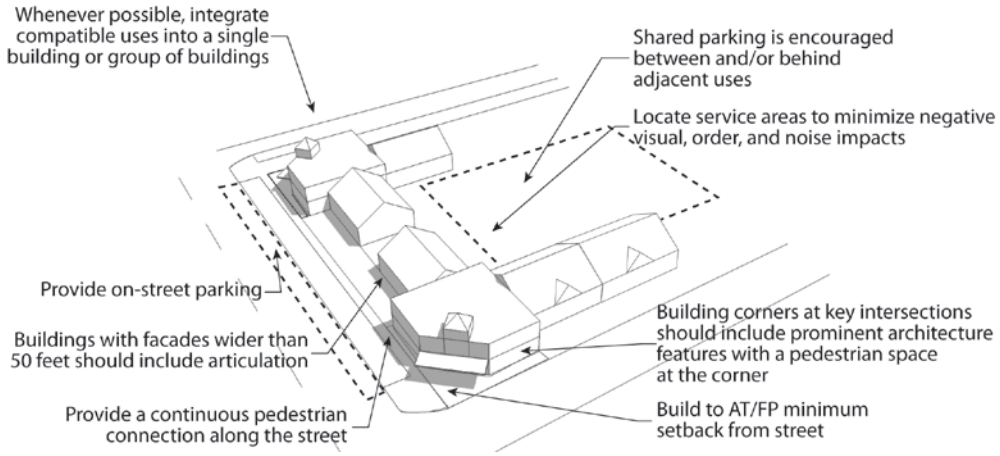
See siting standards.

Surface parking lots and delivery zones are allowed if they are located to the side or rear of the buildings on the site and setback from the streets at least 20'.

LOW RISE MIXED USE

INTENT

One- and two-story development that is compact and walkable with horizontal and vertical mix of retail, admin, training, and personnel support uses; buildings are orientated toward the street and integrated with adjacent open space; delineation of pedestrian access areas is a key consideration.



I. BUILDING PLACEMENT

BUILD-TO-LINE:

Primary Street: Build to AT/FP minimum setback from street

SETBACK:

Required setback for front and side depend on adjacent uses

II. BUILDING FORM

HEIGHT:

Building Height:	12' Min; 35' Max
First Floor Ceiling Height:	12' Min; 20' Max
Upper Floor Ceiling Height:	12' Min; 15' Max

BUILDING FOOTPRINT:

Primary Street:	75% Min
Side Street:	50% Min

III. BUILDING TYPES

Low rise mixed use

See the IAP for additional details on building and site design.

IV. USE REQUIREMENTS

Ground Floor Use: Personnel support, retail, and shops

Upper Floor Use: Admin and training

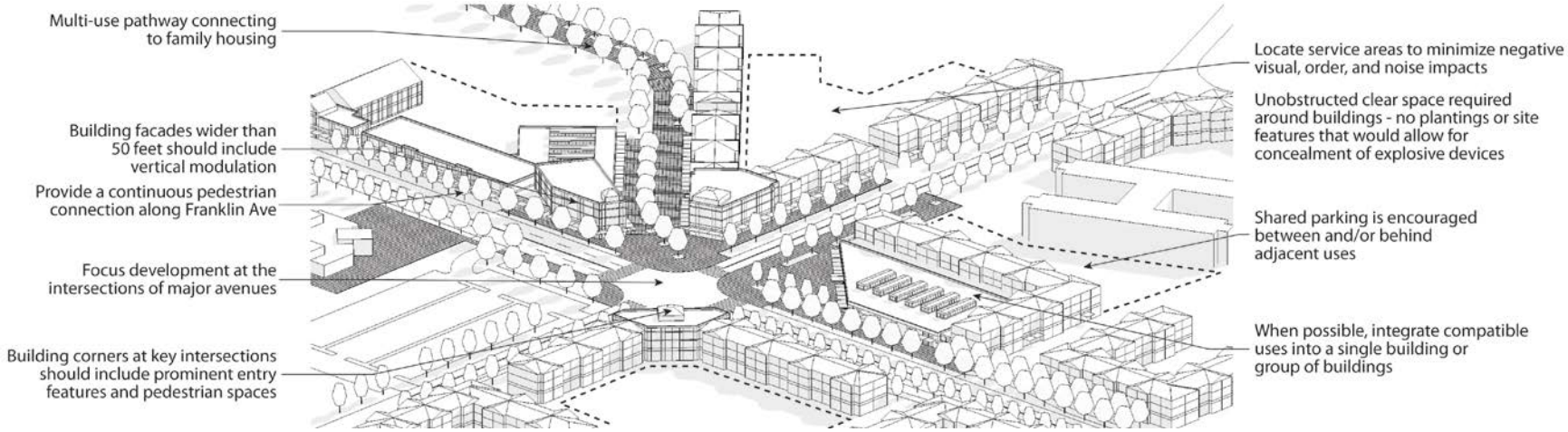
V. PARKING REQUIREMENTS

LOCATION:

See siting standards.

Surface parking lots and delivery zones are allowed if they are located to the side or rear of the buildings on the site and setback from the streets at least 20'.

MID RISE MIXED USE



INTENT

To integrate vibrant commercial and recreation into a town center neighborhood, providing easy access to day-to-day amenities within walking distance, creating a transit stop, and serving as a focal point for the installation. Buildings are orientated toward the street and pedestrian entrances receive special design attention.

I. BUILDING PLACEMENT

BUILD-TO-LINE:

Primary Street: Build to AT/FP minimum setback from street

SETBACK:

Required setback for front and side depend on adjacent uses

II. BUILDING FORM

HEIGHT:

Building Height:	36' Min; 40' Max
First Floor Ceiling Height:	12' Min; 15' Max
Upper Floor Ceiling Height:	12' Min; 12' Max

BUILDING FOOTPRINT:

Primary Street:	75% Min
Side Street:	50% Min

III. BUILDING TYPES

Two- and three-story mixed use

See the IAP for additional details on building and site design.

IV. USE REQUIREMENTS

Ground Floor Use: Retail, admin, and recreation

Upper Floor Use: Unaccompanied housing and personnel support

V. PARKING REQUIREMENTS

LOCATION:

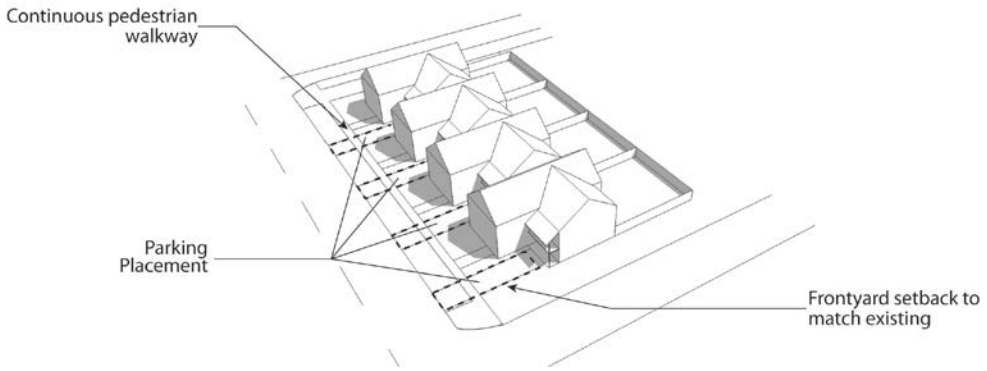
See siting standards.

Surface parking lots and delivery zones are allowed if they are located to the side or rear of the buildings on the site and setback from the streets at least 20'.

FAMILY HOUSING

INTENT

To provide a walkable predominantly single-family neighborhood that integrates appropriate multifamily housing types such as duplexes, townhouses and bungalow courts within walking distance to transit and commercial areas.



I. BUILDING PLACEMENT

BUILD-TO-LINE:

Primary Street: Build to AT/FP minimum setback from street

SETBACK:

Required setback for front and side depend on adjacent uses

II. BUILDING FORM

HEIGHT:

Building Height:	15' Min; 25' Max
First Floor Ceiling Height:	12' Min; 15' Max
Upper Floor Ceiling Height:	10' Min; 12' Max

BUILDING FOOTPRINT:

Primary Street:	55% Min
Side Street:	30% Min

III. BUILDING TYPES

Single unit house, duplex, townhouse, and bungalow court

See the IAP for additional details on building and site design.

IV. USE REQUIREMENTS

Ground Floor Use: Residential

Upper Floor Use: Residential

V. PARKING REQUIREMENTS

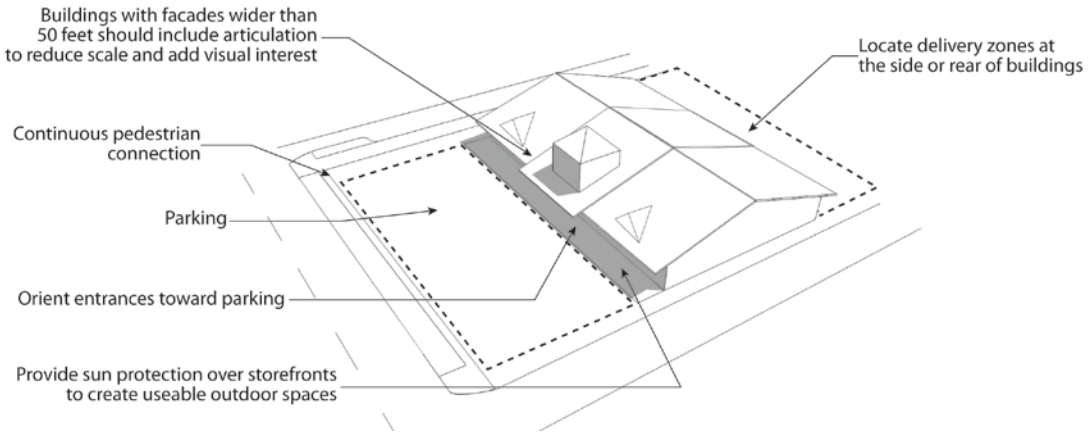
LOCATION:

See siting standards.

DESTINATION COMMERCIAL

INTENT

Auto oriented commercial uses that typically display a "big box" design.



I. BUILDING PLACEMENT

BUILD-TO-LINE:

Primary Street: Build to AT/FP minimum setback from street

SETBACK:

Required setback for front and side depend on adjacent uses

II. BUILDING FORM

HEIGHT:

Building Height: 20' Min; 30' Max

BUILDING FOOTPRINT:

Primary Street: 75% Min
Side Street: 50% Min

III. BUILDING TYPES

Retail buildings
See the IAP for additional details on building and site design.

IV. USE REQUIREMENTS

Ground Floor Use: Retail
Upper Floor Use: Retail and admin supporting retail functions

V. PARKING REQUIREMENTS

LOCATION:

See siting standards.
Surface parking lots and delivery zones are allowed if they are located to the side or rear of the buildings on the site and setback from the streets at least 20'.

ADDITIONAL STANDARDS FOR ALL BES

BUILDING USE

Functional/Adaptive Building Use

Though building use is a function of requirements, designing buildings to be flexible and adaptive will maximize efficiency by allowing internal programming to adapt as requirements change over time.

Standards

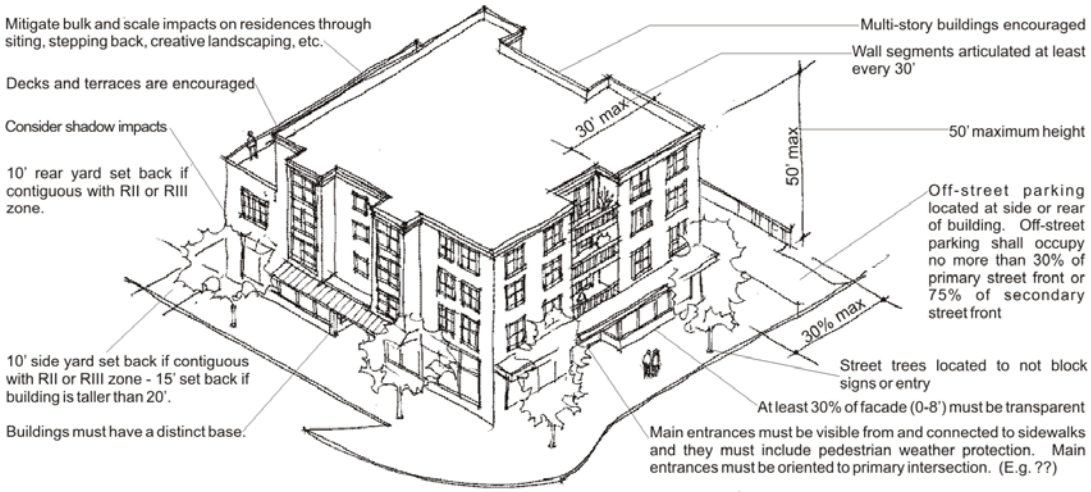
- Design interiors with an open floor plan. When it is necessary to sub-divide a space, consider the use of moveable walls.

Mixed-Use Buildings

Mixed-use buildings can include both vertical and horizontal mixed uses to accommodate different funding sources and/or implementation schedules. Mixed-use developments decrease vehicle trips, building footprints, and utility and maintenance costs by combining compatible uses within a single structure.

Standards

- Whenever possible integrate compatible uses into a single building or group of buildings.
- Locate uses that generate pedestrian activity (e.g. commercial) on the ground level and place less active uses (e.g. office, housing) on upper levels.



Mixed-use development

SITING

Passive Orientation

Orienting buildings in response to a site's context and natural systems can help reduce energy demands for interior space conditioning by optimizing passive (natural) heating and cooling.

Standards

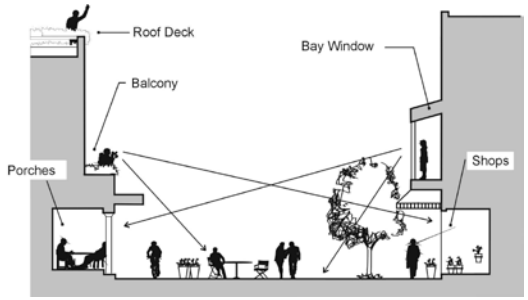
- When possible orient buildings length-wise along north-south axes (within 15 degrees) to take advantage of solar exposure and natural ventilation. Sites along Enterprise and Hancock Avenues are good candidates for north-south orientation.
- Shade south-facing windows and entrances from the sun with the use of awnings, louvers, recessed entrances, or landscaping elements.
- Locate interior buffer zones (stairs, restrooms, entry corridors, etc) along the building's west side to protect living and working areas from peak afternoon sun exposure.
- Site entry plazas and outdoor gathering areas so that they are shaded by the building during high-use periods.

Safety

The siting and orientation of buildings can improve pedestrian safety.

Standards

- Orient windows and other openings to allow natural surveillance of adjacent open spaces.
- Employ Crime Prevention Through Environmental Design (CPTED) principles in buildings and site design.



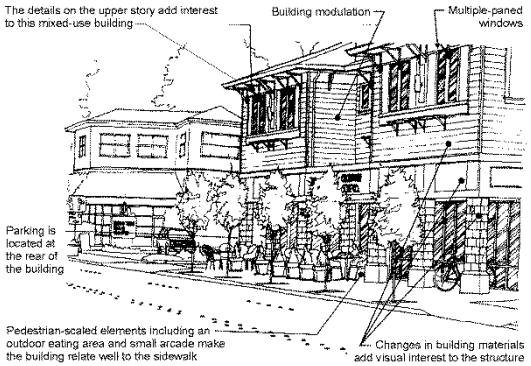
CPTED principles in buildings and site design

Required Build-to Lines (RBL)

Required Build-to Lines identify where buildings should be located within a BES and orient the primary entrance(s). The Master Plan establishes RBLs in order to improve functionality of the Installation, improve the pedestrian/bike environment, and maximize the building footprint. RBLs take into account AT/FP setbacks.

Standards

- Place the front building edge along RBLs.
- Avoid locating loading docks, service entries, parking lots, and/or blank walls longer than 15 feet along RBLs.
- Allow awnings, louvers, and other architectural elements to encroach beyond the RBL.



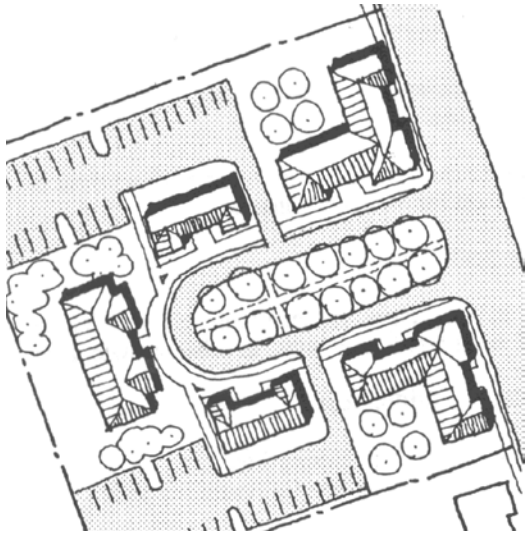
Building frontage

Parking Lot Requirements

The Master Plan advocates for consolidation of parking lots within high use areas. In addition to parking consolidation, the Master Plan identifies optimal parking lot locations.

Standards

- Refer to UFC 2-000-05N for parking allowances for each use.
- Unless the building is located within the Airfield Ops District, parking areas should be located to the rear of buildings whenever possible.
- Shared parking between adjacent uses is encouraged, where appropriate.
- Bicycle parking at each facility shall be provided at a minimum ratio of one bicycle space for every 10 vehicle parking spaces, with a maximum requirement of 20 bicycle spaces.
- For every 10 bicycle parking spaces provided, the vehicle parking requirement may be reduced by one space with a maximum reduction of 15 percent.



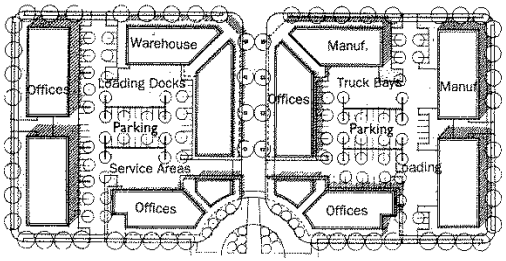
Parking lot siting

Service Areas

Many occupied buildings require service vehicle access for trash and recycling. Size and operational demand of these service elements will vary by use. These areas can negatively impact the pedestrian/bicycle environment.

Standards

- Locate service areas to minimize negative visual, odor, and noise impacts.
- Integrate trash and recycling elements within buildings, where feasible.
- Locate loading docks and service entries to not obstruct pedestrian or vehicle traffic.
- Screen all service areas visible from streets, pathways, or open spaces.



Service area locations

BULK/MASSING

Height

Multi-level buildings allow for compact development, which promotes walkability and reduces the required site area and amount of impervious surfaces.

Standards

- Plan for multi-level construction whenever possible.
- Conform to the minimum and maximum number of levels allowed by the BES.
- Discourage single-story buildings whenever possible.

Width

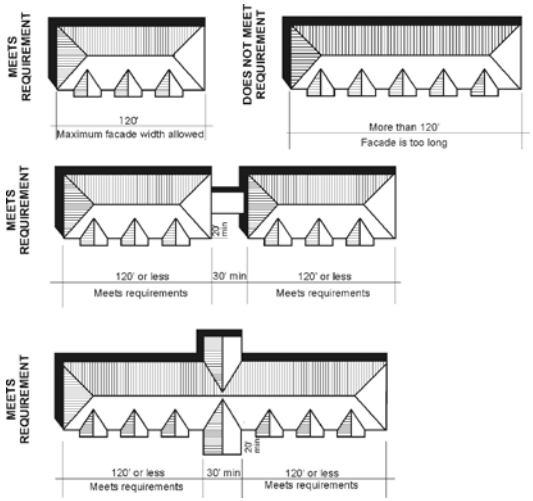
A slimmer building profile increases the ratio of surface area to volume, providing more opportunities for daylighting and natural ventilation. This reduces energy costs and improves internal comfort.

Standards

- Conform to the maximum widths allowed by the BES.
- Use a maximum width of 50 feet whenever feasible.

Facade Modulation and Articulation

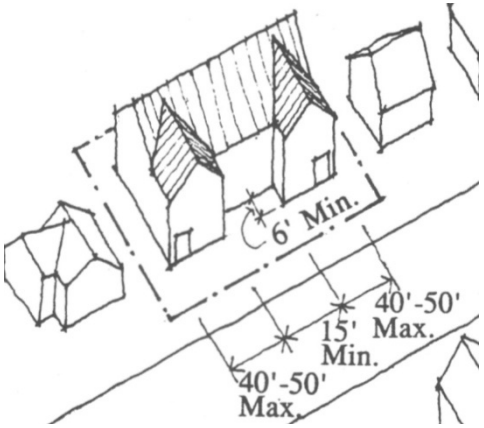
Articulation and modulation techniques reduce the perceived scale of buildings while adding visual interest by breaking up massing of large buildings.



Building facade articulation

Standards

- Building massing and articulation should conform to the development code for each BES.
- Façades wider than 50 feet should incorporate some articulation features, such as changes in material, awnings, or articulation patterns.



Building facade modulation

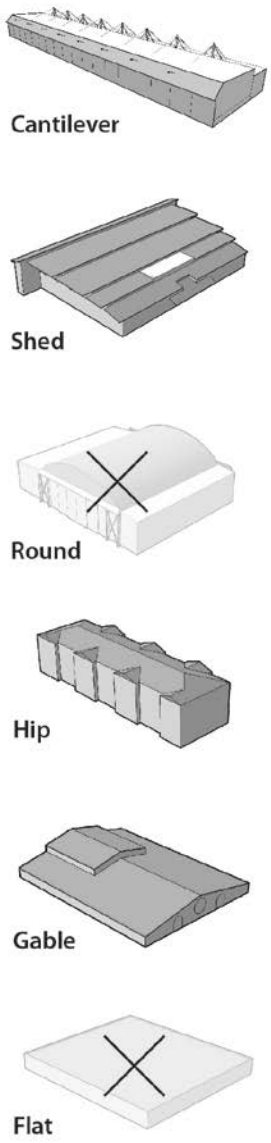
- Use materials or modulation to create a recognizable ground, middle, and top level for buildings three stories or more in height (excluding hangars).
- Use materials, modulation, and heightened use of architectural features to emphasize high-visibility corners.
- Avoid blank walls on the ground level. Use façade articulation techniques at least every 15 feet in the Base Administration and Personnel Support Districts and every 60 feet in all other districts. Acceptable articulation strategies include:
  - Pronounced, projected, or recessed entries and/or windows.
  - Distinct changes in texture and color of wall surfaces.
  - Ground-level arcades.
  - Awnings, canopies, and other protrusions.
  - Vertical piers/columns.

Roof Form

A variety of roof designs exist throughout NAS Lemoore. Southwest Ranch Style buildings typically include a gabled, tile roof. The Ops Side hangars include a distinctive, modernist, cantilevered roof design. Appropriate roof forms will be dictated from the development code of each District.

Standards

- Gabled, hip, or shed roof form with modern materials and technology is the preferred style for all Districts. Flat roofs should not be included in future developments.
- All roofs should include a minimum four-foot overhang.
- Screen mechanical equipment from public view on the ground level.
- Angle roof pitches to maximize PV panel placement.
- Round or barrel roofs are not permitted in the NAS Lemoore IAP. In addition, round roofs are more expensive to engineer and maintain and limit daylighting potential.
- Flat roofs are expensive to maintain in Lemoore's hot, dry environment. Cooling interior spaces is also less efficient with flat roofs.



Roof forms

WINDOWS AND ENTRIES

Windows

Windows provide daylight for interior spaces and enhance the overall well-being of occupants. On building exteriors windows contribute to aesthetics and the overall character of a space.

Standards

- Select window and glazing material based on life cycle considerations. Use double or thermal-designed glass for all windows. Avoid the use of film or paint to mitigate heat gain and glare.
- Provide operable windows for all occupied facilities, while adhering to the noise standards in DoD Instruction 4165.57.
- Consider north-facing top-lighting to diffuse interior light.
- Consider recessed windows, overhangs, and other treatments, especially on south-facing walls, to limit direct solar heat and avoid façade monotony. In addition, consider awnings and louvers to limit solar heat gain.

Entries

Building entries serve a functional purpose as well as provide interest and variety to the street frontage.

Standards

- Ensure at least one primary entry is located along the RBL. For housing, consider providing individual entries into units located on the ground floor.
- Design entries to be distinct, readily visible, and at a scale appropriate for the building.
- Recess entries or include structural elements that provide shade and help control solar heat gain/loss.

Entry standards

STREET STANDARDS

Street standards describe the character and design of the various street types identified for NAS Lemoore. These standards establish an environment that encourages and facilitates pedestrian activity.

GENERAL PRINCIPLES AND INTENT

The use of street standards provides for attractive, safe, multi-modal streets that accommodate vehicular, transit, bicycle, and pedestrian traffic.

THE STREETSCAPE

Standards

- The street and building façade receives more attention than the rest of the building.
- Streetscape elements such as surfaces, benches, and waste-bins, must be consistent throughout a district.
- Landscaping is part of an overall streetscape plan designed to give special character to each street and coherence to each area. The desired aesthetic shall be achieved through the use of native/ proven, hardy, adapted species where reasonable.
- Vehicle parking (not including on-street parking), service areas, and mechanical equipment are kept away from the street-space.

SITE FRONTS AND REARS

Standards

- Building façades along the primary roadway should be the front "face" of every building.
- The rear areas of sites provide for working environments unseen by the general user. Rear areas are where building mechanical and electrical equipment should be located.

SIDEWALKS

Standards

- Sidewalks are a minimum of 5 feet wide, unless otherwise designated.
- Sidewalks within the Base Administration and Personnel Support core areas have three distinct zones – the building face zone (at least two feet in width), the clear zone (no less than six feet in width), and the furniture zone (up to six feet in width).
- On streets with on street parking locate the sidewalk closer to parking. Locate the sidewalk adjacent to the building face when there is no on street parking.
- Consistency of paving design is required within a project and within each activity node.

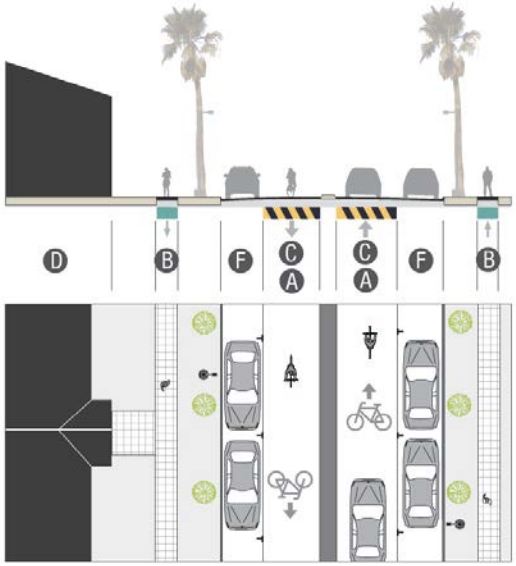
MATERIALS AND CONFIGURATIONS

Standards

- Curb return radii on all corners shall be 15 feet, where possible.
- Trees and other landscaping shall be selected from the IAP.
- Wherever the Regulating Plan does not show specific tree placement, street trees shall be planted along the roadway at an average spacing no greater than 30 feet on center.

ENTERPRISE AVENUE

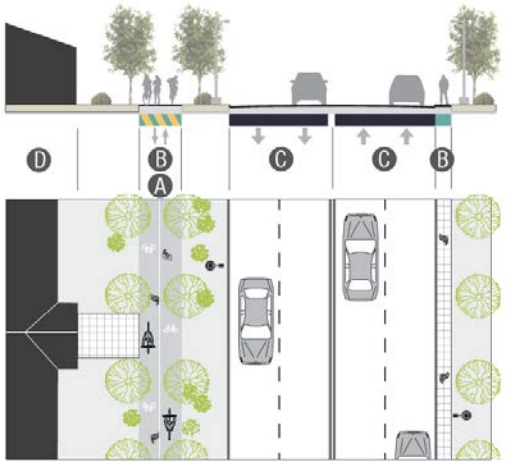
Enterprise Avenue is reconfigured to provide two travel lanes (one in each direction) with on street parking. Travel lanes are designated for shared use by vehicles and bicyclists, which is considered appropriate due to the low traffic volumes and vehicles speeds. The existing median can be expanded to provide a greater design impact.



Enterprise Avenue street standards

FRANKLIN AVENUE

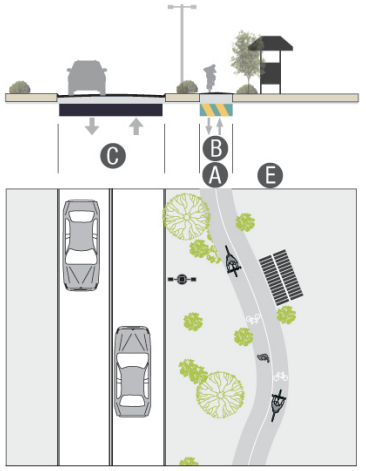
Franklin Avenue serves as the primary corridor within the Admin Side. Four travel lanes (two in each direction) are provided to support larger traffic volumes and more frequent turning movements. A separated pathway is provided for pedestrians and bicyclists.



Franklin Avenue street standards

TWO LANE ROADWAY WITH SEPARATED PATH

This roadway configuration is found most frequently along arterials within the family housing area. The separated pathway provides increased safety for pedestrians and bicyclists with young children.



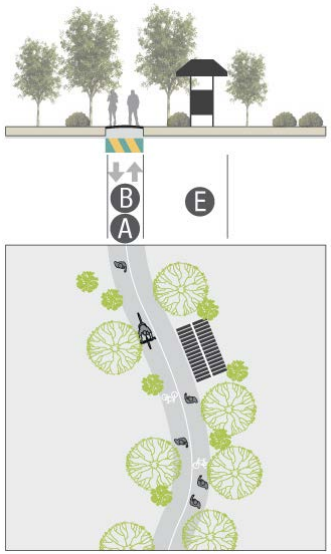
Two lane roadway with separated path street standards

A. Bikeway
B. Sidewalk
C. Roadway
D. Building Area
E. Recreation Feature
F. Parking

Note: Final setback will be based on AT/FP minimums

MULTI-USE PATH

Multi-use paths are designed to support high volumes of pedestrian and bicycle traffic. Their separation from the roadway increase safety, especially for families with young children. Multi-use paths occur in the family housing area, between family housing and the Personnel Support core area, along Franklin Avenue, and along Reeves Boulevard between the Admin and Ops Sides.



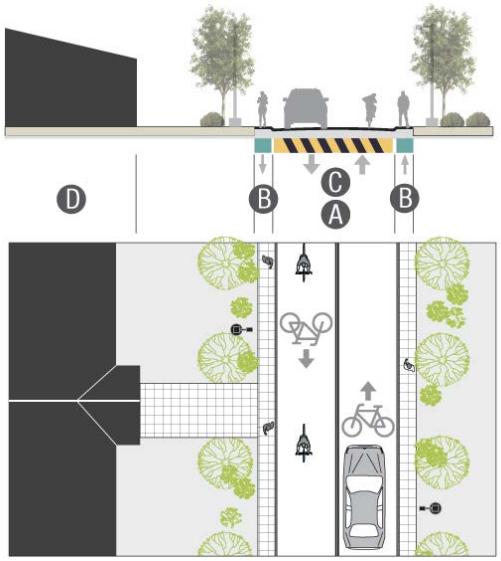
Multi-use path standards

A. Bikeway
B. Sidewalk
C. Roadway
D. Building Area
E. Recreation Feature
F. Parking

Note: Final setback will be based on AT/FP minimums

TYPICAL SHARED ROADWAY

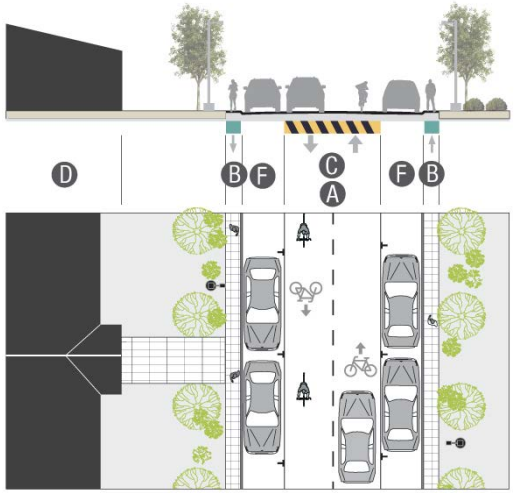
Low traffic volumes on shared roadways allow travel lanes to support vehicles and bicycles. Sidewalks are immediately adjacent to the street.



Typical shared road street standards

TYPICAL RESIDENTIAL ROADWAY

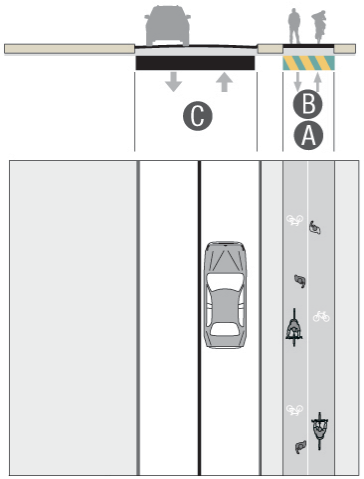
Residential roadways are located in the family housing area. The roadways include on street parking when space allows, sidewalks immediately adjacent to the street, and in-lane bike routes. Traffic volumes and speeds are low.



Typical residential roadway street standards

REEVES BOULEVARD, AIRFIELD OPS

Street standards for Reeves Boulevard along the flightline include a separated multi-use pathway to facilitate safe and efficient movement along the flightline. Parking lots are reconfigured to reduce the number of parking entry and egress points crossing the pathway.



Reeves Boulevard, Airfield Ops standards

A. Bikeway
B. Sidewalk
C. Roadway
D. Building Area
E. Recreation Feature
F. Parking

Note: Final setback will be based on AT/FP minimums

LANDSCAPE STANDARDS

Implementation of the installation Master Plan will disturb or remove existing landscape. Landscaping can be used to improve air quality, reduce dust, act as a noise buffer, promote energy and wildlife conservation, visually facilitate traffic flow, promote water conservation through the use of low water adaptive vegetation, and mitigate the impact of otherwise incompatible uses.

The landscape standards should mitigate any increase of impervious surfaces that can have a negative impact on the natural environment by increasing air temperatures and accelerating runoff.

GENERAL PRINCIPLES AND INTENT

Landscape standards ensure that NAS Lemoore benefits from an enhanced visual experience, the protection of existing natural areas, and an improved quality of life. Landscape designs should:

- Reinforce and extend any existing patterns of outdoor spaces and vegetation where practical;
- Support functional purposes such as spatial definition, visual screening, creation of privacy, or drainage;
- Enhance the appearance of the project or district;
- Protect desirable trees, natural systems, and habitat;
- Enhance the pedestrian environment;
- Limit the use of water.

BEST PRACTICE POLICIES

The following best practice policies should be applied to new landscape designs where applicable. These policies will help to ensure the success of the landscape as both a pragmatic approach to place-making and a useful tool for a more sustainable design.

- Native species should be a top choice when selecting plant varieties for landscapes. The exception being those species with lower water requirements than native ones.
- A dense tree canopy should be clustered around outdoor areas within high-use zones and along pedestrian corridors to provide increased shade opportunities.
- Trees and middle story shrubs should be planted along the south and west facing side of structures to help decrease thermal exposure and reduce internal cooling costs.
- Turf applications should only occur at focal areas, such as pocket parks and areas of respite. Due to the increasing scarcity of water in the region, broad-scaled turf application should be avoided.
- Along extensive stretches of multi-use pathways, a clustered approach to planting can be applied. This technique provides a “stepping stone” effect, with areas of shaded microclimates between stretches of little to no planting application. This is an effective way to reduce cost while preserving the opportunity for a positive pedestrian experience.
- Organic mulch should be applied in areas of clustered planting to help the soil retain moisture, increase rainwater infiltration, and reduce the thermal mass of the ground plane. This technique is also a useful tool for increasing the effectiveness of cooling microclimates around high-use zones.
- Drip irrigation should be used across all designed landscapes.

GENERAL LANDSCAPE STANDARDS

LANDSCAPE AREA TREATMENT

Landscape areas shall include all areas on the site that are not covered by buildings, structures, paving or impervious surfaces. Landscape areas shall consist only of landscaping. The selection and location of turf, ground cover (including shrubs, grasses, perennials, flowerbeds, and slope retention), pedestrian paving and other landscaping elements shall be used to meet the functional and visual purposes such as defining spaces, accommodating and directing circulation patterns, managing visibility, attracting attention to building entrances and other focal points, and visually integrating buildings with the landscape area and with each other.

ENTRYWAYS

Primary entryways for new development or redevelopment where appropriate, shall be landscaped within a setback from the street. The entry way will be landscaped at a ratio of at least one (1) tree and three (3) shrubs for every 1,500 square feet.

WATER CONSERVATION

All landscaping shall be designed to incorporate water conservation materials and techniques through application of xeriscape landscaping principles wherever possible and includes the following concepts:

(A) Grouping of plants with similar water requirements together on the same irrigation zones.

(B) Limiting high-irrigation turf and plantings to appropriate high-use areas with high visibility and functional needs.

(C) Use of low-water demanding plants and turf where practical.

(D) Incorporation of soil amendments and use of organic mulches.

(E) Provision of regular and attentive maintenance to ensure irrigation systems are functioning properly, and incorporations of water thrifty irrigation systems and devices.

(F) See the IAP for recommended xeric plant list to incorporate trees and shrubs with lower water needs.

PARKING LOT PERIMETER LANDSCAPING

Parking lot perimeter landscaping shall meet the following minimum standards:

(A) Trees shall be provided at a ratio of one (1) tree per forty (40) lineal feet along a street. Trees may be spaced irregularly in informal groupings or be uniformly spaced, as consistent with larger overall planting patterns and organization defined for each district.

(B) Perimeter landscaping along a street may be located in and should be integrated with the streetscape.

(C) Parking lots shall be screened from adjacent uses and the street. Screening shall extend a minimum of seventy (70) percent of the length of any boundary of the parking lot.

PARKING LOT INTERIOR LANDSCAPING

There is no requirement for parking lots with less than or equal to fifteen (15) parking spaces. At least six (6) percent of the interior space of any parking lot with between 16 and 99 spaces and ten (10) percent of the interior space of any parking lot with 100 spaces or more shall be devoted to landscaping. All parking lot islands, connecting walkways through parking lots and driveways through or to parking lots shall be landscaped according to:

(A) Maximized Area of Shading. Landscape islands shall be evenly distributed to the maximum extent feasible.

(B) Landscaped Islands. In addition to any pedestrian refuge areas, each landscaped island shall be greater than eight (8) feet in length in its smallest dimension, include at least eighty (80) square feet of 12 ground area per tree to allow for root aeration, and have raised concrete curbs.

LANDSCAPING IN THE BASE ADMINISTRATION AND PERSONNEL SUPPORT DISTRICTS

Both soft and hardscape design applications should be used to define spaces, increase shade opportunities, facilitate the pedestrian experience, and provide a sense of place within these Districts. Generous clustered plantings should encapsulate outdoor gathering spaces to provide microclimatic shade, while allee style tree plantings along both pedestrian and multi-use corridors will generate a buffer from automobile traffic and decrease climate exposure for the user.

LANDSCAPING IN THE FAMILY HOUSING DISTRICT

With a continued focus on outdoor recreational use, the Family Housing District should continue the current trending character into future projects – winding pedestrian pathways, generous colorful plantings, tree allee's, pocket parks, and gathering spaces. However, the exception to this effective neighborhood design is the broad-scale application of turf, which should now be confined to focus areas such as outdoor gathering spaces and pocket parks.

LANDSCAPING IN THE AIRFIELD OPS SUPPORT DISTRICT

The design focus should be on a functional landscape that provides precision shade opportunities, reduces thermal mass, and facilitates a comfortable transition for the user between daily operational facilities. Tree allee's along pathways, lunchtime gathering spaces, and appealing facility entry way plantings will help to both increase interest and functionality within the district.

LANDSCAPING IN THE AIRFIELD OPS DISTRICT

Middle and upper-story plantings should be avoided to reduce wildlife habitat, decreasing the potential for BASH incidents. Spaces should be defined using hardscape applications like sidewalks, benches, seating walls, shade structures, and a variety of lower-story shrub and groundcover applications.

INSTALLATION DEVELOPMENT PROGRAM

The Installation Development Program in Table 43 provides a consolidated list of COAs from all districts and identifies which Master Plan goals each COA responds to.

Table 43. NAS Lemoore Installation development program

Master Plan COA No.	Project No.	COA	Master Plan Goals					
			1	2	3	4	5	6
AO-1		NAS Lemoore SAR Unit helo pad	■					
AO-2	P284	F-35C Fleet Hangar 6 Aircraft Maintenance Hangar	■					■
AO-3		Place APEs on F-35C apron spots	■					■
AO-4	P380	F-35C Engine Repair & Pilot Fit Facility	■					■
AO-5	P218	RTO and Mission Debrief Facility	■					■
AO-6	P375	Hush House	■					
AO-7		Construct line maintenance shelters with operational storage	■					■
AO-8		Designate open storage areas for squadrons	■					
AO-9	P378	F-35C FRS Hangar 5 Additions & Modifications	■					■
AO-10	P328	F-35C Facility Addition and Modification (Hangar 5)	■					■
AO-11		Determine F-35C parking requirements and upgrade as needed	■					
AO-12		Designate hot brake inspection	■					
AO-13		Identify a future use for power check pads at Hangars 2, 3, and 5					■	
AO-14	P242	Galley Replacement	■			■	■	■
AO-15		Construct additional Apron 2 and 4 apron access taxiways	■					
AO-16		Install flightline power and air	■					
AO-17		Install secure spaces in each hangar	■					
AO-18	P351	F-35C Facility Upgrade and Addition (Hangar 3)	■					■
AO-19		Provide space for the Response Force Team	■					■
AO-20		Bravo Taxiway closure	■				■	

Master Plan Goals

1. Enhance Mission Capabilities
2. Promote health and well-being with a multimodal transportation system that provides alternatives to single occupant vehicles
3. Focus development within the core areas
4. Continue to foster and strengthen the sense of community
5. Achieve a high level of sustainability
6. Create an environment that cultivates well rounded Sailors (Sailorization) through personal and professional growth and development

Table 43. NAS Lemoore Installation Development Program (continued)

Master Plan COA No.	Project No.	COA	Master Plan Goals					
			1	2	3	4	5	6
AO-21		Construct additional Apron 1 and 3 apron access taxiways	■					
AO-22		Evaluate feasibility to upgrade and expand existing hangars	■				■	■
AO-23	P059	Corrosion Control Hangar	■					■
AO-24		Modernize and expand Ops Side fire station	■				■	■
AO-25		Establish Level Two security area	■					
AO-26	P282	F/A 18 Avionics Repair Facility Replacement	■					■
AO-27	P278	Extend Hotel Taxiway Parallel	■				■	
AO-28		Replace Runway 32L lighting	■					
AOS-1	RM11-95	Renovate Air Ops Building (Bldg 1) & Construct Adjacent Annex	■	■	■	■	■	■
AOS-2	P385	F-35C Admin Dept	■	■	■	■	■	■
AOS-3	P386	F-35C Weapons School Training Facilities	■		■	■		■
AOS-4	P327	F-35C Operational Training Facility	■					■
AOS-5	P379	P-35C PTC Phase II Bldg 43 Modifications	■					■
AOS-6	P327A	F-35C Academic Training Facility	■					■
AOS-7	P377	Additions to Bldg 30 for CVW-14 Restoration	■					■
ORD-1	P276	Replace Missile Maintenance/ Assembly Building	■					■
ORD -2		New reconfigurable magazines	■					
ORD -3		Perimeter fence at ordnance magazine compound	■					
ORD -4		Inert material weather protection	■				■	
ORD -5		Install vehicle shaker at entrance to flightline	■					
BA-1		CBMU compound reuse (October 2014)			■	■	■	
BA -2	N452714	NEX gas station			■	■		
BA -3		NEX drive-through car wash			■	■		
BA -4	P349	Expand Security Building	■		■	■		■
BA -5		Address kennel shortfalls	■					
BA -6		Upgrade NAVSUP warehouse Building 773 and identify additional uses					■	

Master Plan Goals

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Table 43. NAS Lemoore Installation Development Program (continued)

Master Plan COA No.	Project No.	COA	Master Plan Goals					
			1	2	3	4	5	6
BA-7		Analyze recycling center alternatives				■	■	
BA -8		Upgrade and expand Fire Station 61	■			■	■	■
BA -9	P300	Consolidate Base Operations Functions	■	■	■	■	■	■
BA -10		New Public Works admin building	■	■	■	■	■	■
BA -11		New training building	■			■	■	■
BA -12		Upgrade Building 736 & provide satellite PSD office on Ops Side	■				■	■
PS-1		Retain UH	■					
PS-2		Galley replacement and club consolidation	■		■	■	■	■
PS-3		Construct new UH	■	■	■	■	■	■
PS-4		Provide indoor physical fitness space with new UH		■	■	■	■	■
PS-5		New consolidated personnel support facilities		■	■	■	■	■
PS-6	P235	Religious Education Facility		■	■	■	■	■
PS-7		Relocate Community Programs storage to Building 773					■	
PS-8	P311	Retractable Lap Pool Enclosure	■	■			■	■
PS-9	P358	Aviation Survival Training Center Replacement	■		■			■
PS-10	P366	NAVOPSTCEN Lemoore	■		■	■	■	■
FH-1		Third party CDC services	■				■	
FH-2		FFSC upgrades and satellite space on the Ops Side	■				■	■
FH-3		Teen Center upgrade			■	■	■	
FH-4		Akers Elementary expansion			■	■	■	
FH-5		Biology-chemistry lab					■	■
FH-6		RV park relocation			■	■	■	
FH-7		Karen Mechem Park upgrade				■	■	■
ML-1		Modify ag land lease agreements	■				■	
EUL-1		Explore EUL partnerships	■			■		
JUT-1		Construct a joint use training facility	■				■	■
JUT-2	P382	SAR Multi-Use Training Compound	■				■	■
JUT-3		Commuter rail stop and TOD	■	■		■	■	■

Master Plan Goals

1. Enhance Mission Capabilities
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6. Create an environment that cultivates well rounded Sailors (Sailorization) through personal and professional growth and development

Table 43. NAS Lemoore Installation Development Program (continued)

Master Plan COA No.	Project No.	COA	Master Plan Goals					
			1	2	3	4	5	6
TP-1	P326	Commuter Bikeway		■		■	■	■
TP-2		Commuter rail connection		■		■	■	
TP-3		New Main Gate and Pass and ID	■	■	■	■		
TP-4		SR 198 interchange		■		■		
TP-5		Enterprise Ave reconfiguration		■			■	
TP-6		Multi-use pathway extension throughout Admin Side		■	■	■	■	■
TP-7		Admin Side pathway system		■	■	■	■	■
TP-8		Develop a truck parking area at Pass and ID	■					
TP-9		Family Housing Gate truck turnaround	■					
TP-10		Regional bike trail extension		■		■	■	■
TP-11		Flightline pedestrian improvements		■		■	■	■
TP-12		Flightline circulator shuttle		■	■	■	■	■
TP-13		Car and vanpool policies		■		■	■	■
TP-14		Ops Side pedestrian campus		■	■	■	■	■
TP-15		Post 3A improvements	■					
TP-16		Shuttle passenger stop outside Post 3A	■				■	
TP-17	P381	Ops Parking Expansion	■				■	
TP-18		Skytrain Avenue extension south toward the Ops Side Gate	■					
TP-19		Ops Side Gate reconfiguration	■					

Master Plan Goals

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NAVAL AIR STATION LEMOORE
INSTALLATION MASTER PLAN 2030

July 2014

MAKERS
architecture · planning · urban design

Prepared by MAKERS Architecture and Urban Design, LLP

NAVAL AIR STATION LEMOORE
INSTALLATION MASTER PLAN 2030

JULY 2014

NAS LEMOORE IS THE AIR STATION OF CHOICE FOR AVIATORS, SAILORS, SUPPORT PERSONNEL, AND FAMILIES THAT DESIRE AN UNCOMPRIMISED TRAINING ENVIRONMENT IN A SETTING THAT FOSTERS POSITIVE GROWTH AND DEVELOPMENT OF OUR WAR-FIGHTERS, A STRONG SENSE OF COMMUNITY, AND HEALTHY LIFESTYLE CHOICES FOR ALL.