2.0 Planning Analysis

P-3C Orion Anti-Submarine and Maritime Surveillance Aircraft

2.1 Development Constraints

The majority of current development at Naval Station Rota is centered around five key areas: Airfield, Waterfront, Core, Rotational Forces and Expeditionary Camp (Camp Mitchell), and Family Housing. While the overall size of the base exceeds 6,000 acres (including port areas), actual developable land is restricted by a number of operational, environmental and cultural constraints. As a result, opportunities for future development at Rota are limited primarily to areas south of the airfield and within and adjacent to the Core area.

The following section summarizes the most significant operational and environmental barriers to future development at the Naval Station. Development constraints are provided as a guide for future facility siting and should be used in support of land use recommendations.

In addition to specific physical limitations to development discussed in this report, all future U.S. Navy development is subject to host nation review and site approval by the Spanish government.

Key Operational Constraints

Air Safety
ESQD Arcs
Ordnance Ops
AT/FP

P-3 Orion Aircraft. One of the most significant operational constraints at Rota is the air safety clearance zones that separate the northern areas of the base from the operational core.

2.1.1 Operational Constraints

Development opportunities at Rota are restricted by four primary operational constraints: Air Safety Clearance Zones, ESQD Arcs from Piers 1 and 3 at the Waterfront, Ordnance Facility Safety Arcs, and Anti-Terrorism/Force Protection (AT/FP) requirements. These constraints are displayed graphically in Figure 1-1 (at the end of the chapter).

AIRFIELD

Air operations at NS Rota generate airfield safety and clearance zones that limit building sitings and heights around the airfield. These include clear and approach zones at both ends of the runway and a 7:1 Transition Zone adjacent to the runway that limits building heights. These airfield safety zones also create a physical separation between the southern portions of the base and the northern areas reserved primarily for ordnance storage. Airfield clear zones and limited roadway access limit future development opportunities in the northern portion of the base to special operations and other uses that can function remotely.

WATERFRONT

Explosive Safety Quantity Distance (ESQD) Arcs radiating from Piers 1 and 3 encumber a large portion of the southern area of the Base, including the Rotational Forces Camp. Currently operating under a Chief of Naval Operations (CNO) Secretarial Certification (NAVSTA Rota SC1-04), future development at Rota within these arcs is restricted and is subject to site approval to meet specific risk mitigation criteria. Existing U.S. facilities currently within the arcs are eligible for renovation, repair, or replacement, subject to approval by the Naval Ordnance Safety and Security Activity (NOSSA).

Specific proposed new construction and/or renovation addressed in the Certification include Rotational and Expeditionary Forces Camp facilities (BEQs); waterfront facilities (Pier One extension); NSWU-10 facilities; a Mini-Mart facility and police station in the Family Housing area; the Armed Forces Radio & Television Service (AFRTS) station, and other storage, maintenance and utilities facilities at the waterfront area. Improvements to these facilities are allowed subject to NOSSA approval. The Pier 3 ESQD arc was recently reduced, which has unencumbered current and future DoDDS facilities and 156 of the family housing units on-base.

ORDNANCE AND MAGAZINES

Safety arcs associated with ordnance magazines, Explosive Ordnance Disposal (EOD) and Hot Cargo Pads are located primarily north of the airfield and are the most significant limitation to future facility siting in this area. Operations are limited to ordnance-

related activities and allowed airfield functions. The majority of this area is identified as joint-use with the Spanish Navy and is not considered to have future development potential beyond its current use.

AT/FP

Current AT/FP criteria impose significant operational constraints on future facility siting, construction and renovation. These include stand-off distance setbacks of 45 m (150 ft) from the base perimeter, as shown in Figure 2-1, as well as building setbacks from roads and parking, depending on building occupancy. The security setbacks applicable to Rota are defined in *UFC 4-010-01 Dod Minimum Anti-Terrorism Standards for Buildings*.

In addition to this DoD guidance, a *Draft Anti-Terrorism Force Protection and Policy Guidance Report* was prepared for CNRE in 2004 addressing AT/FP conditions for bases in the European Theater. This planning effort used Rota as a case study and provides prototypical AT/FP measures suitable for the base.

2.1.2 Environmental Constraints

Environmental constraints that limit facility siting at the Naval Station are categorized as follows: vegetation, protected fauna, flood plains, steep/erodable soils, and cultural resources. This section, as well as the corresponding Environmental Development Constraints Map (Figure 2-2 at end of chapter), provide a brief description of the environmental constraints that limit future development and facility siting at the Base. More detailed analysis is available through the *Draft Environmental Planning User's Guide* completed by NAVFAC Atlantic in August 2004.

VEGETATION

Vegetated areas on the Base are typical of the arid Andalusian Plain that extends across Spain's Iberian Peninsula and encompasses the southwestern coastal region. The majority of vegetative cover consists of low shrub types including Bridal Broom (*Retama monosperma*). The vast areas of Bridal Broom found at Rota are known habitat for the Common Chameleon and are protected from develop-

Key Environmental Constraints

Vegetation
Fauna
Floodplain
Soil/Erosion
Climate

(left)Mature stand of Stone Pine

(below)Common European Chameleon

Areas of significant shoreline/cliff erosion in the Family Housing area.

ment for this reason. Tree canopy is limited, and predominant cover on the Base consists of Eucalyptus (*Eucalyptus spp.*) and Stone or 'Umbrella' Pine (*Pinus pinea*). Neither tree species is endangered, nor considered a major development constraint; however, the Stone Pine protects sensitive soils, particularly in the vicinity of the Rotational and Expeditionary Forces and areas east of the airfield and should be preserved wherever possible. Additionally, the Eucalyptus is considered a high maintenance tree and should not be planted near buildings or along roads or parking. Additionally, host nation requirements control the removal, alteration and replacement (2 for 1) of any tree on the base.

PROTECTED FAUNA

While NS Rota boasts a large number of native inhabitants, from exotic migratory birds and reptiles to small mammals, the 'Common European' Chameleon (*Chamaelo chameleon chameleon*) is the only resident species currently protected at Rota. Particular attention should be given to the preservation of large and contiguous stands of the Chameleon's habitat (Bridal Broom). Development in these areas should be avoided.

Aerial view showing floodplain surrounding Rio Salado east of Rota airfield.

FLOOD PLAIN

Permeable soil conditions at Rota accommodate storm water during normal rain events throughout the moderate to dry seasons. However, in winter months and during heavy rains, Rio Salado, which separates housing and Puerto Gate from the rest of the Base, can flood causing encroachment along the eastern edge of the Base. This does not pose a significant constraint for future development, however, since this area falls primarily in exclusive Spanish land use with no foreseeable U.S. Navy facilities proposed.

Although overflow from Rio Salado is not a concern for U.S. facilities development, localized flooding is a problem during peak rain periods. Existing stormwater facilities on base primarily consist of drainage swales and retention areas. Any new base development should include proper engineering to control run-off and direct stormwater volumes to designated new or existing overflow areas.

SOILS

Steep slopes are uncommon at Rota but occur along the coastal areas within the family housing area. Due to their unstable composition and direct exposure to wind and sea, these unprotected areas have experienced substantial erosion in the past. There are no measures a this time to correct this current erosion, but future development in these areas should be avoided.

CULTURAL RESOURCES

The recently completed *Draft Environmental Planning User's Guide* included a review and analysis of cultural resources at Rota. This study has identified a number of archeological significant sites that require protection or mitigation during proposed site development. A process for management of these resources, in cooperation with the appropriate Spanish authorities, is included in the Guide. Cultural resources sites, as identified in the User's Guide, are shown in Figure 2-2. The Guide should be referenced for further information regarding the extent of potential resources and degree of protection required at each site.

2.2 Proposed Land Use

The base recognizes distinct land use zones for both mission-related (air, port, ordnance, etc.) and support-related (housing, medical, recreation, etc.) functions. A proposed Land Use Plan (Figure 2-3, at end of the chapter) has been generated as part of this RSIP planning effort to guide future development on the base. This revised Plan is based, for the most part, on existing land uses already present at the base. The most notable changes have been the expansion of the airfield to accommodate En Route and other aviation recap improvements, and the incorporation of support and recreation uses around the Core area.

In conjunction with the development constraints discussed above, the Proposed Land Use Map is intended to promote optimal siting of future facilities consistent with the long-term vision and mission for the Base. The proposed land uses will allow for future expansion and/or reduction of individual uses over the life of this plan (15 years). The proposed land uses are based on compatible adjacencies. Adherence to this Plan is important to provide for critical mission and support activities and facilities, and to maintain key quality of life functions.

A land use zoning concept was also developed for the Core area to guide proposed recapitalization efforts (Figure 2-4). This concept encourages a hierarchy of land uses that provide a transition from industrial and mission-related facilities along the airfield, to the bachelor housing and support facilities to the south. This zoning is designed to create the most efficient working and living relationship possible in the Core area, which is the most populated part of the base during normal working hours.

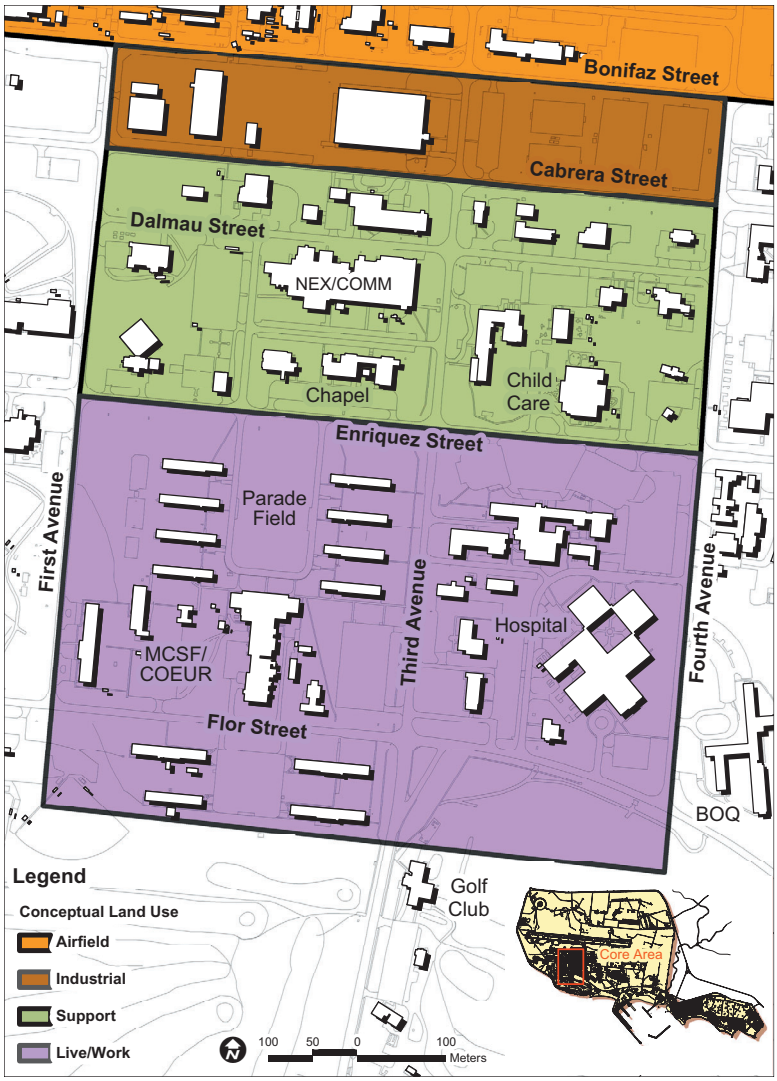

Figure 2-4 Conceptual Land Use Diagram for Core Area

2.3 Facility Assets

The following section describes the facility assets at NS Rota based on current (2004) Internet Navy Facilities Assets Data Store (iNFADS) data. Detailed facility information, including a facilities assets Excel database, is provided in Appendix A.1.

FUNCTIONAL BREAKDOWN

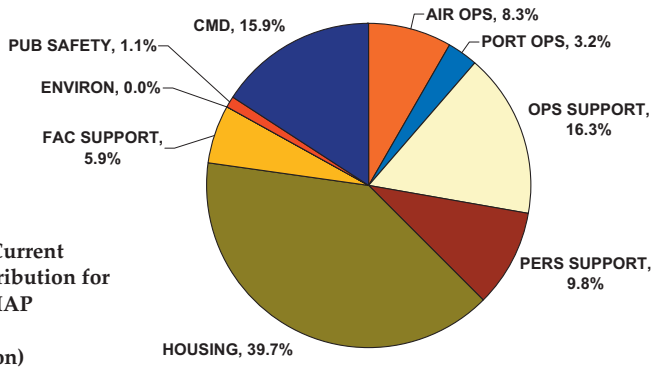

Figure 2-5 Current Assets Distribution for Rota (by IMAP Functional Classification)

Note: Facilities data shown does not include non-building type structures including runways and other paved areas, recreational fields, tanks, piers, pavilions, or other similar facilities.

Figure 2-5 provides a snapshot of existing facility assets distribution at Rota, based on facility square footage. Functional classification is organized by IMAP (Installation Management Account Project) function, which is being used Navy-wide to categorize shore-based assets. As shown in the figure, the largest percentage of base assets is for housing facilities, followed by Operations Support (which includes ordnance, fuels, supply, medical, NSWU and NMCB) and Command & Staff (e.g., admin), respectively. Descriptions of existing (and proposed) facilities for each of the IMAP functions is provided in Chapter 3.

EXISTING CONDITION

Existing condition summaries are based on all facilities that are given an adequate, inadequate, or substandard rating according to iNFADS as of June 2004. Current conditions show that 68% of all U.S. facilities at Rota are considered to be in adequate condition, while 16% are considered substandard. A detailed summary of condition ratings for each IMAP function is shown in Table 2-1 with back-up information provided in Appendix A.1.

Figure 2-6 Existing Condition Facility Ratings Summary

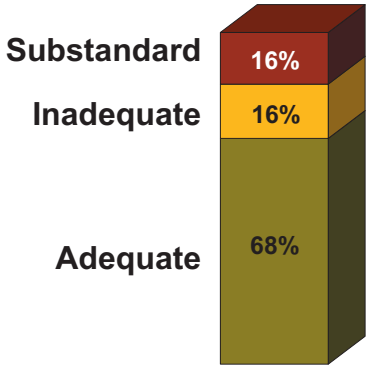

Table 2-1 Existing Conditions Summary

IMAP Program	Adequate		Inadequate		Substandard		Total	
	m2	% of Funcion	m2	% of Function	m2	% of Func	m2	% of Total
Air Operations	1,906	6.0%	15,403	48.6%	14,397	45.4%	31,707	8.3%
Port Operations	6,483	53.5%	0	0.0%	5,638	46.5%	12,122	3.2%
Operations Support	54,853	88.1%	4,017	6.5%	3,414	5.5%	62,284	16.3%
Personnel Support	23,514	62.7%	4,876	13.0%	9,122	24.3%	37,512	9.8%
Housing	140,051	92.1%	1,073	0.7%	10,886	7.2%	152,011	39.7%
Facility Support	5,814	25.8%	12,707	56.4%	4,021	17.8%	22,542	5.9%
Publlic Safety	1,128	28.0%	2,445	60.6%	461	11.4%	4,034	1.1%
Command & Staff	27,060	44.4%	22,200	36.4%	11,731	19.2%	60,991	15.9%
	260,810 Total	68% of Base	62,723 Total	16% of Base	59,671 Total	16% of Base	383,203 Total	100% of Base

2.4 Facility Requirements

Table 2-2 provides space assets and requirements information, based on updated Basic Facility Requirements (BFR) prepared by NAVFAC Atlantic as part of this RSIP effort. The proposed assets are a summary by IMAP function of the planned improvements included in the RSIP. The proposed demolition includes planned demolition associated with each of these proposed projects. The proposed footprint reduction or increase is the difference between the two. Further detail on this is provided in the following two chapters: by IMAP function in Chapter 3 and by the five main geographic focus areas at Rota in Chapter 4.

Table 2-2 Facilities Assets and Requirements

IMAP Program	Basic Facility Requirement (m2)	Existing Assets (m2)	Proposed Assets (m2)	Proposed Demolition (m2)	Footprint Reduction/ Increase (m2)
Air Operations	67,338	31,707	13,605	54,125	-40,520
Port Operations	10,757	12,122	9,574	3,829	5,745
Operations Support	43,688	62,284	457	45,146	-44,689
Personnel Support	22,319	37,512	15,755	7,319	8,436
Housing	23,760	152,011	8,650	178	8,472
Facilities Support	8,677	22,542	16,129	21,762	-5,633
Public Safety	6,000	4,034	0	0	0
Command and Staff	20,954	60,991	20,367	60,134	-39,767

THIS PAGE LEFT INTENTIONALLY BLANK

Insert Figure 2-1 Operational Constraints Map, 11 x 17 pull-out

THIS PAGE LEFT INTENTIONALLY BLANK

Insert Figure 2-2 Environmental Constraints Map, 11 x 17 pull-out

THIS PAGE LEFT INTENTIONALLY BLANK

Insert Figure 2-3 Land Use Map, 11 x 17 pull-out

THIS PAGE LEFT INTENTIONALLY BLANK