

Report to Congress on

Sustainable Ranges

Submitted by the Secretary of Defense
Under Secretary of Defense
(Personnel and Readiness)

Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
JUL 2011		**00-00-2011 to 00-00-2011**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Report to Congress on Sustainable Ranges	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Secretary of Defense,Under Secretary of Defense (Personnel and Readiness),Washington,DC,20301**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

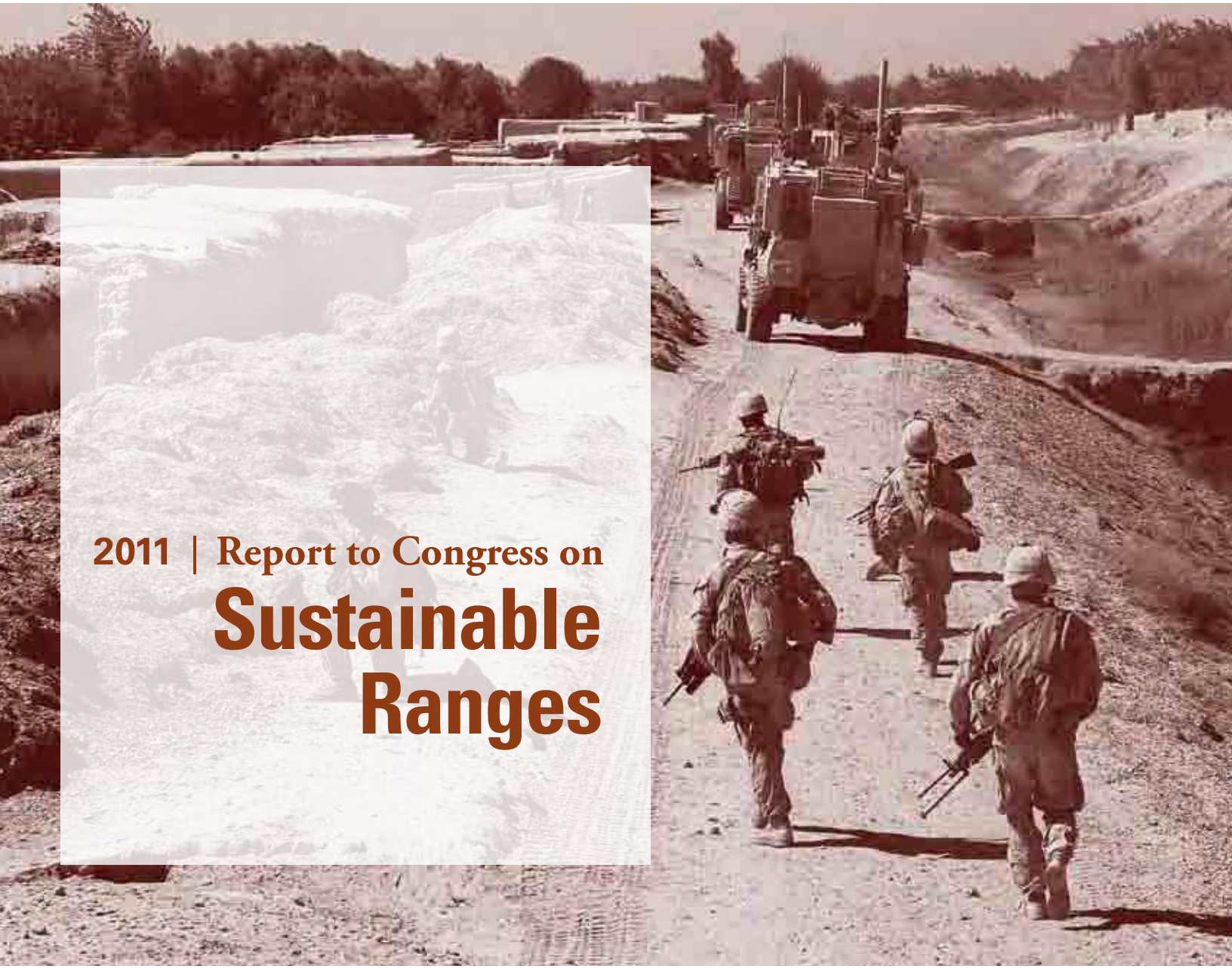
12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**512**	



2011 | Report to Congress on

Sustainable Ranges

Photo on cover:
U.S. Marines conduct a security patrol in the Nawa district in Helmand province, Afghanistan, Aug. 7, 2009. The Marines are assigned to Bravo Company, 1st Battalion, 5th Marine Regiment. U.S. Marine Corps photo by Cpl. Artur Shvartsberg.

Foreword

This is the eighth Congressional report, which addresses how the Department of Defense's (DoD's) actions provide for the long-term sustainability of its training ranges. These efforts are managed through the Department's Sustainable Ranges Initiative (SRI). Although this report focuses on DoD training ranges, the SRI's efforts are much broader in scope.

The SRI recognizes that access to military installations, ranges, operating areas, and other lands, seaspace, airspace, and frequency spectrum is essential. Having access to these areas provides our soldiers, sailors, airmen, and marines, and their associated equipment, with the realistic training and testing environments needed to prepare them for the diverse peacetime and wartime missions they support around the globe. Over the past several decades, access to live training and testing resources has been increasingly challenged by several factors including encroachment, which has inhibited the military's ability to use its installations, ranges, airspace, and other operating areas to conduct effective training and testing. In December 2001, the Deputy Secretary of Defense directed the Under Secretary of Defense for Personnel and Readiness in partnership with the Deputy Under Secretary of Defense for Installations and Environment, the Director of Operational Test and Evaluation, and the military departments, to form an Integrated Product Team (IPT). The IPT was to act as the coordinating body for all encroachment on DoD ranges, operating areas, and other locations where the Department trains for, tests or evaluates new weapons and sensors. The result was a broad-based, multi-faceted initiative, now known as the SRI. This initiative, aimed at addressing encroachment and range sustainment, includes policy formulation, programming activities, leadership and organization structuring, legislative and regulatory initiatives, compatible land use activities, engagement and partnering efforts, and comprehensive reporting to Congress.

Working under the direction of the Senior Readiness Oversight Council (SROC), DoD established the Overarching Integrated Product Team (OIPT). The OIPT is tri-chaired by the Deputy Assistant Secretary of Defense for Readiness, the Deputy Under Secretary of Defense for Installations and Environment, and the Deputy Director for Operational Test and Evaluation. Its members include senior officials from all of the Military Departments and other related offices within the Secretary of Defense. Additionally, the Working Integrated Product Team (WIPT) is the staff-level working body that supports the OIPT by coordinating and communicating ongoing sustainment activities.

Over the past nine years, this SROC-led initiative has succeeded in numerous efforts including:

- Issuing new and updated range sustainment policies and guidance.
- Developing and implementing an assessment methodology to gauge the health of our ranges in terms of capability attributes and encroachment factors.
- Obtaining conservation partnership authority and annual Congressional funding for compatible land use buffers under the Readiness and Environmental Protection Initiative (REPI) program (10 U.S.C. 2684(a)).

- Establishing broad-based partnerships for sustainable planning, including the Southeast Regional Partnership for Planning and Sustainability (SERPPAS) and the Western Regional Partnership (WRP)
- Facilitating the sharing of geographic information systems and decision-support information to foster community-driven planning and compatible land use partnerships
- Establishing a DoD Energy Siting Clearinghouse to facilitate fully-coordinated Department positions on the compatibility of proposed projects for energy developers, government agencies, and other concerned parties

In 2008, the Deputy Secretary of Defense reaffirmed the efforts of the SRI and endorsed seven specific focus areas including:

- Mitigating pressures on training and test activities from competing land and seaspace uses
- Addressing frequency spectrum competition
- Meeting military airspace challenges
- Managing increasing military demand for range lands
- Addressing impacts from new energy infrastructure and renewable energy initiatives
- Anticipating climate change initiatives
- Managing current and emerging environmental issues

In 2010, the OIPT reconfirmed these focus areas, which were also reflected in the various Services' goals and milestones. As the SRI evolves, it will continue to address the Department's abilities to train, test, and focus on the direction provided by the Deputy Secretary to sustain the required capabilities. We look forward to continuing our work with Congress on this initiative.

Table of Contents

Foreword i

Chapter 1: Introduction 1

1.1 Background 2

1.2 Legislative Requirements and GAO Comments to the 2010 Report to Congress on Sustainable Ranges 2

1.3 Linking the 2011 Report to Congress on Sustainable Ranges to Other Reporting Requirements 3

Chapter 2: Current and Future Training Requirements 5

2.1 Development of Training Requirements 5
2.1.1 Assessing Current and Future Requirements 5

2.2 DoD Training Transformation Program 6
2.2.1 Joint National Training Capability 6

2.3 Military Service Training Range and OPAREA Requirements 8
2.3.1 Army Requirements 9
2.3.2 Marine Corps Requirements 11
2.3.3 Navy Requirements 14
2.3.4 Air Force Requirements 15

Chapter 3: Adequacy of Existing Range Resources to Meet Training Requirements 19

3.1 Assessment Methodology and Examples 19
3.1.1 Capability Assessment 19
3.1.2 Encroachment Assessment 20
3.1.3 Explanation of Individual Range Assessment Details and Observations 21

3.2 Assessment Results and Discussions 24
3.2.1 Army 25

3.2.2 Marine Corps....79
3.2.3 Navy....121
3.2.4 Air Force....235

3.3 Summary and Conclusion....343

Chapter 4: Department of Defense's Comprehensive Training Range Sustainment Plan....345

4.1 Management Structure....345
4.1.1 Department of Defense....345
4.1.2 The Military Services....346

4.2 Goals, Actions, and Milestones....346

4.3 Funding Requirements....354

4.4 Partnering and Outreach Initiatives....356
4.4.1 The Readiness and Environmental Protection Initiative....356
4.4.2 Office of Economic Adjustment Compatible Use Program....357
4.4.3 Education and Engagement....357
4.4.4 Engagement for Energy Infrastructure Compatibility....361
4.4.5 Military Service Specific Stakeholder Engagement....362
4.4.6 Regional Partnerships....363
4.4.7 Benefits to Range Sustainment....365

4.5 Overview of Legislative and Regulatory Initiatives....366

4.6 Readiness Reporting Improvements....367
4.6.1 The Defense Readiness Reporting System Enterprise....367
4.6.2 Relationship with Other Readiness Systems....367
4.6.3 Range Assessment as a Component of DRRS....367

4.7 Shared Information Enterprise....368

4.8 Range Inventory Summary....369
4.8.1 Army Range Inventory Description....369
4.8.2 Marine Corps Range Inventory Description....370
4.8.3 Navy Range Inventory Description....370
4.8.4 Air Force Range Inventory Description....371

Chapter 5: The Way Ahead....373

5.1 The Sustainable Ranges Initiative....373

5.2 Compatible Land, Airspace, and Sea Space Use and Engagement and Partnering Activities....373

5.3 Use of Range Inventory and Encroachment and Capability Tools....374

5.4 Sustainable Ranges Report Format and Methodologies....374

Appendix A: National Defense Authorization Act Language 375

Appendix B: Service Mission Area Descriptions and Definitions 377

Appendix C: Maps and Inventory of Ranges, Range Complexes, Military Training Routes, and Special Use Areas 381

Appendix D: Acronym List 483

Appendix E: DoD and Service Sustainable Ranges Policy and Guidance 493

This Page is Intentionally Left Blank.

List of Tables

Table 2-1 Training Transformation Program Capabilities 6

Table 2-2 Live, Virtual, and Constructive Training 7

Table 2-3 Army Mission Areas 11

Table 2-4 Next Generation Army Digital Ranges 11

Table 2-5 Marine Corps Mission Areas 13

Table 2-6 Navy Fleet Response Training Plan Phases 15

Table 2-7 Navy Mission Areas 15

Table 2-8 Air Force Mission Areas 16

Table 3-1 Army Capability Assessment Data Summary 26

Table 3-2 Army Encroachment Assessment Data Summary 26

Table 3-3 Stationing Changes Directed by BRAC that Affect Army Training Land Requirements 29

Table 3-4 Units Relocated Under the GDPR Initiative 30

Table 3-5 Army Range Capability and Encroachment Assessment Comparison 76

Table 3-6 Army Range Mission Description 78

Table 3-7 Marine Corps Capability Assessment Data Summary 80

Table 3-8 Marine Corps Encroachment Assessment Data Summary 80

Table 3-9 Marine Corps Capability and Encroachment Assessment Comparison 120

Table 3-10 Navy Capability Assessment Data Summary 122

Table 3-11 Navy Encroachment Assessment Data Summary 122

Table 3-12 Navy Range Capability and Encroachment Assessment Comparison 232

Table 3-13 Air Force Capability Assessment Data Summary 236

Table 3-14 Air Force Encroachment Assessment Data Summary 236

Table 3-15 Air Force Range Capability and Encroachment Assessment Comparison 340

Table 4-1 Responsible Training Range Offices within OSD and the Military Departments 347

Table 4-2 Encroachment Actions and Milestones 348

Table 4-3 Frequency Spectrum Actions and Milestones 350

Table 4-4 Airspace Actions and Milestones 350

Table 4-5 Range Space Actions and Milestones 351

Table 4-6 Energy Actions and Milestones 352

Table 4-7 Climate Actions and Milestones 352

Table 4-8 Environmental Stewardship Actions and Milestones 353

Table 4-9 DoD Sustainable Ranges Initiative Funding Categories 354

Table 4-10 DoD Training Range Sustainment Funding ($M) 355

Table C-1 Training Range Complex Inventory 393

Table C-2 Military Training Route (MTR) Inventory 417

Table C-3 Special Use Airspace (SUA) Inventory 453

Table E-1 Overarching DoD Range Sustainment Policy and Guidance 493

Table E-2 Army Range Sustainment Policy and Guidance 494

Table E-3 Marine Corps Range Sustainment Policy and Guidance 494

Table E-4 Navy Range Sustainment Policy and Guidance 495

Table E-5 Air Force Range Sustainment Policy and Guidance 495

List of Figures

Figure 2-1 Training Requirement and Range Requirement Development Process 6

Figure 2-2 The LVC Training Environment 8

Figure 2-3 Framework for Developing Air Force Infrastructure Requirements 16

Figure 2-4 Linking Training Activities to Air Force Range Infrastructure Requirements 16

Figure 3-1 Example Assessment and Analysis 22

Figure 3-2 Army's Capability Chart and Scores 27

Figure 3-3 Army's Encroachment Chart and Scores 27

Figure 3-4 Army Capability Assessments by Range 28

Figure 3-5 Army Encroachment Assessments by Range 28

Figure 3-6 Army Capability Assessment by Attributes 28

Figure 3-7 Army Encroachment Assessment by Factors 28

Figure 3-8 Army Capability Assessment by Mission Areas 28

Figure 3-9 Army Encroachment Assessment by Mission Areas 28

Figure 3-10 Army Range Requirements and Funding 31

Figure 3-11 Army Capability and Encroachment Assessment Detail 32

Figure 3-12 Marine Corps Capability Chart and Scores 80

Figure 3-13 Marine Corps Encroachment Chart and Scores 80

Figure 3-14 Marine Corps Capability Assessments by Range 81

Figure 3-15 Marine Corps Encroachment Assessments by Range 81

Figure 3-16 Marine Corps Capability Assessment by Attributes 81

Figure 3-17 Marine Corps Encroachment Assessment by Factors 81

Figure 3-18 Marine Corps Capability Assessment by Mission Areas 81

Figure 3-19 Marine Corps Encroachment Assessment by Mission Areas 81

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail 84
Figure 3-21 Navy Capability Chart and Scores 123
Figure 3-22 Navy Encroachment Chart and Scores 123
Figure 3-23 Navy Capability Assessments by Range 124
Figure 3-24 Navy Encroachment Assessments by Range 124
Figure 3-25 Navy Capability Assessment by Attributes 124
Figure 3-26 Navy Encroachment Assessment by Factors 124
Figure 3-27 Navy Capability Assessment by Mission Areas 125
Figure 3-28 Navy Encroachment Assessment by Mission Areas 125
Figure 3-29 Navy Capability and Encroachment Assessment Detail 130
Figure 3-30 Air Force Capability Chart and Scores 237
Figure 3-31 Air Force Encroachment Chart and Scores 237
Figure 3-32 Air Force Capability Assessments by Range 238
Figure 3-33 Air Force Encroachment Assessments by Range 238
Figure 3-34 Air Force Capability Assessment by Attributes 239
Figure 3-35 Air Force Encroachment Assessment by Factors 239
Figure 3-36 Air Force Capability Assessment by Mission Areas 239
Figure 3-37 Air Force Encroachment Assessment by Mission Areas 239
Figure 3-38 Illustration of ATCAA Relocation 240
Figure 3-39 Air Force Capability and Encroachment Assessment Detail 242
Figure 4-1 REPI Funds Leveraged Through 2010 356
Figure 4-2 Component REPI Funding Requests and Congressional REPI Appropriations 357
Figure 4-3 Southeast Regional Partnership for Planning and Sustainability Focus Areas 364
Figure 4-4 Western Regional Partnership Focus Areas 365
Figure 4-5 Planned RAM Cross Domain Solution in DRRS 368
Figure C-1 DoD Regional Range Complexes: Northeast 383
Figure C-2 DoD Regional Range Complexes: Mid-Atlantic 384
Figure C-3 DoD Regional Range Complexes: Southeast 385
Figure C-4 DoD Regional Range Complexes: Northwest 386
Figure C-5 DoD Regional Range Complexes: Southwest 387
Figure C-6 DoD Regional Range Complexes: Midwest 388
Figure C-7 DoD Regional Range Complexes: Alaska 389
Figure C-8 DoD Regional Range Complexes: Hawaii 390
Figure C-9 DoD Regional Range Complexes: Europe 391
Figure C-10 DoD Regional Range Complexes: West Pacific and Indian Ocean 392



1 Introduction

The need to train as we fight is fundamental to our armed forces. Ranges are some of our most valued assets because they closely resemble the operational environments of assigned military missions. Installations are also critical for maintaining military readiness and mission effectiveness. As such, ranges and installations must be available when and where needed and have the capabilities necessary to support current and future military mission requirements. Creating and sustaining a long-term network of ranges requires a management framework that effectively addresses mission requirements, environment and natural resource management, and the interests and aspirations of the local community.

DoD has developed the SRI to create the framework for addressing these fundamental issues. Strategic elements of this initiative include policy, programming, leadership and organization, legislation and regulation, outreach and engagement, an information enterprise, and comprehensive reporting to Congress. A key component of the SRI is the annual Report to Congress on Sustainable Ranges (SRR).

The 2011 SRR updates DoD's prior reports and addresses:

- Service methodologies and approaches for determining range requirements (Chapter 2)
- Service-specific mission based assessment using standardized range capability attributes and encroachment factors (Chapter 3)
- Critical range-related issues identified by the Military Services (Chapter 3)
- Progress toward the Office of the Secretary of Defense (OSD) and Service-based goals and key milestones for developing a sustainable range management program (Chapter 4)
- Approaches for reducing encroachment factors through partnerships with State and local governments, other Federal agencies and nongovernmental organizations (Chapter 4)
- Current and planned funding associated with range sustainment (Chapter 4)
- New program directions, priorities, and management initiatives (Chapter 5)

The 2011 SRR specifically:

- Accelerates the annual report development schedule to more closely align with the submission of the President's budget
- Limits discussion of test and evaluation (T&E) ranges to the aspects of their use in supporting training

- Updates Service-specific information on goals and milestones
- Puts additional emphasis on "Military Service Special Interest" issues for each branch of service and identifies critical ranges issues
- Responds to specific commentary offered by the U.S. Government Accountability Office (GAO) on the 2010 SRR
- Maintains the structure and format of the 2010 report with minor alterations to enhance comparability

1.1 Background

To properly prepare U.S. forces for mission success, DoD must train at ranges that have the types of natural conditions and operational contexts personnel and systems may encounter during their deployments. As such, sustaining a diverse set of range resources is critical to ensuring readiness and military effectiveness. Using realistic training ranges allows DoD to:

- Foster the development and maintenance of operational proficiency and mission readiness
- Enable increased force operational survivability and mission success
- Provide realistic environments needed for the development of tactical operational and strategic concepts, and tactics, techniques, and procedures
- Support the operational testing, evaluation, and improvement of system maneuverability, reliability, and effectiveness in the range environment outside of the laboratory or development facility

Increased operational tempo and overseas deployments, specifically to support operations in Iraq and Afghanistan, have put the ability of some existing range resources and infrastructure to continue supporting training at the required level under additional strain. These challenges, in addition to the constraints placed on range activities due to their proximity to growing communities and their associated economic development, are very real concerns for the Services.

In addition to training activities, some ranges also support tactics development and other similar activities. Other ranges principally support test and evaluation (T&E) activities related to system development and operational testing. Sustaining ranges that are primarily focused on supporting T&E activities is also critical to national security, partly because a significant amount of training occurs there. In many cases, capability requirements and encroachment impairments are quite different, depending on whether the primary focus of the activity in question is training or testing based. For example, frequency spectrum conditions that may be acceptable for training may not be sufficient for T&E purposes.

To sustain these valuable assets, the SRI emphasizes a comprehensive approach to the sustainability of all ranges. It provides visibility at the highest leadership levels through an Overarching Integrated Product Team (OIPT) made up of senior leadership in the Readiness, T&E, and Installations and Environment areas of responsibility. The SRI advocates for policy and funding in support of range sustainability and provides coordination of efforts between OSD and the Military Services. Additionally, the SRI provides a common framework for development of partnerships with other Federal agencies, State agencies, local governments, and nongovernmental organizations to work cooperatively on issues of mutual concern. Examples of this cooperation include the Southeast Regional Partnership for Planning and Sustainability (SERPPAS) and the multi-partner efforts included in many REPI projects.

DoD does not exclusively use DoD-managed areas to conduct training and testing/evaluation activities. It also utilizes land that is owned or managed by other Federal agencies like the Bureau of Land Management and non-government organizations along with privately and State-owned lands. With the permission of other nations, DoD also utilizes various land, air, sea, and undersea spaces and international areas for training. DoD must deal with various stakeholders to create the conditions required to best sustain ranges, support its missions, and stakeholders' interests.

1.2 Legislative Requirements and GAO Comments to the 2010 Report to Congress on Sustainable Ranges

The 2011 DoD Report to Congress on Sustainable Ranges (SRR) is an update to the 2010 report. It was developed in response to Section 366 of the 2003 National Defense Authorization Act (NDAA).[1,2] Congress required DoD to develop a comprehensive plan to address training constraints caused by limitations on the use of military lands, marine areas, and airspace that are available in the United States and overseas for training of the Military Services. Section 366 also required DoD to submit an annual progress report to

1 See Appendix A: National Defense Authorization Act Language for the full text of the cited sections.

2 Section 366 was enacted in the Bob Stump National Defense Authorization Act for Fiscal Year 2003, Public Law 107-314. The terms "range" and "operational range" were given statutory definitions in the FY2004 NDAA. Consequently, the terms and coverage of Section 366 from FY2003 are not entirely consistent with the later enacted definitions. Because DoD interprets Congress' intent for Section 366 to encompass more than operational ranges (as defined in the law), and because it is DoD's objective to provide Congress with an accurate and definitive statement of our training requirements, this report does not apply statutorily defined terms of "range" or "operational range." While this report does use the term "range," it does so in the context of that term's usage in Section 366, which is clearly broader than provided for in the statutory definition in 10 United States Code (U.S.C) 101(e).

Congress along with the President's budget through fiscal year 2013.

NDAA Section 366 requires GAO to provide Congress with an independent evaluation of DoD's annual report on sustainable ranges. In its assessment of the 2010 SRR, GAO acknowledged that:

- DoD addressed most Section 366 elements and that the report more fully addresses Congressional requirements.
- The report is responsive to the requirement that DoD describe the progress made in implementing its sustainable ranges plan.
- The report includes improvements to its standardized criteria and common factors for assessing the adequacy of current DoD resources to meet current and future requirements.
- The report updates the goals and milestones for tracking planned actions and measuring progress.
- The report updates the designated lead offices responsible for overseeing implementation of the range sustainability plan.

GAO had no formal recommendations on the 2010 SRR, but recognized these significant improvements:

- DoD reported future funding estimates of its range-sustainment efforts beyond the budget year for the first time.
- The report included measurable range-sustainment goals and milestones.
- The data became more meaningful because additional context on range assessments was included and the narrative was moved from the appendix to the body of the report.

This SRR makes continued progress toward improvement in identifying measurable goals and milestones, providing increased context to range assessments in the form of historical perspectives and future projections, and in explaining changes in funding.

1.3 Linking the 2011 Report to Congress on Sustainable Ranges to Other Reporting Requirements

DoD notes that the REPI Report to Congress, required separately under Section 2822 of the fiscal year (FY)2006 NDAA, describes funding, partnerships, and actions that protect habitat and ensure compatible land use around installations. The REPI report provides substantial information on how DoD has effectively employed the Congressional authority granted under Section 2684a of the FY2003 NDAA to enter into agreements with private organizations and State or local governments to limit incompatible development and preserve diminishing open space around military ranges and installations. As such, the REPI Report to Congress compliments this report in addressing actions taken by the Department to mitigate encroachment on military installations and ranges that require, or may reasonably require, safety or operational buffer areas. The SRR and REPI Report to Congress both respond to Congressional reporting requirements, but target different aspects of the Department's comprehensive efforts to fully capture mission requirements, current asset capability, and current and future risks to the these capabilities from encroachment. The focus of the SRR is on training. While the report also touches on test and evaluation (T&E) ranges, it does so only to the extent that these ranges support training activities and in the broader perspective of DoD's overall Sustainable Ranges Initiative. Beginning with the 2010 T&E Strategic Plan, the test community will report biennially on the encroachment factors impacting research, development, test, and evaluation activities biennially. This reporting will be based on the assessment survey process developed for the training ranges in the SRR. However, it will be modified to fit the needs of the T&E community to ensure that encroachment issues become a key consideration in the planning and maintaining of a robust T&E infrastructure throughout DoD.

This Page is Intentionally Left Blank.



2 Current and Future Training Requirements

2.1 Development of Training Requirements

The quality and availability of range resources and infrastructure are fundamental to military readiness. The U.S. military operates the largest and most diverse training enterprise in the world. Its ability to train in realistic environments directly affects its current readiness and future mission success. Service members receive training opportunities that cover all the skills needed to ensure they are deployed safely and have the highest possible chance of achieving mission success and survival. To ensure Service members continue to receive these training opportunities, the appropriate training range resources and infrastructure must be available.

The Military Services must also clearly communicate their range requirements to the training support or range communities. While the Services use similar processes to develop their training requirements, they are not identical. These processes provide a structure to systematically develop requirements based on a series of strategic guidance documents and other information sources which include:

- The National Security Strategy of the United States
- The National Military Strategy of the United States
- Guidance for Development of the Force
- Guidance for Employment of the Force
- The Universal Joint Task List (UJTL) of the United States and global security environment, in which the military will operate
- Operational and functional profiles of the weapons and related systems that are available today and are expected to be available in the near future
- The lessons learned from military experience, training evolutions, and experimentation.

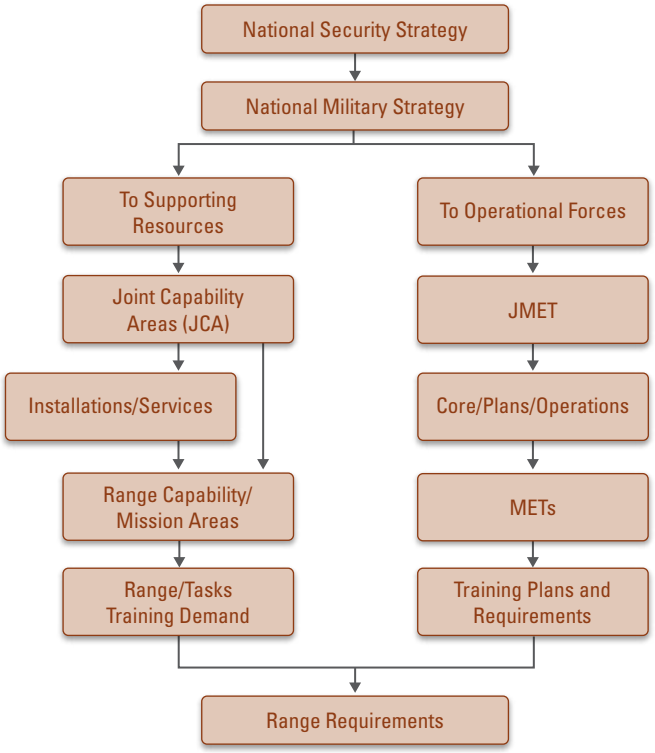
The Military Services determine how they will operate in the future by looking at the strategic guidance documents and working down to more specific tactics, techniques, and procedures. Next, they identify and develop mission essential tasks (METs) based on planned operations, the UJTL, and the Joint Mission Essential Task List (JMETL). The Military Services then develop training plans to ensure that their forces are proficient in executing the METs. These training plans are the foundation for the development of range resources and capabilities to support the execution of the Military Services' METs. Figure 2-1 details this process for the development of range requirements.

2.1.1 Assessing Current and Future Requirements

The Military Services generate training requirements through a comprehensive set of processes specific to their own mission and command structure that are used to develop, document, and execute training objectives and requirements. These processes link training strategies and requirements to a standard training curriculum based on Military Service specific and joint tasks identified in the UJTL and Mission Essential Task Lists (METLs). Common elements include assessing current and future requirements, data collection, and a management system tool to assist in assessing and quantifying encroachment impacts and the supporting documentation and plans that guide implementation. A variety of publications, including doctrinal reports, guidance documents, instructions, and annual messages or updates, prescribe the processes thoroughly and precisely.

Future training requirements can be grouped into two categories: near-term and long-term. Near-term training requirements can be generated with a higher degree of fidelity because the Military Services can more easily anticipate the near-term strategic environment operating concepts, and

Figure 2-1 Training Requirement and Range Requirement Development Process



technological capabilities. The ability to anticipate these elements originates from intelligence forecasting, trend analysis, training provided in current and evolving military tactics, strategic planning, educational opportunities with regard to transformational concepts, and knowledge of existing and planned system acquisition activities.

Assessing long-term training requirements is significantly more challenging because of greater uncertainty surrounding the strategic environment, operating concepts, and technological capabilities. However, this uncertainty is somewhat lessened because platforms, weapons, and systems are more capable; aircraft and vehicles travel farther and faster; sensors detect at longer distances, platforms accurately deliver weapons at greater distances; and communications systems carry and transmit more data. As the strategic environment, doctrine, tactics, and weapon systems change in the future, the Military Services will need to change the way they train and prepare for future missions. Changes in training will put new and, perhaps, unforeseen demands on range resources and infrastructure to address new or additional requirements to maintain readiness and support mission success.

2.2 DoD Training Transformation Program

SRI activities and efforts support and complement DoD's Training Transformation Program. The program was developed to address near-term training challenges associated with an uncertain and increasingly complex strategic environment, as well as an increasing need for joint training and interoperability. It provides dynamic, capabilities-based training for DoD personnel in support of evolving national security requirements across the full spectrum of integrated operations. The three capabilities of the program are described in Table 2-1.

2.2.1 Joint National Training Capability

Formally established in January 2003 under Management Initiative Decision 906, the underlying concept of the Joint National Training Capability (JNTC) is to train and prepare forces to operate globally through the development of a joint training infrastructure. The joint training infrastructure has four requirement pillars that guide training design; there must be credible and adaptive opposing forces, instrumentation that provides a common ground truth among the participants, effective data sharing, and high quality feedback to improve the assessment of joint training events. The JNTC is a significant addition to DoD's training infrastructure. It was envisioned as a permanently installed global communications network, designed to significantly reduce the amount of time required to configure and execute training in a live, virtual, and constructive (LVC) environment.

Table 2-1 Training Transformation Program Capabilities

Training Transformation Program Pillars	Description
Joint Knowledge Development and Distribution Capability	Focuses on individual training and education to enhance an individual's ability to intuitively think "jointly."
Joint National Training Capability (JNTC)	Focuses on collective training and preparing forces by providing units and commands staff with an integrated live, virtual, and constructive (LVC) joint operational training environment.
Joint Assessment and Enabling Capability (JAEC)	Focuses on assessing Training Transformation Program performance, and supporting tools and processes, to enable and enhance joint training and assess how such training meets validated Combatant Commander readiness requirements.

For this report, the JNTC is relevant because it addresses range sustainability and modernization efforts. It also focuses on LVC training and the role LVC plays in addressing training requirements and readiness and reporting systems. Detailed information on the Training Transformation Program can be found in DoD's Strategic Plan for the Next Generation of Training[3] and FY06-FY2011 Implementation Plan.[4]

The integration of LVC training strategy and policy as a component of near-term and long-term future training requirements is particularly relevant for the purposes of this report. Reporting on LVC is responsive to the NDAA Section 366(a) (2) (B) requirement that DoD address the adequacy of current resources, including virtual and constructive training assets. An overview of LVC training and the increasingly

important role it plays in providing realistic, comprehensive, and cost-effective training is detailed in the following paragraphs.

Live, Virtual, and Constructive Training

The following definitions clarify live, virtual, and constructive (LVC) in the training environment. The individual components of LVC training are identified and described in Table 2-2.

The DoD Training Environment is utilized primarily for training and provides the ability for integrated forces to conduct training operations nearly identical to real-world operations. It is composed of LVC domains that provide a seamless and transparent environment with fully functional interaction between participants to the limit of their respective operational system capabilities, when integrated. The Military Training Environment, as shown in the high-level operational concept (Figure 2-2), will be an evolutionary family-of-systems approach, linking a network of interoperable LVC components to provide the appropriate Joint context required for training and mission rehearsal.

The capability will provide a comprehensive training environment that includes:

- Interoperation of live participants and their operational systems.
- Realistic LVC representations of non-participant friendly warfighting capabilities across the full range of military operations (ROMO).
- Realistic LVC representations of opposing forces (OPFOR), neutral, and factional entities that may be required for the scenario. It is impossible to produce a level of adversary support sufficient to stress these high-technology platforms and sensors in the live domain without the integrated joint threat emitter (JTE) and its inherent capability to stimulate live sensors with synthetic entities.
- Suitable representations of the real world environment where the warfighting capabilities exist.

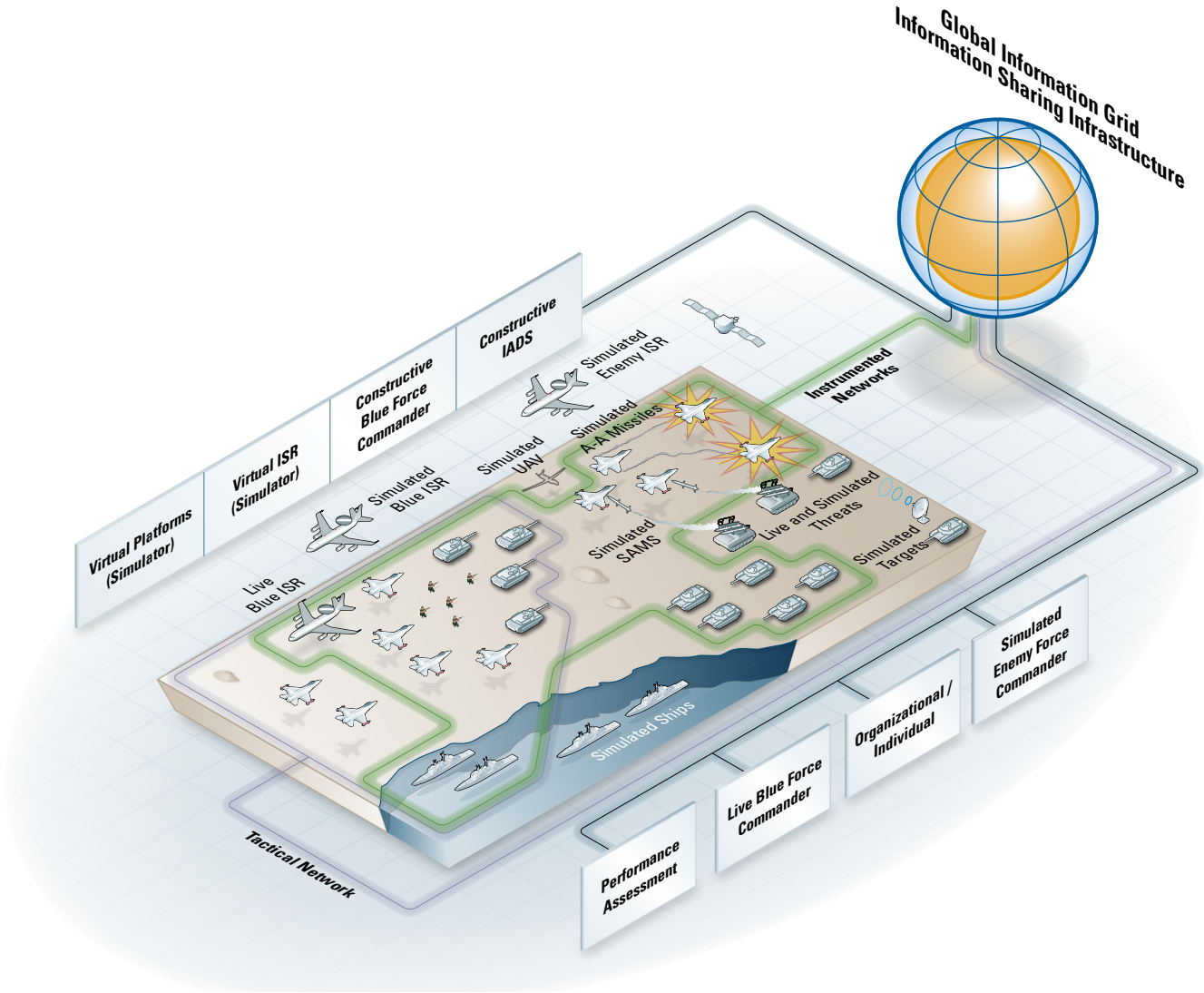
Table 2-2 Live, Virtual, and Constructive Training

LVC Training Component	Description
Live	▸ **Live Training**—Training where the training audience operates their operational systems and platforms (including their full range of mobility and capability) in the physical environment for which they were intended. ▸ **Live Training Domain**—The training domain where participants operate operational systems and platforms (including their full range of mobility) in the physical environment (land, sea, air) for which they were intended. The many parameters defining the live domain are fixed in physics rather than synthetic scenario generation, and constrained by the real environment (e.g., weather) that exists, to which the virtual and constructive domains must align in the integrated LVC training environment. Simulations used in the live training domain are used to maintain scenario validity during training. These models, *i.e.,* "scoring simulations" are used to automatically in the real time, assess hard and soft weapon effects on targets, incorporating countermeasure effects and other participant actions or behaviors that affect the outcome of the event. Synthetic entities can be injected into live sensors and systems to enhance the live environment. Neither the use of scoring simulations nor presence of synthetic entities makes the live environment a synthetic environment. This domain is commonly enhanced by the extensive employment of training systems (instrumentation and simulations) embedded in the live environment.
Virtual	▸ **Virtual Training**—Training where training audience operates simulators, emulators, or operational systems in a synthetic environment. ▸ **Virtual Training Domain**—The training domain where participants operate simulators, emulators, or operational systems in a synthetic environment. Fidelity may vary from "lightweight" laptop emulations, to full motion, domed simulators. Virtual components provide a very flexible capability, predominantly used for individual training in the specific platform or function being simulated, but may be linked to provide additional complexity and fidelity to the virtual training environment. Participants from the virtual domain can be injected as entities into live training operations through sensor stimulation, adding depth and breadth to the operation for those that can detect, display, and interact with the virtual entities. Virtual entities can also be injected into constructive simulations as entity participants in the synthetic mission-space. Collective applications include stand alone virtual mission training of combined forces, and integrated with live training providing individual platform augmentation to live force training.
Constructive	▸ **Constructive Training**—Training where the training audience, typically command and staff trainees, conducts activities in an environment constituted by a constructive simulation. The trainees provide stimulus to simulated forces at different levels and act upon consequences generated by the simulation. ▸ **Constructive Training Domain**—The training domain where the participants, typically command and staff trainees, conduct activities in an environment constituted by a constructive simulation. The trainees provide stimulus to simulated forces at different levels and act upon consequences generated by the simulation. A constructive simulation may be "wrapped around" a live operation, adding breadth and complexity to the scenario, providing more challenge to the training audience. Constructive discrete entities may also be injected into live and virtual operations, adding depth and breadth to the operation for those that can detect, display, and interact with the constructive entities. Light constructive simulations can be used to train individuals, small units, teams, and elements of staffs with less preparation than is needed for large-scale simulations.

3 Strategic Plan for the Next Generation of Training for the Department of Defense, 23 September 2010, Office of the Under Secretary of Defense (Personnel and Readiness), Readiness and Training Policy and Programs.

4 Department of Defense Training Transformation Implementation Plan FY2006–FY2011, 23 February 2006, Office of the Under Secretary of Defense for Personnel and Readiness, Director, Readiness and Training Policy and Programs.

Figure 2-2 The LVC Training Environment



- Architecture for easy and rapid integration of those representations into scalable training environments.
- Interfaces to warfighter equipment (e.g., operational platforms [ships, aircraft, and ground vehicles], command and control, communications, intelligence, surveillance, and reconnaissance systems) through connectivity to local and globally distributed venues.

Virtual and constructive training cannot replace the value of live training; however, they can supplement, enhance, and complement live training to sustain unit proficiency, readiness and mission effectiveness.

2.3 Military Service Training Range and OPAREA Requirements

As explained in Chapter 1, DoD installations and ranges are the foundations of the nation's security because they are critical to maintaining the readiness and mission effectiveness of the Military Services. These range assets must be available and adequately resourced when and where needed and have the capabilities to support current and future military mission requirements. Likewise, the Military Services must have the capability to train at ranges with the types of natural conditions and operational contexts personnel and systems may encounter during their deployment. As such, sustaining a diverse set of range resources is critical to ensuring readiness and military effectiveness. Additionally, mission and training objectives for each of the respective Military Services directly influence current and future training range and operations area requirements. The following paragraphs provide insight into the Services' specific assessments of their current range capabilities and encroachment challenges and how they impact the ability to meet current and future training objectives.

2.3.1 Army Requirements

Overview

The Army Campaign Plan (ACP) directs the planning, preparation, and execution of Army operations within the context of the transformation of the current to the future force. The ACP is the framework, which organizes and synchronizes the many changes underway as the Army builds a campaign-capable, joint and expeditionary force. ACP components, including Modularity, Global Defense Posture and Realignment (GDPR), Base Realignment and Closure (BRAC), Overseas Contingency Operations (OCO), and the Grow the Army Initiative, are driving changes to Army training range and operating area (OPAREA) requirements. Training requirements and operational activities associated with these components are creating readiness challenges by increasing both the number of fielded units and the level of training being conducted in the United States. These challenges, coupled with new weapons systems capabilities and new doctrinal maneuver space requirements, continue to place pressure on existing training land assets.

Prior to BRAC 2005, the Army identified a shortfall of maneuver training land on the majority of its major installations in the continental United States. The shortfall is based on a doctrinal requirement of 12 million acres against total Army assets of 7 million acres as reported in DoD's 2004 SRR. In addition to doctrinal requirements, BRAC 2005 consolidations, GDPR moves, and Army Force Generation (ARFORGEN), increases in the area of operations for Brigade Combat Teams (BCT) will compound the Army land shortfall.

Stationing and transformation are long-term initiatives designed to support and sustain the Army into the future. In 2003, the Range and Training Land Strategy (RTLS) was approved as a component of the Army's Sustainable Range Program to address the Army's increasing land deficit. The RTLS helps the Army prioritize its training land investment and helps to optimize the use of range and training land assets. The RTLS provides a long-range plan for the Army to make available the best range and training land assets, and a framework for the Army to select the most appropriate course of action to address training land shortfalls. In analyzing land requirements, the Army does not focus on high operational tempos or surge requirements. Instead, the Army conducts its training requirements planning based on the peacetime assumption that all units are at home station and available to conduct training. The Army is currently reviewing and updating the RTLS. The final revision will capture Chief of Staff, Army ARFORGEN guidance on home-station training requirements and the level of maneuver training required for Active Component and Reserve Component units. This guidance and analysis could affect overall maneuver training requirements and adjust the total Army training land shortfall. The revised final RTLS is anticipated to be complete by the end of FY2011.

Current and Future Range Requirements

Army range facilities are currently adequate to meet the throughput and surge requirements necessary to support training for current operations; however, funding the operation of range facilities under the expanded training schedule required to keep pace with ARFORGEN is increasingly challenging. The ARFORGEN model places units in a reset, train/ready, or available pool and will result in units experiencing longer periods of home-station dwell time. The Army resources its range operations on a home-station training schedule; however, Army installations are operating their ranges, particularly collective training and urban operation training facilities, for reset and mobilization on a round the clock schedule for short, intense periods of time. For example, range staff at Camp Atterbury, Indiana, and Camp Shelby, Mississippi, have doubled the number of range personnel to accommodate expanded training schedules. Funding to operate ranges under these conditions has become increasingly difficult for the Army, with Commanders having to use OCO funds to supplement range operations above peacetime levels.

Currently, many of the Army's range facilities have not been modernized to meet new weapons systems requirements or satisfy changes in training standards and doctrinal requirements. This strains the ability of existing range facilities to support current and near-term future requirements. To address this challenge, the Army is assessing its range assets and constructing new ranges in a continuous and integrated management approach through the Sustainable Range Program (SRP) modernization planning process. This process integrates mission support, environmental stewardship, and economic feasibility at the installation, Army Command, Installation Management Command, and the Headquarters Department of the Army (HQDA) levels to effectively support current and future range and training land requirements.

The modernization planning process begins at the installation level with an analysis that calculates and compares doctrinal and other requirements derived from Army standards, training strategies, and individual unit Mission Essential Tasks (METs). This analysis process assesses ranges and training land against current assets, utilization rates, environmental conditions and requirements, and infrastructure to determine shortages and overages of ranges and training lands. The Army Range and Training Land Program requirements model automates the analysis process and provides the installation and HQDA with a report identifying facility shortages and excesses, as well as the number and type of ranges and the associated maneuver acres necessary to support live training. Based on this analysis, installations submit to their Commands a prioritized list of range projects needed to correct shortages and modernize existing range facilities.

Commands review and consolidate each installation's project list using the Live Fire Training Investment Strategy (LFTIS). Commands forward their LFTIS to the Requirements Review

Prioritization Board (RRPB), which validates requirements and prioritizes projects by fiscal year for funding. Approved projects are incorporated into the Army Master Range Plan, a database for all approved range projects. At the installation level, the planning process results in the creation of a Range Complex Master Plan (RCMP). The RCMP is a sustainable range operations tool that supports long-range planning and day-to-day integrated decision-making. Installations have started using the tool to initiate an integrated decision making process for sustainable range planning and the Army is continuing to refine the RCMP Tool for installations.

The Army continues to work towards modernization goals to best match range capabilities with Army training requirements. The overarching ACP provides a focus for range investments to meet unit stationing and transforming capabilities. Achieving range and training land capabilities that enable digitally linked forces to train for a wide spectrum of missions remains a top Army priority. Large instrumented live-fire ranges, such as Digital Multipurpose Range Complexes (DMPRCs) and Battle Area Complexes (BAXs), provide centerpiece capabilities that enable full spectrum training events.

The Army also seeks to improve training capability through targeted and prioritized training land acquisition when specific feasibility criteria are met. Feasibility criteria include large, contiguous land holdings, low population density, minimal environmental restrictions, and low land cost. The Army will enter the marketplace and purchase training land only when these factors exist and the acquisition is feasible from both fiscal and community relations perspectives. This strategic approach helps the Army offset anticipated encroachment by moving training away from more densely populated areas. Candidate parcels must provide a significant solution to an existing installation deficit before being considered for purchase. Training land is one of the Army's most critical assets. The Army is dedicated to sustaining and optimizing training land use to ensure soldier readiness now and into the future.

Additional Army Information on Expansion Initiatives

The Army's strategy for acquiring training land is based on an assessment of Army Campaign Plan requirements against current land assets by installation. Based on further demographic, geographic, and environmental analysis, the Army identifies which installations have potential for expansion. Installation specific requirements and proposals are captured locally in the installation Range Complex Master Plan (RCMP). The RCMP is reviewed, updated, and approved annually. The following is an update of the Army's ongoing land expansion projects that have been approved by OSD.

- Fort Polk—OSD initially approved the Fort Polk expansion proposal in July 2008 and final approval to proceed with land purchase was granted in April 2010. The National Environmental Policy Act (NEPA) process began in April 2009 and the final environmental impact statement and record of decision were completed in the summer of 2010. The Army Corps of Engineers made the first offer to purchase in February 2011. Negotiations are on-going and the Corps is continuing to conduct property appraisals on additional land parcels.
- Fort Benning—OSD initially approved the Fort Benning expansion proposal in January 2010. The NEPA process began in August 2010 and the final environmental impact statement and record of decision are anticipated to be complete in late 2011. The Army Corps of Engineers is currently completing the real estate planning report.
- Texas Army National Guard—OSD approved the South Texas Training Site (approximately 85 miles due south of San Antonio) expansion proposal in March 2008. The U.S. Army Corps of Engineers has completed the real estate planning report and the National Environmental Policy Act (NEPA) process was initiated in December 2010.
- Fort Irwin, National Training Center (NTC)—NTC land acquisition is nearing completion. The Army Corps of Engineers is currently negotiating the purchase of the final acres of mitigation land using prior year funds. These actions are expected to be completed in 2011. The final expansion areas are expected to be opened for training in 2013.
- Fort Carson, Pinon Canyon Maneuver Site (PCMS)— OSD approved the Fort Carson, PCMS expansion proposal in February 2007. The Army currently has no plans to expand PCMS and accordingly has not requested any funds be programmed in the Department of Army budget (FY2012–2016) for the acquisition of land at PCMS over the next five years. In addition, the Army will consult with the Colorado Congressional delegation, Senate and House defense committees, and local communities, before taking any action to request funding for land acquisition at PCMS.

Mission Areas

Current and future range requirements are based upon the ability of a range to support Army operational functions or mission areas. Mission areas are groups of tasks and systems (people, organizations, information, and processes) united by a common purpose that commanders use to accomplish mission and training objectives. These mission areas are listed in Table 2-3, and defined in Appendix B.

Effective live training is the cornerstone of operational success. The training of critical tasks that individual, crew, platoon, and companies have to accomplish to be combat ready is directly related to the availability and capability of live fire ranges and maneuver areas. The continued improvement of live fire ranges and facilities remains the key to Army readiness. Live fire ranges and facilities are expected to be even more important as the Army implements the ARFORGEN

Table 2-3 Army Mission Areas

Mission Areas	
Movement and Maneuver	Sustainment
Fire Support	Command and Control (C2)
Intelligence	Protection

strategy. ARFORGEN will place all units continuously in a rest, train/ready, or available status, incurring greater cumulative training demand on ranges and training areas.

Army doctrine requires combined arms training based on teamwork and synchronization among units as they prepare for wartime combined arms operations. Combined arms proficiency results from regular practice of combat missions and tasks in the live domain. It starts with the development of individual skills. Individual skills, when combined and practiced, build unit proficiency from crew through brigade task force. The modernization of Army ranges under the SRP, supported by the Range Modernization Requirements Planning Process, supports this doctrine.

A key component of the Army's overall modernization process is the construction of the next generation of Army ranges—digital ranges. These ranges will provide soldiers and units with the capability to exercise digital command and control in a live-fire training environment, as well as provide unprecedented situational awareness, tailored scenarios, and immediate feedback required to prepare for multiple threat environments. Next generation Army digital ranges are identified and described in Table 2-4.

To meet evolving training challenges, the Army is modernizing its inventory of ranges to more effectively support training for multiple purposes, weapons, and combined arms through the incorporation of new capabilities, instrumentation, and digital technologies into standard range designs. The Army has 39 types of modernized ranges. The capabilities and standard configurations for these ranges are found in Training Circular 25-8 (TC 25-8), which is currently being updated to include changes in ranges to meet new doctrinal requirements, new weapons systems, and new training standards. The ranges described in the circular represent the inventory of standard and modernized Army range facilities categorized into major subgroups as small arms ranges, urban operations training facilities, and collective training ranges.

New ranges have been added to the inventory of modernized ranges as a result of new doctrinal changes: the Convoy Live Fire Course and the Digital Air-Ground Integration Range (DAGIR). Changes in existing range designs have been made to increase range capabilities, add technology, and increase throughput capacity to match new training standards and support new weapons systems qualifications. The new family of modernized ranges will replace older types still in the Army's inventory that cannot accommodate new training or weapons systems requirements.

Table 2-4 Next Generation Army Digital Ranges

Range Type	Description
Digital Air Ground Integration Range (DAGIR)	The DAGIR is replacing Digital Aviation Gunnery Ranges. The DAGIR is designed to train and qualify Army Aviation (helicopter) crews, teams/platoons, and companies/troops. It will support aerial operations, reconnaissance, and target engagements, such as joint tactical engagements and convoy live fire training. The DAGIR will include open and urban terrain, and targets supporting simultaneous, integrated air and ground operations. The DAGIR will be included in the updated version of TC 25-8, Training Ranges.
Battle Area Complex (BAX)	The BAX provides a collective live fire training facility for all elements in the Stryker Brigade Combat Team (SBCT). SBCT crews and dismounted soldiers train to detect, identify, engage, and defeat stationary and moving combined arms targets in both open and urban terrain environments. The BAX supports live fire operations independently of, or simultaneously with, supporting vehicles in free maneuver. All targets are fully automated, utilizing event-specific, computer-driven target scenarios and scoring.
Digital Multi-Purpose Range Complex (DMPRC)	The DMPRC complex is used to train armor, infantry, and aviation crews, sections, squads, and platoons to detect, identify, engage, and defeat stationary and moving infantry and armor targets. Combined Arms Live Fire Exercises may be conducted on this facility. The DMPRC supports dismounted infantry platoon live fire operations independently of, or simultaneously with, supporting vehicles. All targets are fully automated, utilizing event-specific, computer-driven target scenarios and scoring.
Digital Multi-Purpose Training Range (DMPTR)	The DMPTR complex is used to train crews and dismounted infantry squads to detect, identify, engage, and defeat stationary and moving infantry and armor targets. The complex is specifically designed to meet the training and crew qualification requirements for armor, infantry and aviation crews, and sections. The DMPTR supports dismounted infantry squad live fire operations independently of, or simultaneously with, supporting vehicles. All targets are fully automated, utilizing event-specific, computer-driven target scenarios and scoring.

2.3.2 Marine Corps Requirements

Overview

Marines, Marine units, and Marine Air-Ground Task Forces (MAGTFs) require operational ranges that meet the training demands of modern warfare, including sufficient land area, airspace, seaspace, frequency spectrum, and training range infrastructure to safely and effectively accomplish the full spectrum of mission-essential training.

The Marine Corps' Mission Capable Ranges Initiative, executed by the Training and Education Command, guides Marine Corps range planning and investment. The objective of this initiative is to develop and sustain a comprehensive portfolio of modern ranges and controlled airspace that supports the entire training continuum, from the individual training level to large-scale exercises of the MAGTF. Live-fire training events are a hallmark of, and critical to, the Marine Corps' approach to preparing for combat, and its range modernization and transformation programs reflect this focus.

Identifying operational range requirements is a dynamic process because range requirements depend on training needs and are determined by changing operational requirements. Marine Corps ranges must support training cycles for wartime deployments, which is of immediate concern. Furthermore, range capabilities must be enhanced to support both current and future training with mission-capable ranges.

Continued analysis and the fielding of new systems may cause other requirements to surface in the future; however, the current gaps in training capability include:

- The inability to exercise a large scale MAGTF in a "live" training scenario, including expeditionary maneuver from the sea and distributed operations
- The lack of a capable East coast aviation training range to accommodate the increased airspace and weapons requirements of precision guided munitions and the joint strike fighter
- Inadequate training opportunities for the Marine units stationed in the Western Pacific

The Marine Corps is actively addressing these gaps through proposed land acquisition and airspace expansion at Marine Corps Air-Ground Combat Center (MCAGCC) Twentynine Palms; assessment of the feasibility of expanding existing aviation range capabilities in the eastern United States; and investment in long-term planning for enhanced training capabilities in the Western Pacific.

The Marine Corps' planned reorganization will generate additional requirements that will impact range planning and utilization throughout the Marine Corps. A significant force relocation issue is the inter-governmental agreement between the U.S. and Japan to relocate some existing Marine Corps forces from Okinawa to Guam. The Marine Corps Range and Training Area Management (RTAM) office is heavily engaged in providing the necessary planning support to the Joint Guam Program Office and the Commanding General, Marine Forces Pacific.

Marine Corps installations are managed to maximize efficient use of training land and resources; however, internal and external limitations can constrain the ability to meet training requirements. Encroachment into the vicinity of Marine Corps installations, operational ranges, and training areas can create resource (land, air, water, frequency spectrum) uses that are incompatible with current and future military training and general mission activities.

No operational range in the Marine Corps inventory currently includes or is projected to include surplus land; deficits currently exist at many of the Marine Corps' operational ranges as described in the detailed analysis later in Chapter 3. The Marine Corps has initiated a strategic assessment of its land requirements; however, geographical and fiscal constraints will prevent the Marine Corps from addressing all shortfalls. The Marine Corps will continue to rely on its current resources and use other Military Services' ranges to meet most of its training needs. It will aggressively invest in range modernization and transformation to address as many shortfalls as possible using its available resources.

The Marine Corps' planning is centered on six cornerstone objectives:

- Preserving and enhancing live-fire combined arms training, including the capability to support large-scale exercises
- Recapturing littoral training capabilities at Camp Lejeune and Camp Pendleton
- Leveraging technology to provide feedback for better training
- Lessening encroachment
- Facilitating cross-service utilization
- Supporting the Joint National Training Capability

The Marine Corps is confident that it will continue to receive the support and resources necessary to provide the range capabilities required to fully train Marines, sailors, units, and MAGTFs.

Current and Future Requirements

Mission Capable Ranges support the Commandant of the Marine Corps' Vision and Strategy 2025 Initiative. Vision and Strategy 2025 advances a modernization strategy, focused on range requirements of future ground and aviation weapon systems. It includes required linkages between the Marine Corps installations and other-Service ranges and the execution of training in live, virtual, and constructive environments. Vision and Strategy 2025 also advances the Marine Corps encroachment control program, focusing on initiatives that optimize access to training ranges, airspace, and frequency spectrum required for training.

Identifying future operational range requirements is an inherently dynamic process, in that range requirements depend on training needs determined by changing operational requirements. Marine Corps ranges must support training cycles necessary to prepare individual Marines and Marine Corps units for current wartime deployments, which is an immediate concern. Furthermore, range capabilities must be continuously enhanced to support current, emerging, and future training requirements with modern ranges that are relevant to the full spectrum of conflict. Several factors affect operational range requirements, both Service-wide and at a particular installation, including:

- Developing operational doctrine
- Evolution of tactics, techniques, and procedures (TTPs)
- Fielding of new weapons and systems

- Evolving missions of the training ranges
- Training load (throughput)

The Mission Capable Ranges program is structured to identify and address future range requirements that arise in this dynamic framework. It is both forward-looking and responsive, in that it anticipates possible emerging and future range requirements, while maintaining the flexibility to address immediate range needs to support current training of the operating forces. The Mission Capable Ranges program implements a detailed planning process for determining range requirements and investment priorities. One foundation of this program is Marine Corps Reference Publication (MCRP) 3-0C, Marine Corps Operational Training Ranges Required Capabilities. This MCRP describes training land, airspace, and required range facilities necessary to execute the training continuum. Based on the MCRP, installation-specific Range Complex Management Plans (RCMP) are developed to guide execution of range transformation. The Marine Corps has completed RCMPs for its major training bases, except Marine Corps Base Japan and Marine Corps Base Quantico, for which the RCMP is in development (completion in FY2011). In addition, regional RCMPs have been initiated or are planned for Marine Corps Installations (MCI) West (in progress) and MCI East (planned FY2011).

The Marine Corps is aggressively investing in range modernization and transformation. Since 2004, the Marine Corps has invested (or is in the process of investing) over $500 million in ranges. Lines of operation for range modernization under the Mission Capable Ranges program consist of: (1) sustainment of ranges to maintain capabilities and protect range investments; (2) re-capitalization to upgrade or replace existing ranges and range resources; and (3) investment in new ranges that leverage advanced range instrumentation, targets, and training systems. The objective is to develop and sustain a comprehensive portfolio of modern ranges including airspace that supports the entire training continuum today and well into the future, from training of the individual Marine to large-scale exercises of the Marine Air Ground Task Force (MAGTF). Specific range capabilities that will complement this comprehensive portfolio of modern ranges include three ongoing Marine Corps efforts at MCAGCC Twentynine Palms, Guam, and Townsend Bombing Ranges. A more detailed discussion of the seriousness of these present and future range requirements is included in the Chapter 3 Marine Corps Special Interest Section and the Goals and Milestones section of Chapter 4.

Mission Areas

Marine Corps forces are organized, trained, and equipped to deploy as MAGTFs. MAGTFs are scalable, task-organized force consisting of these elements: Ground Combat Element, Aviation Combat Element, Logistics Combat Element, and Command Element. The size and composition of a MAGTF depends on its mission. The Marine Expeditionary Force (MEF) is the largest MAGTF. While the Marine Expeditionary Brigade (MEB) is a large-scale MAGTF, it is smaller than an MEF. and the smallest standing MAGTF is a Marine Expeditionary unit (MEU). Special task-organized MAGTFs can be built as missions and requirements dictate, to include training and exercises. Each MAGTF trains to execute six warfighting functions, (e.g., Maneuver, Fires, Intelligence, Command and Control, Logistics, and Force Protection). Training of the MAGTF proceeds on a continuum of individual skills training, unit training for MAGTF elements, MEU-level training, and MEB / large-scale MAGTF training. The Marine Corps organizes its range classes or range mission areas to align with the stages of the training continuum. These mission areas are identified in Table 2-5 and defined in Appendix B.

Table 2-5 Marine Corps Mission Areas

Level of Training	Training Environment and Range Requirements
Individual Warfighting Skills	▸ programmed instruction ▸ fixed ranges / individual movement areas / Special Use Airspace (SUA) ▸ specialized ranges such as small Military Operations in Urban Terrain (MOUT) facilities
Unit Training (smaller units)	▸ scenario-based training ▸ fixed ranges / fire and movement ranges / small maneuver areas / SUA ▸ specialized ranges such as small MOUT facilities
Unit Training (larger units/ MAGTF elements)	▸ dynamic decision-making in event driven training exercises ▸ fire and maneuver ranges / large maneuver areas / SUA ▸ specialized ranges such as large MOUT facilities
MEU Training Exercises	▸ fully integrated, multi-dimensional training ▸ extended fire and maneuver areas for multi-day training events ▸ extensive SUA ▸ specialized ranges such as large MOUT facilities
Large-scale MAGTF / MEB Training	▸ fully integrated, multi-dimensional training ▸ extended fire and maneuver areas for multi-day training events ▸ extensive SUA ▸ specialized ranges such as very large MOUT facilities

2.3.3 Navy Requirements

Overview

Today's high performance aircraft and ships employ weapons of significant capability and complexity with unique training and delivery characteristics that require a robust training range/operating area infrastructure. The Navy accomplishes most of its training on ranges and operating areas located near concentrations of forces in the United States and its territories. These areas enable high fidelity training facilitated by exercise coordinators. For safety purposes, these areas also provide a training space with reduced or restricted civilian traffic. Additionally, Naval forces train on Army-, Air Force-, and Marine Corps-controlled ranges. Shared and joint use of ranges, both in the U.S. and abroad helps to economize time and resources spent on travel while simultaneously exposing Naval forces to the joint environment.

The Navy's Range Complexes allow for training in support of the Composite Warfare Commander (CWC) concept. Each Carrier Strike Group and Amphibious Ready Group must master multiple mission areas enabling the aviation, surface, and submarine forces to work in an integrated manner. This CWC construct presents unique challenges for the Navy Range Complexes, which must offer realistic training across diverse and complex mission areas to meet Navy readiness and deployment requirements.

Generation and validation of requirements for Navy training ranges in the United States and its territories falls under the purview of U.S. Fleet Forces (USFF). Type Commanders (TYCOMs) and various lower echelon commands control the ranges that are tenant commands on Navy installations. For example, the ranges in the San Diego area are grouped into the Southern California (SOCAL) Range Complex. SOCAL contains several land, water, and air ranges managed by the Commander Pacific Fleet (CPF).

While CPF and subordinate elements, such as the Southern California Off Shore Range (SCORE), control the day-to-day training operations on the ranges, the Regional Environmental Coordinator on the staff of Navy Region Southwest manages the environmental issues for all ranges within its region. Due to the common administrative requirements influenced by the geographic proximity of the range components, the Navy manages its ranges as range complexes. For inventory and budgeting purposes, the Navy groups ranges, and sometimes sets of small complexes, to provide efficiencies.

Current and Future Requirements

Training requirements, as opposed to training range requirements, are defined by the Numbered Fleet Commanders (NFCs) and TYCOMs. Each is responsible for establishing the training requirements in Navy Warfare Areas for the various air, surface, and sub-surface forces. To prepare for the Planning, Programming, Budgeting, and Execution (PPBE) process, the TYCOMs obtain input from their subordinate commands to determine what training range capabilities and space are needed. Those requirements are forwarded to the fleet level, USFF and Pacific Fleet, for validation. USFF forwards the requirements to the Chief of Naval Operations for assessment as input to the Navy's Program Objective Memorandum (POM) submission process.

The Navy's highest level range requirement is to provide forces with the land, air, sea-space, and frequency spectrum necessary to support the Fleet Response Plan (FRP). To meet the requirements of the FRP, the Navy has developed a Fleet Response Training Plan (FRTP). To meet the milestones in the FRTP, the Navy has a geographically dispersed set of training complexes on each coast, Hawaii, and in the Western Pacific that provide the areas necessary to conduct controlled and safe training scenarios that are representative of the conditions Navy personnel will face in meeting their assigned tasks, either in peacetime operations or armed conflict. Table 2-6 summarizes the four FRTP training phases.

All Navy range complexes have developed individual RCMPs to ensure codification of requirements and capabilities of the various range complexes.

Navy training ranges will play a critical role in supporting training for the operational forces well into the 21st Century. The Navy anticipates that through 2025, the continuing requirement will be to support all phases of the FRP. Strategic planning for Navy complexes will include support for future training operations, as well as improvements to infrastructure to support the JNTC. Range capabilities will be addressed in individual RCMPs. The Navy will use these plans to implement Navy and DoD sustainable ranges policies, and to assist in evaluating new requirements throughout the PPBE process.

Mission Areas

The Navy defines range functions as the ability to support training in mission-essential Naval warfare areas. These mission areas are provided in Table 2-7 and defined in Appendix B.

Table 2-6 Navy Fleet Response Training Plan Phases

Training Plan Phase	Description
Maintenance	Maintenance is the preferred period during the entire FRP in which major shipyard or depot level repairs, upgrades, and modernization will occur. In addition to completion of maintenance requirements, units continue to focus on individual/team training and achieving unit level readiness. To better accommodate TYCOM unit maintenance and training schedules, the basic phase may precede maintenance in part or in whole.
Basic (Unit Level Training)	The basic phase focuses on completion of TYCOM[5] unit level training (ULT) requirements—team training both onboard and ashore, unit level exercises both in port and at sea, unit qualifications, assessments, qualifications, and certifications. During the basic phase, a unit will maximize the use of both distance learning options for individual skills development, and in port synthetic training. Successful completion of the basic phase ensures units are proficient in all required Navy Mission Essential Task capabilities, meet TYCOM certification criteria, and are ready for more complex integrated training events. ULT follows a cyclical "assess, train, and certify" process which has been instituted by the TYCOMs.
Integrated	The goal of integrated phase training is to synthesize unit/staff actions into coordinated strike group operations in a challenging, multi-warfare operational environment. This phase provides an opportunity for strike group decision makers and watch-standers to complete staff planning and warfare commanders courses; conduct multi-unit in-port and at-sea training; and to build on individual skill proficiencies attained in their respective basic phase. The integrated phase is adaptable in order to provide training for Major Combat Operations, Surge certification, Ready certification, and/or tailored training to support emergent Combatant Commander requirements.
Sustainment	The sustainment phase begins upon completion of the integrated phase, continues throughout the post deployment period, and ends with the commencement of the maintenance phase. Sustainment consists of a variety of training evolutions designed to sustain operation readiness as a group, multi-unit, or unit, until and following deployment. Sustainment phase training exercises units and staffs in multi-mission planning and execution, and to interoperate in a joint/coalition environment. In-port and at-sea sustainment training allows forces to demonstrate proficiency in operating as part of a joint and coalition combined force and ensures that proficiency is maintained in all Navy METs in order to maintain Major Combat Operations Ready status. The extent of training will vary depending on the unit's anticipated task and length of time in an MCO Ready status. During sustainment, units/groups maintain an Major Combat Operations Ready status until the commencement of the maintenance phase unless otherwise directed by Navy Fleet Commanders. Unit/group integrity during this period is vital to ensure integrated proficiency is maintained, particularly for strike groups. Deployments in support of Combatant Commander Global Force Management requirements may occur within the Sustainment Phase after numbered Fleet Commanders re-certify groups and units.

Table 2-7 Navy Mission Areas

Mission Areas	
Strike Warfare	Mine Warfare
Electronic Combat	Amphibious Warfare
Anti-Air Warfare	Anti-Submarine Warfare
Anti-Surface	Naval Special Warfare (NSW)

2.3.4 Air Force Requirements

Overview

DoD readiness is impacted by limitations on the use of military lands, marine areas, and airspace. To address and further understand these impacts, the Air Force Air Combat Command (ACC) partnered with the RAND Corporation in 2001 to investigate a requirements-based approach for determining its range and airspace infrastructure needs. The goal of the study was to develop an analytical structure for translating ACC operational requirements into training requirements, and then into infrastructure requirements. It sought to establish a comprehensive, objective statement of ACC range and airspace requirements linked to national interests, and a corresponding approach to compare the adequacy of existing infrastructure with those requirements. A relational database was created to serve as an information repository and allow for analysis of the relationships among the three different elements. This process is described in the following paragraphs.

Prior to 2001, alternative range and airspace resource determinations were based primarily on statements of apparent gaps between requirements and existing capabilities. The Air Force determined that more effective decisions could be made if both the requirements and current asset capabilities were stated more explicitly, with resource decisions based on rigorously derived gap assessments. To be defensible, range infrastructure and resource requirements must be linked firmly to training requirements, which in turn must be linked directly to the operational requirements of the Air Force in the conduct of its individual and joint national security missions. Additionally, for a requirements-based approach to succeed, an efficient means of comparing existing infrastructure capabilities with these vetted requirements would be needed. Figure 2-3 illustrates the framework at the core of the Air Force requirements translation process.

5 TYCOMs are responsible for the aircraft, ships and submarines that make up the Navy's operational numbered fleets. Numbered fleets (e.g., 2nd Fleet, 5th Fleet, 6th Fleet, etc.) are immediately subordinate to major fleet commands (e.g. Atlantic and Pacific Fleets). They are comprised of various task forces, elements, groups, and units organized for the purpose of prosecuting specific naval operations.

Figure 2-3 Framework for Developing Air Force Infrastructure Requirements

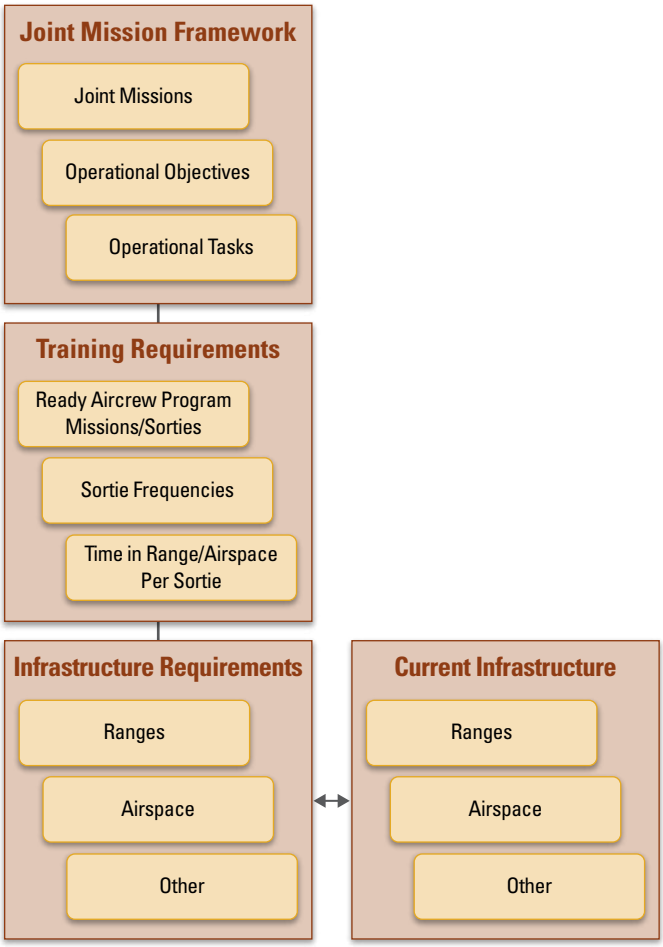


Figure 2-4 Linking Training Activities to Air Force Range Infrastructure Requirements

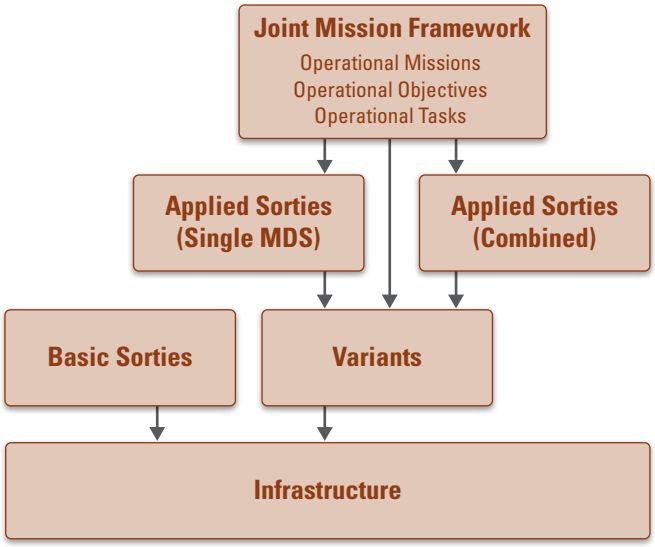


Table 2-8 Air Force Mission Areas

Mission Areas	
Strategic Attack	Command and Control (C2)
Counterair	Air Drop
Counterspace	Air Refueling
Counterland	Spacelift
Countersea	Special Operations
Information Operations	Intelligence, Surveillance, and Reconnaissance
Electronic Combat Support	

Current and Future Requirements

The first step in this requirements identification and translation process starts with the development of a Joint Mission Framework. This framework focuses on effects to be achieved for a joint commander without regard to how those needs might be met. This framework was developed because existing statements of operational requirements did not readily lend themselves to a strategies-to-task linkage to training requirements because they were too detailed, too context-specific, and classified at a level impractical for open communication with the public. The UJTL and its derivatives, the JMETL, and Air Force Task List support the strategy-to-task approach.

The second step in this process is to relate training activities to operational requirements as detailed in the Joint Mission Framework, and also to training resource needs, specifically range and airspace infrastructure requirements. In doing this, the Air Force focused on applied and combined sorties, as derived from the Ready Aircrew Program.

The third and final step in the Air Force range requirements development process is to evaluate operational and training requirements, and translate them into required range and airspace infrastructure. This is accomplished by grouping and dividing range and airspace infrastructure based on geographic, quantitative, and qualitative characteristics. From a geographic perspective, the required range infrastructure must be reasonably close to base operating locations. The available training time on nearby ranges and airspace must be sufficient to support the training requirements of an operating base. For a given Mission Design Series (MDS)/sortie-type combination, the requirements are translated into capacity, or the amount of operating time required on ranges and in airspace, by multiplying the required number of sorties by the time required for an individual sortie on a range and/or in an airspace. Qualitative characteristics (and corresponding information on existing assets) must satisfy certain requirements, such as minimum dimensional requirements, availability of required range equipment, and authorized operation of aircraft and

systems in specific ways. Qualitative characteristics were captured for six infrastructure types: ranges, low-level routes, maneuver areas, threats, orbits, and other.

Based upon the initial success of the study, the Air Force has decided to undertake a follow-on project to provide a better foundation for ongoing and future analyses, and expand the preliminary relational database to include training other than continuation training, training for newer combat air force (CAF) MDS and weapons, and training for non-CAF MDS. The relational database will be expanded to capture and document emerging requirements and changes to the range and airspace infrastructure. The existing Air Force process for translating operational requirements into training and infrastructure requirements shall remain the Air Force standard until the follow-on study is completed.

Operating Space Considerations in Basing Decisions

The Air Force is continually involved in making basing decisions for the bed-down of new aircraft and/or redistribution of current force structure. Air Force senior leadership recognizes the need to define and establish a framework for making decisions on where, and in what order, to locate these aircraft to best meet Air Force fleet-wide requirements. This framework requires all basing actions to be conducted in a strategic manner rather than follow the individual step-wise process that has been used in the past.

The Air Force strategic basing process considerations fall into two basic categories. The first category addresses whether or not the aircraft can physically be located at a particular site. The second category addresses whether or not a weapon system should be based at a particular location. The first category lends itself to quantitative analysis, while the second depends on less quantifiable factors that senior Air Force leaders are uniquely experienced and qualified to judge and use in making final decisions on the most appropriate location for a particular set of aircraft.

The first consideration addresses whether or not a particular installation can or can be made to accommodate the aircraft and enable it to operate from the location, conduct the necessary training and be able to deploy or conduct operations directly in support of a combatant commander, or combatant command (COCOM). This consideration is quantifiable in terms of facilities nature, size, overall capacity, availability of and proximity to required airspace and ranges, compatibility with aircraft operating characteristics, environmental constraints and costs associated with introducing the weapon system. These factors are measured against specific standards and identify the possible options within the existing set of potential installations. The Air Force has made a great effort to quantify the factors beyond runway length, ramp size, and hanger space to include quantifiable factor for ranges, airspace, and environmental. While the specific weighting of these factors may change depending on the weapons system being addressed, all current and future Air Force basing actions will address these factors.

The second consideration takes the quantifiable score from above and uses it with other non-quantifiable factors to determine whether or not a weapon system should be based at a particular location even if the "capability" exists. These factors can be described as military judgment and take into account military dynamics such as Air Force strategic planning, joint training opportunities, homeland defense, and Total Force Integration (TFI). These factors also take into account non-military aspects such as but not limited to; population distribution, demographic/cultural factors, air quality, endangered species, and State and local zoning issues. This new repeatable and defendable process has been established to develop the most sustainable deployment of all Air Force assets worldwide.

Corporate Operating Space Management Construct

This initiative seeks to increase the effectiveness and efficiency of AF Operating Space (physical or virtual space used for operations, test, or training) management and utilization by leveraging and integrating the efforts of existing bodies and processes. This effort will apply across the live, virtual and constructive domains of air, space, cyber, information operations (IO), Distributed Mission Operations (DMO), operational, test, and training communities to provide timely information to decision makers within the Air Force Corporate Structure (AFCS).

The objective of this Construct is to increase effectiveness and efficiency of operating space management across the live, virtual and constructive (LVC) domains of air, space, cyber, information operations (IO), distributed missions (DM), operational, test, and training communities by:

- Leveraging resources
- Specifying range configurations for common investment areas
- Reinvigorating the previously chartered AFRIC and CTR sharing the relevant proceedings of the OTICC, modifying and utilizing the ARC to communicate actions across the communities
- Aligning actions to the Air Force corporate structure timelines to gain timely shared advocacy throughout the Air Force corporate structure

This Construct will:

1. Reinvigorate the Air Force Range Investment Council (AFRIC) and Combat Training Range (CTR)
2. Outline organizational participation in and directs crosstalk between the AFRIC, CTR, OSD Test Investment Coordinating Committee (OTICC), and the Airspace and Range Council (ARC)
3. Reiterate the use of only existing Planning, Programming, Budgeting and Execution (PPBE) practices, constructs, and procedures as they apply to the ten common investment areas as defined by Air Force Instruction (AFI) 13-212

   Note: This Construct does not involve transfer of funds, responsibility, manpower (leveling), or workload between or among MAJCOMs, beyond what is currently established by AFI, Charter, or other existing guidance. Missions or mission requirements unique to a MAJCOM (e.g. space launch and special operations) are likewise, beyond the scope of this Construct.

Mission Areas

The Air Force classifies ranges based upon their ability to support thirteen specific types of air warfare training.

These training events, or mission areas, are listed in Table 2-8, and defined in Appendix B.



3 Adequacy of Existing Range Resources to Meet Training Requirements

NDAA Section 366(a)(2)(B) requires DoD to evaluate the adequacy of current range resources. Additionally, NDAA Sections 366(c)(1)(B) and (C) require DoD to identify training capabilities and existing constraints. In response, DoD has further developed its annual assessment process to evaluate the adequacy of ranges to provide the required training support and the current impacts of encroachment in terms of risk to the assigned training missions conducted at each range.

In 2007, DoD began assessing the adequacy of ranges to support required training as well as the actual impacts of encroachment. In 2008, DoD and the Military Services worked together to build a common set of capability attributes and encroachment factors, and standard criteria to evaluate them against for the purposes of this report. The common attributes and factors, as well as the standard evaluation criteria lead to a consistent assessment and analysis across the Military Services. A discussion of the assessments and the results of the standardization efforts are discussed in the following sections.

3.1 Assessment Methodology and Examples

As part of the evolving assessment process, DoD coordinated a more streamlined approach for assessing the impact of range capabilities and encroachment (constraints/restrictions that inhibit accomplishment of training in support of mission readiness) on Service-defined mission areas, which are presented in Chapter 2, and defined in Appendix B. The result was detailed guidance and definitions for 13 common capability attributes and 12 common encroachment factors to ensure consistency and standardization in the assessment variables. The assessment process is reviewed annually by the Services and OSD and adjustments are made as necessary to refine the accuracy and value of the resulting assessments. The Military Services have the responsibility for identifying the ranges for assessment and then conducting and providing the assessments to the SRR.

3.1.1 Capability Assessment

Beginning in 2008, the following 13 common capability attributes were developed and identified by the Military Services for assessment and reporting processes:

- Landspace—Physical land area that has the necessary features such as topography, vegetative cover, configuration, proximity, capacity, usability, acreage, etc.
- Airspace—Physical volume of airspace that has the necessary features such as types of use, configuration, proximity, capacity, amount, etc.
- Seaspace—Physical sea-surface area that has the necessary features such as types of use, configuration, proximity, capacity, amount, etc.
- Underseaspace—Physical volume of underseaspace that has the necessary features such as ocean bottom type, depth, types of use, configuration, proximity, capacity, amount, etc.
- Targets—Various land, air, sea, and undersea presentations designed for live or simulated weapons engagement.

- Threats—Various physical and simulated threat presentations such as emitters, opposing adversary forces, battlefield affect simulators, etc.
- Scoring and Feedback Systems—Equipment that provides information for training event reconstruction, debriefing, and replay, whether virtual or live, through the collection and storage of time and space position information (TSPI), weapons accuracy, systems and operator accuracy, assessment and monitoring of operator performance, and C4I network information flow.
- Infrastructure—Buildings, structures, or linear structures (e.g., roads, rail lines, pipelines, fences, pavement).
- Range Support—Personnel, software, and hardware that support daily range operations, maintenance (including range clearance), and communication networks for command and control, scheduling, and range safety as examples. Communications networks include: inter- and intra-range systems point-to-point; range support networks; fiber optic and microwave backbones; information protection systems such as encryption, radio, and data link; and instrumentation frequency management systems.
- Small Arms Ranges—Small arms refer to ranges that accommodate weapons systems that fire rounds up through 40mm and produce duds.
- Collective Ranges—Collective refers to ranges that provide proficiency at the team or unit level for battlefield operations.
- Military Operations in Urban Terrain (MOUT) Facilities—MOUT facilities refer to terrain complexes that replicate urban environments.
- Suite of Ranges—The suite of ranges is a nominal make-up of range attributes and is intended to provide the baseline requirement for each level of training. The elements include various types of ranges such as maneuver/training area, impact areas, live-fire ranges, aviation ranges, and MOUT complexes that must be coordinated to conduct required training events.

Military Service-specific mission areas (as listed in Chapter 2, and defined in Appendix B) were assessed and evaluated against the 13 capability attributes using a color rating scheme. These assessments were based on range usage with regards to accessibility and usability during normal operations using the following rating scale:

- Red—The range is not mission capable. It is unable to support required training tasks for a given mission area to prescribed doctrinal standards and conditions.
- Yellow—The range is partially mission capable. It can partially support required training tasks for a given mission area to prescribed doctrinal standards and conditions, resulting in marginalized training for the range users.
- Green—The range is fully mission capable. It can support required training tasks for a given mission area to prescribed doctrinal standards and conditions.
- White (Blank)—White (blank) represents the situation where an assessment for a given mission area is not performed against a particular attribute. If a complete mission area is "white," there is no requirement for the range to provide training in this area. When conducting the encroachment assessment for this same range no encroachment factors will be assessed for this mission area.

3.1.2 Encroachment Assessment

The impact to mission readiness from encroachment is difficult to assess. It is important to understand that encroachment causes range users to find workarounds to complete their training and increases mission risk. Over time, this can result in a specific mission failure. While some adaptation by the Services' operational forces can be expected, workarounds resulting from encroachment have the potential to increase mission risk due to unrealistic, segmented, or irrelevant training, and can possibly result in a deterioration of training content and/or quality. Therefore, as part of DoD's efforts to standardize the assessment of encroachment on training ranges, the Military Services were tasked to assess the current impacts of the following 12 encroachment factors, against their Service mission areas (as listed in Chapter 2, and defined in Appendix B).

- Threatened & Endangered Species/Critical Habitat—Constraints placed on training due to regulatory requirements and/or Military Service guidance to manage at risk, threatened, or endangered species or associated habitat.
- Munitions Restrictions—Constraints placed on training due to regulatory requirements and/or Military Service guidance on munitions use, munitions constituents, or residue to include range clearance. Restrictions placed on munitions use due to weapon safety footprint requirements are assessed as capability attributes under Landspace, Airspace, Seaspace, and Underseaspace. Other constraints from munitions use that have an encroachment factor available such as Noise, Air Quality, Water Quality, and Transients are assessed under those factors.
- Spectrum—Constraints placed on training due to unavailability of or interference with required electromagnetic spectrum.
- Maritime Sustainability—Constraints placed on training due to regulatory requirements and/or Military Service guidance to protect and sustain the maritime environment. This includes marine mammals and sonar issues.

- Airspace—Constraints placed on training due to the availability of airspace. These constraints may be spatial or temporal.
- Air Quality—Constraints placed on training due to regulatory requirements and/or Military Service guidance to maintain air quality.
- Noise Restrictions—Constraints placed on training as a result of mitigation measures for unwanted sound generated from the operation of military weapons or weapon systems. These restrictions affect people, animals (domestic or wild), and structures on or in proximity to military training areas. Noise restrictions do not include occupational noise exposure or underwater sound.
- Adjacent Land Use—Constraints placed on training due to incompatible development in proximity to military training areas.
- Cultural Resources—Constraints placed on training due to legal and/or regulatory requirements and/or Military Service guidance to manage and maintain cultural resources.
- Water Quality/Supply—Constraints placed on training due to legal and/or regulatory requirements and/or Military Service guidance to manage water quality and supply.
- Wetlands—Constraints placed on training due to legal and/or regulatory requirements and/or Military Service guidance to manage wetlands.
- Range Transients—Constraints placed on training due to the unannounced or unauthorized presence of individuals, livestock, aircraft, or watercraft transiting ranges.

Military Services assessed the ranges and range complexes against the impact from each of the factors on their range/range complexes' abilities to support its assigned training missions. These assessments were based on availability and use of the range using the following rating scale:

- Red—The encroachment factor has a severe effect or high risk to the range's ability to support its assigned mission training and would likely cause the training mission to fail. Mitigating the encroachment would involve prohibitive costs or actions for the range.
- Yellow—The encroachment factor has a moderate impact or medium risk on the range's ability to support its assigned mission training. Workarounds have a moderate impact on training content, procedure, or outcome. Addressing the encroachment results in additional burdens or requires additional actions by the range to mitigate the impact of the encroachment.
- Green—The encroachment factor has minimal impact or low risk on the range's ability to support its assigned mission training. Workarounds detract minimally or not at all from training content, procedure, or outcome. Costs are not incurred by the range or range users to address the encroachment factor.
- White (Blank)—White (blank) represents the situation where an encroachment factor does not exist for a given mission area.

3.1.3 Explanation of Individual Range Assessment Details and Observations

Each Military Service's individual ranges/range complexes were assessed for their ability to support their assigned training missions using the 13 common capability attributes and 12 common encroachment factors using the red, yellow, and green rating scales discussed above. The display of individual range assessments has changed this year to improve the context, clarity, and flow of the report. Both the capability and encroachment assessments for each range are still displayed side-by-side. To improve the readers understanding of the range being assessed a brief description of the range's mission has been added above the assessments. Next, charts are provided showing both the capability and encroachment assessment. An explanation for how to read and interpret these charts is discussed below. Pie charts depicting the overall distribution of red, yellow, and green ratings are presented with calculated rating scores on a scale of 0 to 10. The overall rating scores for both capability and encroachment assessments are weighted average scores with 0 assigned for each red rating, 5 for each yellow rating, and 10 for each green rating. Below the chart and scores are summary observations. The summary observations provide information on what encroachment factors and capability attributes are most impacting the range's ability to perform its assigned mission along with those mission areas most severely impacted. The section on historical information, results, and future projections provides a more qualitative assessment with several pieces of information. Overall rating scores from prior years are presented along with comments as to whether the range complex's capabilities or encroachment pressures have been improving or degrading over the years and the outlook for the future. Following the assessment details are detailed comments for each range grouped by capability observations and encroachment observations. The observations consist of comments for red and yellow assessment ratings that explain the problem or shortfall, how it is impacting training, and any planned actions to remedy the situation.

Figure 3-1 Example Assessment and Analysis

Range Name: Range A

Range Mission Description

Range A is the Army's premier armored training facility supporting 199,541 acres of training area, including a 63,000-acre impact area for live-fire training and a 134,600-acre maneuver area capable of accommodating a combat- heavy brigade consisting of 300 tracked and 900 wheeled vehicles. It also operates the 15,900-square-mile Helo Training Area designated for aviation training.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Mission Area #1	●	●			●	●	●	●	●	●	●	●	●
Mission Area #2	●	●			●	●	●	●	●	●	●	●	●
Mission Area #3	●	●			●	●	●	●	●	●	●	●	●
Mission Area #4	●	●			●	●	●	●	●	●	●	●	●
Mission Area #5	●	●			●	●	●	●	●	●	●	●	●

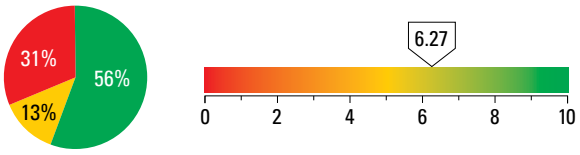
Legend: FMC ● PMC ● NMC ●

Encroachment Data

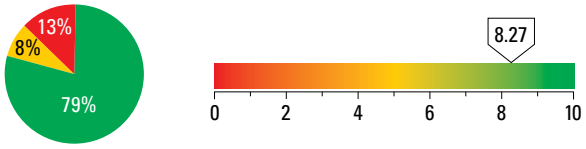
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Mission Area #1	●	●			●	●	●		●	●	●	●
Mission Area #2	●	●			●	●	●	●	●	●	●	●
Mission Area #3	●	●	●		●	●	●	●	●	●	●	●
Mission Area #4	●	●	●		●	●	●	●	●	●	●	●
Mission Area #5	●	●	●		●	●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

31% of Range A's mission areas are NOT mission capable (NMC)

13% of Range A's mission areas are partially mission capable (PMC)

56% of the Range A's mission areas are fully mission capable (FMC)

Small Arms Ranges, Airspace, Suites of Ranges, and MOUT Facilities Attributes are impacting Range A's overall capabilities.

Mission Area #5 is the mission area that is most impacted.

Summary Observations

13% of Range A's mission Ares are severely impacted (severe risk)

8% of Range A's mission Areas are moderately impacted (moderate risk)

79% of Range A's mission Areas are minimally impacted (minimal risk)

At Range A, Wetlands, Adjacent Land Use, Air Quality and Airspace are impacting the over all mission risk.

Mission Area #3 is the mission area that is most impacted.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	5.51	5.87	6.10

The increase in capability scores over the past three years are due to improvements in internal data collection and reporting processes. During the course of the next 3-5 years, Range A's capability score is expected to show improvement as additional small arms ranges are constructed and plans for a Military Operating Area are finalized.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	6.53	6.75	7.91

The steady increase in encroachment scores is attributed to REPI initiatives and funding to reduce the encroachment pressures at Range A. However, in the coming years, urbanization trends and associated impacts will result in encroachment due to eastward sprawl and an anticipated increasing population of Red Cockaded Woodpeckers (endangered spices) due to habitat destruction off range. This will most likely result in complete and seasonal training restrictions in some areas decreasing the range's throughput capacity. Range A is seeking to address these impacts through the use of the Compatible Land Use Buffer Program and a translocation program in cooperation with the Fish and Wildlife Service.

3.1.3.1 Example Capability Assessment and Analysis

The following discussion details an example Capability Assessment and Analysis. Figure 3-1 illustrates the format DoD used to collect, evaluate, and analyze range capability data.

This example shows that Range A is being assessed against its ability to support training for its five mission areas. As seen above, the red ratings for Airspace in Mission Areas 2 through 5 indicate that the airspace is insufficient to support prescribed doctrinal standards or conditions for one or more of the training tasks associated with Mission Areas 2 through 5. Other red ratings, indicating capability attribute shortfalls that are severely impacting mission areas are: Targets for Mission Areas 2 and 5, Scoring and Feedback Systems for Mission Areas 1 and 5, Small Arms Ranges for all five mission areas, and Suite of Ranges for Mission Areas 2, 4, and 5.

Less severe impacts can be seen in the yellow ratings, such as those for Threats and Range Support in Mission Area 4, Scoring and Feedback Systems for Mission Area 3, and MOUT facilities in Mission Areas 2 through 5. For yellow ratings, there are shortfalls in prescribed doctrinal standards or conditions such that training for a certain task(s) in a mission area will be degraded. Limited or no impact describes the majority of attributes for Range A, as indicated by the green ratings. These attributes are sufficient to provide training in the five mission areas according to the doctrinal conditions and standards for the training tasks assigned to the users.

Where a capability is assessed against a mission area, a red, yellow, or green rating is assigned. Where capabilities are not required at a given range, or not assessed, the blocks are rated white. Where training for a mission area does not apply to a given range, all capabilities are assessed white and encroachment for that mission area is not assessed as well. The completed table provides the information used to generate the pie-chart and overall rating on the 0 to 10 scale for the capabilities Range A provides in the five different mission areas. This data represents a snapshot in time for a given reporting cycle and does not provide trend information. To assess changing conditions over time at an individual range, individual range assessments must be viewed across the years with understanding of all the factors that can change an assessment from one year to the next.

To represent the overall distribution of red, yellow, and green ratings, the pie chart shows that of the 55 ratings 56 percent (31 ratings) are green, 13 percent (7 ratings) are yellow, and 31 percent (17 ratings) are red. This means, for example, that of all the capability factors necessary to provide assigned training for Range A, 31 percent are so severely degraded that some facet of training cannot be accomplished to even a marginal level.

In this example, the weighted average score provides the overall rating on a 0 to 10 scale as previously described. The Capability Score of 6.27 was calculated from 31 green, 7 yellow, and 17 red responses. Additionally, two attributes were not assessed, giving white ratings, for two complete Mission Areas (10 blank boxes). Using the number of ratings for each color and the weighting of 0 for red, 5 for yellow, and 10 for green, the total weighted score for this example is 345. The weighted average is determined by dividing the weighted score (345) by the total number of responses (55).

3.1.3.2 Example Encroachment Assessment and Analysis

The following discussion details an example Encroachment Assessment and Analysis. Figure 3-1 illustrates the format DoD used to collect, evaluate, and analyze range encroachment information.

This example shows that Range A is being assessed against its ability to support training for its five mission areas. As seen in Figure 3-1, the red ratings for Adjacent Land Use in Mission Areas 3 and 5 indicate that there are some sort of incompatible developments in proximity to the range that are severely affecting or putting at risk the range's ability to support training for those two mission areas. This signifies that the ability to mitigate the encroachment situation would involve prohibitive costs or actions for the range. Other red ratings indicating that severe encroachment situations exist are: Spectrum, Airspace and Air Quality for Mission Area 3, and Wetlands for Mission Areas 4 and 5. Moderate encroachment impacts can be seen in the yellow ratings, such as those for Adjacent Land Use in Mission Area 2 and Noise Restrictions, Water Quality/Supply with Mission Area 3, and Wetlands for Mission Area 1. The number of green assessments indicates that most of the encroachment factors are having minimal to no impact; or present a low risk, on the range's ability to support its assigned mission training. Whatever workarounds are being employed detract minimally or not at all from training content, procedure, or outcome.

Where an encroachment factor is assessed against a mission area, a red, yellow, or green rating is assigned. Where an encroachment factor does not exist for a mission area at a given range, the blocks are rated white as previously defined. The completed table provides the basic information used to generate the pie-chart and overall rating on the 0 to 10 scale, of the impact encroachment is currently having on Range A's ability to provide training for five different mission areas. This data represents a snapshot in time for a given reporting cycle and does not provide trend information. To assess changing conditions over time at an individual range, individual range assessments must be viewed across the years with understanding of all the factors that can change an assessment from one year to the next.

To represent the overall distribution of red, yellow, and green ratings the pie chart shows that of the 52 ratings, 79 percent (41 ratings) are green, 8 percent (4 ratings) are yellow, and 13 percent (7 ratings) are red. This means, for example, that

although the range may be fairly unencumbered by encroachment, there are some factors (13 percent, 7 red ratings) that so severely encroach on the performance of that range's training mission that the range is at risk of failing to support that training.

In this example, the weighted average score provides the overall rating on a 0 to 10 scale, as previously described. The Encroachment Score 8.27 was calculated from 41 green, 4 yellow, and 7 red responses. Additionally, three factors were not assessed (white (blank)) across three Mission Areas (eight blank boxes). Using the number of ratings for each color and the weighting of 0 for red, 5 for yellow, and 10 for green, the total weighted score for this example is 430. The weighted average is determined by dividing the weighted score (430) by the total number of responses (52).

3.2 Assessment Results and Discussions

This chapter is divided into four parallel sections, one for each of the Military Services. The sections provide different views of the assessment data to help eliminate any shortcomings that might result from a singular approach to describing the assessment and technique for viewing the information. After a brief statement on the assessments being presented, a footnote is provided that reconciles any differences between the ranges/range complexes located in the Service's inventory in Appendix C and those assessed in this chapter. Summary information is presented at the start of each Service section drawing on the results of the individual range/range complex assessments.

The information provided includes:

- Assessment Data Summaries—A composite of the capability and encroachment responses (red/yellow/green) are presented for each range in table format and scores calculated using the previously described methodology.
- Pie Charts and Scores—The Assessment Data Summary results from above are aggregated and presented as pie charts with corresponding composite rating scores presented on a sliding scale, using the weighted average methodology previously described.
- Summary Observations—Observations on how the scores and ratings changed from the previous year.
- Historical Information, Results, and Future Projections—The composite scores from prior years are presented along with the top three capability attributes/encroachment factors and associated mission areas rated yellow and red for the current year. General observations are provided by the Service which can be applicable to future capabilities and encroachment issues related to the Service's ability to support training.
- Assessments by Range—Use horizontal bar charts to show the overall distribution of responses by color ratings for each range.
- Assessments by Attributes/Factors—Horizontal bar charts show the aggregated responses by color ratings for each capability attribute/encroachment factor across all ranges and mission areas.
- Assessments by Mission Areas—Horizontal bar charts show the aggregated responses by color ratings for each mission area across all capability attributes/encroachment factors and ranges.

Following the summary data, each Service is provided the opportunity to provide additional information and perspectives on any areas of special interest that impact or may impact their Service's training capabilities and encroachment situation.

While considering these assessments, it is important to keep in mind that although they reflect a long-term enterprise view of a broad DoD training range program, each year's assessments are a snapshot in time. The magnitude of specific changes to any individual capability or encroachment factor due to discrete actions, at a specific range complex from year-to-year need to be considered by comparing reported assessments for that specific range and capability or factor across the years. Additionally, the impact of a capability attribute or encroachment factor differs throughout all of the Services and their ranges. While two ranges (even within a Service) may have severe encroachment concerns from the same encroachment factor, synergistic effects with other factors may be experienced at one range, but not at the other. Accordingly, the data must be carefully considered in order to fully understand the encroachment effects and capabilities degradations on each range. The encroachment and capability scores for a Service's ranges in total should be considered against the backdrop of each range's individual capability and encroachment scores. The capability and encroachment ratings merely evaluate effects on current operations. They do not predict how future operations may be affected by encroachment. Changes in assessment ratings due to changes in doctrine and equipment are not captured by the assessments. Such insights may, however, be seen in the historical information and future projection write-ups provided for each range.

3.2.1 Army[6]

Army Training Range Capability Assessment Analysis Results

The Army Range Capability Assessment data from 15 Army range complexes are summarized and presented in Table 3-1.

The Army Range Capability Chart and Scores are presented in Figure 3-2 and assessments by Range, Attributes, and Mission Areas are shown in Figures 3-4, 3-6, and 3-8.

The Army's 15 individual range capability assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-11).

Army Training Range Encroachment Assessment Analysis Results

Army Range Encroachment Assessment data from the 15 Army ranges complexes are summarized in Table 3-2.

The Army Range Encroachment Chart and Scores are presented in Figure 3-3 and assessments by Range, Factors, and Mission Areas are shown in Figures 3-5, 3-7, and 3-9.

The Army's 15 individual range encroachment assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-11).

The Army Range Capability and Encroachment assessment comparisons are presented in Table 3-5.

6 Of the 556 ranges identified in the Army's range inventory in Appendix C, there are a total of 102 that are resourced and fall under the Army's Sustainable Range Program. These 102 ranges comprise three tiers that were established using mission value, to include: unit stationing, institutional schools/other mission support, land asset size, and level of training (individual, crew, collective). Training sites that are not part of the 102 supported sites are typically small individual training ranges that are managed through local Army National Guard (ARNG)/State agreements and policies; the Army only maintains inventory level data for these sites. Although the Army continually evaluates all ranges, only the 21 ranges that represent Tier I sites are included in the assessments due to the impracticality of compiling the information for every range. There are seven ranges inventoried separately in Hawaii that are grouped together for the assessment because they represent a single training complex for management purposes. The Tier I installations represent 88 percent of the training load on Army active duty ranges.

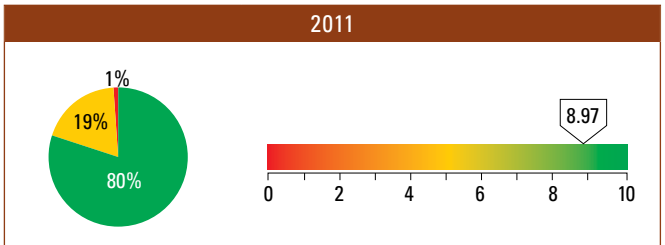
Table 3-1 Army Capability Assessment Data Summary

Range	NMC	PMC	FMC	Capability Scores
Fort Benning	5	3	33	8.41
Fort Bliss	0	7	35	9.17
Fort Bragg	0	10	33	8.84
Fort Campbell	0	8	34	9.05
Fort Carson & PCMs	0	6	36	9.29
Fort Drum	0	7	36	9.19
USAG Hawaii	0	11	30	8.66
Fort Hood	0	7	38	9.22
Fort Irwin	0	14	40	8.70
Fort Lewis	0	14	28	8.33
Fort Polk	0	6	39	9.33
Fort Riley	0	7	35	9.17
Fort Stewart	0	10	32	8.81
Fort Wainwright	0	9	33	8.93
Yakima TC	0	4	38	9.52
HQ Army	**5**	**123**	**520**	**8.97**

Table 3-2 Army Encroachment Assessment Data Summary

Range	Severe	Moderate	Minimal	Encroachment Scores
Fort Benning	1	8	30	8.72
Fort Bliss	0	3	38	9.63
Fort Bragg	0	5	36	9.39
Fort Campbell	0	1	40	9.88
Fort Carson/Pinyon Canyon	1	1	50	9.71
Fort Drum	0	0	39	10.00
USAG Hawaii	0	12	33	8.67
Fort Hood	0	4	38	9.52
Fort Irwin	0	15	39	8.61
Fort Lewis	0	12	30	8.57
Fort Polk	0	4	37	9.51
Fort Riley	0	3	30	9.55
Fort Stewart	0	21	25	7.72
Fort Wainwright	0	6	40	9.35
Yakima TC	0	7	34	9.15
HQ Army	**2**	**102**	**539**	**9.18**

Figure 3-2 Army's Capability Chart and Scores



Summary Observations

1. Army's overall capability score increased from 7.61 in 2010 to 8.97 in 2011
2. Army's Fully Mission Capable (FMC) assessments (green) increased from 70% to 80%
3. Partially Mission Capable (PMC) assessments (yellow) increased from 12% to 19%
4. Not Mission Capable (NMC) assessments (red) decreased from 18% to 1%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.49	6.49	7.61

The top three capability attributes with the greatest number of red and yellow assessments are (Figure 3-6):

- Range Support (0+36)
- Small Arms Range (2+26)
- Collective Range (2+14)

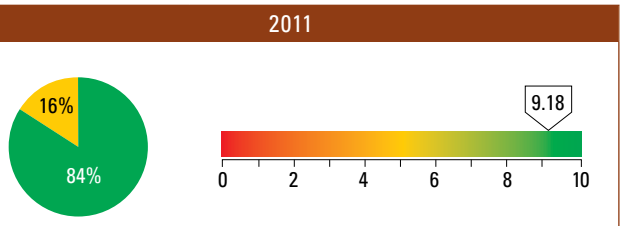
The top three Mission Areas with the greatest number of red and yellow assessment are (Figure 3-8):

- Movement and Maneuver (3+54)
- Sustainment (2+42)
- Fire Support (0+17)

Army range capabilities in the future must support the operating force (Contingency Expeditionary Force (CEF) strategy and Full Spectrum Operations (FSO) training). The Army is in a transition period to a 1:2 (AC)/1:4(RC) BOD/Dwell near term, with a vision to achieve a 1:3/1:5 in the out-years while moving to more CEFs than Deployable Expeditionary Forces (DEF). This will require more home station range capabilities than the Army has seen over the last seven years. The level of TSS funding needs to be balanced between products, services, facilities, sustainment, and management. Funding levels need to be consistent with critical requirements to address Commanders' needs in the operational and institutional training domains. (See Army Special Interest Section for more details).

Refer to the Army's 15 individual range assessments for comments and additional information (Figure 3-11).

Figure 3-3 Army's Encroachment Chart and Scores



Summary Observations

1. Army's overall encroachment score marginally decreased from 9.22 in 2010 to 9.18 in 2011
2. Army's minimal risk assessments (green) decreased from 85% to 84%
3. Moderate risk assessment (yellow) increased from 15% to 16%
4. Severe risk assessments (red) increased from 0.2 % to 0.3%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.23	9.23	9.22

The three encroachment factors with the greatest number of red and yellow assessment are (Figure 3-7).

- Threatened & Endangered Species and Critical Habitat (1+27)
- Cultural Resources (1+18)
- Airspace (0+18)

The top three Mission Areas with the greatest number of red and yellow assessments are (Figure 3-9):

- Movement and Maneuver (2+35)
- Fire Support (0+28)
- Sustainment (0+17)

Encroachment remains a challenge for the Army. The capacity of and accessibility to Army lands is decreasing while the requirement for training land grows. There are significant challenges that must continue to be addressed in order to sustain training on Army land. The Army is competing with its neighbors for access to land, airspace, and frequency spectrum. Urbanization and sprawl are encroaching on military lands. Urbanization has concentrated endangered species and their habitats on areas traditionally used for military training. Environmental restrictions tend to translate into reduced accessibility to training land. (See Army Special Interest Section for more details).

Refer to the Army's 15 individual range assessments for comments and additional information (Figure 3-11).

Figure 3-4 Army Capability Assessments by Range

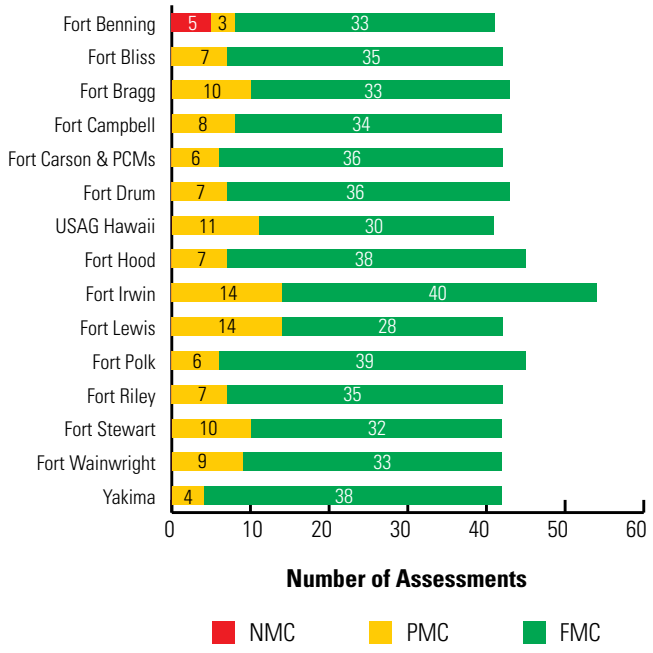


Figure 3-5 Army Encroachment Assessments by Range

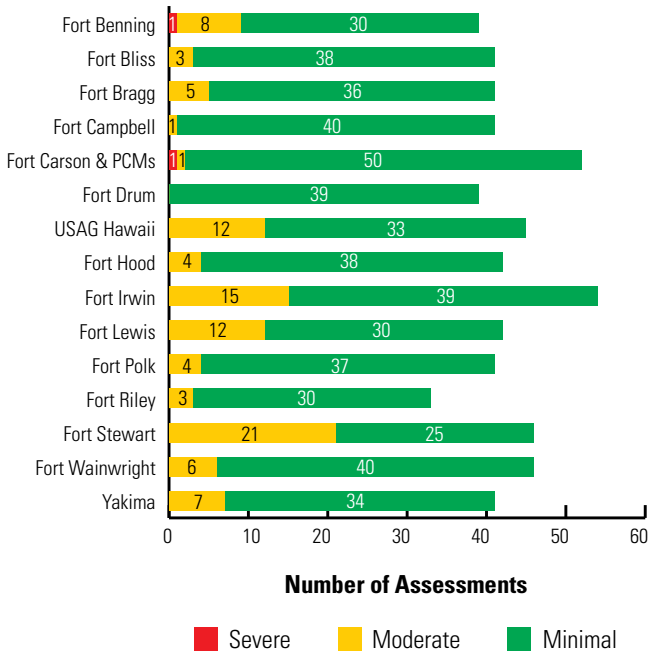


Figure 3-6 Army Capability Assessment by Attributes

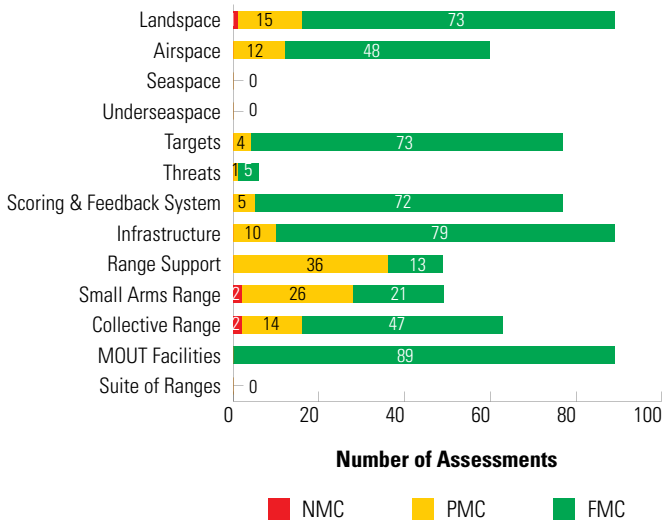


Figure 3-7 Army Encroachment Assessment by Factors

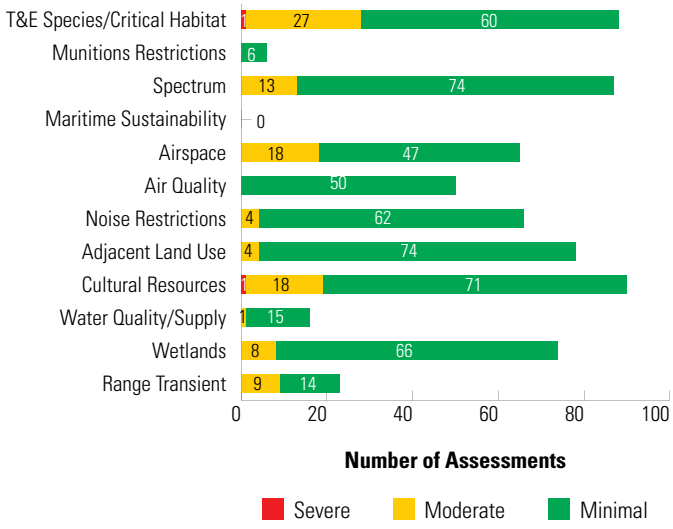


Figure 3-8 Army Capability Assessment by Mission Areas

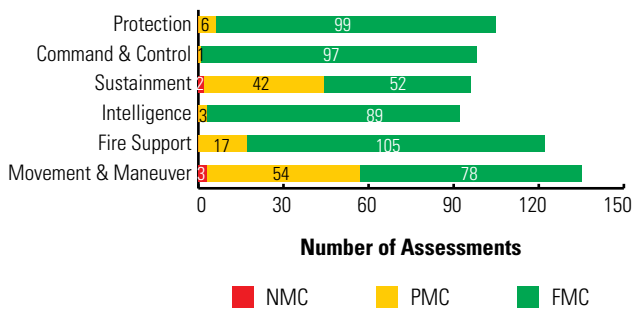
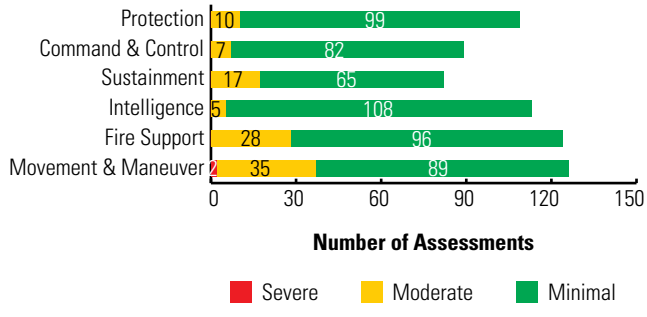


Figure 3-9 Army Encroachment Assessment by Mission Areas



Army Special Interest Section

General Issues

The Army Campaign Plan (ACP) provides direction for detailed planning, preparation, and execution of the full range of tasks necessary to provide relevant and ready land power to the Nation while maintaining the quality of the all-volunteer force. The Army is pursuing the most comprehensive transformation of its forces since the early years of World War II, but the soldier remains the centerpiece of the Army's combat systems and formations. Support for Soldiers, civilians, and their families is a critical part of the Army's ability to defend our Nation.

Army transformation and implementation of the ACP significantly increased the Army's requirement for training land while urban and environmental encroachment simultaneously are decreasing the amount of training land available for use by Army units and soldiers. The Army needs large, doctrinally sound training areas to support the ACP and the National Military Strategy. The Army Range and Training Land Strategy provides a strategic framework for the acquisition of training land. During testimony to the House Armed Services Committee (HASC) Readiness Sub-committee in February 2009, the Army informed Congress of an Army-wide training land shortfall of over four million acres. The Army has taken several steps to reduce its training land shortfall.

As the Army transforms, units at all levels are required by doctrine to operate across a significantly larger battle space. The result of an increased doctrinal battle space requirement is that the Army is facing greater needs for training land. Technological advances such as Unmanned Aerial Systems Vehicles, Stryker Infantry Combat Vehicles, and Battle Command Systems create the capability to detect targets and conduct operations over more terrain than ever before. The Army must exploit these technological advantages by training soldiers, leaders, and units to exercise their equipment and logistics to the fullest capabilities, while operating across large areas in a unified and decisive manner.

Stationing changes directed by BRAC 2005 will concentrate Army units and service schools at key installations in the United States. Recent changes in the Army's global posture and readiness cycles have increased the pressure on Army land assets. The Global Defense Posture and Realignment (GDPR) is moving units from overseas locations to the United States. This movement adds to the need for training land because there are no new Army installations being created in the United States. In addition, the ARFORGEN requires units to train to a higher level at home station because Army units must meet readiness measures at a faster pace than ever before. ARFORGEN-based training increases the emphasis on home-station collective training. This, in turn, increases installation training land requirements because collective training events are large in order to replicate actual operations.

While the Army's requirement for training land grows the capacity of and accessibility to Army lands is decreasing. There are significant challenges that must be actively addressed to sustain training on Army land. The Army is competing with its neighbors for access to land, airspace, and frequency spectrum. Urbanization and sprawl have reduced the amount of available habitat for many species. Accordingly, much of the remaining habitat for listed and at-risk species now remains on installation lands. Installation lands are thus becoming "islands of biodiversity." Environmental restrictions tend to translate into reduced accessibility to training land.

Stationing changes directed by BRAC 2005 will concentrate Army units and service schools at key installations in the United States. Table 3-3 shows the BRAC authorized actions that will significantly affect training requirements.

Table 3-3 Stationing Changes Directed by BRAC that Affect Army Training Land Requirements

Installation Impacted	BRAC Action Affecting Training Requirements
Eglin AFB	Special Forces Group moved from Fort Bragg to Eglin AFB
Fort Bragg	1 Infantry Brigade Combat Team (IBCT) activated at Fort Bragg
Fort Carson	DIV HQ moved from Fort Hood to Fort Carson
Fort Carson	1 Heavy Brigade Combat Team (HBCT) moved from Fort Hood to Fort Carson
Fort Benning	Armor School moved from Fort Knox to Fort Benning
Fort Jackson	Drill Sergeant School moved from Fort Benning to Fort Jackson
Fort Jackson	Drill Sergeant School moved from Fort Leonard Wood to Fort Jackson
Fort Sill	Air Defense School moved from Fort Bliss to Fort Sill
Fort Lee	Transportation Center moved from Fort Eustis to Fort Lee
Fort Lee	Ordnance Center moved from Aberdeen Proving Ground to Fort Lee
Fort Lee	Missile and Munitions Center moved from Redstone Arsenal to Fort Lee

The GDPR, previously referred to as the Integrated Global Presence and Basing Strategy (IGPBS), is the blueprint of recommendations outlining the size, character, and location of long-term overseas force presence. GDPR recommendations were developed before the initiation of formal BRAC 2005 activities, as part of an inter-agency assessment of DoD's long-term overseas force projection and basing needs. The GDPR involves moving units from overseas locations to new locations in the United States as shown in Table 3-4 below.

Table 3-4 Units Relocated Under the GDPR Initiative

Installation Impacted	GDPR Action Affecting Training Requirements
Fort Sill	Air Defense Artillery Brigade (ADA BDE) moved from Fort Bliss to Fort Sill
Fort Bliss	1st AD moved from Germany to Fort Bliss
Fort Bliss	Fires BDE moved from Fort Sill to Fort Bliss
Fort Carson	1 IBCT moved from Korea to Fort Carson
Fort Riley	1 IBCT activated
Fort Riley	1st Infantry Division (ID) moved from Germany to Fort Riley

Critical Issues: Range Capabilities

Army Force Generation (ARFORGEN)

Army range capabilities in the future must support the operating force (Contingency Expeditionary Force (CEF) strategy and Full Spectrum Operations (FSO) training). The Army is in a transition period to a 1:2 (Active Component)/1:4(Reserve Component) Boots On Ground/ Dwell near term, with a vision to achieve a 1:3/1:5 (Year Deployed: Years Home) in the out-years while moving to more CEFs than Deployable Expeditionary Forces (DEF). This will require more home station range capabilities than the Army has seen over the last seven years.

Unmanned Aerial Systems (UASs)

Currently, there are more than 328 Army UAS deployed in theater, which have flown in excess of one million hours in support of combat operations. To keep pace with the prolific UAS growth, the Army will train more than 2,100 UAS operators, maintainers, and leaders in FY2012, which is an 800 percent increase compared to the FY2003 training quota. Designation of controlled airspace, and development of support facilities, ranges and training areas to support UAS training requirements in the near and long term remain a major challenge facing the Army. The emerging UAS support requirements will impact home-station range and infrastructure requirements, increase the need for frequency deconfliction, and necessitate integration of UAS training into the Live-Virtual Constructive training domains. The Army recently published the U.S. Army UAS Roadmap (2010-2035). The purpose of this document is to provide a broad vision for how the Army will develop, organize, and employ UAS across the full spectrum of operations.

Funding Challenges

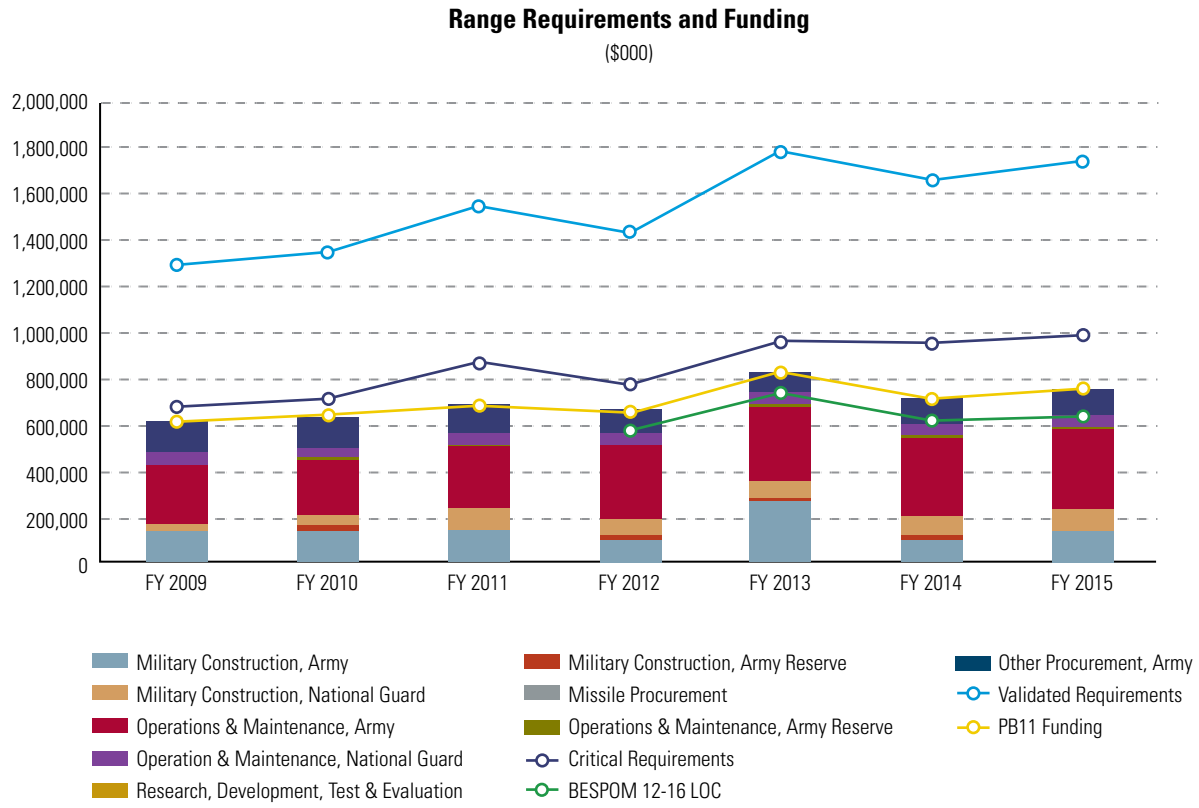
The Office of the Deputy Chief of Staff, G-3/5/7, Training Directorate, Training Support System (TSS) Division provides training support products, services, facilities, sustainment, and management that are critical to execution of operational and institutional training. Although funding for TSS grew in the last Program Objective Memorandum (POM), some areas (e.g., Combat Training Center modernization) have seen a considerable reduction in funding to well below critical levels. In addition, management and services funding have not been sustained at a pace to operate the products the Army will deliver and the facilities the Army will build. The Army's funding for range modernization, operation, and sustainable land management, Integrated Training Area Management (ITAM), for the repair and sustainment of over 11 million acres of training land, worldwide, is not at a level consistent with the rate of growth in validated and critical training requirements that reflect Commanders' needs.

The Office of the Chief of Staff for Installation Management, Installation Services Directorate, Environmental Division provides support for range access and use by reducing environmental regulatory constraints, particularly from cultural sites and endangered species. Because of Transformation and Grow the Army, environmental funding is limited to priority projects.

Historically, programmed resource increases have been decremented as the year of execution approaches. Figure 3-10 depicts Army Range Requirements and Funding trends from FY2009 to FY2015. While funding levels for operation and maintenance, Army civilian pay, contractor services and day-to-day operating budgets are starting to recover in FY2011 from significant cuts in FY2010, funding is at 86 percent of critical requirements across FY2012–2016. Funding for range modernization; however, has been decremented significantly. At the end of POM 12-16, funding levels were reduced from 79 percent of critical requirements to 67 percent of critical requirements. This represents a $365.9M reduction, specifically impacting range systems and targetry modernization and critical installation range construction and modernization projects. These funding cuts result in a significant loss of range capability at a time when critical requirements already represent a level of capability well below that required to support Commanders.

The level of TSS funding needs to be balanced between products, services, facilities, sustainment, and management. Funding levels need to be consistent with critical requirements

Figure 3-10 Army Range Requirements and Funding



to address Commanders' needs in the operational and institutional training domains.

Critical Issues: Encroachment

Competition for Range Space

Encroachment remains a challenge for the Army. The capacity of and accessibility to Army lands is decreasing while the requirement for training land grows. There are significant challenges that must continue to be addressed in order to sustain training on Army land. The Army is competing with its neighbors for access to land, airspace, and frequency spectrum. Urbanization and sprawl have reduced the amount of available habitat for many species. Accordingly, much of the remaining habitat for listed and at-risk species now remains on installation lands. Installation lands are thus becoming "islands of biodiversity." Environmental restrictions tend to translate into reduced accessibility to training land.

Alternative Energy Projects

The current Administration's emphasis on energy security and renewable energy sources has increased the number of energy infrastructure projects that have the potential to impact Army training and testing. These energy initiatives include wind turbines, new energy corridors for gas/oil pipelines and high capacity transmission lines, solar arrays, and geothermal projects. The projects are being driven internally by the Army as sponsored projects on its installations; and externally, by other Federal agencies, such as the Bureau of Land Management (BLM), and private developers wishing to capitalize on Federal government incentives. The initiatives have the potential to impact Army missions depending on where they are sited and the type of infrastructure or technology being introduced.

Figure 3-11 Army Capability and Encroachment Assessment Detail

Fort Benning Assessment Details

Range Mission Description

Fort Benning and the Maneuver Center of Excellence (MCoE) provide trained and adaptive Soldiers and leaders for an Army at War, while developing future requirements for the individual Soldier and the Maneuver Force and providing a world class quality of life for our Soldiers and Army families. The MCoE Command priorities are : (1) Fully Support an Army at War; (2) Prepare for the Future; (3) Enhance Quality of Life for Soldiers and Army Families; (4) Operate in a Command Climate of Teamwork, Discipline and Standards and Safety; (5) Fully Transition to the Maneuver Center of Excellence; and (6) Demonstrate Inspired Leadership. (See full Mission Description in Table 3-6.)

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	NMC	FMC			FMC		FMC	FMC	PMC	NMC	NMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	FMC		FMC	FMC	
Intelligence	FMC	FMC			FMC								
Sustainment	PMC							FMC	PMC	NMC	NMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC		FMC	FMC	FMC	
Protection	FMC				FMC		FMC	FMC		FMC	FMC	FMC	

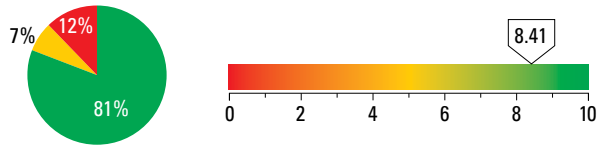
Legend: FMC PMC NMC

Encroachment Data

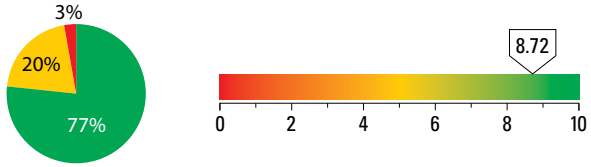
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	NMC		FMC		PMC	FMC	FMC	FMC	PMC		PMC	
Fire Support	PMC		FMC		FMC	FMC	PMC	PMC	PMC		FMC	
Intelligence	FMC		FMC		FMC		FMC	FMC	FMC		FMC	
Sustainment	PMC		FMC						FMC		FMC	
Command Control	FMC		FMC		FMC				FMC		FMC	
Protection	FMC		FMC			FMC	FMC	FMC	FMC		FMC	

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most severe impact to mission is caused by a shortfall of small arms and collective ranges. While several Mission Areas are more moderately impacted by capability shortfalls, Movement and Maneuver is most severely impacted due to a shortfall of maneuver training land, range support funding shortfalls, and a shortage of smalls arms and collective ranges.

Summary Observations

There is a moderate impact to the Mission Areas due to Encroachment Factors. The presence of threatened and endangered species on the installation has a significant impact on the Movement and Maneuver Mission. Fort Benning is one of 13 primary core locations selected by the USFWS to manage for a Red-Cockaded Woodpecker (RCW) recovery population. The Fort Benning RCW population has steadily increased since 2003, however on-going construction and other proposed actions associated with the development of the Maneuver Center of Excellence will result in significant impacts on the long-term recovery goals for the RCW. Fort Benning has completed consultation with USFWS and received a Biological Opinion. Fort Benning is identifying and implementing appropriate mitigation strategies to minimize training restrictions and shortfalls associated with the action.

Fort Benning Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	6.33	6.33	7.56	**Encroachment Scores**	8.25	8.25	8.72
Capabilities have generally improved at Fort Benning over the past several years, primarily due to increases in range support funding levels. A shortfall of maneuver training land and small arms and collective ranges continues to impact mission capability, however, Fort Benning has been granted permission to study the purchase of 82,800 acres of additional training land to help alleviate the maneuver training land shortfall and additional ranges are programmed in the out-years to address current range shortfalls.				Encroachment factors have historically had a moderate impact on the mission at Fort Benning. While the installation has been able to manage and mitigate many encroachment impacts, it is anticipated that increased growth around the installation is going to continue and will result in more significant encroachment impacts in the future. Increased development and population growth in the region impacts water access, increases wildlife habitat fragmentation, and increases the likelihood of noise/dust complaints. Additionally, the Maneuver Center of Excellence will stand up over the next year and result in significantly increased training throughput and construction of new ranges, further exacerbating existing threatened and endangered species issues and concerns, erosion, and noise/dust issues for the public. Electromagnetic interference is also becoming a challenge for the installation. As Fort Benning tries to cope with this encroachment by limiting the type and amount of training in the vicinity of the installation boundary, it limits the ability to maintain its ecosystem. A reduction of available training area reduces the opportunities to rotate training areas to minimize the effects of training activities and increases the amount of training in areas with fragile habitat. This encroachment is minimizing Fort Benning's options and ability to balance mission and stewardship requirements. Fort Benning has permission to study the purchase of 82,800 acres of additional training land to help alleviate this problem.			

Fort Benning Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	🔴	Fort Benning has a doctrinal training land shortfall that has been documented in accordance with AR 350-19. There is not enough training land to accommodate the Armored Reconnaissance Course (ARC), Ranger Training Brigade (RTB), or the additional training space needed to support a heavy maneuver battalion and the other TRADOC, FORSCOM, and USASOC tenant units. Funding is being programmed in support of a training land purchase at Fort Benning starting in FY2011. Fort Benning is also pursuing other strategies including partnerships with the Tri-County governments in the ACUB/JLUS programs and has begun funding opportunities for these programs.
	Sustainment	🟡	Same as above.
Range Support	Movement and Maneuver	🟡	Non-salary range operations is funded at 89% of the Army critical requirement. Limits installation support for short term training requests such as range reconfiguration projects to support emerging tactics, techniques, procedures, and preventative maintenance. Fort Benning is not able to accommodate unscheduled training events, limiting training flexibility. Fort Benning will continue to work with units to support both institutional and tactical unit training, to the greatest extent possible.
	Sustainment	🟡	Same as above.
Small Arms Ranges	Movement and Maneuver	🔴	The installation has seventeen small arms ranges being built to support MCOE/Armor School BRAC requirements. Construction in the range complex limits capability of existing ranges. The ranges will not be completed in FY2011. Fort Benning is not able to accommodate unscheduled training events, limiting training flexibility. Fort Benning will continue to prioritize training requests to ensure all students receive required training. Maximum use of portable targetry has enabled short time fixes for reconfiguration requests. This issue will be resolved upon completion of the 17 small arms ranges.
	Sustainment	🔴	Same as above.
Collective Ranges	Movement and Maneuver	🔴	The installation has four collective gunnery ranges and other projects being built to support MCOE/Armor School BRAC requirements. Construction in the range complex limits capability of existing ranges. The construction will not be completed in FY2011. Fort Benning is not able to accommodate unscheduled training events, limiting training flexibility. Fort Benning will continue to work with the U.S. Army Corps of Engineers to take advantage of lulls in the construction time line for the execution of required training events. This problem will be resolved upon completion of ranges under construction.
	Sustainment	🔴	Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Benning Detailed Comments

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Movement and Maneuver		There are five Threatened and Endangered Species and 96 species of "conservation concern" on Fort Benning. Persistent restrictions deny access to 450+ acres and the buffer areas on Fort Benning. Numerous definitions of restrictions have placed unusually difficult conditions on five ranges and resulted in a loss of capability to conduct live-fire platoon movements-to contact tasks just in 2010. The MCoE construction efforts have resulted in a Jeopardy Biological Opinion for the installation. The Army is implementing appropriate mitigation strategies in order to avoid training shortfalls; however, the Army anticipates an increase in restrictions when the Maneuver Center of Excellence move to Fort Benning is complete.
	Fire Support		Same as above.
	Sustainment		Same as above.
Airspace	Movement and Maneuver		Current airspace limitations restrict participation of high performance fixed wing aircraft in joint training exercises. Current spatial capability attributes make it difficult to contain high performance aircraft during joint training exercises involving Close Air Support. The proposed Training Land Expansion will enable the follow-on expansion of airspace to ease restrictions by FY2015.
Noise Restrictions	Fire Support		Firing of weapons .50 caliber or greater is restricted. Units must notify the installation public affairs office of any firing during restricted hours; information is then distributed through the local news media and local governments. This reduces unit training flexibility and impacts range scheduling. The Army Compatible Use Buffer (ACUB) program proactively addresses encroachment while achieving conservation objectives through the purchase of conservation easements or land from willing owners. These efforts have lessened the problem and combined with public outreach has mollified the affected general public. This problem will continue to lessen due to the collaborative efforts of the Fort Benning PAO and the Nature Conservancy.
Adjacent Land Use	Fire Support		Residential and commercial development is increasing along the western and northwestern boundaries of the installation. Live-fire activities increase perceived noise pollution and tracked vehicle movement increases the perceived air pollution and erosion potential to surrounding property. These perceptions minimize the installation's efforts, options and therefore ability to balance mission requirements and stewardship success. The Army Compatible Use Buffer (ACUB) program proactively addresses encroachment while achieving conservation objectives through the purchase of conservation easements or land from willing owners. The easements prohibit incompatible development in perpetuity, yet still accommodate low impact uses such as farming and forestry. The Nature Conservancy, Fort Benning's partner in coordinating habitat conservation planning, has initially acquired 4,000 acres of buffer primarily along the installation's eastern and northeastern perimeter. The buffer was created through a combination of conservation easements and conservation focused land acquisitions. These actions will lessen the impact of developmental encroachment. It is expected that the issue will remain; however, for the western and northwestern boundaries for the foreseeable future.
Cultural Resources	Movement and Maneuver		There are 3,974 cultural resource sites encompassing 7,420 acres on post. 3,995 acres are currently restricted from use for any ground disturbing activity and an additional 2,747 acres are expected to be restricted from use for ground disturbing activity. Additionally, 726 acres are expected to be included in the National Register of Historic Places. Training activities are limited or completely restricted on this acreage due to the potential for generation of conditions that may affect sensitive cultural resource sites. This is an ongoing issue; however, integrated planning and management at the installation helps to balance mission training requirements with Federal, State, and local environmental compliance laws, restrictions, and regulations.
	Fire Support		Same as above.
Wetlands	Movement and Maneuver		There are 16,926 acres of wetlands within the installation boundary that impose training restrictions. Wetland areas are off limits to heavy maneuver training and result in a loss of maneuver training land. Floodplains are distributed fairly evenly throughout the installation and present development constraints resulting in the loss of available maneuver land. Additionally, wetlands require the construction of crossing sites which artificially channel training and hinders realistic maneuver. This is an ongoing issue; however, the Fort Benning Integrated Training Area Management (ITAM) program is continually working to provide the policy and program guidance to balance mission training requirements with Federal, State, and local environmental compliance laws, restrictions, and regulations.

This Page is Intentionally Left Blank.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Bliss Assessment Details

Range Mission Description

Fort Bliss provides major training facilities for the 1st Armored Division, Mobilization Platform, and mobilization and deployment training in support of First Army. Ranges and training areas also support daily air-to-ground sorties from Holloman AFB and other regional Air Force installations. Ranges and training areas further support the Foreign Military Sales cases for the Japanese, Germans, Dutch, Canadians and others requesting exercises at the installation.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	FMC	FMC			FMC		FMC	PMC	PMC	PMC	PMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	FMC		PMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC				FMC	
Sustainment	FMC							FMC	PMC	PMC	FMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC				FMC	
Protection	FMC				FMC		FMC	FMC		FMC	FMC	FMC	

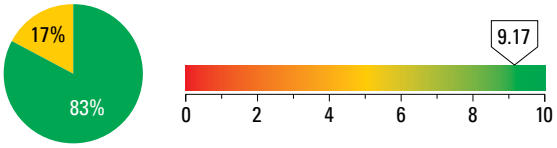
Legend: FMC PMC NMC

Encroachment Data

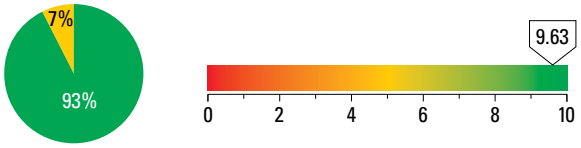
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Minimal		Moderate		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Fire Support	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Intelligence	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Sustainment	Minimal		Moderate						Minimal		Minimal	
Command Control	Minimal		Moderate		Minimal				Minimal		Minimal	
Protection	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is due to the current lack of Collective Range capability. While several mission areas are impacted by capability shortfalls, Movement and Maneuver is most severely impacted due to infrastructure shortfalls at Oro Grande Base Camp, range support funding shortfalls, and lack of small arms and collective range capability during construction.

Summary Observations

There is minimal impact to the Mission Areas due to Encroachment Factors. Spectrum interference has a moderate impact on the Movement and Maneuver, Sustainment and Command and Control Missions, due to a reduction in the number of voice channels available for emergency services, range control, and other users.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	4.78	4.78	7.33

Capabilities have generally improved at Fort Bliss over the past several years. Range support funding levels have increased and additional funding is programmed in the FY2012–2016 POM, likely resulting in increased range capability in the out-years. Fort Bliss has some current capability and throughput shortfalls due to construction activities that close down smalls arms and collective ranges, however, these impacts are being addressed and mitigated. Small arms and collective range capability will improve when current construction is complete.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	10.00	10.00	9.02

Encroachment Factors have not historically impacted the mission at Fort Bliss. Moderate impacts resulting from Spectrum interference have developed over the past year. These impacts are being managed and mitigated at the installation level and are expected to improve in the future.

Fort Bliss Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Movement and Maneuver		Oro Grande Base Camp lacks sufficient facilities to accommodate unit training densities (Billets, DFAC). Units incur additional travel days to transport from home station due to lack of facilities. Installation has submitted a proposal for a Military Construction project for inclusion into next POM, recommended purchasing prefabricated buildings.
Range Support	Movement and Maneuver		Non-salary range operations are funded at 89% of the Army critical requirement. Limits installation support for short term training requests,limits range reconfiguration projects to support emerging tactics, techniques, procedures, and limits preventative maintenance. Additional funding has been allocated in FY2011 to start; however, expected to need more in FY2012 as training days on ranges significantly increase.
	Sustainment		Same as above.
Small Arms Ranges	Movement and Maneuver		The projected build-up of small arms ranges will block six currently active ranges once construction starts (expected FY2010, not yet started). The development of future projected ranges will close down 25% of the current small range capability until projects are completed, reducing training throughput capability. Fort Bliss constructed 3 temporary flat ranges (in 2010) to support mission requirements until projected ranges are completed.
	Sustainment		Same as above.
Collective Ranges	Movement and Maneuver		Collective gunnery ranges will be under construction during FY2010–2015. Limited ranges reduce throughput capability to support annual gunnery requirements. A temporary Muti-Purpose Training Range (MPTR) was built to support current unit requirements. Plan to complete an additional MPTR in 2011 to sustain mission support until future projected ranges are completed.
	Fire Support		Collective gunnery ranges will be under construction during FY2010–2015. Limited ranges reduce throughput capability to support annual gunnery requirements. Altered prescribed construct of 6 firing groups into 23 separate firing boxes in order to increase maneuverability and flexibility in facilitating fire support missions for fire support events.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Movement and Maneuver		The currently allocated spectrum is approximately 70% of the future operationally required spectrum. Additionally, the frequency spectrum must be shared with Mexico. Interference from Mexico on the UHF band sometimes interferes with the trunked land mobile radio (LMR) system at Fort Bliss, which reduces the number of voice channels available for emergency services, range control, and other users. The mitigation strategy is to share frequencies and deconflict available spectrum. The DoD Area Frequency Coordinator (AFC) is working to issue single Radio Frequency Authorizations (RFA's) that include frequency assignments for operations at Bliss, WSMR, and/or Holloman. All frequencies will be scheduled and deconflicted in the Integrated Frequency Deconfliction System (IFDS) database. Spectrum Managers at each installation will submit requests for new permanent frequency assignments as required.
	Sustainment		Same as above.
	Command & Control		Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Bragg Assessment Details

Range Mission Description

Fort Bragg provides major training facilities, to include ranges and training areas, non-firing activities, airborne/air operations, and training land/airspace use on Camp MacKall in support of DoD organizations, the mission of the USASOC/XVIII ABN Corps and 82nd Airborne Division, their operational forces, mobilization and force modernization.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●						●	●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

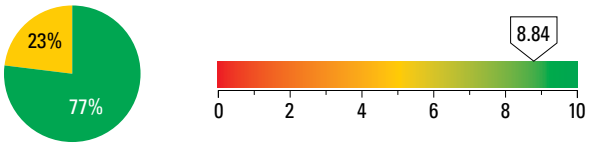
Legend: FMC ● PMC ● NMC ●

Encroachment Data

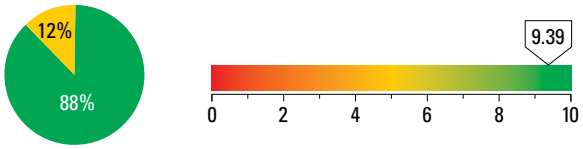
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Movement and Maneuver	●		●		●	●	●	●	●		●	
Fire Support	●		●		●	●	●	●	●		●	
Intelligence	●		●		●		●	●	●		●	
Sustainment	●		●					●	●		●	
Command Control	●		●		●			●	●		●	
Protection	●		●			●	●	●	●		●	

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is caused by a shortfall of training land, airspace, and small arms and collective ranges. While several mission areas are impacted by capability shortfalls, Movement and Maneuver and Sustainment are most severely impacted, due to a training land shortfall, lack of restricted airspace to support UAS training, and a shortfall of a Multi-Purpose Machine Gun range and an Aerial Gunnery Range.

Summary Observations

There is very little impact to the Mission Areas due to Encroachment Factors. Spectrum and Airspace limitations have a moderate impact on the Command and Control Mission, due to scheduling conflicts and radio bleedover issues.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.33	6.33	7.56

Capability has improved at Fort Bragg over the past several years. Impacts resulting from the shortfall of training land have become more significant and can no longer be fully mitigated by the installation. Additionally, as more Unmanned Aerial System (UAS) are fielded and restricted airspace remains the same, the installation's ability to fully support all aviation training is reduced. It is anticipated that additional UAS fielding will continue to be a challenge for the installation into the future.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	10.00	10.00	9.02

Encroachment impacts have generally improved at Fort Bragg over the last several years. Previous encroachment impacts caused by noise restrictions and adjacent land use have been adequately managed through installation mitigation measures and no longer cause significant impacts to the training mission. The need for additional fielding of UAS in the out-years will likely increase impacts felt by the installation due to the lack of spectrum and restricted airspace. The Army Compatible Use Buffer (ACUB) Program is a key component of working to protect vital Army aviation and small unit training areas/training activities, as well as preserving intact longleaf pine forest habitat for foraging and nesting of the endangered RCW. Development of adjacent property would sever connections between existing training areas, destroy RCW corridor habitat, and threaten fire management of the surrounding lands which provide critical Soldier training for Fort Bragg.

Fort Bragg Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver		Fort Bragg has a 100,000+ acre shortfall of training land, based on Army doctrine. Lack of training land results in units having to conduct maneuver training events off of the installation. This results in reduced training time and increased OPTEMPO costs. No planned mitigation at this time, will allow units to continue to train off post.
	Sustainment		Fort Bragg has a 100,000+ acre shortfall of training land, based on Army doctrine. The shortfall of training land does not give units the ability to stretch lines of support and train individual drivers and crews. Additionally, the shortfall causes units to look off the installation for additional training lands. Allow units to continue to train off post and incorporate live/virtual training.
Airspace	Movement and Maneuver		Fixed wing operations conflict with live fire maneuver operations. Congested airspace bleed over creates check fires for maneuver elements conducting live fire operations until the aircraft is clear from the airspace. The installation is mitigating this by deconflicting maneuvers and aviation training with time/space separation.
	Intelligence		Shortfall of restricted airspace to support increased UAV/UAS training, while also supporting manned aircraft. Scheduling conflicts exist between UAV/UAS an other aircraft in the vicinity. The installation is mitigating this by using more vertical/lateral separation, and installing additional delays in other aircraft entering the restricted area.
Range Support	Movement and Maneuver		Non-salary range operations are funded at 89% of the Army critical requirement. Limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics, techniques, procedures, and limits preventative maintenance. Additional funding allocated in FY2011 is a start; Expected to need more in FY2012 as training days on ranges significantly increase.
	Sustainment		Same as above.
Small Arms Range	Movement and Maneuver		Fort Bragg has a shortfall of one Multi-purpose Machine Gun (MPMG) range. Units are not able to qualify with machine guns on Fort Bragg to Army standard. Construction on an MPMG range will commence in 2011.
	Sustainment		Same as above.
Collective Ranges	Fire Support		Fort Bragg has a shortfall of one Aerial Gunnery Range (AGR). Units are not able to conduct aerial gunnery to Army standard. Construction on an AGR will commence in 2015.
	Sustainment		Same as above.

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Movement and Maneuver		Endangered species restrictions limit maneuver areas. Units have a smaller area to conduct maneuvers and operational training. Maneuver restrictions due to RCW are tentatively scheduled to be lifted in 2012. Currently units must consider endangered species when planning training and operational movements.
Spectrum	Command & Control		Inadequate frequency spectrum to support increased UAV/UAS in the airspace. Any increase in UAS employment increases demand for frequency ranges (No bleedover). Use lateral separation to prohibit radio bleedover.
Airspace	Intelligence		Intelligence, Surveillance and Reconnaissance (ISR) assets cannot enter or maneuver in congested airspace as desired. Airspace is already congested with multiple customers, causing lack of maneuverable airspace for ISR platforms. Deconflict remaining airspace using time/space.
	Command & Control		Command and Control assets cannot enter or maneuver in congested airspace as desired. Airspace is already congested with multiple customers. Deconflict remaining airspace using time/space.
Cultural Resources	Movement and Maneuver		Cultural resources and historic sites restrict maneuver areas. Each selected site requires a survey before any earth disturbing activity occurs. Units have reduced operating space to conduct maneuver and operational training in a restricted maneuver area, thus reducing training scenarios and training realism. No current plan to lift restrictions. Units must consider cultural resources and historic sites when planning training and operational movements.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Campbell Assessment Details

Range Mission Description

Fort Campbell is a power projection platform, strategically located on the Tennessee/Kentucky State line. Fort Campbell possesses the capability to deploy mission-ready contingency forces by air, rail, highway, and inland waterway. Fort Campbell develops and maintains Live Fire Maneuver Ranges and Training Areas that support the Senior Commander's Mission Essential Training Tasks List (METTL). Fort Campbell is the home of the 101st Airborne Division (Air Assault) and two Special Operations Command units, the 5th Special Forces Group and the 160th Special Operations Aviation Regiment. Additionally, Fort Campbell is home to the 86th Combat Support Hospital, the 52nd Ordnance Command, the 716th MP Battalion, and sizable Medical and Dental activities. Fort Campbell provides company level maneuver training and mobilization support for numerous Army National Guard and Army Reserve units.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	NMC	NMC			FMC		NMC	FMC	NMC	NMC	FMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		FMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC				FMC	
Sustainment	FMC							FMC	NMC	NMC	FMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC				FMC	
Protection	FMC				FMC		FMC	FMC		FMC	FMC	FMC	

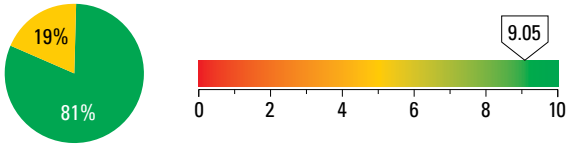
Legend: FMC PMC NMC

Encroachment Data

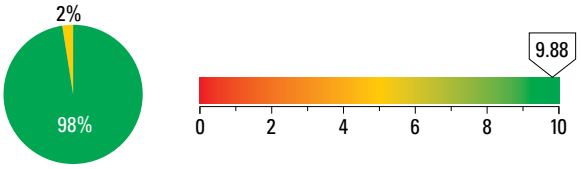
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Fire Support	Moderate		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Intelligence	Minimal		Minimal		Minimal		Minimal	Minimal	Minimal		Minimal	
Sustainment	Minimal		Minimal					Minimal	Minimal		Minimal	
Command Control	Minimal		Minimal		Minimal			Minimal	Minimal		Minimal	
Protection	Minimal		Minimal			Minimal	Minimal	Minimal	Minimal		Minimal	

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most severe impact to mission is caused by a shortfall of range support funding. While several Mission Areas are impacted by capability shortfalls, Movement and Maneuver is most severely impacted due to a shortfall of maneuver training land, lack of updated aviation target systems, range support funding shortfalls, and a shortage of smalls arms ranges.

Summary Observations

There is minimal impact to the Mission Areas due to Encroachment Factors. The presence of Threatened and Endangered species on the installation has a minimum impact to the Fire Support Mission, due to restrictions on mowing for fire safety and visibility on the ranges.

Fort Campbell Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.22	5.22	7.00	**Encroachment Scores**	10.00	10.00	10.00
Capabilities have generally improved at Fort Campbell over the past several years. Range support funding levels have increased and Fort Campbell has mitigated MOUT facility throughput shortfalls internally. Shoot-house construction currently meets training needs, but if lead-free slug (LFS) fielding takes place to support Home Station Training, there will likely be an impact to the installation's capability to meet requirements for MOUT Facility throughput due to concerns about use of the LFS in sandfilled shoot-houses. Lack of restricted airspace continues to be a concern and will limit the installation's ability to replicate the operational environment for Warrior UAS training in FY2012 when the system is fielded.				Encroachment Factors have not historically impacted the mission at Fort Campbell. Minimal impacts resulting from rare species habitat on the installation have developed over the past year, but are being managed successfully through coordination with the USFWS. Current impacts are expected to be resolved and future impacts are not anticipated. Fort Campbell has also worked to actively implement the Army Compatible Use Buffer (ACUB) Program, to ensure that encroachment does not impact the future mission of the installation. Current ACUB efforts are focused on protecting the flight approach of the installation's primary operational airfield, Campbell Army Airfield; and buffering the small arms impact area, to ensure long-term capability to support the training mission.			

Fort Campbell Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver		There is a shortfall of available maneuver training land to meet doctrinal maneuver training requirements. Unit maneuver training is limited and movement is constrained to short 1-3 kilometer movements, depending on which training area the unit is assigned. Simultaneous maneuvering for multiple company sized units at doctrinal distances is constrained. OPTEMPO costs are increased for units that travel to other locations to accomplish training events. Fort Campbell is partnering with Fort Knox for training allocation of their maneuver land and ranges.
Airspace	Movement and Maneuver		There is limited controlled airspace over the installation. Limited airspace restricts the ability of units to conduct air training exercises to doctrinal standards in terms of dispersion, flight techniques, and integration with other assets, such as UAS. Fort Campbell is partnering with Fort Knox and other training sites to meeting training needs.
Scoring & Feedback System	Movement and Maneuver		Installation does not have an assigned Aviation Weapon Scoring System (AWSS) to support the two Combined Aviation Brigades and the Task Force 160, Special Operations Aviation Regiment. Weapons qualification is dependent on subjective scoring (i.e. line of sight) that does not meet Army standards for qualification. Aviation units do not get consistently accurate feedback when qualifying. The Army has scheduled a rotating AWSS for temporary use at the installation.
Range Support	Movement and Maneuver		Non-salary range operations is funded at 89% of the Army critical requirement. Limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. Range support shortfalls were programmed in FY2012-FY2016 POM.
	Fire Support		Same as above.
	Sustainment		Same as above.
Small Arms Ranges	Movement and Maneuver		Installation has a deficit of two machine gun ranges and three small arms ranges in FY2011. Unit training time is reduced and OPTEMPO costs are increased for units that have to travel to other locations to accomplish training events. Military Construction, Army (MCA) funding is programmed in FY2016 and FY2017 to construct additional ranges.
	Sustainment		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Fire Support		The Henslow and Bachman Sparrow nesting habitat is present in the training area. During May-August, training land management actions (i.e. mowing, vegetation removal) are restricted and training use is reduced due to safety concerns (i.e. fire hazards, visibility). Installation is coordinating with regional Fish and Wildlife Service to mitigate restrictions and address training impacts. A programmatic agreement is anticipated by Fall 2010 that will help with mitigation.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Carson Assessment Details

Range Mission Description

Fort Carson and Pinon Canyon Maneuver Site provide major training facilities (339,000 acres of training land, 92 ranges, and the 4 layers of restricted airspace) to support and enable relevent and realistic training for Fort Carson's primary users: 4th Infantry Division (Mechanized)-1HBCT, 2HBCT, 3HBCT, 4IBCT; 43rd Sustainment Brigade; 10th Special Forces Group; 1/2 Attack Helicopter Battalion; and 71st EOD Group.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver		●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●				●			●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

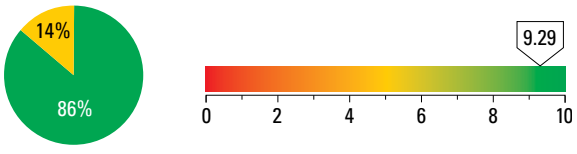
Legend: FMC ● PMC ● NMC ●

Encroachment Data

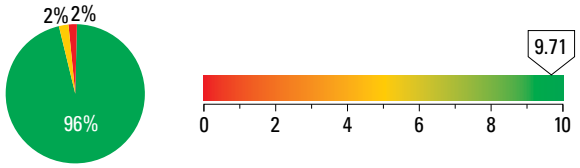
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	●	●	●		●	●	●	●	●	●	●	●
Fire Support	●	●			●	●	●	●	●	●	●	●
Intelligence	●	●	●		●		●	●	●	●		●
Sustainment	●	●							●	●	●	●
Command Control	●	●	●		●				●	●		●
Protection	●	●				●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impacts to mission are caused by land shortfalls, inadequate range support (staffing levels), and a shortage of small arms ranges. While several mission areas are impacted by capability shortfalls, Movement and Maneuver is most adversely impacted due to excessive overtime costs associated inadequate range staffing levels, lack of restricted airspace at PCMS impacting military units ability to train with UAS systems as they would in theater, and a shortfall of small arms ranges which limits units abilities to execute required live fire tasks to Army Standard.

Summary Observations

There is minimal impact to the mission areas due to encroachment factors. Small work arounds are utilized to avoid adverse impacts from the majority of the encroachment factors. The presence of unsurveyed areas with potential cultural resources are the primary encroachment factor that adversely impacts military training at Fort Carson and Pinon Canyon Maneuver Site (PCMS), due to the fact that unsurveyed training lands are deemed "for dismounted training only" until they can be surveyed.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.67	6.67	7.22

Capabilities have generally improved at Fort Carson and Pinon Canyon Maneuver Site (PCMS) over the past several years. The use of Military Construction projects and self help assets have postured the installation at an adequate readiness level to support the training throughput requirements of current stationing levels. It is anticipated that the most critical shortfall, Range Support (personnel) will be mitigated over the FY2012–2016 POM; and the shortfall of Infantry Squad Battle Courses is expected to be reduced by the initiative to construct an in-house, self help project in FY2011. The ability to obtain restricted airspace over PCMS will be a challenge, and it is anticipated that this lack of restricted airspace will cause future capability shortfalls as additional UAS are fielded in the out-years.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.24	9.24	10.00

Encroachment Factors have not historically had a significant impact on the mission at Fort Carson/Pinon Canyon Maneuver Site (PCMS). Fort Carson is re-evaluating procedures for planning/implementing training events to ensure all regulatory requirements, including protection from cultural resources, are being met. The use of best management practices in sustaining the training lands have also contributed to additional lands being added back into the training inventory. Additionally, Fort Carson has been able to prevent encroachment impacts from adjacent land use, due to implementation of the Army Compatible Use Buffer (ACUB) Program. Given the fact that communities near Fort Carson are aggressively promoting development, it is vital that the ACUB Program continue to be funded to prevent incompatible development around the installation that would negatively impact the training mission.

Fort Carson Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Sustainment		Fort Carson/PCMS has a doctrinal training land shortfall documented in accordance with AR 350-19. As units re-deploy for theater, Brigade and Battalion sized elements will not have adequate training land to maneuver to doctrinal standards simultaneously. Given current deployment rotations, the training land shortfall is not causing an adverse impact to training. The 4ID Commanding General's guidance is to perform Brigade level maneuver and Batallion level live fire at the Combat Training Centers. This guidance will relieve the shortfall of required doctrinal training land.
Airspace	Movement and Maneuver		PCMS currently has no restricted airspace and cannot operate UAS training above Raven at 1500ft AGL. Units cannot use other UAS assets and therefore cannot train as they fight. The installation is executing the necessary steps and procedures to seek to obtain restricted airspace. Meanwhile, units execute UAS training at Fort Carson and simulate at PCMS.
Range Support	Movement and Maneuver		Non-salary range operations is funded at 89% of the Army critical requirement. Creates excessive overtime requirements to sustain prolonged training enabler support of mission requirements. New manpower models have increased anticipated staffing levels to meet the requirements by FY2012.
	Sustainment		Non-salary range operations is funded at 89% of the Army critical requirement. Creates excessive overtime requirements to sustain prolonged training enabler support of mission requirements. New manpower models have increased anticipated staffing levels to meet the requirements by FY2012.
Small Arms Ranges	Movement and Maneuver		Fort Carson has a shortfall of 4 Infantry Squad Battle Courses to meet stationing level requirements. Units are required to use non-standard ranges that result in degraded training or inability to train on certain required tasks. Fort Carson has identified this shortfall and a Military Construction project was created but lost funding this year due to budgetary cuts. The project is currently being carried as an unfunded requirement for potential out-year funding.
	Sustainment		Fort Carson has a shortfall of four Infantry Squad Battle Courses to meet stationing level requirements. Units are required to use non-standard ranges that result in degraded training or inability to train on certain required tasks. Fort Carson has identified this shortfall and a Military Construction project was created but lost funding this year due to budgetary cuts. The project is currently being carried as an unfunded requirement for potential out-year funding.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Cultural Resouces	Movement and Maneuver		Fort Carson and PCMS possess training lands that have not been surveyed for cultural resources and training on this land is limited to dismounted training only. Restrictions cause limitations to large scale maneuver exercises. Additionally, all efforts to utilize restricted areas for training require time and resources to work through the Section 106 consultation process. Fort Carson is slowly working towards 100% survey completion. The installation is also working towards a Programmatic Agreement with the State Historic Property Office to ease the burden and overhead of all efforts going through the Section 106 consultation process.
	Sustainment		Fort Carson and PCMS possess training lands that have not been surveyed for cultural resources and training on this land is limited to dismounted training only. Restrictions cause limitations to large scale maneuver exercises. Additionally, all efforts to utilize restricted areas for training require time and resources to work through the Section 106 consultation process. Fort Carson is slowly working towards 100% survey completion. The installation is also working towards a Programmatic Agreement with the State Historic Property Office to ease the burden and overhead of all efforts going through the Section 106 consultation process.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Drum Assessment Details

Range Mission Description

Fort Drum provides major training facilities to support deployment training and mobilization for active and reserve units from all services in training at Fort Drum, and planning and support for the mobilization. Primary training units include the 10th Mountain Division (LI), the 7th Engineer Battalion, the 91st Military Police Battalion, and multiple reserve component units. Fort Drum's ranges and training areas also support two institutional elements: the Light Fighters School and the NCO Academy. The NCO Academy uses the training areas to conduct Warrior Leader courses and the Light Fighters School uses the training areas to conduct field-training exercises. The numerous live-fire ranges support weapons familiarization training and qualification. The large caliber facilities can also support collective live fire training events. The capabilities available on the installation to support requirements by the Armed Forces of the United States is visible by the presence of all services that train on Fort Drum to include but not limited to the law enforcement agencies both local and Federal as well as supporting the local communities. The Installation's air to ground range provides joint training integration for Army, Marine, Air Force, SOCOM, National Guard and USAR.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●						●	●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

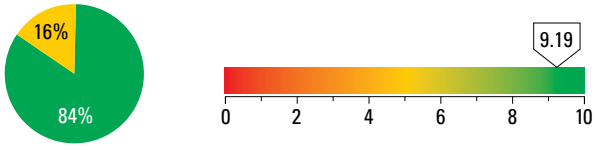
Legend: FMC ● PMC ● NMC ●

Encroachment Data

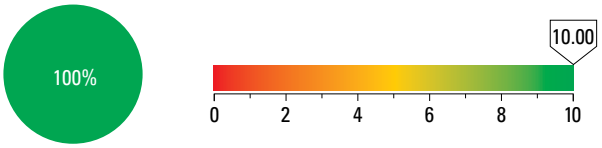
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients	
Movement and Maneuver	●		●		●	●	●	●	●		●		
Fire Support	●		●		●	●	●	●	●		●		
Intelligence	●		●		●		●	●	●		●		
Sustainment	●		●						●		●		
Command Control	●		●		●				●		●		
Protection	●		●			●	●	●	●		●		

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most severe impact to mission is caused by a shortfall of range support funding. While several Mission Areas are impacted by capability shortfalls, Movement and Maneuver and Sustainment are most severely impacted due to a shortfall of maneuver training land, lack of restricted airspace, range support funding shortfalls, and inadequate density of Multi-Purpose Machine Gun and Basic 10/25 Meter ranges. Currently the use of range dispersion and range alignment, allows Fort Drum to simultaneously support up to three separate units conducting small arms marksmanship and/or qualification training.

Summary Observations

There is minimal impact to the Mission Areas due to Encroachment Factors. The presence of Threatened and Endangered Species on the installation currently has no significant impact on the training mission, however, Fort Drum is the location of at least one maternity colony of the federally endangered Indiana Bat. In addition to this one federally-listed species, there are 28 State-listed wildlife species, and 22 State-listed rare plant species. The known Indiana Bat colony is mostly protected through the establishment of a Bat Conservation Area; 2,200 acres of relatively undeveloped land in the Cantonment Area.

Fort Drum Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.11	5.11	8.15	**Encroachment Scores**	9.10	9.10	10.00
Capabilities have generally improved at Fort Drum over the past several years. Range support funding levels have increased and additional funding is programmed in the FY2012–2016 POM, likely resulting in increased range capability in the out-years. Fort Drum training areas and ranges currently have capacity, when funded to requirements, to support ARFORGEN individual and collective live, virtual, constructive and gaming training requirements for the 10th Mountain Division and assigned Brigade Combat Teams/Brigade Headquarters, along with tenant units and aligned units.				Encroachment Factors have not historically had a significant impact on the mission at Fort Drum. Over the past several years, impacts resulting from noise restrictions and adjacent land use have been mitigated through public outreach efforts and use of the Army Compatible Use Buffer (ACUB) program. Over the next several years, however, encroachment impacts to the mission are expected if proactive actions through the ACUB program are not taken. Population growth is anticipated at Fort Drum's southwest border and section 801 housing lease agreements have ended, resulting in immediate demand for alternative housing. Three parcels targeted for ACUB easements in fiscal year 2011 will buffer Fort Drum in an area where housing stock has increased significantly. The pressure to build additional homes near Fort Drum is impacted by 48% population growth. Over 400 new homes were built near ACUB priority areas in 2008 with an additional 700 proposed. Two potential ACUB sites will reduce this development pressure on the western border. Significant development in the vicinity of Wheeler-Sack Army Airfield will pose human health and safety issues that could limit if not eliminate the use of approaches and departure procedures and severely impact the external load training of assigned rotary-wing aircraft. Fort Drum has undertaken several coordinated planning efforts to address encroachment threats. Fort Drum has established an excellent relationship with the community and is fortunate to have the Fort Drum Regional Liaison Organization (FDRLO). Established in 1990 as a community-based membership organization, the FDRLO has the mission of preserving positive inter-relationships and communication between the civilian and military communities and leaders in the tri-county region of Northern New York State. Encroachment was identified as a strategic issue and emerging threat to readiness and training in the 2009 Fort Drum Growth Management Strategy as prepared for the FDRLO and continues to be addressed by several of the installation's strategic action goals. The objectives include public outreach to neighboring communities, seeking innovative partnerships, opening lines of communication, participating in key forums such as the Fort Drum Town Hall Meetings, and various State and county forums. Fort Drum's Community Planner has a strong relationship with surrounding communities, which ensures the installation remains informed of any planned development in the vicinity of Fort Drum's boundaries. This relationship affords Fort Drum the opportunity to address concerns with local planning boards prior to the development taking place. FDRLO has backed the Fort Drum Regional Growth Management Strategy Plan project which links community with Fort Drum in making decisions that allow Fort Drum to operate unencroached while the community enjoys economic growth.			

Fort Drum Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	●	Fort Drum has a doctrinal training land shortfall per AR 350-19. Of the 75,934 acres of maneuver training area at Fort Drum, 73,887 acres are considered suitable for training. Of the acreage that is suitable for training, 45,055 (59%) acres are classified as unrestricted mobility, 19,399 (26%) acres are classified as restricted mobility, and 9,443 (12%) acres are classified as highly restricted mobility. 2,037 (3%) acres are classified as unrated mobility and represent acreage that is constrained due to land use, environmental sensitivity, and topographic elements (soil, slope). This deficit requires that maneuver training be conducted within constrained maneuver boxes that provide the ability for training to FSO METL standards, but lack doctrinal area of responsibility maneuver space. Training scenarios are modified and timed events are planned to replicate distance and area requirements. To reduce the land deficit and expand maneuver areas the installation is working to develop a land acquisition plan in FY2011.
	Sustainment	●	Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Drum Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Movement and Maneuver		The restricted airspace available does not meet the ceiling requirements for high angle weapon systems such as 155mm and Stinger. The lack of the required airspace results in the training event becoming an isolated event rather than a combined arms exercise, reducing training realism. Fort Drum Range Branch has not pursued requirements for extended airspace and will require coordination with Army Headquarters, IMCOM and FAA to determine feasibility and benefits to training in FY2011–FY2012.
	Fire Support		Same as above.
Range Support	Movement and Maneuver		Non-salary range operations is funded at 89% of the Army critical requirement. Limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. In anticipation of fiscal year funding shortfalls, Range Support will prioritize resources and assets to the training community based on the priority established by the senior commander in support of ARFORGEN. Priorities will be determined and the essential training requirements will be supported and all other requirements will only be supported if the resources and assets are available. Currently, with the contribution of contingency operation funds to support ARFORGEN training requirements, no identified training requirements have been refused.
	Sustainment		Same as above.
Small Arms Ranges	Sustainment		The 40mm MK19 Grenade Training Round is manpower intensive to clear from facilities. The use of this training round reduces the availability of maneuver space until the rounds have been cleared and recovered. It is manpower intensive to clear and recover the land after use, thus reducing training time. This training round has been identified as a Minimal Hazard Training round, therefore, the Army will continue to recover and clear the facility to ensure a safe training environment is maintained and maneuver land is available for training.

This Page is Intentionally Left Blank.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Hawaii Assessment Details

Range Mission Description

The mission of the U.S. Army Pacific (USARPAC) is to execute continuous training and readiness oversight responsibilities for Army Force Generation in Hawaii. On order, execute Joint Force Land Component Command functions in support of Homeland Defense and Security in Hawaii. The mission of U. S. Army Garrison Hawaii (USAG-HI): (1) Plan and execute on-order deployment support, force protections, and contingency operations. (2) Plan and execute transformation of the installation garrison that supports STRYKER and other mission units. (3) Provide quality installation support and services to our customers. (4) Maintain and improve infrastructure and training areas. (5) Provide proper stewardship of all resources and the environment. (6) Sustain strong community relations. (7) Provide for the well-being of the Army Family into the 21st Century. (See full Mission Description in Table 3-6.)

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	NMC	FMC			FMC		NMC	FMC	NMC	NMC	NMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		NMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC				FMC	
Sustainment	FMC							FMC	NMC	NMC	NMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC				FMC	
Protection	FMC				FMC		FMC	FMC		NMC		FMC	

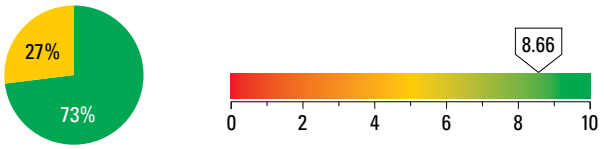
Legend: FMC, PMC, NMC

Encroachment Data

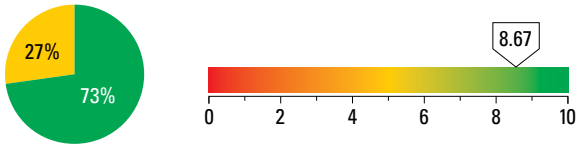
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Moderate		Minimal		Minimal	Minimal	Minimal	Minimal	Moderate		Minimal	Moderate
Fire Support	Moderate		Minimal		Minimal	Minimal	Minimal	Minimal	Moderate		Minimal	Minimal
Intelligence	Minimal		Minimal		Minimal		Minimal	Minimal	Moderate		Minimal	Minimal
Sustainment	Moderate		Minimal						Moderate		Minimal	Moderate
Command Control	Minimal		Minimal		Minimal				Moderate		Minimal	Minimal
Protection	Moderate		Minimal			Minimal	Minimal	Minimal	Moderate		Minimal	Minimal

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impacts to mission are caused by a shortfall of range support funding and a deficit of small arms and collective ranges. While several mission areas are impacted by capability shortfalls, Movement and Maneuver is the most adversely impacted, due to a maneuver training land shortfall, lack of instrumented after action review capability, a shortage of range suport funding for manpower and operations, and a deficit of multi-purpose machine gun ranges and collective ranges to support aviation gunnery.

Summary Observations

There is a moderate impact to the Mission Areas due to encroachment factors. The most significant impacts are caused by the presence of threatened and endangered species and cultural resources on the installation. The mission areas that are most impacted are Movement and Maneuver and Sustainment, due to training restrictions and limitations resulting from endangered species, law suits related to cultural resource access, and trespassing by recreational land users.

Hawaii Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	N/A	N/A	7.67	**Encroachment Scores**	N/A	N/A	8.78
Capabilities have remained consistent in Hawaii over the last two years. Range support funding has improved slightly in the last year and additional funding is programmed in the FY2012–2016 POM, likely resulting in increased range capability in the out-years. A shortfall of a Multi-Purpose Machine Gun Range and Collective Range to support aviation gunnery has also continued to impact capability in Hawaii. It is anticipated that construction of a standard range to support aviation gunnery will start in FY2015, thus improving collective range capability in the out-years.				Encroachment factor impact on the mission in Hawaii has slightly increased over the past year. Impacts resulting from threatened and endangered species encroachment were not previously assessed against the Fire Support mission. In the near future the Biological Opinion will be amended so that live fire training with ball ammunition may be conducted while the burn index is in the red, thus increasing unit training capability. Two types of encroachment continue to impact Hawaii training areas and ranges. External encroachment factors, such as land development and increased housing construction will continue to increase pressure on training areas and ranges in the future. With increased development near the installation boundaries maneuver areas and impact areas are affected by restrictions on noise. Internal encroachment factors also impact the mission. Natural and cultural resource issues cause range closures and stop training. For example, when a threatened or endangered species is seen within a training area or range, all training is to stop, thus decreasing the capability associated with that range or training area.			

Hawaii Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	●	Increased maneuver throughput is required due to one Stryker Brigade Combat Team (SBCT) being based in Hawaii. There is limited maneuver area on Oahu and logistically SBCTs have to move by boat to Pohakuloa Training Area (PTA) to conduct a portion of their Misssion Essential Task List training. Even with PTA, Hawaii is still short on required maneuver land because much of the area is not able to support the Stryker vehicle due to environmental no-go areas. Restrictions do not allow units to train to METL standard. Work through the constraints of the biological opinion in order to allow for additional trainings areas to become available (Expansion of PTA and Keamuku maneuver area).
Scoring & Feedback System	Movement and Maneuver	●	Current MOUT facility lacks instrumentation to provide quality AAR process. Unable to conduct training to Army standards. Currently installing instrumentation and waiting for power upgrade of 6 buildings. Upgrade was scheduled to be compete October 15, 2010.
Range Support	Movement and Maneuver	●	Non-salary range operation funding 89% below the Army critical requirement. Limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. Waiting for approval to increase manpower support.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
Small Arms Ranges	Movement and Maneuver	●	Deficit one Machine Gun range. Currently unable to conduct training to Army standards. Using alternative qualification standards (10 meter table).
	Sustainment	●	Same as above.
	Protection	●	Same as above.
Collective Ranges	Movement and Maneuver	●	Deficit Aviation Gunnery Capability. Currently unable to train to standard Gunnery table. Have submitted a request to construct a standard design range; anticipated start date FY2015.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Movement and Maneuver	●	Endangered species habitat limits maneuvers only to existing roads and trails. Maneuver training areas are restricted to existing roads and trails, thus limiting training scenarios and training realism. Will continue to train within the restrictions set forth by the biological opinions (BO).
	Fire Support	●	The burn index limits training capabilities. The burn index in conjunction with a limited impact area, causes throughput restrictions; live fire is limited to PTA and training round usage is restricted by caliber. Continue to operate within the constraints of the biological opinions for each of the training ranges; expand training options as they become available in accordance with the BO.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Hawaii Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Sustainment		Endangered species restricts repairing and rehabilitating maneuver trails, firebreaks, and fuel breaks. Without an operations firebreak, the biological opinion dictates that training must cease. Installation Natural Resources is conducting surveys in the Kahuku training areas and will be formally consulted at the beginning of FY2012.
	Protection		Same as above.
Cultural Resources	Movement and Maneuver		Resuming live fire training at Makua continues to be delayed pending additional litigation over access to cultural sites. Live fire training activities are being conducted at alternate locations in Hawaii. Other training strategies are being pursued at Makua.
	Fire Support		Same as above.
	Intelligence		Same as above.
	Sustainment		Same as above.
	Command & Control		Same as above.
	Protection		Same as above.
Range Transients	Movement and Maneuver		Recreational motorcross riders enter restricted areas of the Kahuku training area. Motorcross riders are a training distraction and cause damage to the land that increases erosion and results in land repair costs. Install fencing along with no trespassing signs to protect the training area.
	Sustainment		Same as above.

This Page is Intentionally Left Blank.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Hood Assessment Details

Range Mission Description

Fort Hood is focused on preparing Soldiers and units for full spectrum operations and on taking great care of Soldiers, families, and civilians. Fort Hood is the largest active duty armored post in the United States, and is the only post in the United States that is capable of supporting two full armored divisions. With 88 separate ranges, 56 numbered training areas, 4 airfields, artillery ranges, rappel towers, land navigation courses, leadership reaction courses, and several airborne and equipment drop zones, Fort Hood provides major training facilities to support deployment training and mobilization for the 1st Cavalry Division and the 3rd Armored Regimental Cavalry. Fort Hood's ranges and training areas also support the HQ Command III Corps, 4ID HQ, 1BCT 4ID , 4BCT 4ID, 4ID AVN BDE HQ, 41st Fires BDE, 4th Sustainment BDE, 7-158 AVN (-), 6-52 AVN(-), 11th MP BN, 308th MI BDE, 21st Cavalry BDE (Air Combat), TF Odin, 1st Army Division West HQ, 120 Infantry BDE, 166th AVN, 479 FA BDE, 407 AFSB, 901 SPT BN, 15th Sustainment BDE, 36th EN BDE, 89th MP BDE, 57th SIG BDE, 1st MED BDE, 48th Chem BDE, the Dental Activity (DENTAC), the Medical Support Activity (MEDDAC), Army Operational Test Command (AOTC), The NCO Academy, and various other units and tenant organizations to include joint, civilian, and coalition units.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	FMC	FMC			FMC		PMC	PMC	PMC	FMC	FMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	PMC	FMC	FMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC			FMC	FMC	
Sustainment	PMC							PMC	PMC	FMC	FMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC			FMC	FMC	
Protection	FMC				FMC		FMC	FMC		FMC	FMC	FMC	

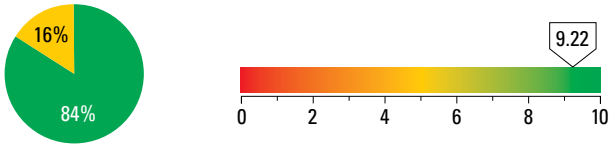
Legend: FMC PMC NMC

Encroachment Data

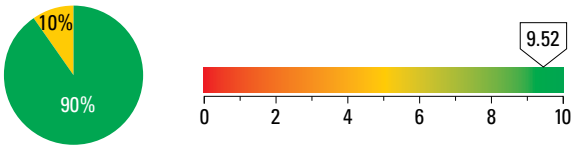
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Moderate		Minimal		Minimal	Minimal	Minimal	Minimal	Moderate		Minimal	
Fire Support	Moderate		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Intelligence	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal		Minimal	
Sustainment	Minimal		Minimal					Minimal	Moderate		Minimal	
Command Control	Minimal		Minimal		Minimal			Minimal	Minimal		Minimal	
Protection	Minimal		Minimal			Minimal	Minimal	Minimal	Minimal		Minimal	

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is caused by a shortfall of range support funding. While several mission areas are impacted by capability shortfalls, Movement and Maneuver and Sustainment are most impacted due to training land shortfalls, lack of funding for trail repairs, and range support funding shortfalls.

Summary Observations

There is minimal impact to the mission areas due to encroachment factors. The presence of threatened and endangered species and the lack of funding to classify cultural resource sites has a minimum impact on the Movement and Maneuver Mission, due to training restrictions and a reduction of the available land base acreage for training. Fort Hood currently meets all training requirements for tenant and deploying units on the training lands.

Fort Hood Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.33	5.33	7.44	**Encroachment Scores**	7.93	7.93	9.52
Capabilities have improved at Fort Hood over the past several years. Range support funding levels have increased slightly and range modernization requirements are currently programmed. Range Operations currently meet training requirements for tenant and deploying units, although maneuver requirements must be executed to modified standards and augmented with simulations and virtual training devices. Mobilizing unit requirements can only be met with the continued availability of overseas contingency operation (OCO) funding. While the range modernization program currently addresses all deficiencies in range support facilities, there will remain the need to conduct training to modified standards with obsolete targets and operating systems due to reductions in range modernization funding through FY2016. The current transformation of the Army has not decreased the assigned strength of the installation nor the training requirements for the ranges. The current 15 Brigade equivalent fighting force assigned to Fort Hood requires modernized range support facilities and technological advances, which increase the maneuver requirement. Additionally, when Fort Hood receives Strykers in FY2012, the tank and maneuver trails will not be adequate to support their movement. Maneuver lanes and corridors require repairs and maintenance (at least 121 miles of tank trails will be need to be repaired) to support the Strykers in FY2012. Unit training requirements will only continue to be met if there is funding available to manage and maintain training areas and ranges. Maintenance and repair of training land (woody species management, gully plugs/cross country mobility, etc. and tank and maneuver trail repairs are not keeping pace with OPTEMPO and training requirements. Army training requirements continue to evolve quickly and preparation of land is required prior to training use. Although Integrated Training Area Management (ITAM) requirements are programmed there will remain the need acquire additional funds to meet land repairs to enable training through FY2016. If funding shortfalls continue through there will be significant capability impacts in the out-years.				Encroachment Factor impact to the mission at Fort Hood has been reduced over the past several years, due to installation efforts to mitigate impacts from adjacent land use. Additional reductions in encroachment impacts are the result of a revised business rule. In previous years, restrictions on the use of smoke/obscurants in training events were being captured as an air quality encroachment factor and as an endangered species encroachment factor, when the restrictions were only resulting from endangered species. Historically training usage has worked as a parity for limiting endangered species habitat expansion. The lack of full spectrum training, due to unit deployment schedules, is likely to result in increased endangered species habitat and thus, increased training restrictions in the future.			

Fort Hood Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Sustainment	●	There is a doctrinal shortfall of training land required for units to conduct maneuver training to Army standards. There are approximately 196,356 acres of unrestricted training land at Fort Hood. The training land shortfall requires units to modify doctrinal distances for training and use training land beyond normal timeframes, in order to conduct all required training events. Many training events must be conducted to modified standards, thus reducing training realism. Units are mitigating this shortfall by modifying their training with reduced distances and the use of virtual and constructive simulations. There are currently no plans to acquire additional training land to reduce the shortfall.
Scoring & Feedback System	Movement and Maneuver	●	After action review (AAR) capabilities need to be upgraded on non-instrumented ranges. An automated after action review capability is not available to support the Instrumented Force, thus units do not have the adequate capability to review/assess training events and training effectiveness is reduced. Fort Hood is pursuing a recently acquired Army Standard Automated AAR system for legacy Multi Use Ranges.
Infrastructure	Movement and Maneuver	●	Approximately 179 of 412 (43%) miles of tank trails are currently unserviceable and 113 of 120 (98%) miles of maneuver trails are unserviceable. The lack of serviceable trails degrades unit training capabilities and reduces and restricts logistic and wheeled vehicle operations. Unmaintained trails provide succession to woody species growth. Fort Hood is repairing up to 20 miles of tank trails annually. Additionally the installation is increasing partnerships with Active Duty, Reserve, and National Guard Engineer units to provide trail repair services in FY2011 and FY2012. An increase in sustainment funding for tank trails is required to support training requirements.
	Sustainment	●	Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Hood Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Movement and Maneuver		Non-salary range operations funding is 89% of the Army critical requirement. Current civ pay, plus range support contract costs exceed allocated funding. Limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. Continue to assess range support contracts to identify costs reductions (including reducing the number of ranges available for training) for the senior commander to consider. Range control has to use OCO funding to meet additional requirements for mobilization and deployment.
	Fire Support		Same as above.
	Sustainment		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Movement and Maneuver		Core endangered species nesting seasons restrict training for 5 months of the year on 6.2% of the training areas. Core habitat (8,243 ac) is located on the east side of the installation in light training areas and results in significant restrictions during nesting season. Non Core habitat (43,952 ac) impacts both heavy and light training areas, but only restricts digging. Units are restricted in Core habitat during nesting season: no vehicles off road; no mounted training in trees; units cannot stay longer than 2 hours in habitat areas per day; no smoke/pyro within 100 meters of core habitat and no camouflage net use. Units are restricted from digging in Core and Non Core habitat areas year round. The installation has no plans to change Core habitat areas or restrictions. The Non Core habitat digging restriction is minimized thru use of a one stop, digital dig request system, which provides no dig overlays for all training areas and allows trainers to plan and establish tactical defensive training.
	Fire Support		Same as above.
Cultural Resources	Movement and Maneuver		Insufficient funding limits the ability to review and classify potential cultural resource sites. Sites cannot be classified as eligible or ineligible to support training and/or range upgrades, thus these potential sites are not currently available for training. The Army will continue to work to make appropriate classifications so that training can be maximized on the installation. Appropriate mitigation strategies to avoid training shortfalls are on-going.
	Sustainment		Same as above.

This Page is Intentionally Left Blank.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Irwin Assessment Details

Range Mission Description

Fort Irwin and the National Training Center (NTC) is a world class training center for America's Military. The NTC is a key part of the Army's Combat Training Centers (CTCs), and training at the NCT is focused on joint and combined arms training in multi-national venues across the full spectrum of conflict set in a contemporary operating environment to assist Commanders in developing trained, competent leaders and Soldiers by presenting them with current problem sets to improve the force and prepare for success in the Global War on Terrorism and future joint battlefields. Fort Irwin and the NTC supports rotational, tenant (11th Armored Calvary Regiment and the 916th Support Brigade), and reserve component units.

Capability Data

Mission Areas	Capability Attributes													
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	FMC	FMC			PMC	PMC	PMC	PMC	PMC	FMC	PMC	FMC	
Fire Support	FMC	PMC			FMC	FMC	FMC	FMC	PMC		FMC	FMC	
Intelligence	FMC	FMC			FMC	FMC	FMC	FMC		FMC	FMC	FMC	
Sustainment	FMC				PMC	FMC	PMC	PMC	FMC	FMC	PMC	FMC	
Command Control	FMC	FMC			FMC	FMC	FMC	FMC	PMC	FMC	FMC	FMC	
Protection	FMC				PMC	FMC	FMC	FMC		FMC		FMC	

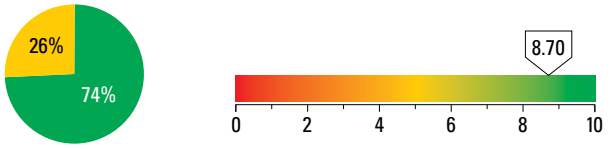
Legend: FMC PMC NMC

Encroachment Data

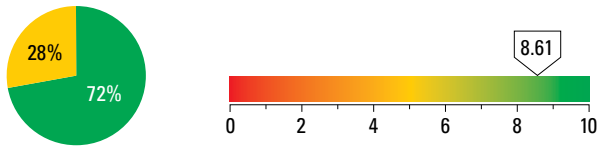
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Moderate		Moderate		Moderate	Minimal	Minimal	Minimal	Moderate	Minimal		Moderate
Fire Support	Minimal		Minimal		Moderate	Minimal	Moderate	Minimal	Moderate	Minimal		Moderate
Intelligence	Minimal		Moderate		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal		Minimal
Sustainment	Moderate		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Moderate		Moderate
Command Control	Minimal		Moderate		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal		Minimal
Protection	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal		Moderate

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most significant impacts to mission are caused by insufficient range support funding and aging targetry. The lack of sustained funding to support the range and training land program significantly impacts unit movement while insufficient funding to resource range instrumentation modernization, including live fire targetry, impacts the quality of combined arms maneuver.

Summary Observations

There is moderate impact to the mission areas due to encroachment factors. The presence of Range Transients is the factor causing the greatest impact to mission. While several mission areas are impacted, Movement and Maneuver is most significantly impacted due to loss of maneuver space resulting from endangered species, spectrum competition from the NASA station, limited airspace, and range transients.

Fort Irwin Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	7.45	7.45	7.84	**Encroachment Scores**	9.75	9.75	8.50
Historically, National Training Center (NTC) training capability has improved over the past several years. Since 2004, NTC has made remarkable strides to populate the training area with MOUT training sites, emplaced to support current Overseas Contingency Operations in Iraq and Afghanistan. Other areas, such as range control and UXO clearing, have remained relatively constant in capability. Two significant areas have shown degradation—installation ranges and CTC required equipment. The installation ranges have had no significant resources applied to them for the last five years. They are inadequate for the installation mission and in need of modernization and sustainment funding. Three of the six new range requirements, that NTC submitted, were supported in POM 12–16, but were subsequently postponed out of the current POM cycle. Additionally, NTC does not receive separate funding for range sustainment as do the other CTCs, resulting in further range degradation. The Headquarters, Department of the Army, G-3 Training will assess and address critical shortfalls in POM 13–17. The other major capability degradation is in the area of CTC infrastructure and equipment to support the NTC rotation training mission. In the past, CTC modernization has been under-funded and has impacted the up-keep of instrumentation, Tactical Engagement Simulation Systems, opposing force equipment, and live fire ranges at required capability to sustain training for rotating brigades. The NTC is a member of the CTC modernization program and participates in the development and prioritization of combat training center requirements. The Headquarters, Department of the Army, G-3 Training was successful in protecting POM 12–16 CTC Modernization funding and as long as no future funding decrements occur, the program will be able to address aging targetry and instrumentation.				Fort Irwin and the National Training Center (NTC) remain capable of accomplishing the training mission despite instances of increasing encroachment. Fort Irwin's major encroachment issues center around three areas: spectrum, endangered species, and boundary issues. NTC shares the electromagnetic spectrum with NASA Goldstone. NTC must tailor its use of the spectrum to accommodate NASA's needs. This means limiting jamming training, requiring the testing of all systems before use at NTC, and limiting the areas where electronic emitters can be used. This encroachment will be most serious when the western expansion area is opened for training. Endangered species provide the second major area of concern. The NTC is affected by the Federally-threatened Desert Tortoise and the endangered Lane Mountain Milk Vetch. These species have combined to require the NTC to set aside over 40,000 acres of training land for habitat and significantly curtailed activities in several parts of the training area. Mitigation costs in the NTC land expansion have exceeded $75M and mitigation activities have added 10 years to the land expansion process—ongoing since 1993. NTC actively works with DOI, BLM, CA Fish and Game and other agencies to manage the endangered species activities. The third area of concern is the adjacent wilderness areas and occasional civilian incursion. Ongoing legislation will surround the NTC with wilderness areas on three sides, and could result in training limitations. NTC is working with Army Headquarters to minimize these effects on the training mission.			

Fort Irwin Detailed Comment

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Fire Support		NTC must share the airspace in the eastern and western expansion areas, limiting the amount and types of training that can be done in those areas. NTC shares the eastern expansion with the FAA, limiting use above 16000 feet AGL. This limitation restricts the ability to employ high Close Air Support and strategic level UAS. The western expansion is shared with China Lake NAWC and Edwards AFB, with NTC as the third priority user. This limits the ability of the NTC to employ aviation assets when required to support maneuver training. NTC must work with the FAA and sister services to gain control of its airspace to enable training
Targets	Movement and Maneuver		The armor and infantry targets that support live fire training for rotational units are circa 1970. The ability of the targetry and range control operating system to meet HBCT gunnery standards is not possible without major workarounds. The Combat Training Center modernization program is providing some additional targetry in the current POM cycle; however, 100% life cycle replacement is not provided for at this time.
	Sustainment		Same as above.
	Protection		The armor and infantry targets that support live fire training for rotational units are circa 1970. The ability of the targetry and range control operating system to meet HBCT gunnery standards is not possible without major workarounds. The Combat Training Center modernization program is providing resources to sustain current targetry in POM 12-16 until life cycle replacement can be addressed.
Threats	Movement and Maneuver		The Battle Effects Simulators (BES) that support live fire training for rotational units are circa 1970. The ability of the targetry and range control operating system to interface with BES is not possible without major workarounds The Combat Training Center modernization program is providing resources to sustain current BES in POM 12–16 cycle until life cycle replacement can be addressed.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Irwin Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Movement and Maneuver		The NTC instrumentation system requires modernization to account for new systems and increased demand for training feedback. Changes to the way the Army fights, modular units and increased digital battle command have generated a requirement for modernization of the instrumentation system used to assist in the training of units at NTC. Area coverage needs to be increased, data throughput needs revisions, MILES instrumentation needs to be more capable. CTC Instrumentation System (IS) funding was protected in POM 12-16 and will address NTC IS as long as funding remains. The NTC will continue to participate in the CTC Modernization program to address and present critical and other unfunded ITESS requirements for POM consideration.
	Sustainment		Same as above.
Infrastructure	Movement and Maneuver		The Main Supply Routes and tank trails within the range complex are failing. The accessibility to the range complex is compromised by the failing road network. Normal maintenance cannot bring the road network up to standards. PNs 75979, 75980, 75982 and 75983 totaling $21.8M would provide for paving of 20 miles of training area roads. These PNs have not been funded through the POM process to date. The training shortfall will continue unless funding is provided. Standard annual SRM funding for the maintenance of the MSR is inadequate based on the amount of vehicle traffic that supports each rotation.
	Sustainment		Same as above.
Range Support	Movement and Maneuver		The NTC comprises over 770,000 acres and more than 500,000 acres are used for maneuver training. The resources required to sustain the training area are not available. In order to effectively make the training area available for training, NTC needs additional personnel for range control operations, additional communications equipment and infrastructure for command and control. NTC is pursuing strategies with Headquarters Army, G-3 Training to provide additional resources to aid in the training area mission.
	Fire Support		NTC has the largest live fire training complex in the Army. Its past history as an air defense training base has littered the training area with UXO. NTC has few off limits dudded areas, most are used concurrently as maneuver training lanes. NTC requires additional resources to more adequately police the training areas of UXO to allow safe training to be accomplished. Funds are being pursued through the Combat Training Center Program.
	Command Control		The Range Communication System is at the end of its life cycle in 2010, but is repairable until 2015. The ability to communicate within the range complex is a requirement IAW AR 385-63. The requirement was presented to the Combat Training Center modernization program as a critical unfunded requirement. If funding is not available in FY2011 then POM 12-16 funding will be adjusted to address critical unfunded requirements and then realigned in POM 13-17.
Collective Ranges	Movement and Maneuver		The Multi-Purpose Training Range is outdated (circa 1987). The range does not support Heavy Brigade Combat Team gunnery standards. An updated range has not been validated or funded at this time. Training shortfalls will continue until funded.
	Sustainment		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/Critical Habitat	Movement and Maneuver		The Army continues to experience delays in opening the western expansion area, due to secondary impacts from litigation related to translocation of the Desert Tortoise. The 70,555 acres of heavy maneuver land in the western expansion area is off limits to training. The Army continues to implement required mitigation measures, based on available funding, in order to use expansion lands for training purposes. The Army will address litigation encountered during implementation of mitigation measures as it occurs.
	Sustainment		Same as above.
Spectrum	Movement and Maneuver		The NASA Goldstone Deep Space Communications Complex (33,000 acres) is located on the western side of Fort Irwin and limits the Army's ability to employ all necessary electronics equipment. The Army must limit jamming and the use of many types of communications equipment and emitters. Additionally, units must coordinate with NASA GDSCC to limit emissions on the western side of the reservation. NTC and NASA need to cooperate to minimize NASA electronic noise limiting requirements.
	Intelligence		Same as above.
	Command & Control		Same as above.

Fort Irwin Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Airspace	Movement and Maneuver	●	NTC does not control the airspace over the eastern and western expansion areas. The eastern expansion area has a 16000 foot ceiling. This limits the types of aircraft and missions that can be flown, in contrast to the installation proper that is ceiling unlimited. The western expansion area airspace is chaired with China Lake NAWC and Edwards AFB, with NTC as the 3rd priority user of its own airspace. This limits the ability of NTC to fly Army UAS and joint aircraft in support of brigade training. NTC is working with the FAA and the R2502 JPPB to minimize training restrictions.
	Fire Support	●	Same as above.
Noise Restriction	Fire Support	●	NTC live-fire operations generate noise that can be heard across the eastern boundary. NTC receives complaints about live-fire noise from residents who live in the vicinity of the eastern boundary. To mitigate, NTC does not conduct live-fire training in the eastern expansion area. NTC will continue to work with local communities on noise issues.
Cultural Resources	Movement and Maneuver	●	Fort Irwin has over 1000 identified cultural sites in the maneuver area. The large number of sites and the rules for using areas causes training to be impacted and selected critical areas to be identified as off limits to training because of cultural implications. NTC requires a significant cultural resources budget to manage these sites. NTC will continue to manage the impacts.
	Fire Support	●	Same as above.
Water Quality Supply	Sustainment	●	Fort Irwin has an estimated 40-year, non-replenishable water supply. NTC uses water wells to provide all water needs. The training area has no reliable water supply to support training needs, all water must be transported to field locations. The amount and location of training is affected by the ability to transport and supply water for training units. Fort Irwin needs to be resourced to probe for additional water sources. Additionally, a tertiary water treatment facility (estimated at $100M) needs to be constructed so that Fort Irwin can reclaim up to 60% of the one million gallons of water used daily. These measures will extend Fort Irwin's viable service life indefinitely.
Range Transients	Movement and Maneuver	●	Approximately 225 miles of Fort Irwin's boundary is contiguous to Death Valley National Park or publicly accessible areas. The ability of persons to enter Fort Irwin in an uncontrolled area causes problems for training. During maneuver and live fire training, the Army is required to pre-clear the training area of unauthorized personnel, using either ground or aerial patrols. Additionally, NTC has had many instances of "scrappers" (unauthorized metal scavengers and thieves) entering the training area and collecting (stealing) both metal scrap and training equipment (targets, solar panels, copper wire). NTC patrols have stopped trucks loaded with unexploded ordnance that was collected from the impact areas, clearly presenting a safety concern. NTC requires adequate resources to fence the installation and provide regular patrols to cover the training area to prevent unauthorized and dangerous access.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
	Protection	●	Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Lewis Assessment Details

Range Mission Description

Joint Base Lewis-McChord (JBLM) provides state-of-the-art training and infrastructure and fully capable mobilization and deployment operations for Army, Navy, Air Force, and Marines. JBLM supports a myriad of tenant, non-tenant and reserve component forces and supports a Mobilization mission that trains over 15,000 mobilizing Soldiers annually. Additionally, JBLM provides support for ROTC Advanced Annual Summer Camp, "Warrior Forge." Live-fire ranges are capable of supporting individual, crew served, Stryker, and aerial gunnery (limited) as well as squad, platoon, and company maneuver live-fire exercises. JBLM has approximately 68,000 acres of maneuver land. 88% of that land is designated for heavy use, and the remaining 12% is for heavy or light use. Additionally, there are 13,000 acres of dudded and non-dudded impact areas. 1st Army Training Guidance is that all CAT II and III units participate in some form of live fire exercise. The convoy live fire meets this requirement and IED-Defeat and Base Defense Training is available for all units. Specialized training is conducted based on unit requirements. Live-fire training, heavy and light maneuver capabilities are provided for I Corps (STB), 4/2 ID (SBCT), 3/2 ID (SBCT), 4/6 ACS, 17th Fires Brigade, 5/2 ID (SBCT), 555 Engineer Brigade, 201 Military Intelligence Brigade, 42 Military Police Brigade, 593 SB, 62 Medical Brigade, 51 Signal Battalion, 8th Brigade ROTC, 1SFG, and the 2/75 Ranger Battalion, as well as numerous Reserve, Guard, and sister service units.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●							●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

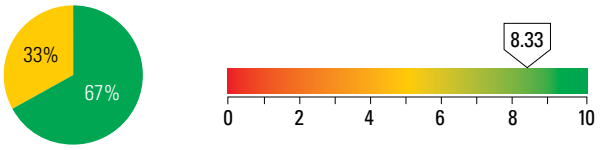
Legend: FMC ● PMC ● NMC ●

Encroachment Data

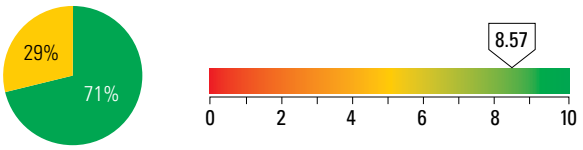
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	●		●		●	●	●	●	●		●	●
Fire Support	●		●		●	●	●	●	●		●	
Intelligence	●		●		●		●	●	●		●	
Sustainment	●		●					●	●		●	
Command Control	●		●		●			●	●		●	
Protection	●		●			●	●	●	●		●	

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most severe impacts to mission are caused by a shortfall in range support funding and lack of small arms and collective ranges. While several Mission Areas are impacted by capability shortfalls, Movement and Maneuver is the most severely impacted, due to a shortfall of training land and ranges to support Stryker Brigades, damaged maneuver trails and roads that limit maneuver training and unit access to maneuver compartments, and a shortfall of range staff authorizations.

Summary Observations

There is a moderate impact to the mission areas due to encroachment factors. The most significant impact is caused by the presence of threatened and endangered species on the installation. The mission areas that are most impacted are Movement and Maneuver and Fire Support due to training restrictions and limitations resulting from endangered species and wetlands, limited airspace for artillery, noise issues, and unanticipated recreational land users.

Fort Lewis Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	7.67	7.67	6.56	**Encroachment Scores**	8.54	8.54	9.15
Capabilities have improved at Fort Lewis over the past several years. While range support funding has improved slightly in the last year, authorizations for range staff are below Army critical requirements. This impact is being addressed and there should be significant improvement in Range Support by FY2013 when authorizations are increased to the Army critical requirement. A shortage of smalls arms and collective ranges has also continued to impact capability at Fort Lewis, however new ranges are programmed for construction in FY2016 and FY2017, thus Small Arms and Collective Range capability should improve in the out-years. Landspace and Airspace capability will continue to be a challenge into the out-years, but the installation is working with FAA to mitigate Airspace issues.				Encroachment factors have historically had a minor to moderate impact on the mission at Fort Lewis. Moderate impacts resulting from threatened and endangered species habitat on the installation have been fairly consistent for the past several years. Noise restrictions and adjacent land use impacts have caused minor to moderate impacts on the mission, and will continue to be an impact into the future due to development adjacent to the installation boundary. Range transients have not historically been an issue, but recently unpermitted recreational use of Fort Lewis land has resulted in minor training impacts. The installation is continuing to communicate and coordinate with the public to ensure proper recreational use permitting procedures are understood, in order to mitigate this encroachment impact.			

Fort Lewis Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver		There is limited land to support the requirements for the Stryker Brigades and other units stationed on JBLM. Units can only train to the Platoon level on JBLM-Main, thus larger exercises are required to go to YTC. The drop zones are restricted during night ops, which is a tactical requirement for Special Forces and Rangers. The installation will continue to implement workarounds in order to accomplish training for units on JBLM-Main.
Airspace	Movement and Maneuver		There is limited restricted airspace. UAS and special forces jump capability is limited by the lack of designated restricted airspace. The installation is coordinating updates with FAA to expand available restricted airspace.
	Intelligence		Same as above.
Infrastructure	Movement and Maneuver		The maneuver trails and roads in the training areas are in need of repair. Damaged maneuver trails and roads limit maneuver training and unit access to maneuver components. The installation is working to define trails and roads to determine responsibility. In FY2011, the Integrated Training Area Management program will begin maintaining maneuver trails.
	Sustainment		Same as above.
Range Support	Movement and Maneuver		Range operations staff authorizations are 75% below the Army critical requirement. This limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. The budget and requirements will be re-evaluated to provide near-term contract support. Range operations shortfalls will be addressed in the FY2013–FY2017 POM and staff authorizations should increase to 100% of the critical requirement in FY2013.
	Fire Support		Same as above.
	Sustainment		Same as above.
Small Arms Range	Movement and Maneuver		There is a shortage of .50 cal qualification ranges and anti-armor ranges required to fully support tenant units. The units are not able to qualify on required weapons and gunnery. Updates and new ranges for compliance with Army requirements have been identified through the POM cycle. Military Construction funding has been programmed for a .50 cal range in FY2016 and for an anti-armor range in FY2017.
	Sustainment		Same as above.
	Protection		Same as above.
Collective Ranges	Movement and Maneuver		There is no modernized collective gunnery range. Stryker Brigade Combat teams stationed at the installation can not fully meet training requirements. Range Control will continue to identify workarounds to assist in meeting training requirements for collective gunnery events.
	Fire Support		There is no modernized collective gunnery range. Stryker Brigade Combat teams stationed at the installation can not fully meet training requirements. Range Control will continue to identify workarounds to assist in meeting training requirements for collective gunnery events. YTC is currently upgrading their Multi-Purpose Range Complex. There is not enough room at JBLM-Main to support a range of this type.
	Sustainment		Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Lewis Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Movement and Maneuver		Bald Eagles restrict the use of a portion of Range 87 from 1 December through 31 March annually. Portions of Range 76 are within the habitat for the Taylors Checkerspot Butterfly. Use of Range 87 is restricted 4 months of the year, thus during this period, use of smoke and target emplacements is restricted, curtailing the full capability of the range. Habitat mitigation on Range 76 restricts off road vehicular movement, thus Stryker movement formation and utilization of the terrain to move to the target is not trained. The Army is continuing to implement mitigation strategies and training workarounds to avoid training shortfalls.
	Fire Support		Same as above.
	Sustainment		Same as above.
	Protection		Same as above.
Airspace	Movement and Maneuver		Current airspace does not account for all of the ranges that fire munitions. Two of the four compartments of R6703 have a ceiling cap of 5K AGL. Within SUA R6703 D, B contains the majority of JBLMs mortar points. With the addition of 120 mm mortars it is a challenge to ensure that the 120 mm munitions do not break the ceiling cap of 5K and do not skip out of the designated impact area. The Army is working proposals to adequately cover the Range Complex vertically and horizontally.
	Fire Support		Same as above.
Noise Restrictions	Fire Support		The Installation Compatible Use Noise Zoning Study (54-34-3468-83) limits demolition poundage at the installation. Additionally, mortars and field artillery must receive prior approval to conduct late night firing (from 2200-0700 hours). The .50 cal machine gun range is located on a high bluff that overlooks the Nisqually Reservation. Units are limited to 20 pounds in any one detonation or group of simultaneous detonations. Nisqually Tribe and local communities call in frequently with noise complaints, which could have future impacts. Continue noise studies and work with local communities to notify them of military activities.
	Protection		Same as above.
Adjacent Land Use	Protection		No use of smoke 300 meters from the boundary. With the number of local roadways and highways that dissect JBLM, units are not allowed to use smoke near the installation boundary. All smoke operations must be well within the boundary which limits the locations for this type of training. The Army is continuing to implement mitigation strategies and workarounds to avoid training shortfalls.
Wetlands	Movement and Maneuver		There are 8338 acres of wetlands on the installation. Training is restricted on this acreage, with the exception of dismounted maneuver training. This restriction limits the use of heavy maneuver training on the available land. The Army is continuing to implement mitigation strategies and workarounds to avoid training shortfalls.
	Fire Support		Same as above.
Range Transients	Movement and Maneuver		Stryker training lanes and field training activities are regularly impacted by local citizens using the training areas to ride horses, train hunting dogs, hunt birds, collect vegetation, hunt wild game, and exercise. The Area Access process of obtaining a permit and MWR activities help with the people that have requested permission to recreate on JBLM. It is the people we do not know about that affect military operations. JBLM is working on providing information on the proper procedures.

This Page is Intentionally Left Blank.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Polk Assessment Details

Range Mission Description

Fort Polk is a Contingency Force Generation installation that supports five brigade level headquarters and one battalion level headquarters as follows the 4TH IBCT-10th Mountain Division; The 1st Maneuver Enhancement Brigade; 162nd Infantry Training Brigade; the JRTC Operations Group; the 115th CSH and the 5th AVN BN. Home station unit AFORGEN support includes the following: individual and collective training to the Company/Battalion level simulations and live fire, mounted/dismounted MCO, COIN, and CCRF training events, and support to one of the Army's Combat Training Centers (CTCs)- the Joint Readiness Training Center (JRTC). JRTC conducts 10 major, training events annually at Fort Polk. It focuses Army, Air Force, Army National Guard, Navy, and Marine rotational units on advanced-level joint training under conditions that simulate low and mid-intensity conflicts. Additionally, 70 USAR and NG Units use Fort Polk as a regional training location for individual and collective training to the Company/Battalion level including simulations and live fire and mounted/dismounted MCO, COIN, and CCRF training events. The Range mission is to provide rigorous, relevant, realistic and safe ranges and training facilities for tenant units and the CTC, JRTC; to plan and budget for the construction, modernization and sustainment of ranges and the training complexes; to provide operations, coordination, scheduling and control of ranges, training complexes and airspace; to furnish and maintain target systems and battlefield simulation support; monitor the use of ranges and training areas; and to execute the Integrated Training Area Management Program.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●	●			●	
Sustainment	●							●	●	●	●	●	
Command Control	●	●			●		●	●	●			●	
Protection	●				●		●	●	●	●	●	●	

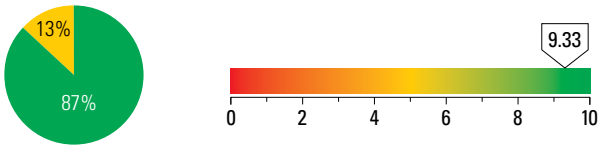
Legend FMC ● PMC ● NMC ●

Encroachment Data

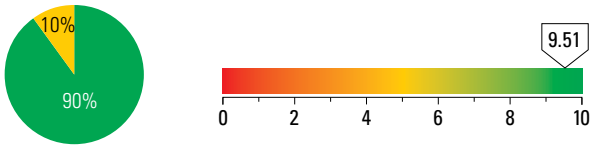
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	●		●		●	●	●	●	●		●	
Fire Support	●		●		●	●	●	●	●		●	
Intelligence	●		●		●		●	●	●		●	
Sustainment	●		●					●	●		●	
Command Control	●		●		●			●	●		●	
Protection	●		●			●	●	●	●		●	

Legend Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is caused by a shortfall of training land. While several mission areas are impacted by capability shortfalls, Movement and Maneuver is most significantly impacted due to a maneuver training land shortfall, airspace conflicts, and antiquated smalls arms ranges.

Summary Observations

There is minimal impact the mission areas due to encroachment factors. The presence of threatened and endangered species on the installation is the factor causing the greatest impact to mission. While several mission areas are impacted, Movement and Maneuver is most significantly impacted due to maneuver restrictions resulting from endangered species and wetlands.

Fort Polk Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.73	8.73	7.94	**Encroachment Scores**	10.00	10.00	9.51
Capabilities have improved at Fort Polk since 2010. Range support funding has increased and capability shortfalls have been mitigated. A shortage of modernized small arms ranges has continued to impact capability at Fort Polk, however new range requirements have been documented and capability should improve in the out-years. Landspace continues to impact maneuver capability, but the purchase of additional training land will significantly improve this capability in the out-years. Airspace capability will likely become a greater challenge into the out-years, as requirements to field new UAS systems increase.				Encroachment factors have not historically had a significant impact on the mission at Fort Polk. Minor to moderate impacts resulting from threatened and endangered species, the presence of feral horse, and wetlands have developed over the last two years and are anticipated to result in continued impacts to maneuver training and live-fire exercises in the out-years. The installation is actively pursuing buffer initiatives through the Army Compatible Use Buffer (ACUB) Program to reduce existing impacts and prevent future impacts. Additionally, training land acquisition efforts should help to alleviate maneuver training impacts by providing additional maneuver land to meet training requirements.			

Fort Polk Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	●	The installation has a maneuver training land shortfall per AR 350-19. The training land shortfall of 100,000 acres limits the ability of the installation to simultaneously train a Brigade Combat Team and a rotation at the Joint Readiness Training Center. Additionally, the installation can not fully accommodate range live-fire and maneuver training at the same time. Final approval for training land acquisition was granted by OSD in April 2010. Funding is programmed for land acquisition in FY2010–FY2013.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
Airspace	Movement and Maneuver	●	Launching and recovering UASs interrupts active ranges due to proximity of airfield and a small arms range complex. UAS make it difficult to schedule other aircraft within the training area and operate small arms ranges and UAS training simultaneously. The installation is mitigating this issue through the use of more vertical/lateral separation, schedule additional delays in other aircraft entering the restricted area, and mitigate small arms range impacts through scheduling.
Small Arms Range	Movement and Maneuver	●	Many small arms ranges are WWII and/or Vietnam era and are not in compliance with current Army regulation (TC 25-8). Fort Polk cannot conduct small arms training to Army standard and must use non standard ranges to meet requirements (TC 25-8). Fort Polk has identified out-year requirements for a Multi-Purpose Machine Gun range, Infantry Platoon Battle Course, and Infantry Squad Battle Course.
	Sustainment	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Movement and Maneuver	●	The Red-Cockaded Woodpecker and Louisiana Pine Snake are protected species that are present on the installation. Endangered species habitat restricts, prohibits, and limits maneuver training on the installation. The Army implements on-going mitigation to avoid training impacts. The Army Compatible Use Buffer (ACUB) program is an integral component of the Army's sustainability triple bottom-line: mission, environment and community. In recent years, Army installations have experienced increasing encroachment because of population growth, change in or expansion of existing land use, and environmental requirements. The ACUB program proactively addresses encroachment while achieving conservation objectives through the purchase of conservation easements. Fort Polk's ACUB is attempting to secure easements in Bienville Parish.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
Wetlands	Movement and Maneuver	●	There are 16,538 acres of wetlands on the installation which includes USFS permitted land. Training is restricted in wetland areas, thus reducing the availability of maneuver training land to fully meet requirements. Fort Polk continues to construct low water crossings as funding becomes available.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Riley Assessment Details

Range Mission Description

Fort Riley is a division-level installation and power projection platform. Fort Riley live-fire is supported by several main ranges and has maneuver space capable of supporting a Brigade Combat Team (BCT). The primary range complex is the Douthit Range Complex which supports both Heavy BCT and Infantry BCT live-fire training. The 1st Infantry Division at Fort Riley provides combat-ready forces to theater commanders through the ARFORGEN cycle, and prepares the modular division headquarters for deployment. Fort Riley constantly develops and supports realistic live-fire events to meet ARFORGEN requirements by combining ranges and opening training areas for large weapons systems when required. As a Contingency Force Generation Installation (CFGI), Fort Riley provides major training facilities to support deployment training and mobilization for the 1st Infantry Division, multiple support units, and multiple reserve component units.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●							●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

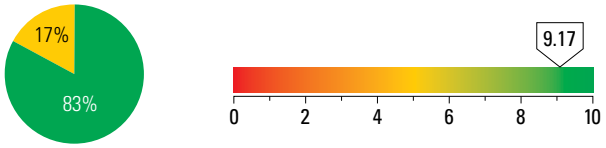
Legend: FMC ● PMC ● NMC ●

Encroachment Data

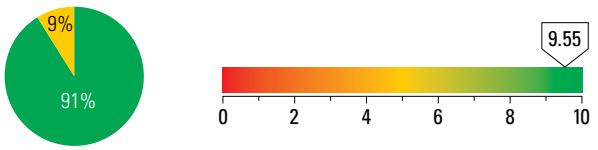
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	●		●		●	●	●	●	●			
Fire Support	●		●		●	●	●	●	●			
Intelligence	●		●		●		●	●	●			
Sustainment	●		●						●			
Command Control	●		●		●				●			
Protection	●		●			●	●	●	●			

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is caused by a shortfall in Range Support funding and a lack of small arms ranges. While several mission areas are impacted by capability shortfalls, Movement and Maneuver is the most severely impacted, due to a lack of restricted airspace to support large force on force exercises, a shortfall of range support funding, and a shortage of upgraded Multi-Purpose Machine Gun ranges.

Summary Observations

There is a minimal impact to the Mission Areas due to encroachment factors. The most significant impact is caused by Adjacent Land Use. The mission area that is most impacted is Movement and Maneuver, due to the fact that 9 square miles of training area is civil Class D airspace controlled by the Manhattan Municipal Airport.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.33	6.33	8.22

Capabilities have improved at Fort Riley over the past several years. Range Support funding has improved slightly in the last year and additional funding is programmed in the FY2012–2016 POM, likely resulting in increased range capability in the out-years. A shortage of upgraded Multi-Purpose Machine Gun ranges has also continued to impact capability at Fort Riley, however range upgrades are programmed in FY2011 and FY2015, thus Small Arms capability should improve in the out-years. Airspace capability will continue to be a challenge, but the installation is working with FAA to mitigate Airspace issues.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	10.00	10.00	9.55

Encroachment factors have historically had almost no impact on the mission at Fort Riley. Minimal impacts resulting from Adjacent Land Use have increased over the last two years and have had some minor impacts on the mission. The installation is currently working with the FAA to resolve issues involving UAS and rotary wing aircraft operating within the restricted area. This should help to mitigate potential impacts moving forward and prevent this encroachment factor from having increased impacts in the future.

Fort Riley Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Movement and Maneuver		Approximately nine square miles of training area is civil Class D airspace controlled by the Manhattan Municipal Airport. The installation lacks the horizontal airspace necessary to support the conduct of large force on force exercises. There are several actions currently under way to reduce the shortfall. The installation is reworking the SOP with the FAA to operate more effectively with the two airfields located to the south of Fort Riley that affect a three-mile restricted area. Another step that has supported training is to conduct more air and ground training at Smoky Hill in Salina KS.
Range Support	Movement and Maneuver		Non-salary range operations is funded at 89% of the Army critical requirement. This limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. The installation is working to increase staff to meet ARFORGEN requirements and realigning for greater efficiency.
	Fire Support		Same as above.
	Sustainment		Same as above.
Small Arms Range	Movement and Maneuver		Shortfall of upgraded Multi-Purpose Machine Gun (MPMG) range. The installation does not have upgraded MPMG capability to fully meeting training requirements. Funding has been programmed to upgrade one MPMG in 2011 and a second MPMG has been programmed for construction for in 2015.
	Sustainment		Same as above.
	Protection		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Airspace	Movement and Maneuver		Approximately nine square miles of training area is civil Class D airspace controlled by the Manhattan Municipal Airport. The installation lacks the horizontal airspace necessary to support the conduct of large force on force exercises. Currently working with the FAA to resolve issues involving UAS and Rotary wing aircraft operating within the restricted area. COA 1: Create an acceptable waiver exclusion area within off-limits area. COA2: Shut down military and Civilian airport during mandatory training periods. COA3: Continue operations using existing MOA agreement.
Adjacent Land Use	Movement and Maneuver		Approximately nine square miles of training area is civil Class D airspace controlled by the Manhattan Municipal Airport. Artillery and other live fire events are not allowed in Training Areas 25, 26, 27, 28, and 30 (4,106 acres), which comprise a Controlled Firing Area (CFA) and a Special Use Airspace zone. Firing in the CFA would shut down the airport. Currently working with the FAA to resolve issues involving UAS and Rotary wing aircraft operating within the restricted area. COA 1: Create a acceptable waiver exclusion area within off-limits area. COA2: Shut down military and Civilian airport during mandatory training periods. COA3: Continue operations using existing MOA agreement.
	Fire Support		Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Stewart Assessment Details

Range Mission Description

Fort Stewart and Hunter Army Airfield are the Army's training and military armored power projection combination on the Eastern Seaboard of the United States. This platform allows military units in the region to deploy rapidly throughout the world. The installation operates and maintains 242,000 acres available for live-fire and maneuver training and ensures Fort Stewart remains a premier force projection platform. Military readiness, training land stewardship, and environmental compliance are a priority for Fort Stewart's range operations. Live-fire ranges are capable of supporting small arms, field artillery, aerial and tank gunnery. Maneuver training adheres to the tenants of the Army Campaign Plan for Sustainability.

Major units that train at Fort Stewart are the 3rd Infantry Division, the 92nd Engineer Battalion, the 38th Explosive Ordnance Detachment, and the 385th Military Police Battalion. Other tenant units and organizations that train on Fort Stewart are the NCO Academy/Warrior Leader Course, 188th Infantry Brigade, 1st Battalion- 75th Ranger Regiment, 3rd Battalion-160th Special Operations Aviation Regiment, 95th Maintenance, Aviation and Missile Command (AMCOM) Project OLR (East), the Special Forces Recruiting Team, and multiple Air Force, Coast Guard, and reserve component units.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●							●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

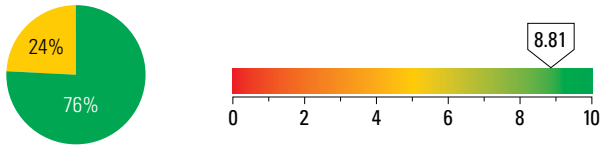
Legend: FMC ● PMC ● NMC ●

Encroachment Data

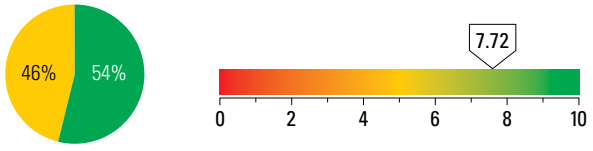
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Movement and Maneuver	●		●		●	●	●	●	●		●	
Fire Support	●		●		●	●	●	●	●		●	
Intelligence			●		●	●	●	●	●		●	
Sustainment	●		●		●	●	●	●	●		●	
Command Control			●		●	●	●	●	●		●	
Protection	●		●		●	●	●	●	●		●	

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The greatest impact to mission is caused by a shortfall in small arms and collective ranges. While several mission areas are impacted by capability shortfalls, Movement and Maneuver is the most adversely impacted, due to a maneuver training land shortfall, a shortage of range support funding, and a critical shortfall of upgraded Multi-Purpose Machine Gun ranges and Collective ranges to support squad and platoon level training.

Summary Observations

There is moderate impact to the mission areas due to encroachment factors. The most significant impacts are caused by threatened and endangered species, spectrum, airspace, and wetlands. The mission areas that are most impacted are Movement and Maneuver and Fire Support, due to the presence of endangered species, spectrum competition, airspace encroachment, and wetlands. 100% of field training exercises currently require minor workarounds and a majority of training areas have vegetation concerns due to tree density and understory. Fort Stewart employs an active timber harvest and controlled burn program to address this issue. While training tasks are accomplished in conjunction with restrictions that result from encroachment factors, costs are incurred as a result of mitigating these encroachment factors.

Fort Stewart Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	6.33	6.33	6.89

Capabilities have improved at Fort Stewart over the past several years. Range Support funding has improved slightly in the last year and additional funding is programmed in the FY2012–2016 POM, likely resulting in increased range capability in the out-years. A critical shortfall of upgraded Multi-Purpose Machine Gun ranges and Collective ranges to support squad and platoon level training has also continued to impact capability at Fort Stewart. As an installation that supports heavy forces, Fort Stewart has traditionally focused its range upgrade program to Tank and Bradley ranges. The conversion of an HBCT to an IBCT has split the focus into one of supporting predeployment and mobilization preparation of all forces with a greater emphasis on basic Infantry skills; (individual and crew qualifications with small arms in support of small unit operations (squad/platoon)) while maintaining and upgrading capability to support heavy tank and Bradley gunnery. Current construction efforts will improve the range complex capabilities. Funding cuts will keep Fort Stewart in an yellow status until FY2018. Civilian encroachment upon the installation boundary could jeopardize operation of existing critical facilities, and reduce options for siting additional ranges to support future mission requirements. Establishment of a conservation buffer will reduce the risk of incompatible development near the Installation, and provide for conservation of natural resources on a regional scale. A Joint Land Use Study (JLUS) encourages cooperative land use planning between the installation and surrounding communities, balancing both military and civilian interests. Fort Stewart's buffering activities help to support current and future training requirements by addressing development sprawl, preserving habitat, improving community relations and providing benefits to the community, and generally promoting overall military readiness.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.17	9.17	8.61

Encroachment factor impact on the mission at Fort Stewart has generally increased over the past several years. Moderate impacts resulting from Threatened and Endangered Species and Airspace encroachment have increased over the last two years and have had some minor to moderate impacts on the mission. Training restrictions associated with RCW will decrease once 2007 RCW guidelines are implemented in FY2011 when Fort Stewart reaches tiered recovery goals for the RCW population. Additionally, the installation is currently working with the FAA to mitigate airspace encroachment. These actions should help to mitigate potential impacts moving forward and prevent these encroachment factors from having increased impacts in the future. The potential listing of the Gopher Tortoise and the Striped Newt as endangered species would have a moderate to significant impact on training. This is unlikely to occur in the next five years, but the Army must remain actively engaged in regional conservation efforts to prevent such listing. Additionally, funds are needed for the ACUB program to purchase easements before additional development around the installation occurs and results in Adjacent Land Use impacts to the training mission.

Fort Stewart Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	●	Fort Stewart has a doctrinal training land shortfall per AR 350-19. Fort Stewart's doctrinal shortage of light and heavy maneuver land limits the realism of training. Units are not able to train in the required "battle space" as real world missions dictate. Combat operations, command and control and logistical requirements are not realistic, thus limiting the "Train as we Fight" concept of training. Currently there are no actions or plans to increase maneuver space.
	Sustainment	●	Same as above.
Range Support	Movement and Maneuver	●	Non-salary range operations funding is 89% of the Army critical requirement. This limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. Range support shortfalls were programmed in FY2012–FY2016 POM. Range support will be limited to repair critical range operations functions and equipment. Range Reconfiguration projects will not be completed without outside funding. Non-Army users will reimburse identifiable and incremental costs associated with the use of range facilities.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
Small Arms Range	Movement and Maneuver	●	There is a deficit of machine gun range upgrades. Fort Stewart's machine gun range currently does not meet the training requirements as outlined in TC 25-8. Training throughput requirements (as directed by the ARRM (Army Range Requirements Model)) call for a total of five machine gun ranges. This leaves Fort Stewart with a throughput issue and an inability to meet "to standard" training requirements during deployment preparations and mobilizations. There are no plans to upgrade the current range to TC 25-8 standards. The FY2011 machine gun range is currently in the design process with an estimated completion date in FY2013. The FY2013 machine gun range programmed for construction was deferred. There are currently no plans to construct enough ranges to meet throughput requirements.
	Sustainment	●	Same as above.
	Protection	●	Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Stewart Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Collective Ranges	Movement and Maneuver	●	There is a deficit of Infantry platoon/squad collective ranges. Fort Stewart is authorized four Infantry Squad Battle Courses (ISBC) and two Infantry Platoon Battle Courses. There is one IPBC (that currently does not meet the training requirements as outlined in TC25-8), and one IPBC approved for construction in FY2011. The conversion of an HBCT to an IBCT, with more light Infantry Soldiers and longer dwell time between combat rotations, will increase throughput requirements for these facilities. There continues to be no Infantry Squad live fire facility for the 3rd ID, 1-75 Ranger Regiment and other Deployed and Contingency Expeditionary Forces. There are 135 Infantry Squads organic to Fort Stewart and their "to standard" training needs cannot be met. Fort Stewart has no ISBCs on the ground and none currently programmed in the out years. These training shortfalls are being addressed through the appropriate Army Command. There is no anticipated remedy prior to FY2016.
	Sustainment	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Movement and Maneuver	●	There are six federally protected species on Fort Stewart. Primary training impacts include movement, maneuver, and live-fire tasks restrictions associated with RCW colonies. Additional impacts to training vary depending on species: limited flyover of marked nests during nesting season (Bald Eagle); and avoidance of burrows (Eastern Indigo Snake). Maneuver forces are able to train, with minimal to moderate workarounds dependant on location, even with the restrictions associated with the RCW and other threatened and endangered species. The restriction will decrease once 2007 RCW guidelines are implemented in FY2011 due to Fort Stewart reaching tiered recovery goals for the RCW population. In addition, an active Soldier education program is in place to educate soldiers on restrictions, thus allowing for accomplishment of training task in conjunction with the restrictions.
	Fire Support	●	Same as above.
	Intelligence	●	Same as above.
	Sustainment	●	Same as above.
	Protection	●	Same as above.
Spectrum	Movement and Maneuver	●	Electromagnetic encroachment due to Objective Force modernization and increased demand for Government and commercial wireless communications is of great concern; spectrum availability also impacts power projection support, first responders, and crisis management activities. Current spectrum challenges include the encroachment of range targetry control systems by radios used by units training in the field, and crowding and overlapping of the RF bands used by Land Mobile Radio, some Unmanned Aerial Vehicle control systems and CREW systems. The installation Network Enterprise Center/Director of Information Management is hiring and equipping a full time spectrum manager to mitigate these impacts.
	Fire Support	●	Same as above.
	Intelligence	●	Same as above.
	Sustainment	●	Same as above.
	Command & Control	●	Same as above.
	Protection	●	Same as above.
Airspace	Movement and Maneuver	●	New FAA requirements for Savannah Approach has encroached six nautical miles inside the installation boundary across the northern boundary of the installation. Affected area is a box approximately 23 KM east/ west by 12KM North/South over the northern portion of post. This affects the training of units equipped with UAS Systems. Due to the new requirements, there is NO flight of UAS systems in the affected area. Fort Stewart is working with the FAA to mitigate this loss.
	Fire Support	●	Same as above.
	Intelligence	●	Same as above.
	Sustainment	●	Same as above.
	Command & Control	●	Same as above.
	Protection	●	Same as above.
Cultural Resources	Movement and Maneuver	●	198 protected sites and cemeteries occupy 829 acres of land. This area is restricted to training and no ground disturbance or vehicles are allowed within the sites. An active Soldier education program is in place to educate Soldiers on restrictions, thus allow for accomplishment of training task in conjunction with the restrictions.
	Fire Support	●	Same as above.

Fort Stewart Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Wetlands	Movement and Maneuver		Approximately 1/3 of Fort Stewart is wetlands (≈91,000 acres). This poses maneuver and trafficability issues, however the construction of low water crossings help to mitigate these restrictions. This issue is separate from the issue of Wetland and Range Construction where wetland credits and mitigation are needed for any construction project wetland areas are being purchased to mitigate wetland impact from future range construction projects.
	Fire Support		Same as above.
	Sustainment		Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Fort Wainwright Assessment Details

Range Mission Description

Fort Wainwright (FWA) supports home station individual and collective training for the 1/25th Stryker Brigade Combat Team and the 16th Combat Aviation Brigade. The Donnelly Training Area (DTA), a sub-installation of FWA, supports collective training for not only the two resident brigades, but also the 4/25th Airborne Brigade Combat Team and the 3rd Maneuver Enhancement Brigade from Fort Richardson. FWA and DTA supports a wide variety of Air Force, Allied and multi-national training during major flying exercises and sustainment training. U.S. Federal agencies, National Guard and Reserve units also use the Fort Wainwright ranges for qualification and sustainment training. Additionally, the Cold Regions Test Center uses these training areas for RDT&E test items.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●							●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

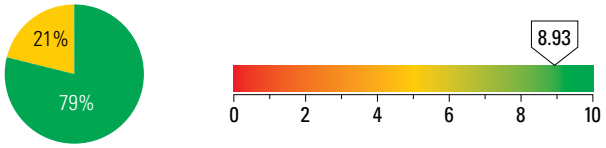
Legend: FMC ● PMC ● NMC ●

Encroachment Data

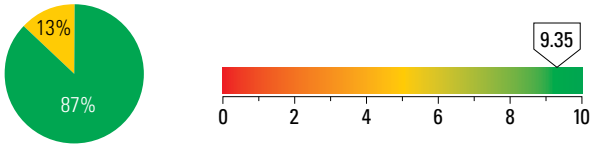
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Movement and Maneuver	●		●		●		●	●	●	●	●	●
Fire Support	●		●		●		●	●	●	●	●	●
Intelligence	●		●		●		●	●	●	●	●	●
Sustainment	●		●		●		●	●	●	●	●	●
Command Control	●		●				●	●	●			
Protection	●		●				●	●	●			

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is caused by out dated Smalls Arms ranges and Infrastructure shortfalls. While several mission areas are impacted by capability shortfalls, Movement and Maneuver and Sustainment are the most severely impacted, due to funding shortfalls for Range Support, poor training area road infrastructure, and small arms ranges at the end of their lifespan.

Summary Observations

There is a moderate impact to the mission areas due to encroachment factors. The most significant impacts are caused by Airspace encroachment and Cultural Resource restrictions. The mission areas that are most impacted are Movement and Maneuver and Fire Support, due to uncontrolled aircraft operating over Army owned training land and limited area surveyed for cultural resources. Each impact results in training delays or reduced training opportunities.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	8.22	8.22	8.00

The road infrastructure does not provide suitable driving conditions for modern fighting vehicles. Road infrastructure projects were submitted to address this situation. Historically, road improvement projects have been underfunded. Historically over-hires have been maintained to support the training mission; however, in FY2012 the requirements (DACs) to fully support range operations will be provided, eliminating the need for over-hires. Last, small arms ranges are currently programmed for modernization to prevent equipment failure during critical reset times. Small arms range modernization and re-vitalization projects are identified in the Range Complex Master Plan.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	8.46	8.46	9.00

Encroachment factors have historically had a moderate impact on the mission at Fort Wainwright and Donnelly Training Area, but they have decreased slightly over the past two years. The installation has been able to manage and mitigate many encroachment impacts. The installation is working to expand restricted airspace to reduce the encroachment factors on the training mission. The installation has been moving forward with the Joint Pacific Alaska Range Complex (JPARC) Environmental Impact Statement (EIS) to expand the restricted airspace. The tentative EIS approval is December 2013. The Final JPARC EIS will accompany the installation's airspace expansion request to the FAA .

Fort Wainwright Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Intelligence	●	There is a lack of restricted airspace to support UAS vehicle take-off and landing. This restricts UAS operations to daylight hours only if operating over Army lands which are in the National Airspace, but not under restricted airspace. Therefore, the support UAS units can provide home station elements during consolidated training events is reduced. The installation is seeking to expand the area of restricted airspace. The Joint Pacific Alaska Range Complex (JPARC) Environmental Impact Statement (EIS) tentative approval is December 2013. The Final JPARC EIS will accompany an airspace expansion request to the Federal Aviation Administration.
Infrastructure	Movement and Maneuver	●	Poor training area road infrastructure is an issue based on seasonal fluctuations (freeze/thaw cycles), and creates challenging trail accessibility. Original trail construction (pre-calendar year (CY) 2000) methods did not produce suitable driving surfaces for modern fighting vehicles. Road infrastructure projects were submitted to address this situation. Historically, road improvement projects have been underfunded. This is an enduring effort.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
Range Support	Movement and Maneuver	●	Non-salary range operations is funded at 89% of the Army critical requirement. This limits installation support for short-term training requests, limits range reconfiguration projects to support emerging tactics/techniques and procedures, and limits preventative maintenance. The shortfall in non-civ pay funding is due to the over hires required to support basic range support operations. In FY2012, the requirements (DACs) will be provided to fully support range operations and eliminate the need for over hires.
	Sustainment	●	Same as above.
Small Arms Ranges	Movement and Maneuver	●	Small arms ranges are reaching the end of their lifespan and are currently programmed for modernization. The timetable for modernization must be maintained or there is a risk of equipment failure at critical reset times. Training requirements have to be met using workaround solutions on aging ranges. Modernization and re-vitalization projects are identified in the Range Complex Master Plan. Projects require support and funding in order to meet training throughput requirements. This is an enduring effort.
	Sustainment	●	Same as above.
	Protection	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Airspace	Movement and Maneuver	●	There are uncontrolled aircraft operating over Army owned training lands outside of restricted Airspace. This leads to regular cease fires for live-fire training. The installation is seeking to expand restricted airspace. The Joint Pacific Alaska Range Complex (JPARC) Environmental Impact Statement (EIS) tentative approval is December 2013. The Final JPARC EIS will accompany our airspace expansion request to the Federal Aviation Administration.
	Fire Support	●	Same as above.
Cultural Resources	Movement and Maneuver	●	A majority of withdrawn lands has yet to be surveyed for cultural resources. This increases the coordination time required for units planning training events with ground disturbing activities. This also increases the coordination time required for new range construction, upgrade, and maintenance projects that support training. Fort Wainwright will emphasize cultural resource surveys within areas classified as Potential Training and Development Zones as funding and other resources allow.
	Fire Support	●	Same as above.
Range Transients	Movement and Maneuver	●	There are uncontrolled civilian aircraft operating over Army owned training lands outside of restricted Airspace. This leads to regular cease fires for live-fire training within the Small Arms Complex and throughout the training areas. The installation is seeking to expand restricted airspace. The Joint Pacific Alaska Range Complex (JPARC) Environmental Impact Statement (EIS) tentative approval is December 2013. The Final JPARC EIS will accompany our airspace expansion request to the Federal Aviation Administration.
	Fire Support	●	Same as above.

Figure 3-11 Army Capability and Encroachment Assessment Detail (continued)

Yakima Training Center Assessment Details

Range Mission Description

Yakima Training Center (YTC) supports tough, realistic combined arms, joint and coalition training for U.S. and allied military units in order to enhance unit readiness by sustaining training lands, range complexes, and support facilities capable of meeting all present and future training requirements. YTC, along with Joint Base Lewis-McChord (JBLM), has been designated as a Power Generation Platform Complex for the mobilization and post mobilization of active and reserve component units. YTC is utilized by Active, Reserve, and National Guard Army units, as well as Marine Corps Reserve units, and allied forces. Most Active duty units that train at YTC are based at JBLM and are either associated with I Corps or are resident units. These units include the 2nd Infantry Division (3x SBCTs), 42nd Military Police Brigade, 62nd Medical Brigade, 142nd Signal Brigade, 555th Engineer Brigade, 201st BFSB Brigade, 593 Support Battalion, 1st Special Forces Group, 2nd Battalion, 75th Ranger Regiment, 4th Squadron, 6th US Cavalry (Air Cavalry), 64th Engineer Detachment, 4th Battalion, 160th Aviation Regiment, 3rd EOD Battalion, 17th Fires Brigade, 5-5th Air Defense Artillery, 110th CHEM, and multiple reserve component units.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Movement and Maneuver	●	●			●		●	●	●	●	●	●	
Fire Support	●	●			●		●	●	●		●	●	
Intelligence	●	●			●		●	●				●	
Sustainment	●							●	●	●	●	●	
Command Control	●	●			●		●	●				●	
Protection	●				●		●	●		●	●	●	

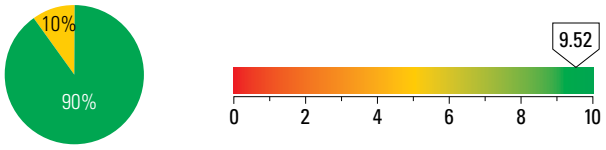
Legend: FMC ● PMC ● NMC ●

Encroachment Data

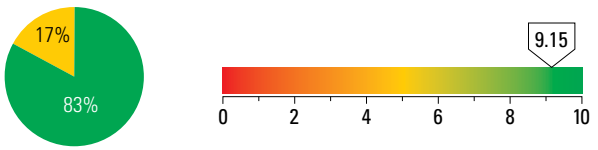
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Movement and Maneuver	●		●		●	●	●	●	●		●	
Fire Support	●		●		●	●	●	●	●		●	
Intelligence	●		●		●		●	●	●		●	
Sustainment	●		●					●	●		●	
Command Control	●		●		●			●	●		●	
Protection	●		●			●	●	●	●		●	

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

The most adverse impact to mission is caused by a shortfall in Range Support funding. While several mission areas are impacted by capability shortfalls, Fire Support is the most impacted, due to a severe shortfall of range staff authorizations and lack of replacement targetry for the Artillery Impact Area.

Summary Observations

There is minimal to moderate impact to the mission areas due to Encroachment Factors. The presence of threatened and endangered species on the installation has the greatest impact on the Movement and Maneuver mission, due to training constraints in the Sage-Grouse protection area that result in the loss of acres available for cross country maneuver.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.89	6.89	8.22

Capabilities have generally improved at Yakima Training Center over the past several years. Infrastructure shortfalls have been addressed and resources are programmed in the out-years. While Range Support funding has improved slightly in the last year, authorizations for range staff are significantly below Army critical requirements. This impact is being addressed and there should be significant improvement in Range Support by FY2013 when authorizations are increased to the Army critical requirement. Airspace capability will likely become a greater challenge into the out-years, as requirements to field new UAS systems increase.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	8.90	8.90	9.02

Encroachment Factors have historically had a minimal to moderate impact on the mission at Yakima Training Center. Moderate impacts resulting from threatened and endangered species habitat areas and wetlands have continued to restrict land use for maneuver training. It is anticipated that these impacts will continue into the future. The installation will continue to mitigate impacts to training through training scenario workarounds and scheduling.

Yakima Training Center Detailed Comments

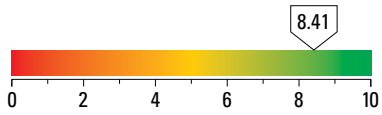
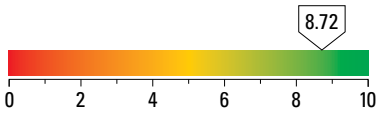
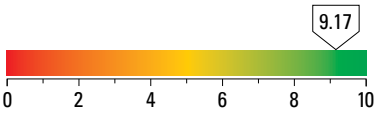
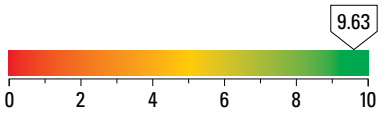
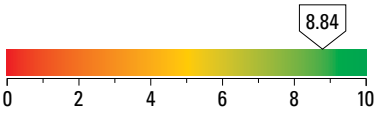
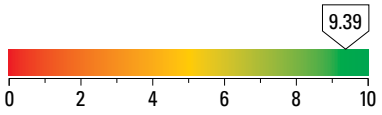
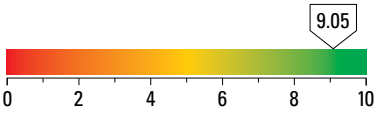
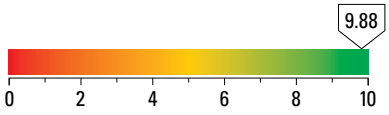
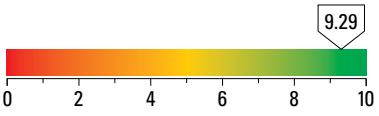
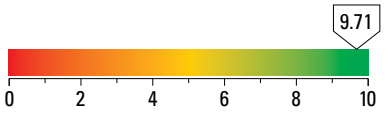
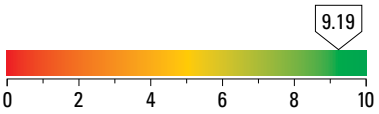
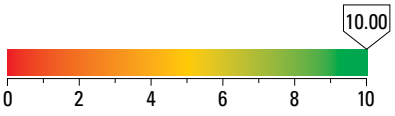
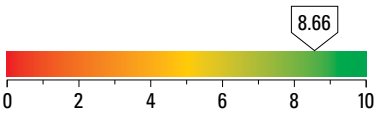
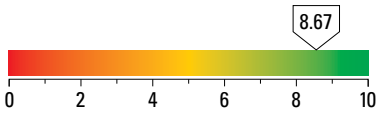
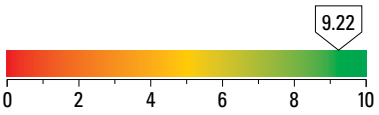
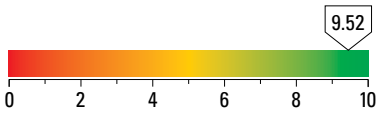
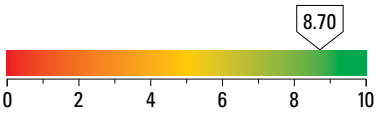
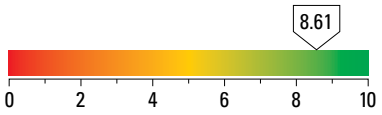
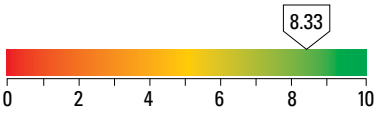
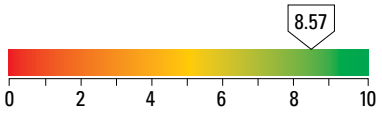
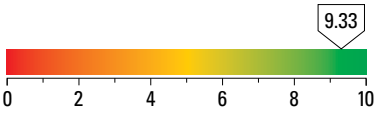
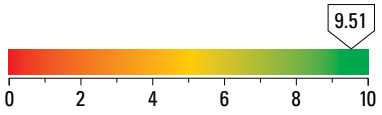
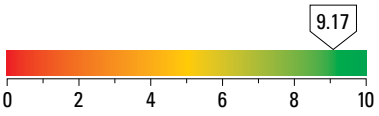
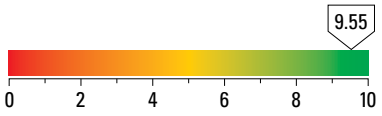
Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Fire Support	●	Existing armored targetry on the anti-armor range has deteriorated and there is a shortfall of replacement targetry for the Artillery Impact Area. Field Artillery units are unable to shoot at appropriate targetry. The installation is seeking procurement of funds to acquire additional targetry to enhance indirect fire training.
Range Support	Movement and Maneuver	●	Range operations staff authorizations are 75% below the Army critical requirement. This limits installation support for short-term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventative maintenance. The budget and requirements will be relooked to provide near-term contract support. Range operations shortfalls will be addressed in the FY2013–FY2017 POM and staff authorizations should increase to 100% of the critical requirement in FY2013.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Movement and Maneuver	●	The Sage-Grouse protection area restricts use of 13% of the installation. Within the Sage-Grouse protection area, training is constrained, thus resulting in loss of acres available for cross country maneuver. The Army is continuing to implement mitigation strategies and workarounds to avoid training shortfalls.
	Fire Support	●	Same as above.
	Sustainment	●	Same as above.
	Protection	●	Same as above.
Airspace	Movement and Maneuver	●	Airspace along Interstate 90 is reserved for General Aviation Aircraft to fly. No live fire is permitted within 2000 meters of Interstate 90. The Army is continuing to mitigate this restriction through the use of training workarounds.
	Fire Support	●	Same as above.
Wetlands	Movement and Maneuver	●	There is a 100m buffer area around streams and springs, restricted to all digging and maneuver activities. This restricts the area where digging and maneuver can occur, thus reducing the available maneuver land. The Army is continuing implement mitigation strategies and workarounds to avoid training shortfalls.

Table 3-5 Army Range Capability and Encroachment Assessment Comparison

Range Name	Capability Score	Encroachment Score
Fort Benning		
Fort Bliss		
Fort Bragg		
Fort Campbell		
Fort Carson		
Fort Drum		
Hawaii		
Fort Hood		
Fort Irwin		
Fort Lewis		
Fort Polk		
Fort Riley		

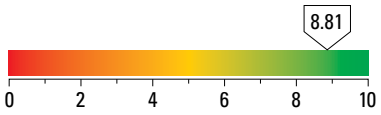
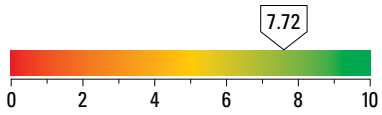
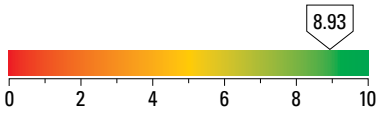
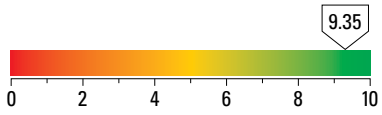
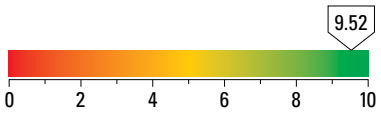
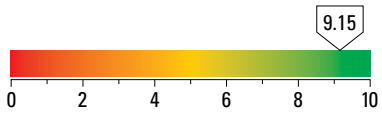
Range Name	Capability Score	Encroachment Score
Fort Stewart		
Fort Wainwright		
Yakima Training Center		

Table 3-6 Army Range Mission Description

Fort Benning
Fort Benning and the Maneuver Center of Excellence (MCoE) provides trained and adaptive Soldiers and Leaders for an Army at War, while developing future requirements for the individual Soldier and the Maneuver Force and providing a world class quality of life for our Soldiers and Army Families. The MCoE Command priorities are : (1) Fully Support an Army at War; (2) Prepare for the Future; (3) Enhance Quality of Life for Soldiers and Army Families; (4) Operate in a Command Climate of Teamwork, Discipline and Standards and Safety; (5. Fully Transition to the Maneuver Center of Excellence; and (6) Demonstrate Inspired Leadership. Implied in this is the responsibility to provide the Training and Doctrine Command (TRADOC) with a full spectrum of support in doctrine, training, capability development, and training support products for the Maneuver Force. The MCoE's function is to serve as the user representative in the development of training methodologies and products, concepts, doctrine, organizational requirements and materiel capability requirements for each functional area, as well as providing instructors to teach classes across the MCoE. Currently, Fort Benning provides the home station and training facilities for FORSCOM's 3-3rd HBCT, 11th Engineer Battalion, 13th Corps Support and Sustainment Battalion, and 14th Combat Support Hospital; Special Operations Command's (SOCOM) 75th Ranger Regiment and its 3rd Battalion, 75th Ranger Regiment and Special Troops Battalion; MEDCOM activities; DENTCOM activities; and numerous other active duty deployable units. Also, Fort Benning provides the home station and training facilities for the Western Hemisphere Institute for Security Cooperation (WHINSEC), which has the mission to train cadets, NCOs, and officers from over 25 Western Hemisphere countries. Fort Benning is the sixth largest installation in the United States with the third largest troop density. More than 120,000 service members, family members, retirees, civilian employees and contractors work, live and use services on Fort Benning. As Fort Benning transitions to the MCoE, there will be more than 11,000 new jobs on the installation for Soldiers, Civilians and Contractors and more than $3.5 billion in construction will be invested on Fort Benning through 2016. The rapid growth of Soldiers, Families, and Civilians that Fort Benning will have to provide services for will grow faster than the means to support all of their needs. Currently Fort Benning conducts 61 courses and with the MCoE transformation, it will bring 39 new courses, impacting contracted labor and services, over 200 new facilities, and 5 new maneuver training areas.
Hawaii
The mission of the U.S. Army Pacific (USARPAC) is to execute continuous training and readiness oversight responsibilities for Army Force Generation in Hawaii. On order, execute Joint Force Land Component Command functions in support of Homeland Defense and Security in Hawaii. The mission of U. S. Army Garrison Hawaii (USAG-HI): (1) Plan and execute on-order deployment support, force protections, and contingency operations. (2) Plan and execute transformation of the installation garrison that supports STRYKER and other mission units. (3) Provide quality installation support and services to our customers. (4) Maintain and improve infrastructure and training areas. (5) Provide proper stewardship of all resources and the environment. (6) Sustain strong community relations. (7) Provide for the well-being of the Army Family into the 21st Century. There are two primary installations, Schofield Barracks and Pohakuloa Training Area (PTA), and five primary training annexes within USAG-HI. USARPAC provides multiple live-fire training venues. Basic Weapons Marksmanship Ranges used to qualify or train on small arms weapons. Future Direct Fire Gunnery Ranges used to qualify and train Stryker crews on Tables I-VIII. Collective Live Fire Ranges used for collective training events, such as infantry squad and platoon battle courses (ISBCs and IPBCs), Urban Assault Courses (UAC), and aerial gunnery ranges (AGRs) used to qualify on Tables IX-XII. Indirect Fire Ranges or dedicated firing points used for the qualification and training of mortars, field artillery, or air defense artillery and OPs. Special Live Fire Ranges and training areas used for qualification and training of demolitions, live hand grenades, and claymores and test and evaluation ranges and facilities. Maneuver Training Land is used to conduct force-on-force maneuver training and STXs. Areas are classified as light and heavy depending on the type of training they can support. Based on the geographic location of Hawaii and force structures, the armed forces are poised at the center of the pacific for rapid deployment to any worldwide location and the ranges and training areas are used by the joint forces. Units that train and deploy from USARPAC are: 2nd SBCT, 3rd IBCT, 25th CAB, 25th STB, 25th ID HQ's and Div Base Elements, 8th TSC, 500th MI Group, 516th SIG BDE, 8th MP BDE, 45th Sustainment BDE, 130th ENG BDE, 10th SG, 8th STB, HIARNG, GUARNG, 9th RSC, and the USMC.

3.2.2 Marine Corps[7]

Marine Corps Training Range Capability Assessment Analysis Results

The U.S. Marine Corps (USMC) Capability Assessment data from 10 USMC range complexes are summarized and presented in Table 3-7.

The USMC Range Capability Chart and Scores are presented in Figure 3-12 and assessments by Range, Attributes, and Mission Areas are shown in Figures 3-14, 3-16, and 3-18.

The USMC's 10 individual range capability assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-20).

Marine Corps Training Range Encroachment Assessment Analysis Results

USMC Range Encroachment Assessment data from the 10 USMC ranges complexes are summarized in Table 3-8.

The USMC Range Encroachment Chart and Scores are presented in Figure 3-13 and assessments by Range, Factors, and Mission Areas are shown in Figures 3-15, 3-17, and 3-19.

The USMC's 10 individual encroachment assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-20).

The USMC Range Capability and Encroachment assessment comparisons are presented in Table 3-9.

7 Of the 14 ranges identified in the Marine Corps' range inventory in Appendix C, 4 are not assessed. For this year's report Marine Corps Base (MCB) Japan has been added which includes MCB Camp Butler from the 2010 report. Marine Corps Logistics Base (MCLB) Albany, MCLB Barstow, Marine Corps Air Station (MAS) Miramar, and Marine Corps Recruit Depot (MCRD) Parris Island contain only small arm ranges used for the limited purpose of weapons qualification training. In the case of Parris Island, the range provides entry level small arms training. These four installations are not considered "range complexes"; therefore, the Marine Corps has classified them as "other" for the purpose of this report and does not intend to formally evaluate them unless the mission changes or some encroachment factor threatens their ability to function.

Table 3-7 Marine Corps Capability Assessment Data Summary

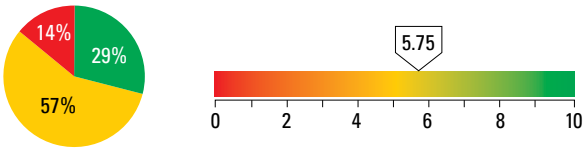
Range	NMC	PMC	FMC	Capability Scores
MCAS Beaufort/Townsend	0	6	8	7.86
MCMWTC Bridgeport	0	8	0	5.00
MCAS Cherry Point	0	8	9	7.65
MCB Hawaii	6	14	2	4.09
MCB Japan	14	13	6	3.79
MCB Camp Lejeune	3	19	8	5.83
MCB Camp Pendleton	4	17	9	5.83
MCB Quantico	0	14	4	6.11
MCAGCC Twentynine Palms	6	15	13	6.03
MCAS Yuma/Bob Stump	0	18	9	6.67
HQ USMC	**33**	**132**	**68**	**5.75**

Table 3-8 Marine Corps Encroachment Assessment Data Summary

Range	Severe	Moderate	Minimal	Encroachment Scores
MCAS Beaufort/Townsend	0	0	22	10.00
MCMWTC Bridgeport	2	16	2	5.00
MCAS Cherry Point	0	7	15	8.41
MCB Hawaii	5	6	10	6.19
MCB Japan	7	5	0	2.08
MCB Camp Lejeune	0	16	17	7.58
MCB Camp Pendleton	8	10	15	6.06
MCB Quantico	4	4	14	7.27
MCAGCC Twentynine Palms	0	7	32	9.10
MCAS Yuma/Bob Stump	5	13	12	6.17
HQ USMC	**31**	**84**	**139**	**7.13**

Figure 3-12 Marine Corps Capability Chart and Scores

2011



Summary Observations

1. USMC's overall capability score decreased from 6.34 in 2010 to 5.75 in 2011
2. USMC's Fully Mission Capable (FMC) assessments (green) decreased from 37% to 29%
3. Partially Mission Capable (PMC) assessments (yellow) increased from 53% to 57%
4. Not Mission Capable (NMC) assessments (red) increased from 10% to 14%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	5.73	5.73	6.34

The top three Capability Attributes with the greatest number of red and yellow assessments are (Figure 3-16):

- Target (5+18)
- Scoring and Feedback Systems (6+16)
- Threats (7+13)

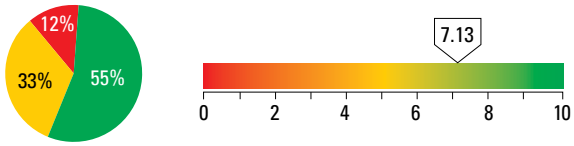
The top three Mission Areas with the greatest number of red and yellow assessment are (Figure 3-18):

- Unit Level Training (9+54)
- Individual Level Training (2+48)
- MEU Level Training (18+27)

The Marine Corps has identified Service-level deficits in its ability to train. Continued analysis and the fielding of new systems may cause other requirements to surface. Today the projected operational range requirements at the Service level focus on the following three critical deficiencies: 1) USMC ranges presently lack capability in the size of facilities to fully exercise a large Marine Air Ground Task Force (MAGTF), 2) the proximity of capability to forces stationed in the western Pacific and Hawaii, and 3) an air range on the east coast similar to the capabilities provided by the Marine Corps Air Station (MCAS) Yuma on the west coast. Refer to the USMC Special Interest Section for more details. Based on the scoring there are additional needs in the areas of Targets, Scoring and Feedback Systems, and Threats. Refer to the USMC's 10 individual range assessments for comments and additional information (Figure 3-20)

Figure 3-13 Marine Corps Encroachment Chart and Scores

2011



Summary Observations

1. USMC's overall encroachment score decreased from 7.44 in 2010 to 7.13 in 2011
2. USMC's minimal risk assessments (green) decreased from 60% to 55%
3. Moderate risk assessment (yellow) increased from 29% to 33%
4. Severe risk assessments (red) increased from 11% to 12%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	7.90	7.90	7.44

The three Encroachment Factors with the greatest number of red and yellow assessment are (Figure 3-17):

- Adjacent Land Use (10+11)
- Munitions Restrictions (6+11)
- Noise Restrictions (2+14)

The top three Mission Areas with the greatest number of red and yellow assessments are (Figure 3-19):

- Unit Level Training (13+31)
- Individual Level Training (8+36)
- MEU Level Training (10+15)

Encroachment data must be carefully considered to fully understand its meaning at each installation. The relative impact of each encroachment factor at each Marine Corps installation has different implications to the overall Mission Capable Ranges program. While two installations may have severe encroachment concerns from the same encroachment category, synergistic effects may be experienced at one installation but not at the other. The assessment process captures encroachment for current installation readiness activities. Refer to the USMC Special Interest Section for more details. Based on the assessment scoring encroachment risks to the USMC mission areas are most notable in the encroachment factors of adjacent land use, munitions restrictions, and noise restrictions. Refer to the USMC's 10 individual range assessments for comments and additional information (Figure 3-20)

Figure 3-14 Marine Corps Capability Assessments by Range

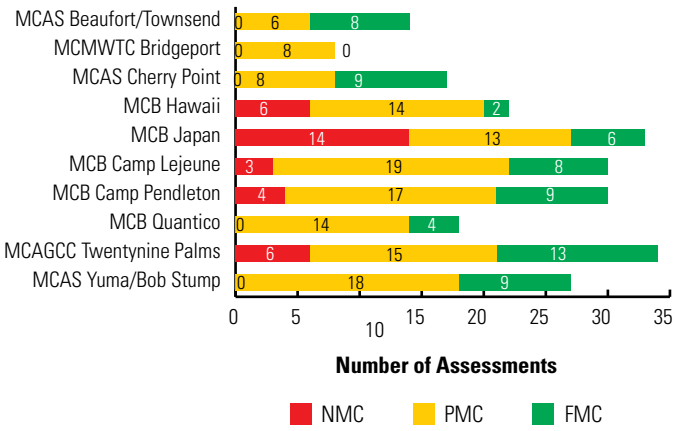


Figure 3-15 Marine Corps Encroachment Assessments by Range

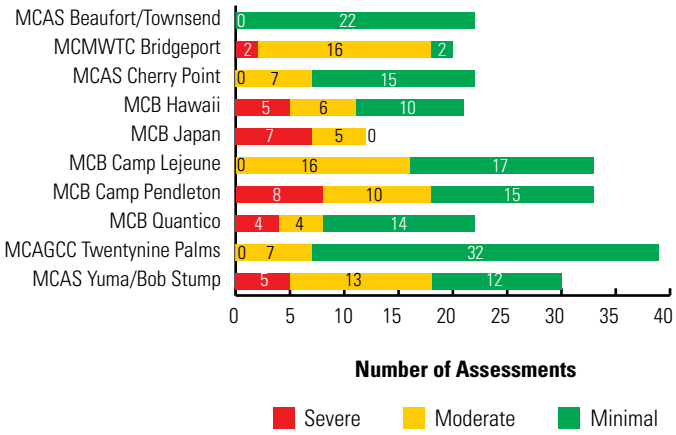


Figure 3-16 Marine Corps Capability Assessment by Attributes

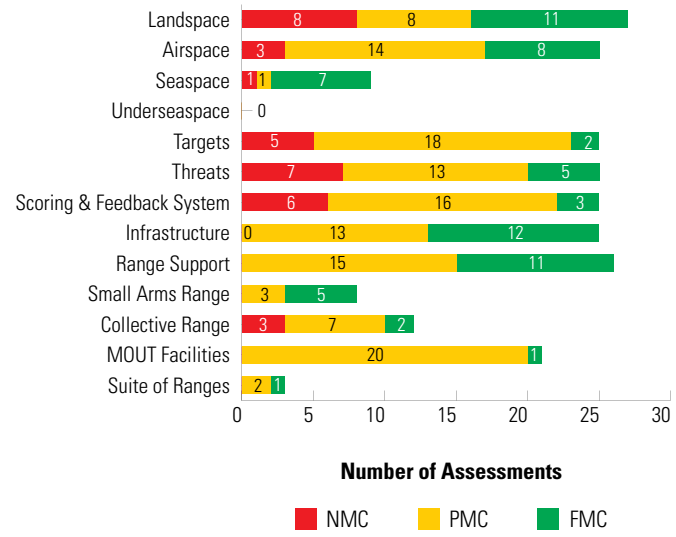


Figure 3-17 Marine Corps Encroachment Assessment by Factors

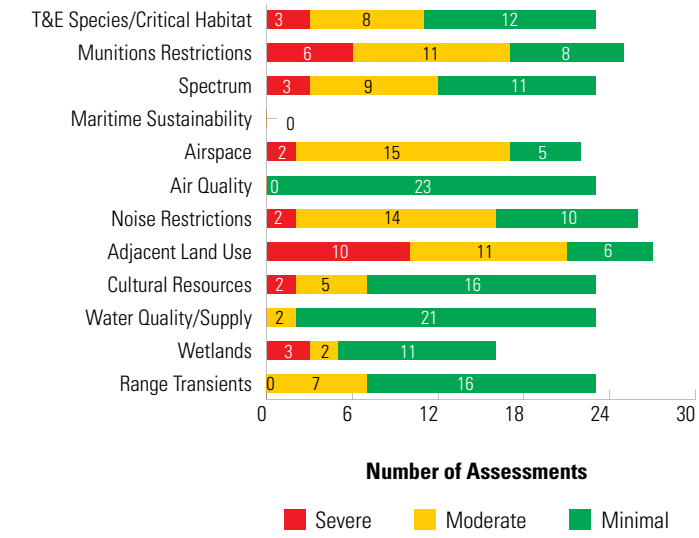


Figure 3-18 Marine Corps Capability Assessment by Mission Areas

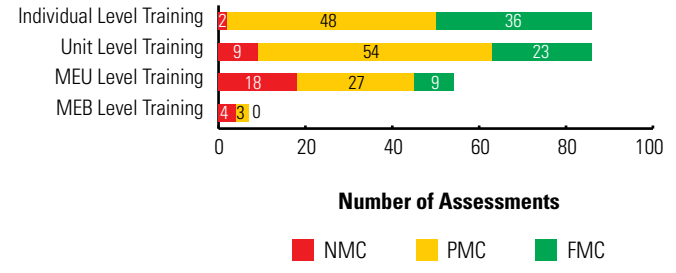
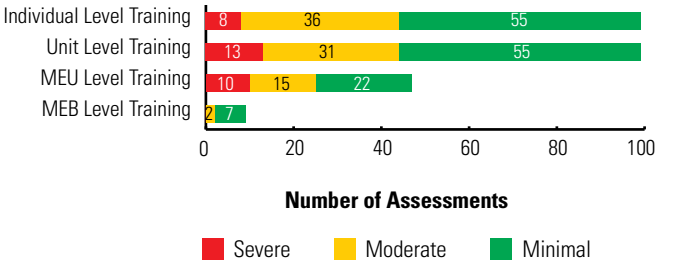


Figure 3-19 Marine Corps Encroachment Assessment by Mission Areas



Marine Corps Special Interest Section

General Issues

Mission Capable Ranges provides the Marine Corps with a comprehensive, fully-developed range program that defines current, emerging and future range requirements, and executes range modernization initiatives focused on the needs of the warfighter. Over the past decade, the Marine Corps has invested over $500 million in ranges. The cornerstone of the program is range modernization through (1) sustainment of ranges to maintain capabilities and protect range investments; (2) re-capitalization to upgrade or replace existing ranges and range resources; and (3) investment in new ranges that leverage advanced range instrumentation, targets, and training systems. Range modernization requires a substantial, ongoing commitment of resources to address each of these categories. Without sufficient commitments focused at a minimum on sustainment and re-capitalization, today's range capabilities will become tomorrow's liabilities, with adverse impacts on the ability of our installations to support required training with mission-capable ranges.

Critical Issues: Range Capabilities

The Marine Corps has identified Service-level deficits in its ability to train to the many missions that it faces. Continued analysis and the fielding of new systems may cause other requirements to surface in the future, but today the projected operational range requirements at the Service level focus on the following three critical deficiencies:

1. Marine Corps ranges presently lack the capability to fully exercise a large Marine Air Ground Task Force (MAGTF) in a realistic, doctrinally appropriate training scenario. The premiere MCAGCC at Twentynine Palms is the center of excellence for developing and executing combined arms live-fire training of the MAGTF; however, MCAGCC cannot accommodate a full-scale, live-fire MEB exercise. Expansion of MCAGCC/Marine Air-Ground Task Force Training Center (MAGTFTC) would significantly enhance the ability of the Marine Corps to continue to provide trained Marines, Marine units, and MAGTFs in furtherance of national security objectives. Having obtained necessary authorizations from the Department of Defense, the Marine Corps is proceeding with analysis and assessments in support of land expansion and establishment of additional airspace.
2. Inadequate training opportunities exist for the Marine units stationed in the western Pacific and Hawaii. Marine Corps installations in Hawaii lack sufficient range capabilities to fully support training of units stationed there. These units therefore train extensively on other-Service facilities, particularly U.S. Army ranges in Hawaii. The Marine Corps is in the process of assessing approaches to the challenging issue of mitigating range shortfalls within Hawaii. The initiative to relocate units from Okinawa to Guam and develop training ranges and infrastructure on Guam and selected islands of the Commonwealth of the Northern Mariana Islands may provide additional training opportunities for Marines stationed in Okinawa and the Hawaiian islands.
3. The Marine Corps has identified the need for an aviation training range on the East coast of the United States with range capabilities such as those provided by Marine Corps Air Station (MCAS) Yuma on the West coast. To address this requirement, the Marine Corps has assessed potential alternatives, including expansion of the Townsend Range. Based on preliminary analysis, the Marine Corps determined that expansion of Townsend is feasible, and that additional assessment and analysis is warranted. Assessment of possible courses of action including Townsend Range expansion will therefore continue in FY2011.

Mission Capable Ranges also is focused on development of aviation training on ranges and enhancing access to training airspace, in addition to expansion of Townsend and special use airspace at MCAGCC. In particular, the Marine Corps is engaged in developing airspace access, landing zones, and range support requirements to accommodate the capabilities of the MV-22 Osprey and Unmanned Aerial Systems (UAS), and in determining range and airspace needs for the Joint Strike Fighter (JSF). Mission Capable Ranges is also increasing its emphasis on supporting implementation of advanced training technologies for live, virtual, and constructive environments. Training technologies have the ability to substantially increase the training value provided by our ranges, and to enhance the realism of virtual and constructive training. Implementing advanced training technologies is a critical component of range modernization.

Critical Issues: Encroachment Factors

This Report includes assessment of encroachment at range complexes. MCAS Miramar, while not a "range complex," is identified here as an example of a Marine Corps installation that is not a range but which is subject to significant encroachment pressures. Urban growth and land uses adjacent to the installation and airspace congestion present particular concerns, with potential or actual impacts on military aviation activities. MCAS Miramar has implemented a comprehensive Encroachment Control Program. MCAS Miramar maintains an active community relations program as a core component of its encroachment strategy. The Encroachment Control Program includes monitoring local development planning for consistency with Air Installation Compatible Use Zone (AICUZ) and Airport Land Use Compatibility Plan (ALCUP) guidelines and for potential impacts on the installation mission. These efforts are intended to ensure that adequate safety and operation buffers are maintained. Given the urban land use profile of the area, costs of establishing additional buffers, if practically feasible, would be substantial.

This Page is Intentionally Left Blank.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail

MCAS Beaufort/Townsend Assessment Details

Range Mission Description

The primary mission of Marine Corps Air Station Beaufort and Townsend Range is to provide support as an operational base and training area for MAG-31, which conducts and supports all active duty Marine Corps F/A-18 air operations on the East Coast. The mission of MAG-31 is to conduct anti-air-warfare and offensive air support operations in support of Fleet Marine Forces from advanced bases, expeditionary airfields, or aircraft carriers.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Individual Level Training	PMC	FMC			PMC	FMC	FMC	PMC	FMC				
Unit Level Training	PMC	FMC			PMC	FMC	FMC	PMC	FMC				
MEU Level Training													
MEB Level Training													

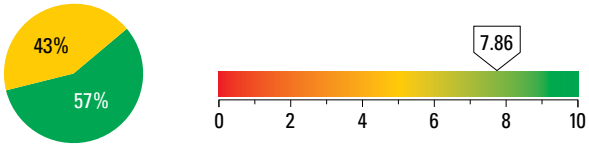
Legend: FMC, PMC, NMC

Encroachment Data

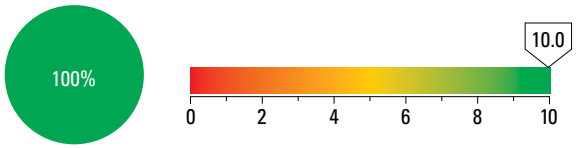
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Individual Level Training	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Unit Level Training	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
MEU Level Training												
MEB Level Training												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. Townsend Range generally has the capability to support required training; however, the range lacks the land area necessary for development of Surface/Weapons Danger Zones required for certain stand-off weapons, in particular JDAM. The range lacks mobile targets. Land area and targets are the deficits with greatest impact on training mission.
3. The Marine Corps is assessing feasibility of pursuing acquisition of land adjacent to the Townsend Range to mitigate current shortfalls.

Summary Observations

1. Encroachment factors do not presently have adverse impacts on the training mission of Townsend Range. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	8.33	8.33	8.57

Impacts from key range capability shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top two capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) upgraded aviation ordnance delivery training opportunities, and (2) enhanced joint forces training integration. Townsend Bombing Range expansion is currently being analyzed as a venue to address these capability requirements.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	10.00	10.00	10.00

Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, (2) frequency spectrum limitations, and (3) urban growth, facilitated transition to a "Fully Mission Capable" designation.

MCAS Beaufort/Townsend Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Individual Level Training	●	Land space does not support training using modern inventory of standoff weapons, such as JDAM, in that Surface / Weapons Danger Zones for these weapons exceed boundaries of the range. Marine Corps has undertaken preliminary analysis of feasibility of range expansion in order to accommodate standoff weapons air-to-ground deliveries.
	Unit Level Training	●	Same as above.
Targets	Individual Level Training	●	The range lacks mobile targets, affecting training realism. Marine Corps Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
	Unit Level Training	●	Same as above.
Infrastructure	Individual Level Training	●	Deficiencies in range maintenance and real property due to fiscal constraints.
	Unit Level Training	●	Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCMWTC Bridgeport Assessment Details

Range Mission Description

The Marine Corps Mountain Warfare Training Center (MWTC) Bridgeport provides range capabilities to support training of Marines, Marine units, and MAGTF elements in the mission essential tasks of modern expeditionary warfare, focused on the training requirements for operations in mountainous, high altitude, and cold weather environments, and to support the development and testing of specialized equipment for use in mountain and cold weather operations.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	PMC	PMC						PMC	PMC				
Unit Level Training	PMC	PMC						PMC	PMC				
MEU Level Training													
MEB Level Training													

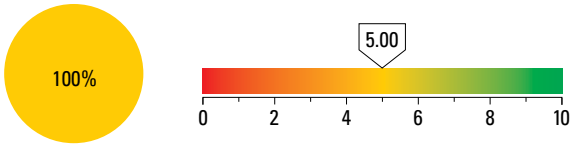
Legend: FMC, PMC, NMC

Encroachment Data

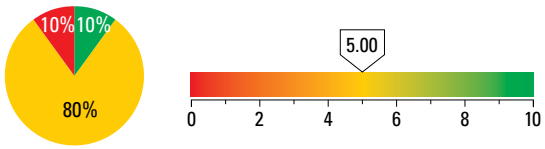
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training	Moderate	Severe	Moderate			FMC	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Unit Level Training	Moderate	Severe	Moderate			FMC	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
MEU Level Training												
MEB Level Training												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MWTC Bridgeport RCMP analysis (FY2010) provides the basis for this assessment. Attribute areas in "white" were not assessed because the capability is not present at this installation.
2. MWTC Bridgeport generally has the capability to support required non-live fire training; however, limitations on munitions use, target and training infrastructure emplacement, and other land use constraints affect capability to fully support training requirements. Marines and units training at MWTC make use of other-Service ranges in the region for live-fire and maneuver training.

Summary Observations

1. 90% of the range complex mission is moderately or severely impacted by encroachment factors.
2. Adjacent Land Use, Munitions Restrictions, and Wetlands are the encroachment factors with greatest impact on training mission.
3. Range Complex Management Plan has been prepared (FY2010). Encroachment Control Plan (ECP) is planned for FY2011.
4. To mitigate encroachment impacts, units training at Bridgeport make use of other-Service ranges, particularly the live-fire training capabilities of the Army's Hawthrorne Ammunition Depot (HWAD) in Nevada.

MCMWTC Bridgeport Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	N/A	N/A	5.00	**Encroachment Scores**	8.00	8.00	4.50
Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) reduction of limitations associated with tenant status on US Forest Service land, (2) fully resourced installation range program, and (3) consistent/permanent funding for range maintenance real property sustainment.				Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, (2) frequency spectrum limitations, and (3) urban growth, are required to facilitate transition to a "Fully Mission Capable" designation.			

MCMWTC Bridgeport Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Individual Level Training		Training land is sufficiently extensive to support required training; however, limitations on land use affect capability of available land to fully support training. Ongoing planning and analysis is examining options to acquire in-holdings (private lands within the forest area) that would support development of permanent training structures such as MOUT facilities to mitigate limitations of USFS constraints.
	Unit Level Training		Same as above. Marines and Marine units training in mountain warfare operations make extensive use of other-Service ranges at Hawthorne Ammunition Depot (HWAD) and also use ranges at Fallon Training Range Complex (FTRC), to supplement training conducted at MWTC. HWAD and FTRC permit live-fire, but lacks ranges to support extended live-fire and maneuver training by Marine units.
Airspace	Individual Level Training		Use of MWTC by aviation assets presents challenges because no special use airspace is designated.
	Unit Level Training		Same as above.
Infrastructure	Individual Level Training		MCMWTC is responsible for road maintenance in the MCMWTC training areas. MWTC is generally not authorized to develop range infrastructure.
	Unit Level Training		Same as above.
Range Support	Individual Level Training		Communication infrastructure improvements to enhance range control and range safety have been planned, but implementation is subject to funding constraints.
	Unit Level Training		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Individual Level Training		Presence of sensitive species seasonally restricts use of some areas of MWTC. The presence of these resources significantly constrains the ability to identify landing zones (LZs) for rotary aircraft. Intensive survey and related environmental planning efforts are underway to address these and other natural resource-based issues and training impacts.
	Unit Level Training		Same as above.
Munitions Restrictions	Individual Level Training		MWTC is situated on land owned by the U.S. Forest Service (USFS). Military training proceeds pursuant to Special Use Permits. Training lands of MWTC are also used by the public; the Marine Corps has no authority to restrict use of these lands. USFS permits strictly limit live-fire training within MWTC to limited use of small arms in designated areas. Fire danger is a significant concern, as is public safety. As a result, extensive live-fire training at MWTC is not feasible.
	Unit Level Training		Same as above.
Spectrum	Individual Level Training		Communications infrastructure does not support an adequate safety and operational vhf/hf net to cover all of the training areas. USFS permits strictly limit live-fire training within MWTC to limited use of small arms in designated areas.
	Unit Level Training		Same as above.
Noise Restrictions	Individual Level Training		Potential impacts on forest land users (e.g., domestic livestock grazing) from aircraft and ordnance noise contribute to concerns leading to restrictions on military uses of USFS lands that comprise MWTC.
	Unit Level Training		Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCMWTC Bridgeport Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Adjacent Land Use	Individual Level Training		As noted, MWTC is situated on land owned by the USFS. The entire range complex is a co-use area, contains environmentally sensitive resources, and is subject to permit-based restrictions on land use for military training. Some adjacent lands are designated as wilderness pursuant to the Wilderness Act; these lands are generally not available for training and the designation may create public expectations about appropriate noise emanating from MWTC training activities into wilderness areas. In addition, Congress designated a portion of MWTC as a National Winter Recreational Area for snowmobile use by the public.
	Unit Level Training		Same as above.
Cultural Resources	Individual Level Training		MWTC is characterized by cultural sites that must be surveyed and assessed by USFS, before USFS will permit training activities in areas with potentially significant sites. Cultural sites presently constrain ground movement and maneuver training and ability to identify suitable LZs for rotary aircraft. Analysis currently being conducted addresses these cultural sites in order to obtain clearance for training and establishment of suitable LZs.
	Unit Level Training		Same as above.
Water Quality/ Supply	Individual Level Training		Reported high nitrate levels in water supply are being investigated. Waste water treatment plant is near or at capacity during larger unit training events, limiting opportunity for expansion of training opportunities. One of the two wells that MWTC maintains is not usable for potable water due to reportedly elevated levels of manganese.
	Unit Level Training		Same as above.
Wetlands	Individual Level Training		MWTC is characterized by mountain meadows that contain wetland habitats and resources. The presence of these resources constrains training uses of these areas, including restricting avenues of movement through affected training areas. Wetlands also constrain ability to identify suitable landing zones (LZs) for rotary aircraft. Environmental analysis that is currently being conducted will address wetlands issues. Surveys and other analysis have been conducted and are ongoing to identify and obtain clearance for suitable LZ sites.
	Unit Level Training		Same as above.
Range Transients	Individual Level Training		The presence of non-military forest users significantly impacts training in that the rights of the public to use these forest lands is a factor in the limited use on most live-fire training.
	Unit Level Training		Same as above.

This Page is Intentionally Left Blank.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCAS Cherry Point Assessment Details

Range Mission Description

MCAS Cherry Point provides range capabilities to support training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission essential tasks of modern expeditionary warfare, including the training requirements of the 2d Marine Air Wing (2d MAW) and other units assigned to the installation.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	●	●			●	●	●	●	●	●		●	
Unit Level Training	●	●			●	●	●	●	●			●	
MEU Level Training													
MEB Level Training													

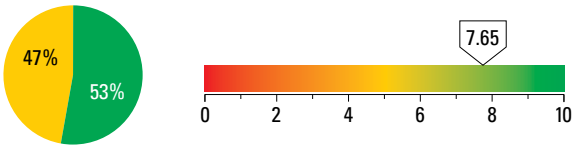
Legend: FMC ● PMC ● NMC ●

Encroachment Data

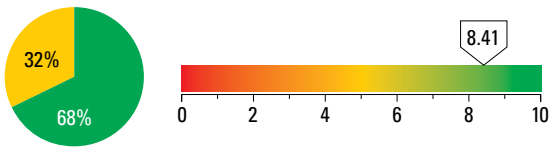
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training	●	●	●		●	●	●	●	●	●	●	●
Unit Level Training	●	●	●		●	●	●	●	●	●	●	●
MEU Level Training												
MEB Level Training												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Operational Training Ranges Required Capabilities (MCRP 3-0C) and the Range Complex Management Plan (RCMP) are the references for this assessment.
2. MEB-level training was not assessed. Attribute areas in "white" were not assessed at MCAS CP.
3. Targets and Scoring and Feedback deficits are the capability attribute most significantly impacting the overall mission.
4. Capability shortfalls affect all levels of training equally.

Summary Observations

1. 32% of the range/range complex mission is moderately impacted by encroachment factors.
2. (Munition Restrictions, Noise Restrictions, Adjacent Land Use and Range Transients are the encroachment factors moderately impacting most of the training mission.
3. Individual and Unit Level Training are the affected mission areas.
4. An Encroachment Control Plan (ECP) for this installation has been completed, and is presently being updated; execution of ECP ongoing.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	7.0	7.0	8.67

Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) upgraded and enhanced range safety and exercise command and control communications systems, (2) urban training facilities including urban CAS capability and MOUT training facility, and (3) fully resourced range control facility.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	7.73	7.73	8.41

Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) munitions restrictions, (2) noise restrictions, and (3) urban growth and adjacent land use, and (4) range transients, are required to facilitate transition to a "Fully Mission Capable" designation.

MCAS Cherry Point Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Individual Level Training		Targets do not meet requirements of MCRP 3-0C; ranges lack structural/urban targets. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Marine Corps priorities.
	Unit Level Training		Targets do not meet requirements of MCRP 3-0C; ranges lack structural/urban targets. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Marine Corps priorities.
Scoring & Feedback System	Individual Level Training		Scoring and Feedback systems do not meet requirements of MCRP 3-0C. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Marine Corps priorities.
	Unit Level Training		Same as above.
Infrastructure	Individual Level Training		Range control facility resourcing has been addressed with addition of dedicated personnel. A new microwave transmission tower at BT-11 is to be installed to enhance range control and communications. Upon completion, range control infrastructure will be Fully Mission Capable.
	Unit Level Training		Same as above.
MOUT Facilities	Individual Level Training		Identified requirement for MOUT facility is being addressed in range development program, with planned MOUT construction at Atlantic Field OLF. Development of Urban CAS capability, while required, is not feasible within current installation lands.
	Unit Level Training		Identified requirement for MOUT facility is being addressed in range development program, with planned MOUT construction at Atlantic Field OLF. Development of Urban CAS capability, while required, is not feasible within current installation lands.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Individual Level Training		Aerial bombing and gunnery ranges BT-9 and BT-11, situated on islands within R5306A, are surrounded by NC Public Trust Waters with the intra-coastal waterway splitting the two range areas. The area supports fisheries and recreation. Associated limitations on Surface/Weapons Danger Zone (SDZ/WDZ) restrict allowable munitions for aerial bombing and gunnery using BT-9 and BT-11. Inert ordnance only authorized up to 500 lbs at BT-11; 35 lbs TNT equivalent for BT-9; no cluster munitions. BT-9 and BT-11 range areas are also used by water-borne craft in practicing shallow water target engagements; however, the firing of primary weapons systems using .50 caliber munitions from surface platforms is restricted at BT-11. Actions to address include community liaison; however remedies remain elusive.
	Unit Level Training		Same as above.
Noise Restrictions	Individual Level Training		The installation operates a Class C Range for Explosive Ordnance Disposal. The range is capable of disposing of up to 150 lbs net explosive weight (NEW). However, the Base has self-imposed limitations of 50 lbs NEW to ensure noise from detonations does not impact the nearby communities.
Adjacent Land Use	Individual Level Training		Population increases in the region are resulting in increased construction of housing and other urban infrastructure in the vicinity of the installation and associated airspace and ranges. The changing land use increasingly impacts the Base's flexibility to execute training. ALF Bogue also has major urban encroachment. BT-9 and BT-11 are affected by civilian use of surrounding waters (see above). Examples of impacts include noise restrictions affecting munitions use and night training, increased light that conflicts with flight crew's use of night vision equipment, and alteration of flight patterns to avoid urbanizing areas, both within restricted SUA and for low-altitude routes outside restricted airspace. Explosive storage areas are negatively impacted by flight corridor civilian overflight and vehicle traffic on adjacent roads. Cellular towers constructed close to Cherry Point boundaries can negatively affect operations by raising the weather minimums required for aircraft conducting instrument approaches. Actions to address include community liaison; however remedies remain elusive.
	Unit Level Training		Same as above.
Range Transients	Individual Level Training		As noted above, the waters surrounding BT-9 and BT-11 are used extensively for civilian activities. MCOLF Atlantic is a high value 1200 acre airfield facility used for numerous supporting arms (aviation) activities. This airfield is subject to incursions by recreational off-road vehicle users. Actions to address include patrolling, reporting, and community liaison.
	Unit Level Training		Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Hawaii Assessment Details

Range Mission Description

MCB Hawaii provides range capabilities to support training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission essential tasks of modern expeditionary warfare, focused on training requirements of units assigned to the installation.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	●				●	●	●	●	●	●		●	
Unit Level Training	●	●			●	●	●	●	●		●	●	
MEU Level Training	●				●	●	●					●	
MEB Level Training													

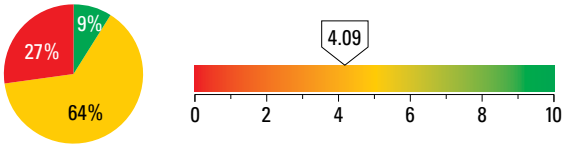
Legend: FMC ● PMC ● NMC ●

Encroachment Data

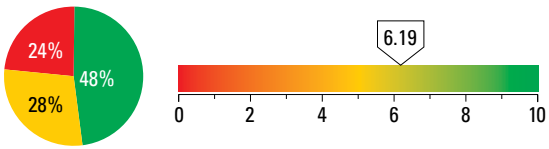
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training	●	●	●			●	●	●	●	●	●	●
Unit Level Training	●	●	●			●	●	●	●	●	●	●
MEU Level Training								●				
MEB Level Training												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCB Hawaii RCMP provides data for this assessment. Mission and Attribute areas in "white" were not assessed or are not applicable to this installation.
2. Critical deficits have been noted in available training land and airspace, impacting the ability to conduct required training or develop sufficient ranges. Hawaii-based Marine units rely extensively, and for some training exclusively, on other-Service ranges. Other significant deficits are the lack of modern automated targets. The ability of Marine Corps Range Modernization / Transformation program to address the land and airspace deficits is marginal.
3. The capability shortfalls noted generally affect all levels of training.
4. The urbanized nature of Oahu increasingly affects MCB Hawaii's capability to support fully the training requirements of Hawaii-based, operational force units. These units accomplish required training by extensively utilizing other-Service ranges in Hawaii.

Summary Observations

1. Over 50% of the range complex mission is moderately or severely impacted by encroachment factors. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. Adjacent Land Use, Munitions Restrictions, and Noise Restrictions are the encroachment factors with greatest impact on training mission.
3. MCB Hawaii has implemented a comprehensive Encroachment Control Program, with an active community relations effort as the core element of its strategy. In support of this effort, an overarching, headquarters-level Encroachment Control Plan (ECP) is planned for FY2011.
4. The urbanized nature of Oahu with its associated impacts on range use increasingly affects Marine Corps Base Hawaii's capability to support the home-stationed, operational force units' training requirements fully. Units accomplish required training by extensively utilizing other-Service ranges in Hawaii.

MCB Hawaii Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	4.47	4.47	4.55	**Encroachment Scores**	7.27	7.27	6.19
Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) sufficient land and airspace to support a MEU/BLT non live-fire maneuver in the Hawaiian Islands, (2) fully resourced range control facility, and (3) scored aviation and ground ranges.				Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, (2) frequency spectrum limitations, and (3) urban growth, are required to facilitate transition to a "Fully Mission Capable" designation.			

MCB Hawaii Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Individual Level Training	🟡	MCB Hawaii (MCBH) ranges support limited live-fire training at the individual level. Live-fire training of artilllery-men and heavy mortar-men is prohibited on MCBH ranges. Convoy operations training is not feasible due to space constraints. Combat logistics training using heavy equipment is severely constrained by space limitations. Required training relies on use of other-Service ranges and airspace in Hawaii, which requires travel with associated costs and is further constrained by competition to use the ranges. The logistics, costs, and time to conduct required training increase when it is conducted off-island at an other-Service range.
	Unit Level Training	🔴	MCBH ranges support limited live-fire training at the infantry squad level and none at the platoon or company level. Live-fire training of artillery batteries and weapons companies (81 mm mortar. is prohibited on MCBH ranges. Maneuver training (non-live-fire) for platoon and company sized units is limited to Bellows training area. Training events employing multiple distributed units is not feasible. The limitations on live-fire and certain other training at MCBH ranges force units to use other-Service ranges in Hawaii to meet their training needs. The logistics, costs, and time to conduct required training increase when it is conducted off-island at an other-Service range.
	MEU Level Training	🔴	Due to a lack of sufficient training lands, battalion-level training is not feasible. Home-stationed units of 3d Marine Infantry Regiment rely on the use of other-Service ranges and airspace in Hawaii to accomplish their training. The logistics, costs, and time to conduct required training increase when it is conducted off-island at an other-Service range.
Airspace	Unit Level Training	🟡	There is no restricted airspace over MCBH ranges. There are no aviation over-land, low level training routes on Oahu. Units rely on other-Service ranges and airspace to complete their training requirements. The logistics, costs, and time to conduct required training increase when it is conducted off-island at an other-Service range.
Targets	Individual Level Training	🟡	MCBH ranges lack automated, fixed and mobile targets. This shortfall reduces training realism, effectiveness, and training assessment capability. A lack of available training space severely constrains options for range development, threat system employment, and target emplacement; consequently, this shortfall is not likely to be remedied on MCBH ranges.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🔴	Same as above. Training constraints due to lack of available training space are most severe for larger units and MAGTFs.
Threats	Individual Level Training	🟡	MCBH ranges lack realistic, modern threat representation / simulation capability. This shortfall reduces training realism, effectiveness, and training assessment capability. A lack of available training space severely constrains options for range development, threat system employment, and target emplacement; this shortfall is not likely to be remedied on MCBH ranges.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🔴	Same as above. Training constraints due to lack of available training space are most severe for larger units and MAGTFs.
Scoring & Feedback System	Individual Level Training	🟡	MCBH range complex lacks real-time training feedback systems. This shortfall reduces training realism, effectiveness, and training assessment capability. The Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities. Increased use of MILES 2000-type technology and renewal of the LOMAH maintenance contract for rifle marksmanship range will help to mitigate some instrumentation shortfalls.
	Unit Level Training	🟡	Same as the preceding comment. In addition, the lack of available training space severely constrains options for range development, threat system employment, and target emplacement.
	MEU Level Training	🔴	Same as the preceding comment. In addition, the lack of available training space severely constrains options for range development, threat system employment, and target emplacement.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Hawaii Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Individual Level Training		Range infrastructure enhancements, including communications, range control systems, and staffing requirements are being addressed through the Marine Corps range program, as consistent with programmatic priorities and subject to available funding.
	Unit Level Training		Same as above.
Small Arms Ranges	Individual Level Training		As noted above, insufficient land area for range development limits required small arms training to static ranges. The comments above regarding deficits in targets, threat systems, and scoring / feedback capabilities are also pertinent. This shortfall reduces the effectiveness of live-fire training. Units rely on other-Service, more advanced range capabilities to meet training requirements.
Collective Ranges	Unit Level Training		As noted above, insufficient land area for range development and lack of special use airspace preclude conducting collective training except at most basic levels on MCB Hawaii ranges. This shortfall limits the utility of MCBH ranges to support collective training. Units are forced to use available other-Service ranges to accomplish required training.
MOUT Ranges	Individual Level Training		MCBH MOUT facilities are insufficient to meet training needs. Consequently, competition to use these facilities is keen. Development of new MOUT facilities has received focused attention throughout the Marine Corps. At MCBH (Bellows training area), investments in state-of-the-art MOUT facilities are programmed. Further, construction of a modular MOUT at the US Army's Pohakuloa Training Area is programmed. Range Modernization/Transformation program is continuing to address shortfalls consistent with available resources and Service priorities.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Individual Level Training		Live-fire training using artillery or 81 mm mortar munitions are prohibited on MCBH ranges. This shortfall negatively impacts training for infantry weapons companies and artillery batteries. These units are forced to accomplish this training at other-Service ranges in Hawaii.
	Unit Level Training		Same as above.
Noise Restrictions	Individual Level Training		Simulated Close Air Support (SIMCAS) training that supports beach landings during RIMPAC, a multi-national exercise, have been suspended due to noise complaints received from the local community.
	Unit Level Training		Same as above.
Adjacent Land Use	Individual Level Training		Due to proximity of civilian housing and other community infrastructure, live-fire training is prohibited at Marine Corps Training Area Bellows (an amphibious and MOUT training area), and is limited at Kaneohe Bay. Encroaching development continues with, for example, construction of a health clinic adjacent to Bellows. The urbanized character of the area constrains the development of ranges. As a result, training is generally confined to non-live-fire events or the use of static positions when firing small arms. Extremely limited ship-to-shore training areas are available. Community noise concerns, as noted above, are pervasive. Light sources in surrounding communities preclude night vision training for air crews. Convoy training on public roads is not feasible due to traffic congestion. All of these constraints reduce the effectiveness of training to some extent. As a result, much of this training is forced off-island to other-Service ranges.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Cultural Resources	Individual Level Training		Some existing MCBH range areas are considered to be archaeologically or culturally sensitive and cannot be disturbed. In some instances, these sites restrict training or preclude expanding training facilities. Environmental impacts analyses address these issues, as appropriate.
	Unit Level Training		Same as above.
Range Transients	Individual Level Training		MCBH live-fire ranges are required to cease operations when civilian watercraft enter the confines of a range surface danger zone (SDZ), which extends into the ocean behind the impact area. These intermittent cease fire events disrupt and degrade live-fire training events. The cost to provide personnel to watch the area is approximately 3,000 man-hours per year. To mitigate these training interruptions the following measures have been adopted: placing personnel to watch for boat traffic in range's SDZ; providing the ranges with radios to communicate with boat traffic; and directing available military vessels to intercept civilian boats in SDZs. In addition, updated notices to all mariners have been published.
	Unit Level Training		Same as above.

This Page is Intentionally Left Blank.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Japan Assessment Details

Range Mission Description

MCB Japan provides range capabilities to support the training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission-essential tasks of modern expeditionary warfare. This also includes training the Third Marine Expeditionary Force (III MEF) and other units assigned to the installation. Additionally, MCB Japan supports training the other uniformed services based in Japan and the Japanese Self-Defense Force.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	●	●	●		●	●	●	●	●	●		●	●
Unit Level Training	●	●	●		●	●	●	●	●		●	●	●
MEU Level Training	●	●	●		●	●	●	●	●		●	●	●
MEB Level Training													

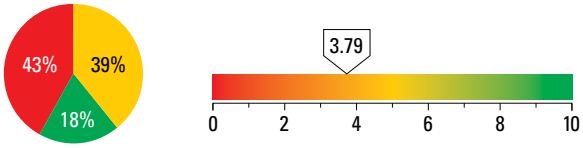
Legend: FMC ● PMC ● NMC ●

Encroachment Data

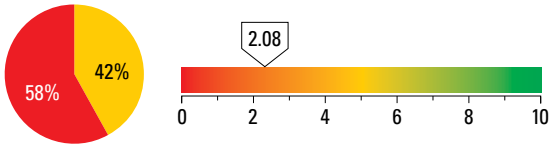
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training		●			●		●	●				
Unit Level Training		●			●		●	●				
MEU Level Training		●			●		●	●				
MEB Level Training												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. MCB Japan includes Camp Smedley D. Butler, Okinawa, Japan, and Combined Arms Training Center (CATC) Camp Fuji, Japan. The Marine Corps initiated development of a Range Complex Management Plan for MCB Japan late in FY2009, with completion anticipated in FY2011. The RCMP will include both encroachment assessments and detailed assessments of range capabilities. Complete assessments will also be included in the FY2012 Sustainable Ranges Report and will be based on information from the in-progress RCMP.
2. Deficits noted in available land and airspace are the most critical shortfalls. The Lack of targets and threat capability are additional critical shortfalls.
3. While CATC Camp Fuji Japan, on mainland Japan, provides additional range capabilities, the bulk of the Third Marine Expeditionary Force (III MEF) units based in WestPac are located in Okinawa. Consequently, the bulk of the training requirements for Okinawa-based units must be accomplished in Okinawa because of the time, cost, and range availability associated with training at CATC.

Summary Observations

1. MCB Japan includes Camp Smedley D. Butler, Okinawa, Japan, and Combined Arms Training Center (CATC) Camp Fuji, Japan. The Marine Corps initiated development of a Range Complex Management Plan for MCB Japan late in FY2009, with completion anticipated in FY2011. The RCMP will include both encroachment assessments and detailed assessment of range capabilities. Complete assessments will be included for the FY2012 Sustainable Ranges Report, based on information from the in-progress RCMP.
2. The greatest encroachment challenges facing MCB Japan ranges in Okinawa are Munitions Restrictions, Adjacent Land Use, and Airspace.

MCB Japan Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	N/A	N/A	N/A	**Encroachment Scores**	N/A	N/A	N/A
When assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas), impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation between FY2008 and FY2010. The top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include: (1) enhanced/scored ground combat element direct and indirect fire ranges, (2) MAGTF combined arms live fire and maneuver training capability, and (3) scored aviation ranges (rotary and fixed wing).				When assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps task Task 3.3 (Support Fires through the Provision of Ranges and Training Areas), impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation between FY2008 and FY2010 . The top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include: (1) enhanced/scored ground combat element direct and indirect fire ranges, (2) MAGTF combined arms live fire and maneuver training capability, and (3) scored aviation ranges (rotary and fixed wing).			

MCB Japan Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Individual Level Training	🔴	Effective training is possible on Okinawa; however, it will take imagination, creativity, and a continuously-aggressive outreach program to comply with the physical limitations of being located on a small island. The Central Training Area (CTA) comprises MCB Camp Butler's training facilities. Public roads trisect and surround CTA. Two impact areas occupy a significant portion of the south and north CTA. The largest section of maneuver area is approximately 7.5 km x 3 km, but it is a heavily vegetated terrain full of ravines and therefore can restrict mobility. As such, this small area limits the types of training that can be conducted and the types of weapons that can be fired. Conversely, all weapons systems organic to the MEU can be fired within the CTA, with limitations. For example, not-fired and wire-guided munitions are excluded due to environmental limitations and political agreements on Okinawa. The Defense Policy Review Initiative (DPRI) is a U.S. Government/Government of Japan agreement signed at the Secretary of State/Secretary of Defense level that reduces the impact and scope of U.S. Marine training on Okinawa. Any expansion of training space or capability will need robust support from the State and DoD level through the U.S./GoJ Joint Committee.
	Unit Level Training	🔴	Same as above.
	MEU Level Training	🔴	Same as above.
Airspace	Individual Level Training	🟡	The dimensions of the special use airspace (SUA) is limited over CTA, especially vertically. Its ceiling varies from 1,000' MSL to 3,000' MSL. Some of the instrument approaches into Kadena Air Base and overlies this SUA. Additionally, the relatively low ceilings for this SUA are minimally adequate to support individual weapons firing; however, expanding this SUA vertically is not likely to happen.
	Unit Level Training	🔴	With SUA over CTA capped at either 1,000' or 3,000' MSL. Mortars must fire at a minimum charge to preclude exiting the airspace. Fixed wing aircraft cannot support training operations within the CTA. The limitations imposed on mortar fires limit combined-arms fires to platoon level. Fixed wing aircraft cannot operate within the CTA to support ground training, but CAS is available at nearby US Air Force ranges just off Okinawa. Expanding this SUA vertically is being explored with US Air Force and the Japanese Civil Aeronautics Bureau.
	MEU Level Training	🔴	Same as above.
Seaspace	Unit Level Training	🟡	Per agreement with the Government of Japan, there are several water surface areas available for training 120 days per year. Two small training beach areas, Kin Red and Kin Blue, provide access to the sea and land, but traveling from them requires the use of public roads. Available beaches are not contiguous with the available training space within the CTA or at CATC Fuji and no beach training areas exist on le Shima island currently. The limited beach areas for landings precludes conducting large-scale amphibious assaults or raids. The Defense Policy Review Initiative (DPRI) is a U.S. Government/Government of Japan agreement signed at the Secretary of State/Secretary of Defense level which agrees to reduce the impact and scope of US Marine training on Okinawa. Any expansion of training space or capability will need robust support from State/DoD level through the U.S./Government of Japan Joint Committee.
	MEU Level Training	🔴	Same as above.
Targets	Individual Level Training	🟡	Twenty-five vehicle type steel targets have been recently added across five ranges within the CTA as party of the operational range clearance program. The lack of adequate targets makes it difficult to improve weapons skills.
	Unit Level Training	🔴	Same as above.
	MEU Level Training	🔴	Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Japan Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Individual Level Training		There are no EW threats for aviation on Okinawa or mainland Japan. There is no standing OpFor to support ground training. Aviators are unable to familiarize themselves with EW threat systems or practice tactics against them. Ground OpFor normally comes from a sister unit, which is not trained to execute threat tactics, and thus, provides a less effective training experience. Approaches to mitigating these shortfalls are being analyzed in the ongoing RCMP process.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Scoring & Feedback System	Individual Level Training		There are a limited number of ranges that have targets that are automated or scored. Targets that do not provide scoring are less effective for improving weapons skills. The Range Modernization/Transformation program provides upgrades within its available resources.
	Unit Level Training		Same as above. In addition, there are currently two ranges that provide an after action review capability (R18 and R16 Shoot House). A MILCON project for 2015 was recently submitted for Range 18 to expand the capability for Individual and Unit level training.
	MEU Level Training		Same as above, but even more aggravated in proportion to the size of the unit.
Range Support	Individual Level Training		There is limited communications capability with units in the field. Also, there is currently no capability to monitor air traffic in the training areas. Communications outages interrupt training events and there is no means to monitor air traffic situational awareness until the situation is fixed. The Range Modernization/Transformation program is upgrading communications capabilities and installing IRSS to provide an air picture. These improvements are planned for 2011.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Small Arms Ranges	Individual Level Training		The targetry on existing ranges is very limited, which degrades its utility. Without adequate targets to fire at, individual weapons skills are degraded. There is an initiative to place additional targets in the impact area.
Collective Ranges	Unit Level Training		There are two ranges in Okinawa that support live-fire and maneuver (LFAM) training to the platoon level, and none for live-fire convoy operations. International agreements, such as DPRI impacts any significant attempt at expansion to develop LFAM or convoy ranges. Integrating supporting arms is limited to restricted mortar fires. This lack of LFAM and convoy ranges limits opportunities for ground units to train in an LFAM or combined-arms environment. Range Operations is working to expand the capabilities of the existing LFAM ranges.
	MEU Level Training		Same as above.
MOUT Facilities	Unit Level Training		There are three non-live-fire, MOUT facilities in Okinawa. The largest is an 11-building facility made up of shipping containers. The largest could support training up to a company level, but there is not enough capacity to support all of the units that need it. MOUT facilities have tripled over the past two years, as a result of the Range Modernization/ Transformation program, which continues to address shortfalls consistent with available assets.
	MEU Level Training		Same as above.
Suite of Ranges	Unit Level Training		Currently, CTA only has two maneuver ranges that are capable of supporting limited maneuver up to the squad-platoon level. Company-level maneuver operations are available on Ie Shima island, but that facility offers no live fire opportunities based on existing political agreements. Large-scale live-fire training with maneuver is currently conducted on a limited basis at CATC Camp Fuji for both MEU and UDP units.
	MEU Level Training		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Individual Level Training	🟡	Munitions restrictions in the Central Training Area on Okinawa are driven primarily by three factors working in consonance: geographic constraints, political constraints, and virtually unimpeded encroachment by local communities. Per agreement with the Government of Japan, artillery live-fire training is no longer conducted on Okinawa. Instead, it takes place at five Japanese Ground Self Defense Force ranges. Okinawa has two ranges where .50cal machine guns may be fired. At one range, the gun's barrel must be placed into a physical restraint to prevent its movement; while guns must be bore sighted and have restraining devices added to ensure no rounds impact outside of a concrete tunnel approximately 20m wide and 15m high on the other. Land and airspace are also not large enough to allow for close air support training on Okinawa. CAS is conducted on Air Force ranges just off of Okinawa by both Marine rotary-wing and fixed-wing units. These restrictions limit the conduct of basic and combined-arms live-fire training operations to the platoon level. The Defense Policy Review Initiative (DPRI), an agreement between the U.S. and Japanese governments, reduces the impact and scope of U.S. Marine training on Okinawa. Expanding training space or capability on Okinawa requires robust support from both the Departments of Defense through the U.S. Government/Government of Japan Joint Committee.
	Unit Level Training	🔴	Same as above, but even more aggravated in proportion to the size of the unit.
	MEU Level Training	🔴	Same as above, but even more aggravated in proportion to the size of the unit.
Airspace	Individual Level Training	🟡	MCB Camp Butler SUA's dimensions are very limited, particularly vertically. Its ceiling varies from 1,000' MSL to 3,000' MSL and some of the instrument approaches into Kadena Air Base overly this SUA. Additionally, the relatively low ceilings for this SUA are minimally adequate to support individual weapons firing. Expanding this SUA vertically is being explored with the U.S. Air Force and Japanese Civil Aeronautics Bureau.
	Unit Level Training	🔴	Same as above. In addition, the relatively low ceilings for this SUA limit live-fire operations like mortar employment and restrict fixed-wing aircraft from providing training support for ground units, such as simulated close air support. Expanding this SUA vertically is being explored with the U.S. Air Force and Japanese Civil Aeronautics Bureau; however, simulated RW/FW SIMCAS remain unlikely because of the size and geographic constraints of the training area and existing political constraints and noise concerns. Accordingly, FW/RW SIMCAS and Fire Support Team/ FAC training occur at an island location off the west coast of the main island of Okinawa, well clear of the CTA. Work-around for mortar firing currently exist by putting someone from Range Control in the Naha Approach Control to provide positive communications between the firing party and the control tower, calling a cease-fire when aircraft are in the airspace.
	MEU Level Training	🔴	Same as above.
Noise Restrictions	Individual Level Training	🟡	Small villages and municipalities surround the Central Training Area (CTA), particularly the Hansen impact area, located on the southwest end of CTA. Japan has no zoning laws. Thus, there is no buffer between these towns and CTA. Noise from training, especially live-fire operations, migrates off-base. As a result of having to operate in such a compact, urbanized area, training operations may be limited. Although the U.S. Marine Corps respects its surrounding communities, it must continue to train locally and conduct live-fire operations. Therefore, through its aggressive outreach program, MCB Japan works to minimize this impact. During certain times of the year, training operations may be limited or suspended as a courtesy during school testing.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Adjacent Land Use	Individual Level Training	🔴	Public roads trisect the CTA and small towns surround it. This is particularly evident near the Hansen impact area, located on the southwest end of CTA. In addition, tacit farms occupy a few areas within the border of CTA. Since there is no buffer between these towns and CTA, noise from training such as that from live-fire operations migrates off-base. During certain times of the year, training operations may be limited or suspended to prevent fires. Developing additional ranges in such a compact, urbanized area is also very challenging. As a result of these constraints, training operations have been limited in the past, and expanding ranges is very difficult. These limitations require flexibility and creative training to realize effective training support. Furthermore, the Defense Policy Review Initiative (DPRI) reduces the impact and scope of U.S. Marine training on Okinawa. Expanding training space or capability requires support from the Departments of State and Defense through the U.S. Government/Government of Japan Joint Committee.
	Unit Level Training	🔴	Same as above.
	MEU Level Training	🔴	Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Camp Lejeune Assessment Details

Range Mission Description

MCB Camp Lejeune provides range capabilities to support training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission essential tasks of modern expeditionary warfare, including the training requirements of the Second Marine Expeditionary Force (II MEF) and other units assigned to the installation.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	FMC	FMC	FMC		PMC	PMC	PMC	PMC	FMC	FMC		PMC	
Unit Level Training	PMC	PMC	FMC		PMC	NMC	PMC	PMC	FMC		PMC	PMC	
MEU Level Training	NMC	PMC	FMC		PMC	NMC	PMC	PMC	FMC		PMC	PMC	
MEB Level Training													

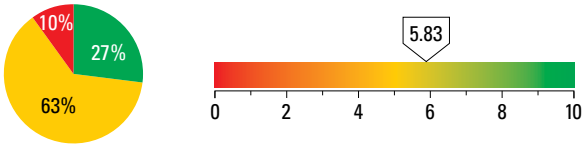
Legend: FMC, PMC, NMC

Encroachment Data

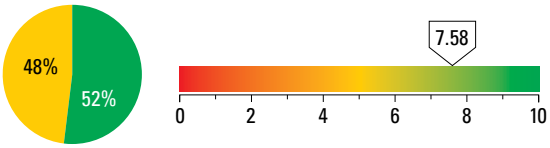
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training	Moderate	Moderate	Minimal		Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
Unit Level Training	Moderate	Moderate	Minimal		Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
MEU Level Training	Moderate	Moderate	Minimal		Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Moderate
MEB Level Training												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCB Camp Lejeune provides data for this assessment. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. Critical deficits noted in available training land and airspace, that are impacting ability to conduct required training or develop sufficient ranges. Other significant deficits are lack of modern automated targets and threat systems.
3. Capability shortfalls generally affect all levels of training.

Summary Observations

1. The references for this assessment are Operational Training Ranges Required Capabilities (Marine Corps Reference Publication [MCRP] 3-0C) and Range Complex Management Plan (RCMP). Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. 48% of the training mission is moderately affected by encroachment. Camp Lejeune has considerable encroachment at all levels of training. MEU-level training is most severely constrained.
3. Development of Encroachment Control Plan is ongoing (expected completion FY2010).

MCB Camp Lejeune Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.24	5.24	6.33	**Encroachment Scores**	7.58	7.58	7.58
Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) off-base MV-22 tactical training areas/landing zones, (2) MAGTF level instrumented MOUT capabilities, (3) upgraded and enhanced range safety and exercise command and control communications systems, (4) upgrade and modernize targets, (5) a combined arms maneuver course for individual, collective, and MEU level training, and (6) small arms ranges are generally 1970 vintage designs. These deficiencies have or will be addressed by Urgent Needs Statement (off base Tactical Training Areas supporting flight ops), PMC funded training system projects, ELMR fielding and MILCON.				Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, (2) frequency spectrum limitations, and (3) urban growth, are required to facilitate transition to a "Fully Mission Capable" designation.			

MCB Camp Lejeune Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Unit Level Training	🟡	Limited available land training area limits options for siting/development of new ranges. Range planning seeks to maximize efficient use of available land for training. Expansion is not feasible. Landspace requirements include off-installation areas for dedicated landing zone use by MV-22 aircraft.
	MEU Level Training	🔴	Land training area does not meet MCRP 3-0C requirements. Range planning seeks to maximize efficient use of available land for training. Expansion is not feasible.
Airspace	Individual Level Training	🟡	Airspace extends from surface to only 17,999 feet; does not extend 10NM beyond land area as necessary to avoid "spill outs" by military aircraft and incursions over ranges by civilian aircraft; supersonic flight is not authorized; fixed-wing flight operations restricted. Urbanization issues (e.g., noise and light) limit use of training airspace that is not SUA (e.g., TERF), including extended range airspace areas required for MV-22 tactical training.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Targets	Individual Level Training	🟡	Not all ranges and targets meet T&R/ITS training requirements for weapon systems - specifically for Infantry, EFV, and engineering systems; range area, distance, and feedback are limited; EFV waterborne requirement is not met; minimal urban/structural targets. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
	Unit Level Training	🟡	Targets do not meet full T&R training requirements. A-G bombs limited to inert only. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
	MEU Level Training	🟡	Targets not all set to T&R/ITS standards; A-G bombs limited to inert only. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
Threats	Individual Level Training	🟡	Limited to MILES 2000 equipment during tactical operations. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
	Unit Level Training	🔴	OPFOR are provided by contracted Iraqi or Afghan Role Players who are not formally instructed on enemy tactics, techniques and procedures; however, Role Players provide a second best alternative.
	MEU Level Training	🔴	No dedicated OPFOR, normally makeshift and controlled by handlers and not trained to enemy tactics or techniques.
Scoring & Feedback System	Individual Level Training	🟡	Tracking—Radar Inputs Only; RC—2-D Capability Only; EC&C—Operational Unit Owned and Operated; M&S—Only S-S Scenarios; Scoring—At least 1 range to Training Standard; Debrief/AAR—Primarily Observers/Hit-or-Miss Targets. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Infrastructure	Individual Level Training	🟡	Range communication systems do not support full spectrum of range control functions. This deficiency is being addressed through fielding of the Enterprise Land Mobile Radio system.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Collective Ranges	Unit Level Training	🟡	See comments above regarding land, airspace, range control, and target deficits. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
	MEU Level Training	🟡	See comments above regarding land, airspace, range control, and target deficits. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Camp Lejeune Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
MOUT Facilities	Individual Level Training		Development of new MOUT facilities has received focused attention throughout the Marine Corps, resulting in significant improvements; however deficiencies remain. Range Modernization / Transformation program is continuing to address shortfalls consistent with available resources and Service priorities.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Individual Level Training		Constraints on training due to presence of ESA-listed red-cockaded woodpecker (RCW), especially within the High Value Training Areas. These constraints are addressed with the Environmental Division and the USFWS as range development and maneuver training requirements are identified. Bombing operations are restricted to inert ordnance. Bombing with live ordnance has been shifted to other bases. Consultations with USFWS are ongoing concerning impacts of vegetation clearing within the G-10 impact area regarding RCW sites surrounding impact area.
	Unit Level Training		Same as above. Additionally, habitat and other environmental concerns have made range enhancements and site selection for new ranges difficult, and, in some instances, have forced Base to choose less desirable alternatives or limit range size/capability.
	MEU Level Training		Constraints on training due to presence on beaches of ESA-listed sea turtles during breeding season (May–Oct). Use of much of the beach is restricted for amphibious and other types of training during this time. Dunes are "out of bounds" and must be maneuvered around. Remedy is elusive.
Munitions Restrictions	Individual Level Training		Bombing operations at Camp Lejeune are restricted to inert ordnance, due in part to concerns about the noise levels from use of explosive ordnance. Additional constraints are due to restrictions associated with presence of ESA-listed RCW in the impact area and range areas; consultations ongoing with USFWS.
	Unit Level Training		Tank operations at SR-7 Range have been suspended since 1998 due to noise complaints from the nearby community (although noise levels were within DoD standards).
	MEU Level Training		The use of smoke at Camp Johnson is prohibited except when the wind blows to the south, to ensure smoke does not drift over Highway 17, which, due to recent construction is now quite close to the training areas at Camp Johnson. (CLUS App. D. Part II. 1 and 2)
Airspace	Individual Level Training		No fixed wing operations are allowed in R5303 and R5304. Ranges that the SUA supports cannot be active unless the area has aviation radar coverage. R5306D cannot be expanded due to civilian use of local beaches and Hwy 17 corridor. Ship to shore movements require aircraft to utilize airspace other than restricted areas to complete scenario based training. Increased civilian density in nearby areas leads to increase in noise complaints about aircraft flying tactical profiles during the day and night. As encroachment continues, airspace and operating hours will become more restrictive. (MCAS New River adjacent to MCB Camp Lejeune)
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Noise Restrictions	Individual Level Training		Off-base noise concerns have resulted in the reloacation of certain training venues such as the Tank live-fire range and steel cutting pit to more centralized areas of the installation which further reduces available training lands for none, noise producing training venues. Base's flexibility to absorb the requirements of future force structure and weapons training needs may be hampered by noise constraints. Remedies include ongoing community liaison.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Adjacent Land Use	Individual Level Training		From 1990 to 2000, the population of the region of Camp Lejeune (Onslow County, NC) was essentially stable (1990 pop-149,838; 2000 pop.-150,335 [U.S. Census Bureau]). Between 2000 and 2008, the population surged, with an increase of over 10%. This trend continues, resulting in increased construction of housing and other urban infrastructure in the vicinity of the Base and associated training areas and airspace. The changing land use increasingly impacts the Base's flexibility to execute training. Examples of impacts include noise restrictions affecting munitions use and night training, increased light that conflicts with flight crew's use of night vision equipment, and alteration of flight pattern to avoid new housing areas. Actions to address include aggressive community liaison; however remedies remain elusive.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Range Transients	MEU Level Training		Silting in the Intra-coastal Waterway causes civilian vessels (usually recreational) to sometimes run aground in inlets adjacent to or within the Base (Browns and New River), leading to training disruptions . Remedies include ongoing activities with community liaison.

This Page is Intentionally Left Blank.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Camp Pendleton Assessment Details

Range Mission Description

MCB Camp Pendleton provides range capabilities to support training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission essential tasks of modern expeditionary warfare, including the training requirements of the First Marine Expeditionary Force (I MEF) and other units assigned to the installation.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	●	●	●		●	●	●	●	●	●		●	
Unit Level Training	●	●	●		●	●	●	●	●		●	●	
MEU Level Training	●	●	●		●	●	●	●	●		●	●	
MEB Level Training													

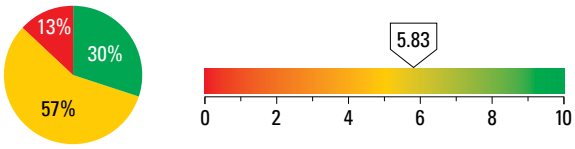
Legend: FMC ● PMC ● NMC ●

Encroachment Data

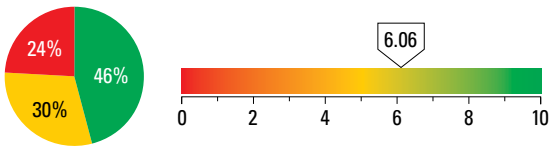
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training	●	●	●		●	●	●	●	●	●	●	●
Unit Level Training	●	●	●		●	●	●	●	●	●	●	●
MEU Level Training	●	●	●		●	●	●	●	●	●	●	●
MEB Level Training												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCB Camp Pendleton RCMP provides data for this assessment. Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. Deficits noted in available training land and airspace, and lack of threat capabilities, automated targets, and scoring and feedback systems.
3. Capability shortfalls generally affect all levels of training.

Summary Observations

1. The references for this assessment are Operational Training Ranges Required Capabilities (Marine Corps Reference Publication [MCRP] 3-0C) and the Camp Pendleton Range Complex Management Plan (RCMP).
2. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
3. 21% of the training mission is severely affected by encroachment, and 15% is moderately affected. Urbanization trends in region will continue to exert ever-increasing pressure on training capabilities.
4. Development of Encroachment Control Plan is planned for FY2010/2011.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	4.52	4.52	5.67

Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) completion of approved range modernization projects, (2) consistent/permanent funding for range maintenance real property sustainment, and (3) upgrade of target systems and shoot houses.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	6.67	6.67	6.82

Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) urban growth and adjacent land use, (2) threatened and endangered species, (3) wetlands, and (4) cultural resources, are required to facilitate transition to a "Fully Mission Capable" designation.

MCB Camp Pendleton Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Unit Level Training	🟡	Land training area does not meet MCRP 3-0C requirements. Range planning seeks to maximize efficient use of available land for training. Expansion is not feasible.
	MEU Level Training	🔴	Same as above.
Airspace	Individual Level Training	🟡	Lateral airspace does not extend 10NM beyond land area as necessary to avoid "spill outs" by military aircraft and incursions over ranges by civilian aircraft; insufficient lateral air space for combined arms training in accordance with MCRP 3-0C. Urbanization and encroachment issues (e.g., noise and light) limit use of training airspace that is not SUA (e.g., TERF).
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Targets	Unit Level Training	🟡	There are a number of required ranges and target areas that need modernization to meet USMC training requirements. These shortfalls span all levels of unit training. Shortfalls include infantry and mechanized automated ranges and targets, battle-course ranges and targets, assault/breaching/demolition ranges, and others. The Marine Corps Range Modernization and Transformation program is addressing these shortfalls through range investments consistent with available resources. Range Modernization / Transformation program is addressing shortfalls consistent with available resources and Service priorities.
	MEU Level Training	🟡	Same as above.
Threats	Individual Level Training	🟡	Camp Pendleton requires a comprehensive electronic training environment supporting basic through advanced collective training. The capability must simulate neutral, hostile, and non-hostile ground, air defense, and airborne weapons systems; OPFOR command and control; neutral, hostile, and non-hostile cryptologic systems; and hostile jamming. There are efforts underway to study OPFOR capability alternatives and to develop shortfall strategies. Role player program (not a program-of-record) is a significant training enhancement.
	Unit Level Training	🟡	See preceding comment.
	MEU Level Training	🔴	Same as above. Shortfalls in threat capabilities have most significant impact on more complex training events.
Scoring & Feedback System	Individual Level Training	🟡	Many existing ranges lack modern scoring and feedback systems. The Marine Corps Range Modernization / Transformation program is addressing these shortfalls through range investments consistent with available resources.
	Unit Level Training	🔴	Unit and MEU-level training requires enhanced instrumentation for training event reconstruction, debriefing, and replay. Camp Pendleton generally lacks such capabilities. The Marine Corps Range Modernization / Transformation program continues to analyze and address these shortfalls through range investments consistent with available resources. Construction of a state-of-the-art large instrumented MOUT facility has mitigated the issue, but an extensive number of ranges still do not have scoring and feedback systems.
	MEU Level Training	🔴	Same as above.
Range Support	Individual Level Training	🟡	Range radio communication system failures at times have caused the cessation of training. Not all of the ranges have telephone capability. The installation does not have exercise command and control circuits or secure communications capable for range control. The Marine Corps Range Modernization / Transformation program continues to analyze and address these shortfalls through range investments consistent with available resources.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Camp Pendleton lacks comprehensive exercise control capabilities integrated with range control functions. The Marine Corps Range Modernization / Transformation program continues to analyze and address these shortfalls through range investments consistent with available resources.
Collective Ranges	Unit Level Training	🟡	See comments above regarding land, airspace, range control, target, and scoring deficits. The Marine Corps Range Modernization / Transformation program continues to analyze and address these shortfalls through range investments consistent with available resources.
	MEU Level Training	🟡	See comments above regarding land, airspace, range control, target, and scoring deficits. The Marine Corps Range Modernization / Transformation program continues to analyze and address these shortfalls through range investments consistent with available resources.
MOUT Facilities	Individual Level Training	🟡	Development of new MOUT facilities has received focused attention throughout the Marine Corps, resulting in significant improvements; however deficiencies remain. Range Modernization / Transformation program is continuing to analyze and address shortfalls through range investments consistent with available resources.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Camp Pendleton Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Individual Level Training		Constraints on training due to presence of multiple ESA-listed species include inability to conduct training that requires digging / earth moving; limitations on use of military vehicles in some training areas; limitations on training use of beaches; of 17 miles of coast, 6,000 yards are available for training use, and only approximately 1,500 linear yards of beach is currently available for non-restricted amphibious operations due to ESA and other regulatory constraints, and encumbrances such as long-term leases. Base coordinates and consults extensively with U.S. Fish and Wildlife Service, with objective of reducing constraints on training resulting from application of ESA.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Spectrum	Individual Level Training		Competition for access to and use of frequency spectrum has resulted in moderate to severe impacts on some training activities, including training requiring use of satellite communications frequencies, and training with UAS.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Airspace	Individual Level Training		Intense competition and pressure from commercial and general aviation for access to and use of airspace in the critically overcrowded coastal airspace corridors threatens to impact military aviation operations in ranges and training areas. These concerns are addressed in inter-agency dialogue with the FAA.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Adjacent Land Use	Individual Level Training		High density urban infrastructure contiguous to the base inhibits the ability to train with NVGs and constrains training in some areas due to noise considerations. Urbanization of the region puts pressure on off-installation natural resources (including sensitive and ESA-listed species), potentially increasing the base's share of remaining regional resources with increased management constraints affecting training. Regional growth affects access to off-installation lands for training, and inhibits NVG training by aircraft crews when transiting from offshore littoral areas or base to other training areas or installations within the region. Base lands are encumbered by long-term leasing outgrants to the State of CA, a nuclear power plant facility, and agriculture field operations. Initiatives to reclaim training land formerly used for agricultural leases have been executed. Buffer-lands acquisition program is being executed. Expansion is not feasible.
	Unit Level Training		Same as above. Location of Interstate 5 precludes NSFS training or external load ship-to-shore aviation support training.
	MEU Level Training		Same as above. Location of Interstate 5 precludes NSFS training or external load ship-to-shore aviation support training.
Cultural Resources	Individual Level Training		Constraints on training due to the presence of cultural resources include inability to conduct training that requires digging / earth moving in some training areas; cultural resources on beaches result in limitations on use, which are cumulative with other limitations such as ESA-based restrictions. The base coordinates and consults with the State Historic Preservation Office, with the objective of reducing constraints on training.
	Unit Level Training		Same as above. Impacts on training from cultural resource constraints are more severe for complex unit-level and MEU-level training.
	MEU Level Training		Same as above. Impacts on training from cultural resource constraints are more severe for complex unit-level and MEU-level training.
Wetlands	Individual Level Training		Regulatory constraints on use of wetlands for training impose limitations on uses of riverine areas, some watershed areas, and areas that contain vernal pools. The base coordinates and consults with the U.S. Army Corps of Engineers, with the objective of reducing constraints on training.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.

This Page is Intentionally Left Blank.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Quantico Assessment Details

Range Mission Description

The MCB Quantico Training Range Complex mission is to provide Individual level training support to TECOM formal schools. As a secondary priority, the Quantico Range Complex supports unit level training conducted by Marine Reserve units. Other training includes operations by the Marine Corps Embassy Security Group, non Department of Defense (DoD) tenants (FBI, DEA), and other Federal and law enforcement agencies and university ROTC programs.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	●	●			●	●	●	●	●	●		●	
Unit Level Training	●	●			●	●	●	●	●		●	●	
MEU Level Training													
MEB Level Training													

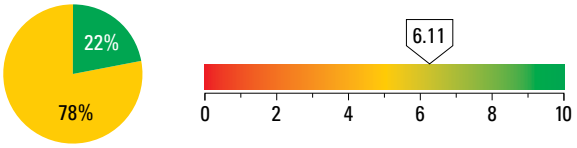
Legend: FMC ● PMC ● NMC ●

Encroachment Data

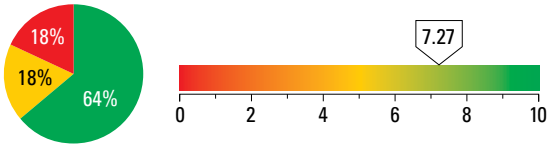
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training	●	●	●		●	●	●	●	●	●	●	●
Unit Level Training	●	●	●		●	●	●	●	●	●	●	●
MEU Level Training												
MEB Level Training												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCB Quantico is finalizing its RCMP analysis in 4th Qtr FY2010. Observations made in the course of RCMP development are the basis for this assessment. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. MCB Quantico generally has the capability to support required training; however, unit-level training capability is limited to platoon-sized and smaller units.
3. The lack of modern, automated infantry targets and scoring / feedback systems are the deficits with greatest impact on training mission.

Summary Observations

1. 18% of the range complex mission is moderately impacted by encroachment factors.
2. Adjacent Land Use, Munitions Restrictions, and Noise Restrictions are the encroachment factors with greatest impact on training mission.
3. Urbanization trend and associated impacts on range uses increasingly affect capability of installations to fully support initial Officer training at The Basic School, and the Infantry Officer Course MOS training.
4. Growth pressures from cantonment reducing utility of some range areas.
5. Encroachment Control Plan (ECP) has been completed, and is being executed.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.43	6.43	6.67

Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) instrumented MOUT capabilities, (2) fully resourced range control facility, and (3) upgraded and modernized targets.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.09	9.09	7.27

Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, and (2) urban growth, are required to facilitate transition to a "Fully Mission Capable" designation.

MCB Quantico Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Individual Level Training		Ranges lack automated, fixed and mobile targets.Lack of adequate targetry reduces training realism and effectiveness, and training assessment capability. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
	Unit Level Training		Same as above.
Threats	Individual Level Training		Ranges lack realistic, modern threat representation / simulation capability. Lack of modern threat representation reduces training realism and effectiveness, and training assessment capability. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
	Unit Level Training		Same as above.
Scoring & Feedback System	Individual Level Training		Range complex lacks real-time training feedback systems and position-location systems. Lack of real-time feedback reduces training realism and effectiveness, and training assessment capability. Range Modernization / Transformation program is addressing shortfalls consistent with available resources. Current projects include an audio-visual feedback system and additional tracking systems for personnel and vehicles.
	Unit Level Training		Same as above.
Infrastructure	Individual Level Training		Condition of unimproved roadways and tank trails have at times limited the use of transportation assets to the ranges.
	Unit Level Training		Same as above.
Range Support	Individual Level Training		Limited command and control communications capability for exercise and training support. Limited C2 reduces exercise monitoring and management control. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
	Unit Level Training		Same as above.
Small Arms Ranges	Individual Level Training		MCB Quantico ranges lack optimal targets and training feedback systems. Limited targetry reduces training realism and effectiveness, and training assessment capability. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
Collective Ranges	Unit Level Training		MCB Quantico has a single live-fire and maneuver range capable of supporting platoon level training. The base is incapable of supporting company-level live-fire training. Platoon range, and squad-level ranges lack optimal targets and training feedback systems. These limitations reduce training realism and effectiveness, and training assessment capability. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
MOUT Facilities	Individual Level Training		Development of new MOUT facilities has received focused attention throughout the Marine Corps, resulting in improvements at Quantico; however deficiencies remain. MOUT limitations reduce training realism and limit training feedback. Range Modernization / Transformation program is continuing to address shortfalls consistent with available resources and Service priorities.
	Unit Level Training		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Individual Level Training		Use of explosive ordnance is limited by noise concerns. MCB Quantico has come under increasing pressure to reduce use of demolition ordnance for training. Constraints affect ability of EOD teams to conduct range clearance activities, resulting in pressures to reduce use of dud-producing ordnance on ranges. ECP completed. Development of new MOUT facilities has received focused attention throughout the Marine Corps, resulting in improvements at Quantico; however deficiencies remain.
	Unit Level Training		Same as above.
Airspace	Individual Level Training		From 2000 to 2008, the population of the region of MCB Quantico-Prince William County, VA-has increased by 30% (U.S. Census Bureau). Burgeoning population exerts significant encroachment pressure on the Base including airspace limitations due to noise concerns and safety concerns with regard training by to fixed-wing military aircraft. Satisfactory remedies are elusive.
	Unit Level Training		Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCB Quantico Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Noise Restrictions	Individual Level Training		From 2000 to 2008, the population of the region of MCB Quantico-Prince William County, VA-has increased by 30% (U.S. Census Bureau). Burgeoning population exerts significant encroachment pressure on the Base, including restrictions on land uses for live fire training due to noise concerns. EOD demolition activity is prohibited after 2220 hrs. Encroachment pressures have significantly reduced the capability of the installation to support unit training and increasingly effect its capability to support individual training of newly commissioned lieutenants at The Basic School. ECP completed.
	Unit Level Training		From 2000 to 2008, the population of the region of MCB Quantico-Prince William County, VA-has increased by 30% (U.S. Census Bureau). Burgeoning population exerts significant encroachment pressure on the Base, including restrictions on land uses for live fire training due to noise concerns. EOD demolition activity is prohibited after 2220 hrs. Encroachment pressures have significantly reduced the capability of the installation to support unit training and increasingly effect its capability to support individual training of newly commissioned lieutenants at The Basic School. As with individual training, noise constraints affect unit-level training. ÉCP completed.
Adjacent Land Use	Individual Level Training		From 2000 to 2008, the population of the region of MCB Quantico-Prince William County, VA-has increased by 30% (U.S. Census Bureau). Burgeoning population exerts significant encroachment pressure on the Base, resulting in airspace use limitations, munitions constraints, and restrictions on land uses for live fire training due to noise concerns. Encroachment pressures have significantly reduced the capability of the installation to support unit training, and increasingly effect its capability to fully support individual training of newly commissioned lieutenants at The Basic School and MOS training of infantry officers. Growth pressures from non-DoD tenants (e.g., FBI, DEA) reduce the utility of some range areas. ECP completed; however, satisfactory remedies remain elusive.
	Unit Level Training		Same as above.

This Page is Intentionally Left Blank.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCAGCC Twentynine Palms Assessment Details

Range Mission Description

The Marine Corps Air Ground Combat Center (MCAGCC) provides range capabilities to support training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission essential tasks of modern expeditionary warfare, including Service-directed pre-deployment training exercises and training of units of the First Marine Expeditionary Force (I MEF) that are assigned to the installation. The Marine Air Ground Task Force Training Command (MAGTFTC) maintains its headquarters at MCAGCC.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Individual Level Training	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC		PMC	
Unit Level Training	FMC	FMC			PMC	PMC	PMC	FMC	FMC		PMC	PMC	
MEU Level Training	PMC	PMC			NMC	PMC	NMC	FMC	PMC		PMC	PMC	
MEB Level Training	NMC	NMC			NMC	PMC	NMC		PMC			PMC	

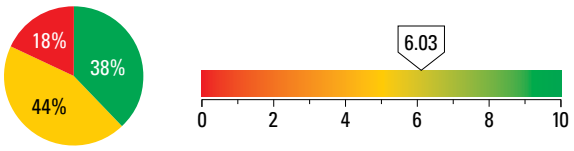
Legend: FMC, PMC, NMC

Encroachment Data

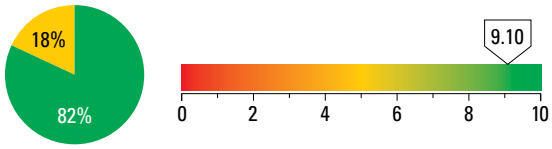
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Individual Level Training	Minimal	Minimal	Moderate		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal		Minimal
Unit Level Training	Minimal	Minimal	Moderate		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal		Minimal
MEU Level Training	Minimal	Minimal	Moderate		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal		Minimal
MEB Level Training	Minimal		Moderate		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal		Minimal

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCAGCC RCMP provides data for this assessment. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. Deficits noted in available training land and airspace, impacting ability to conduct required Service-level training of large Marine Air Ground Task Forces (MAGTFs). Other significant deficits are lack of modern automated targets, threat systems, and scoring/feedback systems.
3. Land and Airspace expansion Initiative expected to significantly enhance range complex for MAGTF training.

Summary Observations

1. The references for this assessment are Operational Training Ranges Required Capabilities (Marine Corps Reference Publication [MCRP] 3-0C) and Range Complex Management Plan (RCMP).
2. 18% of the range/range complex mission is moderately impacted by encroachment factors.
3. Spectrum and Airspace are the encroachment factors moderately impacting the training mission; impacts affect all levels of training.
4. Encroachment Control Plan (ECP) has been completed and is being executed.

MCAGCC Twentynine Palms Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.63	5.63	6.03	**Encroachment Scores**	9.00	9.00	9.10
Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) MEB level combined arms live fire and maneuver training capability, (2) exercise command and control battle staff training capability, and (3) enhancement and upgrade of large scale urban training capability.				Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, and (2) frequency spectrum limitations, are required to facilitate transition to a "Fully Mission Capable" designation.			

MCAGCC Twentynine Palms Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	MEU Level Training	🟡	There is insufficient land and air space to meet USMC doctrinal range capabilities requirements (MCRP 3-0C) and to conduct large-scale MAGTF and Joint exercises that involve all elements of combined arms training. Land and airspace expansion planning is underway, including preparation of an Environmental Impact Statement addressing proposed alternatives to meet requirements.
	MEB Level Training	🔴	There is insufficient land and air space to meet USMC doctrinal range capabilities requirements (MCRP 3-0C) and to conduct large-scale MAGTF and Joint exercises that involve all elements of combined arms training. Land and airspace expansion planning is underway, including preparation of an Environmental Impact Statement addressing proposed alternatives to meet requirements.
Airspace	MEU Level Training	🟡	There is insufficient land and air space to meet USMC doctrinal range capabilities requirements (MCRP 3-0C) and to conduct large-scale MAGTF and Joint exercises that involve all elements of combined arms training. Land and airspace expansion planning is underway, including preparation of an Environmental Impact Statement addressing proposed alternatives to meet requirements.
	MEB Level Training	🔴	Same as above.
Targets	Unit Level Training	🟡	There are a number of required ranges and target areas that either don't exist or need modernization to meet USMC training requirements. These shortfalls span all levels of unit training. Shortfalls include infantry and mechanized automated ranges and targets, battle-course ranges and targets, assault/breaching/demolition ranges, and others. The Marine Corps Range Modernization and Transformation program is addressing these shortfalls through range investments consistent with available resources.
	MEU Level Training	🔴	Target shortfalls affect realism of MAGTF training. Due to the nature and size of the training area (i.e., an open, live fire impact area covering hundreds of square miles), target systems for large exercises are generally not automated. The Marine Corps Range Modernization and Transformation program is analyzing approaches to addressing these shortfalls through range investments consistent with available resources.
	MEB Level Training	🔴	Same as above.
Threats	Unit Level Training	🟡	MCAGCC requires a comprehensive electronic training environment supporting basic through advanced collective training. The capability must simulate neutral, hostile, and non-hostile ground, air defense, and airborne weapons systems; OPFOR command and control; neutral, hostile, and non-hostile cryptologic systems; and hostile jamming. There are efforts underway to study OPFOR capability alternatives and to develop shortfall strategies. Role player program (not a program-of-record) is significant training enhancement.
	MEU Level Training	🟡	Same as above.
	MEB Level Training	🟡	MCAGCC requires a comprehensive electronic training environment supporting basic through advanced collective training. The capability must simulate neutral, hostile, and non-hostile ground, air defense, and airborne weapons systems; OPFOR command and control; neutral, hostile, and non-hostile cryptologic systems; and hostile jamming. Through the Range Modernization and Transformation program efforts are underway to study OPFOR capability alternatives and to develop shortfall strategies. Role player program (not a program-of-record) is significant training enhancement.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCAGCC Twentynine Palms Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Unit Level Training	🟡	Some existing ranges lack modern scoring and feedback systems. The Marine Corps Range Modernization and Transformation program is addressing these shortfalls through range investments consistent with available resources.
	MEU Level Training	🔴	MAGTF-level training requires enhanced instrumentation for training event reconstruction, debriefing, and replay. MCAGCC currently lacks such capabilities. The Marine Corps Range Modernization and Transformation program continues to analyze and address these shortfalls through range investments consistent with available resources. Current initiative to construct state-of-the-art MAGTF-level MOUT facility will mitigate some issues. Expected completion 2012.
	MEB Level Training	🔴	Same as above.
Range Support	MEU Level Training	🟡	Exercise Control facilities are insufficient for large-scale MAGTF and Joint exercises. MCAGCC has an effort for a design study and DD 1391s to construct and equip a C22/Exercise Control facility for large-scale exercises. C4 infrastructure requires expansion to accommodate MAGTF- level training.
	MEB Level Training	🟡	Same as above.
Collective Ranges	Unit Level Training	🟡	See comments above regarding target deficits.
	MEU Level Training	🟡	See comments above regarding land, airspace, range control, and target deficits.
MOUT Facilities	Individual Level Training	🟡	Development of new MOUT facilities has received focused attention throughout the Marine Corps, resulting in significant improvements; however deficiencies remain. Range Modernization / Transformation program is continuing to address shortfalls consistent with available resources and Service priorities.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Current initiative to construct state-of-the-art MAGTF-level MOUT facility will mitigate shortfall. Expected completion 2012.
	MEB Level Training	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Individual Level Training	🟡	Congested frequency spectrum limits frequency availability/deconfliction. Affects all levels of training through frequency spectrum interference. Assessment and mitigation planning actions and milestones being implemented.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
	MEB Level Training	🟡	Same as above.
Airspace	Unit Level Training	🟡	Congested regional airspace surrounds Special Use Airspace (SUA) supporting MCAGCC ranges, resulting in FAA pressure for access to SUA. Interruptions and modifications of training result in capabilities of fixed wing aviation assets to ingress/egress in tactical profiles over range areas. Initiative to expand airspace access is ongoing, USMC in coordination with FAA in context of land expansion.
	MEU Level Training	🟡	Same as above.
	MEB Level Training	🟡	Same as above.

This Page is Intentionally Left Blank.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCAS Yuma/Bob Stump Assessment Details

Range Mission Description

MCAS Yuma / Bob Stump Training Range Complex provides range capabilities to support training of Marines, Marine Corps units, MAGTF elements, and MAGTFs in the mission essential tasks of modern expeditionary warfare, including Service-directed aerial weapons training exercises and training of units of the Third Marine Air Wing (3d MAW) that are assigned to or extensively utilize the installation.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Individual Level Training	FMC	FMC			PMC	PMC	PMC	FMC	PMC	FMC		PMC	
Unit Level Training	FMC	PMC			PMC	PMC	PMC	FMC	PMC		FMC	PMC	
MEU Level Training	FMC	PMC			PMC	PMC	PMC	FMC	PMC		FMC	PMC	
MEB Level Training													

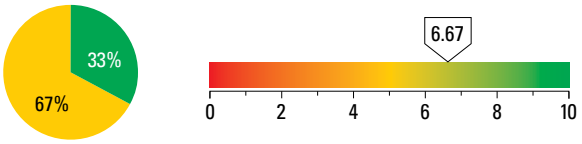
Legend: FMC, PMC, NMC

Encroachment Data

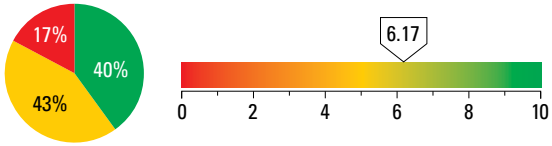
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Individual Level Training	Moderate	Moderate	Severe		Moderate	Minimal	Moderate	Moderate	Minimal	Minimal		Minimal
Unit Level Training	Severe	Moderate	Severe		Moderate	Minimal	Moderate	Moderate	Minimal	Minimal		Minimal
MEU Level Training	Severe	Moderate	Severe		Moderate	Minimal	Moderate	Moderate	Minimal	Minimal		Minimal
MEB Level Training												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). Bob Stump Training Range Complex RCMP provides data for this assessment. Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.
2. The Yuma Range Complex includes the Barry M. Goldwater Range (West), the Chocolate Mountains Aerial Gunnery Range (CMAGR) and additional designated airspace areas. In addition to supporting Marine Corps-specific training, Marine Corps ranges in the CMAGR are used extensively by Naval Special Warfare (NSW) commands.
3. Significant deficits are noted in available airspace, impacting ability to conduct required training or develop sufficient ranges. Other significant deficits are lack of modern automated targets, threat systems, and scoring and feedback systems.
4. Capability shortfalls generally affect all levels of training.

Summary Observations

1. 60% of the range/range complex mission is moderately or severely impacted by encroachment factors.
2. Encroachment factors with greatest impact on training mission are frequency spectrum and threatened and endangered species. Noise concerns and airspace availability also are significant encroachment impacts on training.
3. Encroachment Control Plan (ECP) has been completed and is being executed. The references for this assessment are Operational Training Ranges Required Capabilities (Marine Corps Reference Publication [MCRP] 3-0C) and Range Complex Management Plan (RCMP). Mission and Attribute areas in "white" were not assessed, or are not applicable to this installation.

MCAS Yuma/Bob Stump Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.28	5.28	6.67	**Encroachment Scores**	5.25	5.25	6.17
Impacts from key range capabilities shortcomings resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Top three capabilities and/or enhancements required to facilitate transition to "Fully Mission Capable" include (1) available airspace, (2) modern automated targets, and (3) scoring and feedback systems.				Impacts from key encroachment factors resulted in "Partially Mission Capable" designations for this installation during FYs 2008–2010 when assessing the installation's ability to support Marine Corps Task 1.7 (Support Maneuver through the Provision of Training Areas) and Marine Corps Task 3.3 (Support Fires through the Provision of Ranges and Training Areas). Successful mitigation of key encroachment factors, including (1) airspace restrictions, (2) frequency spectrum limitations, and (3) urban growth, are required to facilitate transition to a "Fully Mission Capable" designation.			

MCAS Yuma/Bob Stump Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Individual Level Training	●	Airspace requirements for individual training are fully met within the range complex with the exception of the objective requirement of 30 nm x 60 nm for EW ranges.
	Unit Level Training	●	The objective requirement for a 40 nm x 60 nm AAW and 30 nm x 60 nm EW range is not met within the range complex. The altitude blocks are not consistent causing the airspace to be fragmented. Airspace has limited availability to non-participating units during WTI, other Service-level pre-deployment training exercises, and unit detachments to MCAS Yuma. Efforts ongoing to improve airspace scheduling and management to optimize airspace availability and utilization. Marine Corps is coordinating with FAA to provide enhanced airspace for larger training events. Also evaluating potential of MOA with Luke AFB regarding use of R-2301E.
	MEU Level Training	●	Same as above.
Targets	Individual Level Training	●	The fidelity and quality of tactical targets are limited for training of aviation ground support units; however. Range Modernization / Transformation program is addressing shortfalls consistent with available resources. Planned upgrades include investment in welded and pop-up targets; buildings for convoy operations and enhanced marksmanship program (EMP) training.
	Unit Level Training	●	The type, quality, fidelity, and quantity of targets are inadequate. There is a limited number of JDAM targets. No targets with IR signature capability. Urban Close Air Support range (Yodaville) does not provide a realistic urban training environment for helicopter gunnery operations. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
	MEU Level Training	●	Same as above.
Threats	Individual Level Training	●	Shortfalls in threat aircraft include: no rotary-wing threat aircraft, no aircraft with A-A radar missile presentations, and radar capability is limited on the F-5. Solutions or workarounds include units-in-training providing own OPFOR and joint training with USAF using F-15/16. Other shortfalls: Threat Level 3 and 4 EC signature equipment, and limited coverage of EW threat systems and OPFOR simulators beyond R-2301W. Range Modernization / Transformation program is addressing shortfalls consistent with available resources.
	Unit Level Training	●	Same as above.
	MEU Level Training	●	Same as above.
Scoring & Feedback System	Individual Level Training	●	TACTS and EC&C coverage is limited to R-2301W. S-A threat simulations are limited. Tactical targets are not scored and there is no scoring feedback in R-2507. Debrief capability is limited to MCAS Yuma, MCAS Miramar, and NAF El Centro. Low altitude communication is limited. EC&C is limited to R-2301W. There are no secure EC&C circuits. Range Modernization / Transformation program is addressing shortfalls consistent with available resources; initiatives include: invest in JNTC compliant tracking and EC&C equipment to cover entire range complex; provide staffing support for Range Operational Control Center (ROCC); upgrade S-A simulations; provide scoring for tactical targets in R-2507N/S; upgrade TACTS to TCTS; and communications upgrade to resolve low altitude shortfall and shortage of secure communication circuits.
	Unit Level Training	●	Same as above.
	MEU Level Training	●	Same as above.
Range Support	Individual Level Training	●	Range support shortfalls include lack of remote weather sensors on the range. Range Operational Control Center (ROCC) is currently not functional; hardware is in place but there is no trained staff.
	Unit Level Training	●	Same as above.
	MEU Level Training	●	Same as above.

Figure 3-20 Marine Corps Capability and Encroachment Assessment Detail (continued)

MCAS Yuma/Bob Stump Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
MOUT Facilities	Individual Level Training		Development of new MOUT facilities has received focused attention throughout the Marine Corps, resulting in significant improvements; however deficiencies remain. Range Modernization / Transformation program is continuing to address shortfalls consistent with available resources and Service priorities.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.

Encroachment Observations

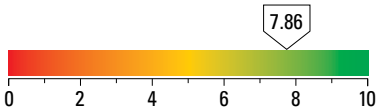
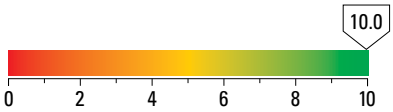
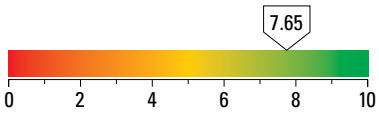
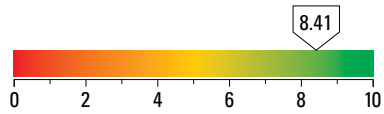
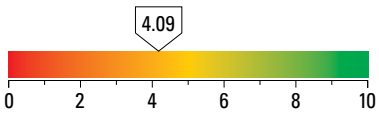
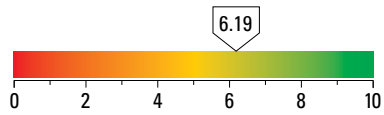
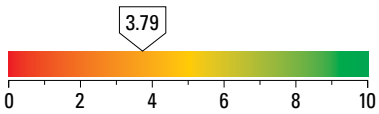
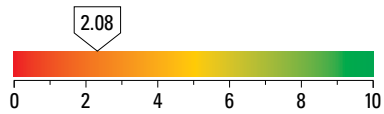
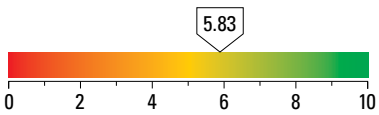
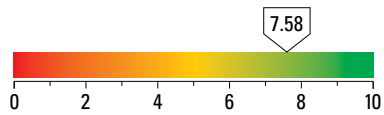
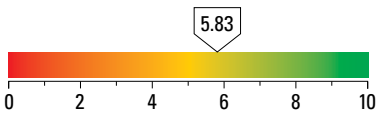
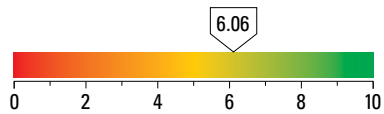
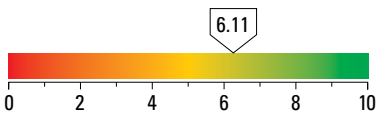
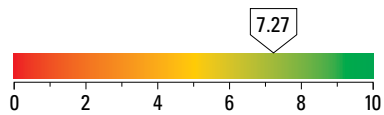
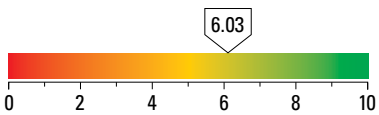
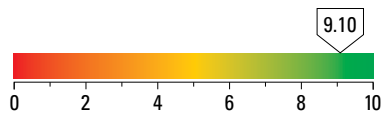
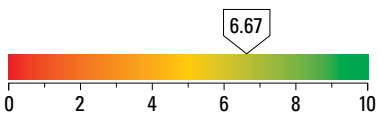
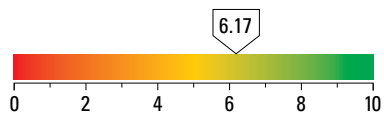
Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Individual Level Training		Endangered species and habitat protection requirements result in significant challenges to effective training involving earthwork or heavy equipment operations. Range delays are encountered for some training activities involving high explosive ordnance due to requirement to physically inspect the ranges to ensure that no endangered wildlife species are occupying the area. MCAS Yuma maintains close coordination with USFWS to address ESA-based constraints on training.
	Unit Level Training		Same as above. Impacts are more significant for unit- and MEU-level training.
	MEU Level Training		Same as above. Impacts are more significant for unit- and MEU-level training.
Munitions Restrictions	Individual Level Training		Due to UXO presence, convoy security elements are not authorized to depart existing roads or trails which limits the realism of required training. Range clearance procedures mitigate impacts.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Spectrum	Individual Level Training		MCAS Yuma is a joint military-civilian use airfield; significant civilian aircraft operations often crowd tower and approach frequencies. Civilian and military frequencies are separate; however, ATC's response is often delayed to military aircraft due to communications with civilian traffic. Growth in regional communications infrastructure, including south of the border with Mexico, and new commercial cell phone towers increase noise floor levels and some of the systems operate in the same frequency bands as the equipment used by MCAS Yuma or tenant units. The ability to use the full spectrum of L-Band (D-Band) for AN/TPS-59 (V)3 radar system to include secondary radar (Identification Friend or Foe, specifically Mode-4 and Mode 5) is adversely effected. To date, Mode-4/5 cannot be used. Current impacts are manageable; however trends, including proposed broadband allocation initiatives, threaten to significantly impact training and daily airfield operations.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Airspace	Individual Level Training		When FFA (LA Center) experiences significant enroute weather issues, commercial air traffic sometimes is re-routed around (or through MCAS controlled restricted airspace). Typically, through Letter of Agreement (LOA) the use of MCAS airspace is granted by MCAS if not being utilized by scheduled military training, but emergent cases have led to LA Center assuming the airspace, affecting military training. (CLUS App. D. Part II. 1 and 3). Aircraft (a/c) ordnance takeoffs and recoveries are restricted to certain runways. As a shared use airfield, significant civilian a/c ops often delay military a/c takeoffs and require military a/c to extend traffic pattern for proper spacing to land. Quiet hours on a few occasions. Crop dusters operating within the tower's airspace are mitigated by flying normal course rules into and out of airfield for helos and are distracting. Power lines planned around base underlying Class D airspace impact instrument approach procedures.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Noise Restrictions	Individual Level Training		Supersonic flight restricted to a corridor located in the R2301W and is restricted to only one direction inhibiting realistic training. Noise complaints stem from aircraft aligning to use targets in restricted areas that may be close to the borders of the area (R2301W/BMGR). Residential expansion towards the boundary of the range areas contribute to this. Low-level aircraft (helos) transiting to and from these areas have resulted in noise complaint issues as housing grows in the Foothills area. (JLUS App. D. Part II. 1 and 3). MCAS Yuma's community liaison and outreach program seeks to influence community understanding of training and operational concerns.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.

MCAS Yuma/Bob Stump Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Adjacent Land Use	Individual Level Training	●	The population of the region of MCAS Yuma (Yuma County, AZ) increased 20% between 2000-2008 (U.S. Census Bureau). This trend is expected to continue, increasing urbanization in the vicinity of the Air Station and Yuma ranges, raising concerns about encroachment. Communications and electrical transmission infrastructure threatens to interfere with flight patterns and military use of critical bands of the frequency spectrum. Light sources associated with urban growth around the airfield currently are impacting aircrews' ability to train with Night Vision Devices (NVD's). Noise concerns have resulted in alteration of flight corridors to mitigate community impacts. MCAS Yuma's community liaison and outreach program seeks to influence community understanding of training and operational concerns.
	Unit Level Training	●	Same as above.
	MEU Level Training	●	Same as above.

Table 3-9 Marine Corps Capability and Encroachment Assessment Comparison

Range Name	Capability Score	Encroachment Score
MCAS Beaufort/ Townsend		
MCMWTC Bridgeport		
MCAS Cherry Point		
MCB Hawaii		
MCB Japan		
MCB Camp Lejeune		
MCB Camp Pendleton		
MCB Quantico		
MCAGCC Twentynine Palms		
MCAS Yuma/Bob Stump		

3.2.3 Navy[8]

Navy Training Range Capability Assessment Analysis Results

The Range Capability Assessment data from 21 Navy range complexes are summarized and presented in Table 3-10.

The Navy Range Capability Chart and Scores are presented in Figure 3-21 and assessments by Range, Attributes, and Mission Areas are shown in Figures 3-23, 3-25, and 3-27.

The Navy's 21 individual range capability assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-29).

Navy Training Range Encroachment Assessment Analysis Results

Navy Range Encroachment Assessment data from the 21 Navy ranges complexes are summarized in Table 3-11.

The Navy Range Encroachment Chart and Scores are presented in Figure 3-22 and assessments by Range, Factors, and Mission Areas are shown in Figures 3-24, 3-26, and 3-28.

The Navy's 21 individual encroachment assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-29).

The Navy Range Capability and Encroachment assessment comparisons are presented in Table 3-12.

8 Of the 23 Range Complexes identified in the Navy's range inventory in Appendix C, the Guantanamo and Diego Garcia Range Complexes have been removed from consideration for assessment in the 2011 report. The decision to exclude the range complexes in the report is based on changes in the Navy's near-term fleet training patterns, which no longer include either geographic location, as well as a lack of permanent training range infrastructure to support either location. The limited utilization and capability of the range space associated with these complexes is in no way related to the role of their associated installations for supporting naval operations. As a part of developing future Sustainable Ranges Reports, the Navy will re-evaluate potential reinstitution of capability and encroachment assessments for both range complexes.

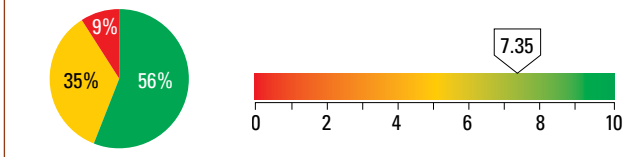
Table 3-10 Navy Capability Assessment Data Summary

Range	NMC	PMC	FMC	Capability Scores
Atlantic City	0	3	11	8.93
Atlantic Test Ranges	0	17	24	7.93
Atlantic Undersea Test and Evaluation Center (AUTEC)	0	1	35	9.86
Boston	0	2	12	9.29
China Lake Land Ranges	0	1	27	9.82
El Centro	0	1	4	9.00
Fallon Range Training Complex	0	18	5	6.09
Gulf of Mexico (GOMEX)	0	4	25	9.31
Hawaii	2	21	35	7.84
Jacksonville	1	17	24	7.74
Japan	9	22	13	5.45
Key West	0	3	4	7.86
Mariana Islands	37	11	11	2.80
Narragansett Bay	0	3	4	7.86
Navy Cherry Point	1	22	28	7.65
Northern California (NOCAL)	4	8	18	7.33
Northwest Training Range Complex	0	23	29	7.79
Okinawa	9	31	10	5.10
Point Mugu Sea Range	0	4	47	9.61
Southern California (SOCAL)	3	31	26	6.92
Virginia Capes (VACAPES)	1	18	24	7.67
HQ Navy	**67**	**261**	**416**	**7.35**

Table 3-11 Navy Encroachment Assessment Data Summary

Range	Severe	Moderate	Minimal	Encroachment Scores
Atlantic City	0	4	8	8.33
Atlantic Test Ranges	0	20	40	8.33
Atlantic Undersea Test and Evaluation Center (AUTEC)	0	9	18	8.33
Boston	0	4	6	8.00
China Lake Land Ranges	0	15	25	8.13
El Centro	0	0	11	10.00
Fallon Range Training Complex	0	13	26	8.33
Gulf of Mexico (GOMEX)	0	7	18	8.60
Hawaii	1	18	42	8.36
Jacksonville	3	15	22	7.38
Japan	2	7	20	8.10
Key West	0	2	4	8.33
Mariana Islands	1	29	33	7.54
Narragansett Bay	0	2	3	8.00
Navy Cherry Point	0	11	25	8.47
Northern California (NOCAL)	0	2	22	9.58
Northwest Training Range Complex	2	11	40	8.58
Okinawa	2	14	33	8.16
Point Mugu Sea Range	0	18	56	8.78
Southern California (SOCAL)	2	32	32	7.27
Virginia Capes (VACAPES)	0	14	26	8.25
HQ Navy	**13**	**247**	**510**	**8.23**

Figure 3-21 Navy Capability Chart and Scores



Summary Observations

Navy's overall capability score decreased from 7.37 in 2010 to 7.35 in 2011

- Navy's Fully Mission Capable (FMC) assessments (green) decreased slightly from 57% to 56%
- Partially Mission Capable (PMC) assessments (yellow) increased slightly from 34% to 35%
- Not Mission Capable (NMC) assessments (red) stayed constant at 9%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	7.37	7.28	7.37

The top three Capability Attributes with the greatest number of red and yellow assessments are (Figure 3-25):

- Range Support (0+83)
- Threats (14+45)
- Scoring and Feedback Systems (19+36)

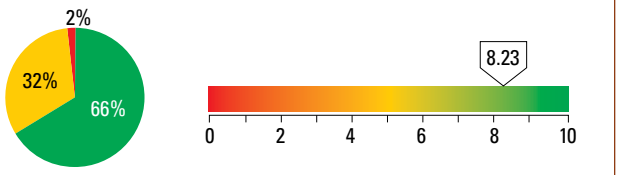
The top three Mission Areas with the greatest number of red and yellow assessment are (Figure 3-27):

- Strike Warfare (16+51)
- Anti-Air Warfare (7+51)
- Electronic Combat (13+32)

Training to threat representative scenarios with ground truth recording and instructor feedback supports a quality of readiness training that ultimately improves the survivability of our forces. Degraded range capabilities cause operators to adapt and innovate to maintain proficiency. This often causes readiness to remain high despite degradations at one specific location. While these training adaptations are unlikely to erode overall unit readiness in the short-term, the slow erosion of capability across a system of ranges will degrade readiness as alternative training solutions do not meet the necessary quality levels. For the period of this report, the top three capability limitations are: Mariana Islands training range infrastructure, underwater scoring and feedback at Jacksonville, and mine warfare scoring and feedback at Southern California (SOCAL), Virginia Capes (VACAPES), and Navy Cherry Point. These specific range equities compete for the same limited resources which ultimately erodes the quality of training support provided to the fleet.

Refer to the Navy's 21 individual range assessments for comments and additional information (Figure 3-29)

Figure 3-22 Navy Encroachment Chart and Scores



Summary Observations

Navy's overall encroachment score decreased from 8.41 in 2010 to 8.23 in 2011

- Navy's minimal risk assessments (green) decreased from 70% to 66%
- Moderate risk assessment (yellow) increased from 29% to 32%
- Severe risk assessments (red) stayed constant at 2%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.08	8.49	8.41

The three Encroachment Factors with the greatest number of red and yellow assessment are (Figure 3-26):

- Spectrum (4+67)
- Maritime Sustainability (4+38)
- Range Transients (0+38)

The top three Mission Areas with the greatest number of red and yellow assessments are (Figure 3-28):

- Strike Warfare (0+47)
- Anti-surface Warfare (1+37)
- Anti-air Warfare (4+33)

Encroachment has remained relatively constant for the period of this report and as assessed in the 2010 SRR. Three encroachment factors received severe/moderate ratings due to their adverse impact or potential impact to training range support. These encroachment factors included Airspace and Adjacent Land Use, Frequency Spectrum Competition, and Cultural Resources. Maritime Sustainability and Threatened & Endangered Species were also assessed as significant. Restrictions resulting from electromagnetic spectrum encroachment include prohibitions from performing GPS jamming, authorization to radiate VHF early warning threat radar system, and restricted use of the Track While Scan Simulator. Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. A preponderance of potential archaeological sites identified on San Clemente Island (SCI) that lack definitive eligibility determination has decremented SOCAL's Cultural Resources encroachment assessment from minimal to severe.

Refer to the Navy's 21 individual range assessments for comments and additional information (Figure 3-29)

Figure 3-23 Navy Capability Assessments by Range

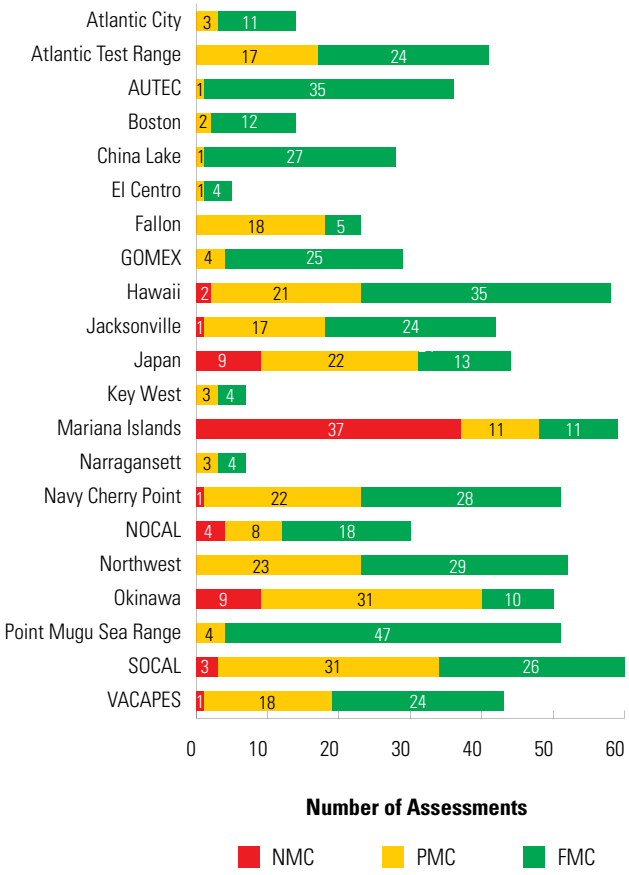


Figure 3-24 Navy Encroachment Assessments by Range

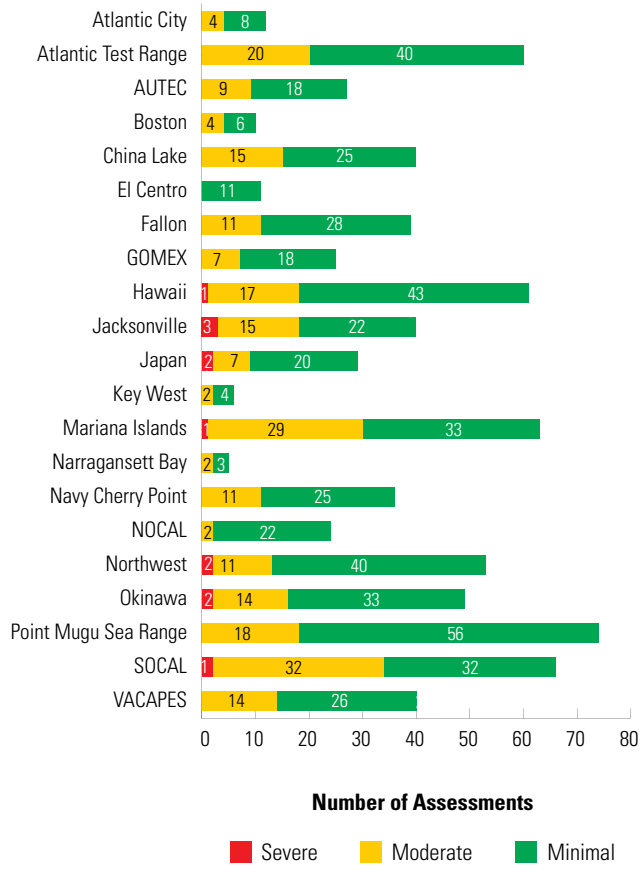


Figure 3-25 Navy Capability Assessment by Attributes

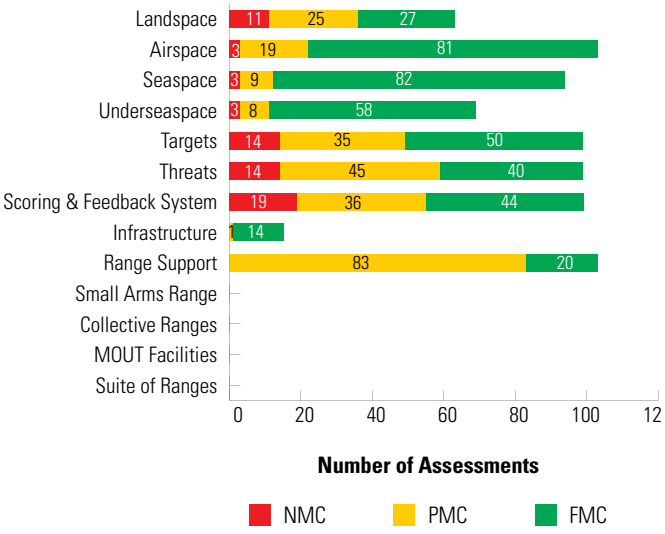


Figure 3-26 Navy Encroachment Assessment by Factors

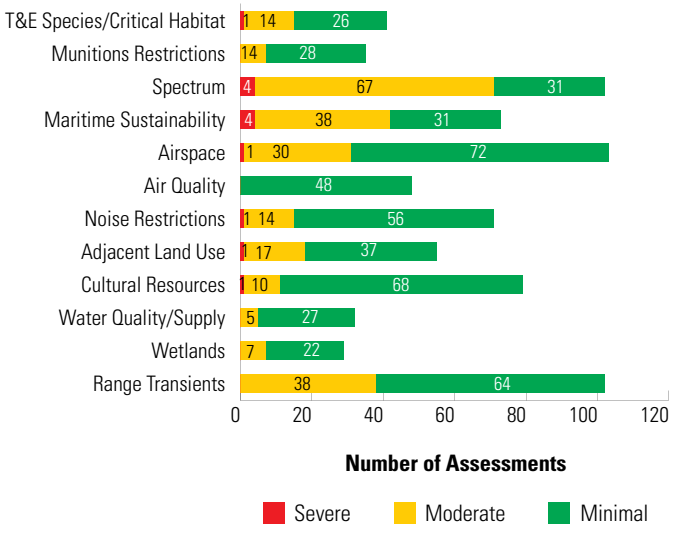


Figure 3-27 Navy Capability Assessment by Mission Areas

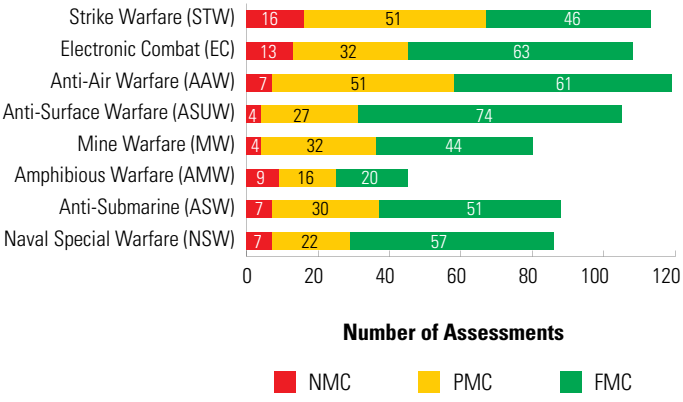
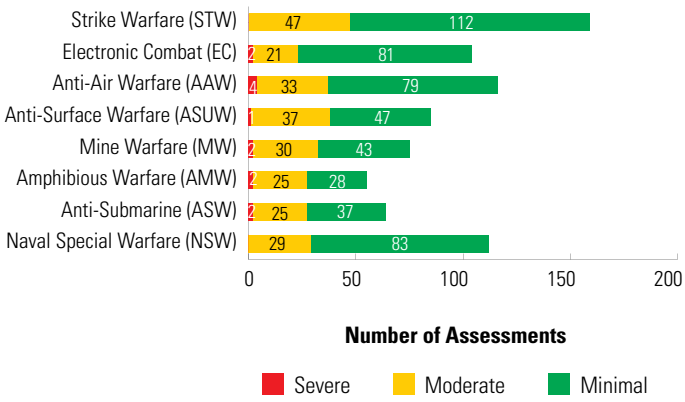


Figure 3-28 Navy Encroachment Assessment by Mission Areas



Navy Special Interest Section

General Issues

Since publication of the 2010 SRR, Navy training range management effort has focused on the mitigation of energy development encroachment issues impacting range sustainment. While the Navy is committed to the Nation's energy goals, conventional and renewable energy development projects have increased pressure on training space availability. Separately, the Federal Communication Commission's initiatives to re-allocate military frequency bands for civilian and commercial use in support of the National Broadband Plan directly restricts the Navy's use of the frequency spectrum to test, train, and operate. When these forms of encroachment prevent, or merely degrade, training they affect military forces' ability to successfully prevail in combat.

The remainder of the Special Interest Section will identify significant range capability shortfalls and range impacts from encroachment factors. Most frequently these external influences result in a more controlled, restrained, or restrictive training environment and shape how the Navy trains to achieve combat readiness. When appropriate, each of these issues will be assessed in the POM-13 budget planning cycle.

Alternative Energy Development, Wind Farms

The Navy's energy strategy is centered on mission assurance, energy security, energy efficiency and environmental stewardship while retaining the ability to sustain military readiness and remain the pre-eminent maritime power. As commercial development proposals are formally presented, The Department of Navy supports the Office of the Secretary of Defense (OSD) to analyze, assess, and communicate potential impacts to naval training. The Navy supports current OSD initiatives to establish a single Department of Defense point of contact for all civil or non-governmental entities to establish wind farm impacts to service interests. A win-win situation for DoD as well as civil/commercial interests relies upon detailed proposal descriptions and open discussions of specific military operational limitations in an iterative process with energy stakeholders so actionable feedback is generated for both claimants.

In the case of offshore wind energy project proposals, close coordination with the Department of the Interior's Bureau of Ocean Energy Management remains critical to the preservation of range space and maneuver areas that support essential fleet training operations and present minimal impact to stringent test events. This dependency is interrelated. The more detailed and complete the energy proposal from commercial developers, the more accurate and comprehensive the Navy's impact assessment on service interests such as installations, ranges, and specific capabilities will be.

Often it is impracticable to discuss measurable impacts to training in the absence of planning details such as turbine height and placement density of wind farms projects. In locations near surface ship training and aviation-related operations, wind farms can interfere with older ground radars, shipboard navigation radars or airborne weapon system radars. Demanding flight operations such as low altitude terrain clearance training or precision weapon delivery events require unfettered safety-of-flight radar support to minimize hazards to civilian personnel.

Adverse weather and/or a high volume of commercial aviation exacerbates the tracking challenges posed to older, less capable military air traffic control systems where wind towers populate airspace inside the radar's field of view. Shipboard radars can also be affected during key training events such as airborne target tracking and engagement.

Naval Air Warfare Center (NAWC) China Lake remains actively engaged with local government and regional leaders to site wind farms near military airspace in ways that mitigate the adverse effects upon safety-of-flight radars. The electromagnetic effects of a single wind turbine upon legacy radars are far less than that of a dense wind farm grid. As wind farm populations increase within military airspace, the radar controlled range space diminishes measurably when supporting precision aerial weapon test events or high-volume, low altitude training events such as student pilot instrument approach training at NAS Kingsville. The Navy awaits the results of ongoing studies to assess potential electromagnetic interference impacts to shipboard radars during training and testing evolutions. If impacts are measured or observed, these studies may further identify technical mitigations to reduce any adverse effect.

Frequency Spectrum Use Competition – The National Broadband Plan

Demand for electromagnetic spectrum is increasing, both commercially and within DoD. In the spring of 2010, the National Telecommunications and Information Administration (NTIA) introduced specific sharing and reallocation proposals for eleven specific frequency bands to support the Federal Communications Commission plan to connect 100 million homes in the next 10 years with broadband, the National Broadband Plan. It is imperative that the Navy be engaged in the military spectrum reallocation discussions.

Employing modern combat weapon systems against an electronic threat environment is critical to enhancing Navy range capabilities and ensuring the greatest fidelity for realistic training. These systems require DoD-managed, commercially-exclusive frequency bands to support military units during live training. Numerous spectrum bands, utilized by the Navy and other defense agencies, are increasingly encroached upon for use by non-governmental organizations. Of specific concern to training ranges is the possible loss of spectrum that supports employment of the Tactical Combat Training System (TCTS). Under review is the reallocation of the TCTS frequency band

(1755-1780 MHz) to the 10-year assessment plan that supports the National Broadband Plan.

Critical Factors—Range Capability

While the Navy strives to model range capabilities versus resources versus combat readiness, an exact tipping point between "combat ready" and "not combat ready" is difficult to predictably measure. However, live training in a threat representative scenario with ground truth recording and instructor feedback contributes to a quality of readiness that improves the warrior's chance of success and survivability. Quite often, operators meet training requirements supported by a degraded range capability by modifying threat scenarios or mission profiles to fit within the confines or limitations of a range. As an example; fleet electronic warfare operators build scenarios where the operator reacts to a "notional threat" that is derived from an FCC compliant blue-force signal or from the narrow transmission of a real threat system. These training adaptations are unlikely to erode overall unit readiness unless training realism is eroded on every live training venue or when adequate alternative forms of training simulation are not available.

Three capability attributes assessed as Not Mission Capable (NMC) impact training range support to the fleet in varying degrees. For the period of this report, the top three capability limitations are: Mariana Islands training range infrastructure, underwater scoring and feedback at Jacksonville, and mine warfare scoring and feedback at Southern California (SOCAL), Virginia Capes (VACAPES), and Cherry Point. These specific range equities compete for the same limited resources which ultimately erodes the quality of training support provided to the fleet.

Mariana Islands Range Complex (MIRC) Training Space, Targets, Threats, Scoring and Feedback—The Navy is committed to sustainable development and improvement of training range capabilities in the Marianas. As the regional joint force presence increases, the overall naval and joint force demand for training range capability will continue to be a critical issue. While no improvement in range capability was achieved since the 2010 SRR, the approval of National Environmental Policy Act-related documentation has paved the way for near-term improvements. In July 2010, the MIRC Final Environmental Impact Statement/Overseas Environmental Impact Statement was signed. Range enhancements to increase existing training capabilities (especially in undersea and air warfare areas) are necessary to maintain a state of military readiness commensurate with national defense requirements. Multiple range support challenges remain unresolved—the most significant being expansion of special use airspace, installation of scoring and feedback systems, procurement of a portable undersea warfare training range, and procurement of threat systems and opposition forces for air, surface and subsurface users. A comprehensive, DoD-led approach to resourcing joint requirements in the Marianas is required for this complex to support joint training. Component Commands, along with U.S. Pacific Command, are actively engaged in this process and the development of a training range planning strategy.

Jacksonville ASW Scoring & Feedback—Program Management of East coast Atlantic Undersea Warfare Training Range (USWTR) marked a new milestone of progress toward installation of the planned construction of this important Anti-Submarine Warfare (ASW) training capability. A Request for Proposal is expected for release in mid-FY2011 with Source Selection and contract awarding in the following quarter. United States Fleet Forces HQ, Pacific Fleet HQ, Naval Air Systems Command, and Chief of Naval Operations are progressing towards finalizing the Acquisition Program Baseline Agreement that establishes the plan for procurement and installation of this important shallow water training capability. When complete, the USWTR will cover approximately 500-square-nautical miles within the water space commonly referred as the Jacksonville operating area. This new capability will add value to combat readiness training for surface and air units preparing for ASW operations.

SOCAL (PMC), Cherry Point (NMC), and VACAPES (PMC)/Mine Warfare Scoring and Feedback—The 2010 Sustainable Ranges Report identified Mine Warfare training range capability shortfalls that have been partially addressed since publication. Newly installed training mine shapes in the SOCAL complex have enabled shallow and mid-depth mine warfare training, improving the range assessment to partially mission capable (PMC). The training capability is improved, but without an instrumented mine shape capability, it has not met the objective for increased fidelity in training and tactics development. The Cherry Point mine training capability assessment remains limited by the lack of instrumented mine training shapes. In VACAPES, the re-evaluation of training requirements in combination with enhancements from the fielding of non-instrumented mine shapes has resulted in elevating the assessment from NMC to PMC. Overall, the lack of modern, simulated mine fields remains a proficiency challenge to the Mine Countermeasure crews who must complete certifications prior to rotational deployments.

Critical Factors—Encroachment Factors

The situation regarding encroachment remains essentially unchanged in this report as it existed and was described in the 2010 SRR. Four encroachment factors received severe and moderate ratings that adversely impact or have potential to impact training range support to the fleet. They are Frequency Spectrum Competition, Airspace, Adjacent Land Use, and Cultural Resources.

Spectrum Restrictions (Severe/Moderate) — Restrictions resulting from electromagnetic spectrum encroachment include prohibitions from performing global positioning

system (GPS) jamming, authorization to radiate VHF early warning threat radar system, and restricted use of the Track While Scan Simulator. Electronic combat attack platforms such as the EA-18G and EA-6B and electronic defense systems onboard other Naval platforms are constrained by numerous operational emission limitations. Additionally, employment of the SPY-1 and SPS-49 radars, IFF jamming, and the Link 16 data link are severely restricted. Electromagnetic spectrum constraints limit spectrum operations and prohibit certain training events, segment training, reduce realism, limit application of new weapon technologies, and inhibit new tactics development. Ranges such as Point Mugu, SOCAL, and VACAPES, which are located in electronically dense environments, have extremely limited abilities to support electronic combat testing and training. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.

Airspace and Adjacent Land Use (Severe)—On-going and proposed wind farm power generation projects pose an encroachment threat to established training requirements and installations. Both training space, such as the Boardman target complex in Oregon, and installations, such as Naval Air Station Kingsville, Texas, are being impacted by wind farm development. The challenges to mitigate the physical aspects of large groupings of turbines or the electromagnetic interference from moving turbine blades require sufficient time to develop and integrate technical solutions. Considerable funding resources are also required that would otherwise be invested on readiness training. In addition, each challenge requires site specific analysis often supported by technical studies to ensure a proper balance between the Navy's readiness responsibilities and overall energy generation objectives. The Navy must balance fulfilling maritime national security readiness requirements with contributing to national energy security solutions that guard local/regional economies.

SOCAL Cultural Resources (Severe)—A preponderance of potential archaeological sites identified on SOCAL's San Clemente Island (SCI) that lack definitive eligibility determination has decremented SOCAL's Cultural Resources encroachment assessment from minimal to severe. In the absence of eligibility determination, over 7,000 potential sites are treated as if eligible under the National Historic Preservation Act (NHPA) that creates a considerable number of avoidance areas throughout range maneuver space designated in the SOCAL EIS/OEIS as the USMC Assault Vehicle Maneuver Area, Artillery Firing Positions, and Assault Maneuver Positions. SCI is the ONLY maritime training area that can support Marine Expeditionary Force Battalion Landings and live fire targeting. The presence of archaeological sites restrict Naval Special Warfare tactical training at a cost of over $25M and SCI supports the only location for Basic Underwater Demolition land demolitions training that is impacted by restricted range access. Additionally, two Search and Rescue training events were cancelled due to impacts on potential cultural resources.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail

Atlantic City Assessment Details

Range Mission Description

The Navy uses Atlantic City range areas for Anti-air Warfare (AAW) and Anti-surface Warfare (ASUW) training. The Atlantic City Complex is located in the waters adjacent to the coasts of New Jersey and New York. The AEGIS Combat Systems Center (ACSC) conducts operations in this area. It is controlled by the Fleet Area Control and Surveillance Facility Virginia Capes, (FACSFAC VACAPES). The complex is composed of the Warning Area 107 (W-107) non-instrumented warning area and the Atlantic City Operating Area (OPAREA).

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare													
Electronic Combat													
Anti-Air Warfare	FMC	FMC	FMC		FMC	PMC	FMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	FMC	FMC		PMC				
Mine Warfare													
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare													

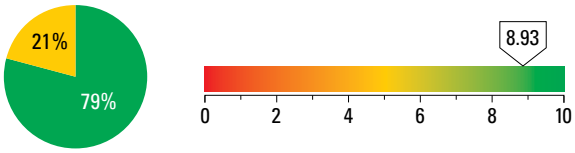
Legend: FMC, PMC, NMC

Encroachment Data

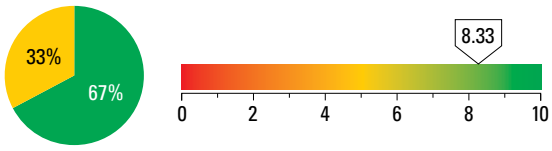
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare												
Electronic Combat												
Anti-Air Warfare			Severe	Severe	Minimal		Minimal		Minimal			Minimal
Anti-Surface Warfare			Severe	Severe	Minimal		Minimal		Minimal			Minimal
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Threats.
2. Mission Area most severely impacted: AAW
3. Projected Status: No change.

Summary Observations

1. Spectrum and maritime sustainability are the encroachment factors that impact the range's ability to perform its assigned mission the most.
2. ASUW and AAW are the assigned Mission Areas that are impacted the most.

Atlantic City Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.93	8.93	8.93	**Encroachment Scores**	8.75	8.33	8.33
The capability assessment has been stable from year to year, with relatively constant overall scores for CY 2010 and 2011.				1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011 The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011. 2. The RCMP update is currently underway. 3. Dept. of Interior (DOI) & private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds Naval offshore operating areas & training events may be affected High priority areas include training ranges & sea space in and adjacent to all Navy OPAREAs OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies Fleet review & analysis of impacts from both oil/gas & wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD DoD & DOI coordination continues.			

Atlantic City Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Anti-Air Warfare (AAW)	●	Threat air helicopter and supersonic OPFOR not available. Without threat air helicopter and supersonic OPFOR: reduces realism; inhibits tactics; increases personnel op-tempo; increases O&M costs. Recommend investment in an increased number and type of aircraft and augmentation for OPFOR through Commercial Air Services. No completion date identified.
Range Support	Anti-Air Warfare (AAW)	●	Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Anti-Surface Warfare (ASUW)	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Anti-Air Warfare (AAW)	●	Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Surface Warfare (ASUW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Atlantic City Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Maritime Sustainability	Anti-Air Warfare (AAW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. The Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests and continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Anti-Surface Warfare (ASUW)	●	Same as above.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Atlantic Test Range (Patuxent River) Assessment Details

Range Mission Description

ATR is the Navy's principal RDT&E, engineering, and Fleet support center for manned and unmanned aircraft, engines, avionics, aircraft support systems and ship/ shore/ air operations. Various Fleet squadrons, primarily from the east coast, come to ATR to train when airspace or test assets are available.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	PMC	PMC	PMC		PMC	PMC	FMC	FMC	FMC				
Electronic Combat	PMC	PMC	PMC		FMC	FMC	FMC	FMC	FMC				
Anti-Air Warfare	FMC	PMC	FMC		FMC	FMC	FMC	FMC	FMC				
Anti-Surface Warfare													
Mine Warfare		PMC	PMC	PMC	PMC	PMC	FMC	FMC	FMC				
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare	PMC	FMC	FMC	PMC	FMC	PMC	FMC	FMC	FMC				

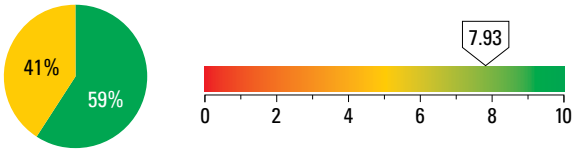
Legend: FMC PMC NMC

Encroachment Data

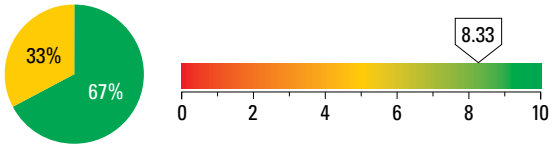
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
Electronic Combat	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
Anti-Air Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
Anti-Surface Warfare												
Mine Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Airspace is the capability attribute that most impacts the range's ability to perform its assigned mission.
2. Strike warfare and mine warfare are the mission areas that are impacted the most.
3. No change in capability is anticipated for the future.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. Spectrum, air-space, noise restrictions, and adjacent land-use are the encroachment factors that impact the range's ability to perform its assigned mission.
2. STW, EC, AAW, MW, and NSW are the mission areas that are impacted the most.
3. Increased population growth will lead to additional encroachment pressures. Increased desire for additional spectrum for commercial use will lead to additional encroachment pressures. The impacts encroachment will improve only with continued national attention to increase spectrum for military use and more efficiently use the available spectrum.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Atlantic Test Range (Patuxent River) Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	7.17	7.93	7.93	**Encroachment Scores**	8.33	8.33	8.33
Capability at the Atlantic Test Range has remained steady since 2008. It's anticipated capability will remain steady in the future.				Encroachment pressures have remained constant at the Atlantic Test Range since 2008. It's anticipated that they will remain stable in the future.			

Atlantic Test Range (Patuxent River) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements, though currently no longer able to use Bloodsworth Island for impact operations. Range offers land-based targets but are limited to no-drop training. This limits realistic training. No planned remedy at this time.
	Electronic Combat (EC)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements, often with limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Naval Special Warfare (NSW)	●	Same as above.
Airspace	Strike Warfare (STW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements, often with limited realistic training. The Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Mine Warfare (MW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events, often with limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
Seaspace	Strike Warfare (STW)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. We offer sea-based targets but are limited to no-drop and or limited "blue bomb" training operations, this leads to limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Electronic Combat (EC)	●	Specific Problem: The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. The Chesapeake Bay OPAREAS limit the size of operations. Impact to Training: Limited realistic training. Planned Action to Remedy: Continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Mine Warfare (MW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events. The Chesapeake Bay also has water depth limitations. This leads to limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
Undersea Space	Mine Warfare (MW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events. The Chesapeake Bay also has water depth limitations. This leads to limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Atlantic Test Range (Patuxent River) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Undersea Space	Naval Special Warfare (NSW)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements, often with limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
Targets	Strike Warfare (STW)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. We offer sea-based targets but are limited to no-drop and or limited "blue bomb" training operations. This leads to limited realistic training. The Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Mine Warfare (MW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events. The Chesapeake Bay also has water depth limitations. This leads to limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
Threats	Strike Warfare (STW)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. We offer sea-based targets but are limited to no-drop and or limited "blue bomb" training operations. This leads to limited realistic training. The Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Mine Warfare (MW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events. The Chesapeake Bay also has water depth limitations. This leads to limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Naval Special Warfare (NSW)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements, often with limited realistic training. Navy plans to continue to provide the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Strike Warfare (STW)	●	The reduction of available spectrum coupled with the increase in spectrum requirements limits ability to schedule certain types of events and many concurrent activities. Navy plans to work through the Range Commanders Council to address spectrum requirements at the national level, as well as continue to pressure the availability of spectrum for use by both the community and Navy.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.
Airspace	Strike Warfare (STW)	●	Pressure from the Federal Aviation Administration (FAA) to route civil air traffic into operational areas can impact flight operations during normal periods. Private and commercial flights increase volume of traffic and spill in to the Special Use Airspace (SUA). There is currently a proposed expansion of Washington Air Defense Identification Zone (ADIZ) under review. Traffic spilling into the SUA can limit or change flight operations. The proposed expansion of Washington ADIZ would force workarounds or negative impacts to operations. Navy plans to continue coordination with airport planning agencies and FAA to mitigate impacts.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.

Atlantic Test Range (Patuxent River) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Airspace	Mine Warfare (MW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.
Noise Restrictions	Strike Warfare (STW)	●	Operations pose noise impacts on communities. Sonic booms are problematic over shoreline communities, and daily operations are troublesome near OLF Webster. Noise complaints are generated around both airfields, although, primarily linked to operations at NAS Patuxent River. NAS Patuxent River is currently modifying operations to reduce noise. Increased noise complaints could compromise operations through pressure to modify or discontinue specific ops. Navy plans to continue to respond to community concerns via the noise hotline, mitigate sonic boom impacts via the sonic boom monitors and sonic boom prediction tool model. issue press releases for noisy operations, conduct awareness regarding noise issues to squadrons, and convey to the importance of the Navy's mission to the public.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.
Adjacent Land Use	Strike Warfare (STW)	●	Development on Eastern Shore can result in reduced access to land based targets and surface operating areas at the BIR. Development in Lexington Park has the potential to impact preferred flight paths, especially in vicinity of Great Mills Road. This can lead to modifications to some operations and flight paths. Navy plans to continue its effort to monitor planned and proposed development and provide feedback to community planners and developers.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Atlantic Undersea Test and Evaluation Center (AUTEC) Assessment Details

Range Mission Description

The AUTEC mission is to provide instrumented operational capabilities in a real world environment to satisfy research, development, test and evaluation requirements and operational performance assessment of warfighter readiness in support of the full spectrum of maritime warfare. The range's primary mission is Anti-submarine Warfare (ASW) across all level of training.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare													
Electronic Combat	●	●	●	●	●	●	●		●				
Anti-Air Warfare													
Anti-Surface Warfare		●	●	●	●	●	●		●				
Mine Warfare		●	●	●	●		●		●				
Amphibious Warfare													
Anti-Submarine		●	●	●	●	●	●		●				
Naval Special Warfare	●	●	●	●	●	●	●		●				

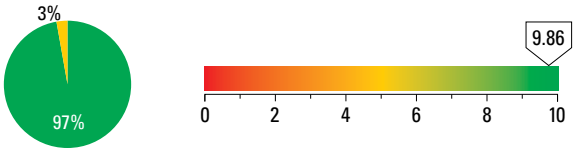
Legend: FMC ● PMC ● NMC ●

Encroachment Data

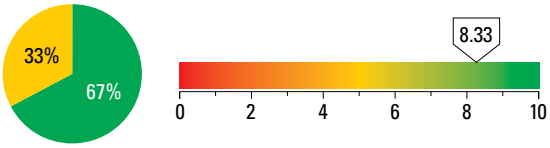
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare												
Electronic Combat			●		●		●					●
Anti-Air Warfare												
Anti-Surface Warfare			●	●	●		●		●			●
Mine Warfare			●	●	●		●		●			●
Amphibious Warfare												
Anti-Submarine			●	●	●				●			●
Naval Special Warfare			●	●	●		●		●			●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Targets
2. Mission Area most severely impacted: ASUW
3. Projected Status: No change.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. Maritime Sustainability and Range Transients are the Encroachment Factors that have greatest impact on AUTEC training.
2. ASUW, MW, and ASW are the Mission Areas most affected by encroachment.
3. The Navy continues to educate Fleet units to adhere to the maritime protective and mitigation measures. Continuing dialogue with the FAA may help to ameliorate the airspace restrictions. The Navy continues to improve its procedures to advise transient stakeholders of training activities.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Atlantic Undersea Test and Evaluation Center (AUTEC) Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	9.86	9.86	9.86	**Encroachment Scores**	9.25	8.33	8.33
The capability assessment has been stable from year to year, with relatively constant overall scores for CY 2010 and 2011.				1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011. 2. The RCMP update is scheduled to begin in AUG 2011; no EAP is planned at this time. 3. Dept. of Interior (DOI) and private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas and training events may be affected. High priority areas include training ranges and seaspace in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review and analysis of impacts from both oil/gas and wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD & DOI coordination continues.				

Atlantic Undersea Test and Evaluation Center (AUTEC) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Anti-Surface Warfare (ASUW)	●	Targets lack the required spectral threat signature and may not be engaged with live ordnance (Hellfire Missiles) due to net explosive weight (NEW) limits. Reduces realism; limits tactics Recommend investment in spectral augmentation and to investigate options to obtain inert Hellfire assets. No completion date identified.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Atlantic Undersea Test and Evaluation Center (AUTEC) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Maritime Sustainability	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
Airspace	Anti-Surface Warfare (ASUW)	●	Miami Center may decline NOTAMs and not release airspace in a timely manner over the Bahamas. Airspace restrictions segment training and/or reduce realism, reduce range access, and increase O&M costs. Operations may be delayed until the SUA is released. Continuing dialogue with the FAA to help ameliorate the airspace restrictions.
	Anti-Submarine (ASW)	●	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment creates avoidance areas and segments training/reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Boston Assessment Details

Range Mission Description

The Boston complex mission has a secondary and tertiary requirement to support Anti-surface Warfare (ASUW)and Anti-Submarine Warfare (ASW). The Boston OPAREA is a surface and subsurface operating area off the coast of Maine, New Hampshire and Massachusetts. The Boston OPAREA is used for surface-to-air gunnery, ASW tactics, and surface/subsurface operations.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare													
Electronic Combat													
Anti-Air Warfare													
Anti-Surface Warfare		FMC	FMC	FMC	FMC	FMC	FMC		PMC				
Mine Warfare													
Amphibious Warfare													
Anti-Submarine		FMC	FMC	FMC	FMC	FMC	FMC		PMC				
Naval Special Warfare													

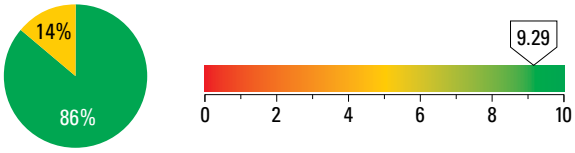
Legend: FMC, PMC, NMC

Encroachment Data

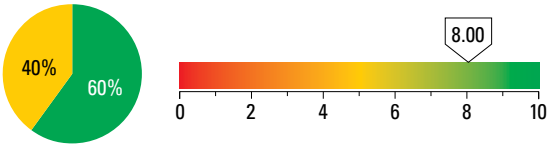
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare												
Electronic Combat												
Anti-Air Warfare												
Anti-Surface Warfare			Moderate	Moderate	Severe				Severe			Severe
Mine Warfare												
Amphibious Warfare												
Anti-Submarine			Moderate	Moderate	Severe				Severe			Severe
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Range Support
2. Mission Area most severely impacted: ASUW, ASW
3. Projected Status: No change.
4. A web-based scheduling system with pre-event, real-time, and post-event modules could enhance the interaction between ranges for better usage of range assets and availability of moveable targets and OPFOR systems, thereby improving the overall system of ranges.

Summary Observations

1. Spectrum and Maritime Sustainability are the Encroachment Factors having the greatest impact on training.
2. ASUW and ASW are equally encroached.
3. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations. The Navy continues to educate Fleet units to adhere to the maritime protective and mitigation measures.

Boston Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.93	9.29	9.29	**Encroachment Scores**	9.17	8.00	8.00
ASW threat requirement was re-evaluated after the 2008 report from Yellow to Green due to changes in training to be supported by the range.				1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011. 2. The RCMP is currently being updated. 3. Dept. of Interior (DOI) & private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas & training events may be affected. High priority areas include training ranges & sea space in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review & analysis of impacts from both oil, gas & wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD & DOI coordination continues.				

Boston Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Anti-Surface Warfare (ASUW)		The lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Anti-Submarine (ASW)		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Anti-Surface Warfare (ASUW)		Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Submarine (ASW)		Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Boston Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Anti-Submarine (ASW)	●	Same as above.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

China Lake Assessment Details

Range Mission Description

China Lake Range is the premier land ranges and weapons development laboratory for the Department of the Navy. The Ranges also support PACFLT training before squadrons deploy. Most training is EW. Squadrons from Nellis AFB also use the ranges to train.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	●	●			●	●	●	●	●				
Electronic Combat	●	●			●	●	●	●	●				
Anti-Air Warfare	●	●			●	●	●	●	●				
Anti-Surface Warfare													
Mine Warfare													
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare	●	●			●	●	●	●	●				

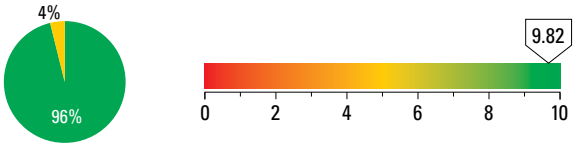
Legend: FMC ● PMC ● NMC ●

Encroachment Data

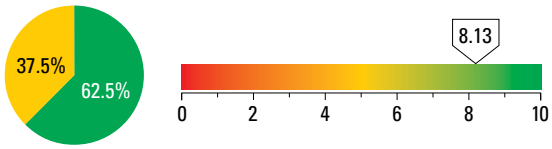
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	●	●	●		●	●	●	●	●	●		●
Electronic Combat	●	●	●		●	●	●	●	●	●		●
Anti-Air Warfare	●	●	●		●	●	●	●	●	●		●
Anti-Surface Warfare												
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare	●	●	●		●	●	●	●	●	●		●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Infrastructure is the capability attribute that impacts the range's ability to perform its assigned mission the most.
2. Electronic combat is the mission area that is impacted the most.
3. No change in capability is anticipated for the future.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. Frequency spectrum and cultural resources are the encroachment factor that impact the range's ability to perform its assigned mission the most.
2. Strike Warfare is the mission area that is impacted the most.
3. Increased desire for additional spectrum for commercial use will lead to additional encroachment pressures. The impacts of frequency spectrum encroachment will improve only with continued national attention to increase spectrum for military use and more efficiently use the available spectrum. The impacts from cultural resources will require several actions described below and significant investment in cultural resource surveys and evaluation.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

China Lake Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	9.88	9.82	9.82	**Encroachment Scores**	9.20	8.50	8.13
Capability at the China Lake Ranges has remained steady since 2008. It's anticipated capability will remain stable in the future.				Encroachment pressures have increased at the China Lake Ranges since 2008. However, they have remained constant in 2010. Frequency spectrum and cultural resources management are the primary drivers for increased encroachment pressures. It is anticipated that encroachment pressures will remain stable in the future.			

China Lake Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Electronic Combat (EC)	●	There is a lack of improved sites on the Electronic Combat Range for threat emitters. This reduces "time to target" realism achieved with diversity and quick placement the emitters, a key element of fleet Training. Navy plans to implement MILCON P-513.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Strike Warfare (STW)	●	The presence of T&E species and critical habitat at China Lake has an impact on training. It requires significant mitigation efforts to support training activities. Navy plans to update latest INRMP (In progress; ECD 2011), continue mitigations, and update EIS (ECD: Jan. 2014).
Spectrum	Strike Warfare (STW)	●	Specific Problem: Reduction of available spectrum coupled with the increase in spectrum requirements. Impact to Training: Limits ability to schedule certain types of events and many concurrent activities. Planned Actions to Remedy: Coordination at the local level to deconflict when possible. Work through the chain of command and Range Commanders Council to address spectrum requirements at the national level.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.
Airspace	Strike Warfare (STW)	●	There is significant competition for the airspace that overlies the China Lake ranges and the R-2508 Complex. Commercial aviation is a major concern, particularly with the increasing urbanization of the Mojave Desert region and growth of the Las Vegas metropolitan area. There are three proposals for expansion of existing airports and construction of a new airport in the region, all of which would potentially have significant impacts. Crowded airspace near China lake and the R-2508 airspace affects ingress/egress and Military Operating Areas. Navy will continue coordination with airport planning agencies and FAA to mitigate impacts.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
Adjacent Land Use	Strike Warfare (STW)	●	Although China Lake is relatively isolated, urban growth is becoming a concern. In particular, growth in the Indian Wells Valley, if not managed correctly, has the potential to impact the range mission. Growth in other areas further removed from China Lake, but still within the R-2508 Complex also negatively impact our mission. In addition, there is significant pressure for renewable energy development in the region including wind and solar energy. Wind turbines can significantly impact training and reduces access to low-level airspace. Some types of solar energy facilities can reduce access to low-level airspace. Development reduces access to low-level airspace. Navy will continue significant effort to monitor planned and proposed development and provide feedback to community planners and developers.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

China Lake Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Cultural Resources	Strike Warfare (STW)	●	China Lake contains a vast number of archeological sites, significant range areas that have not been surveyed/ evaluated for cultural resources, lack of a programmatic agreement with the State Historic Preservation Office (SHPO), and maintains keen interest by local Native American tribes. This requires significant mitigation and long planning lead time that, in some cases, can't meet training schedules. Navy will perform cultural resource surveys for large portions of the ranges, get a Programmatic Agreement with SHPO, and update the China Lake EIS.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

El Centro Assessment Details

Range Mission Description

Aircrews use the many ranges at NAF El Centro to develop their skills. A remote-controlled target area allows naval aviators to practice ordinance delivery. The desert range is used for air-to-ground bombing, rocket firing, strafing, dummy drops and mobile land target training. The target complex uses the Weapons Impact Scoring System (WISS) that microwaves target images to a range master control building for immediate verification of weapons delivery accuracy. The addition of the Display and Debriefing Subsystem, known as DDS, expanded the role of NAF El Centro to include air combat training by utilizing remote television, acoustical and laser scoring systems. The DDS is linked with TACTS to provide a computerized record of the tactics employed by individual aircrews employ and to evaluate the effectiveness of each. NAF El Centro is special with its combination of unique climate, vast unobstructed desert terrain, limited non-military air traffic and its own dedicated gunnery and bomb ranges. Training for aerial combat maneuvering, air-to-air gunnery, bombing practice and electronic warfare training.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	●	●			●		●		●				
Electronic Combat													
Anti-Air Warfare													
Anti-Surface Warfare													
Mine Warfare													
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare													

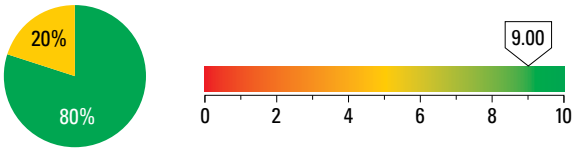
Legend: FMC ● PMC ● NMC ●

Encroachment Data

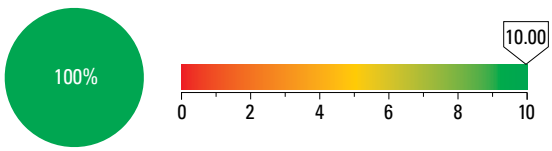
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	●	●	●		●	●	●	●	●	●	●	●
Electronic Combat												
Anti-Air Warfare												
Anti-Surface Warfare												
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Range Support.
2. Mission Area most severely impacted: Strike Warfare.
3. Projected Status: A new scheduling system is being investigated.
4. A web-based scheduling system with pre-event, real-time, and post-event modules could enhance the interaction between ranges for better usage of range assets and availability of moveable targets and OPFOR systems, thereby improving the overall system of ranges.
5. The establishment of a full-time El Centro range manager would ensure more efficient and effective range management.

Summary Observations

For the El Centro ranges and training areas, there is no encroachment that has a negative impact on training.

El Centro Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	6.39	6.39	9.00

1. In 2008 and 2009, this range was also evaluated for AAW and Electronic Combat. In 2010, mission areas were revised for the range to support only Strike Warfare.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.86	9.80	10.00

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. The change in the assessment score from CY2009 to CY2010 is based on deleting EC and AAW mission areas that previously referred to the greater Bob Stump Range Complex (BSTRC) that do not apply to El Centro. In addition there was a change in Adjacent Land Use insofar as the CY2009 assessment applied Adjacent Land Use to the BSTRC (yellow) and not to the El Centro range complex in particular. The CY2010 and CY2011 assessments apply Adjacent Land Use to El Centro only with a green rating.
3. There is potential for reinstatement of a proposed rule to list the flat-tailed horned lizard as threatened as establishment of critical habitat designation within range areas. This may invalidate the range wide management strategy that aids the conservation of the species and have impact on Strike Warfare activities. CNRSW has requested the discretion of the Secretary of Interior, when considering the potential designation of critical habitat should the Flat-Tailed Horn Lizard be listed as a threatened species, to exclude all lands at Naval Air Facility El Centro.
4. Although not yet a significant impact, there are potential encroachment pressures (Adjacent Land Use) from alternative energy initiatives on public lands adjacent to the range areas, recreation activities in the vicinity of range boundaries, and incursion of off-road vehicles into the range areas. The El Centro management is currently addressing these issues using public awareness outreach and enhanced warning and control measures.
5. The Desert Springs Oasis, Tejon Ranch-Centennial, and Tejon Mountain Village community development projects and the Frazier/Levec Specific Plan Amendment pose potential restrictions on the use of existing military training routes (MTRs) into and out of the El Centro range complex.

El Centro Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Strike Warfare (STW)	●	Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities. There is no dedicated range manager position for El Centro. Duties currently assigned to Air Field Manager. Lack of a dedicated range manager precludes efficient execution of range management functions. Recommend establishment of a full time range manager position for El Centro. No completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Fallon Range Training Complex Assessment Details

Range Mission Description

The mission of the Fallon Range Complex is to provide Naval Air Forces with airspace and bombing ranges in support Fleet aviation combat training. Fallon is Naval Aviations premier training range. All carrier deployed Naval Air Forces (except FDNF) train at the Fallon Range Complex prior to deployment. The specific mission of the Fallon Range Complex is to provide Naval Air Forces with advanced and intermediate levels of training for all over land or land based warfare. Fallon is Naval Aviation's premier training range. The Fallon Range Commander is Commander, Naval Strike & Air Warfare Center (NSAWC). NSAWC is responsible for all Naval Aviation training combat tactics, techniques, and procedures (TTP), for Naval Air Forces at the individual, unit, and integrated airwing levels. All carrier deployed Naval Air Forces (except FDNF) train at the Fallon Range Complex prior to deployment.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	PMC	PMC			PMC	PMC	PMC		PMC				
Electronic Combat	FMC	PMC			FMC	PMC	PMC		PMC				
Anti-Air Warfare	PMC	PMC				PMC	PMC		PMC				
Anti-Surface Warfare													
Mine Warfare													
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare	PMC	FMC			FMC	PMC	FMC		PMC				

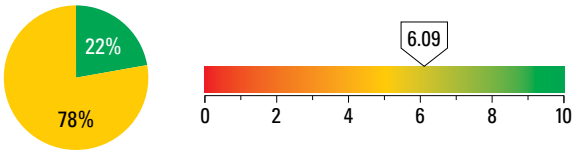
Legend: FMC PMC NMC

Encroachment Data

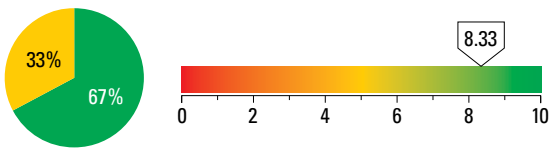
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Minimal	Minimal	Moderate		Moderate	Minimal	Moderate	Minimal	Minimal	Minimal		Moderate
Electronic Combat	Minimal	Minimal	Moderate		Minimal	Minimal	Minimal	Minimal		Minimal		Minimal
Anti-Air Warfare	Minimal	Minimal	Moderate		Moderate	Minimal	Moderate	Minimal	Minimal	Minimal		Minimal
Anti-Surface Warfare												
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare	Minimal	Moderate	Moderate		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal		Moderate

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Threats, Scoring & Feedback in support of EC.
2. Mission Area most severely impacted: EC; followed closely by AAW & STW.
3. Projected Status: No immediate change.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. Spectrum is the Encroachment Factor having the greatest impact on training.
2. All assigned Mission Areas have encroachment.
3. The Navy has developed procedures and workarounds to accommodate spectrum encroachment. The Navy continues to discuss the various encroachment issues with the Fallon stakeholders with the expectation that the stakeholders will have clearer understanding of Navy training requirements and of strategies that can relieve training encroachment restrictions.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Fallon Range Training Complex Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	5.65	5.65	6.09

1. EC threats improved from Red to Yellow. Improvement in rating from 2009 to 2010 justified by investment in IADS and threats.
2. NSW landspace training requirement re-evaluated from Red to Yellow from 2009 to 2010.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	8.96	8.84	8.84

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011. The slight decrease in the CY2011 assessment results from green to yellow assessments for NSW in Munitions Restrictions, Spectrum, Airspace, and Adjacent Land Use.
2. There is little indication encroachment pressures will change in the foreseeable future.

Fallon Range Training Complex Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🟡	Landspace area size does not meet requirements; limits weapons type and employment tactics; use of lasers is not allowed in all directions; and N.E.W. restricted in some areas. These restrictions reduce realism; inhibits new tactics development; and reduce live fire proficiency. Currently no investment recommendation and no planned action.
	Anti-Air Warfare (AAW)	🟡	Flare use is restricted for flights below 2,000 Ft which impacts helicopter training. This restriction reduces realism; inhibits new tactics development; and reduces live fire proficiency. There is no investment recommendation or planned action.
	Naval Special Warfare (NSW)	🟡	Landspace area size does not meet requirements; limits weapons type and employment tactics; use of lasers is not allowed in all directions; and N.E.W. restricted in some areas. These restrictions reduce realism; inhibits new tactics development; and reduce live fire proficiency. Currently no investment recommendation and no planned action.
Airspace	Strike Warfare (STW)	🟡	Limited airspace available, limited supersonic employment, and altitude restrictions limit tactics that may be employed, especially in target areas. These restrictions reduce realism; inhibit new tactics development; limit application of new weapon technologies; and reduce live fire proficiency. There is no investment recommendation and no planned action.
	Electronic Combat (EC)	🟡	Range is assessed as moderate for helicopters due to restricted flare use, though minimal impact for fixed-winged aircraft. This restriction reduces realism; inhibits tactics development; and reduces live fire proficiency. There is no investment recommendation. No planned action.
	Anti-Air Warfare (AAW)	🟡	Limited airspace available, limited supersonic employment, and altitude restrictions limit tactics that may be employed, especially in target areas. These restrictions reduce realism; inhibit new tactics development; limit application of new weapon technologies; and reduce live fire proficiency. There is no investment recommendation and no planned action.
Targets	Strike Warfare (STW)	🟡	There is a limited number of tactically significant targets; no IR augmentation; no moving, structural, or urban targets, and no OPNAV funding for Navy Range targets program. This shortfall reduces realism; inhibits new tactics development; limits application of new weapon technologies; and reduces live fire proficiency. Recommend investing in upgraded scoring options; Time Sensitive Target program targets; Tactical targets; fixed and mobile EC sites; and urban complex. No completion date identified.
Threats	Strike Warfare (STW)	🟡	There is no live helicopter threat capability; quantity and variety of threat does not meet requirements; and EC threat above level 2 is not available. These shortfalls reduce realism; inhibit new tactics development; limit application of new weapons technologies; and reduces live fire proficiency. Recommend investing in fully mobile threat systems; simulators with TSPI integration; upgraded Integrated Air defense System; and EC threat systems through level 4. No completion date identified.
	Electronic Combat (EC)	🟡	EC threat level does not meet requirements; and quantity and variety of the threat does not meet requirements. EC threat above level 2 is not available. This reduces realism; inhibits new tactics development; limits application of new weapons technologies; and reduces live fire proficiency. Recommend investing in fully mobile threat systems; simulators with TSPI integration; upgraded Integrated Air defense System; EC threat systems through level 4. No completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Fallon Range Training Complex Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Anti-Air Warfare (AAW)	●	There is no live helicopter threat capability; quantity and variety of threat does not meet requirements; and EC threat above level 2 is not available. These shortfalls reduce realism; inhibit new tactics development; limit application of new weapons technologies; and reduces live fire proficiency. Recommend investing in fully mobile threat systems; simulators with TSPI integration; upgraded Integrated Air defense System; and EC threat systems through level 4. No completion date identified.
	Naval Special Warfare (NSW)	●	Threats not sufficient for training. This reduces realism; inhibits new tactics development; limits application of new weapons technologies; and reduces live fire proficiency. Recommend investment in sufficient threats for mission. No completion date identified.
Scoring & Feedback System	Strike Warfare (STW)	●	The capacity of the system does not meet requirements; is not JNTC or TENA compliant; and has no automatic RTKN. This inhibits new tactics development and reduces live fire proficiency. Recommend investing in EC systems, range EC&C architecture, JNTC and TENA compatible systems. No completion date identified.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
Range Support	Strike Warfare (STW)	●	The lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Naval Special Warfare (NSW)	●	Fallon range operations were designed (and are maintained) for aviation air-to-ground missions. All ranges have UXO potential. Introduction of Ground Training at Fallon ranges increases risk of a UXO incident. Impacts to training include restricted range access and areas restricted from ground use. No action planned to remedy, problem is insoluble.
Spectrum	Strike Warfare (STW)	●	Range maintains radar and frequency band restrictions; E-3 and EA-6B operations restrictions; EC threat emitter bandwidth restrictions; and Link-16 time slot allocations and number of aircraft restrictions which all impact FRTC training. Encroachment segments training and reduces realism, limits application of new technologies, and inhibits new tactics development. This problem is insoluble.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Range maintains radar and frequency band restrictions; EC threat emitter bandwidth restrictions; and Link-16 time slot allocations, all impacting NSW training. Encroachment segments training and reduces realism, limits application of new technologies, and inhibits new tactics development. This problem is insoluble.
Airspace	Strike Warfare (STW)	●	Encroached by FAA altitude caps; supersonic restrictions; VFR corridor interruptions; run-in heading restrictions, and helicopter restrictions. This encroachment prohibits training events, segments training/reduces realism, constrains flight altitudes, inhibits new tactics development, and complicates night/all-weather training. This problem is insoluble.
	Anti-Air Warfare (AAW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Airspace is used for Fallon's primary air mission. Ground live fire training conflicts with airspace. Ground training priority at Fallon is #13 after aviation units. Airspace encroachment on NSW ground operations prohibits training events, segments training and reduces realism, constrains flight altitudes, inhibits new tactics development, and complicates night/all-weather training. This problem is insoluble.

Fallon Range Training Complex Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Noise Restrictions	Strike Warfare (STW)	●	Supersonic flight prohibition below 11,000 feet above MSL impacts tactical training. These restrictions affect training realism, tactics, and night/all-weather operations. This problem is insoluble.
	Anti-Air Warfare (AAW)	●	Same as above.
Adjacent Land Use	Naval Special Warfare (NSW)	●	Power lines and telecommunications towers impact low altitude helicopter training and tactics. Encroachment prohibits training events, segments training/reduces realism, constrains flight altitudes, inhibits new tactics development, and complicates night/all-weather training. This problem is insoluble.
Range Transients	Strike Warfare (STW)	●	Range management must provide range clearance for livestock. This livestock encroachment segments training/ reduces realism. This problem is insoluble.
	Naval Special Warfare (NSW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Gulf of Mexico (GOMEX) Assessment Details

Range Mission Description

The Gulf of Mexico (GOMEX) mission is to provide training support in Anti-air Warfare (AAW), Anti-surface Warfare (ASUW), Mine Warfare (MW), and Naval Special Warfare (NSW) with the primary purpose being MW at the basic level, with a secondary role at the intermediate and advanced levels of training. It provides some tertiary basic level of training in AAW and ASUW.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare													
Electronic Combat													
Anti-Air Warfare	●	●	●		●	●	●		●				
Anti-Surface Warfare		●	●	●	●	●	●		●				
Mine Warfare		●	●	●	●	●	●		●				
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare	●	●	●	●	●	●	●		●				

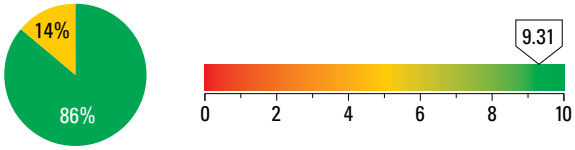
Legend: FMC ● PMC ● NMC ●

Encroachment Data

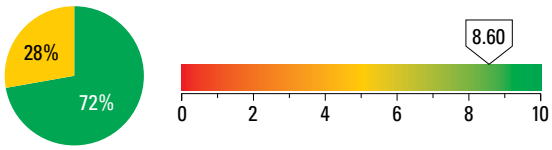
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare												
Electronic Combat												
Anti-Air Warfare			●		●		●	●				●
Anti-Surface Warfare			●	●	●		●		●			●
Mine Warfare			●	●	●		●	●	●			●
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare			●	●	●		●	●	●			●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Range Support
2. Assigned Mission Areas most severely impacted: All
3. Projected Status: No immediate change.
4. A web-based scheduling system with pre-event, real-time, and post-event modules could enhance the interaction between ranges for better usage of range assets and availability of moveable targets and OPFOR systems, thereby improving the overall system of ranges.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. Spectrum is the Encroachment Factor that has greatest impact on training, followed by Maritime Sustainability.
2. AAW and ASUW have moderate encroachment.
3. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations. The Navy will continue to educate Fleet units to adhere to the maritime protective and mitigation measures.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Gulf of Mexico (GOMEX) Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	9.31	9.31	9.31

Capability at the China Lake Ranges has remained steady since 2008. Its anticipated capability will remain stable in the future.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.27	8.60	8.60

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. RCMP scheduled for update in July 2011; EAP to be developed during FY2013.
3. Dept. of Interior (DOI) and private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas and training events may be affected. High priority areas include training ranges and sea space in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets and DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review and analysis of impacts from both oil/gas and wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD and DOI coordination continues. Encroachment pressures have increased at the China Lake Ranges since 2008. However, they have remained constant in 2010. Frequency spectrum and cultural resources management are the primary drivers for increased encroachment pressures. It is anticipated that encroachment pressures will remain stable in the future.

Gulf of Mexico (GOMEX) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Anti-Air Warfare (AAW)	●	A lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Gulf of Mexico (GOMEX) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Anti-Air Warfare (AAW)	●	Employment of Link 16 is restricted. These restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
Maritime	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA).Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. The Navy continues to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Mine Warfare (MW)	●	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment creates avoidance areas, segments training, and reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At-Sea OPAREAS and Navy readiness.
	Mine Warfare (MW)	●	Same as above.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Hawaii Assessment Details

Range Mission Description

The Mid-Pacific Ocean area ranges consists of the ranges and expansive ocean operating areas in the vicinity of the Hawaiian Islands. The complex provides a primary training capability across all warfare areas with a secondary priority in all warfare areas except Strike Warfare (STW) and Amphibious Warfare (AMW).

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	PMC	PMC	FMC	FMC	PMC	PMC	NMC		PMC				
Electronic Combat	FMC	FMC	FMC	FMC	FMC	PMC	FMC		PMC				
Anti-Air Warfare	PMC	FMC	FMC		FMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	PMC	NMC	FMC		PMC				
Mine Warfare		FMC	FMC	FMC	PMC	FMC	FMC		PMC				
Amphibious Warfare	FMC	FMC	FMC	FMC			FMC		PMC				
Anti-Submarine		FMC	FMC	FMC	PMC	FMC	FMC		PMC				
Naval Special Warfare	PMC	FMC	FMC	FMC	PMC	FMC	FMC		PMC				

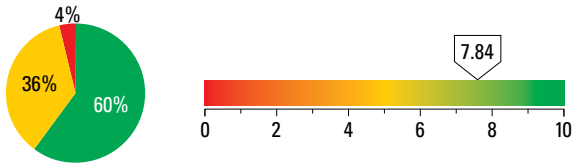
Legend: FMC, PMC, NMC

Encroachment Data

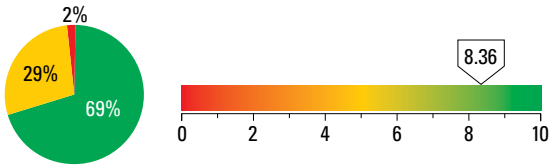
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	Moderate	Minimal	Moderate	Minimal	Moderate	Minimal	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal
Electronic Combat	Minimal		Moderate		Minimal	Minimal	Minimal	Minimal				Minimal
Anti-Air Warfare			Moderate		Moderate	Minimal	Minimal	Minimal				Minimal
Anti-Surface Warfare			Moderate	Moderate	Minimal				Minimal			Moderate
Mine Warfare			Moderate	Moderate	Minimal				Minimal			Moderate
Amphibious Warfare	Minimal		Moderate	Moderate	Minimal		Minimal	Minimal	Minimal		Minimal	Moderate
Anti-Submarine			Minimal	Severe	Minimal				Minimal			Moderate
Naval Special Warfare	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Hawaii Assessment Details

Summary Observations	Summary Observations
1. Capability Attribute most impacting range mission performance: Threats and Scoring & Feedback Systems. 2. Mission Area most severely impacted: STW. 3. Projected Status: No immediate change. NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.	1. Spectrum and Maritime Sustainability are the Encroachment Factors having greatest impact on training. 2. All Mission Areas, except NSW, have substantial encroachment. 3. Designation of Critical Habitat for the Hawaiian Monk Seal (E) under the provisions of the ESA, by USFWS, for the shorelines of the Main Hawaiian Islands is under consideration. Large acreage in the Kokee areas, primarily State lands, are also being considered for designation of Critical Habitat for a host of plants and some birds and insects. These regulatory activities on land as well as in marine environments will continue, and the addition of alternative energy systems based on, or located in, marine environments will compete with training uses, e.g., proposed Penguin Bank wind farm, since withdrawn. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations. The Navy will continue to education Fleet units to adhere to the maritime protective and mitigation measures. NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.59	7.76	7.84

1. In 2008 MIW Targets and Scoring & Feedback were assessed as Red.
2. In 2009 MIW Scoring & Feedback and targets were assessed as Yellow.
3. In 2010 MIW Scoring & Feedback was assessed as Green.
4. Above changes were based on range upgrades for MIW identified by PACFLT.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	8.96	8.44	8.44

1. Encroachment assessments for CY2008 were different than for CY2009–CY2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009–CY2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009–CY2011.
2. There is little indication encroachment pressures will change in the foreseeable future.

Hawaii Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)		Unable to conduct low-level ingress over land to an air-to-ground range area with a realistic strike package. Reduces realism; inhibits tactics development. No solution due to unavailability of land and airspace.
	Anti-Air Warfare (AAW)		There is no land space beneath any AAW space. Airspace over land is required for ACM training. Reduces realism by preventing detection and targeting of terrain following aircraft. No land space is available to solve this problem.
	Naval Special Warfare		Lacks maneuver space with a beachfront, live fire areas, MOUT. This segments training, thereby reducing realism; inhibits tactics; and reduces live fire proficiency. Insoluble shortfall due to lack of available land.
Airspace	Strike Warfare (STW)		Unable to conduct low-level ingress over land to an air-to-ground range area with a realistic strike package. Reduces realism and inhibits tactics development. No solution due to unavailability of land and airspace.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Hawaii Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Strike Warfare (STW)	🟡	No raked, strafe, structural, revetted, or moving targets. Does not meet requirements for live fire and realistic strike missions. No urban or moving targets. Reduces realism; reduces live fire proficiency. Recommend upgrade targets to meet training requirements. No completion date identified. Note: Does not include assessment of Army Pohakoloa Training Area Range
	Anti-Surface Warfare (ASUW)	🟡	Basic level training target requirements are GREEN, but Intermediate and Sustainment level training target requirements are not available in sufficient quantity or variety. Reduces realism. Recommend acquire additional surface targets. No completion date identified.
	Mine Warfare (MW)	🟡	Existing mine training field does not realistically portray threat environment. Reduces realism; inhibits tactics; limits application of new weapons technologies. Situation will get worse when OMCM systems are deployed if improvements are not made. Anticipate deployment of new training mine fields at TBD future date. No completion date identified.
	Anti-Submarine (ASW)	🟡	Target capabilities are downgraded by lack of target maintenance capabilities at the range, thereby reducing the quantity of available required targets. Reduces live fire proficiency; reduces realism. Recommend develop a capability to perform maintenance on ASW targets at the range complex. No completion date identified.
	Naval Special Warfare	🟡	Range targets are not available. Units typically create their own targets without the benefit of realism. Reduces realism; inhibits tactics development; reduces live fire proficiency. Fund portable targets to meet NSW training requirements.
Threats	Strike Warfare (STW)	🟡	Adequate quantity and types of threat OPFOR are not available, including EC threat levels. Reduces realism; inhibits tactics development. Recommend acquire EC systems that provide a high density, multi-threat axis capability through level. No completion date identified.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	No dedicated threat OPFOR. There is a shortage of the required number and variety of threat aircraft. Reduces realism. Recommend investigate availability of Hawaii Air National Guard to serve in an OPFOR role. No completion date identified.
	Anti-Surface Warfare (ASUW)	🔴	Basic level training threat requirements are GREEN, but Intermediate and Sustainment level training threat requirements are not available in sufficient quantity or variety. Reduces realism. Recommend acquire additional threat OPFOR. No completion date identified.
Scoring & Feedback System	Strike Warfare (STW)	🔴	Instrumented scoring and debriefing capabilities are not available. Performance, scoring, and evaluation of training is required for effective training. Recommend improve targets to include TSPI, EC&C, M&S, scoring and debrief capabilities. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	System lacks required capacity and needs upgrades to prevent obsolescence. Lack of adequate instrumentation reduces the overall effectiveness of flights due to lower quality debrief information. Recommend invest in additional or new equipment to upgrade current systems. No completion date identified.
Range Support	Strike Warfare (STW)	🟡	Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
	Naval Special Warfare (NSW)	🟡	Same as above.

Hawaii Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/ Critical Habitat	Strike Warfare (STW)		Restrictions center around the protection of numerous migratory birds on Kaula Rock. Rather than implement costly mitigation measures, operations have been modified to minimize impacts to protected species. These restrictions have been self-imposed by the Navy and without any direction of the regulators. Restrictions create large avoidance areas, reduce training days, prohibit certain training events, and reduce range access. To comply with the MMPA and the ESA, the Record of Decision (ROD) concluded that the Navy "will limit Kaula Rock targeting for air to surface weapons delivery to the southeast tip of the island" and only seasonally when marine mammals are not present. No remedy anticipated or planned. In addition, since finalization of HRC/PMRF FEIS/OEIS, Federal and State environmental regulators and NGOs are focusing even more on the populations and habitat, both land and marine, on/around Kaula Rock. Sea bird population surveys by vessel were conducted by USN contractors and staff week of July 20, 2009. This is the first such survey in more than 10 years and required pursuant to HRC/PMRF FEIS/OEIS. Future, potential impacts based on such studies cannot be predicted. Possible efforts to impose further restrictions on usage are uncertain.
Spectrum	Strike Warfare (STW)		Employment of Link 16 is restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
	Anti-Surface Warfare (ASUW)		Same as above.
	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
Maritime Sustainability	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA).Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs.The Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests and continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
	Anti-Submarine (ASW)		Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Hawaii Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Airspace	Strike Warfare (STW)	●	Due to competition for the same airspace and scheduling conflicts, at times, Navy P-3 usage of the airspace is limited and HIANG flights may be cancelled. In general, commercial and private aviation conflicts with Naval operations throughout the range complex. Conflict encroachment prohibits certain P-3 or HIANG training events in the area. Commercial traffic in the airspace causes delays and segments training. Coordinate scheduling of airspace with primary range users and the FAA.
	Anti-Air Warfare (AAW)	●	Same as above.
Adjacent Land Use	Strike Warfare (STW)	●	STW range is insufficient in size to support all requirements. Land withdrawal/procurement is problematic due to development/other factors.
Cultural Resources	Strike Warfare (STW)	●	There are cultural sites and resources throughout the Hawaii Range Complex. The presence of cultural resources within the training area creates large avoidance areas, prohibits certain training events, reduces range access, segments training and reduces realism, inhibits new tactics development, and greatly increases O&M costs. The Military Services have implemented training procedures to protect and conserve the cultural resources in the Hawaii Range complex.
Range Transients	Anti-Surface Warfare (ASUW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment creates avoidance areas and segments training/ reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Mine Warfare (MW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Jacksonville Assessment Details

Range Mission Description

The Jacksonville complex has a primary mission to support basic level training in all warfare areas except Amphibious Warfare (AMW) and Naval Special Warfare (NSW) training. It manages three overland ranges located approximately forty miles south of Jacksonville; the Pinecastle, Rodman and Lake George target complexes. Following the closure of NAS Cecil, and given the difficulty in hosting fighter/attack deployments at NAS Jacksonville, much of the ranges' use has come from carrier-launched strikes.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	PMC	PMC	FMC	FMC	PMC	FMC	PMC		PMC				
Electronic Combat	FMC	FMC	FMC	FMC	FMC	PMC	PMC		PMC				
Anti-Air Warfare	PMC	FMC	FMC		FMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	FMC	PMC		PMC				
Mine Warfare		FMC	FMC	FMC		FMC			PMC				
Amphibious Warfare													
Anti-Submarine		FMC	FMC	FMC	FMC	PMC	NMC		PMC				
Naval Special Warfare													

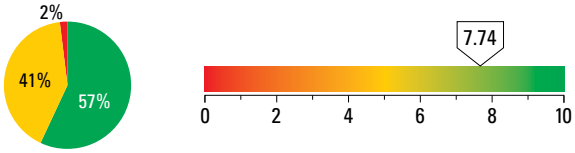
Legend: FMC, PMC, NMC

Encroachment Data

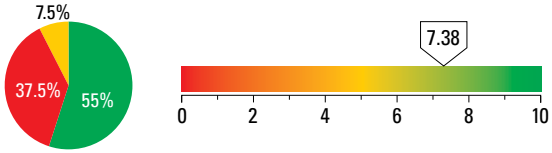
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	PMC	FMC	PMC	FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Electronic Combat	FMC		PMC		FMC	FMC	FMC	FMC				FMC
Anti-Air Warfare			PMC		PMC	FMC	FMC	FMC				FMC
Anti-Surface Warfare			PMC	NMC	PMC				FMC			PMC
Mine Warfare			PMC	NMC	PMC				FMC			PMC
Amphibious Warfare												
Anti-Submarine			PMC	NMC	PMC				FMC			PMC
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Scoring & Feedback Systems
2. Mission Area most severely impacted: ASW
3. The OEIS/EIS for USWTR was completed on 6/26/2009, and the JAX OPAREA USWTR site was designated as the operationally preferred USWTR site alternative.

Summary Observations

1. Spectrum, Maritime Sustainability, and Airspace are the Encroachment Factors having greatest impact on training.
2. ASUW, MW, and ASW are the Mission Areas with the greatest encroachment impacts on training.
3. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations. Education of Fleet units to adhere to maritime protective and mitigation measures will continue. The Navy will continue to coordinate with the FAA to minimize space launch impacts on training activities. The Navy will continue to educate Fleet units to adhere to the maritime protective and mitigation measures.

Jacksonville Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.73	7.61	7.61

1. STW airspace re-evaluated from Green in 2008 to Yellow in 2009 and beyond. Was changed from green to yellow for consistency in impacts for all Atlantic ranges and was based on a review with USFF and a determination that airspace restrictions to & from Jacksonville were not significantly different than access at VACAPES & Cherry Pt.
2. MW Targets & Scoring & Feedback changed to WHITE based on USFF evaluation that TSPI Instrumented scoring data and dedicated mine target shapes are not required in the JAX OPAREA.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	8.51	7.50	7.50

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. As population growth continues in the Jacksonville areas, there will be increased competition for spectrum bandwidth as G3 and G4 telecommunications increase. Spectrum competition may add increased pressure on the Navy's ability to use radar, communications, EC, and other military systems.
3. RCMP updated will begin in OCT 2010; EAP is in progress and is expected to be completed by AUG 2011.
4. Dept. of Interior (DOI) & private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas & training events may be affected. High priority areas include training ranges & sea space in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review & analysis of impacts from both oil/gas & wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD & DOI coordination continues.

Jacksonville Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	Land space does not fully support size or topography requirements for placement of required number of targets. Use of live ordnance is not supported. Use of flares is restricted. No land area supports NSFS training or CSAR training, nor standoff PGM delivery. This prohibits certain training events; reduces realism; and increases personnel optempo. Recommend to identify east coast land areas of sufficient size to support standoff weapons training. No completion date identified.
	Anti-Air Warfare (AAW)	●	Range land space does not fully support size or topography requirements, or support surface combatant detection of aircraft over land. Use of flares is restricted. This prohibits certain training events; reduces realism; and increases personnel optempo. Overland ACM training is conducted at Fallon Range Training Complex. No additional land options available.
Airspace	Strike Warfare (STW)	●	Range land area and its associated restricted airspace areas are adjacent to JAX at-sea airspace, requiring MOA for transition between the seaspace and landspace areas. This transit reduces realism; inhibits new tactics development; and reduces live fire proficiency. OPAREAs lack characteristics for realistic tactical approaches and do not support the area size to meet minimum training requirements. There are no local options for increasing land availability. Recommend coordination and investment in new MOAs and/or restricted airspace to reduce the impact on flight operations by increasing airspace area and altitudes. No completion date identified.
Targets	Strike Warfare (STW)	●	Range urban area is too small, there are no LACM or NSFS land area targets, no moving targets, and targets lack infrared signatures. This prohibits certain training events; reduces realism; limits application of new weapon technologies; inhibits tactics development; reduces live fire proficiency, increases personnel optempo; and increases O&M costs. Navy recommends to invest in required targets. No completion date identified.
Threats	Electronic Combat (EC)	●	EC threat representation does not fully support EC threat levels 3 or 4 for required mission areas. The existing instrumentation systems are becoming obsolete and unsupportable through the FYDP. Navy recommends updating upgrade schedule to preclude severe degradation of system capability. Completion date not identified.
	Anti-Air Warfare (AAW)	●	Range has no helicopter or supersonic threat OPFOR. This reduces realism; Increases personnel optempo; and increases O&M costs. Recommend increase the number and type of commercial air services. No completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Jacksonville Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Anti-Submarine (ASW)		Range has limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. This prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. Navy recommends investing in additional threat OPFOR. Recommend increase availability of submarines through the DESI and aircraft through CAS. No completion date identified.
Scoring & Feedback	Strike Warfare (STW)		Range has incomplete TSPI & EC&C OPAREA coverage and is in need of scoring, RTKN and M&S systems. This increases personnel optempo and increases O&M costs. Recommend expanding and improving 2-D & 3-D coverage of the op-area; investing in JNTC compliant M&S equipment; and improving debrief capabilities. No completion date identified.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		OPAREA coverage is not complete; Modeling & Simulation is inadequate; there is no RTKN. Existing instrumentation systems are not supportable through the FYDP. This reduces realism; inhibits tactics; increases personnel optempo, and increases O&M costs. Recommend expanding and improving 2-D & 3-D coverage of the op-area; investing in JNTC compliant M&S equipment; improving debrief capabilities. Update TACTS with TCTS replacement schedule to preclude severe degradation of system capability. No completion date identified.
	Anti-Surface Warfare (ASUW)		Range has incomplete TSPI & EC&C OPAREA coverage and is in need of scoring, RTKN and M&S systems. This increases personnel optempo and increases O&M costs. Recommend expanding and improving 2-D & 3-D coverage of the op-area; investing in JNTC compliant M&S equipment; and improving debrief capabilities. No completion date identified.
	Anti-Submarine (ASW)		There is no underwater tracking range, scoring capability, M&S, or post mission feedback. This prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. USWTR EIS was completed in CY09. Recommend to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; and improve debrief capabilities.
Range Support	Strike Warfare (STW)		Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
	Anti-Surface Warfare (ASUW)		Same as above.
	Mine Warfare (MW)		Same as above.
	Anti-Submarine (ASW)		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Strike Warfare (STW)		Scrub jays, indigo snakes, and gopher tortoises at Pinecastle and Rodman; Manatees at Lake George; the flatwoods salamander on the Townsend Range; and various flora and fauna on Avon Park contribute to training restrictions in their affiliated range and training areas. Species habitat encroachment creates avoidance areas, reduces range access, and inhibits new tactics development. There is consideration of moving the Flatwoods Salamander off the Townsend Range. Avon Park mitigation recommendations are unknown.
Spectrum	Strike Warfare (STW)		Employment of Link 16 is restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.

Jacksonville Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Electronic Combat (EC)	🟡	Restrictions resulting from electromagnetic spectrum encroachment include prohibitions from performing GPS jamming, authorization to radiate the Spoon Rest VHF early warning threat radar system and restricted use of the ITWSS (Track While Scan Simulator). Employment of Link 16 is restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training, reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Air Warfare (AAW)	🟡	Employment of Link 16 is restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Surface Warfare (ASUW)	🟡	Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Mine Warfare (MW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
Maritime Sustainability	Anti-Surface Warfare (ASUW)	🔴	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. The Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Mine Warfare (MW)	🔴	Same as above.
	Anti-Submarine (ASW)	🔴	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Jacksonville Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Airspace	Strike Warfare (STW)	●	During space launches at Cape Canaveral, the FAA closes southern portions of the Jacksonville OPAREA and associated airspace, depending on launch parameters. Closing portions of the SUA and OPAREA impacts several warfare areas that use the SUA and OPAREAs. Airspace restrictions create avoidance areas, reduce training days, reduce range access, segment training/reduce realism, increase personnel tempo, and increase O&M costs. The Navy will continue to coordinate with the FAA to minimize space launch impacts on training activities.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment creates avoidance areas and segments training/reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Japan Assessment Details

Range Mission Description

The Mid-Pacific Ocean area ranges consists of the ranges and expansive ocean operating areas in the vicinity of the Hawaiian Islands. The complex provides a primary training capability across all warfare areas with a secondary priority in all warfare areas except Strike Warfare (STW) and Amphibious Warfare (AMW).

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	●	●	●	●	●	●	●		●				
Electronic Combat	●	●	●	●	●	●	●		●				
Anti-Air Warfare	●	●	●		●	●	●		●				
Anti-Surface Warfare		●	●	●	●	●	●		●				
Mine Warfare		●	●	●	●	●	●		●				
Amphibious Warfare													
Anti-Submarine		●	●	●	●	●	●		●				
Naval Special Warfare													

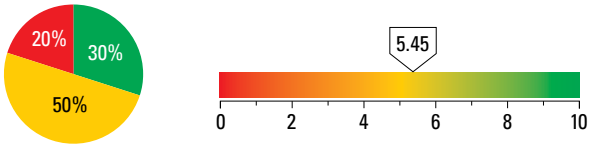
Legend: FMC ● PMC ● NMC ●

Encroachment Data

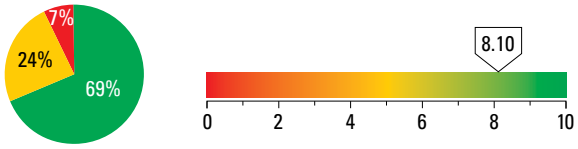
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare			●	●	●		●		●			●
Electronic Combat			●		●		●					●
Anti-Air Warfare			●		●		●					●
Anti-Surface Warfare			●	●	●				●			●
Mine Warfare			●	●	●				●			●
Amphibious Warfare												
Anti-Submarine			●	●	●				●			●
Naval Special Warfare												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability attribute most impacting range mission performance: Scoring & Feedback Systems
2. Assigned Mission Areas most severely impacted: All
3. Projected Status: Tactical Combat Training System (TCTS) and Portable Undersea Tracking Range (PUTR) deployment are expected to provide a modest improvement. Recommend Theater Support Vessel (TSV) deployment to provide additional improvement.

Summary Observations

1. Spectrum is the Encroachment Factor having the greatest encroachment impact on training.
2. EC and AAW are the Mission Areas having the greatest encroachment.
3. The Navy continues to coordinate with GOJ agencies to seek encroachment relief and to develop encroachment strategies that will reduce training restrictions and ensure unfettered use of training ranges and operating areas.

Japan Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.45	5.45	5.45	**Encroachment Scores**	9.40	8.28	8.28
The capability assessment has been stable from year to year, with relatively constant overall scores for CY 2010 and 2011.				Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011. There is little indication encroachment pressures will change in the foreseeable future.			

Japan Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🔴	No Navy controlled range available. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Pursue opportunities with other services, countries, and in-theater ranges. No completion date identified.
	Electronic Combat (EC)	🔴	No Navy controlled range available. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Pursue Multi-purpose Range Craft (MPRC) EC capability. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	No overland airspace supports AAW training. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Pursue opportunities with other services, countries, and in-theater ranges. No completion date identified.
Airspace	Strike Warfare (STW)	🟡	No Navy controlled range available, but there is some airspace and are ground targets available. Projected airwing move will downgrade training due to limited airspace at the new area. Prohibits certain training events; limits application of new technologies; inhibits new tactics development; increases personnel op-tempo, increases O&M costs. Pursue access to airspace that will support this training. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	No overland airspace supports AAW training. Projected airwing move will downgrade training due to limited airspace at the new area. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Pursue opportunities with other services, countries, and in-theater ranges. No completion date identified.
Seaspace	Mine Warfare (MW)	🟡	Lack of shallow water training areas and geographic references limit MIW training. Prohibits certain training; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Evaluate feasibility of creating an op-area adjacent to land to support shallow water and geographic reference points. No completion date identified.
Underseaspace	Mine Warfare (MW)	🟡	No dedicated undersea space for Shock Wave Action Generator (SWAG) or mine avoidance training. Sea bottom type does not have required variance; insufficient shallow water; no permanent UTR. Prohibits certain training; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op-tempo; increases O&M costs. Evaluate feasibility of installing a mine training range with instrumented mine shapes, false targets, bottom mines and mines for SWAG training. Evaluate the feasibility of creating an op-area with shallow water. No completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Japan Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Strike Warfare (STW)	🔴	No Navy controlled range available. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Provide A-G targets and establish supporting SUA. No completion date identified.
	Electronic Combat (EC)	🔴	No targets exist. Limited land area. Political and frequency spectrum constraints. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Pursue MPRC EC Capability. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	No supersonic targets available. No dedicated targets available. Reduces live fire proficiency; increases personnel op-tempo; increases O&M costs. Increase availability of commercial air services. Pursue a MPRC with target capabilities. No completion date identified.
	Anti-Surface Warfare (ASUW)	🟡	Quantity and types of targets are limited. Prohibits certain training events; reduces realism; reduces live fire proficiency. Increase availability of targets. Pursue MPRC capability. No completion date identified.
	Mine Warfare (MW)	🟡	No dedicated or instrumented targets available. Units will typically provide their own targets where feasible. Prohibits certain training events; reduces realism; limits application of new technologies; reduces live fire proficiency; increases O&M costs. Evaluate feasibility of installing a mine range with instrumented shapes, false targets, bottom mines and mines approved for SWAG training. No completion date identified.
	Anti-Submarine (ASW)	🟡	Live and virtual targets are not available. Expendable targets provided by the unit conducting the training are usually used. Reduces realism; limits application of new technologies; inhibits tactics development; reduces live fire proficiency; increases O&M costs. Establish an ASW targets unit. No completion date identified.
Threats	Strike Warfare (STW)	🔴	No dedicated, but limited OPFOR is available. Reduces realism; limits application of new technologies; inhibits tactics development. Improve availability of CAS and EC augmentation. Pursue MPRC with EC capabilities. New CAS contract expected to improve OPFOR support. No completion date identified.
	Electronic Combat (EC)	🔴	No dedicated, but limited OPFOR is available. Reduces realism; limits application of new technologies; inhibits tactics development. Pursue development of joint EC systems. Improve availability of CAS and EC augmentation. Pursue MPRC with EC capabilities. New CAS contract expected to improve OPFOR support. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	No dedicated, but limited OPFOR is available. Reduces realism; limits application of new technologies; inhibits tactics development. Improve availability of CAS and EC augmentation. Pursue MPRC with EC capabilities. New CAS contract expected to improve OPFOR support. No completion date identified.
	Anti-Surface Warfare (ASUW)	🟡	No dedicated, but limited OPFOR is available. Reduces realism; limits application of new technologies; inhibits tactics development. Improve availability of CAS and EC augmentation. Pursue MPRC with EC capabilities. No completion date identified.
	Mine Warfare (MW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
Scoring and Feedback	Strike Warfare (STW)	🔴	No permanent instrumentation exists. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. Evaluate MPRC and TCTS potential to support training. TCTS was delivered in late FY2008, and although it is an AAW system, it is expected to marginally improve STW. No completion date identified.
	Electronic Combat (EC)	🔴	No permanent instrumentation exists. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. Continue planned development of TCTS and evaluate potential to improve training. No completion date identified.
	Anti-Air Warfare (AAW)	🔴	No permanent instrumentation exists. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. TCTS was delivered in late FY2008, and is expected to improve AAW feedback. No completion date identified.
	Anti-Surface Warfare (ASUW)	🟡	No permanent instrumentation exists. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. Evaluate potential of TCTS to support ASUW. Evaluate MPRC potential to support training. No completion date identified.
	Mine Warfare (MW)	🟡	No permanent instrumentation exists. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. Evaluate feasibility of installing a mine range with instrumented shapes, false targets, bottom mines and mines approved for SWAG training. Evaluate MPRC potential to support training. No completion date identified.
	Anti-Submarine (ASW)	🟡	No permanent instrumentation exists. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. Evaluate potential of TCTS to support ASW. Evaluate Training Support Vessel and Portable Underwater Training Range potential to support training. Improved target support is forecast for FY2009. No completion date identified.

Japan Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Strike Warfare (STW)	●	Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Japan Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Strike Warfare (STW)	🟡	Restrictions on RF emissions limit the use of the Tactical Combat Training System (TCTS). Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with Government of Japan (GOJ) agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
	Electronic Combat (EC)	🔴	No EW training ranges due to RF restrictions. RF restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with GOJ agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
	Anti-Air Warfare (AAW)	🔴	Restrictions on RF emissions limit the use of the Tactical Combat Training System (TCTS). Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with GOJ agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
	Anti-Surface Warfare (ASUW)	🟡	All units operating throughout the JORC are precluded from activating SPS-49/SPS-48E radar equipment for test or operational purposes within 12 nm of land areas of Japan or Okinawa. Presently insoluble. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with GOJ agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
Maritime Sustainability	Strike Warfare (STW)	🟡	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/ reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
Noise Restrictions	Strike Warfare (STW)	🟡	Unable to conduct night carrier landing practice at home base. Aircraft must travel to remote location for training. Inability to conduct training at home base location reduces air-wing readiness and impacts STW and AAW mission. Noise encroachment at Atsugi prohibits certain training events, segments training/reduces realism, reduces training days, limits application of new weapons technologies, and inhibits new tactics development. The CVW-5 move to Iwakuni moves the noise encroachment at Atsugi to Iwakuni.
	Anti-Air Warfare (AAW)	🟡	Same as above.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Key West Assessment Details

Range Mission Description

The Key West complexes' primary mission is to support a basic level of training for the Anti-air Warfare (AAW) mission area. It also has a secondary mission of providing AAW training at the intermediate level with a tertiary mission requirement to provide NSW training at a basic level.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare													
Electronic Combat													
Anti-Air Warfare	FMC	FMC	FMC		PMC	FMC	PMC		PMC				
Anti-Surface Warfare													
Mine Warfare													
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare													

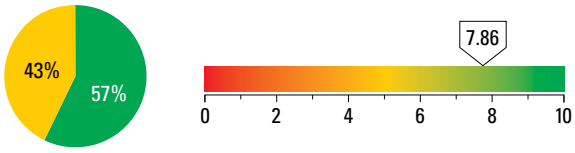
Legend: FMC (Full Mission Capable) PMC (Partial Mission Capable) NMC (Non Mission Capable)

Encroachment Data

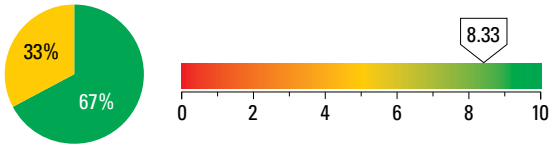
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare												
Electronic Combat												
Anti-Air Warfare			Minimal		Minimal		Moderate	Minimal			Moderate	Minimal
Anti-Surface Warfare												
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare												

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Scoring & Feedback Systems
2. Mission Area most severely impacted: All
3. Projected Status: No immediate change.

Summary Observations

1. Noise Restrictions and Wetlands are the Encroachment Factors having moderate impact on training.
2. AAW is the only Mission Area with encroachments having impacts on training.
3. The Navy may have to implement actions to restore and enhance airfield clearance safety areas that have been encroached upon by wetland areas.

Key West Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.50	7.50	7.50

1. No change between 2008, 2009, 2010.
2. ASUW Range Mission Area deleted in 2011; assessment score increased because of that change.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.86	9.55	9.09

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year with the exception of a small decrease in the score from CY2009 to CY2010.
2. The small change in the assessment score from CY2009 to CY2010 is based on increased encroachment from noise regarding AAW activities in the vicinity of Dry Tortugas and Fort Jefferson.
3. The ASUW Mission Area for the range complex was deleted for the 2011 assessment; the assessment dropped from 9.09 to 8.33 because the assessment for ASUW was all GREEN.
4. RCMP update is scheduled to begin in JUN 2011; the EAP for FY2014.
5. Dept. of Interior (DOI) & private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas & training events may be affected. High priority areas include training ranges & sea space in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review & analysis of impacts from both oil/gas & wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD & DOI coordination continues.

Key West Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Anti-Air Warfare (AAW)		Ranges have minimal target support. Air targets are not available unless scheduled in advance (with a long lead time). This increases personnel op-tempo and increases O&M costs. Navy recommends providing targets at the range area. No long term solution date determined. Current workaround solution: if sufficient lead time is available to schedule targets and if the required targets are available, targets may be arranged for training.
Scoring & Feedback System	Anti-Air Warfare (AAW)		Exercise Coordination & Control are not available over the entire OPAREA, especially for surface ships; Modeling & Simulation is not available; some scoring is available through TCTS; and RTKN is available by voice only. This prohibits certain training events; reduces realism; increases personnel optempo; and increases O&M costs. Recommend investing in systems to support EC&C, M&S and scoring, and debriefing. No completion date identified.
Range Support	Anti-Air Warfare (AAW)		A lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Key West Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Noise Restrictions	Anti-Air Warfare (AAW)	●	Sonic booms generated by VFA aircraft in the vicinity of the Dry Tortugas reportedly startles visitors and may affect physical deterioration of historic Fort Jefferson. Airspeed limits on Key West Complex participating aircraft prohibit certain training events, segment training, reduce realism, and inhibit new tactics development. Noise analysis to determine frequency of sonic booms, potential affects on personnel/property and minimum distance requirements to preclude future noise complaints was completed. The findings of the resulting Environmental Assessment recommended stipulating the expansion of an existing buffer zone around the Dry Tortugas by 2,000 feet, from 18,000 to 20,000 feet, to ensure natural and historic resources would not be impacted.
Wetlands	Anti-Air Warfare (AAW)	●	Wetlands vegetation encroachment obstructs air traffic controllers' lines of site with aircraft and affects radar performance. This Air traffic control obstruction could affect access to portions of the Key West range complex airspace. Navy recommends to implement actions to restore and enhance airfield clearance safety areas. No current action.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Mariana Islands Assessment Details

Range Mission Description

The Mariana Islands range complex is a developing capability with the primary mission requirement to support Advanced and Intermediate training across all warfare areas. It has a tertiary requirement to support the basic level training across all warfare areas.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	●	●	●	●	●	●	●		●				
Electronic Combat	●	●	●	●	●	●	●		●				
Anti-Air Warfare	●	●	●		●	●	●		●				
Anti-Surface Warfare		●	●	●	●	●	●		●				
Mine Warfare		●	●	●	●	●	●		●				
Amphibious Warfare	●	●	●		●	●	●		●				
Anti-Submarine		●	●	●	●	●	●		●				
Naval Special Warfare	●	●	●	●	●	●	●		●				

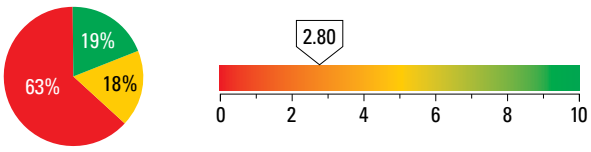
Legend: FMC ● PMC ● NMC ●

Encroachment Data

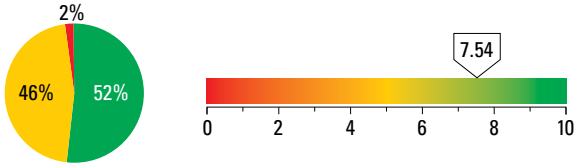
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	●	●	●	●	●	●	●	●	●	●	●	●
Electronic Combat	●		●		●	●	●	●				●
Anti-Air Warfare			●		●	●	●	●				●
Anti-Surface Warfare			●	●	●				●			●
Mine Warfare			●	●	●				●	●		●
Amphibious Warfare	●		●	●	●		●	●	●		●	●
Anti-Submarine		●	●	●	●				●			●
Naval Special Warfare	●	●	●	●	●	●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Targets, Threats, Scoring & Feedback Systems.
2. Mission Area most severely impacted: All
3. Projected Status: No immediate change.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. T&E Species/Critical Habitat, Spectrum, and Maritime Sustainability are the Encroachment Factors with most impact on training.
2. All Mission Areas have encroachment issues that have substantial impact on training.
3. The Navy is consulting and discussing with MIRC stakeholders various issues, including encroachment, that pertain to current and future training requirements as they apply to expanded training required primarily of the move of Marine Corps forces to Guam from Okinawa. The Government of Guam is also consulting with MIRC stakeholders. The website is: *http://www.one.guam.gov/.* Additional forces will require supporting training ranges and operating areas on Guam and select islands in the CNMI. Training requirements and training ranges and operating areas are identified and assessed in the Mariana Islands Range Complex EIS and the Guam and CNMI Relocation EIS, both under development.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Mariana Islands Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	2.80	2.80	2.80

In the 2010 report the range specific display incorrectly showed 3.04 as the capability score in the graphic. The actual tabulated score was 2.80.

There has been no change between 2008 thru 2011.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	8.49	7.58	7.54

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. The assessment score change from CY2009 to CY2010 is due to a change in EC for airspace of green in CY2009 to yellow in CY2010. The change is attributed to an increased encroachment pressure from commercial aviation regarding the use of chaff and flares in the vicinity of the air routes.
3. Potential growth in military training activity in the Mariana Islands will be subjected to encroachment similar to current training. As training activities spread to the various islands, indigenous encroachment will vary depending on each island's environmental and mitigation protocols. The Mariana Islands Range Complex EIS and the Guam and CNMI Relocation EIS address NEPA compliance for current and future military training in the Mariana Islands.
4. An EOD emergency open detonation area is needed on Tinian. CNMI EPA office may require permit for the detonation area.

Mariana Islands Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🔴	Land area is too small, all required ordnance is not cleared for use. Size of land area detracts from all levels of training. Conduct feasibility study for establishing a high-fidelity, inert, Air to Ground range and training area with an associated Warning Area. No completion date identified.
	Electronic Combat (EC)	🔴	Land area does not meet requirements for EC training. Prevents conduct of EC training. Acquire appropriate land area to support EC assets. No completion date identified.
	Anti-Air Warfare (AAW)	🔴	No suitable land area is available under the training airspace. Prevents realistic overland detection and tracking scenarios. Establish a Warning Area over suitable land area. No completion date identified.
	Amphibious Warfare (AMW)	🔴	Minimal land area available for AMW training. Live fire not permitted; maneuver is restricted to use if roads; helicopters must land on designated airfields. Prevents conduct of AMW training. Integrate Navy AMW airspace requirements into Marine Corps amphibious feasibility study. No completion date identified.
	Naval Special Warfare	🔴	Insufficient maneuver area that supports live fire training; MOUT is too small; laser designators are not allowed. Limits NSW realistic training. Conduct study to locate land area that will support NSW training.
Airspace	Strike Warfare (STW)	🔴	Size and altitudes of airspace too small. Cannot accommodate multiple strike packages. Convert ATCAAs to Warning Areas, make air space boundaries contiguous, establish Warning Areas over suitable land areas. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	No suitable land area is available under the training airspace. Prevents realistic overland detection and tracking scenarios. Negotiate with FAA to convert ATCAAs to Warning Areas and establish Warning Area over suitable land area. No completion date identified.
	Amphibious Warfare (AMW)	🔴	Minimal airspace exists over beaches that support AMW training. Prevents air support training for AMW. Integrate Navy AMW airspace requirements into Marine Corps amphibious feasibility study. No completion date identified.
	Naval Special Warfare	🟡	No special use airspace adjacent to land that supports HALO or HAHO parachute training. Prevents complete range of required parachute training. Establish SUA in required area. No completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Mariana Islands Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Seaspace	Electronic Combat (EC)		No OPAREA exists to support EC training. Prevents EC any training. Establish an OPAREA to support EC training. No completion date identified.
	Mine Warfare (MW)		Insufficient geographic references for aerial mine laying; no designated OPAREA for mine laying. Prevents training to proper procedures for aerial mining. Designate geographic reference point and OPAREA for aerial mining. No completion date identified.
	Amphibious Warfare (AMW)		No suitable sea space supported by required beach front available. Prevents conduct of AMW training. Integrate Navy AMW sea space requirements into Marine Corps amphibious feasibility study. No completion date identified.
	Naval Special Warfare		Insufficient beachfront contiguous with sea area; coral heads prevent access to beaches from sea. NSW training is limited. Conduct study to locate area to support required training.
Underseaspace	Mine Warfare (MW)		No dedicated area for SWAG or mine avoidance training. The extreme water depth and lack of variance in sea bottom is problematic. Limits mine countermeasures training. Study feasibility of installing a mine training range with instrumented shapes, false targets, and mines for SWAG training. No completion date identified.
	Anti-Submarine (ASW)		No UTR; lack of shallow water. Prevents tracking torpedoe shots to determine hit/miss statistics. Lack of shallow water prevents Littoral training. Conduct feasibility study to install UTR. Support with Portable Underwater Tracking Range when new Multi-purpose Range Craft becomes available in estimated FY2011.
	Naval Special Warfare		Insufficient beachfront contiguous with sea area; coral heads prevent access to beaches from sea. NSW training limited. Conduct study to locate area to support required training.
Targets	Strike Warfare (STW)		There are no raked, strafe, structural, revetted, or moving targets; no urban terrain; do not support 2000 lb ordnance or cluster munitions; do not support multiple strike packages; do not have spectral signatures. Limits live fire and realistic training. Conduct feasibility study to establish high fidelity, inert, Air to Ground range and training area with associated Warning Area. No completion date identified.
	Electronic Combat (EC)		No targets are available at the Mariana Islands Range. Full range of EC training that requires target support is not available. Study feasibility of establishing target unit at the range complex. No completion date identified.
	Anti-Air Warfare (AAW)		No targets are available at the Mariana Islands Range. Full range of AAW training that requires target support is not available. Study feasibility of establishing target unit at the range complex. No completion date identified.
	Anti-Surface Warfare (ASUW)		No targets are available at the Mariana Islands Range. Full range of ASUW training that requires target support is not available. Study feasibility of establishing target unit at the range complex. No completion date identified.
	Mine Warfare (MW)		No targets available from range; users sometimes supply their own targets. Will degrade training capability for organic mine countermeasures systems (OMCM) units. Study feasibility of installing a mine range with instrumented mines, false targets, and mines for SWAG training. No completion date identified.
	Amphibious Warfare (AMW)		No targets exist for AMW training. No live fire is permitted. Prevents live fire training associated with AMW. Integrate Navy AMW target requirements into Marine Corps amphibious feasibility study. No completion date identified.
	Anti-Submarine (ASW)		No targets exist for ASW training, unless an expendable target is provided by the unit being trained. Prevents torpedo firing training associated with ASW. Study feasibility of establishing a targets division at range complex. No completion date identified.
	Naval Special Warfare		No targets exist for NSW training. MOUT facility is limited. Reduces live fire proficiency; inhibits new tactics. Study feasibility of establishing a targets division at range complex.
Threats	Strike Warfare (STW)		No OPFOR is available at the range. Full range of STW training that requires OPFOR support is not available. Study feasibility of establishing OPFOR resources at the range complex. No completion date identified.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
	Anti-Surface Warfare (ASUW)		Same as above.
	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
	Anti-Submarine (ASW)		Same as above.
	Naval Special Warfare		Same as above.

Mariana Islands Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback	Strike Warfare (STW)	🔴	No instrumentation exists at the range. Full range of STW training that requires instrumentation is not available. Study feasibility of providing instrumentation to the range complex. No completion date identified.
	Electronic Combat (EC)	🔴	Same as above.
	Anti-Air Warfare (AAW)	🔴	Same as above.
	Anti-Surface Warfare (ASUW)	🔴	Same as above.
	Mine Warfare (MW)	🔴	Same as above.
	Amphibious Warfare (AMW)	🔴	Same as above.
	Anti-Submarine (ASW)	🔴	Same as above.
	Naval Special Warfare	🔴	Same as above.
Range Support	Strike Warfare (STW)	🟡	Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
	Naval Special Warfare	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	🟡	Threatened species and migratory bird habitat restricts area available for training on FDM. Creates avoidance areas, prohibits certain training events, reduces range access, segments training/reduces realism, complicates night and all-weather training, and raises flight altitudes. Comply with current regulations, attempt to negotiate a reduction in the number of restrictions throughout the complex, and designate alternate locations for STW that do not have such restrictions.
	Amphibious Warfare (AMW)	🔴	Marine Mammal Protection Act, Endangered Species Act, the EIS for Military Training in the Marianas, and the USDA Brown Tree Snake (BTS) protocol place restrictions on military training throughout the Marianas. Regulatory controls have resulted in INRMPs that place restrictions on military operations. Coral and essential fish habitat (EFH) conservation, marine mammal protection, munitions in the water, turtle nesting, and BTS protocols are some of the encroachment issues that influence training activities. Landing Craft Air Cushion (LCAC) and Amphibious Assault Vehicle (AAV) landings on the beaches in the Marianas are problematic. Amphibious landings will require compensatory coral reef mitigation efforts. Creates avoidance areas, prohibits certain training events, reduces range access, segments training/reduces realism, raises flight altitudes, complicates night and all-weather training, and raises flight altitudes. All Military Services are subject to and conform to training restrictions. The Navy should attempt to negotiate a reduction in the number of restrictions throughout the complex.
	Naval Special Warfare	🟡	Marine Mammal Protection Act, Endangered Species Act, the EIS for Military Training in the Marianas, and the USDA BTS protocol place restrictions on military training throughout the Marianas. Regulatory controls have resulted in INRMPs that place restrictions on military training. Restrictions create avoidance areas, prohibit certain training events, reduce range access, segment training/reduce realism The Navy continues to pursue regulatory relief while adhering to compliance provisions.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Mariana Islands Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Strike Warfare (STW)	●	De-vegetation and erosion on FDM caused by explosive munitions has restricted and prohibited certain munitions expenditures. FDM restrictions create avoidance areas, prohibit certain training events. FDM users are continually reminded to use only authorized munitions and to keep munitions on island. All Military Services are subject to and conform to training restrictions.
	Naval Special Warfare (NSW)	●	EOD permitting in the Ordnance Annex and UXO on the inactive mortar range and live coral beds on Tinian are issues that restrict EOD and training activity. Restrictions prohibit certain training events. The Navy is evaluating a RCRA designation/permit for the EOD pit in the Ordnance Annex.
Spectrum	Strike Warfare (STW)	●	Employment of Link 16 is restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Mine Warfare (MW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Mine Warfare (MW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

Mariana Islands Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Airspace	Strike Warfare (STW)	●	Marianas airspace is adequate when the ATCAAs are available; however, scheduling can be problematic as FAA is not always flexible to short notice requests. FAA in Marianas has tremendous pressure from the airlines. Warfare areas participating in combined arms training are impacted by the current lack of SUA over land areas in the Marianas. Encroachment from airspace restrictions creates avoidance areas, prohibits certain training events, reduces range access, segments training/reduces realism, inhibits new tactics development. The Navy is considering establishing Warning Areas to replace the ATCAAs. For possible range complex upgrades with live-fire ranges, there will be a requirement for additional special use airspace (SUA) over the live-fire ranges.
	Electronic Combat (EC)	●	FAA restrictions on EC/chaff operations in proximity to air routes is problematic. EC/chaff restrictions creates avoidance areas, prohibits certain training events, segments training/reduces realism, inhibits new tactics development, and limits application of new technologies. The Navy is negotiating with the FAA for relief; no pending resolution date.
	Anti-Air Warfare (AAW)	●	Marianas airspace is adequate when the ATCAAs are available; however, scheduling can be problematic as FAA is not always flexible to short notice requests. FAA in Marianas has tremendous pressure from the airlines. Warfare areas participating in combined arms training are impacted by the current lack of SUA over land areas in the Marianas. Encroachment from airspace restrictions creates avoidance areas, prohibits certain training events, reduces range access, segments training/reduces realism, inhibits new tactics development. The Navy is considering establishing Warning Areas to replace the ATCAAs. For possible range complex upgrades with live-fire ranges, there will be a requirement for additional special use airspace (SUA) over the live-fire ranges.
Noise Restrictions	Strike Warfare (STW)	●	There is a continuing concern with noise at Andersen Northwest Field due to residential areas adjoining the property. Nighttime flying activities are restricted and flight tracks are routed to avoid populated areas. Only mission essential aircraft arrivals and departures are scheduled between 2200 and 0600 hours. Noise related restrictions prohibit certain training events; complicate night training. The Air Force continues close coordination with local stakeholders to ensure military operations can proceed normally.
	Anti-Air Warfare (AAW)	●	Same as above.
Adjacent Land Use	Strike Warfare (STW)	●	There is privately owned land near the runway at Andersen Air Field Northwest falls within the clear zones for aircraft operations. Nighttime flying activities are restricted and flight tracks are routed to avoid populated areas. Only mission essential aircraft arrivals and departures are scheduled between 2200 and 0600 hours. Private owners are a source for noise complaints. Noise related restrictions prohibit certain training event and complicate night training. The Air Force continues close coordination with local stakeholders to ensure military operations can proceed normally.
	Anti-Air Warfare (AAW)	●	Same as above.
Cultural Resources	Amphibious Warfare (AMW)	●	When an LCAC lands at Chulu Beach, Tinian, it must remain on full air cushion until the entire craft is on the beach. LCAC full cushion operations on Chulu Beach are problematic as the beachfront is narrow and shallow. LCAC training restrictions create avoidance areas and prohibit certain training events. Currently insoluble. Navy should attempt to renegotiate the terms of the consultation.
	Naval Special Warfare (NSW)	●	The pervasiveness of cultural resources in the Marianas limits locations for NSW ranges and training areas where special operations forces would logically train. Restrictions create avoidance areas, prohibit certain training events, reduce range access, and segment training/reduce realism. Insoluble.
Wetlands	Amphibious Warfare (AMW)	●	There are sensitive wetlands areas in the vicinity of the Reserve Craft Beach (RCB). GovGuam has declared area a conservation area. The Navy owns the RCB, but GovGuam has restricted its use. Restrictions over wetlands reduce range access, create avoidance areas, segment training and/or reduce realism, and raise flight altitudes. The Navy should attempt to renegotiate the terms of this issue during the EIS process.
	Naval Special Warfare (NSW)	●	There are sensitive wetlands areas in the vicinity of the Reserve Craft Beach (RCB). GovGuam has declared area a conservation area. The Navy owns the RCB, but GovGuam has restricted its use. Restrictions create avoidance areas, prohibit certain training events, reduce range access, and segment training/reduce realism. The Navy may try to negotiate with GovGuam to lessen the impacts of RCB restrictions.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Mariana Islands Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Range Transients	Strike Warfare (STW)	●	Commercial and private fishing boats and dive boats frequent near-shore areas throughout the Marianas. Transient boat traffic interrupts or stops military training activity. Training interruptions reduce range access, create avoidance areas, segment training and/reduce realism, and prohibit certain training events. Navy pursues outreach to local mayors, fishermen, and tour operators to ensure better understanding of military training. The Navy is pursuing an exclusion zone around FDM for safety reasons.
	Mine Warfare (MW)	●	Commercial and private fishing boats and dive boats frequent near-shore areas throughout the Marianas. There are no enforced surface danger zones (SDZs) over the water. Transient boat traffic interrupts or stops military training activity. Transient boat activity reduces range access, creates avoidance areas, segments training and/or reduces realism, and prohibits certain training events. Active patrolling of near-shore areas may need to be implemented to avoid civilian encroachment onto hot ranges and training areas. Navy pursues outreach to local mayors, fishermen, and tour operators to ensure better understanding of military training. The Navy is pursuing an exclusion zone around FDM for safety reasons.
	Amphibious Warfare (AMW)	●	Same as above.
	Naval Special Warfare	●	Commercial and private fishing boats and dive boats frequent near-shore areas throughout the Marianas. There are no enforced surface danger zones (SDZs) over the water. Transient boat traffic interrupts or stops military training activity. Restrictions create avoidance areas, prohibit certain training events, reduce range access, segment training/reduce realism. Insoluble.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Narragansett Assessment Details

Range Mission Description

The Narragansett Bay complex has a secondary mission requirement to provide ASUW training support at the basic level. It is a regional range for east coast Navy units that provides training space with off-shore warning areas but no instrumentation.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare													
Electronic Combat													
Anti-Air Warfare													
Anti-Surface Warfare													
Mine Warfare													
Amphibious Warfare													
Anti-Submarine		FMC	FMC	FMC	FMC	PMC	PMC		PMC				
Naval Special Warfare													

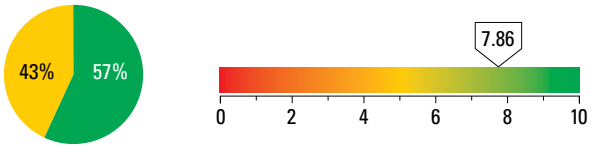
Legend: FMC, PMC, NMC

Encroachment Data

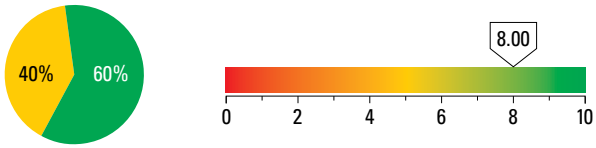
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare												
Electronic Combat												
Anti-Air Warfare												
Anti-Surface Warfare												
Mine Warfare												
Amphibious Warfare												
Anti-Submarine			Moderate	Moderate	Minimal				Minimal			Minimal
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Scoring & Feedback System.
2. Mission Area most severely impacted: ASW
3. Projected Status: No immediate change.

Summary Observations

1. Spectrum and Maritime Sustainability are the two Encroachment Factors having the most impact on training.
2. ASW is the Mission Area most impacted my encroachment.
3. ASW forces have developed training procedures, maritime mitigation measures, and workarounds that cope with the pressures of encroachment on ASW training.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	7.14	7.86	7.86

1. ASW Scoring & Feedback was Red in 2008 and re-evaluated to Yellow in 2009.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	8.75	8.00	8.00

1. Spectrum and Maritime Sustainability are the two Encroachment Factors having the most impact on training.
2. ASW is the Mission Area most impacted my encroachment.
3. ASW forces have developed training procedures, maritime mitigation measures, and workarounds that cope with the pressures of encroachment on ASW training.

Narragansett Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Anti-Submarine (ASW)	●	There are limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. This shortfall prohibits certain training events; reduces realism; inhibits tactics; increases personnel op-tempo; increases O&M costs.Navy will invest in additional threat OPFOR. Increase availability of submarines through the Diesel Electric Submarine Initiative (DESI) and aircraft through the Contract Air Support (CAS) programs.
Scoring & Feedback Systems	Anti-Submarine (ASW)	●	There is no underwater tracking range, scoring capability, M&S, or post mission feedback. This prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel op-tempo; increases O&M costs. Navy plans to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; and improve debrief capabilities.
Range Support	Anti-Submarine (ASW)	●	The lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values.Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea.PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Anti-Submarine (ASW)	●	Employment of Link 16, SPY-1 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
Maritime Sustainability	Anti-Submarine (ASW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA).Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs.The Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Navy Cherry Point Assessment Details

Range Mission Description

The Navy Cherry Point Range Complex has primary mission to provide training across all levels of training for Electronic Combat (EC), Amphibious Warfare (AMW), and Mine Warfare (MW) for the intermediate and advanced levels of training. It has a secondary mission requirement to provide Strike Warfare (STW) training at the basic and intermediate levels and a tertiary requirement at the advanced level. AAW training across all levels of training is a tertiary mission requirement for the range; as well as, ASUW training at the advanced level. It does not have a mission requirement to provide NSW training.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	PMC	PMC	FMC	FMC	PMC	PMC	PMC		PMC				
Electronic Combat	FMC	FMC	FMC	FMC	PMC	PMC	FMC		PMC				
Anti-Air Warfare	PMC	FMC	FMC		FMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	FMC	PMC		PMC				
Mine Warfare		FMC	FMC	FMC	PMC	FMC			PMC				
Amphibious Warfare	FMC	FMC	FMC	FMC	PMC	PMC	FMC		PMC				
Anti-Submarine		FMC	FMC	FMC	FMC	PMC	NMC		PMC				
Naval Special Warfare													

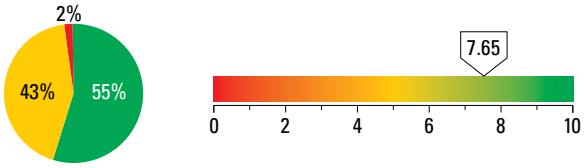
Legend: FMC, PMC, NMC

Encroachment Data

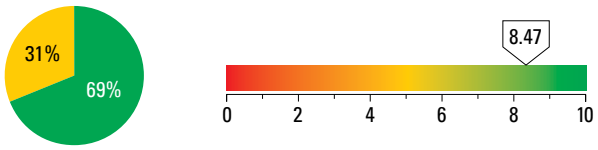
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare		Minimal	Moderate	Minimal	Moderate		Minimal		Minimal			Minimal
Electronic Combat			Moderate		Minimal		Minimal					Minimal
Anti-Air Warfare			Moderate		Minimal		Minimal					Minimal
Anti-Surface Warfare			Moderate	Moderate	Minimal				Minimal			Moderate
Mine Warfare			Minimal	Minimal	Minimal				Minimal			Minimal
Amphibious Warfare			Moderate	Moderate	Minimal		Minimal		Minimal			Moderate
Anti-Submarine			Minimal	Minimal	Minimal				Minimal			Moderate
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Scoring and Feedback Systems
2. Mission Area most severely impacted: ASW & MW
3. Projected Status: No immediate change.

Summary Observations

1. Spectrum and Maritime Sustainability are the two Encroachment Factors having the greatest impact on training.
2. ASUW and AMW are the two Mission Areas with the greatest encroachment impacts.
3. The Navy has developed procedures, maritime mitigation measures, and workarounds to accommodate encroachment impacts. The Navy continues to consult and discuss with stakeholders various strategies that can lessen encroachment impacts.

Navy Cherry Point Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.40	7.50	7.50

1. Airspace training requirement for STW was re-evaluated between the 2008 report and 2009. Revised impact assessment from red to yellow based on review of similar impacts at Jacksonville and VACAPES range complexes in order to achieve a consistent evaluation between ranges.
2. MW Scoring & Feedback changed from RED to WHITE based on USFF evaluation that TSPI Scoring data is not required.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.29	8.33	8.33

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011, except EC Spectrum prohibits use of some threat simulation equipment. ASUW & AMW maritime Sustainability re-evaluated from Red to Yellow based on affect on range capabilities.
2. RCMP update scheduled to begin in OCT 2010; EAP in FY2012.
3. Dept. of Interior (DOI) & private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas & training events may be affected. High priority areas include training ranges & sea space in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review & analysis of impacts from both oil/gas & wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD & DOI coordination continues.

Navy Cherry Point Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	There is no land in the Navy Cherry Point range. Land area in contiguous Marine Corps ranges provide some land space and contains two targets, but the land size does not meet minimum requirements. Additional land space is only available at Dare County Bombing Range. The land area does not fully support size or topography requirements for placement of required number of targets. Use of live ordnance is not supported. Area too small to support standoff PGM weapons. These shortfalls prohibit certain training events; reduces realism; reduces life fire proficiency. There are no local options for increasing land availability.
	Anti-Air Warfare (AAW)	●	Land space is only available at adjacent Marine Corps ranges and at the Dare County Bombing Range, which does not fully support size or topography requirements, or support surface combatant detection of aircraft over land. Use of flares is restricted. This prohibits certain training events; reduces realism; and increases personnel op-tempo. Overland ACM training is conducted at Fallon Range Training Complex. No additional land options are available.
Airspace	Strike Warfare (STW)	●	There is no land in the Navy Cherry Point range. Land area in contiguous Marine Corps ranges provide some land space, but the airspace configuration lacks characteristics for realistic tactical approaches and does not support the area size to meet minimum training requirements. Altitudes are limited to 17,999 ft; and the area is not cleared for supersonic operations. This reduces realism; inhibits new tactics development; reduces live fire proficiency. There are no local options for increasing land availability, but coordination and investment in new MOAs could reduce the impact on flight operations by increasing airspace area and altitudes.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Navy Cherry Point Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Strike Warfare (STW)		No targets are available in the range. Two targets are moderately supported by contiguous USMC ranges, but do not allow live ordnance. This reduces realism; prohibits certain events; increases personnel op-tempo; and increases O&M costs. Improvements are expected due to recent investment planning for targets, but additional investment in moving and urban targets located in a land area that will support STW is required.
	Electronic Combat (EC)		There is no EC support above level 2 for aircraft and no support for surface units. Contiguous USMC ranges provide some support, but lack mobile targets; lack sufficient threat emitters to cover range of threats. This prohibits certain training events; reduces realism. Navy plans to invest in upgrades to MAEWR to cover range of required threats and targets.
	Mine Warfare (MW)		There are insufficient training mines to support increased MW training requirements from MH-60 and MH-53 helicopter squadrons. This prohibits certain training events; reduces realism; inhibits tactics; increases personnel op-tempo; and increases O&M costs. Navy will procure appropriate mix of recoverable and expendable inert bottom and moored mine shapes and instrumented bottom training mines to populate a temporary mine training area for major exercises.
	Amphibious Warfare (AMW)		Portable beach obstacles are available, but are not cleared for engagement. This reduces realism for assault training, and prohibits certain training events, such as obstacle clearance.
Threats	Strike Warfare (STW)		Additional amount of live or virtual fixed winged or helicopter OPFOR required for realistic threat representation. This reduces realism; prohibits certain events. Navy plans to invest in additional Commercial Air Services to serve as OPFOR.
	Electronic Combat (EC)		EC threat representation does not fully support EC threat levels 3 or 4 for required mission areas. Existing instrumentation systems are becoming obsolete and unsupportable through the FYDP. This reduces realism; inhibits tactics development; greatly increases O&M costs. Navy plans to maintain current upgrade schedule to preclude severe degradation of system capability.
	Anti-Air Warfare (AAW)		Helicopter and supersonic threat OPFOR and required quantity of threat OPFOR is not available. This shortfall reduces realism, inhibits new tactics development; increases personnel op-tempo; and increases O&M costs. Navy plans to invest in additional Commercial Air Services to serve as OPFOR.
	Amphibious Warfare (AMW)		There is no dedicated OPFOR consisting of minefields, submarines, small high-speed boats, a battalion sized ground force, a company sized mechanized force and anti-ship cruise missiles available. This reduces realism and inhibits new tactics development. Navy will provide funding to develop a dedicated threat of live, virtual, and constructive OPFOR.
	Anti-Submarine (ASW)		There is limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. This prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; and increases O&M costs. Navy plans to invest in additional threat OPFOR and increase availability of submarines through the DESI and aircraft through CAS.
Scoring & Feedback System	Strike Warfare (STW)		OPAREA lacks full TSPI and EC&C coverage; no M&S capabilities and lacks real-time kill notification. This reduces realism; prohibits certain events; increases personnel optempo; increases O&M costs. Navy plans to expand and improve 2-D & 3-D coverage of OPAREA; invest in JNTC compliant M&S; improve debrief and data collection capabilities.
	Anti-Air Warfare (AAW)		OPAREA coverage is not complete; Modeling & Simulation is inadequate; no RTKN. Existing instrumentation systems are not supportable through the FYDP. This reduces realism; inhibits tactics; increases personnel optempo, increases O&M costs. Plan to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities. Maintain TACTS with TCTS replacement schedule to preclude severe degradation of system capability.
	Anti-Surface Warfare (ASUW)		Range lacks full TSPI coverage, there is no M&S capabilities, and it lacks automatic scoring. This reduces realism; inhibits tactics; increases personnel optempo,and increases O&M costs. Plan to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities.
	Anti-Submarine (ASW)		There is no underwater tracking range, scoring capability, M&S, or post mission feedback. This prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Plan to develop and fund east coast USWTR, expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; and improve debrief capabilities.

Navy Cherry Point Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Strike Warfare (STW)	●	The lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Strike Warfare (STW)	●	Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Electronic Combat (EC)	●	Restrictions resulting from electromagnetic spectrum encroachment include prohibitions from performing GPS jamming, authorization to radiate the Spoon Rest VHF early warning threat radar system and restricted use of the ITWSS (Track While Scan Simulator). Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Air Warfare (AAW)	●	Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Navy Cherry Point Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Maritime Sustainability	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Amphibious Warfare (AMW)		Same as above.
Airspace	Strike Warfare (STW)		FACSFAC and FAA communications and flight procedures in controlled airspace between W-122 and R-5306A/C/D/E (the Navy Cherry Point Range Complex to BT-9, BT-11 and G-10 impact areas) interrupt the flow of tactical flight operations from W-122 to the R-5306 airspace. Airspace restrictions encroachment segments training/reduces realism. FACSFAC VACAPES, MCAS CP, MCB CL continue to coordinate with each other and the FAA Washington Center to refine airspace procedures and alleviate airspace flight restrictions that provide better tactical aircraft movement from W-122 to the R-5306.
Range Transients	Anti-Surface Warfare (ASUW)		Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment creates avoidance areas and segments training/reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Amphibious Warfare (AMW)		Same as above.
	Anti-Submarine (ASW)		Same as above.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Northern California (NOCAL) Assessment Details

Range Mission Description

The NOCAL complex primary mission is to support Navy training in Strike Warfare (STW) at the basic level and Naval Special Warfare (NSW) at the intermediate level of training. It has a tertiary mission of supporting Anti-surface Warfare Training (ASUW) at the basic level.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	FMC	FMC	FMC	FMC	FMC	PMC	NMC		PMC				
Electronic Combat													
Anti-Air Warfare	FMC	PMC	FMC		FMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	FMC	FMC		PMC				
Mine Warfare													
Amphibious Warfare													
Anti-Submarine													
Naval Special Warfare	FMC	FMC	FMC	FMC	FMC	FMC	FMC		PMC				

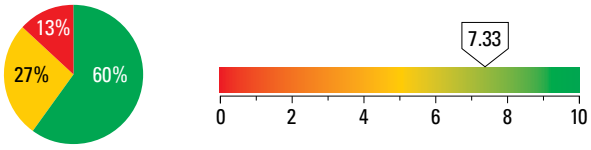
Legend: FMC PMC NMC

Encroachment Data

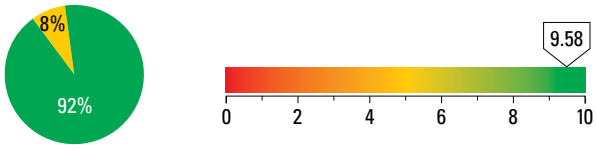
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare			Moderate	Moderate	Moderate	Moderate	Moderate		Moderate			Severe
Electronic Combat												
Anti-Air Warfare			Moderate		Moderate	Moderate	Moderate					Severe
Anti-Surface Warfare			Moderate	Moderate	Moderate				Moderate			Moderate
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare			Moderate	Moderate	Moderate	Moderate	Moderate		Moderate			Moderate

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Targets and Scoring and Feedback systems.
2. Mission Area most severely impacted: STW
3. Projected Status: No immediate change.

Summary Observations

1. Range Transients is the encroachment factor with the greatest impact on training.
2. STW and AAW are the mission areas most affected.
3. The Navy may seek to enlarge the MOAs and create transit corridors for civil aircraft that are below the training altitudes for military aircraft.

Northern California (NOCAL) Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.33	7.33	7.33

1. The capability assessment has been stable from year to year, with relatively constant overall scores for CY 2010 and 2011.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.58	9.58	9.58

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. There is little indication encroachment pressures will change in the foreseeable future.

Northern California (NOCAL) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🔴	There is no Navy owned land-space. Army Fort Hunter Liggett provides support for limited helicopter training, but their support for FRS and Fleet F/A-18 squadrons strike training capability is severely limited. These units must rely on out-of-area training to fulfill basic level requirements. This prohibits training events; complicates night and all-weather training; reduces realism; limits tactics; reduces live fire proficiency; increases personnel optempo; increases O&M costs. Navy recommends to develop an instrumented air-to-ground range in NOCAL Training Area; Investigate other feasible range areas. No completion date identified.
Airspace	Strike Warfare (STW)	🔴	Same as above.
	Anti-Air Warfare (AAW)	🟡	Airspace range distance is too far from Lemoore, ocean water temperature too cold (safety issue), supersonic flight restricted to greater than 30nm from land and above 30K Ft. This increases travel time to the training area; inhibits employment of tactics; and decreases realism. navy will work with FAA to reduce limitations on SUA. No completion date identified.
Targets	Strike Warfare (STW)	🔴	Only one target site exists and there are no DMPIs or raked targets. This prohibits certain training; reduces realism; limits application of new technologies; inhibits some tactics; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Recommend to Investigate other feasible range areas. No completion date identified.
Threats	Strike Warfare (STW)	🟡	There is no Helicopter OPFOR available; Commercial OPFOR is extremely limited; there is no supersonic OPFOR; and EC OPFOR extremely limited. These shortfalls reduce realism; inhibits tactics; increase personnel op-tempo; and increase O&M costs. Navy recommends to Increase funding for commercial OPFOR and to provide for additional target vessel services to support air and EC OPFOR. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	Same as above.
Scoring and Feedback System	Strike Warfare (STW)	🔴	There is no TSPI coverage of NOCAL MOAs; no M&S capability; no scoring system; and no debriefing capability. These shortfalls increase O&M costs, personnel optempo; reduce realism, and inhibit tactics. The fielding of TCTS will provide the needed upgrade. Navy needs to invest in JNTC compliant M&S.; Investigate other feasible range areas; and be proactive with public stakeholders to regain use of training areas. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	Same as above.
Range Support	Strike Warfare (STW)	🟡	The lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values.Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Anti-Air Warfare (AAW)	🟡	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Naval Special Warfare	🟡	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Northern California (NOCAL) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Range Transients	Strike Warfare (STW)		Civil aircraft fly through the Hunter, Roberts, and Foothills MOAs when the MOAs are activated. Military aircrews must be vigilant to see and avoid small civil aircraft. This encroachment requires aircrews to direct their attention away from the mission at-hand to avoid collisions or near misses with civil aircraft. Restrictions prohibit certain training events, segment training/reduce realism, and inhibit new tactics development. The Navy may seek to enlarge the MOAs and create transit corridors for civil aircraft that are below the training altitudes for military aircraft.
	Anti-Air Warfare (AAW)		Same as above.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Northwest Training Range Complex Assessment Details

Range Mission Description

The Northwest Training Range Complex offers varied littoral water conditions, bottom types, and depths with air and underwater tracking with a primary mission to support Anti-submarine Warfare (ASW), Mine Warfare (MW), Electronic Warfare (EW), and Anti-surface Warfare (ASUW). It also has a secondary and tertiary mission requirement to provide training capability at the intermediate level for these same mission areas. In ASW, the Complex has a secondary mission requirement to provide training support at the advanced level

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	●	●	●	●	●	●	●		●				
Electronic Combat	●	●	●	●	●	●	●		●				
Anti-Air Warfare	●	●	●		●	●	●		●				
Anti-Surface Warfare		●	●	●	●	●	●		●				
Mine Warfare		●	●	●	●	●	●		●				
Amphibious Warfare													
Anti-Submarine		●	●	●	●	●	●		●				
Naval Special Warfare	●	●	●	●	●	●	●		●				

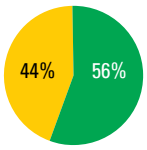
Legend: FMC ● PMC ● NMC ●

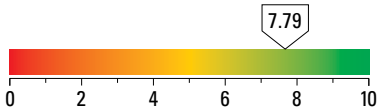
Encroachment Data

Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	●	●	●	●	●	●	●	●	●	●	●	●
Electronic Combat			●	●	●	●	●	●				●
Anti-Air Warfare			●		●	●	●	●				●
Anti-Surface Warfare			●	●	●				●			●
Mine Warfare			●	●	●				●			●
Amphibious Warfare												
Anti-Submarine			●	●	●			●	●			●
Naval Special Warfare	●	●	●	●	●	●	●	●	●	●	●	●

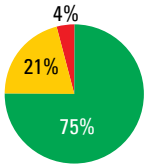
Legend: Minimal ● Moderate ● Severe ●

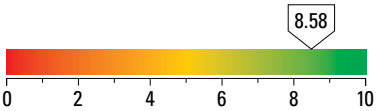
Capability Chart and Scores





Encroachment Chart and Scores





Summary Observations

1. Capability Attribute most impacting range mission performance: Scoring & Feedback Systems
2. Mission Area most severely impacted: STW
3. Projected Status: No immediate change.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Summary Observations

1. Maritime Sustainability is the encroachment factor with the most impact on training. Additionally wind energy projects inside of Restricted Airspace will eliminate low altitude training capability.
2. AAW is the mission area most affected by encroachment.
3. The Navy has implemented training procedures, mitigation measures, and workarounds to accommodate encroachment. Navy efforts to mitigate encroachment are a continuing effort.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Northwest Training Range Complex Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.98	7.88	7.88

1. ASUW threats were Green in 2008 and re-evaluated to Yellow in 2009 and beyond based on review of range capability and impacts with PACFLT.
2. EC Threats were Green in 2009; re-evaluated to Yellow in 2010 due to introduction of EA-18G within the range complex area. Mobile EW equipment has been requested to provide required EC threats.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.40	9.04	9.04

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. Encroachment, specifically wind farm development, is emerging as an increasing challenge to unit level training at NWSTF Boardman. There is little indication encroachment pressures will change in the foreseeable future.

Northwest Training Range Complex Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	Size does not meet requirements; live ordnance not allowed; use of inert ordnance at Basic and Intermediate level is authorized. This inhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; and increases O&M costs. Navy plans to redevelop bombing range area; establish second target complex per range required capabilities document. No completion date identified.
	Naval Special Warfare (NSW)	●	Limited maneuver area; no live fire area; no MOUT. This shortfall inhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; increases O&M costs. Navy plans to pursue development of live fire small arms training capabilities near Puget Sound.
Airspace	Strike Warfare (STW)	●	Size and altitudes do not meet requirements; supersonic operations are not allowed over land. This Inhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; increases O&M costs. Navy plans to coordinate larger areas and higher altitudes to meet requirements. No completion date identified.
Seaspace	Electronic Combat (EC)	●	Land area where EC emitter is located can not support seaspace EC. This inhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; increases O&M costs. Navy development of a mobile EW range for Okanogan, Roosevelt and Olympic MOAS is in conceptual planning.
Underseaspace	Naval Special Warfare (NSW)	●	Net Explosive Weight (NEW) is limited by local policy to no more than 2.5 lbs NEW due to potential Marine Mammal Protection Act & Endangered Species Act concerns while the range is sited for 20 lbs NEW. This restriction inhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; and increases O&M costs. Environmental studies to determine impact of explosive operations in Crescent Harbor are under way.
Targets	Electronic Combat (EC)	●	Limited threat representative fixed and mobile targets are available. This shortfall inhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; increases O&M costs. Acquisition of re-locatable EC threat emitters is under way. Acquisition of "Smart targets" (visually representative of threats) needs to be initiated. No completion date identified.
	Anti-Air Warfare (AAW)	●	There is no towed target or subscale target capability in the range complex. This reduces live fire proficiency; limits application of new weapon technologies; increases personnel op-tempo; and increases O&M costs. Navy plans to invest in commercial air services with target towing and other target capabilities. No completion date identified.
	Anti-Surface Warfare (ASUW)	●	There are no targets available or targets provided by range users. This reduces realism; inhibits tactics; limits application of new weapon technologies; reduces live fire proficiency; increases personnel op-tempo; and increases O&M costs. Navy plans to invest in required self propelled, towed, programmed or remote controlled targets. No completion date identified.
	Naval Special Warfare (NSW)	●	There are no local live firing area with realistic targets. This nhibits tactics development; limits application of new weapon technologies; increases personnel op-tempo; and increases O&M costs. Navy will pursue development of live fire capabilities near Puget Sound.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Northwest Training Range Complex Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Strike Warfare (STW)		The full required EC threat level does not exist at bombing range. There is no live or virtual rotary or fixed wing threat exists at the bombing range. The acquisition of re-locatable EC threat simulators has been initiated. Navy will coordinate with other range users (USAF, Oregon Air or Army Guard) to provide threat support or use Contract Air Service. No completion date identified.
	Electronic Combat (EC)		Realistic OPFOR responses are not available; EC threats are not available above level 2. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel OPTEMPO; and increases O&M costs. Navy plans to invest in enhanced EC threat capabilities. No Completion date identified.
	Anti-Air Warfare (AAW)		There is no dedicated OPFOR. This reduces realism; inhibits tactics development; increases personnel op-tempo; increases O&M costs. Navy plans to invest in commercial air services equipped with required threat augmentation. No completion date identified.
	Anti-Surface Warfare (ASUW)		There is no dedicated OPFOR. This reduces realism; inhibits tactics development; increases personnel op-tempo; and increases O&M costs. Navy plans to investigate potential to use range craft for OPFOR presentation. No completion date identified.
Scoring & Feedback System	Strike Warfare (STW)		Range lacks instrumentation; no real-time or debrief capability. This increases personnel op-tempo; reduces realism; increases O&M costs; and inhibits tactics development. Navy plans to invest in instrumentation that will meet requirements for an instrumented range. No completion date identified.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
Range Support	Strike Warfare (STW)		The lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values.Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
	Anti-Surface Warfare (ASUW)		Same as above.
	Mine Warfare (MW)		Same as above.
	Anti-Submarine (ASW)		Same as above.
	Naval Special Warfare (NSW)		Same as above.

Northwest Training Range Complex Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Electronic Combat (EC)	🟡	Jamming is severely restricted east of the Cascade Mountains due to satellite communications stations, etc. Jamming is restricted off-shore in that aircraft must face out to sea, not shoreward, due to Seattle urbanized area and interference with FAA Radars.Additional jamming target sets have developed in current combat theaters that can not be jammed for training in inhabited areas. Restrictions from the JRFL and the FAA create avoidance areas, prohibit certain training events, segment training/ reduce realism, limit application of new weapons technologies, and inhibit new tactics development. Aircrews travel to NAS Fallon to complete EC training requirements. Restrictions on Surface Combatant radar (SPS-49) limit its use within 100 NM of land. Workarounds currently permit completion of training. A study is in progress for possible mobile EW range for Okanogan and Roosevelt MOAs.
Maritime Sustainability	Electronic Combat (EC)	🟡	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Mine Warfare (MW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
	Naval Special Warfare (NSW)	🟡	Same as above.
Airspace	Electronic Combat (EC)	🟡	VQ Aircrews based at NAS Whidbey Island train in Electronic Reconnaissance in Darrington Op-area. They routinely experience difficulty getting clearance from Seattle ARTCC (FAA) to climb above FL 250. The aircraft are routinely vectored around by Seattle ARTCC causing delays, wasting airborne training time. These restrictions result in reduced range access. Navy is developing a mobile EW training emitter system to work in the Military Operation Areas such as Okanogan, Roosevelt and Olympic MOAS.
	Anti-Air Warfare (AAW)	🔴	Wind Energy projects in Restricted Airspace coupled with an FAA determination of no hazard to aviation has potential of eliminating low altitude tactical training in NWSTF Boardman. The presence of 450 foot tall towers with blade width of 256 feet inside Restricted Airspace would eliminate current capability of flying at 100 feet for low altitude tactical training. A determination of no hazard to aviation will encourage construction inside Restricted Airspace. Wind energy projects can reduce access to SUA, prohibit certain training events, segment training/reduce realism, and raise flight altitudes. Recommend addressing this issue with the FAA for reversal of this determination or purchase aviation easements from land owners or accept loss of training capability on an existing range.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Northwest Training Range Complex Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Adjacent Land Use	Anti-Air Warfare (AAW)		Wind Energy projects in Restricted Airspace coupled with an FAA determination of no hazard to aviation has potential of eliminating low altitude tactical training in NWSTF Boardman. The presence of 450 foot tall towers with blade width of 256 feet inside Restricted Airspace would eliminate current capability of flying at 100 feet for low altitude tactical training. A determination of no hazard to aviation will encourage construction inside Restricted Airspace. Wind energy projects can reduce access to SUA, prohibit certain training events, segment training/reduce realism, and raise flight altitudes. Recommend addressing this issue with the FAA for reversal of this determination or purchase aviation easements from land owners or accept loss of training capability on an existing range.
	Anti-Submarine (ASW)		Instruments to monitor seismic activity on the floor of the ocean have been deployed by civilian scientists, in the northwestern portion of the PACNORWEST OPAREA; U.S. Navy submarine crews are directed to remain clear of this area as a result. The exact size and location of this area is classified. Restrictions on training in the vicinity of seismic instruments create avoidance areas, prohibit certain training events, and segment training/reduce realism. No solution to issue.
	Naval Special Warfare (NSW)		EOD training in Crescent Harbor and Indian Island areas suffer occasional presence of recreational and small commercial fishing boats and SCUBA diving as the underwater detonation training areas are not restricted areas. Transient activity creates avoidance areas, prohibits certain training events, segments training, and reduces realism. NAS Whidbey Island will pursue establishing a restricted area within Crescent Harbor to restrict access to the underwater detonation range during training operations. Establishing and enforcing restricted surface areas around the underwater detonation training ranges should improve this situation. This will be initiated after signing of the ROD for the NWTRC EIS.
Range Transients	Anti-Submarine (ASW)		Commercial and private shrimp fishing boats congregate in Dabob Bay for several weeks in late April to mid June. Additionally, range transients fishing for clams & shrimp traverse across NUWC RDT&E ranges without contacting NUWC Operations, thereby interfering with ongoing events. Commercial vessel and recreational vessel encroachment creates avoidance areas, segments training and reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Naval Special Warfare (NSW)		Commercial and private shrimp fishing boats congregate in Dabob Bay for several weeks in late April to mid June. Additionally, range transients fishing for clams & shrimp traverse across NUWC RDT&E ranges without contacting NUWC Operations, thereby interfering with ongoing events. Civilian fishing boats occasionally inhibit EODMU-11 underwater detonation training in Crescent Harbor.Transient fishing activities also create avoidance areas, prohibit certain training events, and segment training/ reduce realism. The Navy continues to work with law enforcement agencies to enforce the Dabob Bay Restricted area during RDT&E and occasional NSW training activities. NAS Whidbey Island is pursuing a surface/subsurface restricted area designation in Crescent Harbor to deter range transients.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Okinawa Assessment Details

Range Mission Description

The Okinawa range complex has mission requirements to provide training at all levels with a primary requirement for AMW at the advanced level, primary roles for ASW, AMW, ASUW, AAW, and STW at the intermediate training level, and STW and EC at the basic level. Its also has a secondary mission requirement spread across all levels of training and all warfare areas. It does not have a requirement for providing NSW training.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	PMC	FMC	FMC		PMC	NMC	NMC		PMC				
Electronic Combat	NMC	FMC	FMC		NMC	NMC	NMC		PMC				
Anti-Air Warfare	PMC	PMC	FMC		PMC	NMC	NMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	PMC	PMC		PMC				
Mine Warfare		FMC	PMC	PMC	PMC	PMC	PMC		PMC				
Amphibious Warfare	NMC	PMC	PMC	PMC	PMC	PMC	PMC		PMC				
Anti-Submarine		PMC	PMC	PMC	PMC	PMC	PMC		PMC				
Naval Special Warfare													

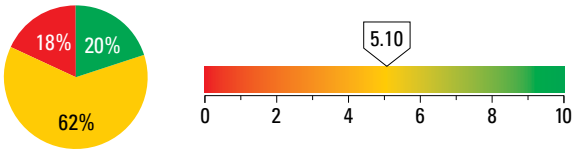
Legend: FMC, PMC, NMC

Encroachment Data

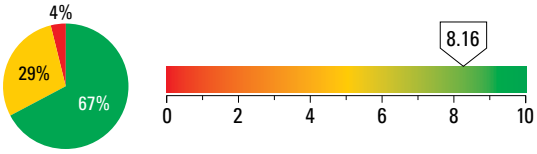
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	FMC	FMC	PMC	FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Electronic Combat	FMC		NMC		FMC	FMC	FMC	FMC				FMC
Anti-Air Warfare			NMC		PMC	FMC	FMC	FMC				FMC
Anti-Surface Warfare			PMC	PMC	PMC				FMC			PMC
Mine Warfare			FMC	PMC	FMC				FMC			PMC
Amphibious Warfare	PMC		FMC	PMC	FMC		FMC	FMC	FMC		FMC	PMC
Anti-Submarine			FMC	PMC	FMC				FMC			PMC
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Landspace, Targets, Threats, and Scoring & Feedback Systems
2. Mission Area most severely impacted: STW, EC, AAW
3. Projected Status: No immediate change.

Summary Observations

1. Spectrum is the encroachment factor with greatest impact on training.
2. EC and AAW are the two mission areas with greatest encroachment from Spectrum.
3. The Navy continues to coordinate with GOJ agencies to seek encroachment relief and to develop strategies that will reduce encroachment while ensuring quality training operations.

Okinawa Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	4.90	5.00	5.10

1. ASW in 2008 Tracking & Scoring was Red re-evaluated to Yellow in 2009 and forward based on the availability of the Portable Underwater Tracking System (PUTR) which provides a partial capability for ASW training.
2. STW in 2009 Targets were Red (no targets), re-evaluated to Yellow in 2010 and forward based on "limited" target availability.
3. TCTS is currently not available in Okinawa/7th Fleet due to RF restrictions.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.23	8.16	8.16

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. There is little indication encroachment pressures will change in the foreseeable future.

Okinawa Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🟡	Range land area is too small and prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy will pursue opportunities with other services. No completion date identified.
	Electronic Combat (EC)	🔴	The range has no land area that supports EC training. There are Political and frequency spectrum constraints that prohibit certain training events; reduce realism; limit application of new technologies; inhibit new tactics development; increase personnel optempo; and increase O&M costs. Navy recommends to conduct feasibility study for EC assets to be incorporated into a high fidelity, inert, A-G training range and to pursue Multi-purpose Range Craft (MPRC) with EC assets. No completion date identified.
	Anti-Air Warfare (AAW)	🟡	There is no overland airspace that supports AAW training. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Amphibious Warfare (AMW)	🔴	Range is not contiguous with required size of beachfront area. The beach area is very limited; and area does not support NSFS. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
Airspace	Anti-Air Warfare (AAW)	🟡	Range has no overland airspace supporting AAW training. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Amphibious Warfare (AMW)	🟡	Range has no airspace over beaches that meet training requirements. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Anti-Submarine (ASW)	🟡	Airspace is not supported by an Underwater Training Range. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue MPRC; continue deployment of Portable Underwater Training Range (PUTR). No completion date identified.
Seaspace	Mine Warfare (MW)	🟡	Range has insufficient geographic references and water is too deep. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Amphibious Warfare (AMW)	🟡	Range is not contiguous with required size of beachfront area. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Anti-Submarine (ASW)	🟡	Seaspace is not supported by an Underwater Training Range. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue MPRC; continue deployment of Portable Underwater Training Range (PUTR). No completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Okinawa Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Undersea Space	Mine Warfare (MW)		Sufficient space exists, but bottom type does not have required characteristics; water depth is too deep; no underwater training range; no dedicated Shock Wave Action Generator (SWAG) training area; no mine avoidance area. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. Navy recommends to pursue opportunities with other services. Evaluate feasibility of installing a mine range with instrumented shapes, false targets, bottom mines, mines approved for SWAG training. Navy will evaluate feasibility of creating a shallow water OPAREA. No completion date identified.
	Amphibious Warfare (AMW)		Range is not contiguous with required size of beachfront area. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Anti-Submarine (ASW)		Undersea space does not have significant areas with water less than 600 ft deep and it is not supported by an Underwater Training Range. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. Navy recommends to pursue MPRC; continue deployment of Portable Underwater Training Range (PUTR). No completion date identified.
Targets	Strike Warfare (STW)		Range has limited targets available, they were replaced early 2009. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; reduces live fire proficiency; increases personnel optempo; increases O&M costs. Navy recommends to pursue opportunities with other Services and to procure high fidelity targets. No completion date identified.
	Electronic Combat (EC)		Range has no dedicated EC targets available. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to conduct feasibility study for EC assets to be incorporated into a high fidelity, inert, A-G training range; also to pursue MPRC with EC assets. No completion date identified.
	Anti-Air Warfare (AAW)		Range has no supersonic targets available and no dedicated targets available. This reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to increase availability of CAS and to pursue MPRC options. No completion date identified.
	Mine Warfare (MW)		While limited targets are available, there are no dedicated targets that meet full training requirements. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services, evaluate feasibility of installing a mine range with instrumented shapes, false targets, bottom mines, mines approved for SWAG training, and to evaluate feasibility of creating a shallow water OPAREA. No completion date identified.
	Amphibious Warfare (AMW)		Range has no targets available to support AMW. This prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; and increases O&M costs. Navy recommends to pursue opportunities with other services. No completion date identified.
	Anti-Submarine (ASW)		Range has no dedicated ASW targets available. Units typically supply their own expendable targets. This reduces realism; limits application of new technologies; inhibits new tactics development; reduces live fire proficiency; and increases O&M costs. Navy recommends to increase availability of ASW targets by pursuing MPRC support. No completion date identified.
Threats	Strike Warfare (STW)		Range has no dedicated OPFOR available. This reduces realism; limits application of new technologies; and inhibits new tactics development. Navy recommends to improve availability of CAS and the number and variety of threats; and to pursue MPRC with EC capability. No completion date identified.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
	Anti-Surface Warfare (ASUW)		Same as above.
	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
	Anti-Submarine (ASW)		Same as above.

Okinawa Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Strike Warfare (STW)	🔴	No permanent instrumentation exists for this range. This reduces realism; limits application of new technologies; and complicates night and all weather training. Navy recommends to continue planned deployment of TCTS and evaluate potential to accelerate its deployment. No completion date identified.
	Electronic Combat (EC)	🔴	Same as above.
Scoring & Feedback System	Anti-Air Warfare (AAW)	🔴	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
Range Support	Strike Warfare (STW)	🟡	There is a lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	Same as above.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Amphibious Warfare (AMW)	🟡	When the native Dugong species is spotted, the Marines change tactics to avoid interacting with the dugong. Dugong live in the near-shore waters; thus, their presence can interrupt amphibious operations. Dugong protective measures create avoidance areas, prohibit certain training events, reduce range access, and segment training. Both the Navy and Marine Corps seek to avoid operating in the near vicinity of the dugong.
Spectrum	Strike Warfare (STW)	🟡	Restrictions on RF emissions limit the use of the Tactical Combat Training System (TCTS). These restrictions limit spectrum operations and prohibit certain training events, segment training and reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with GOJ agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
	Electronic Combat (EC)	🔴	There are no EW training ranges due to RF restrictions. RF restrictions limit spectrum operations and prohibit certain training events, segment training and reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with GOJ agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
	Anti-Air Warfare (AAW)	🔴	Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Okinawa Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Anti-Surface Warfare (ASUW)	●	Restrictions on RF emissions limit the use of the Tactical Combat Training System (TCTS). These restrictions limit spectrum operations and prohibit certain training events, segment training and reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with GOJ agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies.
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. The Navy will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Mine Warfare (MW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
Airspace	Strike Warfare (STW)	●	When civil or commercial air traffic is routed through or strays into SUA, the SUA is partially or fully shut down. Okinawa air operations must cease or be delayed until the range is cleared, surface to unlimited. These restrictions create avoidance areas, segment training, reduce realism, prohibit certain training events, reduce range access, reduce live-fire proficiency; and delay operations until range clears. Navy continues close coordination with Okinawa aviation controllers which helps to ameliorate the impacts of SUA incursion by non-military aircraft. Air operations in the vicinity of Area India are impacted because overflight of any nearby islands with ordnance (live or inert) is prohibited.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	●	Okinawan families may claim that scheduled U.S. military training prohibits their use of their historical fishing grounds. Illegal fishing and seaweed harvesting in exclusive use areas can prohibit certain training events, reduce range access, create avoidance areas, and reduce training days. Operations are delayed until the fishermen depart the area. Utilizing established USFJ procedures, the Navy will continue to have the USFJ work through the GOJ. The GOJ notifies the Japanese Maritime Safety Agency who then coordinates with the local fishermen's associations.
	Mine Warfare (MW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Point Mugu Sea Range Complex Assessment Details

Range Mission Description

The Point Mugu Sea Range is DoD's largest and most extensively instrumented over-water range. The Sea Range is uniquely situated with a highly instrumented coastline and off-shore islands; full-service military airfields; target and missile launch facilities; data collection and surveillance aircraft; and an experienced staff of technical personnel. The range supports Fleet training exercises such as JTFEX and target presentations.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare	●	●	●		●	●	●	●	●				
Electronic Combat	●	●	●		●	●	●	●	●				
Anti-Air Warfare	●	●	●		●	●	●	●	●				
Anti-Surface Warfare		●	●		●	●	●	●	●				
Mine Warfare													
Amphibious Warfare	●	●	●		●	●	●	●	●				
Anti-Submarine		●	●	●					●				
Naval Special Warfare	●	●	●		●	●	●	●	●				

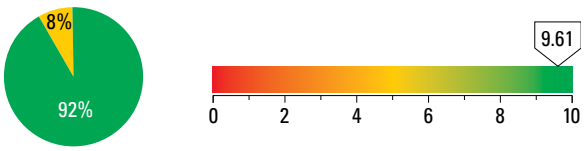
Legend: FMC ● PMC ● NMC ●

Encroachment Data

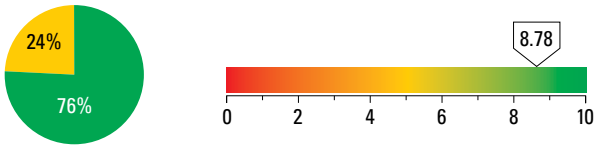
Mission Areas	Encroachment Factors											
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	●	●	●	●	●	●	●	●	●	●	●	●
Electronic Combat	●	●	●	●	●	●	●	●	●	●	●	●
Anti-Air Warfare	●	●	●	●	●	●	●	●	●	●	●	●
Anti-Surface Warfare	●	●	●	●	●	●	●	●	●	●	●	●
Mine Warfare												
Amphibious Warfare	●	●	●	●	●	●	●	●	●	●	●	●
Anti-Submarine				●	●							
Naval Special Warfare	●	●	●	●	●	●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Point Mugu Sea Range Complex Assessment Details

Summary Observations	Summary Observations
1. Landspace is the capability attribute that impacts the range's ability to perform its assigned mission the most. 2. There is no single Mission Area that is impacted the most. STW, AMW, ASW and NSW all have a single capability with a moderate impact. 3. No change in capability is anticipated for the future. NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.	1. Frequency spectrum is the encroachment factor that impacts the range's ability to perform its assigned mission the most. 2. Strike Warfare is Mission Area that is impacted the most. 3. Increased desire for additional spectrum for commercial use will lead to additional encroachment pressures. The impacts of frequency spectrum encroachment will improve only with continued national attention to increase spectrum for military use and more efficiently use the available spectrum. As a direct result of California air quality regulations that went into effect on 1 July 2009, ship traffic through the Sea Range has increased from an average of 2 ships per day (1 in each direction) to 14 ships per day (7 in each direction) and continues to grow. Significant coordination effort is required to mitigate impacts on Sea Range activities and there have been several near cancellations. To date, one major missile exercise was delayed because a ship only partially complied with requests to avoid the hazard pattern. We are working with the various stakeholders on potential solutions. NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	9.68	9.32	9.61
Capability at the Point Mugu Sea Range has remained steady since 2008. It's anticipated capability will remain stable in the future.			

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.51	8.78	8.78
The encroachment assessment has been stable from year to year, with relatively constant overall scores for CY 2010 and 2011.			

Point Mugu Sea Range Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)		San Nicolas Island is the only land impact area within the Sea Range. Impacts are limited to inert weapons only and in just one location. This impacts training with limited realistic training. There is no planned remedy at this time.
	Amphibious Warfare (AMW)		There are limited areas on San Nicolas Island and Point Mugu where this type of training can be conducted. This leads to limited realistic training. There is no planned remedy at this time.
	Naval Special Warfare		There are limited areas on San Nicolas Island where this type of training can be conducted and underwater detonations are not possible; limited realistic training. No planned remedy available.
Range Support	Anti-Submarine (ASW)		There are limited areas on San Nicolas Island and Point Mugu where this type of training can be conducted and underwater detonations are not possible. This leads to limited realistic training. There is no planned remedy at this time.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Point Mugu Sea Range Complex Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	The presence of T&E species and critical habitat at Point Mugu and San Nicolas Island requires significant mitigation effort to support training activities. Navy plans to update SNI INRMP and continue mitigations.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
Spectrum	Strike Warfare (STW)	●	The reduction of available spectrum coupled with the increase in spectrum requirements limits the ability to schedule certain types of events and many concurrent activities. Navy will continue coordination at the local level to deconflict when possible and work through the chain of command and Range Commanders Council to address spectrum requirements at the national level.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Naval Special Warfare	●	Same as above.
Marine Sustainability	Anti-Submarine (ASW)	●	Marine mammals are present on the SR and there is no environmental coverage for ASW on the Sea Range except for the limited coverage of exercises included in the SOCAL EIS. As a result, ASW training can only be conducted in a small portion of the Sea Range. There is no planned remedy at this time.
Cultural Resources	Strike Warfare (STW)	●	There are hundreds of archeological sites on San Nicolas Island. They do not significantly impact our mission, but do require substantial management effort and financial support, primarily for surveys. Any expansion of existing target areas requires a detailed survey to identify, evaluate and treat cultural resources. This limits realistic training. Navy plans to Continue mitigation efforts.
Water Quality/ Water Supply	Strike Warfare (STW)	●	There are restrictions on discharge from the reverse osmosis water purification system that provides potable water to San Nicolas Island. The number of people that can be on San Nicolas Island to support training is limited by the water supply. Plan to continue to work with regulators to modify the discharge permit.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Amphibious Warfare (AMW)	●	Same as above.
	Anti-Submarine (ASW)		Same as above.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Southern California (SOCAL) Assessment Details

Range Mission Description

The SOCAL mission is to support Navy training in all Navy mission areas, at all levels of training. SCORE is a state-of-the-art, multi-warfare, integrated training facility serving a wide variety of customers with primary mission requirements to provide support at all levels of training: basic, intermediate, and advanced. Under the command of the Fleet Area Control and Surveillance Facility, San Diego (FACSFACSD), SCORE conducts a multitude of operations including multi-warfare and battle group evolutions, on and around San Clemente Island (SCI). While the majority of the scenarios are designed to support the Commander of Third Fleet and Commander, Naval Air Force U.S. Pacific Fleet training and readiness requirements, other events are also conducted which facilitate the test, evaluation, and development of weapon systems and tactics. All SCORE operations are monitored, controlled, and evaluated by Range Operations Center (ROC) personnel at NAS North Island, CA.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	PMC	FMC	FMC	FMC	PMC	PMC	PMC		PMC				
Electronic Combat	FMC	FMC	FMC	FMC	PMC	PMC	PMC		PMC				
Anti-Air Warfare	FMC	FMC	FMC		PMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	PMC	PMC		PMC				
Mine Warfare		FMC	FMC	FMC	PMC	PMC	PMC		PMC				
Amphibious Warfare	NMC	FMC	FMC	FMC	NMC	PMC	PMC		PMC				
Anti-Submarine		FMC	FMC	PMC	FMC	PMC	PMC		PMC				
Naval Special Warfare	PMC	FMC	FMC	FMC	NMC	PMC	PMC		PMC				

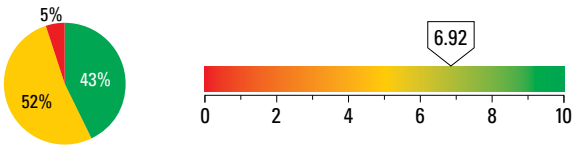
Legend: FMC PMC NMC

Encroachment Data

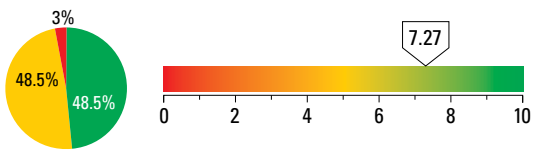
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	Minimal	Moderate	Moderate	FMC	FMC	FMC	FMC	FMC	Moderate	FMC	FMC	FMC
Electronic Combat	FMC		Moderate		FMC	FMC	FMC	FMC				FMC
Anti-Air Warfare			Moderate		FMC	FMC	FMC	FMC				FMC
Anti-Surface Warfare			Moderate	Moderate	FMC				FMC			Moderate
Mine Warfare		Moderate	Moderate	Moderate	FMC		NMC	Moderate	FMC		Moderate	Moderate
Amphibious Warfare	Moderate	Moderate	Moderate	FMC	Moderate		Moderate	Moderate	NMC		Moderate	Moderate
Anti-Submarine			FMC	Moderate	FMC				FMC			FMC
Naval Special Warfare	Moderate	Moderate	FMC	FMC	Moderate	FMC	Moderate	Moderate	Moderate	FMC	Moderate	Moderate

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Targets and Scoring & Feedback Systems
2. Mission Areas most severely impacted: AMW, NSW, MW
3. Projected Status: No immediate change.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas. .

Summary Observations

1. Spectrum is the encroachment factor having the most affect on training.
2. All mission areas are affected by encroachment.
3. Encroachment impacts are long-standing and have been addressed through EIS actions and training procedures and protocols. The Navy continues to consult and discuss with stakeholders, with the expectation that some encroachment restrictions may be lessened.

NOTE on NSW Assessments: Assessments of Navy Special Warfare (NSW) training are based on actual NSW demand and use of training range capability and space. Actual Training range capability and space requirements are based on Fleet Readiness Training Plan demands for conventional warfare areas.

Southern California (SOCAL) Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	6.67	6.75	6.75

1. ASW Undersea space in 2008 was reassessed from Red to Yellow in 2009 and forward. Assessment of the impact was revised to more consistently reflect similar impacts in other range complexes.
2. MW Targets and Scoring & Feedback Systems changed from Red to Yellow for 20hh. Installation of fixed targets at Imperial Beach and Tanner Bank will provide rudimentary target support to MIW forces, and Instrumentation equipment has been procured for the planned MIW training range installation at Tanner Bank. The instrumentation system will primarily support submarine training.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	9.06	8.57	8.15

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment.
2. Since the CY2009 assessment, MW assessment for noise restrictions was increased from green to red; and adjacent land use was changed from green to yellow due to MW and public use concerns. In addition, SHPO has restricted placement of targets on SHOBA impact areas, changing the rating for cultural resources/STW from green to yellow. Lastly, Vernal pool fairy shrimp habitat restricts use of portions of SSTC South, changing the rating for wetlands/MW and AMW from green to yellow. These assessment changes resulted in an assessment score change from CY2009 to CY2010 to CY2011.
3. Should the proposed Federal Listing of the Rossem's gull-billed tern (GBTE) pass, there is potential of increased GBTE predation on the California least tern (LETE) and the western snowy plover (SNPL). The increased predation could hinder the recovery of the LETE and the SNPL on Naval Base Coronado beaches and could adversely affect take permits form the USFWS.
4. There is little indication encroachment pressures will change substantially in the foreseeable future

Southern California (SOCAL) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🟡	The range cannot support two separate concurrent strikes, and use of live ordnance is limited to specific areas of the range complex. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. There is no solution except to use other ranges. No Completion date identified.
	Amphibious Warfare (AMW)	🔴	The required beach, terrain, and land area is not available. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. There is no solution except to use other ranges. No Completion date identified.
	Naval Special Warfare (NSW)	🟡	Range has limited maneuver area and limited beach front areas. Range supports basic level training, but additional land is required for more advanced training. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. navy recommends investing MOUT; road infrastructure; and firing range areas.
Undersea Space	Anti-Submarine (ASW)	🟡	Water depths and bottom topography do not provide for adequate training in shallow water and littoral; does not support EER or LFA operations. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to develop UTR. No Completion date identified.
Targets	Strike Warfare (STW)	🟡	Range has no moving targets; limited number of structural targets; no urban terrain targets; and inadequate Designated Mean Point of Impact at each site. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in smart targets and upgrades to current targets. No Completion date identified.
	Electronic Combat (EC)	🟡	Range has no visually significant targets and live ordnance is not allowed. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in smart targets and EC threat levels through level 4. No Completion date identified.
	Anti-Air Warfare (AAW)	🟡	Range has no supersonic targets or targets with jamming capability and has altitude restrictions. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends investing in supersonic targets and additional drones with active jamming capabilities. No Completion date identified.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Southern California (SOCAL) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Mine Warfare (MW)	🟡	A newly-installed shallow water (MH-60S and MCM Class-1 Ships) minefield off Imperial Beach and a mid-depth (and deep-water) minefield on Tanner Banks contain 28 and 30, respectively, non-instrumented, threat-representative shapes in specified field configurations in support of emergent MIW (mine hunting, influence sweeping) training. Both fields contain bottom and tethered mine shapes in accordance with MH-60S, MCM CLass-1 ships, SUBPAC and NMAWC requirements. However, due to excessive costs (i.e. VEMS), the minefields do not contain instrumented mine shapes. OPNAV N433 is the resource sponsor for MCM ranges (as of Feb 2010); investment in SOCAL MCM ranges (in accordance with SOCAL MCM POM_12 Proposal) is a fully-funded line item in the FYDP. However, the proposal did not contain specifications for instrumented targets. SOCAL Working Group prioritized establishing fixed MCM training ranges in SOCAL and retained proposals for instrumented shapes as part of out-year planning. The lack of instrumented targets inhibits new tactics development, reduces training proficiency, and limits application of new weapon technologies. Navy recommends to invest in expanding existing shallow and mid- to deep-water mine fields with instrumented mine threat composition targets. No completion date identified.
	Amphibious Warfare (AMW)	🔴	The required target types are not available to this range, including beach obstacles, beach defenses, NSFS areas, mines. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to install exposed and submerged targets and beach obstacles that may be engaged with live ordnance. No Completion date identified.
	Naval Special Warfare (NSW)	🔴	No range targets meet requirements. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in a wide range of NSW required targets.
Threats	Strike Warfare (STW)	🟡	There is no dedicated threat aircraft and threats are not available in required quantity. EC threats are not available above level 2. There is no capability for virtual threat aircraft. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends investing in enhanced EC threat capabilities. No Completion date identified.
	Electronic Combat (EC)	🟡	Realistic OPFOR responses are not available; EC threats are not available above level 2. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in enhanced EC threat capabilities. No Completion date identified.
	Anti-Air Warfare (AAW)	🟡	Range has no dedicated threat aircraft and threats are not available in required quantity. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo. and increases O&M costs. Navy recommends to invest in contract air threat OPFOR with EC augmentation. No Completion date identified.
	Anti-Surface Warfare (ASUW)	🟡	There is no dedicated air or surface threat capability in required numbers; EC threats are not available above level 2; and command and control capability for OPFOR does not meet requirements. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. Navy recommends to invest in enhanced EC threat capabilities. No Completion date identified.
	Mine Warfare (MW)	🟡	Range has no dedicated threat aircraft or submarines. EC threats are not available above level 2. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in enhanced EC threat capabilities. No Completion date identified.
	Amphibious Warfare (AMW)	🟡	There is no live, virtual, constructive threat ground force; EC threats are not available above level 2. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in enhanced EC threat capabilities. No Completion date identified.
	Anti-Submarine (ASW)	🟡	The range has no dedicated threat aircraft, submarines, or surface ships; threats are not available in required quantity. EC threats not available above level 2. There is no capability for virtual threat aircraft. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency. and increases personnel optempo; increases O&M costs. Navy recommends to invest in enhanced EC threat capabilities. No Completion date identified.
	Naval Special Warfare (NSW)	🟡	Range has no live, virtual, or constructive threat ground force. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in enhanced EC threat capabilities.
Scoring & Feedback System	Strike Warfare (STW)	🟡	There is no Modeling & Simulation capability; and no scoring capabilities for the range. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in M&S systems. No Completion date identified.

Southern California (SOCAL) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Electronic Combat (EC)		Same as above.
Scoring & Feedback System	Anti-Air Warfare (AAW)		Same as above.
	Anti-Surface Warfare (ASUW)		Same as above.
	Mine Warfare (MW)		There is no modeling & simulation capability; no scoring capabilities; and no instrumented mines. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; an increases O&M costs. Navy recommends to invest in seeding shallow water and mid to deep water (for SUBPAC and NMAWC) mine fields (see SOCAL MCM Working Group Proposal submitted to CPF TTR and endorsed by MIWIP Training Subgroup; M&S systems.) No Completion date identified.
	Amphibious Warfare (AMW)		There is no Modeling & Simulation capability and little scoring capabilities. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in M&S systems. No Completion date identified.
	Anti-Submarine (ASW)		There is no Modeling & Simulation capability. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in M&S systems. No Completion date identified.
	Naval Special Warfare (NSW)		There is no Modeling & Simulation and no scoring capabilities. This reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Navy recommends to invest in M&S systems. No Completion date identified.
Range Support	Strike Warfare (STW)		Lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values.
	Electronic Combat (EC)		Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Anti-Air Warfare (AAW)		Same as above.
	Anti-Surface Warfare (ASUW)		Same as above.
	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
	Anti-Submarine (ASW)		Same as above.
	Naval Special Warfare (NSW)		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Strike Warfare (STW)		The presence of T&E species and critical habitat at SOCAL has an impact on training. It requires significant mitigation effort to support training activities. Navy plans to update latest INRMP (In progress; ECD 2011), continue mitigations, and update EIS (ECD: Jan. 2014).

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Southern California (SOCAL) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Amphibious Warfare (AMW)	●	Fire restrictions and species protection affect activities at the SCIRC. Restriction on controlled burns (Biological Opinion FWS-LA-09B0027-09F0040) limits Navy's ability to deal with island-wide cactus and exotic grasses; dense grasses and cactus prevent operational range clearance and range personnel from accessing target areas. Loggerhead Shrike and the San Clemente Sage Sparrow limit training opportunities on San Clemente Island. California Least Tern and Western Snowy Plover presence on the beaches of Silver Strand Training Complex create avoidance areas. Until thorough UXO sweeps are conducted in accordance with DoD-mandated Operational Range Clearance (ORC) guidelines, operational training areas and ranges are permanently off limits for readiness training (ref. SOCAL EIS, 2009). Species restrictions create avoidance areas, prohibit certain training events, segment training/reduce realism, limit application of new technologies, and inhibit new tactics development. SCIRC operations must be conducted during times of reduced fire potential and in areas where species are not prevalent. Draft SCI Operational Range Clearance Plan is in development; need for associated Environmental Assessment addressing island-wide, controlled burns has been identified. No completion date identified.
	Naval Special Warfare (NSW)	●	Military working dog (MWD) restrictions and species protection affect activities at the SCIRC and SSTC. USFWS designated the land areas around the ONLY maritime SOUC (Special Operations Urban Complex -MOUT) for NSW as medium to poor SCI sage sparrow habitat. SCI Biological Opinion Terms and Conditions contains restrictions on ordnance use, and insertions and extractions encircling the SOUC. The SCI Island fox is susceptible to diseases and parasites from dogs. MWD are required to meet specific kennel, working area, transport, and health certification requirements provided in SCIINST 5585. Reduces access to training ranges; inhibits new tactics development for NSW in state-of-the-art, real-world urban training environment, including IED, CQC, CQD training. Per Biological Opinion 1-6-00-F-19 (2001), NSW has paid for sage sparrow monitoring around the SOUC. The 2008 USFWS Biological Opinion extended this monitoring commitment indefinitely but to date, USFWS does not have a Recovery plan for SCI sage sparrow(listed as threatened species August 11, 1977 (42 Federal Register 40682)). MWD on SSTC are required to remain 30m outside of western snowy plover buffer areas for nests, have restricted exercise areas on SSTC-N until completion of a study to evaluate the effects of military working dogs on terns and plovers. OTB activities at SSTC-S can occur year-round with a platoon of personnel and one dog. In absence of a USFWS Recovery Plan for SCI sage sparrows, operational restrictions on NSW SOUC training (insertion and extractions) and requirement to fund monitoring activities will continue indefinitely; therefore considering requesting legislative relief for military training operations on SCI.
Munitions Restrictions	Strike Warfare (STW)	●	There are munitions restrictions on SHOBA that affect related training activity. SHOBA users must restrict munitions use to approved types, amounts, and expenditure locations. Munitions restrictions create avoidance areas, prohibit certain training events, segment training/reduce realism, limit application of new technologies, and inhibit new tactics development. Operations involving munitions must be conducted during times of reduced fire potential and in areas where species are not prevalent.
	Mine Warfare (MW)	●	There are munitions restrictions in SSTC bay training areas (max 15 grams NEW). SSTC users must restrict munitions use to approved types, amounts, and expenditure locations. Munitions restrictions create safety buffer zones, avoidance areas, prohibit certain training events, segment training/reduce realism, limit application of new technologies, and inhibit new tactics development. SSTC operations involving munitions may not be conducted in areas where marine mammals, sea birds, and sea turtles are present.
	Amphibious Warfare (AMW)	●	There are munitions restrictions on SHOBA and SSTC that affect related training activity. SHOBA users must restrict munitions use to approved types, amounts, and expenditure locations. SSTC conforms to restrictions on small arms blanks and simunitions expenditures and to prohibitions on land detonations. Munitions restrictions create avoidance areas, prohibit certain training events, segment training/reduce realism, limit application of new technologies, and inhibit new tactics development. Operations involving munitions must be conducted during times of reduced fire potential and in areas where species are not prevalent.
	Naval Special Warfare (NSW)	●	Same as above.
Spectrum	Strike Warfare (STW)	●	Employment of Link 16 is restricted. Restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Anti-Surface Warfare (ASUW)	●	Same as above.

Southern California (SOCAL) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
Maritime Sustainability	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Nav will continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Mine Warfare (MW)		Same as above.
	Anti-Submarine (ASW)		Same as above.
Airspace	Amphibious Warfare (AMW)		Helicopters supporting SSTC amphibious operations compete with multiple airspace users on the SSTC, including military aircraft training, law enforcement, commercial, and private aircraft. Multiple airspace users and congested airspace on the SSTC prohibits certain training events, reduces range access, reduces realism, inhibits tactics development, and limits application of new technologies. The Navy continues coordination with Navy air traffic controllers and public stakeholders to educate on matters of SSTC training.
	Naval Special Warfare (NSW)		Same as above.
Noise Restrictions	Mine Warfare (MW)		Concerns with noise impacts on the Imperial Beach community from SSTC NSW and EOD MCM operations have prohibited the construction of a Demolition Pit at SSTC South. Demo pit was eliminated from the SSTC EIS Proposed Action. Although this expansion was identified by EOD and NSW as a critical backyard capability, the demolition pit was not carried forward in the DEIS. Negative impact to expanding critical Immediate Action. Encroachment from noise restrictions creates avoidance areas, prohibits certain training events, reduces range access, reduces realism, inhibits tactics development, and limits application of new technologies. Navy plans to recommend the evaluation of technologies and structures for EOD demo pit and to re-engage with the public to permit installation of an EOD pit on the SSTC.
	Amphibious Warfare (AMW)		Helicopter noise impacts SSTC amphibious operations on surrounding communities limits expansion of helicopter supported training. Multiple airspace users and congested airspace on the SSTC prohibits certain training events, reduces range access, reduces realism, inhibits tactics development, and limits application of new technologies. The Navy continues coordination with Navy air traffic controllers and public stakeholders to educate on matters of SSTC training.
	Naval Special Warfare (NSW)		Same as above.
Adjacent Land Use	Strike Warfare (STW)		Concerns about public usage of beaches adjacent to Navy training areas as well as the impact of noise on the adjacent community on Silver Strand has led to reduced intensity of training and training realism. Usage and noise concerns create avoidance areas, prohibit certain training events, reduce range access, reduce realism, inhibit tactics development, and limit application of new technologies. The Navy continues coordination with public stakeholders to educate on matters of SSTC training.
	Amphibious Warfare (AMW)		Same as above.
	Naval Special Warfare (NSW)		Same as above.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Southern California (SOCAL) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Cultural Resources	Strike Warfare (STW)	🟡	Cultural resources on the SHOBA affect STW target placement (impact areas 1 and 2) and expansion of Adversary Village (impact area 1). Cultural resources encroachment creates avoidance areas, reduces range access, reduces realism, inhibits tactics development. There is collaboration between the Navy and ACHP/CASHPO on the development of the Integrated Cultural Resources Management Plan description of a modeling study to address sec 106 compliance in the impact areas.
	Amphibious Warfare (AMW)	🔴	Preponderance of potential archaeological sites identified on San Clemente Island lack definitive eligibility determination. As such, all sites are treated as if eligible under the NHPA. In absence of eligibility determination, over 7,000 potential sites and associated landmass create avoidance areas throughout maneuver spaces designated in the SOCAL EIS/OEIS as the USMC Assault Vehicle Maneuver Area, Artillery Firing Positions (AFP), and Assault Maneuver Positions (AMP). SCI is the ONLY maritime training area that can support I MEF Battalion Landings, tactical EFV insertions and live fire targeting; presence of archaeological sites restrict NSWG-1 and NSWC tactical training - at a cost to NSW of over $25m, SWAT 1 contains the ONLY maritime SOUC (special operations urban complex), and SCI supports the only location for BUD/S Third Phase training (i.e. land demolitions impacted by restricted range access). Recommend to assess regulatory status of cultural resource for eligibility under the National Historic Preservation Act in accordance with operationally-prioritized areas, and if eligible, annotate the historical significance and either remove representative artifacts or establish avoidance area around representative artifact outside of high value range areas designated (SOCAL EIS/OEIS) for tracked vehicle maneuvers and NSW and EOD land detonations.
	Naval Special Warfare (NSW)	🟡	Two SAR events were cancelled due to concerns to impacts on cultural resources. Cultural resources created an avoidance area that resulted in lost range access and tactical training development. Recommend to assess regulatory status of cultural resources for eligibility under the National Historic Preservation Act, and if eligible, annotate the historical significance and remove the artifact from SSTC range.
Wetlands	Mine Warfare (MW)	🟡	Vernal pool fairy shrimp habitat restricts use of portion of SSTC South for troop maneuvers, EOD and land mine detection, HRST, and IAD. Habitat encroachment creates avoidance areas, prohibits certain training events, reduces range access, reduces realism, inhibits tactics development, and limits application of new technologies. The Navy adheres to SSTC EIS/BO avoidance measures.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Naval Special Warfare (NSW)	🟡	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	🟡	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment create avoidance areas and segments training/reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
Range Transients	Naval Special Warfare (NSW)	🟡	Incidents of range transients causes the delay or cancellation of operations. Four (4) NSFS activities and one (1) BOMBEX were delayed at SCI. Four (4) SAR training missions at SSTC were cancelled. Range transients, involving commercial and recreational fishing, and private pleasure boating encroach on scheduled training activities. Presence of vessels in the scheduled SHOBA offshore area delayed a CVN and associated squadrons during NSFS and BOMBEX. Transients in SSTC boat lanes created avoidance areas (concern to public and military personnel safety), whereby, reducing range availability and negatively impacting tactical skills development. Waters off SCI were designated 21 June 2010 through formal Federal rule making (Final Rule - Federal Register 20 May 2010) as a Safety Zone out to 3nm (encircles SCI). NBC and FACSFAC are working with the US Coast Guard to effectively communicate safety zone status to the public (www.island.org). USCG is the enforcement agency. Recommend to augment SCORE range management funding and personnel capabilities for round the clock Range Control personnel. SSTC ocean and some Bay side areas are open navigable waters so the Navy has no legal authority to request that boaters leave the boat lanes during scheduled operations. Navy will continue to work with U.S. Coast Guard to assess the feasibility of establishing Safety Zones in the SSTC boat lanes and undesignated Bay training areas.

This Page is Intentionally Left Blank.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Virginia Capes (VACAPES) Assessment Details

Range Mission Description

The Virginia Capes Operating Area (VACAPES OPAREA / VCOA) is a surface and subsurface operating area off the Virginia and North Carolina coasts. It includes the area covered by W-386, W-387, W-72, W-50, W-108, W-110, R-6606, and the Submarine Transit Lanes. The OPAREA is used for various surface, subsurface, air-to-surface exercises. It provides range safety surveillance and control for missile firing exercises in assigned operational area; and supplying air intercept control services for Fleet Replacement Training Squadrons. Its has primary mission roles for providing Air warfare training at the basic, intermediate, and advanced levels. It also has primary to support training for ASUW, MW, and NSW at the intermediate level, and across all warfare areas except AMW, and ASW at the basic level. The range has a lower level mission requirement to provide ASW at the intermediate and basic level.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strike Warfare	PMC	FMC	FMC	FMC	PMC	FMC	PMC		PMC				
Electronic Combat	FMC	FMC	FMC	FMC	PMC	PMC	PMC		PMC				
Anti-Air Warfare	PMC	FMC	FMC		FMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	FMC	FMC	PMC		PMC				
Mine Warfare		FMC	FMC	FMC	PMC	FMC			PMC				
Amphibious Warfare													
Anti-Submarine		FMC	FMC	FMC	FMC	PMC	NMC		PMC				
Naval Special Warfare													

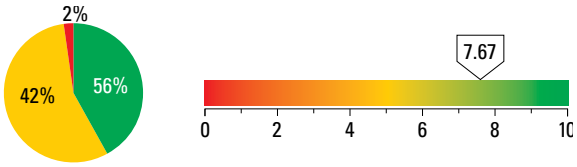
Legend: FMC, PMC, NMC

Encroachment Data

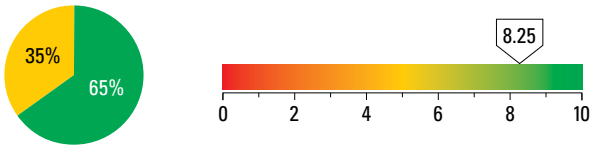
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strike Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Moderate	Moderate	Minimal	Minimal	Minimal	Moderate	Moderate
Electronic Combat	Minimal		Moderate		Moderate	Moderate	Moderate	Minimal				Minimal
Anti-Air Warfare			Moderate		Moderate	Moderate	Moderate	Minimal				Minimal
Anti-Surface Warfare			Moderate	Moderate	Moderate				Minimal			Moderate
Mine Warfare			Moderate	Moderate	Moderate				Minimal			Moderate
Amphibious Warfare												
Anti-Submarine			Moderate	Moderate	Moderate				Minimal			Moderate
Naval Special Warfare												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Capability Attribute most impacting range mission performance: Scoring & Feedback Systems
2. Mission Area most severely impacted: ASW, EC
3. Projected Status: No immediate change.

Summary Observations

1. Spectrum encroachment has the most pervasive training impact.
2. STW, ASUW, MW, and ASW are the mission areas most affected by encroachment.
3. There are no prevailing or emerging mitigation strategies that will alter training encroachment for the foreseeable future. Most encroachment is long-standing and has been addressed through maritime mitigation measures and operations procedures.

Virginia Capes (VACAPES) Assessment Details

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Capability Scores	7.39	7.50	7.50

1. EC for Landspace was Yellow in 2008 and reassessed to Green in 2009 and forward based on an updated assessment of landspace requirement to the primary use of the range, which is for only the "basic" level training
2. MW for Scoring & Feedback changed from RED to WHITE based on USFF evaluation that TSPI Scoring data is not required.

Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010
Encroachment Scores	8.70	8.38	8.38

1. Encroachment assessments for CY2008 were different than for CY2009, 2010, and 2011. The algorithm for the overall assessment score for 2009–2011 was revised from the original algorithm used in 2008 to provide greater fidelity and consistency across all range complexes. Based on an improved review process and revised algorithms, the assessments for CY2009, 2010, and 2011 provide a more accurate assessment of encroachment. The assessments for the latter three years reveal there has been little encroachment change from year to year, with relatively constant overall scores for CY2009, 2010, and 2011.
2. RCMP update is currently in progress; the EAP is due to be completed by JAN 2011.
3. Dept. of Interior (DOI) & private energy interests in the Outer Continental Shelf (OCS) are increasing as domestic energy demand builds. Naval offshore operating areas & training events may be affected. High priority areas include training ranges & sea space in and adjacent to all Navy OPAREAs. OASN (E,I&E), as DoD spokesman for military offshore use, continues to work closely with the Fleets & DOI's Bureau of Ocean Energy Management (BOEM) to resolve issues of combined use of the OCS important to both agencies. Fleet review & analysis of impacts from both oil/gas & wind energy "lease sale" areas (Mission Critical Areas-MCAs) have been reviewed and forwarded to OSD. DoD & DOI coordination continues.

Virginia Capes (VACAPES) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	Landspace is only available at Dare County Bombing Range, which does not fully support size nor topography requirements for placement of required number of targets. Use of live ordnance is not supported. Use of flares is restricted. No land area supports NSFS training or CSAR training. These shortfalls prohibits certain training events; reduces realism; increases personnel optempo. Navy recommends to identify east coast land areas of sufficient size to support standoff weapons and CSAR training.
	Anti-Air Warfare (AAW)	●	Landspace is only available at Dare County Bombing Range, which does not fully support size or topography requirements, or support surface combatant detection of aircraft over land. Use of flares is restricted. These shortfalls prohibit certain training events; reduce realism; increase personnel op-tempo. Overland ACM training is conducted at Fallon Range Training Complex. No additional land options are available within VACAPES.
Targets	Strike Warfare (STW)	●	Live ordnance is not allowed; the urban area is too small; NSFS is not supported ashore; and required targets do not provide both visual and infrared signatures. These shortfalls prohibit certain training events; reduce realism; limit application of weapon technologies; reduce live fire proficiency; increase personnel optempo; and increase O&M costs. Navy recommends to Increase number and variety of targets with more realistic signatures and install no drop ordnance instrumentation where applicable.
	Electronic Combat (EC)	●	Additional targets are required to achieve required density and more a representative threat. This prohibits certain training events; reduces realism; limits application of weapon technologies; reduces live fire proficiency; increases personnel optempo; and increases O&M costs. Recommend to increase number and variety of EC threats. Install portable systems where applicable.
	Mine Warfare (MW)	●	There are Insufficient training mines and range areas to support increased MW training. VACAPES must support Navy's principal MH-60 and MH-53 MW helicopter squadrons. This prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. Navy will investigate procurement of appropriate mix of recoverable and expendable inert bottom and moored mine shapes and instrumented bottom training mines to populate a series of permanent MW training areas.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

Virginia Capes (VACAPES) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Electronic Combat (EC)		The EC threat representation does not fully support EC threat levels 3 or 4 for required mission areas. The existing instrumentation systems are becoming obsolete and unsupportable through the FYDP. This reduces realism; inhibits tactics development; and greatly increases O&M costs. Navy recommends to maintain current upgrade schedule to preclude severe degradation of system capability.
	Anti-Air Warfare (AAW)		Helicopter threat OPFOR is not available; required number of air threat OPFOR is not available; there is no dedicated supersonic threat OPFOR available. This reduces realism; inhibits tactics; increases personnel op-tempo;and increases O&M costs. Navy recommends to increase number and types of air threat OPFOR.
	Anti-Submarine (ASW)		There are limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. This prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; and increases O&M costs. Navy recommends to invest in additional threat OPFOR and increase availability of submarines through the DESI and aircraft through CAS.
Scoring & Feedback System	Strike Warfare (STW)		The OPAREA coverage is not complete; Modeling & Simulation is inadequate; there is no RTKN. This reduces realism; inhibits tactics; increases personnel optempo, and increases O&M costs.Navy recommends to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; and improve debrief capabilities.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		The OPAREA coverage is not complete; Modeling & Simulation is inadequate; there is no RTKN. This reduces realism; inhibits tactics; increases personnel optempo, and increases O&M costs. Navy recommends to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities and to maintain TACTS with TCTS replacement schedule to preclude severe degradation of system capability.
	Anti-Surface Warfare (ASUW)		The OPAREA coverage is not complete; Modeling & Simulation is inadequate; there is no RTKN. This reduces realism; inhibits tactics; increases personnel optempo, and increases O&M costs.Navy recommends to expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; and improve debrief capabilities.
	Anti-Submarine (ASW)		There is no underwater tracking range, scoring capability, M&S, or post mission feedback. This prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel optempo; increases O&M costs. Navy recommends to develop and fund east coast USWTR. Expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; and improve debrief capabilities.
Range Support	Strike Warfare (STW)		There is a lack of web-based scheduling system with pre-event, real-time, and post-event modules precludes most efficient scheduling and documenting of range usage. Post-event reporting is particularly critical for ordnance expenditures or active sonar usage in at-sea OPAREAs since Marine Mammal Protection Act permits require Navy to periodically report these values. Non-compliance or inaccurately reporting post-event values to regulators risks range access or prohibitions on training events that involve active sonar or high explosives at-sea. PACFLT is developing a Data Collection and Scheduling Tool (DCAST) that includes a post-event module to mitigate issues outlined above. If successful, Navy could consider adopting it at all range scheduling facilities.
	Electronic Combat (EC)		Same as above.
	Anti-Air Warfare (AAW)		Same as above.
	Anti-Surface Warfare (ASUW)		Same as above.
	Mine Warfare (MW)		Same as above.
	Anti-Submarine (ASW)		Same as above.

Virginia Capes (VACAPES) Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Strike Warfare (STW)		Employment of Link 16 is restricted. These restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Electronic Combat (EC)		Restrictions resulting from electromagnetic spectrum encroachment include prohibitions from performing GPS jamming, authorization to radiate the Spoon Rest VHF early warning threat radar system and restricted use of the ITWSS (Track While Scan Simulator). Additionally, employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. These restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Air Warfare (AAW)		Employment of Link 16 is restricted. These restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Anti-Surface Warfare (ASUW)		Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted. These restrictions limit spectrum operations and prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy continues to coordinate with appropriate frequency allocation and oversight agencies to seek spectrum relief and to develop encroachment strategies that will reduce encroachment while ensuring pending use of emerging spectrum technologies. Competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations.
	Mine Warfare (MW)		Same as above.
	Anti-Submarine (ASW)		Same as above.
Maritime Sustainability	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. The Navy continues to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.

Figure 3-29 Navy Capability and Encroachment Assessment Detail (continued)

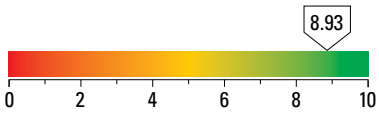
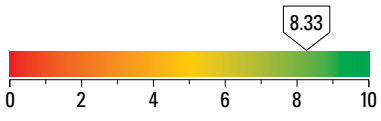
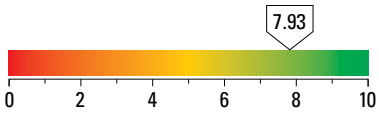
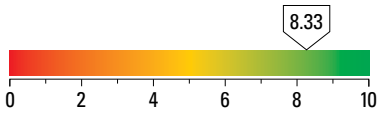
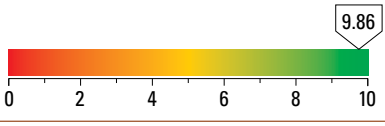
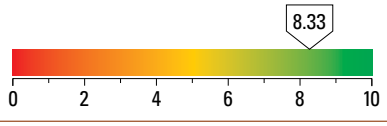
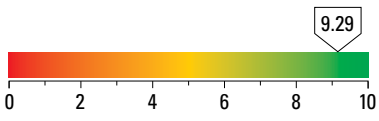
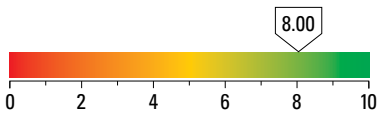
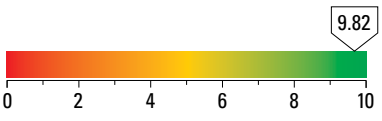
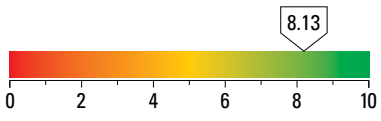
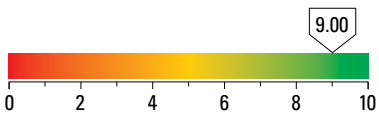
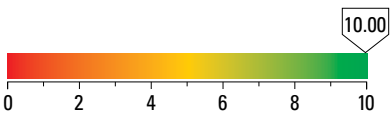
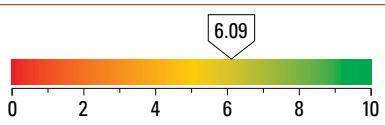
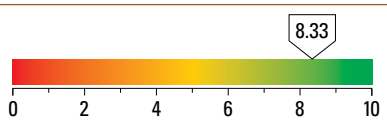
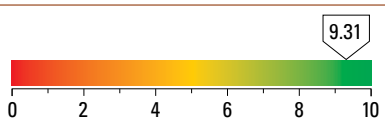
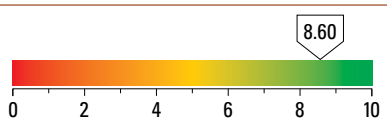
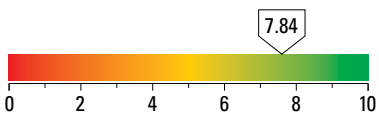
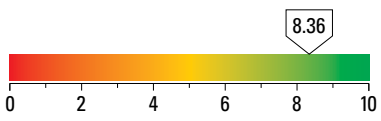
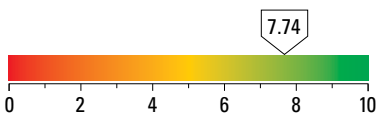
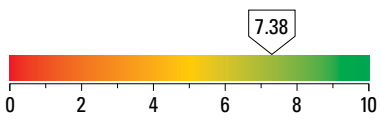
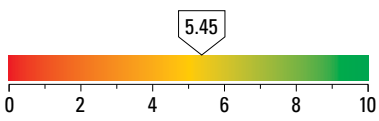
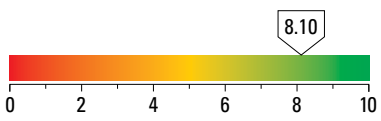
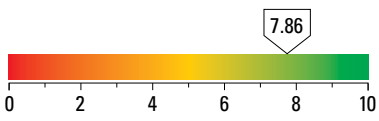
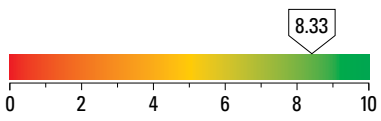
Virginia Capes (VACAPES) Detailed Comments

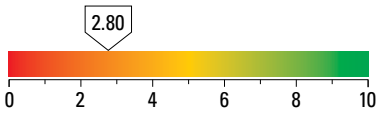
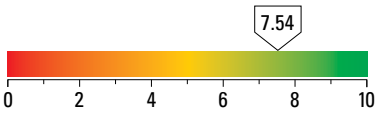
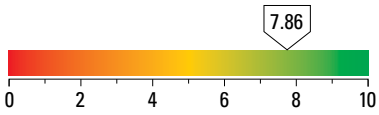
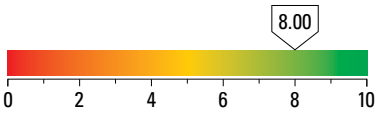
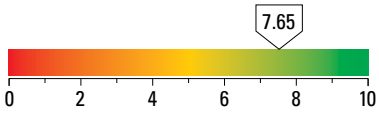
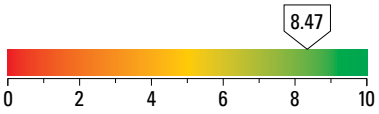
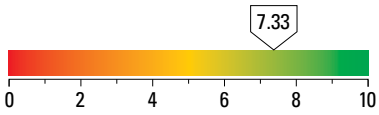
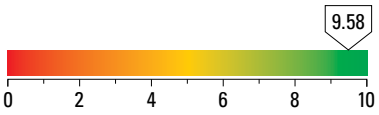
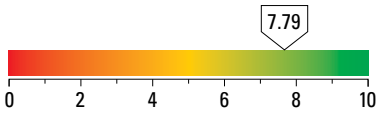
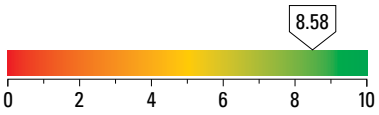
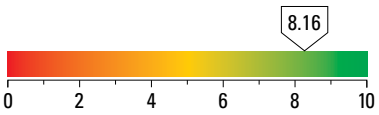
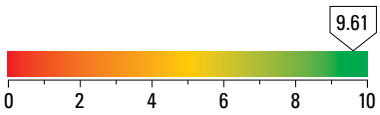
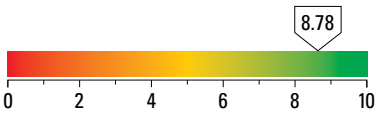
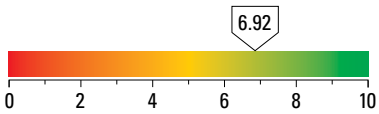
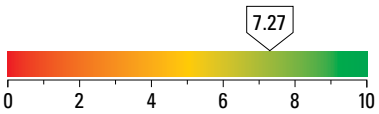
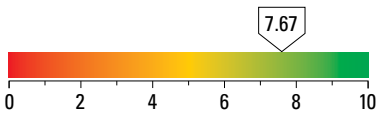
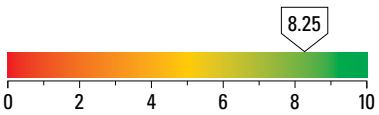
Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Maritime Sustainability	Mine Warfare (MW)	●	Maritime protective and mitigation measures undertaken in compliance with regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. All at-sea training is impacted to some degree; impacts are most significant to integrated warfare training using active underwater acoustic sources or in-water explosive ordnance. The Navy and National Marine Fisheries Service (NMFS) have developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities. The Navy continues to develop Environmental Impact Statements and obtain permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Litigation risks remain a concern, entailing the potential to delay or further restrict training, despite the protective and mitigation measures applied by the Navy in compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Endangered species/critical habitat encroachment from the North Atlantic right whale has created avoidance areas that have resulted in some reduction of training days and prohibits certain training events. This area is relatively small in scope, however, if these types of restrictions were applied to other species/areas, there would be significant impacts to readiness through reduction in range access, segmentation of training/reduction in realism, limits on the application of new technologies, raised flight altitudes, reduced live fire proficiency, increased personnel tempo, and increased O&M costs. Continue to invest in marine mammal research; rely on scientifically valid empirical data results as basis of marine mammal mitigation development; factor mitigation effectiveness into permit requests. Continue education of Fleet units to adhere to the maritime protective and mitigation measures and public education outreach efforts. Navy's authorizations under the MMPA and ESA include an adaptive management approach that includes continually evaluating existing mitigation measures for their potential impacts on training. If impacts on training from mitigation measures are identified and documented, Navy will raise these impacts with NMFS for resolution during an annual adaptive management review process. The Navy is currently preparing environmental compliance documentation to renew the MMPA and ESA authorizations by JAN 2014, which will consider any impacts on training stemming from existing mitigations measures and propose changes as warranted.
	Anti-Submarine (ASW)	●	Same as above.
Wetlands	Strike Warfare (STW)	●	Self-imposed Clean Water Act/Dare County wetlands and land use plans limit target configuration, placement, and maintenance due to many DCBR impact areas having been situated in designated wetlands. This Navy-induced encroachment affects STW by limiting targetry opportunities at DCBR. Wetlands encroachment creates avoidance areas. Consideration should be given to seeking out a wetlands delineation at DCBR and to seek wetlands 404 permits to accommodate target configuration, placement, and maintenance Assess emerging demands for upgraded or additional impact areas within or out of the wetland areas to accommodate new munitions technologies.
Range Transients	Strike Warfare (STW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. Commercial vessel and recreational vessel encroachment create avoidance areas and segments training/reduces realism. The Navy will continue to pursue opportunities to inform industry and the public of the impact of range transient encroachment on At Sea OPAREAS and Navy readiness.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.

This Page is Intentionally Left Blank.

Table 3-12 Navy Range Capability and Encroachment Assessment Comparison

Range Name	Capability Score	Encroachment Score
Atlantic City		
Atlantic Test Range		
AUTEC		
Boston		
China Lake		
El Centro		
Fallon		
Gulf of Mexico		
Hawaii		
Jacksonville		
Japan		
Key West		

Range Name	Capability Score	Encroachment Score
Mariana Islands		
Narragansett		
Navy Cherry Point		
Northern California (NOCAL)		
Northwest		
Okinawa		
Point Mugu Sea Range		
Southern California (SOCAL)		
Virginia Capes (VACAPES)		

This Page is Intentionally Left Blank.

3.2.4 Air Force[9]

Air Force Training Range Capability Assessment Results

The Air Force Range Capability Assessment data from 31 Air Force range complexes are summarized and presented in Table 3-13.

The Air Force Range Capability Chart and Scores are presented in Figure 3-30 and assessments by Range, Attributes, and Mission Areas are shown in Figures 3-32, 3-34, and 3-36.

The Air Force's 31 individual range assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-39).

Air Force Training Range Encroachment Impact Assessment Results

The Air Force Range Encroachment Assessment data from 31 Air Force range complexes are summarized and presented in Table 3-14.

The Air Force Range Encroachment Chart and Scores are presented in Figure 3-31 and assessments by Range, Factors, and Mission Areas are shown in Figures 3-33, 3-35, and 3-37.

The Air Force's 31 individual encroachment assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-39).

The Air Force Range Capability and Encroachment assessment comparisons are presented in Table 3-15.

9 Of the 41 locations in the Air Force's range inventory in Appendix C, 7 ranges and 3 electronic scoring sites (ESSs) were not assessed. Blair Lake, Edwards, Oklahoma, Pilsung, Torishima, and Yukon were last assessed in 2009 and stand by their earlier scores. Draughon and the three ESSs have not been assessed. All will be updated in the 2012 SRR with the exception of Lone Star ESS, which is no longer being used by the U.S. Air Force.

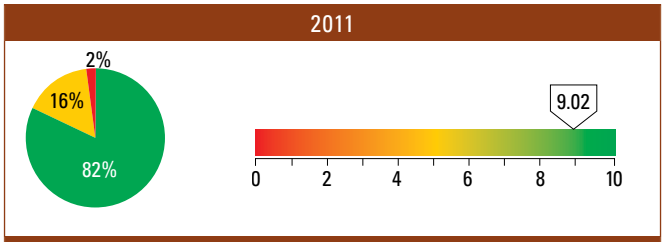
Table 3-13 Air Force Capability Assessment Data Summary

Range	NMC	PMC	FMC	Capability Scores
Adirondack	11	19	45	7.27
Airburst	2	13	62	8.90
Atterbury	0	6	36	9.29
Avon Park	0	16	51	8.81
BMGR	1	11	41	8.77
Bollen	0	19	58	8.77
Cannon	10	37	11	5.09
Claiborne	0	12	6	6.67
Dare County Ranges	0	0	72	10.00
Eglin Ranges	0	45	69	8.03
Falcon	0	3	69	9.79
Grand Bay	0	2	108	9.91
Grayling	0	10	80	9.44
Hardwood	0	9	87	9.53
Holloman	4	3	86	9.41
Jefferson	1	16	70	8.97
McMullen	0	28	40	7.94
Melrose	1	4	55	9.50
Mountain Home Ranges	0	0	72	10.00
NTTR	8	14	67	8.31
Patrick	0	1	12	9.62
Poinsett	0	6	126	9.77
Polygone	0	10	11	7.62
Razorback	1	6	76	9.52
Shelby Ranges	0	5	94	9.75
Siegenberg	0	4	2	6.67
Smoky Hill	0	0	64	10.00
Townsend	0	4	67	9.72
UTTR	0	8	80	9.55
Vandenberg	0	3	10	8.85
Warren Grove	5	22	54	8.02
HQ AF	**44**	**336**	**1,781**	**9.02**

Table 3-14 Air Force Encroachment Assessment Data Summary

Range	Severe	Moderate	Minimal	Encroachment Scores
Adirondack	0	15	56	8.94
Airburst	0	0	74	10.00
Atterbury	0	11	20	8.23
Avon Park	0	7	75	9.57
BMGR	0	8	38	9.13
Bollen	0	15	73	9.15
Cannon	0	15	69	9.11
Claiborne	0	0	20	10.00
Dare County Ranges	0	0	88	10.00
Eglin Ranges	0	48	104	8.42
Falcon	0	0	81	10.00
Grand Bay	0	2	130	9.92
Grayling	1	8	90	9.49
Hardwood	0	15	84	9.24
Holloman	0	3	118	9.88
Jefferson	1	27	66	8.46
McMullen	0	4	84	9.77
Melrose	2	3	83	9.60
Mountain Home Ranges	0	0	88	10.00
NTTR	4	30	98	8.56
Patrick	0	7	5	7.08
Poinsett	0	2	130	9.92
Polygone	0	6	14	8.50
Razorback	0	5	87	9.73
Shelby Ranges	0	1	109	9.95
Siegenberg	0	4	4	7.50
Smoky Hill	0	0	88	10.00
Townsend	0	9	90	9.55
UTTR	0	8	80	9.55
Vandenberg	0	5	17	8.86
Warren Grove	1	9	89	9.44
HQ AF	**9**	**267**	**2,252**	**9.44**

Figure 3-30 Air Force Capability Chart and Scores



Summary Observations

Air Force's overall capability score increased from 8.91 in 2010 to 9.01 in 2011

- Air Force's Fully Mission Capable (FMC) assessments (green) increased from 81% to 83%
- Partially Mission Capable (PMC) assessments (yellow) remained at 16%
- Not Mission Capable (NMC) assessments (red) decreased from 3% to 2%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	8.52	8.52	8.91

The top three Capability Attributes with the greatest number of red and yellow assessments are (Figure 3-34):

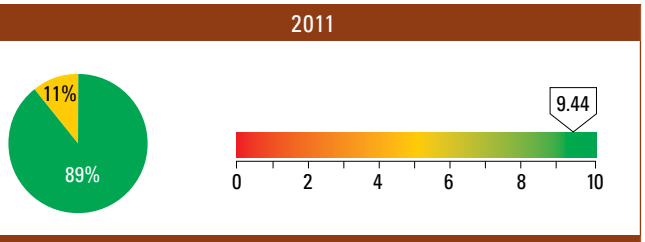
- Threats (10+63)
- Airspace (7+47)
- Range Support (7+45)

The top three Mission Areas with the greatest number of red and yellow assessment are (Figure 3-36):

- Counterland (3+64)
- Strategic Attack (3+61)
- Special Operations (2+46)

Refer to the Air Forces's 31 individual range assessments for comments and additional information (Figure 3-39).

Figure 3-31 Air Force Encroachment Chart and Scores



Summary Observations

Air Force's overall encroachment score marginally increased from 9.28 in 2010 to 9.44 in 2011

- Air Force's minimal risk assessments (green) increased from 86% to 89%
- Moderate risk assessment (yellow) decreased from 13% to 11%
- Severe risk assessments (red) marginally decreased from 0.7% to 0.4%

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.08	9.07	9.28

The three Encroachment Factors with the greatest number of red and yellow assessment are (Figure 3-35):

- Airspace (2+62)
- Munition Restrictions (2+37)
- Adjacent Land Use (2+32) .

The top three Mission Areas with the greatest number of red and yellow assessments are (Figure 3-37):

- Counterland (3+58)
- Strategic Attack (1+48)
- Special Operations (1+44)

Refer to the Air Forces's 31 individual range assessments for comments and additional information (Figure 3-39).

Figure 3-32 Air Force Capability Assessments by Range

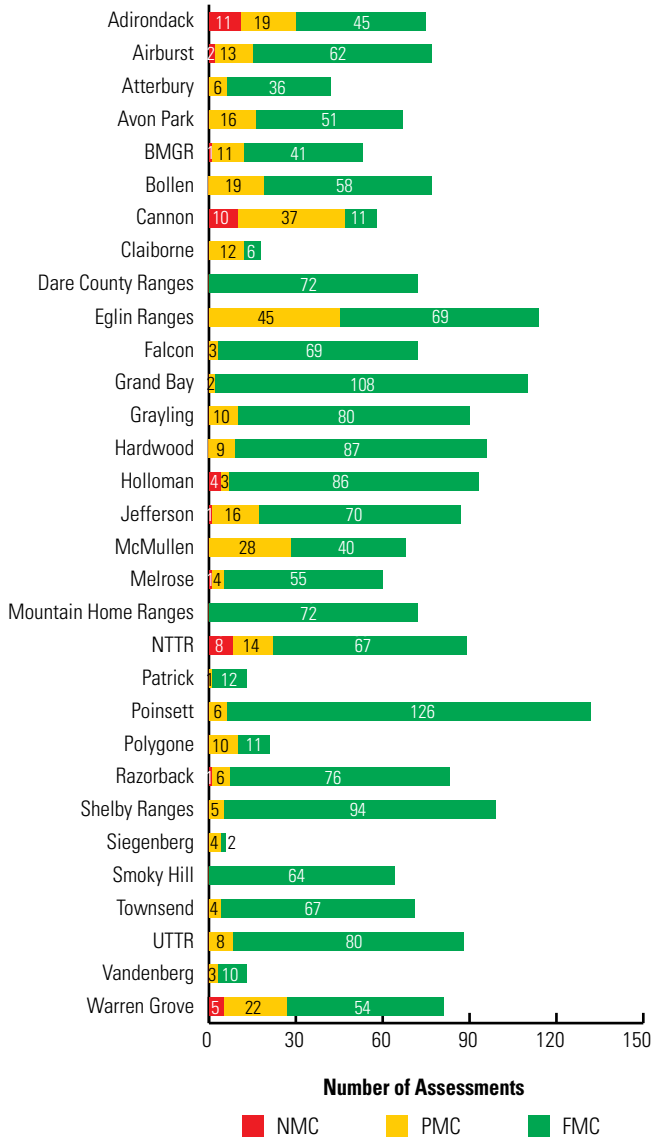


Figure 3-33 Air Force Encroachment Assessments by Range

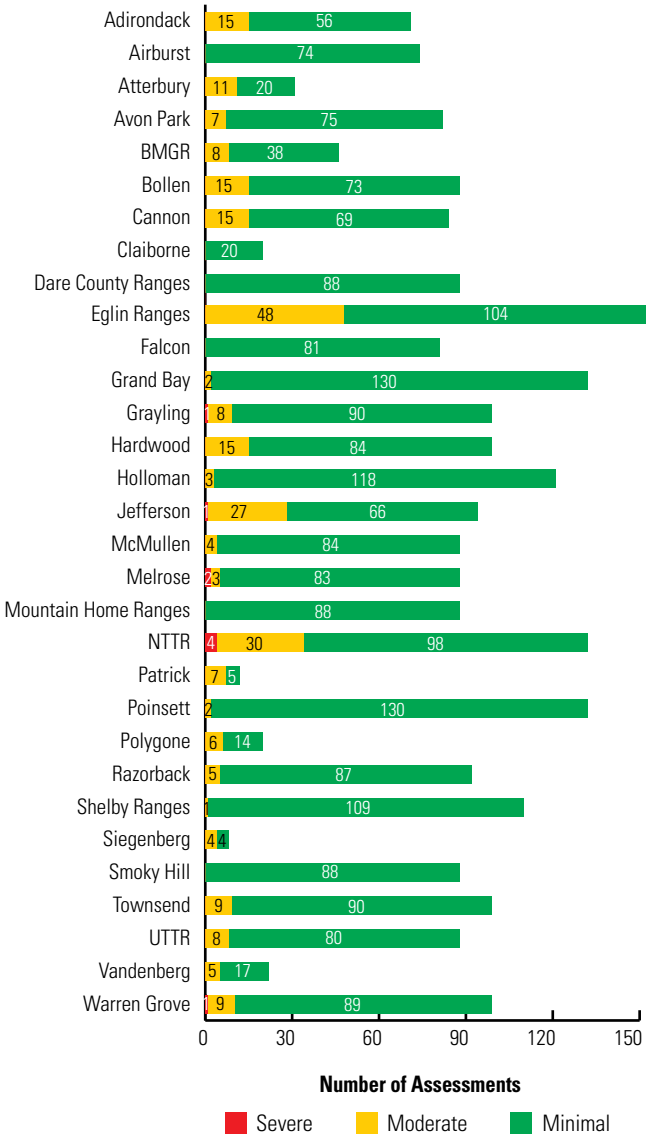


Figure 3-34 Air Force Capability Assessment by Attributes

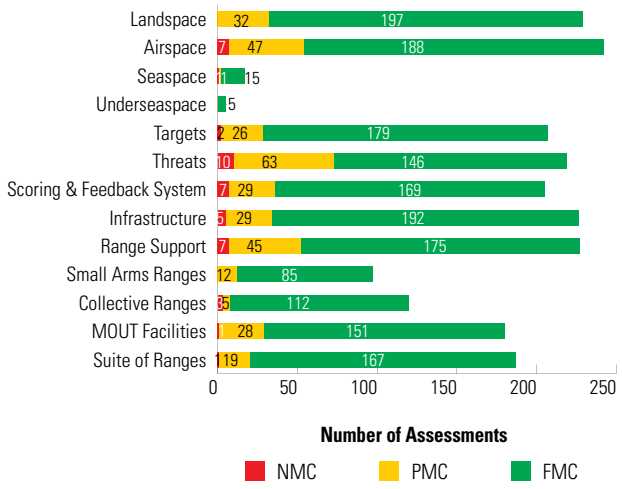


Figure 3-35 Air Force Encroachment Assessment by Factors

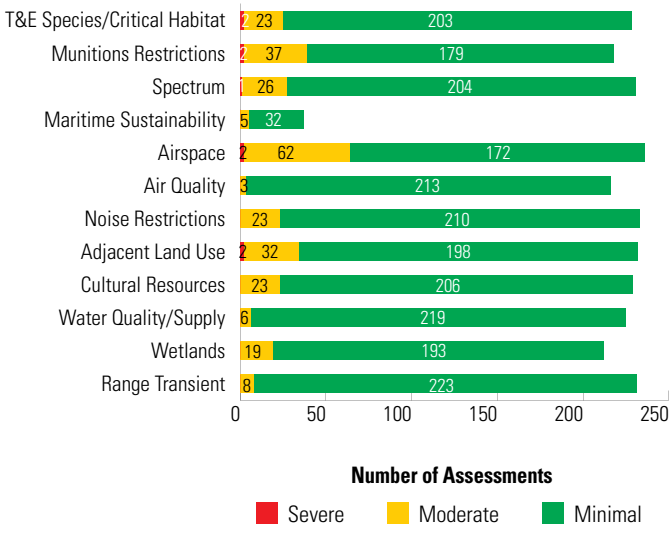


Figure 3-36 Air Force Capability Assessment by Mission Areas

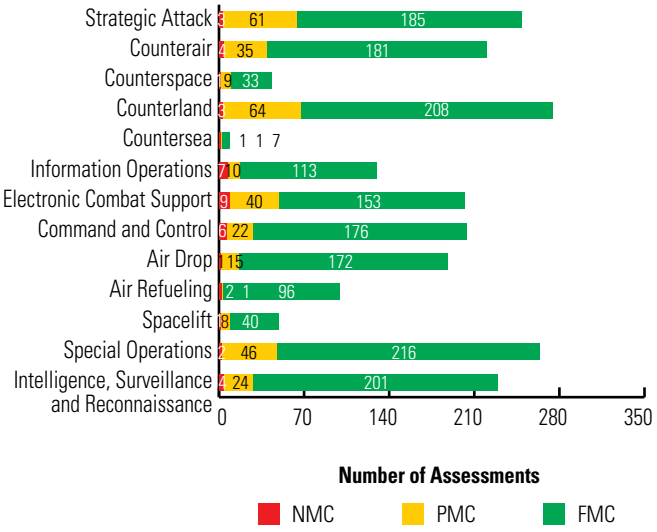
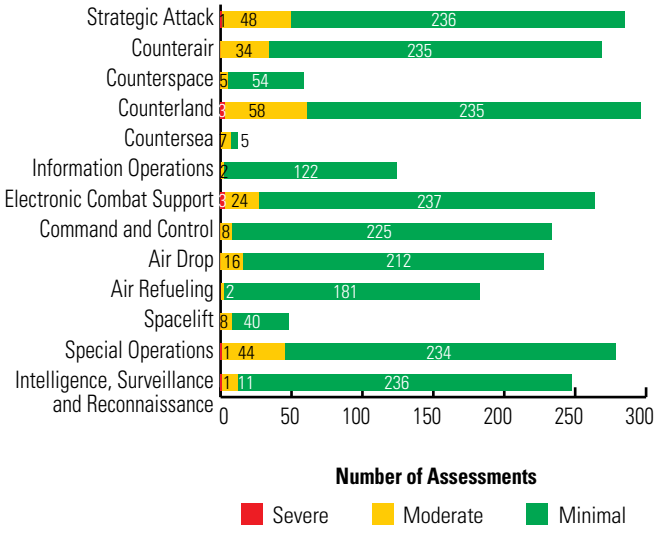


Figure 3-37 Air Force Encroachment Assessment by Mission Areas



Air Force Service Special Interest Section

General Issues

Unmanned Aerial System Integration and "See and Avoid"

Integration of UASs into the National Airspace System (NAS) is a top priority for the Air Force. As manned aircraft operations increase, rules have been developed to increase the safety of flight. The most basic method of deconfliction, when other procedures and equipment have not prevented a conflict situation, is to see and avoid other aircraft (14 CFR 91.113). See and avoid also holds the pilot as the one ultimately responsible in any visual environment. This procedure has served the Air Force well in the past and is not easily changed or replaced.

UAS support to combatant commanders may be thwarted by lack of airspace integration capability. Delays in development of rules and standards are partially due to concerns about the impact to other NAS users. The Air Force does not seek to place restrictions on civil or general aviation users of the NAS, but rather will develop policy, technologies, tactics, techniques, and procedures to integrate UAS operations into the NAS in a way that is entirely compatible with the rest of the flying public.

Every State will have UAS flying sorties in support of DoD missions by 2015. A UAS Joint Center of Excellence study estimates that it will take 1.1 million UAS flight hours annually to maintain preparedness for future conflict as our nation brings home forces deployed to Iraq and Afghanistan. Ninety-one percent of these UAS missions, including most Air National Guard (ANG) Title 32 missions, will need to transit classes of airspace UAS cannot currently access because they do not meet the most basic flight safety requirement to see and avoid. There are limited basing options with the necessary access to airspace until this issue is resolved. A combination of policy and see and avoid technology development and fielding is essential to meet this need. Some technology development has been accomplished, but delivering systems and payloads supporting immediate wartime needs have taken precedence.

In an effort to solve the See and Avoid challenge, the Air Force is working with other Military Services and the Federal Aviation Administration (FAA) to develop methods to provide a See and Avoid capability. The Military Services are focused on both ground-based and airborne-based See and Avoid solutions. Ground-based See and Avoid solutions are a near term goal; testing of various methods is ongoing at locations across the United States. Airborne-based See and Avoid is a longer-term goal and may not be practical for all classes of UAS. The combination of proven, safe ground-based See and Avoid capability will help bridge the gap until airborne see and avoid capability is matured. The Air Force strategy is to incrementally develop UAS airspace policies, procedures, and material capabilities in partnership with the FAA to improve access to the NAS.

Adaptive Airspace

The Adaptive Airspace Concept is a jointly partnered effort between the FAA and Air Force to meet Air Force training requirements while maximizing NAS efficiency. During the 2008 Fuel Summit, industry leaders discussed fuel-saving initiatives. One of the five initiatives was to allow greater access to military Special Use Airspace (SUA) and Air Traffic Control Assigned Airspace (ATCAA) for non-participating (civil) aircraft.

In order to introduce maximum efficiency of NAS usage, two proofs of concept ideas were introduced:

- Completely relocate an ATCAA while maintaining the same volume of airspace; and
- Expand an existing ATCAA with associated subdivisions that could be recalled as necessary, yet still provide the same volume of airspace to meet Air Force requirements.

These ATCAA redesigns could be a permanent change, a seasonal change to accommodate peak traffic seasons, a temporal change to accommodate peak traffic periods during the day, or a combination of seasonal and temporal.

The overall goal is to expand this concept to include airspace below FL180; however, this includes a variety of challenges and would need to properly address environmental issues as well as real-time awareness of current airspace status by all NAS users. Finally, it is imperative that there is real-time coordination between airspace users and controlling agencies.

Interim Guidance on Managing Energy Development Impacts on Air Force Operations

Units across the Air Force are dealing with renewable energy development projects impacting operations without the appropriate mechanisms in place to preserve our valuable operating space. Together SAF/IE, A4/7, and A3/5 developed the Interim Guidance on Managing Energy Development Impacts on Air Force Operations to help Air Force units seeking assistance while we work with our DoD partners to develop more comprehensive guidance.

Figure 3-38 Illustration of ATCAA Relocation.



The Interim Guidance was built on the idea that Air Force installations and operating space are valuable national resources that must be preserved in order to successfully accomplish our mission. Development of domestic energy sources is a high priority for the country and for the Air Force, however there are situations where striving to meet national energy goals may result in activities that negatively impact the Air Force's operational, testing, and training missions. The Interim Guidance was developed to help installations and Major Commands (MAJCOMs) understand, assess, and react to potential mission impacts that might occur from energy-related development. The intended audience is all encroachment stakeholders, including Commanders, MAJCOM A3 Airspace, Range and Operational Mission Management, and Installation and Mission Support personnel.

Air Force Commander's Guide to Managing Energy Development Impacts

The Air Force Commander's Guide to Managing Energy Development Impacts, based on the Jun 2010 Interim Guidance on Managing Energy Development Impacts on Air Force Operations, helps Commanders understand and respond to potential mission impacts from diverse energy technology developments. The Guide contributes to situational awareness, not just of potential energy developments (e.g., wind farms) being considered near an installation, but also of the spatial requirements (e.g., land, facilities, airspace to include ranges and military training routes) the Air Force must have for its operations, training, testing, and support functions. For successful management of energy development issues, both the Interim Guidance and this Guide reinforce the need for Commanders to reach out to and engage stakeholders, thereby helping the Air Force to become more informed and facilitating development of appropriate strategies and plans to deal with potential energy development impacts.

Accompanying the Guide is a CD containing relevant supporting documents including the Interim Guidance, data sources, Office of the Secretary of Defense (OSD) Primers, and Information Papers. Also on the CD is the Air Force Encroachment Management Flight Plan, which supports the Air Force Encroachment Management Initiative by building a cross-functional encroachment management framework that integrates existing Air Force programs into a comprehensive strategy.

Headquarters U.S. Air Force (HQ USAF) will update this Guide in 2011 as new strategies, software tools, processes, and solutions emerge. The nation's focus on renewable energy development is driving innovation and technologies not yet seen on a utility scale. The Air Force is still evaluating existing energy technologies, their effects on our operations, and in turn how we affect them.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail

Adirondack Assessment Details

Range Mission Description

Joint Air to Ground Range: Intermediate training range for the ANG/AF, All purpose range for the Army, and Combined arms/Joint live fire exercise range Primary User is Vermont Air National Guard.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack	FMC	FMC			PMC	NMC	FMC	FMC	PMC		FMC	FMC	FMC
Counterair	FMC	FMC			PMC	NMC	PMC		NMC				
Counterspace													
Counterland	FMC	FMC			PMC	NMC	FMC	FMC	NMC	PMC	FMC	PMC	PMC
Countersea													
Information Operations													
Electronic Combat Support	FMC	FMC			FMC	NMC	PMC	FMC	NMC		NMC		
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	NMC	FMC	FMC	PMC	FMC
Air Drop	PMC	FMC				PMC	FMC	FMC	FMC				
Air Refueling		FMC											
Spacelift													
Special Operations	PMC	FMC			FMC	FMC	FMC	FMC	NMC	PMC	FMC	PMC	PMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	FMC	FMC	FMC	NMC	PMC	FMC	PMC	PMC

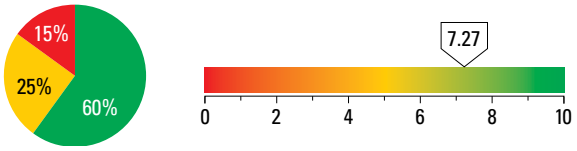
Legend: FMC, PMC, NMC

Encroachment Data

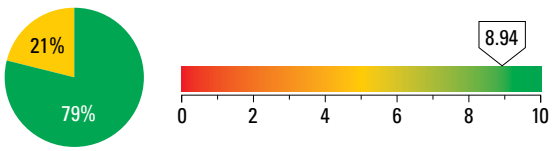
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	Minimal	Moderate	Moderate		Minimal	Moderate	Moderate	Moderate	Moderate	Moderate	Minimal	Moderate
Counterair		Moderate	Moderate		Moderate	Moderate	Moderate	Moderate	Moderate			Moderate
Counterspace												
Counterland	Minimal	Minimal	Moderate		Minimal	Moderate	Moderate	Moderate	Moderate	Moderate	Minimal	Moderate
Countersea												
Information Operations												
Electronic Combat Support	Moderate		Moderate		Moderate	Moderate	Moderate	Moderate				Moderate
Command and Control	Minimal	Moderate	Moderate		Minimal	Moderate	Moderate	Moderate	Moderate	Moderate	Minimal	Moderate
Air Drop												
Air Refueling			Moderate		Moderate	Moderate		Moderate				Moderate
Spacelift												
Special Operations	Minimal	Minimal	Moderate		Minimal	Moderate	Moderate	Moderate	Moderate	Moderate	Minimal	Moderate
Intelligence, Surveillance, and Reconnaissance	Minimal		Moderate		Moderate	Moderate		Moderate		Moderate		Moderate

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

Adirondack Range is located on Ft. Drum and contained within it's training areas. The range has large tracts of land that remain unusable to us due to the presence of MPPEH. The range continues to request EOD support as personnel and funds become available in an effort to open up these areas for training use. Adirondack has had numerous requests from ASOS units and flying units for a digital gateway for training use on range. The range has requisitioned most of the equipment needed for this but have not yet completed installation.

Summary Observations

Summary Observations: Wetlands and Munitions residue have restricted use of the vast majority of what would otherwise be useable training/target areas. The range has made significant progress in the past two years in clearing target areas of Material Potentially Presenting an Explosive Hazard (MPPEH) and gaining approval from Environmental to develop those areas once cleared. Adirondack will continue to request EOD support to clear areas of MPPEH and work with Ft. Drum's Environmental Division in an effort to gain access to areas near/in designated wetlands.

Adirondack Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	7.77	7.77	N/A	**Encroachment Scores**	8.96	8.96	N/A
No comments.				No comments.			

Adirondack Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Air Drop	🟡	Significant progress has been made in the past year with EOD clearance but large areas of land remain unusable due to the presence of MPPEH. These hazards prevent the range from constructing realistic airfield and realistic urban training areas, and allowing realistic maneuver of ground forces. The range will continue to request EOD support as funding and EOD personnel become available. Additional tree clearance will occur this year. Need an IR stimulator for realistic/relevant threat simulation.
	Special Operations	🟡	Significant progress has been made in the past year with EOD clearance but large areas of land remain unusable due to the presence of MPPEH. These hazards prevent the range from constructing realistic airfield and realistic urban training areas, and allowing realistic maneuver of ground forces. The range will continue to request EOD support as funding and EOD personnel become available.
Targets	Strategic Attack	🟡	Significant progress has been made in the past year with EOD clearance but large areas of land remain unusable due to the presence of MPPEH. These hazards prevent the range from constructing realistic airfield and realistic urban training areas. The range will continue to request EOD support as funding and EOD personnel become available.
	Counterair	🟡	Same as above.
	Counterland	🟡	Significant progress has been made in the past year with EOD clearance but large areas of land remain unusable due to the presence of MPPEH. These hazards prevent us from constructing realistic airfield and realistic urban training areas, and allowing realistic maneuver of ground forces. The range will continue to request EOD support as funding and EOD personnel become available.
Threats	Strategic Attack	🔴	Wideband Remote Emitter Threat System (WRETS) has no supply or depot support. The RWR Lite has very limited range. The range has very limited success providing EW threats to its customers when requested to do so.
	Counterair	🔴	Same as above.
	Counterland	🔴	Same as above.
	Electronic Combat Support	🔴	Same as above.
	Air Drop	🟡	Same as above.
Scoring & Feedback System	Counterair	🟡	No ACMI type system available
	Electronic Combat Support	🟡	Transmiter only, visual/verbal feedback only
Range Support	Strategic Attack	🟡	No current Link 16 capability. The range has acquired most of the hardware to setup a Digital Gateway but installation is a still a work in progress.
	Counterair	🔴	Same as above.
	Counterland	🔴	Same as above.
	Electronic Combat Support	🔴	Same as above.
	Command and Control	🔴	Same as above.
	Special Operations	🔴	Same as above.
	Intelligence, Surveillance and Reconnaissance	🔴	Same as above.
Small Arms Ranges	Counterland	🟡	Much of the range has become overgrown and/or littered with MPPEH. This prevents installation of targets and precludes land navigation training on much of the range. The range continues to request EOD support and work with environmental personnel to clear more land.
	Special Operations	🟡	Same as above.
	Intelligence, Surveillance and Reconnaissance	🟡	Same as above.
Collective Ranges	Electronic Combat Support	🔴	Wideband Remote Emitter Threat System (WRETS) has no supply or depot support. The RWR Lite has very limited range. The range has very limited success providing EW threats to its customers when requested to do so.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Adirondack Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
MOUT Facilities	Counterland		Significant progress has been made in the past year with EOD clearance but large areas of land remain unusable due to the presence of MPPEH. These hazards prevent the range from constructing realistic airfield and realistic urban training areas. The range will continue to request EOD support as funding and EOD personnel become available.
	Command and Control		Same as above.
	Special Operations		Significant progress has been made in the past year with EOD clearance but large areas of land remain unusable due to the presence of MPPEH. These hazards prevent the range from constructing realistic airfield and realistic urban training areas, and allowing realistic maneuver of ground forces. The range will continue to request EOD support as funding and EOD personnel become available.
	Intelligence, Surveillance and Reconnaissance		Same as above.
Suite of Ranges	Counterland		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance and Reconnaissance		Same as above.

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Strategic Attack		The presence of the Indiana Bat prevents the cutting of trees, which may be used as habitat for the bat, during much of the year. This restriction delays or prevents clear cutting of various parts of the range for target construction.
	Counterland		Same as above.
	Command and Control		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance and Reconnaissance		Same as above.
Munitions Restrictions	Counterland		Significant progress has been made in the past year with EOD clearance but large areas of land remain unusable due to the presence of MPPEH. These hazards prevent the range from constructing realistic airfield and realistic urban training areas, and allowing realistic maneuver of ground forces. The range will continue to request EOD support for surface clearance as funding and EOD personnel become available.
	Special Operations		Same as above.
Airspace	Strategic Attack		Army UAS activity and the Safety Danger Zones created by concurrent use of other ranges on Fort Drum create a number of restrictions on any given day in the R5201 restricted airspace.
	Counterland		Same as above.
	Command and Control		Same as above.
	Special Operations		Same as above.
Wetlands	Strategic Attack		Wetlands restrictions have had a significant negative impact on target area/training area development. - The approval process required to develop target/training areas in the vicinity of wetlands often takes years to navigate. Requests for use of the wetlands mitigation bank on Ft. Drum have always been denied. Wetlands cover much of the training areas on Ft. Drum and combined with the presence of MPPEH have precluded use of vast tracts of land that would otherwise be available for training. The range continues to work with Environmental Division to resolve wetland related issues.
	Counterland		Same as above.
	Command and Control		Same as above.
	Special Operations		Same as above.

This Page is Intentionally Left Blank.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Airburst Assessment Details

Range Mission Description

3110 acre (845 acre impact area) Primary Training Range (PTR) located on southern portion of Fort Carson Army Post. Airburst's mission is to provide today's warfighters with a training environment that closley mirrors the battlefields and threats they will face in today's combat theaters' of operations. We cater to a broad spectrum of Federal, State, and local military, law enforcement and first responder units, designing relevent training packages/scenarios that most closely replicate the real world challenges they will face. We are authorized all types of inert ordnance, to include PGM's and JDAM. Primary Training Units include. 120FS (F-16 Buckley AFB, CO), 13ASOS (Joint Terminal Attack Controllers, Fort Carson, CO), 1-2 (AH-64, Fort Carson, CO), 2-135 (CH-47, UH-60 Buckley AFB, CO), 302AW (C-130, Peterson AFB, CO), 160th SOAR (AH-6, MH-60, MH-47), 10SFG (Fort Carson), EOD (Buckley AFB, Peterson AFB), Security Forces (140 SFS/460 SFS Buckley AFB, 137 SWS Greeley, 302 SFS/21 SFS Peterson AFB, 10 SFS US Air Force Academy). Other users include. 917AW (A-10 Barksdale AFB, LA), various F/A-18 and F-16 units, PC-12 sensor testing (Centenial Airfield, CO), AF Research Lab, Naval Research Lab.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	FMC	NMC			PMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Counterair	FMC	NMC			FMC	FMC	FMC	FMC	FMC				FMC
Counterspace													
Counterland	PMC	PMC			PMC	PMC	FMC	FMC	FMC	FMC	FMC	PMC	FMC
Countersea													
Information Operations													
Electronic Combat Support	FMC	FMC			PMC	FMC		FMC	FMC		FMC		FMC
Command and Control	FMC	FMC			FMC	FMC		PMC	FMC		FMC	FMC	FMC
Air Drop	FMC	FMC			FMC	PMC	FMC	FMC	FMC		FMC	FMC	FMC
Air Refueling													
Spacelift													
Special Operations	FMC	FMC			FMC	PMC	FMC	FMC	FMC	FMC	FMC	PMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	FMC		PMC	FMC		FMC	FMC	FMC

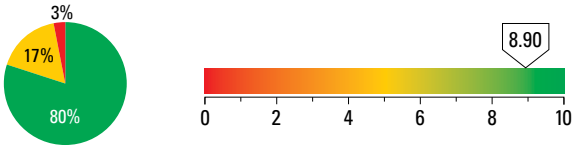
Legend: FMC PMC NMC

Encroachment Data

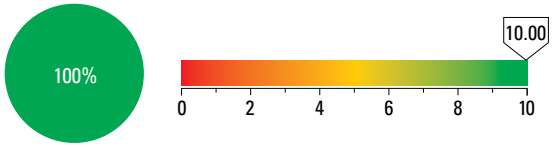
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Minimal	Minimal		Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Counterair												
Counterspace												
Counterland	Minimal	Minimal	Minimal		Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Countersea												
Information Operations												
Electronic Combat Support	Minimal		Minimal		Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Command and Control	Minimal		Minimal		Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Air Drop	Minimal	Minimal	Minimal		Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Air Refueling												
Spacelift												
Special Operations	Minimal	Minimal	Minimal		Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Intelligence, Surveillance, and Reconnaissance	Minimal		Minimal		Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Airburst Assessment Details

Summary Observations				Summary Observations			
No comments.				No comments.			
Historical Information, Results, and Future Projections				**Historical Information, Results, and Future Projections**			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.28	8.28	10.00	**Encroachment Scores**	8.86	8.86	10.00
A vast majority of areas rated yellow can be attributed to our inability to create the most realistic and relevant training environment due to insufficient land-space, air-space, funding and target sets. We perform very well at Close Air Support, Basic Surface Attack, and Basic Air Drops. Training evolutions suffer in terms of realism/relevance when the mission dictates large ground forces, enhanced threats, and large force exercises. In the coming years we will continue to operate as we have, maximizing the assets and personnel we have while operating on a shrinking budget.				No comments.			

Airburst Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Counterland		Limited land space doesn't allow us to build a realistic Urban CAS village. Training impact is limited number of targets and associated scenarios. We will continue to build the best Urban CAS village within current land constraints.
Airspace	Strategic Attack		Insufficient volume and attributes of airspace to conduct large force exercises or for bomber aircraft to maneuver . Marginal for fighter aircraft conducting strategic attack training.
	Counterair		Insufficient volume and attributes of airspace to conduct large force exercises. Working to expand airspace via Colorado Airspace Initiative.
	Counterland		Volume and attributes of airspace limits tactics and ordnance. Virtually all attack runs with PGMs or JDAM are limited to one direction. Working to expand airspace via Colorado Airspace Initiative.
Targets	Strategic Attack		Range target suite provides some but not all target types possible for strategic attack (ie real buildings/complexes vice stacked conex containers). Additionally, we don't posses any target sets with required fidelity for 5th gen fighters. We will continue to try to build the most realistic target sets that our current assets allow.
	Counterland		Range target suite provides some but not all target types possible for close air support. Limits are no realistic village for Urban CAS and no compressed soil block machine to build 'mud huts' similar to those in OIF/OEF. Additionally, we don't have any moving strafe targets that can be employed against with inert ordnance. Currently trying to procure funds for the compressed soil block machine through various channels.
	Electronic Combat Support		Limited capability to provide targets in the electro-magnetic spectrum, both in target types as well as range and cueing.
Threats	Strategic Attack		Limited capability to replicate a few tactical surface-to-air threats—RWR Lite x1, Smokey SAM launchers x 2.
	Counterland		Limited capability to replicate a few tactical surface-to-air threats—RWR Lite x1, Smokey SAM launchers x 2. Limited untrained, highly motivated, ground force (personnel) act as aggressors / Red Force against JTACS/SOF.
	Air Drop		Limited capability to replicate a few tactical surface-to-air threats—RWR Lite x1, Smokey SAM launchers x 2.
	Special Operations		Limited capability to replicate a few tactical surface-to-air threats—RWR Lite x1, Smokey SAM launchers x 2. Limited untrained, highly motivated, ground force (personnel) act as aggressors / Red Force against SOF.
Infrastructure	Command and Control		Current communications suite antiquated and need of replacement by building of greater functional configuration, visibility, and cost-effective construction. Date of remedy unknown. Additionally, no SADL, Link-16 or RADS (ATC feed) capabilities at the range. Currently attempting to procure software/hardware for a SADL and RADS feed.
	Intelligence, Surveillance and Reconnaissance		No small paved runway available for small ISR platforms requiring a prepared or hard surface.
MOUT Facilities	Counterland		A MOUT facility would greatly enhance the CAS and ground forces (Security Forces, EOD, and Special Ops Forces) training evolutions. This could go hand in hand with an Urban Village.
	Special Operations		Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Atterbury Range Assessment Details

Range Mission Description

Atterbury Range provides primary training for the 122nd FW, 178th FW, 180th FW, and joint training for LFE's, MEU's, SOF, SMERF, FEMA, ASOS, IW, Urban Warfare, Homeland Defense all in conjunction with the Muskatatuck Urban Warfare Training Center.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	●	●			●	●	●	●	●			●	●
Counterair		●				●			●				
Counterspace													
Counterland	●	●			●	●	●	●	●	●	●		●
Countersea													
Information Operations													
Electronic Combat Support													
Command and Control													
Air Drop													
Air Refueling													
Spacelift													
Special Operations	●	●			●	●	●	●	●	●		●	●
Intelligence, Surveillance, and Reconnaissance	●	●			●	●	●	●	●		●	●	●

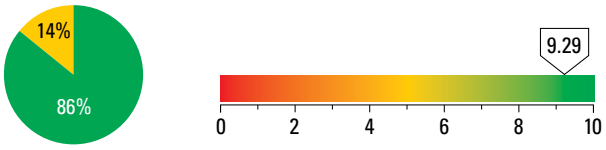
Legend: FMC ● PMC ● NMC ●

Encroachment Data

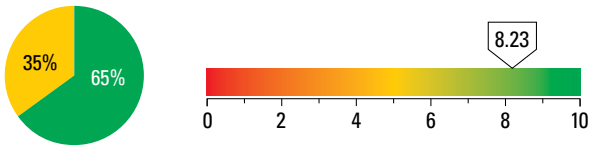
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	●	●	●	●	●	●	●	●	●			●
Counterair					●	●	●	●				●
Counterspace												
Counterland		●			●		●	●	●	●		●
Countersea												
Information Operations												
Electronic Combat Support	●	●			●	●	●	●	●	●		●
Command and Control												
Air Drop												
Air Refueling												
Spacelift												
Special Operations												
Intelligence, Surveillance, and Reconnaissance												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. 14% of the AF's range/range complex mission areas are Partially Mission Capable (PMC)
2. MOUT Facilities and Suite of Ranges are impacting the range's capability to support Intelligence, Surveillance, and Reconnaissance, Special Operations, and Strategic Attack.

Summary Observations

1. 35% of the range/range complex mission is Moderately impacted by encroachment factors
2. Noise Restrictions and Adjacent Land Use are restricting range's abaility to support Counterland, Counterair and Strategic Attack.

Atterbury Range Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.98	8.98	8.98	**Encroachment Scores**	8.23	8.23	8.23
No comments.				No comments.			

Atterbury Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
MOUT Facilities	Strategic Attack	●	Under Construction.
	Special Operations	●	Same as above.
	Intelligence, Surveillance, and Reconnaissance	●	Same as above.
Suite of Ranges	Strategic Attack	●	Various types of ranges available on post through Army
	Special Operations	●	Same as above.
	Intelligence, Surveillance, and Reconnaissance	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Airspace	Counterair	●	Racer MOA cannot be scheduled at the same time as JPG MOA
	Counterland	●	Occasional altitude restrictions over adjacent Army ranges
Noise Restrictions	Strategic Attack	●	Cannot over fly Princes Lakes to the West due to noise complaints
	Counterair	●	Same as above.
	Counterland	●	Same as above.
Adjacent Land Use	Strategic Attack	●	Cannot over fly Princes Lakes to the West due to noise complaints
	Counterair	●	Same as above.
	Counterland	●	Same as above.
Cultural Resources	Counterland	●	
Water Quality/ Supply	Counterland	●	
Range Transients	Counterair	●	Occasional civilian aircraft entering airspace

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Avon Park Assessment Details

Range Mission Description

Provide DoD and Allied users a full spectrum training facility focused on air-to-ground operations. The complex maintains unique target sets, training sites, and state-of-the-art scoring systems in battle space designated for fire and maneuver. Infrastructure supports any size unit up to and including composite large force exercises. While APAFR is part of the 23 Wing and an ACC installation, the range's primary user is the 93rd FS, Homestead ARB, FL. APAFR is also host to Atlantic Strike and Jaded Thunder LFEs.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack													
Counterair		FMC			FMC	PMC	PMC	PMC	PMC				FMC
Counterspace													
Counterland	FMC	FMC			FMC	PMC	FMC	PMC	PMC	FMC		FMC	FMC
Countersea													
Information Operations													
Electronic Combat Support	FMC	FMC			FMC	PMC	PMC	FMC	PMC				FMC
Command and Control	FMC	FMC			FMC	FMC	PMC	FMC	PMC			FMC	FMC
Air Drop	FMC	FMC			FMC	FMC	FMC	FMC	FMC				FMC
Air Refueling		FMC				FMC	FMC	FMC	FMC				FMC
Spacelift													
Special Operations	FMC	FMC			FMC	PMC	FMC	FMC	PMC	FMC		FMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	PMC	FMC	FMC	PMC			FMC	FMC

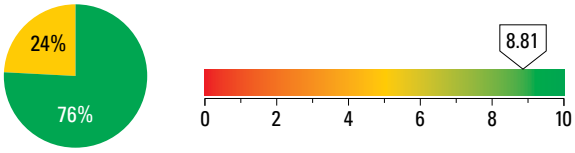
Legend: FMC, PMC, NMC

Encroachment Data

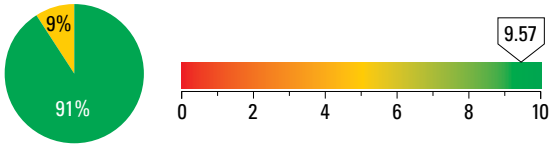
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack												
Counterair	Minimal		Moderate		Moderate	Moderate	Moderate	Severe	Moderate	Moderate	Moderate	Moderate
Counterspace												
Counterland	Minimal	Minimal	Moderate		Moderate	Moderate	Moderate	Severe	Moderate	Moderate	Severe	Moderate
Countersea												
Information Operations												
Electronic Combat Support	Minimal				Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Command and Control	Minimal	Minimal	Moderate		Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Air Drop	Minimal		Moderate		Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Air Refueling	Minimal		Moderate		Moderate	Moderate	Moderate	Severe	Moderate	Moderate	Moderate	Moderate
Spacelift												
Special Operations	Minimal	Minimal	Moderate		Moderate	Moderate	Moderate	Severe	Moderate	Moderate	Severe	Moderate
Intelligence, Surveillance, and Reconnaissance	Minimal		Severe		Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

Limited capability to train for counter air. Not a primary mission of APAFR. Counterland capability is limited by lack of runway certification - air assets must launch and recover from MacDill AFB reducing their time on station. Biggest capability limitation has been a tremendous increase in ops tempo with no corresponding increase in manpower. APAFR is at or near it's maximum training capacity with current manning.

Summary Observations

Adjacent land use continues to be the primary area of encroachment concern. Completion of the JLUS was a significant step and the local jurisdictions provided a good deal of support to the process and were generally very supportive of the range mission. Increased UAS/RPA activity may highlight additional encroachment issues in the future. Wetlands will continue to be a challenge, especially in the State of Florida.

Avon Park Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	9.62	9.62	9.62	**Encroachment Scores**	9.32	9.32	9.32
APAFR's capabilities rating has decreased in relation to the last two years primarily due to a significant increase in ops tempo and the number and variety of units seeking training space. APAFR will be pursuing a man-power study in an effort to better align workload and manpower requirements. APAFR is actively pursuing runway certification and the programing actions needed to sustain the airfield as an integral part of the training environment. One significant mission change will be the introduction of the F-35 into the CAF and the associated operational requirements. Impacts of the F-35 operational training on range operations is not known at this time.				Overall scores have improved slightly from 2008–2010. Increased emphasis on public outreach and the JLUS process has helped. Efforts to pursue adoption of the JLUS recommendations by the local jurisdictions will be a major emphasis area in the coming years. Recently passed legislation in the State of Florida makes it mandatory for local planning councils to coordinate with military installations in their district. This has the potential to lessen encroachment pressures.			

Avon Park Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Counterair		APAFR has no high-fidelity, surface to air threat replication capability. Lack of high-fidelity threats limits the quality of training especially during large force exercises. No current plans to integrate high-fidelity threats at APAFR.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance and Reconnaissance		Same as above.
Scoring & Feedback System	Counterair		APAFR lacks any TSPI capability. Limits fidelity of air to air training. No current plans to integrate TSPI capability at APAFR.
	Electronic Combat Support		APAFR has an outdated communications infrastructure that cannot support LVC operations. Limits fidelity of training. APAFR communications upgrade has been funded and is underway. Expect new architecture in place by end of CY 10. LVC capability. has been discussed and will be more actively pursued once upgrade is complete.
	Command and Control		Same as above.
Infrastructure	Counterair		APAFR has an 8000x150 ft runway that is currently only certified as an LZ. Lack of runway certification severly limits the number and type of aircraft that can operate from the range. Pursuing airfield certification/waiver approval. ECD within 6 months.
	Counterland		Same as above.
Range Support	Counterair		Operations tempo has significantly increased, particularly over the last five years. Range manning has not been updated to keep pace with the additional workload. Manning combined with the 60 hour per week contract limitation has reached the point where APAFR staff cannot support all incoming training requests. Additionally, APAFR lacks SIPRNET capability. Units have to reschedule or are being denied range time. Lack of SIPRNET limits training fidelity and complicated range scheduling. APAFR staff pursue a manpower survey and seek additional manpower authorizations. ECD unknown. SIPRNET capability will be pursued once communications infrastructure upgrade is complete.
	Counterland		Same as above. Additionally, APAFR has limited capability to respond to wildland fires and relies heavily on State assistance. APAFR will be coordinating the results of a wildland fire program evaluation with the 23rd WG .
	Electronic Combat Support		Same as above.
	Command and Control		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance and Reconnaissance		Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Avon Park Detailed Comments

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Spectrum	Intelligence, Surveillance and Reconnaissance		Limited frequencies are available of UAS/RPA activity. Due to increased UAS/RPA activity at APAFR, available frequencies must be deconflicted through scheduling. Requests for range time have to be denied due to spectrum availability despite available air and ground space. APAFR personnel need to determine if additional frequencies can be obtained and if the expanded frequencies will alleviate the conflicts.
Adjacent Land Use	Counterair		Private development and other land use could affect the training mission at APAFR. A specific project is the Destiny project in Osceola County that would affect 1/3 of the Marion MOA. APAFR does not have a community planner. If the development goes through APAFR could lose 1/3rd of the Marion MOA which extends from 500 to 5000 ft AGL. Recently completed a Joint Land Use Study (JLUS) involving four counties and three municipalities, including Osceola County. Working with all the Planning Councils to adopt JLUS recommendations which will help fight encroachment. APAFR needs an authorization for a community planner. ECD - Encroachment is an on-going issue with no completion date.
	Counterland		Same as above.
	Air Refueling		Same as above. Additionally, low-level helicopter refueling occurs in Marion MOA.
	Special Operations		Same as above.
Wetlands	Counterland		Any new training mission, project, or change to an existing range activity that impacts wetlands requires extensive coordination and approval from numerous State and Federal entities. Efforts to meet wetland requirements have the potential to delay or even prevent training activities. An effort to produce a range wide FONPA is being processed to minimize impact.
	Special Operations		Same as above.

This Page is Intentionally Left Blank.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

BMGR Assessment Details

Range Mission Description

BMGR East is the major training range for the 56 FW, 162 FW, 355 FW, 563 RQS, and Arizona Army National Guard. BMGR supports daily air-to-ground sorties and electronic combat training. The range also supports. Air Guard/Air Reserve Test Center operations; Arizona ANG ""Snowbird"" deployed operations; Support ACC directed Angel Thunder Ex and USMC Weapons and Tactics Instructor Course training; Support world-wide JTAC training as well as coalition war fighter air-to-ground employment Provide for HE/ inert weapons employment; combat laser operations with a vast arrary of targetsProvide for full spectrum Air Combat Training Systems to include ACMI, threat simulation, datalink network, C2 Primary Users. 56 FW (AETC) F-16. 162 FW AZ ANG (AETC) F-16; 355 FW (ACC) A-10; 563 RQG (AFSOC) HC-130/H-60; AFRES H-60; AZ ArNG AH-64. users include 3 separate and distinct foreign military sales squadrons from Taiwan and Singapore.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack													
Counterair	●	●			●	●	●	●	●		●	●	●
Counterspace													
Counterland	●	●			●	●	●	●	●		●	●	●
Countersea													
Information Operations													
Electronic Combat Support	●	●				●							
Command and Control	●	●							●				
Air Drop	●	●				●	●	●	●	●	●	●	●
Air Refueling		●							●				
Spacelift													
Special Operations	●	●			●	●		●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●			●	●						●	

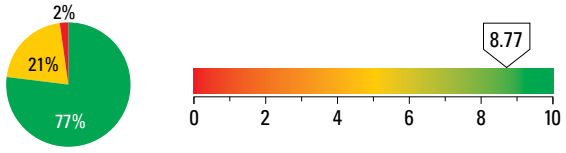
Legend: FMC ● PMC ● NMC ●

Encroachment Data

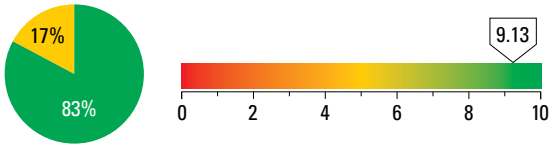
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack												
Counterair	●	●	●		●		●	●	●			●
Counterspace												
Counterland	●	●	●		●		●	●	●			●
Countersea												
Information Operations			●									
Electronic Combat Support			●		●				●			●
Command and Control			●		●				●			●
Air Drop	●	●	●		●	●	●		●			●
Air Refueling		●	●		●	●	●					
Spacelift												
Special Operations	●	●	●		●		●	●	●			●
Intelligence, Surveillance, and Reconnaissance												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



BMGR Assessment Details

Summary Observations	Summary Observations
1. Did not rate training areas currently not conducted on the BMGR-E. In some cases we could support but limited capability exist; i.e. ISR and electronic combat 2. Effective C2 of training space having a negative effect on some operations/ training, i.e. JTAC train like you fight operations 3. Better fidelity MOUT facilities single most attribute effecting the training mission 4. While not a core competency of the range, supporting SPECOPS and like training is most effected training area on the BMGR.	1. 82.61 % of the range/range complex mission areas are fully capable and are not impacted by encroachment factors 2. 17.39 % of the range/range complex missions areas are moderately impacted by encroachment factors, but are being addressed. 3. While it appears cultural resources and range transients are impacting the BMGR-E the most, we are still able to support the mission as it stands today. Future/different military mission requirements may be more or less impacted in the future. Cultural impact is prevalent given magnitude of archeological finds on range and its impact is mitigated through need, assessment, and resolution. Range transients issue is sporadic based on Border Patrol effectiveness and overall flow of illegal traffic but raises concern due to lack of solid visibility downrange. Seeing illegal transients in nontraditional areas; and in an area not traditionally monitored. Counterland mission most effected by above encroachment factors. Sonoran Pronghorn population on the increase due in part to a joint captive breeding venture. Introduction of a second herd being proposed by U.S. Fish and Wildlife Service. Potential exist to de-list the species in mid-term vice long term if herd continues to grow at current rate. 4. No range/range complex mission areas are severely impacted by encroachment. Beginning to see solar development gain significant interest and development on the northern border of the BMGR-E (west of Gila Bend, AZ.)

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.77	8.77	8.77	**Encroachment Scores**	9.13	9.13	9.13
1. Note. Electronic combat/threats. Limited threat capability, lack of interactive feedback to pilots; seeing a lack of use due to limited system capabilities and nature/pace of F-16 syllabus training 2. While counterland/Air-space coded "GREEN," integration of RPAs/UAVs extremely difficult if not impossible based on current manned aircraft customer base (significant amount of RTU training coupled with operational squadron training); RPA/UAV mission currently assessed as incompatible				1. Rating stayed the same however, BMGR realized significant gain in new Sonoran Pronghorn Biological Opinion. New opinion reduced target closure criteria and lessened impact by over 80 percent and a take statement was added to the agreement. New opinion realized from health of population and on-going efforts, cooperation. Due to it's endangered status, the Pronghorn must be actively monitored and will continue to be an impact to the mission until de-listed 2. Until the US-Mexican border can be truly controlled, illegal trespass will continue to be an issue and impact to military mission. Excellent coordination with Customs Border Protection is helping to minimize impacts; most crossing are occurring during no-military operating times. Currently no electronic observation means available on the BMGR (USAF side). All clearing done by human on site and can have limited effect based on volume of land space 3. Non-renewable energy source development still being 'watched' on the northern border of the BMGR. Primarily in the vicinity of Gila Bend, AZ; no ground breaking development to date but permits and incentives have been issued by the State. 56 RMO and 56 FW trying to stay engaged with developers to ensure compatible development with military flying operations is considered.		

BMGR Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Special Operations	●	Limited targets designed for special ops (people/pop ups, etc). Severely limited opportunities for special ops and combat search and rescue. Planned Action. Continued development of Spec Op/CSAR ground movement area; current EIS addressing the development of a helicopter unique range incorporating pop-up targets, ROD expected in Spring 2011; target area specific funding source unknown
Threats	Electronic Combat Suppor	●	Lack of interactive threat simulation; limited threat capability; no electronic means for real time feedback capability to ECM or maneuver. Limited usefulness by flying community. Unknown remedies at this time; operations must provide requirement in order for BMGR-E to realize capability to support requirement.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

BMGR Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Intelligence, Surveillance and Reconnaissance	🟡	Limited threat generation down range limits ISR technique. Inability to effectively support mission. Unknown remedies at this time; addressing need however operational requirement will drive capability.
Scoring & Feedback System	Counterland	🟡	Manual range scoring only--no scoring on tactical ranges. This limits positive feedback to aircrew on effectivenes. Short term solution is to provide limited optical scoring capability in one of the tactical ranges; limited capability funded in-house; IOC spring 2011.
	Air Drop	🔴	No scoring capability for air drops. scoring only on manned ranges. This limits operational feedback on effectiveness. Unknown remedy at this time; no operational requirement for drop zone scoring.
Range Support	Command and Control	🟡	Limited capability for daily operations; no infrastructure exists to support operational C2 (AOC) if desired; LMR coverage is severely lacking; air/ground advisory service available but ATC like facility and positive control necessary to sustain future operations. Impact to Training: Safety of humans on the ground; restrictions to aircrew based on low situational awareness from a C2 perspective. Planned Action: 1) Current C2 node continues to grow in support of range and airspace operations--provides access, de-confliction, and situational awareness to users with limited resources (one long range FAA radar feed; read only Air Marine Operations Center (DHS) composite radar feed), extremely limited LMR system. 2) LMR repeater architecture submitted for assessment and approval--funding unknown and must wait for overall LMR upgrade of truncated system. 3) ATC like facility being readdressed for requirements/funding. Capability seen as a must given future real-time airspace sharing with FAA and expected integration of different assets downrange.
	Special Operations	🟡	There are limited maneuver areas; no instrumented MOUT facilities. This effects viable training opportunities for unique user set/requirement. Unknown remedy at this time; operators have not specifically addressed limited facilities with BMGR management; currently have limited on-ground maneuver training opportunities.
Collective Ranges	Counterland	🟡	Range is primarily air-maneuver centric. This provides a limited opportunity to integrate full spectrum air with ground maneuver such as convoy escort. Range Enhancement EIS is addressing this shortfall to a limited degree; Record of Decision expected Spring 2011.
MOUT Facilities	Counterland	🟡	There are limited maneuver areas; no instrumented MOUT facilities. This affects viable training opportunities for unique user set/requirement. Unknown remedy at this time; operators have not specifically addressed limited facilities with BMGR management; currently have limited on-ground maneuver training opportunities.
	Special Operations	🟡	MOUT areas are relatively rudimentary and limited in complexity; not instrumented for IED/cellular network; does not allow for full scale recovery operations. Limited utility/operational use. Planned Action: Continue to develop limited maneuver MOUT areas in support of Special Operations and CSAR; while it may not be feasible to develop down range, Gila Bend AFAF is a potential candidate to support special mission training requirements.
	Intelligence, Surveillance and Reconnaissance	🟡	Same as above.
Suite of Ranges	Special Operations	🟡	Same as above.

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Counterland	🟡	Sonoran Pronghorn antelope (endangered species) on range. Presence on range closes targets; slows EOD/ maintenance activity. Continuing program of unique on-going assessment and avoidance measures; new Biological Opinion realized in 2010--reduced target closure criteria and opened targets by over 80%; realized one take statement. Additional captive breeding plot being proposed by Fish and Wildlife Service--herd will be classified 'experimental' ergo should not have any operational impact to mission however, if animals intermix with existing herd (by area), then they become protected
Munitions Restrictions	Counterland	🟡	HEI bullets not allowed on range due to EOD and safety. This limits training opportunities. Planned Actions. Consider developing an HEI only target area, contained. Unknown completion date due to operational requirement/ needs statement.
Cultural Resources	Counterland	🟡	BMGR-E lands rich in cultural artifacts; requires assessment and mitigation of each site that may or may not affect operations. Given time, each can be mitigated, minimizing impact. Cultural resource surveys and Section 106 consultation required for most operational undertakings (outside existing/historical target sets); discovery may impact training objectives, limit scope of operations. Planned Actions. Continue programmatic survey of all range lands; determine eligibility of site(s); continue to work with user to determine best course of action balancing operational need with cultural and biological sensitivities. Range enhancement EIS is to address expanded land use for target placement; Record of Decision anticipated in Spring 2011.

BMGR Detailed Comments

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Cultural Resources	Air Drop		Same as above.
	Special Operations		Same as above.
Range Transients	Counterland		Illegal human traffic and resulting law enforcement cross/access the BMGR-E; currently no electronic ground detection exists downrange. Discovery leads to range closures; cease weapons expenditures. Planned Actions. Continued interaction with Customs Border Protection agents; continue research on feasibility of ground based ground detection radar systems in interest of human safety; in 2010 have leveraged Civil Air Patrol flights with early AM sorties to help clear the range before opening--program deemed a success to help visually acquire illegal traffic (abandoned and staged vehicles) and act as a deterrent to illegal traffic.
	Air Drop		Same as above.
	Special Operations		Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Bollen Assessment Details

Range Mission Description

Provide a quality, realistic, tactical range environment for air-to-ground, forward air control and airdrop training to ensure the combat readiness of flying units throughout the Northeast and Mid Atlantic region. Primary Users 113 FW, 175th FW

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	PMC	PMC			FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Counterair	PMC	PMC			FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Counterspace													
Counterland	PMC	PMC			FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Countersea													
Information Operations													
Electronic Combat Support													
Command and Control	FMC	FMC			FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Air Drop	PMC	PMC			FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Air Refueling													
Spacelift													
Special Operations	PMC	PMC			FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Intelligence, Surveillance, and Reconnaissance	PMC	PMC			FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC

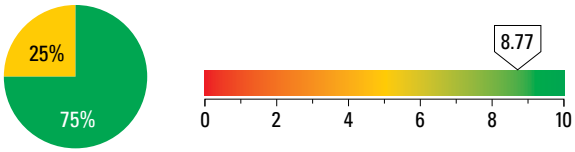
Legend: FMC PMC NMC

Encroachment Data

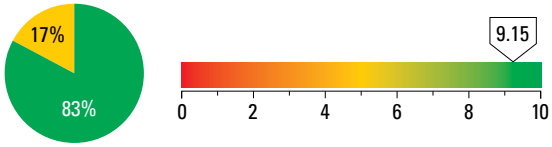
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Moderate	Minimal		Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal
Counterair	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterspace												
Counterland	Minimal	Moderate	Minimal		Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal
Countersea												
Information Operations												
Electronic Combat Support	Minimal	Minimal	Minimal		Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal
Command and Control	Minimal	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Drop	Moderate	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Refueling												
Spacelift												
Special Operations	Minimal	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. The small size of the airspace and impact area directly affects the majority of mission areas.
2. Many munitions are restricted due to the small size of the impact area.
3. Counterair is fallback mission within the range airspace.
4. Fourth Generation fighters will not be able to utilize Bollen Range effectively without increase in Restricted Airspace size and Noise Assessment.
5. Modern precision weapons require larger landspace and airspace.

Summary Observations

1. The small size of the airspace and impact area directly affects the majority of mission areas.
2. Many munitions are restricted due to the small size of the impact area.
3. Counterair is fallback mission within the range airspace.
4. Fourth Generation fighters will not be able to utilize Bollen Range effectively without increase in Restricted Airspace size and Noise Assessment.
5. Modern precision weapons require larger landspace and airspace.

Bollen Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.90	8.90	8.77	**Encroachment Scores**	9.43	9.43	9.15
1. The size of the current airspace needs to be modified. Preliminary research is underway and discussions with FAA have taken place regarding modifying existing training airspace. Positive results anticipated. 2. Several Threat Systems have been researched and several avenues for funding are being pursued. Anticipating positive outcome with greatly improved Threat Training Capabilities. 3. Several new missions to range are being integrated. These new missions will increase training realism and do so on a non-interference basis with existing training missions. 4. Encroachment issues stable at this time.				No comments.			

Bollen Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack		Small Landspace, limits tactics, no planned remedy.
	Counterair		Same as above.
	Counterland		Same as above.
	Air Drop		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance and Reconnaissance		Same as above.
Airspace	Strategic Attack		Small Landspace, limits tactics, Planning to increase Restricted Airspace size.
	Counterair		Same as above.
	Counterland		Same as above.
	Air Drop		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance and Reconnaissance		Same as above.
Threats	Strategic Attack		Limited Threat Capability, Minimal Training Benefit, Funding Request for Upgrade.
	Counterair		Same as above.
	Counterland		Same as above.
	Command and Control		Same as above.
	Air Drop		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance and Reconnaissance		Same as above.

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Air Drop		Endangered species in drop zone, incomplete mission feedback, selective relocation by Wildlife Biologists.
Munitions Restrictions	Strategic Attack		Small Landspace, Restricts Munition Types, Planning to modify existing airspace to better meet mission requirements.
	Counterair		Same as above.
	Counterland		Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Bollen Detailed Comments

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Strategic Attack		Small Airspace, Limits Tactics, Planning to Increase Restricted Airspace Size.
	Counterair		Same as above.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.
	Command and Control		Same as above.
	Air Drop		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance and Reconnaissance		Same as above.
Noise Restrictions	Strategic Attack		No Missions Allowed 2300-0700L, Limits Night Training, No Planned Remedy.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.

This Page is Intentionally Left Blank.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Cannon Assessment Details

Range Mission Description

Cannon Range is the primary training range for the 442FW. The 442FW utilizes Cannon Range twice a day Monday thru Friday and one weekend a month. Cannon hosts Joint Terminal Attack controllers on average two weeks per month working with the A-10's in Close Air Support. Cannon also supports the 131BW B-2 training, 139th AW for Airdrops, as well as an assortment of other types of air to ground exercises throughout the year. Cannon supports the 1-135th and the 3-135th Army aviation, Missouri Army Guard, in their UH-60 and AH-6 live gunnery training.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	PMC	NMC			PMC	PMC	PMC	PMC	PMC				
Counterair													
Counterspace													
Counterland	PMC	PMC			FMC	PMC	PMC	PMC	PMC		FMC	PMC	
Countersea													
Information Operations	FMC					NMC		PMC	PMC				
Electronic Combat Support	FMC	PMC			PMC	NMC	NMC	PMC	PMC				
Command and Control	FMC	PMC			FMC	NMC	NMC	NMC	PMC			PMC	
Air Drop	PMC	PMC			FMC	PMC	FMC	FMC	PMC				
Air Refueling													
Spacelift													
Special Operations	PMC	PMC			FMC	PMC	PMC	PMC	PMC		PMC	PMC	
Intelligence, Surveillance, and Reconnaissance	FMC	PMC			PMC	NMC	NMC	NMC	PMC				

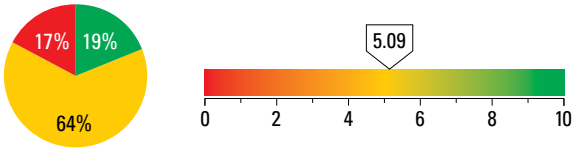
Legend: FMC, PMC, NMC

Encroachment Data

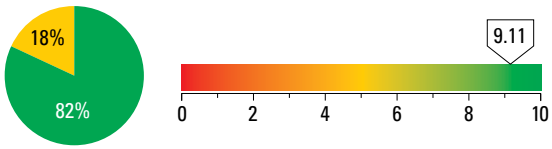
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Moderate	Minimal		Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Counterair	Minimal	Moderate	Minimal		Minimal	Minimal	Minimal		Minimal	Minimal		Minimal
Counterspace												
Counterland	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Countersea												
Information Operations												
Electronic Combat Support	Minimal	Moderate	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Command and Control	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Drop	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Air Refueling												
Spacelift												
Special Operations	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal		Minimal		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Cannon Assessment Details

Summary Observations	Summary Observations
1. Cannon Range primarily provides a joint training environment for Counter-land operations. Other training uses in decreasing order of utilization are Special Operations, Air Drop, Strategic Attack, ISR, and Counter Air. Training for Command and Control, Electronic Combat Support, and Information Operations are integrated, within Cannon Range's capabilities, in each mission area. 2. Range support, particularly resource allocation (personnel and O&M $) is driving factor behind many of areas rated "Yellow" 3. 84% of rated areas are fully or partially mission capable	1. Adjacent Land Use is the highest encroachment factor affecting Cannon Range. As part of Fort Leonard Wood, small arms ranges are encroaching on the east side of Cannon to the point where it is effecting all air usage to some degree, and in some cases limiting when we can occupy our facilities (Army .50 cal range being active) 2. Mission Areas most severely impacted would be counterland, since this encompasses most of our mission.

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	5.17	5.17	5.17	**Encroachment Scores**	9.05	9.05	9.05
Capability scores have remained relatively unchanged from last CY. A vast majority of areas rated yellow are due to insufficient personnel to perform the type and duration of missions being requested. Cannon Range has limited capability to perform missions outside the normal day to day operations. We perform very well at Close Air Support, Basic Air Drops, etc. When the mission dictates large ground forces, enhanced threats, and large force exercises we fall short. This shortfall is due to manning, airspace size, and budget shortfalls. In the coming years we will continue to operate as we have, maximizing the assets and personnel we have.				1. Scores remained relatively the same since last CY, however improved business practices have been implemented to mitigate the impact of the .50 cal Army range. We have continued to deconflict our schedule proactively with Fort Leonard Wood. 2. Encroachment will continue to be an issue in the future, maybe more so since the Army is modifying some of their small arms ranges, to include Range 24 (.50 cal) to support more soldiers. This will negate the current way of deconflicting schedules. Currently their requirement to train soldiers on the .50 cal range is able to be mitigated by giving them days that we are not scheduled to go hot. However in the future with more soldiers needing trained on those ranges, I see encroachment to be an issue for several years to come. 3. In the future with current encroachment from other DoD assets (i.e. Army), Cannon Range will mitigate all conflicting land usage requirements by developing a solid relationship with our DoD counterparts. This will include analyzing the scheduling process to ensure that all parties can perform their mission using the same landspace to accomplish goals.		

Cannon Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack	🟡	Adjoining land uses and infrastructure effectively limit or preclude certain ordnance deliveries due to WDZ containment. No planned remedy.
	Counterland	🟡	Adjoining land uses and infrastructure effectively limit or preclude certain ordnance deliveries, particularly IAM due to WDZ size. Terrain limits feasible observation positions for Type 1 CAS controls.
	Air Drop	🟡	Unable to conduct static line airdrop due to vegetation, terrain, and adjacent HE impact area.
	Special Operations	🟡	Adjoining land uses and infrastructure effectively limit or preclude certain ordnance deliveries. Terrain limits feasible observation positions for Type 1 CAS controls.
Airspace	Strategic Attack	🔴	Insufficient volume and attributes of airspace to conduct large force exercises or for bomber aircraft to maneuver . Marginal for fighter aircraft conducting strategic attack training.
	Counterland	🟡	Volume and attributes of airspace limits tactics and ordnance
	Electronic Combat Support	🟡	Volume of airspace limits types of EC aircraft which can utilize range airspace. Other nearby airspace can accommodate Iron Triad. Volume and attributes (chaff/flare restrictions) of airspace limits some types of defensive reactions.
	Command and Control	🟡	Volume of airspace limits types of C2 aircraft which can utilize range airspace. Other nearby airspace can accommodate Iron Triad. (Lindbergh MOA/ATCAA)
	Air Drop	🟡	Volume and attributes of airspace limits tactics.
	Special Operations	🟡	Volume and attributes of airspace limits tactics and ordnance
	Intelligence, Surveillance and Reconnaissance	🟡	Volume of airspace limits types of ISR aircraft which can utilize range airspace. Other nearby airspace can accommodate manned ISR. Range accommodates space-based ISR. Restricted airspace suitable for small and micro-UAS, marginal for medium UAS.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Cannon Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Strategic Attack	🟡	Range target suite provides some but not all target types possible for strategic attack.
	Electronic Combat Support	🟡	Limited capability to provide targets in the electro-magnetic spectrum.
	Intelligence, Surveillance and Reconnaissance	🟡	Thermal characteristics of target array are low-fidelity. Good CCD capabilities, terrain, vegetation, and dynamic, movable and mobile targets provide high quality training for Find, Fix, Track portion of kill chain.
Threats	Strategic Attack	🟡	Limited capability to replicate a few tactical surface-to-air threats—RWR Lite x2, Smokey SAM launchers x 2.
	Counterland	🟡	Limited capability to replicate a few tactical surface-to-air threats—RWR Lite x2, Smokey SAM launchers x 2. Limited untrained, highly motivated, ground force (personnel) act as aggressors / Red Force against JTACS/SOF.
	Information Operations	🔴	Only IO threat capability is spoofing or denial of service in UHF/VHF spectrum.
	Electronic Combat Support	🔴	Limited capability to replicate a few surface-to-air tactical threats—RWR Lite x 2, Smokey SAM launchers x 2.
	Command and Control	🔴	No capability to provide threats effecting C2 at a level higher than JTAC/AFAC/Flt Lead
	Air Drop	🟡	Limited capability to replicate a few tactical surface-to-air threats—RWR Lite x2, Smokey SAM launchers x 2.
	Special Operations	🟡	Limited capability to replicate a few tactical surface-to-air threats—RWR Lite x2, Smokey SAM launchers x 2. Limited untrained, highly motivated, ground force (personnel) act as aggressors / Red Force against SOF.
	Intelligence, Surveillance and Reconnaissance	🔴	Limited capability to replicate a few tactical surface-to-air threats—RWR Lite x2, Smokey SAM launchers x 2.
Scoring & Feedback System	Strategic Attack	🟡	Portion of target array is un-scoreable; aircraft and ground personnel TSPI not collected or stored. SADL equipped, no JTIDS capability, no method to monitor C4I network information flow. Some hardware on site for implementation of LVC network; scoreable target array will increase by end of FY2010 with phase 2 and 3 of JAWSS installation.
	Counterland	🟡	Portion of target array is un-scoreable; aircraft and ground personnel TSPI not collected or stored. SADL equipped, no JTIDS capability, no method to monitor C4I network information flow. Some hardware on site for implementation of LVC network; scoreable target array will increase by end of FY2010 with phase 2 and 3 of JAWSS installation.
	Electronic Combat Support	🔴	No method to assess or provide feed back for ECM/ECCM. SADL equipped, no JTIDS capability, no method to monitor C4I network information flow.
	Command and Control	🔴	Aircraft and ground personnel TSPI not collected or stored. SADL equipped, no JTIDS capability, no method to monitor C4I network information flow. Some hardware on site for implementation of LVC network through ARCNet.
	Special Operations	🟡	Portion of target array is un-scoreable; aircraft and ground personnel TSPI not collected or stored. SADL equipped, no JTIDS capability, no method to monitor C4I network information flow. Some hardware on site for implementation of LVC network; scoreable target array will increase by FY2009 with phase 2 and 3 of JAWSS installation.
	Intelligence, Surveillance and Reconnaissance	🔴	No substantial capability to provide feedback for ISR training. Portion of target array is un-scoreable; aircraft TSPI not collected or stored. SADL equipped, no JTIDS capability, no method to monitor C4I network information flow. Some hardware on site for implementation of LVC network through ARCNet scoreable target array will increase by FY2009 with phase 2 and 3 of JAWSS installation.
Infrastructure	Strategic Attack	🟡	Volume of indoor storage space inadequate to store and maintain certain strategic attack targets, including next generation threats. No classified vault.
	Counterland	🟡	Bridge failure in FY2005 cut-off access to host US Army post, nearly eliminating joint ground force access, increasing time for JTACs to reach Cannon Range and certain OPS.
	Information Operations	🟡	Limited volume of space to improve / add hardware.
	Electronic Combat Support	🟡	Limited volume of space to improve / add hardware.
	Command and Control	🔴	Insufficient volume of space for a C2 unit to mobilize and operate out of existing buildings
	Special Operations	🟡	Bridge failure in FY2005 cut-off access to host US Army post, nearly eliminating joint ground force access, increasing time for JTACs to reach Cannon Range and certain OPS.
	Intelligence, Surveillance and Reconnaissance	🔴	No small paved runway available for small ISR platforms requiring a prepared or hard surface.

Cannon Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Strategic Attack		Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day.
	Counterland		Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day. UHF/VHF systems at 100% capacity, additional hardware required for mission growth.
	Information Operations		Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day. SIPRNET consistently unreliable. Limited NIPRNET bandwidth
	Electronic Combat Support		Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day.
	Command and Control		Same as above.
	Air Drop		Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day. Limited personnel and equipment to handle CDS or HE airdrops.
	Special Operations		Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day. Range personnel generally unavailable to assist with
	Intelligence, Surveillance and Reconnaissance		Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day.
Collective Ranges	Special Operations		Need to add properly equipped and trained aggressors / Red Force to improve
MOUT Facilities	Counterland		5 total complexes, Low-fidelity thermal / IR signature
	Command and Control		Same as above.
	Special Operations		5 total complexes, Low-fidelity thermal / IR signature. Need to add sim-round capable shoot complex; required to integrate total mission from infiltration through exfiltration with air-to-ground platforms.

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Munitions Restrictions	Strategic Attack		No live ordnance permitted; theoretically limited capability to employ IAM; 170 acres of inactive US Army artillery range can not be cleared for range residue. Flares not permitted below 1,000' AGL.
	Counterair		Chaff (except RR-112) not permitted above 3,000' AGL
	Counterland		No live ordnance permitted; White Phosphorous not permitted; theoretically limited capability to employ IAM; 170 acres of inactive US Army artillery range can not be cleared for range residue; Chaff (except RR-112) not permitted above 3,000' AGL. Flares not permitted below 1,000' AGL. Illumination flares not permitted.
	Electronic Combat Support		Chaff (except RR-112) not permitted above 3,000' AGL. Flares not permitted below 1,000' AGL.
	Air Drop		Chaff (except RR-112) not permitted above 3,000' AGL. Flares not permitted below 1,000' AGL.
	Special Operations		No live ordnance permitted; White Phosphorous not permitted; theoretically limited capability to employ IAM; 170 acres of inactive US Army artillery range can not be cleared for range residue; Chaff (except RR-112) not permitted above 3,000' AGL. Flares not permitted below 1,000' AGL.
Airspace	Counterland		Surface Danger Zones from US Army small arms ranges and demolitions ranges limits minimum altitudes over certain areas adjacent to impact area 10% of time
	Air Drop		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance and Reconnaissance		Same as above.
Adjacent Land Use	Strategic Attack		Adjoining US Army Multi-Purpose Machine Gun Range (.50 cal) closes Cannon Range to all use, including maintenance, approx. 30-60 hours/month, but not all of these hours are scheduled by Cannon Range for use or maintenance. Adjacent land uses limit or eliminate employing inert IAMs, some PWII, and other ordnance.
	Counterland		Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Cannon Detailed Comments

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Adjacent Land Use	Air Drop		Adjoining US Army Multi-Purpose Machine Gun Range (.50 cal) closes Cannon Range to all use, including maintenance, approx. 30-60 hours/month, but not all of these hours are scheduled by Cannon Range for use or maintenance. Adjoining Live Fire Convoy course limits minimum altitudes over a portion of the range and ground personnel locations, including a portion of Slingshot DZ, 20% of time
	Special Operations		Same as above.
	Intelligence, Surveillance and Reconnaissance		Same as above.

This Page is Intentionally Left Blank.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Claiborne Assessment Details

Range Mission Description

Air-to-ground range. Primary User. 47th Fighter Squadron, Barksdale AFB, LA 71110

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	●	●			●	●	●	●	●		●	●	
Counterair													
Counterspace													
Counterland	●	●			●	●	●	●	●		●	●	
Countersea													
Information Operations													
Electronic Combat Support													
Command and Control													
Air Drop													
Air Refueling													
Spacelift													
Special Operations													
Intelligence, Surveillance, and Reconnaissance													

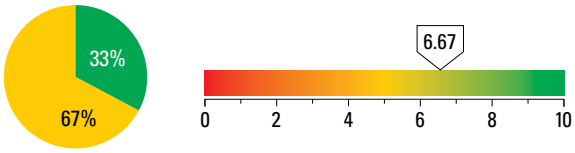
Legend: FMC ● PMC ● NMC ●

Encroachment Data

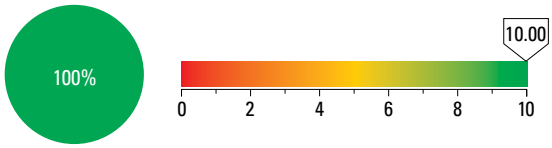
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	●	●			●	●	●	●	●	●	●	●
Counterair												
Counterspace												
Counterland	●	●			●	●	●	●	●	●	●	●
Countersea												
Information Operations												
Electronic Combat Support												
Command and Control												
Air Drop												
Air Refueling												
Spacelift												
Special Operations												
Intelligence, Surveillance, and Reconnaissance												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

No comments.

Summary Observations

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	6.56	6.56	7.86

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	10.00	10.00	10.00

No comments.

Claiborne Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack		Claiborne Range is a small range located in a US Nationa Forest. Authorized weapons are limited to practice bombs and training rounds. This does not include inert JDAMs or LGBs. Additional land is not currently available. No remedy planned at this time.
	Counterland		Same as above.
Threats	Strategic Attack		Current inventory includes only an RWR lite threat emitter, which is not utilized very often in A-10 training scenarios and not robust enough for B-52 training. Local ACFT are required to travel further to accomplish required training. The current plan is to investigate increasing the ECM capabilities and adding simulated SAM threats upon completion of other improvements; 3 year plan.
	Counterland		Same as above.
Scoring & Feedback System	Strategic Attack		The current JAWSS scoring system is limited by antequated analog technology. This prevents efficient and ongoing data storage and limits feedback to hard copies only. Current plan is to update scoring system upon completion of other facility upgrades; 2 - 3 years.
	Counterland		Same as above.
Range Support	Strategic Attack		Although a T1 communications line is in place and functioning, AF global email and the PEX server are unavailable. This requires additional effort by all to ensure that range personnel are aware of changes to the training schedule. A work order is in progress; estimated time of resolution is unknown.
	Counterland		Same as above.
Collective Ranges	Strategic Attack		There are currently no designated observation points besides the control towers for ground units; i.e. TACP teams. This limits training scenarios in which JTACs are required. Plans for construction are in currently in progress with an estimated completion date no later than Oct 2012.
	Counterland		Same as above.
MOUT Facilities	Strategic Attack		The current facility is very limited in scope. This limits training opportunities. Plans for construction are in currently in progress with an estimated completion date no later than Oct 2012.
	Counterland		Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Dare County Assessment Details

Range Mission Description

The Dare County bombing Range is the primary training location for the 4th Fighter Wing, Seymour Johnson AFB, NC. Besides providing bombing , gunnery and electronic combat training for these F-15E aircrews. a multitude of Navy,, Marine and Air National Guard units also use the range. The range is extremely popular with special operations (air and ground) and forward air controll untis from all military services for training personnel from across the US and some foreign bases.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	●	●			●	●	●	●	●			●	●
Counterair	●	●			●	●	●	●	●			●	●
Counterspace													
Counterland	●	●			●	●	●	●	●			●	●
Countersea													
Information Operations	●	●			●	●	●	●	●			●	●
Electronic Combat Support	●	●			●	●	●	●	●			●	●
Command and Control	●	●			●	●	●	●	●			●	●
Air Drop													
Air Refueling													
Spacelift													
Special Operations	●	●			●	●	●	●	●			●	●
Intelligence, Surveillance, and Reconnaissance	●	●			●	●	●	●	●			●	●

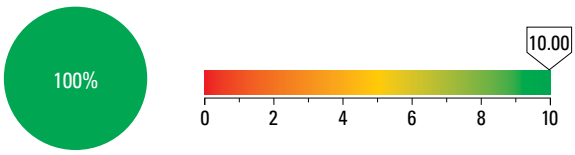
Legend FMC ● PMC ● NMC ●

Encroachment Data

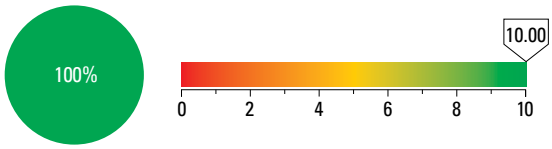
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	●	●	●		●	●	●	●	●	●	●	●
Counterair	●	●	●		●	●	●	●	●	●	●	●
Counterspace												
Counterland	●	●	●		●	●	●	●	●	●	●	●
Countersea												
Information Operations	●	●	●		●	●	●	●	●	●	●	●
Electronic Combat Support	●	●	●		●	●	●	●	●	●	●	●
Command and Control	●	●	●		●	●	●	●	●	●	●	●
Air Drop												
Air Refueling												
Spacelift												
Special Operations	●	●	●		●	●	●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●	●		●	●	●	●	●	●	●	●

Legend Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

There is no degradation of capabilities currently affecting DCBR due to encroachment. The potential for future wind energy farms does exist in surrounding airspace, but there are no farms currently planned which will impact our operations.

Summary Observations

Currently, there are no significant encroachment issues that are degrading the range training mission.

Dare County Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	9.95	9.95	9.59	**Encroachment Scores**	9.95	9.95	9.55
No comments.				The effects of encroachment factors are negligible. Range training capabilities have expanded dramatically due to the efficient use of existing air and ground space. Developers are showing increasing interest in developing wind farms at various locations in the coastal area, some in fairly close proximity to the range air and ground space. No development has been done as of yet. The range mission should continue to be unaffected for the foreseeable future.			

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Eglin Assessment Details

Range Mission Description

The Eglin Test and Training Complex (ETTC), provides full support and infrastructure for DT&E/OT&E, and multi-Service training activities (including AFSOC, 7th Special Forces Group (Airborne), 6 Ranger Training Battalion, the Navy EOD School, Navy Training Wings 5 and 6, and the Alabama Army National Guard). The Eglin MRTFB is designated the test and evaluation center for Air Force air-delivered weapons, navigation and guidance systems, Command and Control (C2) systems, and Air Force Special Operations Command systems. The 46 TW also provides planning, facilities, and infrastructure support for developmental organizations, such as the Air Force Research Laboratory (AFRL) and Defense Threat Reduction Agency (DTRA).

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack	PMC	PMC	FMC	FMC	FMC	PMC	PMC	PMC	FMC	FMC	FMC	PMC	PMC
Counterair	FMC	PMC	FMC		FMC	PMC	PMC	PMC	FMC		FMC	PMC	PMC
Counterspace	FMC	PMC	PMC		PMC	PMC	FMC		FMC				
Counterland	PMC	PMC	FMC		FMC	PMC	PMC	PMC	FMC	FMC	FMC	PMC	PMC
Countersea	FMC	FMC	FMC	FMC	PMC	FMC	FMC		FMC				
Information Operations	FMC	FMC	FMC		PMC		PMC	PMC	FMC				
Electronic Combat Support	FMC	FMC	FMC		FMC	PMC	FMC	PMC	FMC		FMC		
Command and Control	PMC	FMC	FMC		FMC	PMC	FMC	FMC	FMC			PMC	PMC
Air Drop	FMC	FMC	FMC			FMC	FMC	FMC	FMC				
Air Refueling	FMC	FMC	FMC					FMC	FMC				
Spacelift	PMC	FMC	FMC				FMC	PMC	PMC				
Special Operations	PMC	PMC	FMC		PMC	PMC	PMC	FMC	FMC	FMC	FMC	PMC	PMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC	FMC		FMC	PMC		FMC	FMC				

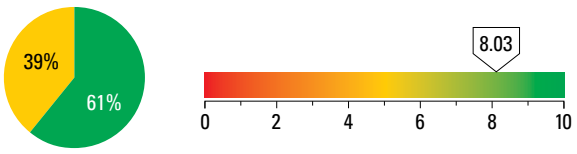
Legend: FMC PMC NMC

Encroachment Data

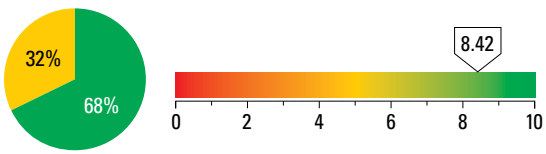
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	PMC	FMC	PMC	PMC	PMC	FMC	PMC	PMC	FMC	FMC	FMC	FMC
Counterair	PMC	FMC	PMC	PMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Counterspace	PMC	FMC	PMC	PMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Counterland	PMC	FMC	PMC		PMC	FMC	PMC	PMC	PMC	FMC	PMC	FMC
Countersea	PMC	PMC	PMC	PMC	PMC	FMC	FMC	PMC	PMC	FMC	FMC	FMC
Information Operations	FMC	FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Electronic Combat Support	FMC	FMC	PMC	FMC	FMC	FMC	FMC	FMC	PMC	FMC	FMC	FMC
Command and Control	FMC	FMC	PMC	FMC	FMC	FMC	FMC	FMC	PMC	FMC	FMC	FMC
Air Drop	FMC	FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Air Refueling	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Spacelift			FMC		PMC	FMC	PMC	PMC	PMC	FMC	PMC	FMC
Special Operations	PMC	PMC	PMC	PMC	FMC	FMC	PMC	FMC	PMC	FMC	PMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	PMC	FMC

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Eglin Assessment Details

Summary Observations	Summary Observations
1. There are no "red" areas under Capabilities Assessment and approximately 61% of attributes are "green"; Threats, Infrastructure, Airspace, Landspace, MOUT Facilities, and Suite of Ranges are the primary attribute areas that restrict the Range's training capability. 2. Strategic Attack, Counterland, and Special Operations are the Mission Areas most affected, with 7 of the Capability Attributes graded "yellow" due to one or more restrictions.	1. There are no "red" areas, and 68% are graded "green". Spectrum, T&E Species, Airspace, and Cultural Resources are the factors most frequently graded "yellow." 2. Counterland, Countersea, and Special Operations are the Mission Areas most affected.

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.50	8.50	8.42	**Encroachment Scores**	8.52	8.52	8.52
1. The primary cause for changes in CY2010 and CY2011 scores is improved accuracy in assessment data quality. 2. Airspace continues to be a concern. The Gulf Regional Airspace Strategic Initiative (GRASI) will provide a macro-level perspective of available airspace and will recommend approaches to use it most effectively. This should ease some of the Airspace concerns identified in this Report. However, beddown of the Joint Strike Fighter (JSF) training program and significant increases in AFSOC flying activity will probably continue to stress the Airspace capacity of the ETTC in the 3-5 year future. 3. When 7SFG(A) live fire ranges are completed, much of the Suite of Ranges shortfalls will be resolved, and part of the MOUT facility deficiency will be eliminated.				1. The primary cause for changes in CY2010 and CY2011 scores is improved accuracy in assessment data quality. 2. Availability of Spectrum continues to be a concern, and the primary approach to reducing its impact has been to improve Frequency Management equipment and procedures, and to attempt to acquire instrumentation and communication equipment that uses less bandwidth. 3. The Gulf Regional Airspace Strategic Initiative (GRASI) will provide a macro-level perspective of available airspace and will recommend approaches to use it most effectively. This should ease some of the Airspace concerns identified in this Report. However, beddown of the Joint Strike Fighter (JSF) training program and significant increases in AFSOC flying activity will probably still stress the Airspace capacity of the ETTC in the 3-5 year future. 4. Overall projected status should remain essentially the same for the future, unless Outer Continental Shelf oil and gas drilling is expanded to the point that the DoD bows to pressure to move the Military Mission Line, in the Gulf of Mexico, eastward.			

Eglin Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack		There is inadequate land-space to conduct some large footprint weapons. Some long range standoff weapons currently require flight termination systems or must be released over Eglin's water range. Planned Action: A Next Generation proposal for a remote impact area in a sparsely populated area near the Florida coast is being reviewed for resubmission. This solution would provide a large water-to-land corridor that would enable the overwater launch and subsequent land impact of almost any long range standoff weapon in development or in the inventory. Anticipated Date: N/A
	Counterland		Current landspace available to conduct large footprint weapons has been reduced by siting of BRAC-directed 7SFG(A) support facilities near center of Eglin Range. The potential large number of JDAM and GBU drops during JSF training ops may seriously stress the capacity of Air-to-Surface impact areas on Eglin. Fewer long range standoff weapons can be dropped overland without flight termination systems, or they must be released over Eglin's water range. Number of desired JSF munitions drops may need to be revised downward, or inert munitions may be dropped over Eglin's water range. Planned Action: None for large footprint weapons. EIS has been completed and Record of Decision has been signed. Desired number of munitions releases during JSF training is being reviewed. Anticipated Date: N/A
	Command and Control		Premier Test and Training Site D-84 has been restricted from general test and training use for some time (since 2002) due to cultural resources concerns, although it had been an Army Recreational Facility with numerous RV sites and extensive underground utilities for many years prior to reverting to a Test and Training Site. This coastal EC and CC test and training site has been closed to use by most potential test and training customers while a final detailed survey was performed and documented and the findings approved by the local Cultural Resources office and the SHPO. The final report is being developed and should be available for Cultural Resources and SHPO review and approval soon. Planned Action: After Cultural Resources and SHPO approval of the final report, facilities and grounds at Test and Training Site D-84 will be upgraded and improved to provide comprehensive support for test and training customers in the future. Anticipated Date: Report completion and review by CY2010
	Spacelift		Infrastructure limits potential launch locations. Launch locations are limited by resources required, e.g., serviceable roads, utilities, and size of ground area required. Planned Action: All potential launch sites will be evaluated for existing infrastructure and improvements/changes will be funded by the proponent.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Eglin Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Special Operations	●	Restricted airspace above ground targets will become more congested from the 7th SFG(A) and JSF impact on the MRTFB. Special Ops flight training will be restricted to smaller pieces of airspace resulting in less realistic training and missed planned training. Planned Action: None.
Airspace	Strategic Attack	●	Integration of the BRAC-directed JSF training activities at Eglin, additional training requirements at Tyndall and NAS Pensacola, expansion of oil/gas drilling, and projected growth in civilian general aviation activities. Increased competition for existing airspace between training, test, and civilian use, while the amount of SUA available for weapons releases is shrinking due to oil/gas drilling in the EGTTR. Planned Action: The Gulf Regional Airspace Strategic Initiative will provide a macro-level perspective of available airspace and will recommend approaches to use it most effectively. Updated Mission Impact Analyses concerning oil/gas drilling in the Gulf are provided to the DoD Executive Agent for OCS activities on a regular basis. These analyses provide a basis for maintaining the current Military Mission Line and preserving the DoD's ability to test and train in the Gulf. Anticipated Date of GRASI completion, final planning, and implementation - FY2012-15.
	Counterair	●	Integration of the BRAC-directed JSF training activities at Eglin; additional training requirements of AFSOC, Tyndall and NAS Pensacola. expansion of oil/gas drilling; and projected growth in civilian general aviation activities. Increased competition for existing airspace between training, test, and civilian use, while the amount of SUA available for weapons releases is shrinking due to oil/gas drilling in the EGTTR. Planned Action: The Gulf Regional Airspace Strategic Initiative will provide a macro-level perspective of available airspace and will recommend approaches to use it most effectively. Updated Mission Impact Analyses concerning oil/gas drilling in the Gulf are provided to the DoD Executive Agent for OCS activities on a regular basis. These analyses provide a basis for maintaining the current Military Mission Line and preserving the DoD's ability to test and train in the Gulf. Anticipated Date of GRASI completion, final planning, and implementation - FY2012-15.
	Counterspace	●	Airspace over EGTTR inadequate for very large scale counterspace test and training operations. Airspace over Gulf adequate for many, but not all, such operations. Planned Action. None. Pacific Missile Range can be used for very large scale counterspace operations.
	Counterland	●	Restricted airspace above ground targets will become more congested from the 7th SFG(A) and JSF impact on the MRTFB. Other training customer flight training will be restricted to smaller pieces of airspace resulting in less realistic training and missed planned training. Planned Action: Eglin's Central Scheduling Enterprise will be used to minimize conflicts.
	Special Operations	●	Restricted airspace above ground targets will become more congested from the 7th SFG(A) and JSF impact on the MRTFB. Special Ops flight training will be restricted to smaller pieces of airspace resulting in less realistic training and missed planned training. Planned Action: Eglin's Central Scheduling Enterprise will be used to minimize conflicts.
Seaspace	Counterspace	●	Seaspace in EGTTR is inadequate for very large scale counterspace test and training operations. Seaspace over Gulf adequate for many, but not all, such operations. Planned Action: None. Pacific Missile Range can be used for very large scale counterspace operations.
Targets	Counterspace	●	Mid-to-high altitude targets limited by net explosive weight of propellant used. Santa Rosa Island (SRI) provides launch capability for mid-to-high altitude targets. Endo-atmospheric probes have been launched from SRI, but overall capabilities are limited by net explosive weight of the propellant used. Site D-3 was selected as a candidate for a Space Port Florida launch site. Planned Action: None.
	Countersea	●	No undersea targets available except those provided by test and training customers for specific programs. Test and training customers must provide their own undersea targets and instrumentation. Land and sea targets are available. Planned Action: None. Customers will continue to supply their own undersea targets.
	Information Operations	●	Inadequate number of suitable/diverse targets available except those provided by test and training customers for specific programs. Test and training customers must provide their own undersea targets and instrumentation. Land and sea targets are available. Planned Action: None. Customers will continue to supply their own information operations targets.
	Special Operations	●	Targets sets available to Spec Ops are static and unrealistic. These targets do not represent what personnel will encounter during combat operations, resulting in poor reactions to real world situations. Planned Action: None. Customers will continue to supply their own targets.
Threats	Strategic Attack	●	There are few representative EC emitters. SRI has numerous EC emitters, but few are representative of those faced by our forces; also range lacks OPFOR capability; battlefield effects simulators. Planned Action: No current program to upgrade existing EC emitters or acquire training threat simulators.
	Counterair	●	Same as above.
	Counterspace	●	There are few representative EC emitters. SRI has numerous EC emitters, but few are representative of those faced by reentry vehicles. Planned Action: No current program to upgrade existing EC emitters or acquire training threat simulators.

Eglin Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Counterland	●	There are few representative EC emitters. SRI has numerous EC emitters, but few are representative of those faced by our forces; also range lacks OPFOR capability; battlefield effects simulators. Planned Action: No current program to upgrade existing EC emitters or acquire training threat simulators.
	Electronic Combat Support	●	Same as above.
	Command and Control	●	There are no viable threat emitters or simulators for this area. Net-centric weapons and UAS activities require a limited set of emitters/simulators. Planned Action: No action planned beyond identifying the minimum set of threats needed in this area. Customers will continue to provide their own system-specific threats.
	Special Operations	●	There are few representative EC emitters. SRI has numerous EC emitters, but few are representative of those faced by our forces; also range lacks OPFOR capability; battlefield effects simulators. Planned Action: No current program to upgrade existing EC emitters or acquire training threat simulators.
	Intelligence, Surveillance and Reconnaissance	●	There are no viable threat emitters or simulators for this area. Net-centric weapons and UAS activities require a limited set of emitters/simulators. Planned Action: No action planned beyond identifying the minimum set of threats needed in this area. Customers will continue to provide their own system-specific threats.
Scoring & Feedback System	Strategic Attack	●	Scoring and feedback systems are inadequate to support certain training and exercise operations. There are no state-of-the-art facilities to support training reconstruction or facilities to allow for deployment of large forces into the range - both air or ground; multiple sources of TSPI currently available but some not compatible with deployed aircraft. Planned Action: Joint Test and Training Operations Control Center will incorporate numerous tracking capabilities, but will not include training and exercise mission reconstruction and analysis.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Information Operations	●	Lack of facilities to demonstrate effects for training audience; lack of targets. This limits scope of mission debriefing capabilities. Planned Action: None.
	Special Operations	●	Scoring and feedback systems do not exist on ranges used by SOF. Personnel provide their own scoring which can lead to errors. There is no independent record keeping and analyst which prevents Commanders from identifying trends and implementing corrective measures. Planned Action: None.
Infrastructure	Strategic Attack	●	Inadequate facilities to support deployed assets. There is less than efficient use of deployed assets due to need to use available facilities that may not have a full range of features needed by deployed units. Planned Action: Need Exercise Support Facility. Currently unfunded.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Information Operations	●	Same as above.
	Electronic Combat Support	●	Inadequate systems to meet needs of some training customers. As such there is less than fully effective support for some training customers. Planned Action: No funding available for acquiring new systems. May be able to leverage on JSF training needs to obtain some simulators that could be used by other customers, as well. Otherwise, customers must bring their own specific emitters/simulators.
	Spacelift	●	Limited infrastructure for Spacelift. Also limited site options for Spacelift operations; however, SRI sites have been used for endoatmospheric probe launches, and D-3 was selected as a Space Port Florida site. Planned Action: None. Current facilities have been adequate to date.
Range Support	Spacelift	●	Same as above.
MOUT Facilities	Strategic Attack	●	There are no consolidated MOUT facility for joint training needs. Only a small number of MOUT-like facilities exist across the range. Need joint, consolidated plan to install a dedicated MOUT facility to meet joint training needs. Planned Action. A small sophisticated MOUT capability is being constructed to specifically support 7SFG(A) training. This, in conjunction with smaller MOUTs built for AFSOC training operations, will satisfy the majority of joint training needs. Anticipated Date. Dec 2011
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Command and Control	●	Same as above.
	Special Operations	●	Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Eglin Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Suite of Ranges	Strategic Attack		There is no certified joint MOUT facility with adjacent ground maneuver areas is available. This causes the inability to perform maneuver and MOUT operations on a joint certified training area hampers effective joint training operations. Planned Action: A small sophisticated MOUT capability is being constructed to specifically support 7SFG(A) training. This, in conjunction with smaller MOUTs built for AFSOC training operations, will satisfy the majority of joint training needs. Anticipated Date. Dec 2011
	Counterair		Same as above.
	Counterland		Same as above.
	Command and Control		Same as above.
	Special Operations		Same as above.

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Threatened & Endangered Species/ Critical Habitat	Strategic Attack		A proposal to establish Marine Protected Areas (MPAs) or Monuments in the northern Gulf of Mexico has the potential to significantly impact Eglin's munitions test and training mission. This would restrict AFSOC overwater training munitions expenditures and the release of munitions during test missions over the Eglin Gulf Test Range (EGTR). Planned Action: Continue to provide Mission Impact data to decision makers. Anticipated Date: N/A
	Counterair		A proposal to establish Marine Protected Areas (MPAs) or Monuments in the northern Gulf of Mexico has the potential to significantly impact Eglin's munitions test and training mission. This would restrict overwater testing of munitions, including air-to-air tests of AMRAAM/AIM-9X and other A-T-A missiles and Combat Archer A-T-A training activities over the Eglin Gulf Test Range (EGTR). Planned Action: Continue to provide Mission Impact data to decision makers. Anticipated Date: N/A
	Counterspace		A proposal to establish Marine Protected Areas (MPAs) or Monuments in the northern Gulf of Mexico has the potential to significantly impact Eglin's munitions test and training mission. This would restrict test and deployment of theatre missile defense systems for flights over the Eglin Gulf Test Range (EGTR). Would also interfere with Directed Energy and Hypervelocity test activities is support of counterspace DT&E systems. Planned Action: Continue to provide Mission Impact data to decision makers. Anticipated Date: N/A
	Counterland		Existence of red cockaded woodpeckers, Okaloosa darters, Flatwoods salamanders, gopher tortoises, marine mammals, and various sea turtles (the primary local endangered/threatened species), and designated critical habitat for certain shorebirds on Santa Rosa Island and the gulf sturgeon along shorelines and adjacent rivers/streams. This restricts the use of some land areas and littoral/riverine areas for the use of some a/c, munitions, and targets; as well as land/water training maneuvers. Planned Action. Continue to work with local Natural Resources office to develop mitigations and procedures to minimize the impact of T&E considerations on test and training capabilities. There has been continual coordination with both the test wing and the regulators to mitigate activities within these areas. It is not so much that the areas are restricted to use as is that there are certain terms and conditions that have to be met in order to use these areas. Where the delays occur is during the consultation process, ample time must be given in order to complete consultation for all activities that could potentially impact protected species. Anticipated Date: N/A
	Countersea		Limitations on operations due to gulf sturgeon critical habitat along coast, in Bay, and in adjacent rivers; and the presence of marine mammals along the coast and in the bays. A proposal to establish Marine Protected Areas (MPAs) or Monuments in the northern Gulf of Mexico has the potential to significantly impact Eglin's munitions test and training mission. This restricts certain operations over the EGTTR, including those that were designed/intended for countersea operations. Planned Action: Continue to work with local Natural Resources office to develop mitigations and procedures to minimize the impact of T&E considerations on test and training capabilities. Provide mission impact analysis to decision makers concerning the proposed MPA. Anticipated Date: N/A
	Special Operations		Limitations on operations due to gulf sturgeon critical habitat along coast, in Bay, and in adjacent rivers; and the presence of marine mammals along the coast and in the bays. A proposal to establish Marine Protected Areas (MPAs) or Monuments in the northern Gulf of Mexico has the potential to significantly impact Eglin's munitions test and training mission. Restrictions due to sea turtle nesting and seasonal shorebird presence on SRI. This restricts certain operations over the EGTTR and in littoral and riverine areas, including those that were designed/intended for Special Operations. Planned Action. Continue to work with local Natural Resources office to develop mitigations and procedures to minimize the impact of T&E considerations on test and training capabilities. There has been continual coordination with both the test wing and the regulators to mitigate activities within these areas. It is not so much that the areas are restricted to use as is that there are certain terms and conditions that have to be met in order to use these areas. Where the delays occur is during the consultation process, ample time must be given in order to complete consultation for all activities that could potentially impact protected species. Provide mission impact analysis to decision makers concerning the proposed MPA. Anticipated Date: N/A

Eglin Detailed Comments

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Munitions Restrictions	Countersea	●	Limitations on operations due to gulf sturgeon critical habitat along coast, in Bay, and in adjacent rivers. This restricts certain operations over the EGTTR, including those that were designed/intended for countersea operations. Planned Action: Continue to work with local Natural Resources office to develop mitigations and procedures to minimize the impact of T&E considerations on test and training capabilities. Anticipated Date: N/A
	Special Operations	●	Same as above.
Spectrum	Strategic Attack	●	Unavailability of, or interference with, required electromagnetic spectrum for test and training operations. There ar. constraints placed on training/testing due to unavailability of, or interference with, required electromagnetic spectrum. Planned Action: All frequencies shall be scheduled for de-confliction to prevent RFI to its users. Eglin has a Frequency Control and Analysis function with both fixed and mobile assets that find conflicting signal sources that need to be shut down. Eglin is in the process of installing 3 additional fixed DF sites which will aid in finding those conflicting signals. Eglin has also done extensive upgrades and are continuing to purchase newer radios and equipment that have tighter control of their emissions (narrower bands) and have shifted to less used frequency bands. We also actively work on shielding and noise attenuation to limit impact to and impacts from our equipment. Anticipated Date: N/A
	Counterair	●	Same as above.
	Counterspace	●	Same as above.
	Counterland	●	Same as above.
	Countersea	●	Same as above.
	Information Operations	●	Same as above.
	Electronic Combat Support	●	Same as above.
	Command and Control	●	Same as above.
	Air Drop	●	Same as above.
	Special Operations	●	Unavailability of, or interference with, required electromagnetic spectrum for test and training operations. There are constraints placed on training/testing due to unavailability of, or interference with, required electromagnetic spectrum. Planned Action: All frequencies shall be scheduled for de-confliction to prevent RFI to its users. Anticipated Date: N/A
	Intelligence, Surveillance and Reconnaissance	●	Same as above.
Maritime Sustainability	Strategic Attack	●	Encroachment from oil drilling operations in Gulf, restrictions on use of high explosives in Gulf, and increased volume of civilian boating activities in potential danger areas. Oil drilling operations with above surface structures greatly reduces the area available to test and train with large footprint weapons over the EGTTR; certain types of high explosive munitions are restricted from use in the EGTTR which restricts the type of training and testing that can be done in the EGTTR; increased civilian boat traffic makes it more time consuming to clear large areas of the EGTTR for large footprint weapons releases. Planned Action: Work with EGTTR customers to ensure updated Mission Impact Analyses are provided to the DoD Executive Agent (for Outer Continental Shelf (OCS) oil and gas development) of the DoD's use of the Gulf of Mexico to protect the military's interests in maintaining the current Military Mission Line and restrictions for OCS development to enable future test and training operations in the EGTTR. Continue to work with local Natural Resources office to develop mitigations and procedures to minimize the impact of T&E considerations on test and training capabilities in the EGTTR. Ensure range clearance procedures are reviewed frequently and provide the most efficient process for clearing required areas of the EGTTR. Anticipated Date: N/A
	Counterair	●	Same as above.
	Counterspace	●	Same as above.
	Countersea	●	Same as above.
	Special Operations	●	Limitations on operations due to gulf sturgeon critical habitat along coast, in Bay, and in adjacent rivers; and the presence of marine mammals along the coast and in the bays. This restricts the use of certain operations over the EGTTR and in littoral/riverine areas, including those that were designed/intended for Special Operations. Planned Action: Continue to work with local Natural Resources office to develop mitigations and procedures to minimize the impact of T&E considerations on test and training capabilities. Anticipated Date: N/A

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Eglin Detailed Comments

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Strategic Attack		Increasing pressures for off-shore oil and gas exploration and production, growing civilian air transportation activities in the area, increased UAV ops from 7th SFG(A), and increased traffic/mission ops from JSF training. This causes significantly reduced surface area for test and training of large footprint weapons over the EGTTR; increasing airspace congestion due to civilian air traffic and the implementation of the BRAC-directed JSF integrated training center at Eglin. Planned Action: Work with EGTTR customers to ensure updated Mission Impact Analyses are provided to the DoD Executive Agent (for Outer Continental Shelf (OCS) oil and gas development) of the DoD's use of the Gulf of Mexico to protect the military's interests in maintaining the current Military Mission Line and restrictions for OCS development to enable future test and training operations in the EGTTR. A Gulf Regional Airspace Strategic Initiative has been developed to address all airspace issues. Anticipated Date of GRASI completion, final planning, and implementation - FY2012-15
	Counterair		Same as above.
	Counterspace		Same as above.
	Counterland		Increased general aviation traffic in N-S corridor and placement of the 7SFG(A) cantonment area in the north-central portion of the Eglin land range. This restricts capability for cross range shots, large footprint munitions test and training, and simultaneous use of east and west range areas for live weapons activity. Planned Action: Some Safety profiles have been reengineered to include the new restrictions and some profiles have been deleted. A Gulf Regional Airspace Strategic Initiative has been developed to address all airspace issues. Anticipated Date of GRASI completion, final planning, and implementation - FY2012-15
	Countersea		Increasing pressures for off-shore oil and gas exploration and production, and increased volume of civilian air traffic over potential danger areas. This causes reduced surface area and associated airspace, and reduced availability of existing Special Use Airspace for Countersea test and training operations. Planned Action: Work with EGTTR customers to ensure updated Mission Impact Analyses are provided to the DoD Executive Agent (for Outer Continental Shelf (OCS) oil and gas development) of the DoD's use of the Gulf of Mexico to protect the military's interests in maintaining the current Military Mission Line and restrictions for OCS development to enable future test and training operations in the EGTTR. A Gulf Regional Airspace Strategic Initiative has been developed to address all airspace issues. Anticipated Date of GRASI completion, final planning, and implementation - FY2012-15
	Spacelift		Insufficient land space to conduct vertical launch for delivery into space; however, space plane launch/recovery could be a viable option from within the Eglin reservation. As such, range is unable to support vertical launch operations. however, space plane launch/recovery could be a viable option from within the Eglin reservation. Planned Action: None. Anticipated Date: N/A
Noise Restrictions	Strategic Attack		Land use conversion can create noise-sensitive areas near low level routes and airfield approaches. Future JSF training and 7SFG(A) range activities will exacerbate this problem. Basing the majority of JSF training operations at Eglin Main Base has already elicited a noise-related lawsuit from the community of Valparaiso. The proximity of the 7th SFG live-fire ranges to populated areas may cause public noise complaints. Planned Action: A Supplemental EIS is being prepared to evaluate other JSF flight options, including moving the bulk of airfield training activities to Auxiliary Field 3. A community outreach program to disseminate noise information related to 7SFG(A) range activities will be conducted prior to the ranges becoming active. The SEIS was released to the public in September 2010.
	Counterland		Low level routes and overwater approaches to the land range result in occasional noise complaints. This problem will increase when JSF training operations begin. Noise complaints could increase which could cause additional restrictions to be placed on low level and overwater approaches. Planned Action: The original EIS did not identify this area as a high risk issue, but if noise complaints do become a problem, local officials will develop modified procedures to address it. Anticipated Date: N/A
	Spacelift		There is noise related to space launch activities. Local communities would be affected by launch noise from larger space launch activities and public sentiment might not support space launches if the noise levels were very high and on a frequent basis. Planned Action: If Eglin or Cape San Blas is ever considered for a role in space launches, the EIS will place special emphasis on the attendant noise and all feasible mitigations and controls. Anticipated Date: N/A
	Special Operations		SOF accomplishes much of its training during the hours of darkness, frequently requiring the use of explosives. The noise of these operations will impact the local community during normal rest periods, leading to negative impressions of the military by the effected communities. Planned Action: None. Date: N/A

Eglin Detailed Comments

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Adjacent Land Use	Strategic Attack		Range limited water-to-land flight access for armed weapons systems. This reduces the flexibility of making realistic water-to-land transitions with armed weapons systems or allowing water-to-land transitions by long range standoff weapons. Planned Action: Potential land acquisitions and cooperative efforts with other agencies to obtain overflight privileges are always reviewed with an eye toward increasing the width of the water-to-land corridor. A Next Generation proposal for a remote impact area in a sparsely populated area near the Florida coast is being reviewed for resubmission. This solution would provide a large water-to-land corridor that would enable the overwater launch and subsequent land impact of almost any long range standoff weapon in development or in the inventory. Anticipated Date: Unknown since review is still in informal phase.
	Counterland		Urban sprawl, land use conversion from agriculture to residential, and new transportation corridors (on and off Eglin). The push for use of more renewable energy sources has resulted in siting of a solar farm near the eastern boundary of the Land Range, and there is increased use of small wind energy systems (including "turbine" designs) in the civilian areas surrounding Eglin. This can restrict future military operations on periphery of the Eglin Range, and interfere with flight operations and data transmission and receipt on test and training missions. Planned Action: Develop Readiness and Environmental Protection Initiative (REPI) projects to acquire property rights to adjoining private property in areas of expanded military use, and participate actively in local Joint Land Use Study initiative. Solar Farm coordinated the project with Eglin officials to ensure AF design concerns were addressed. Eglin is working with Santa Rosa County planners to draft a small wind energy ordinance that should become the model for the other counties surrounding Eglin. Currently awaiting results of an AF sponsored study of small wind energy generators before completing the Santa Rosa County ordinance. Anticipated Date. Study should be completed by end of CY2010.
	Countersea		Urban sprawl, land use conversion from agriculture to residential, and new transportation corridors (on and off Eglin). This can restrict future military operations on periphery of the Eglin Range, including shore-to-ship and ship-to-shore weapons systems; and water-land test and training operations. Planned Action: Develop Readiness and Environmental Protection Initiative (REPI) projects to acquire property rights to adjoining private property in areas of expanded military use, and participate actively in local Joint Land Use Study initiative. A well structured Range Planning Process is in place with an Mission Impact Analysis performed on any significant proposal for Range reconfiguration or mission change. Anticipated Date: N/A
	Spacelift		There is noise related to space launch activities. Local communities would be affected by launch noise from larger space launch activities and public sentiment might not support space launches if the noise levels were very high and on a frequent basis. Planned Action. If Eglin or Cape San Blas is ever considered for a role in space launches, the EIS will place special emphasis on the attendant noise and all feasible mitigations and controls. Anticipated Date: N/A
Cultural Resources	Counterland		There are known and suspected cultural resource sites along coast and in the interior of the land Range. Known but undefined, and suspected cultural resource sites along the Gulf/Bay coasts, and along rivers and streams impede the use of these areas for important military test and training missions. Littoral and riverine, ingress/egress training operations are restricted to several small and somewhat uncharacteristic areas along the coasts and streams. Planned Action: Proponent must work with the Cultural Resources office during AF Form 813 review to identify available training sites and to determine what restrictions apply to the proponent's preferred sites. Anticipated Date: N/A
	Countersea		There are known and suspected cultural resource sites along coast and in the interior of the land Range. Known but undefined, and suspected cultural resource sites along the Gulf/Bay coasts, and along rivers and streams impede the use of these areas for important military test and training missions. Littoral and riverine, ingress/egress training operations are restricted to several small and somewhat uncharacteristic areas along the coasts and streams. Planned Action: Areas that need evaluation will be identified and elevated to the Cultural Resources office for priority funding and evaluation. An effort will be made to ensure local Range users are included in the current review proces. to ensure the Cultural Resources office understands the full mission impact of blanket designations of suspected cultural resource sites and historical buildings. Anticipated Date: N/A
	Electronic Combat Support		Premier Test and Training Site D-84 has been restricted from general test and training use for some time (since 2002) due to cultural resources concerns, although it had been an Army Recreational Facility with numerous RV sites and extensive underground utilities for many years prior to reverting to a Test and Training Site. This coastal EC and CC test and training site has been closed to use by most potential test and training customers while a final detailed survey was performed and documented and the findings approved by the local Cultural Resources office and the SHPO. The final report is being developed and should be available for Cultural Resources and SHPO review and approval soon. Planned Action: After Cultural Resources and SHPO approval of the final report, facilities and grounds at Test and Training Site D-84 will be upgraded and improved to provide comprehensive support for test and training customers in the future. Anticipated Date: Report completion and review by CY2010
	Command and Control		Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Eglin Detailed Comments

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Cultural Resources	Spacelift	●	There are known and suspected cultural resource sites along coast and in the interior of the land Range. Known but undefined, and suspected cultural resource sites along the Gulf/Bay coasts could impact selection of launch location, especially on Santa Rosa Island. Planned Action: Potential launch areas would undergo the standard AF Form 813 review process which would include evaluation of each launch site from a cultural resources standpoint. Anticipated Date: N/A
	Special Operations	●	Known and suspected cultural resource sites along coast and in the interior of the land Range. Known but undefined, and suspected cultural resource sites along the Gulf/Bay coasts, and along rivers and streams impede the use of these areas for important military test and training missions. Littoral and riverine, ingress/egress training operations are restricted to several small and somewhat uncharacteristic areas along the coasts and streams. Planned Action: Proponent must work with the Cultural Resources office during AF Form 813 review to identify available training sites and to determine what restrictions apply to the proponent's preferred sites. Anticipated Date: N/A
Wetlands	Counterland	●	Land use restrictions in or near wetlands. Some restrictions on land use affects aircraft, munitions, and target; as well as land maneuvers in or near wetlands. Planned Action: Proponent must work with the Natural Resources office during AF Form 813 review to identify available test and training sites and to determine what restrictions apply to the proponent's preferred sites. Anticipated Date: N/A
	Spacelift	●	There are wetlands along the coast and in the interior of the land Range. Wetlands would impact selection of launch location, especially on Santa Rosa Island. Planned Action: Potential launch areas would undergo the standard AF Form 813 review process which would include evaluation of each launch site from a natural resources standpoint. Anticipated Date: N/A
	Special Operations	●	There are land use restrictions in or near wetlands. There are some restrictions on land use affects aircraft, munitions, and target; as well as land maneuvers in or near wetlands. Planned Action: Proponent must work with the Natural Resources office during AF Form 813 review to identify available test and training sites and to determine what restrictions apply to the proponent's preferred sites. Anticipated Date: N/A
	Intelligence, Surveillance and Reconnaissance	●	Same as above.

This Page is Intentionally Left Blank.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Falcon Assessment Details

Range Mission Description

Falcon Range is the primary training range (PTR) for the 301st Fighter Wing, Air Force Reserve Command. The range supports air-to-ground sorties and electronic combat training. Secondary users include B-52, A-10, F-16 and F/A-18 aircraft from the Air Force and Marine Corps Reserve and Air National Guard. The range also provides training to the USAF AT-38 Introduction to Fighter Fundamentals (IFF) course at Sheppard AFB, TX, as well as active duty, Air National Guard, and allied joint terminal attack controller (JTAC) initial and continuation training. In addition, the range supports the Joint Fires Observer (JFO) training course at Fort Sill, which trains US and allied JFOs to augment JTAC missions. The range provides laser testing and scoring for MC-12W aircraft, and supports threat reaction and weapons employment for rotary wing aircraft. The range also supports UAS training.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack	PMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Counterair	FMC	FMC			FMC	PMC	FMC	FMC	FMC			FMC	FMC
Counterspace													
Counterland	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Countersea													
Information Operations													
Electronic Combat Support	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Air Drop	FMC	FMC			FMC	FMC	FMC	PMC	FMC			FMC	FMC
Air Refueling													
Spacelift													
Special Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC

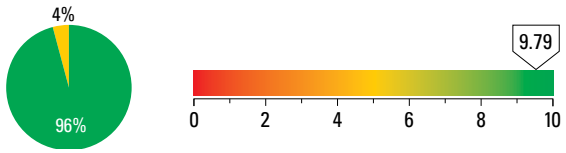
Legend: FMC, PMC, NMC

Encroachment Data

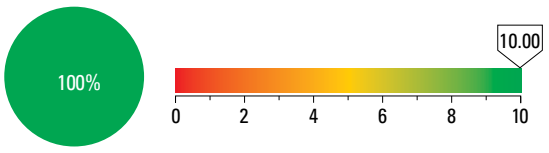
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	Minimal	Minimal	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal		Minimal
Counterair	Minimal	Minimal	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal		Minimal
Counterspace												
Counterland	Minimal	Minimal	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal		Minimal
Countersea												
Information Operations												
Electronic Combat Support	Minimal	Minimal	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal		Minimal
Command and Control	Minimal	Minimal	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal		Minimal
Air Drop	Minimal	Minimal	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal		Minimal
Air Refueling	Minimal	Minimal	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal		Minimal
Spacelift												
Special Operations	Minimal	Minimal	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal		Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal		Minimal		Minimal	Minimal	Minimal	Minimal		Minimal

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Falcon Assessment Details

Summary Observations	Summary Observations
The range has improved its infrastructure since 2004 with multiple scoring systems. Falcon Range provides aircrews with two MOUT areas, one laser-scoring capable, and one which is kinetic-capable. Three electronic warfare threat simulators are available, and realistic self-consuming MANPAD simulators provide additional threat reaction training while making a very minimal impact on the environment. The MANPAD simulators do not require and EOD support and leave no residue. The range has on-site EOD support, so the range is not closed for EOD cleanup. Targets are realistic and range from large buildings to small anti-aircraft guns and mannequins. An unmanned moving target allows the full-scale delivery of weapons against a moving target, as well as combat laser employment. There are three laser scoring systems and two kinetic scoring systems available. The primary constraint to the range is the size of the impact area. It limits the employment of inertially-aided munitions due to weapons danger zone restrictions. The Army prohibits the intrusion of any WDZ outside the range areas with a containment or risk of greater than 1:1,000,000. Several doctrinally-accepted weapons deliveries are restricted due to WDZs extending outside the range. The range is working on a drop zone and should have one by 2012. The range also works extensively with Fort Sill environmental agencies and has helped reclaim old dump areas to their original state. Strategic Attack is most affected by the range's size; however, there are very infrequent (less than 2% of annual sorties) strategic attack missions. The majority of missions flown at Falcon Range are Counterland.	The range is part of the Fort Sill range complex. Encroachment is minimal. The Army is currently involved in the purchase of adjoining land in order to provide a larger buffer zone. There are no environmental or cultural shortfalls at the range. Frequency spectrum issues are minimal.

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	6.88	6.88	10.00	**Encroachment Scores**	9.77	9.77	10.00
The range has excellent capabilities, although future employment has some limitations. These limitations are not unique to Falcon Range; as inertially-aided weapons are developed and fielded, their weapons danger zones (WDZs) for some weapons parameters prove to be larger than the range boundaries. The range is limited to 1:1,000,000 risk values to manned sites by Army Regulation 385-63. Until 2007 the Army allowed sportsmen to intrude into the impact area when the range was active. This practice has been banned, and now larger WDZ weapons deliveries are allowed. The range has excellent laser scoring capability, and all personnel are highly trained in laser operations. The addition of the GPS-guided moving target allows aircrews to actively fire lasers at a moving target, a capability not found at most other ranges. This capability becomes more critical as weapons such as the laser JDAM are developed, and as lead-computing impact point software is employed.				There are no historical issues at Falcon Range for encroachment. The range has not been affected by encroachment; in fact, the range has benefitted from the upgrades at Fort Sill as a result of BRAC 2005. Cultural sites on the range are well clear of any target areas and are set aside from the target arrays in order to preserve their integrity; Fort Sill has an active cultural trust program. The existence of the Wichita Mountains Wildlife Refuge to the north and Fort Sill to the east preclude development nearby. To the south and west of the range there are potential encroachment areas, but the areas are rural and are being purchased by the Army for buffer zones.			

Falcon Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack		The range impact area is not large enough to support inertially-aided munitions employment from doctrinal (high) altitudes. Training is minimally affected; most users employ these munitions in a simulated manner anyway. No solution is feasible until the WDZ Tool provides smaller weapons footprints.
Threats	Counterair		The HARM threat simulator does not provide more than one threat for SEAD missions. It does not adversely impact training; the nearest HARM-capable user is over 800 nautical miles distant, with nearby access to threat simulators. There is no upgrade requirement.
Infrastructure	Air Drop		No drop zone has been established at Falcon Range. This precludes any air drops at an established DZ. The range is currently establishing a DZ within the impact area which will alleviate this shortfall, with an estimated completion by 2012.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Grand Bay Assessment Details

Range Mission Description

Primarily supporting the air-to-ground training of units assigned to the 23 WG (A-10, HH-60, HC-130) and various other DoD units. Also support ground training requirements of the 23 WG, the 93 AGOW, and other DoD units.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack	PMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC
Counterair	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC
Counterspace	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC
Counterland	PMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC
Countersea													
Information Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC
Electronic Combat Support	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC
Air Drop	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC
Air Refueling	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC
Spacelift													
Special Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC

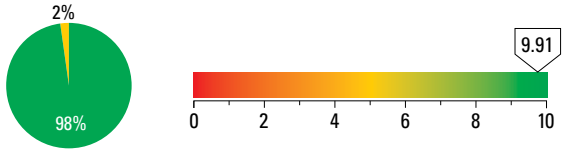
Legend: FMC, PMC, NMC

Encroachment Data

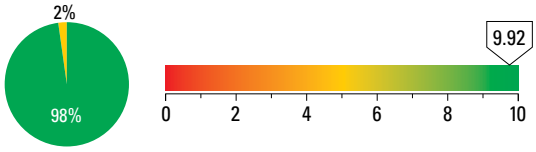
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Counterair	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterspace	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterland	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Countersea												
Information Operations	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Electronic Combat Support	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Command and Control	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Drop	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Refueling	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Spacelift												
Special Operations	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

No comments.

Summary Observations

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	9.58	9.58	9.68

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.49	9.49	9.49

No comments.

Grand Bay Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Counterland		Grand Bay Range is too small to allow large force ground exercise and movement. Small force movement and CAS operations can be conducted. Dry operations are conducted underneath MOA airspace for greater flexibility. No major impact—large force movement not needed for assigned units. Plans are being studied to acquire additional acreage east of the range boundary to better support ground exercises and mission support flexibility.
	Strategic Attack		Same as above.

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Adjacent Land Use	Strategic Attack		Training can be accomplished on a limited basis - but limited due to size of Grand Bay Range and proximity of Moody AFB. Some noise restrictions exist around the area the present a small impact the training flexibility. Only small force training can be accomplished. Discussions to restructure the airspace and the possibility of acquiring additional land towards the east are ongoing.
	Counterland		Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Grayling Assessment Details

Range Mission Description

Support ANG Flying of A10 unit 107th FS at Selfridge ANGB MI and all units in training at Alpena CRTC. Support ground force training of JTAC's, Security Forces and Joint exercises.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack	●	●			●	●	●	●	●		●	●	●
Counterair	●	●			●	●	●	●	●		●		●
Counterspace													
Counterland	●	●			●	●	●	●	●	●	●	●	●
Countersea													
Information Operations	●	●			●	●	●	●	●				●
Electronic Combat Support	●	●			●	●	●	●	●				●
Command and Control	●	●			●	●	●	●	●				●
Air Drop	●	●			●	●	●	●	●				●
Air Refueling	●	●			●	●	●	●	●				●
Spacelift													
Special Operations	●	●			●	●	●	●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●			●	●	●	●	●			●	●

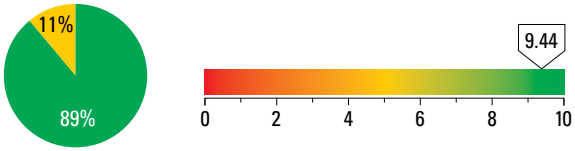
Legend FMC ● PMC ● NMC ●

Encroachment Data

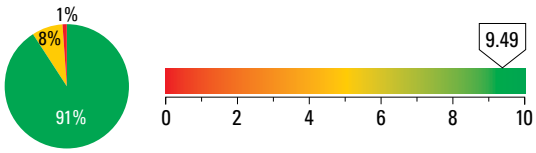
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	●	●	●		●	●	●	●	●	●	●	●
Counterair	●	●	●		●	●	●	●	●	●	●	●
Counterspace												
Counterland	●	●	●		●	●	●	●	●	●	●	●
Countersea												
Information Operations												
Electronic Combat Support	●	●	●		●	●	●	●	●	●	●	●
Command and Control	●	●	●		●	●	●	●	●	●	●	●
Air Drop	●	●	●		●	●	●	●	●	●	●	●
Air Refueling	●	●	●		●	●	●	●	●	●	●	●
Spacelift												
Special Operations	●	●	●		●	●	●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●	●		●	●	●	●	●	●	●	●

Legend Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

No comments.

Summary Observations

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	9.39	9.39	9.44

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.49	9.49	9.49

No comments.

Grayling Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Counterland	🟡	Airspace limits flexibility for counterland effectiveness.
	Electronic Combat Support	🟡	Airspace is limited by lateral and vertical limits. Airspace is adequate to accomplish most of the training required, but does restrict a small portion of the training required.
	Special Operations	🟡	Airspace is limited by lateral and vertical limits. Airspace is adequate to accomplish most of the training required, but does restrict a small portion of the training required.
Targets	Counterland	🟡	Currently the requirement for a moving strafe target are not being met. Range space and target cost have prohibited the ability to develop a moving strafe target.
Threats	Strategic Attack	🟡	No comments.
Range Support	Strategic Attack	🟡	Grayling range staffing does not meet current mission types and requirements for Fire support. Range manning is based on one shift. Current training requires approx. 30% to be at night, which has driven the range to cover more time with fewer bodies.
	Counterland	🟡	Grayling range staffing does not meet current mission types and requirements for Fire support. Requirements for range JTACs, moving targets, and scenario based CAS training outstrip staffing capabilities.
	Special Operations	🟡	Grayling range staffing does not meet current mission types and requirements for Fire support. Requirements for range JTACs, moving targets, opposing forces (OPFOR), and scenario based CAS training outstrip staffing capabilities.
Suite of Ranges	Counterland	🟡	No comments.
	Special Operations	🟡	No comments.

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Strategic Attack	🟡	Airspace is limited in size based on older aircraft and their capabilities. Currently working an airpace review to re-work the airspace to meet the needs of current and future aircraft.
	Counterair	🟡	Airspace is limited in size based on older aircraft and their capabilities. Currently working an airpace review to re-work the airspace to meet the needs of current and future aircraft.
	Counterland	🔴	Airspace is limited in size based on older aircraft and their capabilities. CAS is a critical mission for current conflict and airspace restrictions severely impact realistic training. Currently working an airpace review to re-work the airspace to meet the needs of current and future aircraft.
	Electronic Combat Support	🟡	Airspace is limited in size based on older aircraft and their capabilities. Currently working an airpace review to re-work the airspace to meet the needs of current and future aircraft.
	Special Operations	🟡	Airspace is limited in size based on older aircraft and their capabilities. Current working an airpace review to re-work the airspace to meet the needs of current and future aircraft.
	Intelligence, Surveillance and Reconnaissance	🟡	Increased need for restricted airspace for UAS training push size and structure requirements.
Noise Restrictions	Strategic Attack	🟡	Mission types have driven the type of training needed to more populated areas and weapon employment parameters have increased (LGB, Urban CAS,etc) to push aircraft to the edge of restricted airspace. Although areas surrounding the Range were built up in the 70's and 80's, well after the range site was established in 1948, training requirements have many residents filing habitual noise complaints and engaging local and State politicians.
	Counterland	🟡	Mission types have driven the type of training needed to more populated areas and weapon employment parameters have increased (LGB, Urban CAS,etc) to push aircraft to the edge of restricted airspace. Although areas surrounding the Range were built up in the 70's and 80's, well after the range site was established in 1948, training requirements have many residents filing habitual noise complaints and engaging local and State politicians.
	Special Operations	🟡	Mission types have created the need for larger patterns around the impact area. CAS wheels, POD usage, and LGB employment create larger noise issues with encroaching summer residents.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Hardwood Assessment Details

Range Mission Description

Support ANG and DoD aircrew and JTAC training. 2x6 mile impact area that allows a variety of munition deliveries in realistic tactial senareios to include PGMs. Range has 5 UMTE treat emmiters. Main users are 115th FW, 132nd FW, 148th FW, 114th FW, 28th BW. 934th AW, and 147th AVN. Hardwood Range is a primary trainging range for 6 CTS and CAF JTACs. As well Hardwood is often used for major excersises at Volk Field such as NATO JTAC training (NATO Rover 2010).

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	FMC	PMC			FMC	PMC	FMC	FMC	PMC		FMC	FMC	FMC
Counterair	FMC	PMC			FMC	PMC	FMC	FMC	FMC		FMC		FMC
Counterspace													
Counterland	FMC	PMC			FMC	FMC	FMC	FMC	PMC	FMC	FMC	FMC	FMC
Countersea													
Information Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Electronic Combat Support	FMC	PMC			FMC	PMC	FMC	FMC	FMC			FMC	FMC
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC
Air Drop	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC
Air Refueling	FMC	FMC			FMC	FMC	FMC	FMC	FMC				FMC
Spacelift													
Special Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC

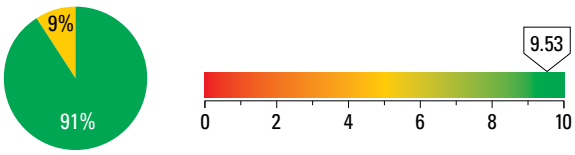
Legend: FMC, PMC, NMC

Encroachment Data

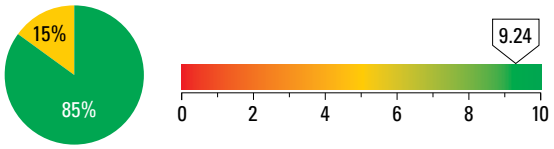
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Minimal	Moderate		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Moderate	Moderate
Counterair	Minimal	Minimal	Moderate		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterspace												
Counterland	Minimal	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Moderate	Moderate
Countersea												
Information Operations												
Electronic Combat Support	Minimal	Minimal	Moderate		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Moderate	Moderate
Command and Control	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Drop	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Refueling	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Spacelift												
Special Operations	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Moderate	Moderate
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

No comments.

Summary Observations

No comments.

Hardwood Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	9.17	9.17	9.50	**Encroachment Scores**	8.99	8.99	9.09
Volk Field/ WICRTC/ Hardwood Range has taken an aggressive approch to future sustainment and viability, by constantly working on the training needs of future missions and public outreach through efforts such as JLUS. Efforts at Hardwood are improving training and the range overall.				No comments.			

Hardwood Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Strategic Attack		Airspace is limited by lateral and vertical limits. Airspace is adequate to accomplish most of the training required, but does restrict a small portion of the training required. Supersonic flight is not authorized within the current airspace. Airspace rework is underway to meet the needs of future aircraft. This should be accomplished by 2011
	Counterair		Airspace is limited by lateral and vertical limits. Airspace is adequate to accomplish most of the training required, but does restrict a small portion of the training required. Supersonic flight is not authorized within the current airspace. Airspace rework is underway to meet the needs of future aircraft. This should be accomplished by 2011
	Counterland		Airspace is limited by lateral and vertical limits. Airspace is adequate to accomplish most of the training required, but does restrict a small portion of the training required. Supersonic flight is not authorized within the current airspace. Airspace rework is underway to meet the needs of future aircraft. This should be accomplished by 2011
	Electronic Combat Support		Airspace is limited by lateral and vertical limits. Airspace is adequate to accomplish most of the training required, but does restrict a small portion of the training required. Supersonic flight is not authorized within the current airspace. Airspace rework is underway to meet the needs of future aircraft. This should be accomplished by 2011
Threats	Strategic Attack		Next generation weapons systems require more up to date threat simulators and the landspace to properly place them within the airspace. Currently working to aquire more threats and developing agreements to place the threats within the current airspace
	Counterair		Next generation weapons systems require more up to date threat simulators and the landspace to properly place them within the airspace. Currently working to aquire more threats and developing agreements to place the threats within the current airspace
	Electronic Combat Support		Next generation weapons systems require more up to date threat simulators and the landspace to properly place them within the airspace. Currently working to aquire more threats and developing agreements to place the threats within the current airspace
Range Support	Strategic Attack		Hardwood range is one of the least manned ranges throuhgout the NGB. Current mission types and requirements for Fire support etc. has placed a need for creative scheduling. Range manning is based on one shift. Current training requires approx. 40% to be at night, which has driven the range to cover more time with fewer bodies.
	Counterland		Hardwood range is one of the least manned ranges throuhgout the NGB. Current mission types and requirements for Fire support etc. has placed a need for creative scheduling. Range manning is based on one shift. Current training requires approx. 40% to be at night, which has driven the range to cover more time with fewer bodies.

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Spectrum	Strategic Attack		Based on our location between two busy civilian airports severe restrictions are placed on chaff and ECM use. Frequencies are tougher to get based on everything moving to data links and civilian population becoming more electronic centric.
	Counterair		Based on our location between two busy civilian airports severe restrictions are placed on chaff and ECM use. Frequencies are tougher to get based on everything moving to data links and civilian population becoming more electronic centric.
	Electronic Combat Support		Based on our location between two busy civilian airports severe restrictions are placed on chaff and ECM use. Frequencies are tougher to get based on everything moving to data links and civilian population becoming more electronic centric.
Airspace	Strategic Attack		Airspace is limited in size based on older aircraft and their capabilities. Airsapce exspansion is difficult based on the location between two large civilian airports and their associated arrival and departure routes. Current working an airpace review to re-work the airspace to meet the needs of current and future aircraft.
	Counterair		Airspace is limited in size based on older aircraft and their capabilities. Airsapce exspansion is difficult based on the location between two large civilian airports and their associated arrival and departure routes. Current working an airpace review to re-work the airspace to meet the needs of current and future aircraft.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Hardwood Detailed Comments

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Counterland	●	Airspace is limited in size based on older aircraft and their capabilities. Airsapce expansion is difficult based on the location between two large civilian airports and their associated arrival and departure routes. Current working an airpace review to re-work the airspace to meet the needs of current and future aircraft.
	Electronic Combat Support	●	Airspace is limited in size based on older aircraft and their capabilities. Airsapce expansion is difficult based on the location between two large civilian airports and their associated arrival and departure routes. Current working an airpace review to re-work the airspace to meet the needs of current and future aircraft.
Wetlands	Strategic Attack	●	The range is located in an area of large quantities of wetlands. Wetland restrictions have restricted our ability to construct complete firebreaks, the placement of new targets, etc. Working with the natural resource advisory, we plan new target development around wetlands on the range.
	Counterland	●	The range is located in an area of large quantities of wetlands. Wetland restrictions have restricted our ability to construct complete firebreaks, the placement of new targets, etc. Working with the natural resource advisory, we plan new target development around wetlands on the range.
	Electronic Combat Support	●	The range is located in an area of large quantities of wetlands. Wetland restrictions have restricted our ability to construct complete firebreaks, the placement of new targets, etc. Working with the natural resource advisory, we plan new target development around wetlands on the range.
	Special Operations	●	The range is located in an area of large quantities of wetlands. Wetland restrictions have restricted our ability to construct complete firebreaks, the placement of new targets, etc. Working with the natural resource advisory, we plan new target development around wetlands on the range.
Range Transients	Strategic Attack	●	The range boundaries are open, but marked appropriately for the activities taking place. Based on more ATV type vehicles, this increases the number of transients across the range. An effort to fence the entire range is underway. We continually advice the public of the activities taking place trough ATV clubs etc. Public awareness is critical. Hardwood has land use policies in place and active perimeter checks are done to ensure public safety.
	Counterland	●	The range boundaries are open, but marked appropriately for the activities taking place. Based on more ATV type vehicles, this increases the number of transients across the range. An effort to fence the entire range is underway. We continually advice the public of the activities taking place trough ATV clubs etc. Public awareness is critical. Hardwood has land use policies in place and active perimeter checks are done to ensure public safety.
	Electronic Combat Support	●	The range boundaries are open, but marked appropriately for the activities taking place. Based on more ATV type vehicles, this increases the number of transients across the range. An effort to fence the entire range is underway. We continually advice the public of the activities taking place trough ATV clubs etc. Public awareness is critical. Hardwood has land use policies in place and active perimeter checks are done to ensure public safety.
	Special Operations	●	The range boundaries are open, but marked appropriately for the activities taking place. Based on more ATV type vehicles, this increases the number of transients across the range. An effort to fence the entire range is underway. We continually advice the public of the activities taking place trough ATV clubs etc. Public awareness is critical. Hardwood has land use policies in place and active perimeter checks are done to ensure public safety.

This Page is Intentionally Left Blank.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Holloman Assessment Details

Range Mission Description

Holloman Ranges consist of Red Rio Range, Centennial Range Oscura Range, and Casa range. These ranges are the primary training ranges for the 49th Wing. Ranges support daily air to ground sorties. These ranges also support training for F-16s, HH60s, and JTAC personnel and an assortment of other US, Marine, Army aircraft and German Air Force training

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	FMC	FMC			FMC		FMC	FMC	FMC	FMC		FMC	FMC
Counterair	FMC	FMC			FMC		FMC	FMC	FMC	FMC		FMC	FMC
Counterspace	FMC	FMC			FMC		FMC	FMC	FMC	FMC		FMC	FMC
Counterland	FMC	FMC			FMC		FMC	FMC	FMC	FMC		FMC	FMC
Countersea													
Information Operations	FMC	FMC			FMC		FMC	FMC	FMC	FMC		FMC	FMC
Electronic Combat Support	FMC	FMC				NMC	NMC	NMC	NMC				
Command and Control	FMC	FMC			FMC		PMC	PMC	PMC	FMC		FMC	FMC
Air Drop	FMC	FMC			FMC			FMC	FMC			FMC	FMC
Air Refueling	FMC	FMC			FMC			FMC	FMC	FMC		FMC	FMC
Spacelift													
Special Operations	FMC	FMC			FMC		FMC	FMC	FMC	FMC		FMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC		FMC	FMC	FMC	FMC		FMC	FMC

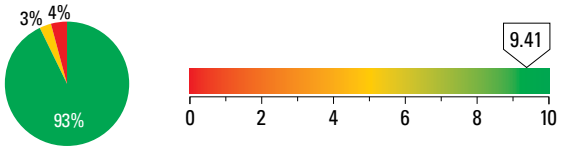
Legend: FMC, PMC, NMC

Encroachment Data

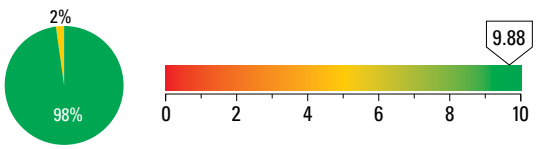
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterair	Minimal	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterspace	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterland	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Countersea												
Information Operations	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Electronic Combat Support												
Command and Control	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Drop	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Refueling	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Spacelift	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Special Operations	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

Require Link16 for improved command/control, and training. Estimated install is FY2011.

Summary Observations

AGM114 produces a large footprint that will not fit on our live drop range. The AGM114 is HE only, no inerts are manufactured or available at this time for training. This reduces training quality for MQ1 and MQ9 aircraft. The proposed Sun Zia transmission lines have potential impacts on Holloman Range. The full effects are unknown as the siting routes are still under deliberation.

Holloman Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.04	8.04	9.41	**Encroachment Scores**	8.42	8.42	10.00
Scores have varied due to changing mission requirements (F117A - F22, addition of MQ1/9)				Scores have varied due to changing mission requirements (F117A - F22, addition of MQ1/9)			

Holloman Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Electronic Combat Support	🔴	No electronic combat support; no training capability; no fixed plan at this time
Scoring & Feedback System	Electronic Combat Support	🔴	No electronic combat support; no training capability; no fixed plan at this time
	Command and Control	🟡	Awaiting Link 16; limited training capability; Link 16 install projected FY2011
Infrastructure	Electronic Combat Support	🔴	No electronic combat support; no training capability; no fixed plan at this time
	Command and Control	🟡	Awaiting Link 16; limited training capability; Link 16 install projected FY2011
Range Support	Electronic Combat Support	🔴	No electronic combat support; no training capability; no fixed plan at this time
	Command and Control	🟡	Awaiting Link 16; limited training capability; Link 16 install projected FY2011

Encroachment Observations

Attributes	Assigned Training Mission	Score	Comments
Munitions Restrictions	Counterland	🟡	AGM114 footprint exceeds range boundaries; RPVs cannot train with AGM114; Requires use of M-36 Captive Flight Trainer
Airspace	Counterair	🟡	Airspace priority for test missions; training missions rescheduled; close coordination between Air Force/Army scheduling activities
	Counterland	🟡	Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Jefferson Range Assessment Details

Range Mission Description

Jefferson Range provides primary training for the 122nd FW, 178th FW, 180th FW, and joint training for LFE's, MEU's, SOF, SMERF, FEMA, ASOS, IW, Urban Warfare, Homeland Defense all in conjunction with the Muskatatuck Urban Warfare Training Center.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	FMC	FMC			PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Counterair		FMC			FMC	FMC	NMC	FMC	FMC			FMC	
Counterspace													
Counterland	PMC	FMC			PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Countersea													
Information Operations	FMC				FMC		PMC	PMC	PMC			FMC	FMC
Electronic Combat Support	FMC				FMC		PMC	PMC	PMC			FMC	FMC
Command and Control	FMC	FMC			FMC	FMC	PMC	FMC	FMC			FMC	FMC
Air Drop	FMC	FMC			PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Air Refueling		FMC				FMC		FMC	FMC				
Spacelift													
Special Operations	PMC	FMC			PMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			PMC	FMC	PMC	FMC	FMC			FMC	FMC

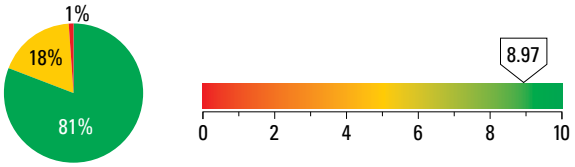
Legend: FMC PMC NMC

Encroachment Data

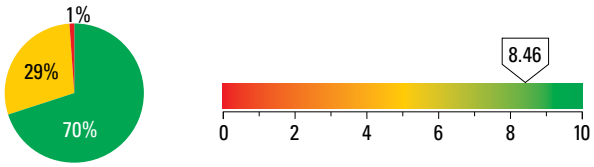
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	PMC	PMC	FMC		FMC	FMC	PMC	FMC	PMC	FMC	FMC	FMC
Counterair	PMC	FMC	PMC		PMC	FMC	PMC			FMC	FMC	FMC
Counterspace								PMC				
Counterland	PMC	PMC	FMC		FMC	FMC	PMC	NMC	PMC	FMC	FMC	FMC
Countersea												
Information Operations			FMC				FMC	PMC	FMC			
Electronic Combat Support		PMC	PMC		PMC		FMC	PMC	FMC			
Command and Control	FMC	FMC	FMC		FMC	FMC	FMC	PMC	FMC	FMC	FMC	FMC
Air Drop	PMC	PMC	FMC		FMC	FMC	FMC	PMC	FMC	FMC	FMC	FMC
Air Refueling	FMC	FMC			FMC	FMC	FMC			FMC	FMC	FMC
Spacelift												
Special Operations	FMC	PMC	FMC		FMC	FMC	PMC	PMC	PMC	FMC	FMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC	FMC		FMC	FMC	FMC	PMC	FMC	FMC	FMC	FMC

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

UXO contamination somewhat limits Jefferson Range's placement of targets and manuever areas. Clearance of the UXO during annual residue removal is opening new areas for small arms training and target placement and retrieval of RPA and air drops,however further expansion and development is prohibitive under current budget.

Summary Observations

The impact area is saturated with UXO residue which limits the ability to conduct activities such as retrieval of dropped objects. Most requests for air drops are accompanied by a request for retrieval.

Jefferson Range Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.75	8.75	9.14	**Encroachment Scores**	8.66	8.66	8.71
Overall capabilities of the Range complex have been increased by the annual clearance of the UXO. It is a slow process however due to the limitations of the EOD assets and the total amount of UXO present in the impact area.				No comments.			

Jefferson Range Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Counterland	🟡	Under current permit and MOU, we have approx 100 acres for development of target arrays.
	Special Operations	🟡	Same as above.
Targets	Strategic Attack	🟡	We are in an Army impact field with a high degree of UXOs. Cost for EOD outside of scrapes and access roads with current budget preclude expansion and development.
	Counterland	🟡	Same as above.
	Countersea	🟡	Same as above.
	Air Drop	🟡	Same as above.
	Special Operations	🟡	Same as above.
	Intelligence, Surveillance and Reconnaissance	🟡	Same as above.
Threats	Special Operations	🟡	We are in an Army impact field with a high degree of UXOs. Cost for EOD outside of scrapes and access roads with current budget preclude expansion and development.
Scoring & Feedback System	Counterair	🔴	NO feedback currently available to performance however partnership with MUTC is affording opportunities for intrumentation of range.
	Information Operations	🟡	Current scoring system does not provide AAR for IAO
	Electronic Combat Support	🟡	Current scoring system does not provide AAR for ECS
	Command and Control	🟡	Current scoring system does not provide AAR for C&C
	Intelligence, Surveillance, Reconnaissance	🟡	Current scoring system does not provide AAR for ICR
Infrastructure	Information Operations	🟡	Infrastructure does not support IO
	Electronic Combat Support	🟡	Infrastructure does not support ECS
Range Support	Information Operations	🟡	Infrastructure does not support IO
	Electronic Combat Support	🟡	Infrastructure does not support ECS

Encroachment Capabilities

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Strategic Attack	🟡	We have several protected species surrounding the impact areas and under the MOAS
	Counterair	🟡	Same as above.
	Counterland	🟡	Same as above.
	Air Drop	🟡	Same as above.
Munitions Restrictions	Strategic Attack	🟡	UXO limits the placement of targets. Yearly residue clearance is opening new areas for target placement.
	Counterland	🟡	Same as above.
	Electronic Combat Support	🟡	Bordered by CVG,SDF, and IND therefore restricting use of ECS
	Air Drop	🟡	UXO limits the placement of targets. Yearly residue clearance is opening new areas for target placement.
	Special Operations	🟡	Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Jefferson Range Assessment Details

Encroachment Capabilities

Factors	Assigned Training Mission	Score	Comments
Spectrum	Counterair	🟡	Bordered by CVG,SDF, and IND therefore restricting use of potentially jamming spectrums
	Electronic Combat Support	🟡	Bordered by CVG,SDF, and IND therefore restricting use of ECS
Airspace	Counterair	🟡	Not sufficient MOA space for counterair
	Electronic Combat Support	🟡	Bordered by CVG,SDF, and IND therefore restricting use of ECS
Noise Restrictions	Strategic Attack	🟡	EA assessment is limited in noise study and needs to be expanded for future weapons systems
	Counterair	🟡	Same as above.
	Counterland	🟡	Same as above.
	Special Operations	🟡	EA assessment is limited in noise study and needs to be expanded for future weapons systems
Adjacent Land Use	Counterspace	🟡	Adjacent land is Army owned and operated by FWS. FWS has permit for approx 49000 acres as compared to our 1100. Our footprints are authorized outside of our permitted area, however that is all. Also, much of the land is no access du to UXO.
	Counterland	🔴	Same as above.
	Information Operations	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.
	Command and Control	🟡	Same as above.
	Air Drop	🟡	Same as above.
	Special Operations	🟡	Same as above.
	Intelligence, Surveillance, Reconnaissance	🟡	Same as above.
Cultural Resources	Strategic Attack	🟡	Jefferson Range has oversight by BRAC 1988. Conducting operations outside the MOU as established by BRAC would require congressional authorization.
	Counterland	🟡	Same as above.
	Special Operations	🟡	Same as above.

This Page is Intentionally Left Blank.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

McMullen Assessment Details

Range Mission Description

McMullen (Yankee) Range serves as the 149th Fighter Wing's Primary Training Range (PTR). The 149th Fighter Wing is a Formal Training Unit (FTU) for F-16 Fighter training. FTU syllabus requirements include Basic Surface Attack (BSA), Conventional & Tactical Target Attack, Close Air Support (CAS), Urban CAS, Low Altitude Air-to-Air Tactics and Surface Electronic Attack training. McMullen Range also supports two Air Education & Training Command AT-38 squadrons from Randolph AFB (435th FTS) and Laughlin AFB (434th FTS). AT-38 operations include Introduction to Fighter Fundamentals (IFF) training for BSA. Finally, McMullen Range supports the 147th Air Support Operations Squadron (ASOS) from Ellington Field, TX (TXANG) for Joint Terminal Attack Controller (JTAC) ground training requirements.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	●	●			●	●	●	●		●		●	●
Counterair	●	●			●	●				●		●	●
Counterspace													
Counterland	●	●			●	●	●	●		●		●	●
Countersea													
Information Operations	●	●			●	●		●				●	●
Electronic Combat Support	●	●			●	●	●	●		●		●	●
Command and Control	●	●			●	●	●	●		●		●	●
Air Drop													
Air Refueling													
Spacelift													
Special Operations	●	●			●	●	●	●		●		●	●
Intelligence, Surveillance, and Reconnaissance	●	●			●	●	●	●		●		●	●

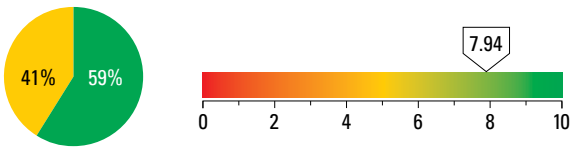
Legend: FMC ● PMC ● NMC ●

Encroachment Data

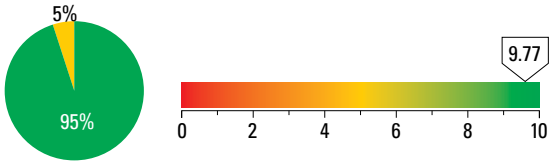
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	●	●	●		●	●	●	●	●	●	●	●
Counterair	●	●	●		●	●	●	●	●	●	●	●
Counterspace												
Counterland	●	●	●		●	●	●	●	●	●	●	●
Countersea												
Information Operations	●	●	●		●	●	●	●	●	●	●	●
Electronic Combat Support	●	●	●		●	●	●	●	●	●	●	●
Command and Control	●	●	●		●	●	●	●	●	●	●	●
Air Drop												
Air Refueling												
Spacelift												
Special Operations	●	●	●		●	●	●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●	●		●	●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



McMullen Assessment Details

Summary Observations				Summary Observations			
No comments.				No comments.			
Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.42	8.42	6.27	**Encroachment Scores**	8.92	8.92	9.81
No comments.				No comments.			

McMullen Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack		Yankee Range Land-space is insufficient for full-up training ops. Current land-space of approximately 4000 acres (with only a 400 acre impact area) precludes live weapon drops and severely limits full-scale inert weapon releases. There are currently no planned actions to remedy this issue.
	Counterland		Yankee Range Land-space is insufficient for full-up training ops. Current land-space of approximately 4000 acres (with only a 400 acre impact area) precludes live weapon drops and severely limits full-scale inert weapon releases. There are currently no planned actions to remedy this issue.
Airspace	Strategic Attack		Restricted Area R-6312 over Yankee Range is inadequate for realistic maneuver. Consists of 5NM Radius circle from Surface to FL 230. R-6312 is often capped at 10K due to Houston Center and/or Navy operations. Impact to training includes limited capability for maneuver within airspace. Proposal in-works to create an ATCAA "air-bridge" for ingress to target area from unit's assigned Air-to-Air training MOA.
	Counterair		Same as above.
	Counterland		Same as above.
Threats	Strategic Attack		Range is currently authorized and utilizes RWR-Lite threat emitters that are aging and outdated. Threat equipment maintenance and operation requires manpower above current authorizations. Due to age and limited capabilities of RWR-Lite emitters, little significant training can be accomplished with respect to EW threats. Range is continuously seeking alternatives for more robust systems, i.e. - AN/VPQ-1 and (JTE) Joint Threat Emitters. No immediate timeline at current.
	Counterair		Same as above.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance, Reconnaissance		Same as above.
Infrastructure	Strategic Attack		Range infrastructure is comprised of portable-style buildings, non-permanent in nature and minimal communication infrastructure connectivity outside the range. There are no permanent facilities for personnel or equipment used to maintain targets, roads, fire breaks, communications equipment, structural maintenance equipment and IT connectivity beyond minimal requirements (phone & LAN). Real property must be acquired or a lease in excess of 20 years must be executed in order to erect permanent structures/facilities on Range. No planned actions to remedy this issue at current.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.
	Command and Control		Same as above.
Smalls Arms Ranges	Strategic Attack		Range currently lacks funding for a second, full-time Range Control Officer and authorizations for additional operators/maintainers. Absences due to health, work or family situations will be a show-stopper for Class A Range operations. Det-1 has pursued funding for a second full-time RCO and personnel through State and NGB channels for several years with no success. No immediate timeline at current
	Counterair		Same as above.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.
	Command and Control		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance, Reconnaissance		Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

McMullen Assessment Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
MOUT Facilities	Electronic Combat Support		Range is currently authorized and utilizes RWR-Lite threat emitters that are aging and outdated. Threat equipment maintenance and operation requires manpower above current authorizations. Due to age and limited capabilities of RWR-Lite emitters, little significant training can be accomplished with respect to EW threats. Range is continuously seeking alternatives for more robust systems, i.e. - AN/VPQ-1 and (JTE) Joint Threat Emitters. No immediate timeline at current.
Suite of Ranges	Strategic Attack		Limited to a single range for BSA with limited standoff attack capability; no live weapons training, no Urban CAS target, limited EW threats and limited airspace for maneuver. Ongoing initiatives to expand airspace, targets and EW threats; no projected timeline.
	Counterair		Same as above.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Airspace	Strategic Attack		Restricted Area R-6312 over Yankee Range is inadequate for realistic maneuver. Consists of 5NM Radius circle from Surface to FL 230. R-6312 is often capped at 10K due to Houston Center and/or Navy operations. Impact to training includes limited capability for maneuver within airspace. Proposal in-works to create an ATCAA "air-bridge" for ingress to target area from unit's assigned Air-to-Air training MOA.
	Counterair		Restricted Area R-6312 over Yankee Range is inadequate for realistic maneuver. Consists of 5NM Radius circle from Surface to FL 230. R-6312 is often capped at 10K due to Houston Center and/or Navy operations. Impact to training includes limited capability for maneuver within airspace. Proposal in-works to create an ATCAA "air-bridge" for ingress to target area from unit's assigned Air-to-Air training MOA.
	Counterland		Restricted Area R-6312 over Yankee Range is inadequate for realistic maneuver. Consists of 5NM Radius circle from Surface to FL 230. R-6312 is often capped at 10K due to Houston Center and/or Navy operations. Impact to training includes limited capability for maneuver within airspace. Proposal in-works to create an ATCAA "air-bridge" for ingress to target area from unit's assigned Air-to-Air training MOA.
	Special Operations		Restricted Area R-6312 over Yankee Range is inadequate for realistic maneuver. Consists of 5NM Radius circle from Surface to FL 230. R-6312 is often capped at 10K due to Houston Center and/or Navy operations. Impact to training includes limited capability for maneuver within airspace. Proposal in-works to create an ATCAA "air-bridge" for ingress to target area from unit's assigned Air-to-Air training MOA.

This Page is Intentionally Left Blank.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Melrose Range Assessment Details

Range Mission Description

Melrose Air Force Range provides unique training capability for Air Force Special Operations airpower and Combat Air Forces. Provides unique opportunities to build and foster improved joint air to ground integration training with joint terminal attack control (JTAC). Ensures a high quality electronic combat training environment for Air Force and other DoD assets.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack	●	●			●	●	●	●	●	●		●	
Counterair		●				●							
Counterspace													
Counterland	●	●			●	●	●	●	●	●		●	
Countersea													
Information Operations		●											
Electronic Combat Support	●	●			●	●	●	●	●			●	
Command and Control	●				●	●	●	●	●				
Air Drop	●	●			●	●							
Air Refueling		●				●							
Spacelift													
Special Operations	●	●			●	●	●	●	●	●		●	●
Intelligence, Surveillance, and Reconnaissance	●	●			●	●	●	●	●	●		●	

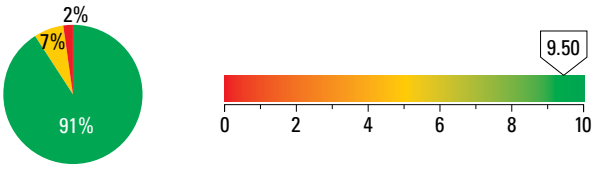
Legend: FMC ● PMC ● NMC ●

Encroachment Data

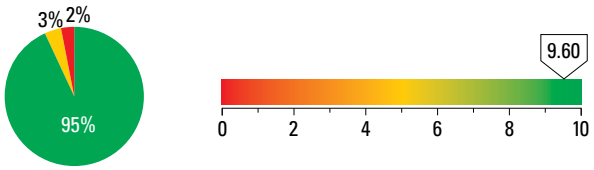
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	●	●	●		●	●	●	●	●	●	●	●
Counterair	●	●	●		●	●	●	●	●	●	●	●
Counterspace												
Counterland	●	●	●		●	●	●	●	●	●	●	●
Countersea												
Information Operations												
Electronic Combat Support	●	●	●		●	●	●	●	●	●	●	●
Command and Control												
Air Drop	●	●	●		●	●	●	●	●	●	●	●
Air Refueling	●	●	●		●	●	●	●	●	●	●	●
Spacelift												
Special Operations	●	●	●		●	●	●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●	●		●	●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

No comments.

Summary Observations

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	9.05	9.05	10.00

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.32	9.32	9.75

No comments.

Melrose Range Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Special Operations	🟡	Of the 2 AC-130 Target sites, one is operational but the second live fire target area is in design/development and is tied to the Environmental Assessment under contract. Current training impacts limit the AC-130 to single ship operations. Scheduled EA completion 01/28/11.
Infrastructure	Special Operations	🔴	Power, water, communications and roads need to be developed for planned range development. Range Admin, maintenance, and fire department buildings need to be updated and relocated out of the primary impact area. Permanent Exercise Facilities needed to facilitate training of SOF forces in a realistic training environment. Training artificialities hinder SOF forces training opportunities due to administrative and travel time with no onsite facility. Development plan is in the works but implementation is dependent on funding.
Range Support	Special Operations	🟡	Datalink capabilities do not exist. Bandwidth is limited. No SIPR available. Incapable of secure communications Repair ticket submitted to 27 SOCS but no get well date has been given to date.
MOUT Facilities	Special Operations	🟡	MOUT sites are incomplete. This limits ground operations training. Sites are being developed as funds become available.
Suite of Ranges	Special Operations	🟡	NSAv Landing Zone not built. Current temporary LZ operations are limited by weather. 3Permanent LZ contract award estimated for 09/20/2010.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Strategic Attack	🟡	Cannot employ all weapons approved. Minimal training impact due to alternate weapons capabilities that meet training requirements. No remedy immediately available.
	Counterland	🔴	Same as above.
	Special Operations	🔴	Structured Targets/Ranges/dirt LZ is funded and in the contracting process. Schedule deconfliction burden is increased resulting in lost training due to availability of resources. Funded projects will alleviate some of deconfliction issues opening up additional training opportunities. Get well: FY2015
Spectrum	Electronic Combat Support	🟡	Four frequencies are not available: 15.4 GHz earth exploration satellite (passive), 3930MHz satellite broadcast, 668 and 878 MHz White Sands Missile Range FCC restriction. Manual of Regulations and Procedures for Federal Radio Frequency Management, US footnote 246. Minimal training impact. Workarounds in place. No immediate remedy available. Restrictions not anticipated to change.
Adjacent Land Use	Special Operations	🟡	In the Clovis NM area, wind turbine farms are the primary concern because of the favorable atmospheric conditions Currently there are no wind farms hindering operations; however, because of these favorable wind conditions it is inevitable that Melrose Air Force Range will be forced to mitigate impacts of several proposed wind farms planned in close proximity. The 27 SOW has recently formed an Encroachment Committee to focus on this issue. This committee will be the forum to disseminate encroachment information, discuss the concerns of the 27 SOW on the impacts of encroachment to the base/surrounding airspace and then vet information to 27 SOW/AFSOC leadership. The 27 SOW has recently increased communication efforts with State planning/licensing agencies to inform them of our airspace "areas of concern" and to permit early evaluation of proposed projects in our area. Additionally, the neighboring counties have an ongoing Joint Land Use Study (JLUS) with the SOW; encroachment has been the primary issue and we are working to raise awareness of the encroachment issue and establish an early vetting process for ordinances or zoning to help mitigate encroachment to the base.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Mountain Home Range Assessment Details

Range Mission Description

Mountain Home Range Complex (MHRC) consists of 2 impact areas, Saylor Creek Range and Juniper Butte Range, 5 No -Drop target areas, the main EC site at Grasmere and multiple EC sites. The Range is classified as a Primary Training Range by ACC. The primary mission of the range is to support the 366FW and ID ANG by providing both conventional and tactical targets, urban targets, and EW threats for basic surface attack, tactical surface attack missions and CAS training with JTACs.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	●	●			●	●	●	●	●		●		●
Counterair	●	●			●	●	●	●	●		●		●
Counterspace													
Counterland	●	●			●	●	●	●	●		●	●	●
Countersea													
Information Operations													
Electronic Combat Support	●	●			●	●	●	●	●		●	●	●
Command and Control	●	●			●	●	●	●	●		●	●	●
Air Drop	●	●				●			●		●	●	●
Air Refueling	●	●				●		●	●		●		●
Spacelift													
Special Operations	●	●			●	●	●	●	●		●	●	●
Intelligence, Surveillance, and Reconnaissance													

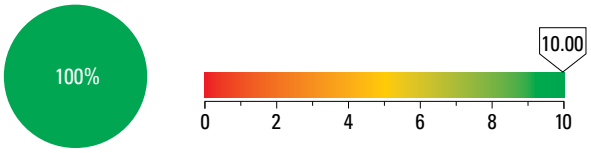
Legend FMC ● PMC ● NMC ●

Encroachment Data

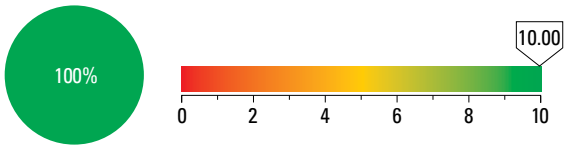
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	●	●	●		●	●	●	●	●	●	●	●
Counterair	●	●	●		●	●	●	●	●	●	●	●
Counterspace												
Counterland	●	●	●		●	●	●	●	●	●	●	●
Countersea												
Information Operations												
Electronic Combat Support	●	●	●		●	●	●	●	●	●	●	●
Command and Control	●	●	●		●	●	●	●	●	●	●	●
Air Drop	●	●	●		●	●	●	●	●	●	●	●
Air Refueling	●	●	●		●	●	●	●	●	●	●	●
Spacelift												
Special Operations	●	●	●		●	●	●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance												

Legend Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. 100% of the AF's range/range complex mission areas that are applicable to the MHRC are Fully Mission Capable (FMC).
2. MHRC does not support counterspace, countersea, information operations, spacelift, and ISR missions on a normal basis and only rarely supports air drop missions

Summary Observations

The only significant impact on operations in the MHRC is caused by the existence of Slick Spot Peppergrass, a threatened species growing near the impact area at Juniper Butte Range. Their is minimal impact to air and ground operations in the current target complex at Juniper Butte, but it could impact expansion efforts in the future. Saylor Creek serves as our primary impact area, and has no encroachment issues at this time.

Mountain Home Range Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	10.00	10.00	10.00	**Encroachment Scores**	9.89	9.89	10.00
The overall capability score has been steady. The only change in recent years has been the official listing of Slick Spot Peppergrass as a threatened species and the construction of a more robust MOUT target set in keeping with current CAS/ JTAC requirements.				The overall encroachment score remains steady at 10. The only change has been the listing of Slick Spot Peppergrass as a threatened species. This may impact future expansion efforts at Juniper Butte Range, should they be attempted. We are currently in the process of approving strafe at Juniper Butte in addition to BDU-33 practice bombs, which should be approved despite the listing.			

Mountain Home Ranges Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
No comments.			

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
No comments.			

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Nevada Test and Training Range Assessment Details

Range Mission Description

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	FMC	FMC			FMC	PMC	FMC		FMC		FMC	PMC	FMC
Counterair	FMC	PMC				PMC	FMC		FMC		FMC	FMC	FMC
Counterspace													
Counterland	FMC	FMC			FMC	FMC	FMC	FMC	PMC	FMC	FMC	FMC	FMC
Countersea													
Information Operations					NMC	NMC	NMC	FMC	PMC		NMC	NMC	NMC
Electronic Combat Support	FMC	PMC			PMC	PMC	PMC	FMC			FMC	PMC	FMC
Command and Control	FMC	FMC			NMC	PMC	NMC	FMC	FMC	FMC	FMC	FMC	FMC
Air Drop	FMC	FMC			FMC	FMC		FMC	FMC	FMC	FMC	PMC	FMC
Air Refueling		FMC						FMC			FMC		FMC
Spacelift													
Special Operations	FMC	FMC			FMC	FMC		FMC	FMC	FMC	FMC	FMC	FMC
Intelligence, Surveillance, and Reconnaissance		FMC			PMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC

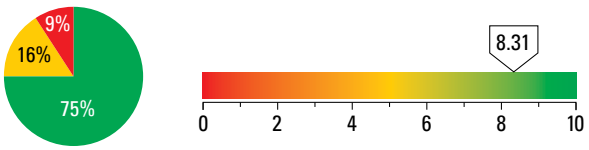
Legend: FMC, PMC, NMC

Encroachment Data

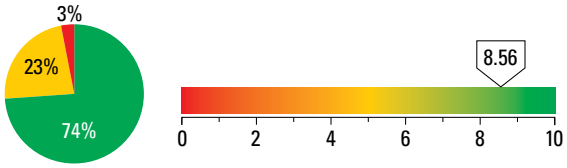
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Severe	Moderate	Minimal	Minimal	Moderate	Moderate	Minimal	Moderate	Moderate	Moderate	Moderate	Minimal
Counterair	Minimal	Minimal	Minimal	Minimal	Moderate	Minimal	Moderate	Moderate	Moderate	Minimal	Minimal	Minimal
Counterspace	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterland	Severe	Moderate	Minimal	Minimal	Moderate	Moderate	Minimal	Moderate	Moderate	Moderate	Moderate	Minimal
Countersea												
Information Operations	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Electronic Combat Support	Minimal	Minimal	Minimal	Minimal	Severe	Moderate	Minimal	Severe	Moderate	Minimal	Moderate	Minimal
Command and Control	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Drop	Moderate	Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal
Air Refueling	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Spacelift												
Special Operations	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Moderate	Moderate	Minimal	Moderate	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

1. Most impacting performance are: Threats, Targets, Scoring and Feedback; then Collective Ranges and Suite of Ranges in this order.
2. Mission areas impacted are: Command and Control and Information Operations
3. FY2012 POM will include: a) Threat Relevancy Requirements are "signature representative" and "robustness in density." Modernize to Double Digit capabilities. b) Representative Targets including Time Sensitive Targets (TST) c) Instrumented Battlespace with upgrades for compartmentalized debriefs d) Throughput on Operational Hours. Extend the NTTR range hour capacity with additional shifts to handle new workload for the F-35 and Test requirements. Includes Saturday operations and Night Shifts.

Summary Observations

No comments.

Nevada Test and Training Range Assessment Details

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	8.22	8.22	8.39	**Encroachment Scores**	8.62	8.24	8.26
No comments.				No comments.			

Nevada Test and Training Range Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Counterair	🟡	Increasing restrictions on the range due to noise complaints, urban encroachment, and natural lands. Supersonic, chaff, flare, and overflight restrictions continue to shrink the NTTR airspace. Avoidance Areas - Nellis has established noise sensitive area around communities under the MOA.
	Electronic Combat Support	🟡	Limited Capability to do full-spectrum jamming. Current FAA chaff restrictions deny employment over the NTTR. Avoidance Areas - Nellis has established noise sensitive area around communities under the MOA. Added since 2008 an increase in renewable energy wind farms (WGEF) has the potential to impact our ability to operate in a clean electronic environment currently in study with the AF Scientific Advisory Board (SAB). Impacts are RADAR operations with low observable aircraft frames have degradation in analysis for weapons and tactics testing and training.
Targets	Information Operations	🔴	We have no self-contained Information Operations (IO) Targets on the NTTR. All IO play is based on the users and the equipment that they bring to the range. We have some means of facilitating IO play but no organic capability. Continuing to work with JIOR to provide a mobile service which can be deployed at the Urban Operations Complex (UOC) on Range 62.
	Electronic Combat Support	🟡	Continue to work on Digital Integrated Air Defense System (DIADS) suite in order to show a real-time degradation on red systems based on real efforts of jamming platforms.
	Command and Control	🔴	No Red C2 Targetable Nodes exist on the NTTR. Jamming platforms do not get real-time feedback on operations. With DIADS implementation and IO suite we should better simulate a degraded C2 system while maintaining safety.
	Intelligence, Surveillance and Reconnaissance	🟡	NTTR Requires High-Fidelity ISR Targets on the Range. ISR is the one of the most heavily tasked functions and we have only minimal target support. Continue to expand ISR targets to include the High Speed Moving Target (HSMT) and our IO capabilities.
Threats	Strategic Attack	🟡	Lack of double-digit SAM capabilities. We are still multiple years away of allowing users to train on significant double digit SAM threats - ACC tracking JTE with SPO. Workarounds are planned but do not support full training objectives. Right now aircrew must train on legacy single-digit SAMs.
	Counterair	🟡	Same as above.
	Information Operations	🔴	We have no self-contained Information Operations Targets on the NTTR. All IO play is based on the users and the equipment that they bring to the range. We have some means of facilitating IO play but no organic capability. Continuing to work with JIOR to provide a mobile service which can be deployed at the UOC.
	Electronic Combat Support	🟡	Lack of complete electronic target set. EA platforms do not get real-time feedback on their capabilities and their effects during training. Continue to work on DIADS suite in order to show a real-time degradation on red systems based on real efforts of jamming platforms.
	Command and Control	🟡	No Red C2 Targetable Nodes exist on the NTTR. Jamming platforms do not get real-time feedback on operations. With DIADS implementation and IO suite we should better simulate a degraded C2 system while maintaining safety.
Scoring and Feedback Systems	Information Operations	🔴	We have no self-contained Information Operations Targets on the NTTR. All IO play is based on the users and the equipment that they bring to the range. We have some means of facilitating IO play but no organic capability. Continuing to work with JIOR to provide a mobile service which can be deployed at the UOC.
	Electronic Combat Support	🟡	Lack of complete electronic target set. EA platforms do not get real-time feedback on their capabilities and their effects during training. Continue to work on DIADS suite in order to show a real-time degradation on red systems based on real efforts of jamming platforms.
	Command and Control	🔴	No Red C2 Targetable Nodes exist on the NTTR. Jamming platforms do not get real-time feedback on operations. With DIADS implementation and IO suite we should better simulate a degraded C2 system while maintaining safety.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Nevada Test and Training Range Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Counterland	🟡	Limited Blue Force Track Capability & Convoy Support. Ground Troops are deploying without high fidelity training. Currently working with 99 GCTS to provide training area for robust convoy training with 99 ABW and ACC coordination.
	Information Operations	🟡	We have no self-contained Information Operations Targets on the NTTR. All IO play is based on the users and the equipment that they bring to the range. We have some means of facilitating IO play but no organic capability. Continuing to work with JIOR to provide a mobile service which can be deployed at the UOC.
Collective Ranges	Information Operations	🔴	Same as above.
MOUT Facilities	Strategic Attack	🟡	New Area Security Operations (ASO) requirement for GCTS and do no have the current capabilities to provide all required. Currently having to use "band-aid" fixes and train when any time is available in "min" requirements being met. Trying to work with HHQ to provide specific funding, manning, and requirements to get higher priority.
	Information Operations	🔴	We have no self-contained Information Operations Targets on the NTTR. All IO play is based on the users and the equipment that they bring to the range. We have some means of facilitating IO play but no organic capability. Continuing to work with JIOR to provide a mobile service which can be deployed at the UOC.
	Electronic Combat Support	🟡	Deploying jammable infrastructure at the Urban Operations Center. Crews cannot get robust training in CAS / EA / or ISR without a robust electronic threat. Right now we use the UOC as low-threat area but working to obtain deployable systems.
	Air Drop	🟡	Currently there are five Drop Zones (two area and three circular) near the UOC on Range 62. This is an AMC requirement we are meeting. We do NOT have an operational LZ near the UOC. This is an AMC and SOCOM requirement we are not meeting. Training would be greatly enhanced to have a LZ near the UOC to conduct full ops. Working to enhance the current landing strip in the UOC complex to allow rotary wing, C-130 and C-17 assault/bare base operations.
Suite of Ranges	Information Operations	🔴	We have no self-contained Information Operations Targets on the NTTR. All IO play is based on the users and the equipment that they bring to the range. We have some means of facilitating IO play but no organic capability. Continuing to work with JIOR to provide a mobile service which can be deployed at the UOC.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Strategic Attack	🔴	Placement of targets in the southern ranges are constrained by US Fish and Wildlife Service guidance/ agreements. Must comply with ESA (Increase costs or Risks) – The NTTR southern ranges is home to the Desert Tortoise, a Threatened Species. We operate under a Biological Opinion (BO) issued by the US Fish and Wildlife Services. In accordance with the BO, we pay a one-time fee per acre and must implement required conditions. USFWS nominated the higher elevations in the Southern Ranges as Wilderness. This severely restricts our ability to place threats or targets at high elevations to provide future capabilities. USFWS recently issued interim guidance on protecting golden eagles. It is unknown how these rules will impact our ability to manage range targets. There are no open venues to mitigate these issues for increased capabilities; since ESA compliance and wilderness regulation compliance are based on Public Law. At some point additional lands to support increase capabilities will be necessary.
	Counterland	🔴	Endangered Species Act (Increase costs or Risks) – The NTTR southern ranges is home to the Desert Tortoise, a Threatened Species. We operate under a Biological Opinion (BO) issued by the US Fish and Wildlife Services. In accordance with the BO, we pay a one-time fee per acre of $723 for each acre of "suitable habitat" we disturb and must implement required conditions. There are no open venues to mitigate these issues for increased capabilities; since ESA compliance and wilderness regulation compliance are based on Public Law. At some point additional lands to support increase capabilities will be necessary.
	Air Drop	🟡	Placement of Drop Zones in the southern ranges must follow US Fish and Wildlife Service guidance/ agreements. The Biological Opinion is the driver behind drop zone limitations. There are no open venues to mitigate these issues for increased capabilities; since ESA compliance and wilderness regulation compliance are based on Public Law. At some point additional lands to support increase capabilities will be necessary.
	Special Operations	🟡	In the lower elevations of the southern range, Special Operations ground movements are restricted due to USFWS Desert Tortoise Habitat and the Biological Opinion (BO) requirements. The southern ranges higher elevations Wilderness Areas designation prevents vehicle use for ground movements. USFWS recently issued interim guidance on protecting golden eagles. It is unknown how these rules will impact our ability to manage range targets. There are no open venues to remedy these issues; ESA compliance and wilderness regulation compliance.

Nevada Test and Training Range Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Strategic Attack	🟡	Placement of live and inert targets on the southern ranges must follow USFWS guidance/agreements. In the lower elevations of the southern range, target placement is constrained due to USFWS Desert Tortoise Habitat. The southern ranges higher elevations Wilderness Areas designation eliminates this area being used for target placement. USFWS recently issued interim guidance on protecting golden eagles. It is unknown how these rules will impact our ability to manage range targets. There are no open venues to remedy these issues; ESA compliance and wilderness regulation compliance.
	Counterland	🟡	Placement of live and inert targets on the southern ranges must follow USFWS guidance/agreements. In the lower elevations of the southern range, target placement is constrained due to USFWS Desert Tortoise Habitat. The southern ranges higher elevations Wilderness Areas designation eliminates this area being used for target placement. USFWS recently issued interim guidance on protecting golden eagles. It is unknown how these rules will impact our ability to manage range targets. There are no open venues to remedy these issues; ESA compliance and wilderness regulation compliance.
	Special Operations	🟡	Placement of live and inert targets on the southern ranges must follow USFWS guidance/agreements. In the lower elevations of the southern range, target placement is constrained due to USFWS Desert Tortoise Habitat. The southern ranges higher elevations Wilderness Areas designation eliminates this area being used for target placement. USFWS recently issued interim guidance on protecting golden eagles. It is unknown how these rules will impact our ability to manage range targets. There are no open venues to mitigate these issues for increased capabilities; since ESA compliance and wilderness regulation compliance are based on Public Law. At some point additional lands to support increase capabilities will be necessary.
Airspace	Strategic Attack	🟡	Airspace constraint (creates overflight avoidance areas)—NTTR shares approximately 847,050 acres with the US Fish and Wildlife Services (USFWS). USFWS has established Big Horn Sheep watering points in the mountain ranges. In accordance with the Nellis AFB and USFWS MOU, each watering location has a 1-mile buffer zone (overflight avoidance area). There are no plans to challenge this long-standing restriction.
	Counterair	🟡	Same as above.
	Counterland	🟡	Same as above.
	Electronic Combat Support	🔴	Placement of threats on the southern ranges must follow USFWS guidance/agreements. In the lower elevations of the southern range, threat placement is constrained due to USFWS Desert Tortoise Habitat. The southern ranges higher elevations Wilderness Areas designation eliminates this area being used for threat placement. For Air to Ground use the airspace constraint (creates avoidance areas)—NTTR shares approximately 847,050 acres with the US Fish and Wildlife Services (USFWS). USFWS has established Big Horn Sheep watering points in the mountain ranges. In accordance with the Nellis AFB and USFWS MOU, each watering location has a 1-mile buffer zone (overflight avoidance area). There are no plans to challenge this long-standing restriction.
	Air Drop	🟡	DZs outside withdrawn lands are not controlled by DoD. All military use of these lands must be approved by the land manger, in most cases around the NTTR this is BLM. To use the lands for Drop Zones, Nellis must request a Right of Way. This process can take up to a year to accomplish the appropriate NEPA and Real Estate Instrument actions. Only remedy is timely identification of the need. Problem has no known long-term solution and the Air Force is at risk of BLM manager approval which could change over time.
Air Quality	Strategic Attack	🟡	Nellis has received several Notice's of Violation (NOV) due to excessive dust emissions from the Southern Ranges. Violations could have included fines up to $10,000/day/violation. Funding has been requested through multiple sources to pave primary roads. Paving would also reduce wear and tear on vehicles.For the Northern Ranges, Best Practical methods must be used at all times for any quantity of disturbance (paving, watering, revegetation, chemical stabilization, phased construction, etc.) The Title V Operating Permit has a supplemental Surface Area Disturbance Permit, # 9711-1233 which establish terms of compliance. For the Southern Ranges, Clark County rules apply. Best Available Control Methods must be used at all times for any quantity of soil disturbance including traffic on unpaved roads (watering, dust palliative, etc.) A visible dust plume cannot exit the property or extend over 100 feet within the property boundary. Dust permits must be purchased prior to construction If a project disturbs more than 1/4 acre of soil (including access road, storage area, parking during construction), involves mechanized trenching of greater than or equal to 100 feet in length, or mechanical demolition of structure smaller than 1,000 square feet.
	Counterland	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.
Noise Restrictions	Counterair	🟡	NTTR restrictions for supersonic flight. Increased noise complaints have occurred due to F-22A activity. More will be expected for the F-35.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Nevada Test and Training Range Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Adjacent Land Use	Strategic Attack		Numerous Renewable Energy projects under or adjacent to the NTTR. Increased urban development under the MOAs (Coyote Springs and BLM Land Sales). Remedy - Continued contact with Federal, State and community land managers striving for compatible development. Requires an Air Staff policy directive and a update to AFI 13-201, paragraph 6.6. that addresses all Renewable Energy.
	Counterair		Same as above.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.
	Special Operations		Numerous Renewable Energy projects under or adjacent to the NTTR. Increased urban development under the MOAs (Coyote Springs and BLM Land Sales). Remedy - Continued contact with Federal, State and community land managers striving for compatible development. Requires an Air Staff policy directive and a update to AFI 13-201, paragraph 6.6. that addresses all Renewable Energy.
Cultural Resources	Strategic Attack		Cultural resources affect target and threat placement on the NTTR. Remedy - The process can take up to a year to accomplish the appropriate NEPA, NHPA consultation, and Native American coordination. Only attempt to remedy is planning or timely identification of the need. Problem has no known long term solution.
	Counterair		Same as above.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.
	Air Drop		Same as above.
	Special Operations		Same as above.
Water Quality/ Supply	Strategic Attack		Limited Water Resources for Range Maintenance (Dust abatement, etc). Remedy - Obtain funding for additional wells, storage tanks and water trucks to haul water to the construction sites.
	Counterland		Same as above.
Wetlands	Strategic Attack		Wetlands have not been delineated on the NTTR. This is potentially a mission delay and time impediment to completing the NEPA process and Section 404 of the Clean Water Act consultation/requirements for target/ threat placement on the NTTR. The remedy is to identify mission activity/requests in a timely manner and address needs as required by US Army Corps of Engineers (COE). Problem has no known long term solutions.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.
	Air Drop		Same as above.
	Special Operations		Same as above.

This Page is Intentionally Left Blank.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Patrick Range Assessment Details

Range Mission Description

Given that most of the training types identified in the call do not occur here, we have answered the questions asked within the framework of could we support training of the types shown. The other difference from the previous year's submittal is that we have looked at munitions from an MMRP perspective rather than an operational perspective.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack													
Counterair													
Counterspace													
Counterland													
Countersea													
Information Operations													
Electronic Combat Support													
Command and Control													
Air Drop													
Air Refueling													
Spacelift	●	●	●	●	●	●	●	●	●	●	●	●	●
Special Operations													
Intelligence, Surveillance, and Reconnaissance													

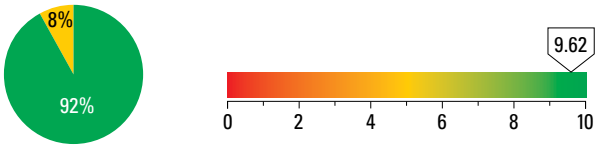
Legend: FMC ● PMC ● NMC ●

Encroachment Data

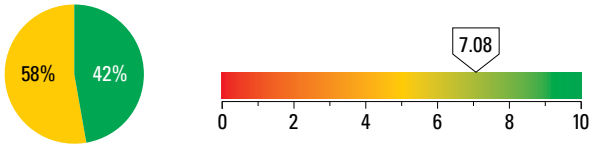
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack												
Counterair												
Counterspace												
Counterland												
Countersea												
Information Operations												
Electronic Combat Support												
Command and Control												
Air Drop												
Air Refueling												
Spacelift	●	●	●	●	●	●	●	●	●	●	●	●
Special Operations												
Intelligence, Surveillance, and Reconnaissance												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

Aging utility infrastructure is major concern.

Summary Observations

Spectrum encroachment is a growing concern on TM spectrum availability. Normal environmental processes related to endangered species and cultural sites are workable.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	NA	NA	NA

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	NA	NA	NA

No comments.

Patrick Range Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Spacelift	●	Aging utility infrastructure impacts day to day processing for spacelift operations. Potential for electrical and water outages. Waterline replacement project in work. New electrical transformers have been installed and/or ordered. High Voltage electrical distribution system under review for contracted maintenance.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Spacelift	●	15 Listed Endangered Species, this requires continuous species monitoring, AF recommends terrain avoidance, and species analysis, no anticipated end date.
Spectrum	Spacelift	●	Spectrum encroachment via Windmills on NEXRAD weather systems, and on Telemetry and communication transmitters. There have been two recent Executive decisions to open up more spectrum for public use can impact our TM systems. Also spectrum encroachment on FM band, primarily Impacts availability to support spacelift operations due to frequency conflict with flight termination signals. No anticipated end date.
Noise Restrictions	Spacelift	●	Impact of rocket noise on marine mammals. This requires special monitoring and potential mitigation due to regulatory requirements. No anticipated end date.
Cultural Resources	Spacelift	●	Cultural resources present basewide, causing delays and avoidance. This may require SHPO consultation and monitoring/mitigation. No anticipated end date.
Water Quality/ Supply	Spacelift	●	Industrially generated wastewater from launch operations must be managed and disposed of in accordance with Federal and State permits and regulations, incurring costs for compliance. No anticipated end date.
Wetlands	Spacelift	●	Several wetlands containing endangered species. This requires mitigation and permitting. No anticipated end date.
Range Transients	Spacelift	●	Enters into restricted safety zones prior to launch. This could cause launch scrub resulting in several hundred thousand dollar recycle cost. This requires training, surveillance and risk assessment and mitigation.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Poinsett Electronic Combat Range Assessment Details

Range Mission Description

To provide realistic electronic combat (EC) and bombing and gunnery (B&G) training for the 20 FW, USAF and DoD aircrews.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack	●	●			●	●	●	●	●	●	●	●	●
Counterair	●	●			●	●	●	●	●	●	●	●	●
Counterspace	●	●			●	●	●	●	●	●	●	●	●
Counterland	●	●			●	●	●	●	●	●	●	●	●
Countersea													
Information Operations	●	●			●	●	●	●	●	●	●	●	●
Electronic Combat Support	●	●			●	●	●	●	●	●	●	●	●
Command and Control	●	●			●	●	●	●	●	●	●	●	●
Air Drop	●	●			●	●	●	●	●	●	●	●	●
Air Refueling	●	●			●	●	●	●	●	●	●	●	●
Spacelift	●	●			●	●	●	●	●	●	●	●	●
Special Operations	●	●			●	●	●	●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●			●	●	●	●	●	●	●	●	●

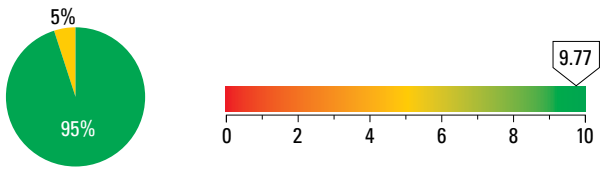
Legend: FMC ● PMC ● NMC ●

Encroachment Data

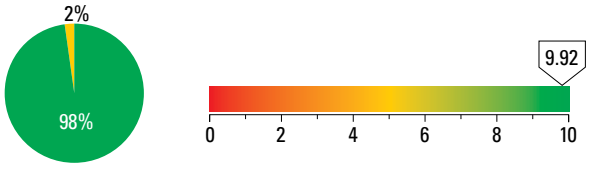
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	●	●	●		●	●	●	●	●	●	●	●
Counterair	●	●	●		●	●	●	●	●	●	●	●
Counterspace	●	●	●		●	●	●	●	●	●	●	●
Counterland	●	●	●		●	●	●	●	●	●	●	●
Countersea												
Information Operations	●	●	●		●	●	●	●	●	●	●	●
Electronic Combat Support	●	●	●		●	●	●	●	●	●	●	●
Command and Control	●	●	●		●	●	●	●	●	●	●	●
Air Drop	●	●	●		●	●	●	●	●	●	●	●
Air Refueling	●	●	●		●	●	●	●	●	●	●	●
Spacelift	●	●	●		●	●	●	●	●	●	●	●
Special Operations	●	●	●		●	●	●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●	●		●	●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

No comments.

Summary Observations

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	10.00	10.00	9.81

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	10.00	10.00	9.92

No comments.

Poinsett Electronic Combat Range Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Strategic Attack	●	Gamecock D airspace is geographically too small to do any opposed training and that is also the best airspace with respect to the quantity of threat emitters. It is usable airspace as long as the Poinsett Transition Area is active, but the PTA is too restrictive with respect to maneuvers within the PTA and the lack of ability for fighters to release ordinance on R-6002 and return to Gamecock D. There is no proposed action to allow fighters to defensively threat react within the PTA nor release weapons inside R-6002 due to a LOA between Jacksonville Center and Shaw AFB.
	Counterair	●	Same as above.
Threats	Strategic Attack	●	The best SEAD airspace is W177/161 over water which contains no actual threat emitters. The airspace is usable for SEAD with the ability of the F-16 to create a training simulation, however there is no ability to be targeted from simulated threats to allow for threat reactions. There is a plan in the works with no current timeline to put some threat emitters on the coast. Bulldog airspace has a high altitude shelf that does not allow for descent in the case of weather or to PID threat emitters with DEAD training limiting training. The elimination of this shelf or the addition of more threat emitters in the all altitude portion of Bulldog airspace would eliminate this problem. There is no proposed capabilities to eliminate the shelf. There is a proposed plan to add additional threat emitters into Bulldog, Currently two additional sites are in the leasing process with construction planned for FY2011.
	Counterair	●	Same as above.
	Electronic Combat Support	●	Same as above.
Scoring and Feedback System	Electronic Combat Support	●	Current system to provide aircrew feedback inadequate for EC missions. This does not allow 20 FW pilots to accurately debrief SEAD and DEAD missions with actual emitter "truth" data. ACC/A3AR is aware of the problem and an EW Server have been discussed. This server would provide emitter data directly to aircrews for ICADS playback. ECD:TBD

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Airspace	Strategic Attack	●	W177B & 161B airspace is given less than 50% of the time up to the normal altitude of 30,000 ft. leaving significantly less airspace for high altitude tactics. There is no planned action/capability to prevent ATC from capping the airspace.
	Counterair	●	Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Polygone Assessment Details

Range Mission Description

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack													
Counterair	●	●			●	●	●	●	●				
Counterspace													
Counterland	●	●			●	●	●	●	●				
Countersea													
Information Operations													
Electronic Combat Support	●	●			●	●	●	●	●				
Command and Control													
Air Drop													
Air Refueling													
Spacelift													
Special Operations													
Intelligence, Surveillance, and Reconnaissance													

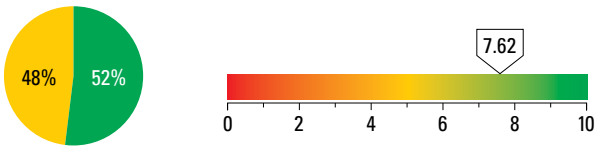
Legend: FMC ● PMC ● NMC ●

Encroachment Data

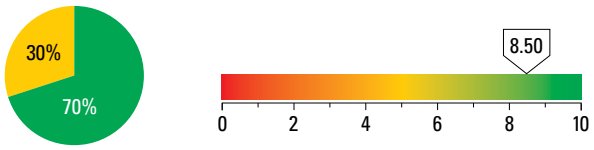
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack												
Counterair	●	●	●		●		●	●	●	●	●	●
Counterspace												
Counterland												
Countersea												
Information Operations												
Electronic Combat Support	●	●	●		●		●	●	●	●	●	●
Command and Control												
Air Drop												
Air Refueling												
Spacelift												
Special Operations												
Intelligence, Surveillance, and Reconnaissance												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Polygone Assessment Details

Summary Observations	Summary Observations
1. Greatest impact is to the available frequency spectrum, the use of radio and radar threat simulators is becoming more time constrained for authorization with reduced operating areas. The next greatest impact is the increase of surrounding civilian airways and lack of dedicated Military Operating Area for aircrew training against surface threats IAW realistic TTP's. 2. All mission areas are equally impacted by the frequency authorization issues and the Counterland missions are most impacted by the airspace limitations. 3. Further limitations in the areas we can operate EW threat simulators throughout Europe and increased cost for deployments to areas with appropriate airspace.	1. Greatest impact is to the available frequency spectrum, the use of radio and radar threat simulators is becoming more time constrained for authorization with reduced operating areas. The next greatest impact is the increase of surrounding civilian airways and lack of dedicated Military Operating Area for aircrew training against surface threats IAW realistic TTP's. 2. All mission areas are equally impacted by the frequency authorization issues and the Counterland missions are most impacted by the airspace limitations. 3. Further limitations in the areas we can operate EW threat simulators throughout Europe and increased cost for deployments to areas with appropriate airspace.

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	4.38	4.38	NA	**Encroachment Scores**	5.25	5.27	NA
No comments.				No comments.			

Polygone Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Counterair	●	Extensive scheduling issues attributed to high demand and profound weather impacts; The availability of training is consequently limited; Corrective actions are not planned to address the issues.
	Counterland	●	High demand for range use (US and international partners) and profound weather impacts present scheduling challenges; The availability of training is consequently limited; Corrective actions are not planned to address the issues.
	Electronic Combat Support	●	Scheduling challenges result from high range demand and problematic weather conditions; The availability of training is consequently limited; Corrective actions are not planned to address the issues.
Threats	Electronic Combat Support	●	Two of our threat simulators are outdated and can be used for CJ tng only --the rest are aging and approaching irrelevance; EW training is limited to single-digit SAM simulation in an autonomous acquisition scenario. We have no capability to provide training against the newer real-world threats or integrated IADS scenario. Current capability is sufficient for 80% of the customer training requirements We are at the mercy of nextgen EW simulator production. "Joint Threat Emitter" (JTE) is behind milestone development. Would like to acquire double digit capability (XMS-11 or similar) but availability and funding are current constraints.
Scoring & Feedback System	Counterair	●	Current feedback for EW range events is archaic - a text line sent via email. Near real-time feedback does not exist; Installation of the new P5 CTS in USAFE over the next year will enhance this integration but necessitates integration of emitter data at a higher fidelity than currently available for analysis during debrief. Aircrew EW training will suffer if range results can't be integrated; Installation of the P5 RUU and EW server is scheduled to occur in Summer 2011 timeframe. The plan is to leverage the CTS backbone to provide the means of integrating threat data. We will require the engineering of a solution for getting digitized system data from threats/simulators back to the PCC for real-time feedback integration .
	Counterland	●	Same as above.
	Electronic Combat Support	●	Same as above.
Range Support	Counterair	●	Comm network/engineering support is not resident at POLYGONE. O&M contractor does not have an engineering flight. As a GSU, Polygone must rely on HHQ comm/engineering support for design and instalation of needed upgrades/enhancements. Expertise/familiarity with PCC operations by supporting CE/COMM is nonexistent. Our status as a GSU leads to limited or no support from Ramstein. Under the WPC, support has improved however we anticipate further increases in needed support; Installation of the new P5 CTS in USAFE over the next year, will necessitate integration of emitter data for analysis during debrief. The plan is to leverage the CTS backbone to provide the means of integrating threat data. We will need to engineer a solution for getting digitized system data from threats/simulators back to the PCC. Without this solution in-place, we will not be capable of fully exploiting any DMO/LVC initiative for integration of POLYGONE Range data. Aircrew EW training will be suffer if range results can't be integrated; With the inclusion of Polygone in the P5 CTS upgrade, we plan to leverage engineering/comm expertise to establish a working group dedicated to solving the feedback problem and follow on LVC capability by linking up with the DMO portal located at the WPC, Einsiedlerhof AS.
	Counterland	●	Same as above.
	Electronic Combat Support	●	Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Polygone Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Counterair	●	Use of Chaff / flares is restricted in Germany; Negative aircrew training - inability to train as they would fight; No planned action—we don't "own" any airspace so we must abide by host nation restrictions.
	Electronic Combat Support	●	Same as above.
Spectrum	Counterair	●	Authorizations for required freq bands are, at times, not attainable in several European countries; We are unable to support customer requests for EW threat training - affects training capability < 10% of the time; Spectral management is becoming more restrictive as commercial spectrum requirements increase—no fix in sight.
	Electronic Combat Support	●	Same as above.
Airspace	Counterair	●	Problematic weather and high demand for range use cause scheduling challenges; Training availability is negatively impacted; Corrective actions are not currently planned to address the issue.
	Electronic Combat Support	●	Extensive scheduling issues attributed to high demand and profound weather impacts; The availability of training is consequently limited; Corrective actions are not planned to address the issues.

This Page is Intentionally Left Blank.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Razorback Assessment Details

Range Mission Description

No mission description provided.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Counterair	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Counterspace													
Counterland	PMC	FMC			FMC	FMC	FMC	PMC	PMC	FMC	FMC	FMC	FMC
Countersea													
Information Operations	FMC	FMC				FMC		FMC	FMC				FMC
Electronic Combat Support	FMC	FMC			FMC	PMC	FMC	FMC	FMC				FMC
Command and Control	FMC	FMC			FMC	FMC		FMC	PMC				FMC
Air Drop	FMC	FMC			FMC	PMC	FMC	FMC	FMC		FMC	FMC	FMC
Air Refueling		NMC				FMC							
Spacelift													
Special Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	FMC	FMC

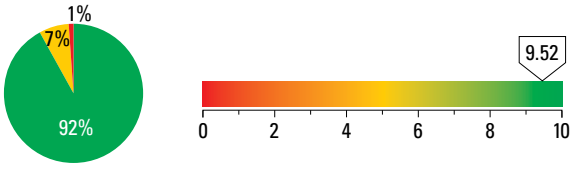
Legend: FMC, PMC, NMC

Encroachment Data

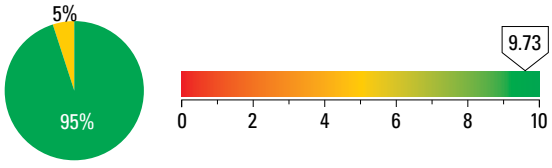
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Moderate	Severe		Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe
Counterair	Minimal	Moderate	Severe		Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe
Counterspace												
Counterland	Minimal	Moderate	Severe		Severe	Severe	Severe	Moderate	Severe	Severe	Severe	Severe
Countersea												
Information Operations	Minimal	Minimal	Severe						Severe		Severe	Severe
Electronic Combat Support	Minimal	Minimal	Severe		Severe		Severe	Severe	Severe	Severe	Severe	Severe
Command and Control	Minimal	Minimal	Severe		Severe		Severe	Severe	Severe	Severe	Severe	Severe
Air Drop	Minimal	Minimal	Severe		Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe
Air Refueling												
Spacelift												
Special Operations	Minimal	Moderate	Severe		Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Severe		Severe	Severe	Severe	Severe	Severe	Severe	Severe	Severe

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

No comments.

Summary Observations

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	9.88	9.88	9.52

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.78	9.78	9.73

No comments.

Razorback Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Counterland	🟡	Small landspace restricts allowable precision guided weapon deliveries.
Airspace	Air Refueling	🔴	Airspace too small for air refueling operations; adjoining MOA is used for air refueling.
Threats	Electronic Combat Support	🟡	Current threat simulator has limited range and cueing capabilities.
	Air Drop	🟡	Range has no stimulator for IR self protection flares
Infrastructure	Counterland	🟡	Awaiting funding for range residue holding area construction.
Range Support	Counterland	🟡	Limited by manpower and O&M funding. Additional RCO requested. Cannot support 2-shift operations.
	Command and Control	🟡	Current telephone line is unreliable. Connectivity to Air Force systems is often not available. Pursuing the installation of new fiber optic lines. Situation is improving due to guard wide GSU connectivity initiative.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Strategic Attack	🟡	Live munitions not allowed
	Counterair	🟡	Same as above.
	Counterland	🟡	Same as above.
	Special Operations	🟡	Same as above.
Adjacent Land Use	Counterland	🟡	Army Surface Danger Zones from adjacent small arms ranges frequently limit minimum altitude deliveries or prevent mission entirely.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Shelby Ranges Assessment Details

Range Mission Description

Class A Primary Training Range for Basic Surface Attack (BSA), Close Air Support (CAS), and Electronic Warfare (EW)for the 187th FW Montgomery AL, 238th ASOS Meridian MS, and multiple CRTC deployed units. Primary Drop zone and Assault Landing Zone for 172nd AW Jackson, MS, 815th AW Keesler AFB, and CRTC deployed AMC units. Support USAF 40th FTS and 85th TES located at Eglin AFB conducting BSA and CAS training. Support aerial gunnery training for the 4th and 19th SOS, Hurlburt AFB, FL. Support the 153rd ARS Meridian MS for Intelligence, Surveillance and Reconnaissance (ISR) Training. Support multiple MS Army National Guard aviation units for door gunnery training. Support 2 Large Force Exercises annually Magnolia Warrior MS Air National Guard and Emerald Warrior AFSOC.

Capability Data

Mission Areas	Capability Attributes												
	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	FMC	PMC			FMC	FMC	FMC	FMC	PMC	FMC	FMC	FMC	FMC
Counterair	FMC	PMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Counterspace													
Counterland	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Countersea													
Information Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Electronic Combat Support	FMC	FMC			FMC	FMC	FMC	FMC	PMC	FMC	FMC	FMC	FMC
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Air Drop	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Air Refueling													
Spacelift													
Special Operations	FMC	FMC			FMC	FMC	FMC	FMC	PMC	FMC	FMC	FMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC

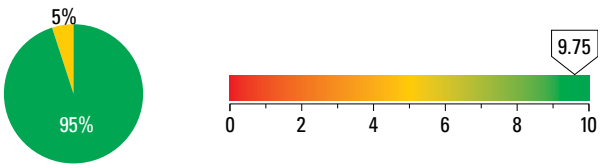
Legend: FMC PMC NMC

Encroachment Data

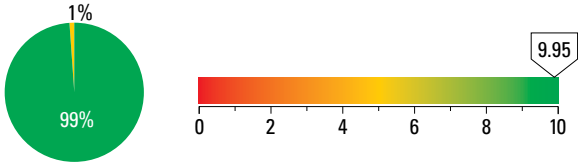
Mission Areas	Encroachment Factors												
	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Minimal	Moderate		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterair	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterspace												
Counterland	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Countersea												
Information Operations	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Electronic Combat Support	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Command and Control	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Drop	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Refueling	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Spacelift												
Special Operations	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal Moderate Severe

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

No comments.

Summary Observations

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	8.04	8.04	9.90

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	8.90	8.90	9.80

No comments.

Shelby Ranges Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Strategic Attack	●	Inadequate Airspace Volume both vertical and horizontal. Limits number of aircraft and types of maneuvers allowed. An airspace proposal is in the works to increase vertical airspace in Desoto MOA I and II. Proposal should be complete and charted NLT mid 2011.
	Counterair	●	Same as above.
Range Support	Strategic Attack	●	Limited authorized manpower levels. Limits the amount of operations that can take place, limits the amount and type of target area maintenance and improvement that can be conducted. Upcoming manpower study, date TBD may alleviate this issue.
	Electronic Combat Support	●	Limited authorized manpower levels Limits the amount of operations that can take place, electronic AFSC personnel are currently stretched thin, addition of new EW threat will place even larger workload on these troops. Upcoming manpower study, date TBD may alleviate this issue.
	Special Operations	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Strategic Attack	●	Proximity to Eglin and Tyndal training areas causes overlap in frequency assignments. Threat Emitter frequency authorizations are limited and lengthy approval process. Limits SADL operations, occasional air to ground and air to air frequency overlaps. SADL use must be coordinated with Joint Gulf Spectrum Manager prior to use, with limited frequencies and power settings. Radio frequency overlaps are coordinated with NGB Spectrum Manager for frequency re-assignment.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Siegenberg Assessment Details

Range Mission Description

Siegenburg Range has made many improvements over the last 12 months, the main improvement effecting capability vs. July 2009 is the addition of a second target, the second target enables USAFE A-10 and F-16's to drop BDU-33's as well as BDU-50's using normal delivery parameters, the addition of the target 600 feet downrange from the primary target puts a second target on a wider portion of the range, it complies with WDZ and AFI 13-212 requirements and makes no significant change to the current flight path of user aircraft eliminating any potential of additional noise complaints. The long-term solution (which is being persued) would be to add more land to the north of the range and use just one target for all aircraft, a work order is currently in the 52CES Real Estate Working Group, the estimate for action from the German Administrative office concerning the area in question is 3-5 years. Over the last 13 months many of the facilities have been renovated and are all currently functioning as intended, roads have been improved with gravel and compacting.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack													
Counterair													
Counterspace													
Counterland	PMC	PMC			PMC		FMC	FMC	PMC				
Countersea													
Information Operations													
Electronic Combat Support													
Command and Control													
Air Drop													
Air Refueling													
Spacelift													
Special Operations													
Intelligence, Surveillance, and Reconnaissance													

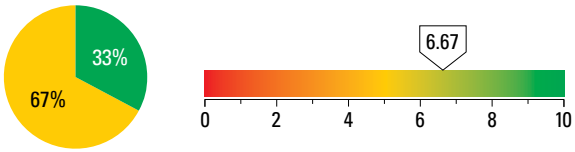
Legend: FMC, PMC, NMC

Encroachment Data

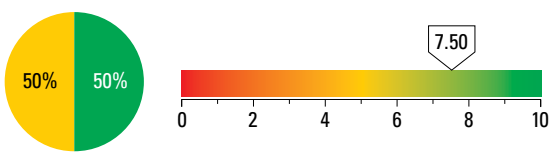
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack												
Counterair												
Counterspace												
Counterland	Minimal	Moderate			Moderate	Minimal	Moderate	Moderate		Minimal		Minimal
Countersea												
Information Operations												
Electronic Combat Support												
Command and Control												
Air Drop												
Air Refueling												
Spacelift												
Special Operations												
Intelligence, Surveillance, and Reconnaissance												

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Siegenberg Assessment Details

Summary Observations	Summary Observations
Siegenburg Range provides a functional and score able Air-to-Ground range for NATO aircraft. It also provides a demolition training area for the German Army EOD (7.5kg max) and USAFE EOD personnel (50lb max), there is limited ground training on range. The infrastructure in its' current state support operations however the ageing phone lines are starting to cause communication problems.	Siegenburg Range complies with safe/accepted standards and operations. Weapons Safety zones have been reviewed and are in compliance with WDZ and AFI 13-212. The airspace limitation is a hindrance but does not impact the main mission of Siegenburg which is to provide NATO aircraft with a score able Air-to-Ground bombing range.

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	4.03	4.03	6.67	**Encroachment Scores**	5.52	5.52	7.50
Siegenburg Range has made many improvements over the last 12 months, the main improvement effecting capability vs. July 2009 is the addition of a second target, the second target enables USAFE A-10 and F-16's to drop BDU-33's as well as BDU-50's using normal delivery parameters, the addition of the target 600 feet downrange from the primary target puts a second target on a wider portion of the range, it complies with WDZ and AFI 13-212 requirements and makes no significant change to the current flight path of user aircraft eliminating any potential of additional noise complaints. The long-term solution (which is being persued) would be to add more land to the north of the range and use just one target for all aircraft, a work order is currently in the 52CES Real Estate Working Group, the estimate for action from the German Administrative office concerning the area in question is 3-5 years. Over the last 13 months many of the facilities have been renovated and are all currently functioning as intended, roads have been improved with gravel and compacting.				Over the last year there have been improvements to the Encroachment Factors, amendments to the range reg will make it more user friendly for USAFE A/C and not impact noise abatement procedures. During the last environmental survey (Spring 2009) it was noted and documented that the care of the land mass that is Siegenburg Range by 52OSS personnel (in coordination with the assigned Forester) supports many diverse plants and animals to include some endangered species of both. The ability to strafe would enhance the use of Siegenburg Range and increase usage however the range in its current condition does support our main mission Air-to-Ground bombing along with the ability to score the shots.			

Siegenburg Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Counterland	●	Land-space restrictions curtail scope of available training. Aircrews are unable to train with PGMs or live munitions. 52 CES Real Estate Working Group is working to purchase land north of the range.
Airspace	Counterland	●	Range is in close proximity to German Airport, Manching. A/C making bombing passes must be on a 235 heading for deliveries and make immediate left turnouts after release. No corrective actions available, RCO and ATC facility maintain close coordination while range is active to eliminate safety of flight issues.
Targets	Counterland	●	The range only supports point targets and not a tactical array. This does not support training beyond basic surface attack. Efforts to purchase additional land remain on-going.
Range Support	Counterland	●	Deteriorating phone line from main building to range complex Limitation on bandwidth from range complex to adjacent facilities. 52CES is trying to solve the problem through workarounds/patches, eventual/long-term solution to install fiber optic cable and make the change from analog to digital throughout facilities.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Counterland	●	Munitions restrictions preclude live munitions and PGMs. There are restricted delivery headings due to the footprint. The restrictions limit aircrew familiarity with fuzing and exposure to PGMs and live munitions. Corrective actions are not feasible without land purchases (currently being pursued by 52 CES).
Airspace	Counterland	●	Range is in close proximity to German Airport, Manching. A/C making bombing passes must be on a 235 heading for deliveries and make immediate left turnouts after release. No corrective actions available, RCO and ATC facility maintain close coordination while range is active to eliminate safety of flight issues.
Noise Restrictions	Counterland	●	Need to navigate (zig-zag) around small towns in the area. For instance, USAFE A/C making 30+ degree passes optimum base turn would be on the southern end of the town of Siegenburg vs. before or after the town. Making an adjustment/amendment to the range regulation showing a hard base of 4500' above the town of Siegenburg along with the advisory to avoid overflying it if possible. This will allow USAFE A/C to make standard patterns. If there is an increase in noise complaints from the town it will be removed, this does not affect GAF Tornados they fly a different delivery pattern and avoid the town of Siegenburg.
Adjacent Land Use	Counterland	●	Several towns and protected forests surround the area. The limited size does not meet the requisite footprint for PGMs, precluding training with these munitions. Remedies are not available.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Smoky Hill Air National Guard Range (SHANGR) Assessment Details

Range Mission Description

Major Missions include 4 ANG flying units (132FW, 114FW, 138FW & 139AS), 2 Reserve AF flying units (303FS & 93BS) and 14 Active Duty AF flying units (49TES, 11BS, 20BS, 96BS, 340WS, 23BS, 69BS, 9BS, 337BS, 28BS, 37BS, 34BS, 509BW & 48AS), SHANGR supports daily air-to-ground sorties and electronic combat training. ASOS units CAF wide visit monthly if not weekly. 284th ASOS (Kansas ANG) and 10th ASOS (Active Duty) are frequent users. SHANGR supports a variety of Kansas Army guard units including PTAE and 108th Aviation units (door gunnery). SHANGR also provides training for Ft Riley aviation units (OH-58D, AH-64, UH-47 and HH-60) and various ground training for infantry. Last, the range also supports Canadian JTAC training course three times a year which includes CF-18, Alpha Jet and Griffon air-to-ground attack.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strategic Attack	●	●			●	●	●	●	●		●	●	●
Counterair	●	●			●	●	●	●	●		●	●	●
Counterspace													
Counterland	●	●			●	●	●	●	●		●	●	●
Countersea													
Information Operations													
Electronic Combat Support	●	●											
Command and Control													
Air Drop	●	●				●	●	●	●		●	●	●
Air Refueling		●				●		●	●				
Spacelift													
Special Operations	●	●			●	●		●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●			●	●		●	●		●	●	●

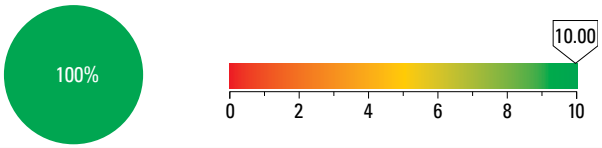
Legend: FMC ● PMC ● NMC ●

Encroachment Data

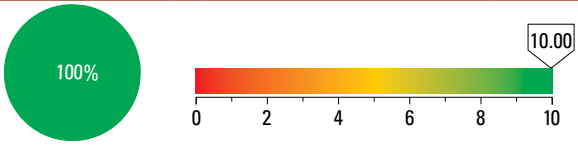
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	●	●	●		●	●	●	●	●	●	●	●
Counterair	●	●	●		●	●	●	●	●	●	●	●
Counterspace												
Counterland	●	●	●		●	●	●	●	●	●	●	●
Countersea												
Information Operations												
Electronic Combat Support	●	●	●		●	●	●	●	●	●	●	●
Command and Control												
Air Drop	●	●	●		●	●	●	●	●	●	●	●
Air Refueling	●	●	●		●	●	●	●	●	●	●	●
Spacelift												
Special Operations	●	●	●		●	●	●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●	●		●	●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

Army Ranges on SHANGR have been improved to provide support for 5.56, 7.62 and .50 cal firing.

Summary Observations

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	9.85	9.85	9.85

Army Ranges on SHANGR have been improved to provide support for 5.56, 7.62 and .50 cal firing.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	10.00	10.00	10.00

No comments.

Smoky Hill Air National Guard Range (SHANGR) Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
No comments.			

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
No comments.			

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Townsend Range Assessment Details

Range Mission Description

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack	●	●			●	●	●	●	●			●	
Counterair	●	●			●	●	●	●	●			●	
Counterspace													
Counterland	●	●			●	●	●	●	●	●		●	
Countersea													
Information Operations	●	●			●	●	●	●	●			●	
Electronic Combat Support	●	●			●	●	●	●	●			●	
Command and Control	●	●			●	●	●	●	●	●		●	
Air Drop													
Air Refueling	●	●				●		●	●				
Spacelift													
Special Operations	●	●			●	●	●	●	●			●	
Intelligence, Surveillance, and Reconnaissance	●	●			●	●	●	●	●			●	

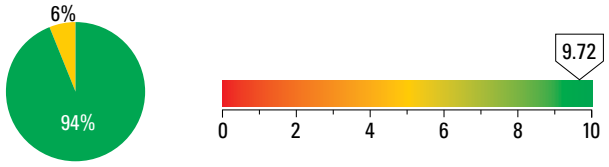
Legend: FMC ● PMC ● NMC ●

Encroachment Data

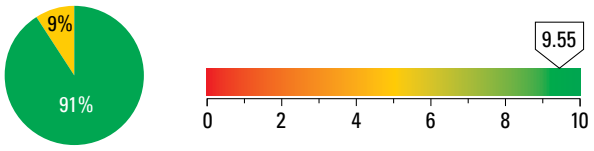
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	●	●	●		●	●	●	●	●	●	●	●
Counterair	●	●	●		●	●	●	●	●	●	●	●
Counterspace												
Counterland	●	●	●		●	●	●	●	●	●	●	●
Countersea												
Information Operations	●	●	●		●	●	●	●	●	●	●	●
Electronic Combat Support	●	●	●		●	●	●	●	●	●	●	●
Command and Control	●	●	●		●	●	●	●	●	●	●	●
Air Drop												
Air Refueling	●	●	●		●	●	●	●	●	●	●	●
Spacelift												
Special Operations	●	●	●		●	●	●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●	●		●	●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

No comments.

Summary Observations

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	9.85	9.85	9.72

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	9.72	9.72	9.55

No comments.

Townsend Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack	●	No comments.
Airspace	Strategic Attack	●	No comments.
	Counterair	●	No comments.
	Air Refueling	●	No comments.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Strategic Attack	●	No comments.
	Command and Control	●	No comments.
Airspace	Strategic Attack	●	No comments.
	Counterair	●	No comments.
	Air Refueling	●	No comments.
	Intelligence, Surveillance, Reconnaissance	●	No comments.
Noise Restrictions	Strategic Attack	●	No comments.
	Counterland	●	No comments.
	Spacelift	●	No comments.
	Special Operations	●	No comments.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Utah Test and Training Range (UTTR) Range Assessment Details

Range Mission Description

Primary Training Range with infrastructure to support large footprint testing. Primarily OT&E

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack	●	●			●	●	●	●	●	●	●	●	●
Counterair	●	●			●	●	●	●	●	●	●	●	●
Counterspace													
Counterland	●	●			●	●	●	●	●	●	●	●	●
Countersea													
Information Operations													
Electronic Combat Support	●	●			●	●	●	●	●	●	●	●	●
Command and Control													
Air Drop	●	●			●	●	●	●	●	●	●	●	●
Air Refueling	●	●			●	●	●	●	●	●	●	●	●
Spacelift													
Special Operations	●	●			●	●	●	●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●			●	●	●	●	●	●	●	●	●

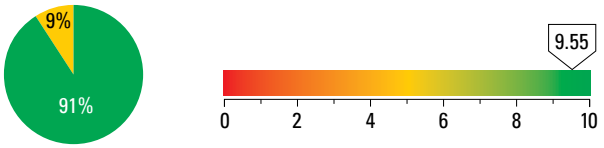
Legend: FMC ● PMC ● NMC ●

Encroachment Data

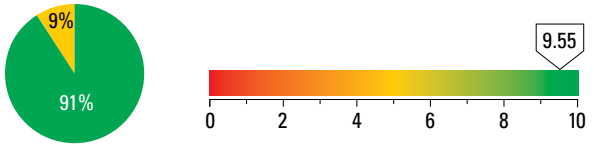
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	●	●	●		●	●	●	●	●	●	●	●
Counterair	●	●	●		●	●	●	●	●	●	●	●
Counterspace												
Counterland	●	●	●		●	●	●	●	●	●	●	●
Countersea												
Information Operations												
Electronic Combat Support	●	●	●		●	●	●	●	●	●	●	●
Command and Control												
Air Drop	●	●	●		●	●	●	●	●	●	●	●
Air Refueling	●	●	●		●	●	●	●	●	●	●	●
Spacelift												
Special Operations	●	●	●		●	●	●	●	●	●	●	●
Intelligence, Surveillance, and Reconnaissance	●	●	●		●	●	●	●	●	●	●	●

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Utah Test and Training Range (UTTR) Range Assessment Details

Summary Observations	Summary Observations
1. 91% of the UTTR's range/range complex mission areas are Fully Mission Capable (FMC) 2. Airspace Support is impacted as a direct result of the US Army expansion of Dugway Proving Ground (DPG) beyond operations as a Chem/Bio MRTFB into the realm of Unmanned Aerial Systems (UAS). The majority of these issues can be controlled through cooperative scheduling among DoD users, but continued uncontrolled Army UAS mission expansion will have dire impacts to all mission areas involving UTTR airspace. Additional limitations are also placed on airspace support during cruise missile, WSEP testing. 388 FW is forced to use White Elk ATCAA which does not support Strategic Attack or Electronic Combat. 3. Land space support may also be impacted as the Army further restricts Air Force operation on DPG property which underlies UTTR airspace. 4. Targets and Threats are not available to support next generation aircraft and weapons (F-22, JSF).	1. 91% of the range/range complex mission is free from encroachment factors 2. Overall external encroachment for the UTTR is minimal. However, internal encroachment is a direct result of the US Army expansion of Dugway Proving Ground (DPG) beyond operations as a Chem/Bio MRTFB into the realm of Unmanned Aerial Systems (UAS). The majority of these issues can be controlled through cooperative scheduling among DoD users, but continued uncontrolled Army UAS mission expansion will have dire impacts to all mission areas involving UTTR airspace. 3. Cultural Resources Encroachment involves a few very small Archeological sites which require avoidance. 4. The UTTR has one jurisdictional wetland area of 16,000 acres. It is located in the buffer zone to the UTTR, on the Western boundary of the range and has not created encroachment because of its close proximity to the boundary

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	9.89	9.89	9.89	**Encroachment Scores**	9.83	9.83	9.83
No comments.				No comments.			

Utah Test and Training Range Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack	●	Land space and all associated operations may be severely restricted or eliminated as the Army further restricts Air Force operation on DPG property which underlies UTTR airspace. Primary impact to ground operations to AF target complexes on DPG property underlying UTTR airspace.
Airspace	Strategic Attack	●	Can be limited during cruise missile, WSEP testing forcing 388th to use White Elk ATCAA which does not support surface attacks.
	Counterair	●	Same as above.
	Electronic Combat Support	●	Can be limited due to rapidly increasing Army UAS usage and to a lesser degree during cruise missile, WSEP testing forcing 388th to use White Elk ATCAA which does not support surface attacks. The Air Force is aggressively pursuing cooperative scheduling processes; however, continued Army UAS mission expansion is expected to push beyond the limits of efficient scheduling.
Targets	Strategic Attack	●	Land space and all associated operations may be severely restricted or eliminated as the Army further restricts Air Force operation on DPG property which underlies UTTR airspace. Primary impact to ground operations to AF target complexes on DPG property underlying UTTR airspace.
Threats	Strategic Attack	●	Threat systems and all associated operations may be severely restricted or eliminated as the Army further restricts Air Force operation on DPG property which underlies UTTR airspace. Primary impact will be reduced threat availability. Presently coordinating with Army and seeking alternative threat locations on AF property.
	Counterair	●	Same as above.
	Electronic Combat Support	●	Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Utah Test and Training Range Detailed Comments

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Electronic Combat Support	●	Competing frequency spectrum usage from adjoining US Army Dugway Proving Ground requires ever greater vigilance to ensure non-interference. Army users typically schedule frequency usage by days or weeks instead of specific hourly requirements which greatly limits utilization. Increases in the density of spectrum dependent equipment operating in the same bands result in increased operational conflict and a higher potential for interference. A DoD wide prioritization would be beneficial. Additionally, public and private development to include energy initiatives are increasingly utilizing COTS wireless equipment. This is beginning to cause spectrum encroachment issues which will only increase in future years.
Airspace	Strategic Attack	●	Competing airspace usage from adjoining US Army Dugway Proving Ground requires ever greater vigilance to ensure non-interference. Army usage has greatly increased limiting utilization by other users. The expanding mission of DPG outside the scope of its MRTFB Chem/Bio T&E capabilities will significantly impact UTTR operations.
	Counterair	●	Competing airspace usage from adjoining US Army Dugway Proving Ground requires ever greater vigilance to ensure non-interference. Army usage has greatly increased limiting utilization by other users. The expanding mission of DPG outside the scope of its MRTFB Chem/Bio T&E capabilities will significantly impact UTTR operations.
	Counterland	●	Competing airspace usage from adjoining US Army Dugway Proving Ground requires ever greater vigilance to ensure non-interference. Army usage has greatly increased limiting utilization by other users. The expanding mission of DPG outside the scope of its MRTFB Chem/Bio T&E capabilities will significantly impact UTTR operations.
	Electronic Combat Support	●	Competing airspace usage from adjoining US Army Dugway Proving Ground requires ever greater vigilance to ensure non-interference. Army usage has greatly increased limiting utilization by other users. The expanding mission of DPG outside the scope of its MRTFB Chem/Bio T&E capabilities will significantly impact UTTR operations.
Cultural Resources	Counterland	●	Archeological sites require avoidance. This avoidance has not and is not expected to limit access to training because they are very small areas within the UTTR and avoidance is easily achieved.
	Air Drop	●	Same as above.
	Special Operations	●	Same as above.

This Page is Intentionally Left Blank.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Vandenberg Range Assessment Details

Range Mission Description

Provide range and launch services to spacelift and strategic missile processing and launch operations while insuring public safety.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack	●	●	●	●			●		●				
Counterair													
Counterspace													
Counterland													
Countersea													
Information Operations													
Electronic Combat Support													
Command and Control													
Air Drop													
Air Refueling													
Spacelift	●	●	●	●			●	●	●				
Special Operations													
Intelligence, Surveillance, and Reconnaissance													

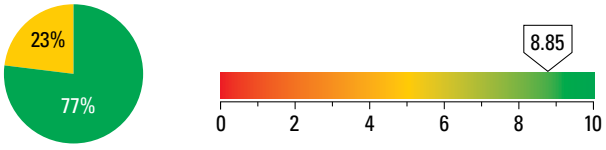
Legend: FMC ● PMC ● NMC ●

Encroachment Data

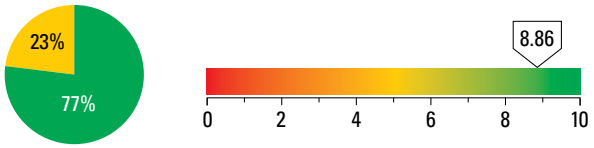
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	●		●	●	●	●	●	●	●	●	●	●
Counterair												
Counterspace												
Counterland												
Countersea												
Information Operations												
Electronic Combat Support												
Command and Control												
Air Drop												
Air Refueling												
Spacelift	●		●	●	●	●	●	●	●	●	●	●
Special Operations												
Intelligence, Surveillance, and Reconnaissance												

Legend: Minimal ● Moderate ● Severe ●

Capability Chart and Scores



Encroachment Chart and Scores



Summary Observations

No comments.

Summary Observations

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Capability Scores	NA	NA	NA

No comments.

Historical Information, Results, and Future Projections

Calendar Year	2008	2009	2010
Encroachment Scores	NA	NA	NA

No comments.

Vandenberg Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Spacelift		Infrastructure systems at CCAFS, water, sewer, power, roads, support facilities, etc, are aged and should have been recapitalized twice over the last 50 years. Infrastructure is required to support spacecraft and launch vehicle processing and range and launch operations--failure of infrastructure increase mission assurance risk. In order to operate within constrained budgets only triage of worst actors infrastructure can be addressed.
Range Support	Strategic Attack		Like infrastructure most range systems are aged and near end of life--the previous initiative to modernize range systems only addressed 25% of range systems. Increased risk to range availability to support vehicle processing and launch operations--risk to launch on time and ability to restore strategic SSBN asset to operations. With Launch Enterprise Transformation, we are reducing range foot print to the minimum to support public safety and customer most cherished requirements--limited recapitalization budget is directed to worst actor range systems essential to keep range green.
	Spacelift		Like infrastructure most range systems are aged and near end of life--the previous initiative to modernize range systems only addressed 25% of range systems. Increased risk to range availability to support vehicle processing and launch operations--risk to launch on time and assured access to space. With Launch Enterprise Transformation, we are reducing range foot print to the minimum to support public safety and customer most cherished requirements--limited recapitalization budget is directed to worst actor range systems essential to keep range green.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Strategic Attack		Several threatened & endangered species exist on 45 SW installations. Endangered Scrub Jay drives habitat remediation for most launch expansion and upgrades on CCAFS. More species are currently being considered for listing by US Fish and Wildlife, including gopher tortoises. This has the potentially to further impact mitigation requirements on future development to support T&E. Cost impact to all development on CCAFS to provide Scrub Jay offsetting habitat. Air Force will continue to bear cost.
	Spacelift		Same as above.
Spectrum	Strategic Attack		Increasing interference on C-band radar and UHF command frequencies. Potential to scrub launch attempts; inability to calibrate radars. Mitigation plans and procedures in place for command frequencies to minimize impact; expensive frequency purchase expected to be required to retain downrange (Antigua) radar capability.
	Spacelift		Same as above.
Adjacent Land Use	Spacelift		Development north of KSC is increasing population and therefore increasing expected casualty risk for potential vehicle anomaly. Canaveral Port Authority interest in taking over AF Port property threatens future mission needs. Future constraints on launch trajectories and launch availability from CCAFS. Investigating land purchases to limit development.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Warren Grove Assessment Details

Range Mission Description

9416 acre Primary Training Range (PTR) located in central Southeastern New Jersey Pinelands Preserve. Mission is to deliver the most realistic, relevant and safe environment to train air and ground warfighters for victory in today and tomorrow's joint combat operations arena – supporting Federal, State, local and first responder personnel for homeland defense operations, and national and world wide tasking. Primary Training Units include: 119FW (F-16, ACY), 113FW (F-16, ADW), 175FW (A-10, BAL), VX23/Test Pilot School (F-18, NHK), 1/150th (H-60, MAG-49 (UH-1/CH-53D, NXX), 106 RQW (H-60, FOK), 227 ASOS (JTAC, ACY), Numerous ground and Special Forces units around the globe.

Capability Data

Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Strategic Attack	FMC	FMC			PMC	PMC	PMC	PMC	FMC			FMC	FMC
Counterair	FMC	PMC			FMC	PMC	FMC	FMC	FMC			FMC	FMC
Counterspace		NMC											
Counterland	FMC	PMC			PMC	PMC	PMC	FMC	FMC	PMC	NMC	FMC	FMC
Countersea			NMC										
Information Operations	FMC	FMC			FMC			FMC	PMC				FMC
Electronic Combat Support	FMC	FMC			FMC	PMC		FMC	FMC				FMC
Command and Control	FMC	FMC			FMC		FMC	PMC	PMC				FMC
Air Drop	FMC	FMC			FMC	FMC	FMC	FMC	FMC				FMC
Air Refueling		NMC											
Spacelift		NMC											
Special Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC	PMC	PMC	PMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	PMC	FMC	FMC	PMC			FMC	FMC

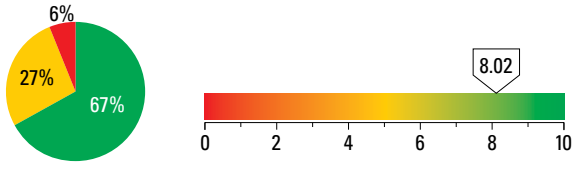
Legend: FMC, PMC, NMC

Encroachment Data

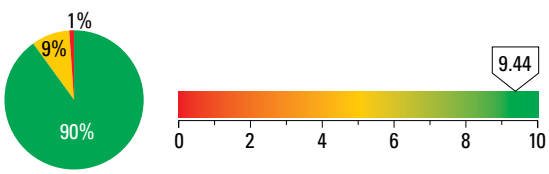
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	Minimal	Moderate	Moderate		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterair	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterspace												
Counterland	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Countersea												
Information Operations	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Electronic Combat Support	Minimal	Moderate	Severe		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Command and Control	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Drop	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Refueling												
Spacelift												
Special Operations	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

Capability Chart and Scores



Encroachment Chart and Scores



Warren Grove Assessment Details

Summary Observations	Summary Observations
1. Munitions restrictions and airspace limits are the largest factors affecting WGR's ability to provide best training environment in given areas. 2. No-drop scoring/feedback system would eliminate restrictions imposed by munitions restrictions 3. Outstanding MOUT facility is tremendous asset in indicated areas (4) WGR does not have a suite of ranges, does not provide added benefit to areas, but does not detract as it is not a competing issue	No comments.

Historical Information, Results, and Future Projections				Historical Information, Results, and Future Projections			
Calendar Year	2008	2009	2010	**Calendar Year**	2008	2009	2010
Capability Scores	NA	NA	9.81	**Encroachment Scores**	NA	NA	9.74
No comments.				No comments.			

Warren Grove Range Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack	🟡	Evaluating if range owned land is large enough to permit use of IAMS weapons. Currently have limited use of LGBs. Actively pursuing additional land acquisition via REPI and partnerships with local conservations organizations IAW RAICUZ. Ongoing.
Airspace	Strategic Attack	🟡	Limited airspace restricts types, tactics of SA training. High Altitude expansion initiative of R-5002 airspace currently under FAA review. When expansion approved, will greatly enhance type, tactics of SA training available to meet the needs of current and future aircraft.
	Counterair	🟡	Same as above.
	Counterspace	🔴	Insufficient airspace to conduct any counter-space training. No feasible solution proposed.
	Counterland	🟡	Limited airspace restricts types, tactics of CL training. High Altitude expansion initiative of R-5002 airspace currently under FAA review. When expansion approved, will greatly enhance type, tactics of SA training available to meet the needs of current and future aircraft.
	Air Refueling	🔴	Insufficient airspace to conduct any air-refueling training
	Spacelift	🔴	Insufficient airspace to conduct any space-lift training
Seaspace	Countersea	🔴	No sea-space at WGR, land range - cannot conduct counter-sea training
Targets	Strategic Attack	🟡	The range does not posses targets with fidelity sufficient for 5th generation aircraft training
	Counterland	🟡	Currently the requirement for a moving strafe target are not being met. Target cost have prohibited the ability to develop moving strafe target. Moving target of local design currently under development. Efficacy of current local design should be validated by late CY10/early CY11.
Threats	Strategic Attack	🟡	Lack of available frequency authorization limits ability of WGR to present tactical threat array for threats which would be present in these areas. Relief date unknown.
	Couterair	🟡	Same as above.
	Couterland	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.
	Intelligence, Surveillance and Reconnaissance	🟡	Same as above.
Scoring & Feedback System	Strategic Attack	🟡	Lack of IR scoring capability limits ability to score night weapon impacts or provide valid aircrew feedback. Awaiting funding for Night/IR WISS Scoring capability.
	Counterland	🟡	Same as above.

Figure 3-39 Air Force Capability and Encroachment Assessment Detail (continued)

Warren Grove Range Detailed Comments

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Strategic Attack	🟡	Lack of a target fabrication facility limits ability to construct multitude of targets for extensive SA training. Limits fabrication and versatility of target array. Package submitted to Base CE for construction Target Fabrication Facility. Unfunded. Date of remedy unknown.
	Command and Control	🟡	Current Main Tower and communications suite antiquated and need of replacement by building of greater functional configuration, visibility, and cost-effective construction. Package submitted to Base CE for construction of new Main Tower. Unfunded. Date of remedy unknown.
Range Support	Information Operations	🟡	WGR is not currently connected to DTOC, limiting ability to train in the Decide and Assess areas of the war fighting cycles. Pursuing SADL/Gateway connectivity. Date of Remedy unknown.
	Command and Control	🟡	Same as above.
	Intelligence, Surveillance and Reconnaissance	🟡	Same as above.
Small Arms Ranges	Counterland	🟡	WGR does not currently have a Small Arms range, although one is in development. Limits training opportunities of ground force employment.
	Special Operations	🟡	Same as above.
Collective Ranges	Counterland	🔴	WGR is not a collective range, does not have land mass to accommodate a collective range.
	Special Operations	🟡	WGR is not a collective range, does not have land mass to accommodate large unit level battlefield operations, but has ability to train team size JTAC units for battlefield operations
MOUT Facilities	Special Operations	🟡	MOUT targets are outstanding from air, but not the best for special ops forces. New area for ground forces under development. Targeted Construction completion date of summer FY2011.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Strategic Attack	🟡	Ability to expend weapons with marking charges may be restricted in the future, restricting the type of training munitions available for SA, CA, and CL training
	Counterair	🟡	Same as above.
	Counterland	🟡	Same as above.
	Electronic Combat Support	🟡	Chaff not permitted. Aircrew unable to expend Chaff during self-protect maneuvering. No relief anticipated.
Spectrum	Strategic Attack	🟡	Based upon size of Restricted Airspace and proximity to high volume Civil Airways, chaff not permitted. Aircrew unable to expend Chaff during self-protect maneuvering. No relief anticipated.
	Electronic Combat Support	🔴	Lack of approved WGR temporary or permanent frequency authorization limits ability to execute EC (EA or EP) training. Cannot provide threat simulations for aircrew. No relief date given.
Airspace	Strategic Attack	🟡	Vertical and horizontal limits to R-5002 airspace limit ability to provide tactical training environment for SA operations. High Altitude expansion initiative of R-5002 airspace currently under FAA review. When expansion approved, will greatly enhance type, tactics of SA training available to meet the needs of current and future aircraft.
	Counterair	🟡	Vertical and horizontal limits to R-5002 airspace limit ability to provide tactical training environment for CA operations. High Altitude expansion initiative of R-5002 airspace currently under FAA review. When expansion approved, will greatly enhance type, tactics of CA training available to meet the needs of current and future aircraft.
	Counterland	🟡	Vertical and horizontal limits to R-5002 airspace limit ability to provide tactical training environment for CL operations. High Altitude expansion initiative of R-5002 airspace currently under FAA review. When expansion approved, will greatly enhance type, tactics of CL training available to meet the needs of current and future aircraft.
	Intelligence, Surveillance and Reconnaissance	🟡	Vertical and horizontal limits to R-5002 airspace limit ability to provide tactical training environment for ISR operations. High Altitude expansion initiative of R-5002 airspace currently under FAA review. When expansion approved, will greatly enhance type, tactics of ISR training available to meet the needs of current and future aircraft.

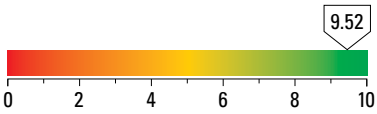
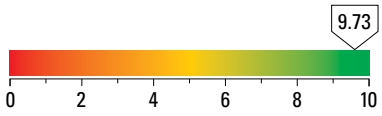
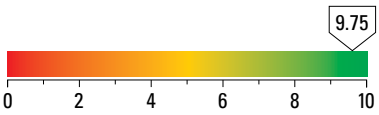
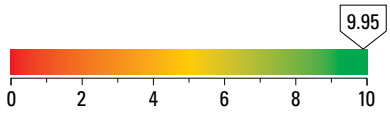
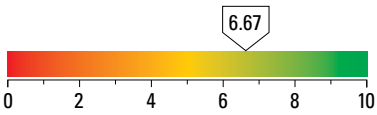
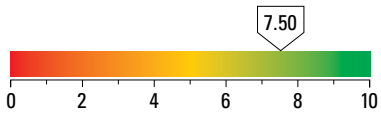
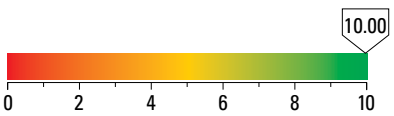
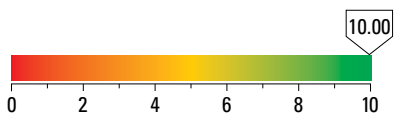
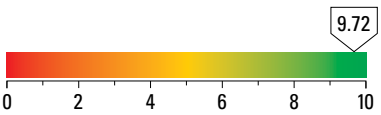
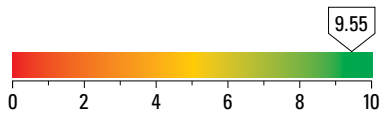
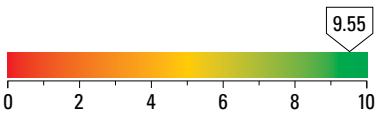
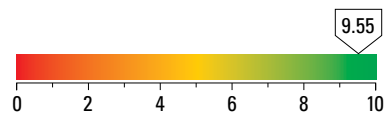
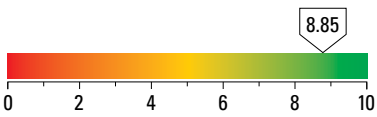
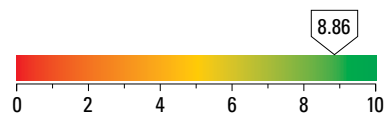
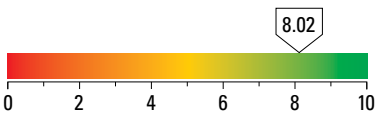
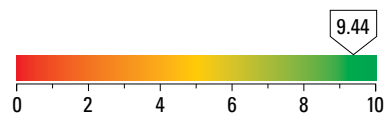
This Page is Intentionally Left Blank.

Table 3-15 Air Force Range Capability and Encroachment Assessment Comparison

Range Name	Capability Score	Encroachment Score
Adirondack	7.27	8.94
Airburst	8.90	10.00
Atterbury	9.29	8.23
Avon Park	8.81	9.57
BMGR	8.77	9.13
Bollen	8.77	9.15
Cannon	5.09	9.11
Claiborne	6.67	10.00
Dare County Ranges	10.00	10.00
Eglin Ranges	8.03	8.42
Falcon	9.79	10.00

Range Name	Capability Score	Encroachment Score
Grand Bay	9.91	9.92
Grayling	9.44	9.49
Hardwood	9.53	9.24
Holloman	9.41	9.88
Jefferson	8.97	8.46
McMullen	7.94	9.77
Melrose	9.50	9.60
Mountain Home Ranges	10.00	10.00
Nevada Test and Training Range (NTTR)	8.31	8.56
Patrick	9.62	7.08
Poinsett	9.77	9.92
Polygone	7.62	8.50

Table 3-15 Air Force Range Capability and Encroachment Assessment Comparison (continued)

Range Name	Capability Score	Encroachment Score
Razorback		
Shelby Ranges		
Siegenburg		
Smoky Hill		
Townsend		
Utah Test and Training Range (UTTR)		
Vandenberg		
Warren Grove		

3.3 Summary and Conclusion

This data will allow DoD and the Military Services to systematically evaluate the status of training ranges in a consistent and reliable manner that is comparable over time to enhance informed decision making. Decision makers, planners, and analysts can use the capabilities and encroachment data to develop strategies to mitigate range and training area shortfalls, bring required capabilities to standards, and address negative impacts from encroachment. These benefits will aid in improving range sustainment plans and investment priorities.

The ability to see data in a common framework across Military Service mission areas will allow OSD and the Military Services to analyze range data in a number of ways, at various levels, which will aid in the identification of trends and the assessment of the sustainability of ranges. DoD will continue to provide necessary guidance to improve assessment methods, data quality, and reliability, and exercise its oversight responsibilities to ensure ranges and operational areas meet the Department's training requirements.

This Page is Intentionally Left Blank.



4 Department of Defense's Comprehensive Training Range Sustainment Plan

NDAA Section 366(a)(1) requires DoD to develop a comprehensive training range sustainment plan. DoD has established a comprehensive range planning and management program under its SRI that addresses this requirement.

The SRI is a multi-faceted program that has reorganized the way the Department identifies and responds to increasing constraints on realistic training.[10] The program focuses more directly on the training, policy, people, and resource needs by employing the concept of sustainability as a guiding principle. DoD reinvigorated existing relationships and initiated new partnering and outreach efforts with a wide array of stakeholders in a collaborative fashion, including: communities surrounding our ranges and installations; State and Federal regulatory, planning, and infrastructure agencies; native American tribes; and non-governmental organizations (NGOs).

The SRI provides a flexible and adaptive planning framework that guides continuing, cooperative, and coordinated range sustainment efforts between DoD and the Military Services, as well as mechanisms that facilitate interaction with local, State, and other Federal agencies and NGOs. The program includes an array of policy, organizational, programming, outreach, legislative, and related efforts to address near-term training requirements and long-term sustainability of ranges and installations. This broad-based framework supports:

- Individual and joint range requirements and needs of DoD and the Military Services;
- Identification of Military Service-specific and DoD-wide encroachment and range sustainability issues;
- Evaluation of the availability, accessibility, and usability of existing range resources;
- Development of overarching program goals, articulation of the actions and activities necessary to achieve them, and the establishment of milestones to validate progress; and
- Initiation of legislative, regulatory, and outreach program activities, as required.

This chapter of the FY2010 SRR addresses FY2003 NDAA Sections 366(a)(4)(c) to report on such sustainable range initiatives.

4.1 Management Structure

DoD and the Military Services have key roles to play in implementing the SRI in order to create a comprehensive approach to training range sustainability. Those roles, framed in large part by the requirements of U.S.C. Title 10, are described in Sections 4.1.1 and 4.1.2 of this report.

4.1.1 Department of Defense

The Office of the Under Secretary of Defense for Personnel and Readiness (OUSD[P&R]) has lead responsibility for developing and overseeing implementation of DoD's comprehensive training range sustainment plan. To ensure consideration of the full spectrum of readiness issues, OUSD(P&R) works with the

10 Although this report only focuses on the training aspects of test ranges, the SRI is concerned with both training and test aspects of all ranges.

Senior Readiness Oversight Council (SROC). The SROC is the decision-making body and advisory board for matters pertaining to readiness. Its responsibilities include reviewing range sustainment policies and issues, overseeing readiness-related activities, providing recommendations to the Secretary of Defense on readiness policy matters, and providing reports on current and projected readiness issues.[11]

The Sustainable Ranges Integrated Product Team (IPT) reports to the SROC on range sustainment issues. This IPT operates on two levels. The OIPT acts as the coordination forum for the development of range sustainment strategies. The Working Integrated Product Team (WIPT), co-chaired by the Office of the Deputy Assistant Secretary of Defense for Readiness (ODASD[R]), the Office of the Deputy Under Secretary of Defense for Installations and Environment (ODUSD[I&E]), and the Office of the Director, Operational Test and Evaluation (DOT&E), meets regularly and reports to the OIPT. Both the OIPT and the WIPT work collaboratively with other DoD and Military Service organizations on range sustainability issues.

4.1.2 The Military Services

While the establishment of fundamental training policy and oversight of DoD-wide training range sustainment activities is the responsibility of OUSD(P&R), the Military Services implement most sustainable range initiatives. Each Military Service has one or more headquarters-level offices responsible for overseeing the development and operational implementation of Military Service-specific range sustainment policies and programs. Table 4-1 lists the offices responsible for training ranges within OSD and the Military Departments.

4.2 Goals, Actions, and Milestones

Since the 2006 SRR, DoD had been using a set of shared goals and milestones that were, at the time, planned to guide range sustainability activities through FY2011. By using a common framework of goals and their related milestones, DoD and the Military Services were able to make meaningful comparisons and measurements of past performance and progress towards achieving their training and range sustainability objectives. During FY2009, DoD determined that many of the previous goals and milestones used in previous reports had either been overcome by other events or outlived their relevance.

New goals that are measurable, attainable, and more closely aligned to the seven sustainable ranges IPT focus areas were established for the 2010 Report. The following graphic reflects the new goals.

Using these goals as a common framework, the Military Services then set out to establish their own supporting milestones and actions. The structure of these goals and milestones, and the current status of supporting Military Service activities are shown in Tables 4-2 through 4-8. Based on annual assessment data, these programmatic goals and milestones will continue to be reviewed and updated annually to ensure the SRI continues to effectively address training requirements as well as constraints or limitations that may arise in the future.

2011 Goals

Goal 1—Mitigate encroachment pressures on training activities from competing operating space (land, air, sea, space, and cyber) uses.

Goal 2—Mitigate frequency spectrum competition.

Goal 3—Meet military airspace challenges.

Goal 4—Manage increasing military demand for range space.

Goal 5—Address impacts from new energy infrastructure and renewable energy impacts.

Goal 6—Anticipate climate change impacts.

Goal 7—Sustain excellence in environmental stewardship.

11 Guidance for Fiscal Years 2006-2011 Sustainable Ranges Programs, memorandum from the Under Secretary of Defense for Personnel and Readiness, 26 June 2003.

Table 4-1 Responsible Training Range Offices within OSD and the Military Departments

Milestones	Actions Taken to Achieve the Milestone
Office of the Secretary of Defense (OSD)	**Office of the Under Secretary of Defense for Personnel and Readiness** Deputy Assistant Secretary of Defense (Readiness) Director, Training Readiness and Strategy
Army	**Office of the Deputy Chief of Staff, G-3/5/7,** Training Directorate Training Support Systems Division (DAMO-TRS) Assistant Chief of Staff for Installation Management (ACSIM)
Marine Corps	**Commanding General, Training, and Education Command** Range and Training Area Management Division[12] Range Modernization and Investment Range Operation and Maintenance Deputy Commandant for Installations and Logistics Facilities and Services Division[13] Environmental Encroachment
Navy	**Office of the Chief of Naval Operations, Materiel Readiness, and Logistics (N4)** Fleet Readiness Division (N43) Range Modernization and Investment (N433) and Range Operation and Maintenance (N433) Environmental Readiness Division (N45) Operational Environmental Readiness Planning Branch (N456) Commander, Naval Installations Command (CNIC)/Ashore Readiness Division (N46)
Air Force	**Deputy Chief of Staff for Operations, Plans, and Requir ements** HQ USAF Bases, Ranges and Airspace/A3O-BAR

12 Executive Agent for Marine Corps Ranges

13 Executive Agent for Marine Corps Installations

Table 4-2 Encroachment Actions and Milestones

Goal Mitigate Encroachment Pressures on Training Activities from Competing Operating Space (land, air, sea, space, and cyber issues)

Actions	Milestones
Army	
Review and maintain Installation Range Complex Master Plans (RCMPs)	▸ Finalize 100% of RCMPs for required installations by 4th Quarter FY2011 ▸ Review and update RCMPs for required installations—Ongoing (annually)
Execute the Army Compatible Use Buffer (ACUB) Zone program to protect the military mission and offset training restrictions	▸ Execute the ACUB program at over 29 locations, permanently protecting land from incompatible land uses—Ongoing ▸ Document a consistent and clearly defined ACUB strategy, including metrics for program success and prioritization measures by 4th Quarter FY2011 ▸ Transition management of the ACUB program from environmental to operations by 2nd Quarter FY2012 ▸ Compete for out-year Army funding to support the ACUB program during POM 13-17
Implement a focused community research process to: provide the Army with a research-based understanding of community views on operational and perceived impacts of Army installations and training activities; demonstrate interest in public opinions, making the public part of the decision-making process	▸ Complete two additional installation community research efforts by 4th Quarter FY2011 ▸ Implement an on-going strategy to continually update community research findings at major training installations by 4th Quarter FY2011
Execute State Legislative Initiatives	▸ Conduct reviews with stakeholders to discuss the adverse impacts of incompatible land uses near military installations and gain their support—Ongoing
Marine Corps	

Continue to analyze and assess encroachment, quantitatively and qualitatively, at the installation, regional, and Service levels	▸ Include encroachment analysis in Regional Range Complex Management Plans (RCMPs)
	  ▸ Marine Corps Installations (MCI) -West underway (initiated FY2009)
	  ▸ MCI-East (planned FY2011)
	  ▸ MCI-PAC (planned FY2011/FY2012)
	▸ Execute Encroachment Control Plans (ECPs)
	▸ ECPs completed:
	  ▸ Marine Corps Air Station (MCAS) Yuma
	  ▸ Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms
	  ▸ Marine Corps Base (MCB) Quantico
	  ▸ MCAS Cherry Point
	  ▸ MCAS Beaufort/Townsend Range
	  ▸ MCB Camp Lejeune/MCAS New River
	▸ ECP in progress (complete in FY2010):
	  ▸ Joint (Navy/Marine Corps) Guam
	  ▸ MCB Camp Pendleton
	  ▸ MCAS Miramar
	  ▸ MCI-WEST
	  ▸ MCB Hawaii
	▸ ECPs planned (FY2010/FY2011):
	  ▸ Marine Corps Mountain Warfare Training Center Bridgeport
	▸ Facilitate/support regional inter-agency and inter-governmental partnerships:
	  ▸ Western Regional Partnership
	  ▸ Southeast Regional Partnership for Planning and Sustainability

Continue to evaluate, plan for, and execute encroachment partnering opportunities per 10 U.S.C. § 2684a	▸ Execute buffer lands acquisition
	▸ Completed partnering transactions (32 complete to date):
	MCI—National Capital Region
	  ▸ Quantico (302 acres [ac.])
	MCI—EAST
	  ▸ MCAS Beaufort (1,622 ac)
	  ▸ Townsend Range (21,761 ac)
	  ▸ MCAS Cherry Point (259 ac)
	  ▸ Camp Lejeune (1,794 ac)
	  ▸ Piney Island Range (2,226 ac)
	MCI—WEST
	  ▸ Camp Pendleton (1,793 ac)
	  ▸ Twentynine Palms (958 ac)
	▸ Evaluate opportunities in all Continental United States MCI regions (FY2011)

Table 4-2 Encroachment Actions and Milestones (continued)

Goal Mitigate Encroachment Pressures on Training Activities from Competing Operating Space (land, air, sea, space, and cyber issues)

Actions	Milestones
Navy	
Employ proactive interaction with all Services to sustain installation and range capabilities	▸ Interact with the other Services through common scheduling and coordination and regional partnership conferences to discuss installation growth and energy sustainment with operational range capabilities (by FY2011)
Continue to analyze and assess encroachment, quantitatively and qualitatively at the installation and regional levels	▸ Update nine Encroachment Action Plans (EAPs) and complete an assessment of encroachment pressures and their impacts on the same Navy training ranges using a parallel process (by FY2011) ▸ Utilize and develop the Navy Community Liaison and Plans Officer program to continuously engage communities where the potential encroachment of installations and ranges may arise
Continue to evaluate, plan for, and execute partnering opportunities per 10 U.S.C. Section 2684a	▸ Use a parallel process to update applicable EAPs and identify all encroachment partnering opportunities for associated Navy training ranges
Air Force	

Develop the Center Scheduling Enterprise (CSE) system and integrate flight scheduling systems with other scheduling systems	▸ Created a modified range and airspace utilization reporting process to make it more effective (FY2010)—Complete
	▸ Developed modified information operations activities for consistent application for standard open air range operations (FY2010)—Complete
	▸ Modify utilization reports to provide a complete and accurate account of airspace and range usage (FY2011)
	▸ Use enterprise architecture to institute a streamlined version of CSE (FY2009-FY2012):
	  ▸ Developed a common system for units to schedule Air Force assets; BETA (FY2009); Version 1.0 (FY2010)—Complete
	  ▸ Established CSE architecture (FY2010)—Complete
	  ▸ Deploy CSE system throughout the Air Force (FY2010–FY2012)—Ongoing
	  ▸ Standardize terms, practices, and procedures used for scheduling and utilization reporting at all Air Force ranges to ensure true comparison of assets (FY2010) – Ongoing
	  ▸ Provide a quantitative basis for defending current requirements and developing future needs (FY2011–FY2012)
	  ▸ Integrate CSE with Federal Aviation Administration system to allow seamless machine-to-machine data transfer of airspace schedules, activations, and release (FY2010–FY2011)—Ongoing
	  ▸ Develop and interface between CSE and the Army/Marine Corps Range Facility Management Support System (FY2011)

Improve range encroachment considerations in Air Force basing decision making	▸ Incorporate range encroachment as a key and quantifiable factor in the Air Force corporate basing process (FY2011) ▸ Incorporate beneficial zoning and civic encroachment mitigations in the decision making process (FY2011)

Table 4-3 Frequency Spectrum Actions and Milestones

Goal Mitigate Frequency Spectrum Competition

Actions	Milestones
Army	
Create an ACUB to protect spectrum at Fort Huachuca, home of Electronic Proving Ground	▸ Complete Phase III and IV of the Fort Huachuca ACUB proposal by 4th Quarter FY2011 (subject to the availability of funding)
Design new ranges to minimize spectrum competition	▸ Complete installation of fiber optic cabling to support a wireless network, control targetry, and minimize spectrum and interference on ranges by FY2017
Marine Corps	
Analyze and assess frequency spectrum issues potentially impacting training capabilities at range complexes	▸ Assess operational impacts of frequency encroachment at the range complex level (planned FY2011–2012) ▸ Incorporate frequency spectrum encroachment analysis and potential mitigation measures into planned ECPs; incorporate updates to existing ECPs (see Goal 1 for schedule)
Navy	
Analyze and assess frequency spectrum issues potentially impacting training capabilities at the range complex and regional level	▸ Update the RCMPs and EAPs to identify and assess frequency spectrum conflicts, shortfalls, and the impacts on Navy training (by end of FY2012) ▸ Advocate the protection of military frequencies that could be affected by frequency re-allocation and/or the National Broadband Plan
Air Force	
Improve frequency/spectrum considerations in AF basing decision-making	▸ Incorporate frequency/spectrum as a key and quanifyable factor in the AF corporate basing process (FY2011)

Table 4-4 Airspace Actions and Milestones

Goal Meet Military Airspace Challenges

Actions	Milestones
Army	
Develop an unmanned aircraft system (UAS) Army Strategy; Define the Army's UAS use through 2035	▸ Publish the Army's Roadmap for UAS through 2035—Complete ▸ Sustained UAS training facilities at 28 locations in POM (FY2012–2016) ▸ Perform additional facility upgrades of UAS training facilities at 28 locations in POM (FY2013–2017)
Marine Corps	
Define future requirements for military airspace, current and projected airspace shortfalls, and possible courses of action to mitigate shortfalls at installation, range complex, regional, and Service levels	▸ Include airspace analysis in Regional Range Complex Management Plans (RCMPs) (see Goal 1 for schedule) ▸ Assess airspace requirements and shortfalls in preparation of and submission for Regional Airspace Plans (FY2011) ▸ Complete strategic-level assessment of range requirements and shortfalls re: training land and airspace (presently at 4-Star decision level) ▸ Continue airspace expansion planning for Marine Corps Air-Ground Combat Center Twentynine Palms (draft EIS 1st Qtr FY2011) ▸ Continue to track airspace issues and FAA initiatives potentially affecting military activities
Navy	
Define future requirements for military airspace, current and projected airspace shortfalls, and possible courses of action to mitigate shortfalls at installation, range complex, regional, and Service	▸ Use RCMPs and EAPs to assess future Navy special use airspace requirements based on projected force structure changes and new weapon systems and missions; recommend possible courses of action consistent with regional airspace plans; identify potential shortfalls in land and sea space for each Navy range complex level (by end of FY2012) ▸ Ensure the common aspects of this goal and the goal of addressing "Impacts from New Energy Infrastructure and Renewable Energy Impacts" coordinate with and compliment each other
Air Force	
Improve airspace considerations in Air Force basing decision-making	▸ Incorporate airspace as a key and quantifiable factor in the Air Force corporate basing process (FY2011)

Table 4-5 Range Space Actions and Milestones

Goal Manage Increasing Military Demand for Range Space

Actions	Milestones
Army	
Assess overall range capabilities in support of Army Force Generation (ARFORGEN), as part of the Army Training Support System Assessment	▸ Canvass four Continental United States (CONUS) installations to ensure Mission Essential Requirements (MERs) are met for ranges by 1st Quarter FY2011
Execute Theater In-Process Reviews (IPRs) to review range capabilities against MERs	▸ Conduct Theater IPRs in Europe and the Pacific to assess range capabilities to support ARFORGEN during 3rd-4th Quarter FY2011 ▸ Apply results from the Theater IPRs to POM 14-18
Implement the Range and Training Land Strategy (RTLS) to prioritize Army training land investments and provide a framework to address training land shortfalls through land acquisition, compatible use buffering, sustainable management, and use of other Federal land	▸ Finalize review and revision of the RTLS by 4th Quarter FY2011 ▸ Implement a two-year review and update the RTLS process by 4th Quarter FY2011
Execute Training Land Acquisitions to offset the nearly five million acre shortfall in training land assets	▸ Open the western and southern expansion areas at Fort Irwin/National Training Center, CA for training, pending the U.S. Fish and Wildlife Service rendering a biological opinion for the desert tortoise—Ongoing ▸ US Army Corps of Engineers to complete title work and appraisals of property located in priority expansion areas at Fort Polk/Joint Readiness Training Center, LA and initiate formal negotiations with land owners by 2nd Quarter FY2011 ▸ Complete the Environmental Impact Statement (EIS) to study proposed areas for training land acquisition at Fort Benning, GA by 4th Quarter FY2011; US Army Corps of Engineers to complete real estate planning studies by 1st Quarter FY2012 ▸ Complete the EIS to study proposed areas for training land acquisition at South Texas Training Site, TX by 2nd Quarter FY2012
Utilize non-Department of Defense sites for Army training (e.g., Savannah River Site)	▸ Complete the draft Environmental Assessment to facilitate full training use of Savannah River Site by 2nd Quarter FY2011
Marine Corps	
Define future requirements for land ranges and other areas to support training, current and projected land shortfalls, and possible courses of action to mitigate shortfalls at range complex-, regional- and Service-levels	▸ Include range requirements analysis in regional Range Complex Management Plans (RCMPs) (see Goal 1 for schedule) ▸ Facilitate enhanced cross-service utilization of range areas (cross-service use to be analyzed and quantified in Regional RCMPs FY2010/2011) ▸ Initiate strategic-level assessment of range requirements and shortfalls re: training land and airspace (initiate FY2010) ▸ Continue range expansion planning for MCAGCC Twentynine Palms (draft EIS 1st Qtr FY2011) ▸ Continue range expansion planning for Townsend Bombing Range (pending Notice of Intent) ▸ Conduct strategic land requirements analysis (currently at 4-star decision level)
Navy	
Define future requirements for land ranges and other areas to support training, current and projected land shortfalls, and possible courses of action to mitigate shortfalls at Navy range complexes	▸ Update and complete RCMPs to assess future requirements for Navy air, sea, and land ranges based on force structure change, and new weapon systems and missions by FY2012; identify shortfalls in range capabilities in POM12 and PR13 and complete range requirements in Navy service-level Planning, Programming, Budgeting, and Execution
Air Force	
Improve range space considerations in Air Force basing decision-making	▸ Incorporate range space as a key and quantifiable factor in the Air Force corporate basing process (FY2011)
Develop range configuration to support urban training	▸ Develop Melrose Range, an urban training complex with a mountainside village and a target complex with hillside tunnels; transform Cannon Air Force Base (AFB), NM to support the Air Force Special Operations Command mission (FY2011)

Table 4-6 Energy Actions and Milestones

Goal Address Impacts from New Energy Infrastructure and Renewable Energy Impacts

Actions	Milestones
Army	
Assess on-going Army energy security projects	▸ Issue Army policy on the internal review and coordination process for energy projects to ensure projects do not impact training missions—Complete ▸ Identify central Army portal for all external energy projects having a potential training or environmental impact at Army installations—Complete ▸ Participate on the Department of Defense (DoD) Energy Subcommittee; assess strategic implications of infrastructure policy on Army training equities—Ongoing
Marine Corps	
Support Office of the Secretary of Defense (OSD)-directed energy infrastructure policy and assessments	▸ Respond to OSD-directed requests for data and analysis on potential impacts of emerging energy infrastructure on range capabilities
Monitor developments regarding energy infrastructure planning in the western United States; engage on initiatives with potential training impacts, at regional and headquarters levels, as necessary	▸ Facilitate and support regional inter-agency and inter-governmental partnerships; coordinate/participate in Western Regional Partnership Energy Committee—Ongoing
Navy	
Engage renewable energy proponents to mitigate or minimize impacts on naval training	▸ Define and codify organizational roles and responsibilities to streamline Navy assessments of renewable energy proposals by the end of FY2011 ▸ Continuously respond to requests for analysis on potential impacts on range capabilities and range space from proposed energy infrastructure on range capabilities (FY2011) ▸ Complete development of the Geographic Information System assessment tool in Environmental Information Management System (EIMS) to expedite OSD-directed assessments by the end of FY2012
Coordinate and contribute to the on-going OSD effort to assess energy infrastructure proposals are accomplished at the appropriate level	▸ Continue to interact with State renewable energy task forces to support an iterative assessment of wind energy development proposals to minimize impacts to Navy/DoD readiness requirements ▸ Support and participate in the initiative to establish a single DoD point of contact to receive and assess wind farm proposals (FY2011)
Air Force	
Engage renewable energy proponents in order to collaborate on site selections	▸ Implement a DoD preliminary screening tool (completed October 2008) ▸ Conduct a Nellis Energy Summit (completed February 2009) ▸ Establish the Air Mobility Command Wind Resource Area Task Force (completed Spring 2009) ▸ Contribute to the American Wind Energy Association National Conference, Governmental Listening Session and Presentation (completed April 2009) ▸ Attend the FAA Conference on Competition for the Sky (completed September 2008) ▸ Manager training on engaging energy developers (completed January–April 2009) ▸ USAF Nevada Energy Forum sponsored by USecAF and SAF/IE (Aug 2010) where government and industry collaborated on process development
Study potential impacts and mitigation techniques	▸ Study wind turbine impacts and mitigation techniques (Phase 1—April 2010; Phase 2—Early FY2011) ▸ Develop Tracking and/Decision making tool (FY2011) ▸ Expansion of Radar Toolbox for prediction of impacts on ASR-11 radar from wind turbines (FY2011)
Create and field a DoD tracking and visualization tool for energy proposals	▸ Developing Mission Compatibility Awareness Tool (MCAT) (FY2011)

Table 4-7 Climate Actions and Milestones

Goal Anticipate Climate Change Impacts

Actions	Milestones
Army	
Assess Global Climate Change risks and vulnerabilities	▸ Implement DoD Quadrennial Defense Review Global Climate Change directives when final ▸ Program adaptation and mitigation measures requirements in future POM cycles—Ongoing ▸ Assess Global climate change risks and vulnerabilities—Ongoing ▸ Program Global Climate Change adaptation and mitigation measures in future POM cycles—Ongoing ▸ Address global climate change in existing Army plans—Ongoing

Table 4-7 Climate Actions and Milestones (continued)

Goal Anticipate Climate Change Impacts

Actions	Milestones
Marine Corps	
Support OSD-directed climate change policy and assessments	▸ Continue to respond to requests for data and analysis on potential impacts of range operations on climate change, and climate change impacts on range capabilities (as directed by OSD) ▸ Continue leadership role at Headquarters level in DoD Clean Air Act Services' Steering Committee, Subcommittee for Global Climate Change (Ongoing—USMC representative currently Subcommittee chair)
Navy	
Support OSD-directed climate change policy and assessments	▸ Implement DoD Quadrennial Defense Report Global Climate Change directives (FY2011) ▸ Assess climate change risks and vulnerabilities—Ongoing
Air Force	
Assess global climate change risks and vulnerabilities	▸ Implement DoD Quadrennial Defense Review Global Climate Change Directives (FY2011) ▸ Assess climate change risks and vulnerabilities—Ongoing
Prepare for increased renewable energy priority and development	▸ Participate in White House Task Force on Wind Turbine Impacts on Radar (FY2010-FY2011) ▸ Engage U.S. Bureau of Land Management to improve siting process (FY2011)
Participate in DoD Strategic Environmental Research and Development Program (SERDP) studies	▸ Participate in SERDP studies assessing the impact of climate-induced sea level rise on military infrastructure and coastal ecosystems; manage intermittent streamflows and altered fire regimes—Ongoing

Table 4-8 Environmental Stewardship Actions and Milestones

Goal Sustain Excellence in Environmental Stewardship

Actions	Milestones
Army	
Execute the Army Range Assessment Program	▸ Review and finalize all range assessment data from Phase I reports—Complete ▸ Complete Phase II assessments, where required, by 4th Quarter FY2014
Execute environmental management and stewardship program to support sustainment of ranges and training lands	▸ Finalize the Army Sustainability Campaign Plan—Complete ▸ Start implementing tasks and objectives identified in the Army Sustainability Campaign Plan by 3rd Quarter FY2011 ▸ Implement a process to integrate natural resource and conservation management plans into the Range Complex Master Plan template by 4th Quarter FY2011
Marine Corps	
Maintain Service-wide environmental management and range sustainability programs in accordance with applicable laws and regulations	▸ Engage in national regulatory and legislative processes on issues with that may potentially impact range sustainability or range readiness in coordination with the Office of the Secretary of Defense ▸ Continue to engage local, regional, and State regulatory agencies on issues that may affect range sustainability or range readiness ▸ Explore biological crediting banks (e.g., wetland and Endangered Species Act) at the regional and national levels in coordination with the other branches of service and the Department of the Interior ▸ Encourage non-governmental organizations and local communities to work on regional solutions for land use conflicts (e.g., Southeast Regional Partnership for Planning and Sustainability and Western Regional Partnership)
Navy	
Execute Service-wide environmental management and range sustainability programs as required by law/regulation	▸ Renew annually-expiring Marine Mammal Protection Act authorizations, as needed ▸ Evaluate the implementation and effectiveness of Integrated Natural Resources Management Plans at the end of each fiscal year ▸ Complete ongoing environmental planning for at-sea operational areas and range complexes by the end of FY2012
Air Force	
Provide for more accurate, more flexible risk assessment and weapons footprint creation	▸ Implemented the Weapons Danger Zone tool (FY2010–FY2011) ▸ Reduced the landscape/airspace requirments for employing guided bomb units known as GBU-38s ▸ Completed Dare County Range in North Carolina and Draughon Range in Japan
Develop range configuration to support urban training	▸ Expand the Air Force Special Operations Command Emerald Warrior exercise to include urban training over additional airspace and Gulf Coast communities (FY2010–FY2011)
Continue environmental management and range sustainability programs	▸ Maintain active participation in Range Sustainment Initiatives e.g., Southeast Partnership for Planning and Sustainability and Western Regional Partnership—Ongoing

4.3 Funding Requirements

NDAA Section 366(a)(3)(C) requires DoD and the Military Services to report on funding requirements associated with implementing range sustainability initiatives. DoD has stated in previous submissions of this report that it faces several challenges in meeting this requirement.

One challenge is that the Military Services manage their range sustainment funding in a manner that best suits the way their ranges are operated to meet their specific missions. A more significant challenge is that, within DoD, funding for range sustainment efforts is spread across and embedded within different appropriations (e.g., operation & maintenance, military personnel, procurement, and military construction) and program elements (e.g., manpower, training, environmental, real property, utilities). While the details may differ to some degree among the Military Services based upon their particular command structure, mission, and financial processes, each Military Service experiences similar challenges which create difficulties with accurate and consistent tracking and reporting of range sustainment funding.

In an attempt to develop a common framework across the Military Services for consistently and accurately tracking and reporting range sustainment funding, a Sustainable Ranges Funding Subgroup was formed under the WIPT. The subgroup examined funding strategies and categorizations used by the Military Services for their training range sustainability efforts.

The group developed four main categories as a common starting point from which to report training range sustainment funding data. The categories, their descriptions, and specific examples for each category are included in Table 4-9.

These categories serve as a framework being explored by DoD and the Military Services to track, report, and project the need for future range sustainment fiscal resources. The ability to compare side-by-side the status of resources against the results of the range encroachment and capabilities assessments described in Section 3 will give DoD increased capability to address progress on resolving range sustainment issues. Taken together, this ability represents an important management tool that allows leadership to make informed decisions about both the adequacy of existing resources, and the need for additional investment of sustainment dollars. Future funding will necessarily be subject to change, and is presented for planning purposes only. Military Service-wide range sustainability funding levels for FY2011 through FY2015 are provided in Table 4-10. A notable change to this year's table is the addition of Readiness and Environmental Protection Initiative (REPI) program funds. In an attempt to increase accuracy of reporting, the Services were asked to report based on their FY2011 President's Budget submissions. As REPI is an OSD centrally managed program to support buffer lands initiatives, funds are not contained in the Service programs. Rather, OSD programs for REPI funds and then allocates them to the Services based on an assessment of need (for a more thorough discussion of the REPI program see Section 4.4.1). It was therefore decided that it would be more accurate to report REPI funds as an OSD program as opposed to under Service encroachment funding. Any Service funds budgeted for buffer projects are captured in that Services' encroachment lines.

Table 4-9 DoD Sustainable Ranges Initiative Funding Categories[14]

Funding Category	Description	Specific Examples
Modernization and Investment	Research, development, acquisition, and capital investments in ranges and range infrastructure. It includes related items such as real property purchases, construction, and procurement of instrumentation, communication systems, and targets.	▸ Construction of new Multi-Purpose Training Ranges at Army installations ▸ Construction of Improvised Explosive Device (IED) Defeat Lanes ▸ Upgrades to Small Arms Ranges
Operations & Maintenance	Funds allocated for recurring activities associated with operating and managing a range and its associated infrastructure, including funds dedicated to range clearance, real property maintenance, and range sustainment plan development.	▸ Clearance of unexploded ordnance prior to range construction ▸ CivPay for Range Operators at Army installations
Environmental	Funds dedicated to environmental management of ranges, including range assessments, response actions, and natural and cultural resource management planning and implementation.	▸ Conservation funding for INRMPs and ICRMPs ▸ Environmental mitigation costs associated with range modernization and range construction ▸ Conducting Range Assessments
Encroachment	Funds dedicated to actions to optimize accessibility to ranges by minimizing restrictions that do or could limit ranges activities, including outreach and buffer projects.	▸ Administration and support of the Army Compatible Use Buffer (ACUB) program

14 These funding categories should not be confused with appropriation categories.

Table 4-10 DoD Training Range Sustainment Funding ($M)[15]

Service[F1]	Fiscal Year				
Army	**FY2011**	**FY2012**	**FY2013**	**FY2014**	**FY2015**
Modernization & Investment[A1]	$362.2	$290.2	$438.2	$314.0	$347.0
Operation & Maintenance	$321.3	$371.0	$385.4	$394.3	$405.0
Environmental	$148.9	$170.9	$174.8	$157.9	$153.0
Encroachment[F2]					
Army Total	**$832.4**	**$832.1**	**$998.4**	**$866.2**	**$905.0**
Marine Corps	**FY2011**	**FY2012**	**FY2013**	**FY2014**	**FY2015**
Modernization & Investment	$0.4	$2.8	$31.0	$31.8	$32.5
Operation & Maintenance[M1]	$39.8	$44.7	$58.8	$58.8	$59.3
Environmental	$5.7	$5.7	$5.7	$5.7	$5.7
Encroachment[F2]	$3.0	$3.0	$3.0	$3.0	$3.0
Marine Corps Total	**$48.9**	**$56.2**	**$98.5**	**$99.3**	**$100.5**
Navy	**FY2011**	**FY2012**	**FY2013**	**FY2014**	**FY2015**
Modernization & Investment	$82.6	$79.6	$78.8	$76.9	$76.4
Operation & Maintenance	$175.9	$173.8	$175.6	$178.9	$182.1
Environmental[N1]	$28.7	$32.1	$32.1	$36.6	$31.8
Encroachment[F2,N2]	$10.7	$16.6	$17.0	$17.4	$17.8
Navy Total	**$297.9**	**$302.1**	**$303.5**	**$309.8**	**$308.1**
Air Force[AF1]	**FY2011**	**FY2012**	**FY2013**	**FY2014**	**FY2015**
Modernization & Investment	$60.4	$53.6	$49.1	$47.2	$39.4
Operation & Maintenance	$89.6	$91.1	$80.9	$82.5	$85.6
Environmental	$26.8	$27.7	$26.1	$25.6	$26.2
Encroachment[F2]					
Air Force Total	**$176.8**	**$172.4**	**$156.1**	**$155.3**	**$151.2**
OSD	**FY2011**	**FY2012**	**FY2013**	**FY2014**	**FY2015**
REPI Program[F2]	$39.8	$39.2	$39.0	$39.0	$39.1
DoD	**FY2011**	**FY2012**	**FY2013**	**FY2014**	**FY2015**
DoD Total	**$1,395.8**	**$1,402.0**	**$1,595.5**	**$1,469.6**	**$1,503.9**

F1 *Range sustainability programs are fully represented in the Services' programming and budgetting processes. Program fluctuations generally reflect best alignment of available resources across competing Service priorities based on programming guidance and validated by the Service Chiefs and Department Secretaries.*

A1 *Increase in F13 funding is due to Military Construction funding in support of the Army Campaign Plan and Global Defense Posture Realignment implementation.*

F2 *The Readiness and Environmental Protection Initiative (REPI) is an OSD centrally managed program that distributes funds to the Services for execution. Past reports had included Service projections for future allocations. These funds are now reported under OSD using actual programmed figures.*

M1 *The Marine Corps Operations & Maintenance line identifies funds centrally managed by Training and Education Command, Range and Training Area Management Division, which manages an estimated 80-90% of all Marine Corps range funding. Funds for real property maintenance and Base Operating Support are managed at the installation-level to provide responsive support for various installation requirements, including local range sustainment initiatives. These installation-managed funding lines are not included in the Operations & Maintenance line, because breakouts to range-specific expenditures were not available. FY2011 amounts reflected are based upon FY2011 actual amounts. FY2012–2015 amounts reflected are accurate as of December 2010. Information provided does not include reductions experienced during NAVCOMP Budget Cycle.*

N1 *Beginning in FY2011, the Navy reclassified some resources and reprioritized compliance with Marine Mammal Protection Act and Endangered Species Protection Act for major range complexes. Compliance is now programmed as a recurring requirement. Navy will also be expanding regulatory coverage beyond individual range complexes.*

N2 *FY2011 to FY2012 increase is attributable to an increase in installation Community Plans and Laison Officers and funding for Encroachment Partnering acquisition.*

AF1 *Funding for Air Force training ranges, as defined and categorized by OSD P&R, is tracked through two discrete channels. The first channel, which reflects the main source of funding for ranges, is through the Air Force A3/5 chain. The second channel is through the Air Force A4/7 chain. Within these two funding channels, the Air Force's reporting framework does not line up precisely with OSD P&Rs definitions and categories. Under these OSD P&R definitions and categories, the Air Force is able to report on Modernization and Investment, Operation and Maintenance, and Environmental. It is unable to report on Encroachment funds, as that category is defined by OSD P&R.*

15 The funding categories in this table should not be confused with appropriation categories.

4.4 Partnering and Outreach Initiatives

To support the DoD mission, Congress has entrusted nearly 30 million acres of land—1.1% of the total land area of the United States—for DoD to use and care for properly. DoD also shares land, air, and sea space, as well as the nation's radio frequency spectrum to conduct its training mission and maintain force readiness. The Department is fully committed to partnering with stakeholders, environmental stewardship, and the sustainable management of resources under its care, for both today and the future.

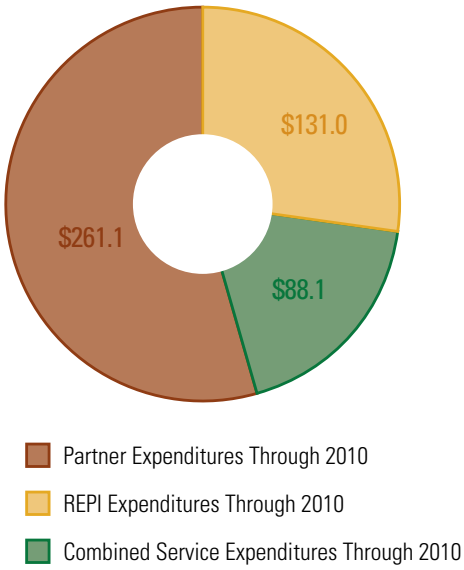
Recognizing the importance of open communication and close coordination with neighboring stakeholder communities in land-use planning and decision making, the SRI has institutionalized a "toolbox" of programs and efforts that enable and support extensive partnerships focused on common needs and issues. The SRI toolbox incorporates the Readiness and Environmental Protection Initiative (REPI), the Office of Economic Adjustment's (OEA) Compatible Use Program, Education and Engagement supporting outreach as well as in-reach within DoD, and Regional Partnering among DoD, State, Federal, tribal and NGO agencies. Collectively these efforts educate internal and external stakeholders ,engage State and local governments, and implement collaborative efforts outside installation and range fence lines in order to protect DoD's mission and resources. Success across the nation has established the effectiveness of the toolbox and strengthened DoD's ability to sustain training and testing space and capabilities well into the future. Such efforts allow partners to use DoD and other public and private sector funds to acquire property, or property interests such as conservation easements, from willing sellers that preserve critical buffers and habitat areas near installations and ranges where the military operates, tests and trains. This toolbox continues to expand and evolve through innovations that solve complex problems, leverage additional funding and incorporate additional and diverse stakeholders.

4.4.1 The Readiness and Environmental Protection Initiative

REPI supports DoD compatible land use and conservation partnering initiatives and projects at ranges and installations across the country. It is a critical component of DoD's SRI to prevent or reduce encroachment by protecting installation capability, accessibility and availability for training and testing.

REPI implements the authority authorized by Congress in 2002 under 10 U.S.C. § 2684a by providing DoD funding to the Military Services to enter into agreements with private conservation organizations, and with State and local governments. Such agreements allow partners to use DoD and other public and private sector funds to acquire property, or property interests such as conservation easements, from willing sellers that preserve critical buffers and habitat areas near installations and ranges where the military operates, tests and trains.

Figure 4-1 REPI Funds Leveraged Through 2010



Prior to the enactment of 10 U.S.C. § 2684a, the Sikes Act was the primary authority for DoD to enter into cooperative agreements with State and local governments, NGOs, and individuals to maintain and improve natural resources on private properties in support of DoD. This authority was almost entirely directed toward protection of natural resources and partnerships, and took the form of working relationships to protect and revitalize species through various installation habitat enhancement efforts.

REPI, however, has allowed DoD to work collaboratively with stakeholders and landowners outside installation and range boundaries to both preserve habitat and limit incompatible development. Since FY2005 and through the end of FY2010, REPI has supported Military Service partnerships with State and local governments or NGO advocates for private landowners to protect more than 174,000 acres of non-DoD land around installation and range lands across the nation. In total, between FY2005 and FY2010, REPI funding has supported projects at 59 installations and ranges in 23 states across the country. Partner resources are valued at more than half of the cost of preserving compatible land use through REPI partnership (See Figure 4-1).

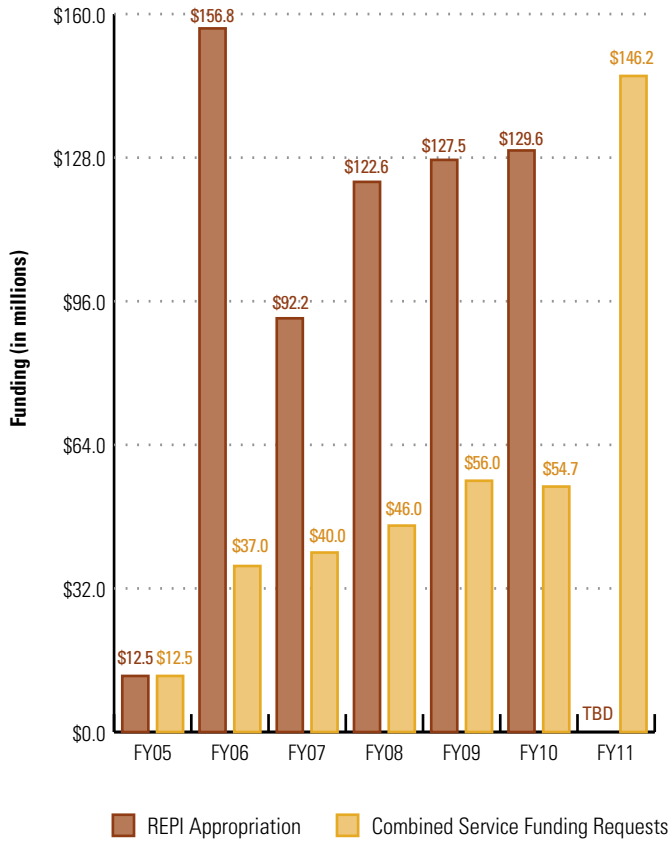
The REPI vision is to create a dynamic equilibrium, or adaptive steady state, where the warfighter has continued access to land, air, water and facilities for the training and testing needed to achieve and maintain mission readiness. The key to accomplishing and maintaining this steady state is an effective decision-making framework to help maximize the capability and flexibility of key external assets and partnerships that can support and benefit those missions. The ultimate

result is bringing State and local government and private partners together with DoD, working with willing landowners, to protect physical buffer areas and critical landscapes and natural resources around and near military installations, ranges, and airspace throughout the country. REPI has begun to effectively enhance military readiness, protect open space and key natural habitats, and sustain the vital contribution military installations make to our local, State, and regional economies.

Recent DoD and RAND Corporation assessments have validated the effectiveness of REPI, but they indicated that the program needs additional resources to meet the challenges that encroachment is posing to military installations and ranges. The 2007 independent RAND analysis resulted in the report entitled *The Thin Green Line*, and concluded that the REPI program is underfunded, opportunities for effective action to protect bases are being lost, and the cost of effective action will only increase over time (See Figure 4-2).

For additional information on the REPI program and the military's efforts to reduce encroachment through use of the 10 U.S.C. § 2684a authority, please refer to DoD's 2011 REPI Report to Congress, at *http://www.denix.osd.mil/sri/*.

Figure 4-2 Component REPI Funding Requests and Congressional REPI Appropriations



4.4.2 Office of Economic Adjustment Compatible Use Program

OEA's Compatible Use Program implements Executive Order 12788, as amended, under the authority granted by 10 U.S.C. §2391(b)(1). As such, OEA provides technical assistance to installation and range officials and technical and financial assistance to neighboring states, communities, and interest groups through a Joint Land Use Study (JLUS) process. This tool helps the military to minimize its operational effects on neighboring jurisdictions and ensures that local civilian development is compatible with ongoing DoD mission.

A JLUS serves as a comprehensive strategic action plan to identify and address existing conflicts, promote future compatible use, protect the installation's military mission, and promote the public health, safety, quality of life, and economic stability of the community. The JLUS process promotes an open, continuous dialogue between the installation, surrounding communities and State to address existing encroachment issues and implement measures to promote future compatible use.

JLUS and REPI are complementary. Through the JLUS process, a Military Service and/or its stakeholder communities may identify an issue for which a REPI project can provide resolution. Thus, the JLUS is a powerful tool for bringing communities and the military together to address compatible use issues and needs.

4.4.3 Education and Engagement

Within the core of the SRI lies the incorporation of both internal (DoD and Military Services) and external stakeholders into the protection of DoD's mission and sustainability. Using coalition building, in-reach, and an easy-access educational toolbox for all stakeholders to rely on for ideas and information, DoD is planning for the future with a progressive and collaborative mindset.

Coalition building with internal and external stakeholders enhances both ongoing partnerships and the potential for new partnerships that build trust and effectively support the longevity of DoD's test and training mission. SRI depends upon knowledge of the issues, interactive communication, and cooperative partnerships to gain support, and therefore effective assistance, in compatible land use and mission sustainability in our communities. Using conferences, web-based social networking, informal forums, and range tours, the SRI has developed an outreach network that understands the DoD mission, sets the stage for partnership and collaborative planning, and is eager to educate stakeholders on what DoD has to offer as a partner in sustainability. These interactive outreach events proactively:

- Raise awareness about DoD's mission sustainability needs and initiatives;

- Educate policymakers and NGO action officers about policies favorable to installation and range mission sustainability;
- Build relationships among stakeholders that can ultimately advance sustainability efforts at local, State and national levels; and
- Identify partners who can serve as opinion leaders for both national sustainability messaging and to build internal support among DoD leadership.

Today, DoD enjoys effective partnerships with State and local government groups, conservation and environmental NGOs, and stakeholder groups within DoD. The following sections depict the outcomes of some of these partnerships which demonstrate that the DoD mission is gaining visibility, support, and, therefore, greater sustainability outside installation and range fence lines.

Key Coalitions

The SRI program has built a coalition of NGOs to work with the military on legislative topics, encroachment concerns, and other mission-related issues. These include the National Association of Conservation Districts (NACD), National Conference of State Legislatures (NCSL), the National Association of Regional Councils (NARC), Western Governors Association (WGA), and many others. Examples of these efforts include:

- The National Association of Conservation Districts has worked with the SRI program to educate military personnel, DoD stakeholders, and regional and local leaders about how to effectively engage each other to ensure that local planning and development decisions consider the effects on local military installations and vice-versa. Conservation districts are local units of government established under State law to carry out natural resource management programs at the local level. Districts work with millions of cooperating landowners and operators to help them manage and protect land and water resources on all private lands and many public lands in the United States. A NACD primer under development will discuss the presence, purpose, and applications of the over 3,000 Conservation Districts throughout the U.S.
- The National Conference of State Legislatures has formed a Military Sustainability Task Force to address how states can help to protect military installations and Military Service members' quality of life through effective legislation. The task force is composed of key legislative leaders in critical military-heavy states, such as Arizona, Georgia, Kansas, North Carolina, Oklahoma, New Jersey, and Texas. The organization reaches into State, Federal and local government arenas and has a history of partnering with DoD on compatible land use projects and development of primers dating back to 2003. This partnership has led to legislation in 32 states and sample legislation provided directly to State legislators. The NCSL Military Sustainability Task Force participated in a range tour at Buckley Air Force Base and the Task Force for Veterans' and Military Affairs met in July 2010 in Louisville, Kentucky, providing a first-hand look at quality of life and encroachment concerns at DoD installations to active State legislators.
- The National Association of Regional Councils serves as the national advocacy organization for "regionalism" by advancing regional cooperation efforts across the country. NARC's members include regional councils (RCs), and region-wide associations of local governments—councils of government, regional planning and development agencies, and metropolitan planning organizations. RCs across the country perform planning of all types on a broad regional scale. In the past, only a minority of installations have taken part in these planning efforts. In 2010, NARC hosted Major General Carl Jensen, Marine Corps Installations East as a contributing speaker at the 2010 NARC Annual Conference in Cleveland Ohio, educating RC members on installation and range management and collaborative land use planning issues. NARC has also contributed to the SRI primer series co-authoring *Working With Regional Councils, A Guide for DoD Installations*.
- The Western Governors' Association represents 21 of the nation's governors and the Pacific territories and is the largest of the regional governors' organizations. As governors, WGA's members are increasingly leaders in sustainability, "smart growth," alternative energy, and conservation efforts across the nation. They have worked closely with DoD in compatible land use, renewable energy, and a variety of land development issues relevant to military training and testing lands in the western region.

The SRI team also coordinates with Congress and other Federal agencies and offices such as:

- Department of the Interior (DOI);
- U.S. Department of Agriculture (USDA);
- Department of Transportation (DOT);
- Green Infrastructure Community of Practice; and
- Environmental Protection Agency (EPA).

DoD's outreach program fulfills a representative role on the Federal Lands Protection Program Work Group. These relationships support initiatives to improve the REPI program, as well as the SRI goals to engage and collaborate on a national level and ensure other agencies receive information pertaining

to DoD range sustainability initiatives and joint projects. Some examples include:

America's Great Outdoors

In April 2010, President Obama launched the America's Great Outdoors program to reshape U.S. conservation programs. DUSD(IE) represented DoD at the event, attending with Secretary of the Interior, Secretary of Agriculture, EPA Administrator, and Chair of the White House Council on Environmental Quality. In response to this new initiative, the SRI team participated in public listening sessions and has been partnering with the Departments of Interior and Agriculture and other NGO partners to develop a strategy and plan for conserving America's landscapes. The collaboration between agencies, stakeholders, and the public combined with the strong emphasis on landscape and regional conservation efforts has the potential to help support many of the SRI goals.

Sustainability Map Project for State Sustainability Policies

The SRI has created a comprehensive and interactive map to serve as an online clearinghouse of information about State laws, regulations, policies and programs that states have championed to sustain the nation's military installations and ranges.

The Range Sustainment Initiative's Sustainability Map profiles the following laws, regulations, policies and State programs in each of the 50 states:

- Compatible land use or encroachment statutes, regulations and State programs, identifying those elements relevant to the military including land use planning, notification of the military (in terms of communication or public notice requirements) and land conservation elements directly addressing military bases or installations.
- Real estate and property disclosure requirements.
- Outdoor lighting, and so-called "lighting pollution," requirements or restrictions.
- Open space and land conservation statutes or State programs that serve to create or protect open space or provide funding for buffering, development rights, land easements or purchases and conservation efforts.
- State military-related commission and legislative committees, including Adjutant General and National Guard liaison contact information and related advisory or executive level commissions.

The Sustainability Map can be found at *http://www.legislativestatemap.org.*

In-Reach

Another key to SRI's success is an understanding across DoD and the Military Services, from the leadership to the installation level, of whom the stakeholders are, who represents them, what their motivations and concerns are, and what achievements can be gained from communicating and working together. The SRI outreach program has built an education toolbox from which all agencies within DoD can draw educational material for their staff and begin to build internal outreach plans more tailored to their Military Service and needs. The SRI outreach and engagement efforts are coordinated within DoD through:

- Regular DoD leadership briefings prior to all key outreach events;
- Participation within the Sustainable Ranges Integrated Product Team;
- Growing relationships that provide opportunities for Military Service and DoD leadership participation in key outreach events; and
- Promoting use of primers, fact sheets, conference tracker, and other educational tools.

A successful in-reach program results in the SRI being understood and promoted at all levels of DoD and the Military Services. The purpose is for DoD and Military Service leadership to maintain excellent working relationships with key stakeholders and clear communications with Military Services components to allow an easy exchange of ideas that will create effective and innovative solutions to range sustainment issues.

SRI Education and Engagement Toolbox

The purpose of the SRI education toolbox is to increase and enhance effectiveness of communication and collaboration with our partners and stakeholders with wide distribution of, and access to, relevant, current, and diverse materials. The toolbox contains:

- The DoD Primer series;
- Fact sheet sets;
- Conference tools (SRI booth, SRI handouts, SRI information sheets);
- Mainstream media tracker for highlighting SRI in the media;
- SRI briefing materials;
- A Defense Environmental Network Information Exchange (DENIX) Portal/web site; and
- Quarterly newsletters on SRI-related stories and events.

A key tool for facilitating outreach and education is the primer series. This series is designed to inform readers about engagement from the perspective of being potential partners. It is a series of guidebooks outlining best practices in a reader-friendly format to be used by both the military and stakeholders. These primers were developed through partnerships between DoD, professional and educational associations, conservation organizations, and State and local government groups to facilitate communication and expand collaboration between communities, counties and State governments, and military installations. The primer series helps military installation personnel to better understand local government management and legislative processes, and to exercise best practices to facilitate compatible land use planning discussions with community stakeholders. Likewise, State and local governments can use them to understand the importance of mission sustainability and the military's historical and cultural role within the community, as well as efforts to interact and partner outside the fence line. DoD distributes primers individually or as a series, upon requests from partners such as Military Service officials, other Federal agency representatives, State and local officials, and conservation, environmental, and land use groups. The series is also made available at conferences.

The Primer series currently contains the following:

- *Working with Land Trusts, A Guide for Military Installations and Land Trusts;*
- *Working with State Legislators, A Guide for Military Installations and State Legislators;*
- *Working With Local Governments, A Practical Guide for Installations;*
- *Collaborative Land Use Planning, A Guide for Military Installations and Local Governments;*
- *Working to Preserve Farm, Forest, and Ranch Lands, A Guide for Military Installations;*
- *Outreach for Mission Sustainability: Working to Balance Military and Civilian Community Needs;*
- *Commanders Guide to Community Involvement;* and
- *Working With Regional Councils, A Guide for DoD Installations.*

The SRI team is working to increase the primer library in 2011 with the following:

- *Working with Developers, A Primer for Military Installation Commanders and Their Staffs;*
- *Working with NGOs;*
- *Utilizing Conservation Districts*
- *Working with Federal Agencies;* and
- *The Successful Range Tour, A Guide for Military Installations and Stakeholder Leadership.*

Range Tours

Another key outreach tool developed by DoD for use in supporting the SRI is the range tour. DoD personnel working to support the SRI have been conducting educational range tours to facilitate communication between specific military installations, stakeholder groups, and partnering agencies since 2004. The purposes of range tours vary. In some instances, the tour is designed to highlight installation natural resource programs; in other cases, participants are given the opportunity to view urban development and learn about how encroachment factors related to incompatible growth can inhibit range activities. When possible, participants view live testing and training activities allowing them to better appreciate military training. Every range tour highlights DoD's commitment to mission requirements while simultaneously demonstrating their leadership in conservation and preserving the nation's natural resources. Range tours also provide participants with a forum to interact with Military Service personnel, natural resource managers, and range or installation commanders.

In February 2010, a New York Times journalist was taken on tours of several installations in the Southeast US. The Department of Defense was subsequently featured in two articles and a video reporting on DoD's successful endeavors to protect both the environment and the DoD mission. Highlighting conservation efforts at Fort Stewart for the Red Cockaded Woodpecker, Eglin Air Force Base for the Okaloosa Darter, and San Clemente Island for restoration of the Loggerhead Shrike, the military's commitment to wildlife and habitat preservation and the challenges of dealing with encroachment threats were acknowledged and highly publicized.

This press coverage illustrates the balancing act installations must play to protect these often endangered species while sustaining mission readiness, while also illustrating the benefit to reaching out to and educating the public through public meetings, forums and range tours.

Range tours and stakeholder events on installations occurred in 2010 at Nellis AFB, NV; NAS Jacksonville, FL; NavSta Mayport, FL; NAS Key West, FL; Buckley AFB, CO; Fort Stewart, GA; and Fort Benning, GA. Stakeholders that were included on these tours include such diverse groups as NCSL, WGA, Natural Resources Defense Council (NRDC), and Hawaii North Shore Community Land Trust.

Sustaining Military Readiness Conference

Building on the success of the 2009 conference, the 2011 Sustaining Military Readiness Conference will be held July 25-29, 2011, in Nashville, Tennessee. This biennial

conference is designed to bring together DoD personnel and stakeholders interested in military training and testing; natural and cultural resource management; and sustainable land, air, sea, and frequency use to:

- Explore the interdisciplinary nature of sustaining military readiness,
- Share lessons learned and best practices among colleagues and stakeholders, and
- Participate in a broad spectrum of informative training workshops.

The goal is to link individuals representing DoD, other government agencies, and NGOs to promote military readiness through conservation, compatible land use planning, and encroachment mitigation. Conference workshops and sessions offer valuable insight and skills for multiple mission successes across communities.

For 2011, sponsoring organizations include:

- Deputy Under Secretary of Defense (Installations and Environment), Basing Directorate
- Director, Operational Test & Evaluation
- Legacy Resource Management Program
- Office of Economic Adjustment
- Deputy Assistant Secretary of Defense (Readiness), Training Readiness and Strategy Directorate
- Strategic Environmental Research and Development Program
- DoD Test Resource Management Center.

Additional information can be found at:
http://www.smrconference.com

4.4.4 Engagement for Energy Infrastructure Compatibility

New and expanding energy infrastructure can have an adverse effect on DoD's use of airspace, seaspace and land ranges for training, testing and operations. DoD must coordinate internally to effectively correlate its diverse interests in protecting force readiness, enhancing facility energy security, and meeting energy efficiency and emissions targets. DoD must also engage externally to more effectively identify and address conflicts with potentially incompatible energy proposals. The ODASD(Readiness) is working closely with other OSD and Service training, test, operations, and installations and environment interests on a cooperative process to better analyze energy proposals and articulate a single departmental position.

Large scale energy development is underway or planned in many regions of the U.S. Solar, wind, geothermal, and other renewable energy resources are attracting increasing public and private investments, often near vital test and training assets. At the same time, domestic oil and gas production is being emphasized to reduce U.S. dependence on foreign sources, particularly on the Outer Continental Shelf (OCS). DoD is increasingly involved in identifying and evaluating the impacts of energy proposals on our existing and planned activities. In the Western U.S., numerous large and small wind and solar projects are being proposed and approved to supply renewable energy to the national energy grid. Near DoD training ranges or operating areas, or under military training routes, energy production or transmission facilities can obstruct military aircraft. Additionally, wind turbines create a doppler effect and other interference that can degrade the performance of radars and other electronic systems. Specific examples of issues now being worked include concerns over the safety of pilot training at the Kingsville Naval Air Station, TX due to a proliferation of nearby wind farms; potential training impacts from a high-voltage transmission line being planned in southern New Mexico and Arizona; and the deconfliction of military activities with planning for offshore wind farms and expanded oil and gas leasing along the east coast and in the Gulf of Mexico.

DoD is working closely with the Services to develop repeatable and responsive processes that can inform the energy industry of DoD interests and evaluate energy projects to support effective decision making. However, DoD by itself lacks the authority in most cases to prohibit or redirect energy development on non-DoD controlled public or private lands. DoD typically works with agencies responsible for developing energy resources, such as the Bureau of Land Management (BLM) and Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), or those with a regulatory oversight role (like FAA), to convey concerns and to work cooperatively on enabling energy development that does not degrade readiness activities.

DoD has a protocol in place with BLM regarding siting of wind energy projects on BLM lands and this agreement has protected DoD equities in the western states. Efforts are underway to expand this protocol to other forms of renewable energy, and possibly to include additional Federal agencies as well. Additionally, the Department is working to establish an energy siting clearinghouse function to help identify, review, and facilitate fully coordinated DoD positions on the compatibility of proposed projects for energy developers, government agencies, and other concerned parties.

4.4.5 Military Service Specific Stakeholder Engagement

The Military Services are in varying phases of developing and implementing Military Service-specific outreach and communication programs to support range sustainment and compatible land use issues. The following are two examples of current Military Service outreach initiatives.

Army: Training Support Systems Division

The Army has developed a focused community research concept and, since 2007, has implemented it at six major installations around the country. Additional community research efforts are currently underway for 2009 and the Army has plans to develop an ongoing strategy to continually update community research findings at all major training installations.

The community research concept is based on conducting both primary and secondary research efforts. Primary research activities include community stakeholder interviews, roundtable sessions, and community surveys, while secondary research activities include news media analysis, demographic analysis, and elected official background analysis. The goals of this research are to:

- Identify community views regarding operational and perceived impacts of Army installations and their training activities;
- Provide Army installations with a research-based understanding of the community and its leadership, so that better informed decisions can be made regarding future installation operations and stakeholder involvement efforts;
- Reach out to installation stakeholders to create a solid base of information to enhance relationships and assist in making operational and communications decisions; and
- Demonstrate an interest in public opinions associated with installation activities and decisions, making the public part of the decision-making process.

Marine Corps: Continuing Its Tradition of Community Engagement

Encroachment Partnering (EP) program – The Marine Corps continues to partner with State, local community, and conservation organizations to maintain operations assurance through the coordinated implementation of restrictive easements. Through September 2010, the Navy has acquired 30,452 acres of restrictive easements using $47M in OSD REPI funds and Marine Corps operation and maintentance funds, while our partners contributed $53M. Projects have been completed at 8 different ranges and installations. In the case of Townsend Range, the restrictive easement acreage acquired thus far exceeds the size of the range by 400%. In the case of MCAS Beaufort restrictive easements equal about 30% of the installation acreage.

Community Plans and Liaison Officer (CPLO) Program – CPLOs actively manage compatible land use issues through the identification of potential encroachment challenges affecting installations, ranges and "white space." They monitor encroachment concerns and local conditions in and around the installation/range and conduct community outreach to ensure mission sustainability and protect operational capability. CPLOs proactively maintain contact and visibility with local governments to acquire a working knowledge of local land use plans, zoning and development regulations, development trends, environmental issues, and local, State, and regional plans and programs that have the potential to impede the mission of the installation or range. Further, CPLOs establish working relationships with local, State and regional governments and agencies, non-governmental organizations, and other groups engaged in any aspect of land use planning, development, conservation and preservation that could impact operational assurance at the installation or range. CPLOs are employed at every USMC installation and region.

The Assistant Commandant of the Marine Corps signed Marine Corps Order 11011.22B – Policies and Procedures for Encroachment Control Management on 27 Jul 2010. This order directs installations to actively engage the local communities to develop encroachment solutions and articulates the duties of CPLOs.

Navy: Integration of Community Plans and Liaison Offices (CPLO)

Encroachment Action Plans (EAPs) – The Navy continues to develop EAPs, which focus on systematic encroachment identification, quantification, and mitigation/prevention at ranges, installations and OPAREAs. These EAPs support existing as well as future mission requirements and ensure effective testing/training capabilities are maintained. Through 2010, the Navy has completed 31 EAPs while continuing work on 21 additional plans (9 new EAP awards in FY2010). The Navy EAP program includes Range Complexes and Target Areas such as: VACAPES, Dare County Bombing Range, Pinecastle Range Complex, R-2508 Range Complex, Atlantic Test Range, McMullen Target Area, Pt. Mugu Sea Range, San Clemente Island, Northwest Range Complex, PMRF Kauai, El Centro Range Complex, and the Fallon Training Range Complex.

Encroachment Partnering (EP) program – The Navy continues to partner with State, local community, and conservation organizations to maintain operations assurance through the coordinated implementation of restrictive easements. Through September 2010, the Navy has acquired 8,630 acres of restrictive easements using $57.5M in OSD REPI, Navy EP, and partner funding to prevent incompatible development. The Navy has 14 multi-year Encroachment

Protection Agreements with partners at 12 installations and ranges including the R-2508 China Lake Range Complex to protect the Black Mountain Supersonic Corridor, NAS Fallon in support of the Fallon Training Range Complex, the Naval Base Coronado Assault and Tactical Weapons Training Complex (La Posta) in support of SPECWARCOM, NAS Oceana/NALF Fentress and NAS Jacksonville/OLF Whitehouse in support of Field Carrier Landing Practice training, the Atlantic Test Range/NAS Patuxent River in support of NAVAIR testing, and NAS Whiting Field in support of initial naval aviator training. Projects have also been completed at NAS Pensacola, NAS Whidbey Island, OLF Coupeville, Meridian Sea Ray Target Range, former NAES Lakehurst, and NS Everett.

Community Plans and Liaison Officer (CPLO) Program – CPLOs actively manage compatible land use issues through the identification of potential encroachment challenges affecting installations and ranges (including MTRs, special use airspace and OPAREAs). They monitor encroachment concerns and local conditions in and around the installation/range and conduct community outreach to ensure mission sustainability and protect operational capability. CPLOs proactively maintain contact and visibility with local governments to acquire a working knowledge of local land use plans, zoning and development regulations, development trends, environmental issues, and local, State, and regional plans and programs that have the potential to impede the mission of the installation or range. Further, CPLOs establish working relationships with local, State and regional governments and agencies, Non-Governmental Organizations (NGOs), and other groups engaged in any aspect of land use planning, development, conservation, and preservation that could impact operational assurance at the installation or range.

CNIC signed the Encroachment Management Program instruction (CNICINST 11010.1) in May 2010, which officially designated the CPLO program to advise the Regional and Installation/Range Commanders on encroachment and to manage the EAP execution and outreach necessary to mitigate or prevent encroachment. To date, there are seven Regional CPLOs and approximately 25 official installation CPLOs in place with more growth expected in FY2011.

Air Force: Transformation of Stakeholder Engagement

The Air Force is transforming its stakeholder engagement in an effort to prevent and manage encroachment. The new framework is designed to integrate existing programs not replace them and will develop strategies to address areas that aren't covered by existing programs. An Installation Complex Encroachment Management Action Plan (ICEMAP) will be developed for each installation complex and will include an assessment of encroachment and mission sustainability issues, as well as community issues and concerns. The installation complex is comprised of a main installation and its non-contiguous properties (auxiliary airfields, annexes, missile fields, ranges, MTRS, airspace and landing/drop zones) that provide direct support to or are managed or scheduled by the main installation.

The mission footprint is also considered. This includes airspace (routes, MOAs, etc.) and ranges that are used by the installation or its tenants but not controlled/owned or managed by the main installation. By taking this systems approach the individual components are highlighted in terms of the contribution to the entire "readiness system."

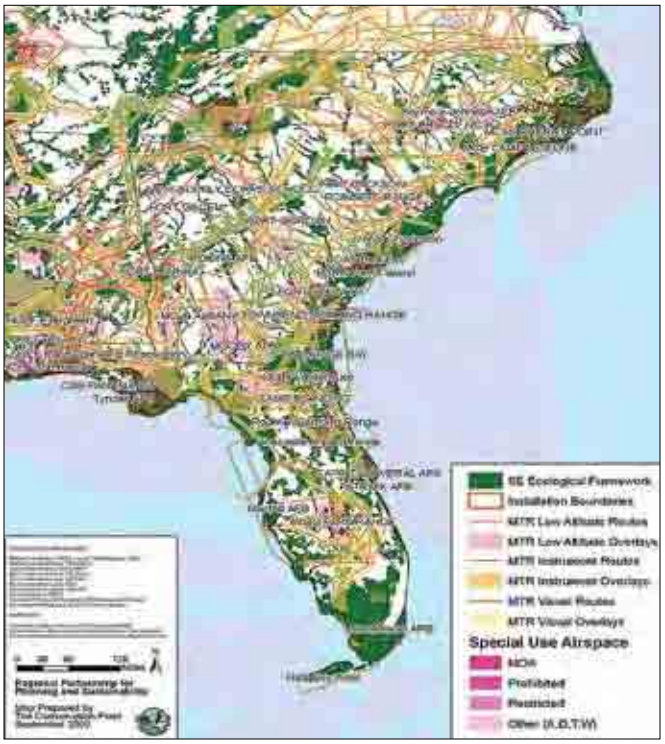
An action plan detailing actions for the installation level as well as higher headquarters and the community will be developed. A detailed outreach and communication strategy will also be built for each installation complex to assist them in implementing the plan. Building and sustaining relationships with local communities is a key component to successful encroachment prevention and management.

In addition to the larger overarching encroachment management initiative, the Air Force has also embarked on an effort to develop a Range Compatible Use program. Similar to the successful Air Installation Compatible Use Program, this initiative strives to develop similar compatible zones for the Air Force Ranges. The concept has had several beta version documents created to help support Joint Land Use Study efforts at Air National Guard Ranges. A prototype Range Compatible Use Analysis has been developed for both Hardwood Range in Wisconsin, and Warren Grove Range in New Jersey. These two efforts build upon the initial prototype analysis prepared for Avon Park Bombing Range, FL in 2008. The Air Force is working to finalize how operational and compatibility zones will be developed so they can finalize a program that will assist range commanders in their outreach and engagement with local communities.

4.4.6 Regional Partnerships

Incorporated into DoD's engagement strategy, regional partnering has enabled the Department to work successfully with multi-State, multi-agency teams to address substantial sustainability issues. At the regional level, DoD is currently involved with two partnerships that address sustainability issues: SERPPAS and the Western Regional Partnership (WRP). These two partnerships address sustainability, compatible land use issues relating to shared airspace and natural resources, urban sprawl, and renewable energy development. SERPPAS is formally endorsed by State and DoD entities via signed charter, and both partnerships are committed to working collaboratively through information sharing such as GIS, land use planning, and renewable energy endeavors that cross installation boundaries, metropolitan areas, and that cross State lines. In 2010, DoD began working with State representatives to explore development of a Mid

Figure 4-3 Southeast Regional Partnership for Planning and Sustainability Focus Areas



Atlantic regional partnership to include Virginia, Maryland, Pennsylvania, New Jersey and Delaware.

SERPPAS (*www.SERPPAS.org*)

In 2005, State environmental and natural resource officials from across the Southeast partnered with DoD and other Federal agencies to form SERPPAS to promote better collaboration when making resource-use decisions. SERPPAS works to prevent encroachment around military lands, encourage compatible resource-use decisions, and improve coordination among regions, states, communities, and Military Services. The region covered by SERPPAS (as seen in Figure 4-3) includes the states of North Carolina, South Carolina, Georgia, Alabama, Mississippi, and Florida. Federal partners include DoD, U.S. Fish and Wildlife Services (USFWS), USDA Forest Service, EPA, Natural Resources Conservation Service, the National Oceanic and Atmospheric Administration, and USGS.

The mission of SERPPAS is to seize opportunities and solve problems in ways that provide mutual and multiple benefits to the partners, sustain the individual and collective mission of partner organizations, and secure the future for all the partners, the region, and the nation. This mission is being accomplished through identifying opportunities for mutual gain among all partner groups, effectively addressing differences among the partners, and focusing on identifying solutions to complex problems. SERPPAS partners have identified four primary objectives that support the SERPPAS mission:

- Promote improved regional, State, and local coordination;
- Manage, sustain, and enhance national defense, natural, economic, and human resources;
- Develop and complete regional projects supporting the sustainment of natural, economic, and national defense resources related to base realignment planning in the southeast region; and
- Develop a GIS Sustainability Decision Support Tool that integrates Federal, DoD, Military Service, and State data for use in regional planning by both SERPPAS and the States.

Primary activities within SERPPAS focus areas include the sharing of GIS maps and identification of potential land uses and development of partnership activities to leverage resources and promote mutual and multiple benefits to SERPPAS partners. Project focus areas include the Strategic Lands Inventory, Longleaf Pine Conservation, the Marine Coastal Initiative, Red Cockaded Woodpecker Translocation, and Gopher Tortoise Conservation efforts. The 10th Principals meeting was held in May 2010 in Mobile, Alabama, to include a range tour of the Deepwater Horizon Oil Spill Emergency Response Center.

Western Regional Partnership (*www.wrpinfo.org*)

The DoD's second regional planning effort, the WRP (Figure 4-4), continues to build momentum and address issues of mutual concern among states and Federal agencies. Specifically, the Department's interest is to better protect and enhance access to and the quality of military test and training ranges. In the West, there are significant military assets and the West's population growth exceeds that of all other regions. This growing population puts more pressure on infrastructure systems such as energy, transportation and wildlife ecosystems. Long-range, sustainable planning is essential to accommodate growth, sustain the economic and environmental health of the region, and protect public safety and health, while at the same time securing the viability of the WRP's partners' missions.

At the WRP Principals' meeting held in August 2010, WRP agreed to a charter, vision and mission. The mission of WRP is to provide a proactive and collaborative framework for senior-policy level Federal, State and tribal leadership to identify common goals and emerging issues in the states of Arizona, California, Nevada, New Mexico and Utah and to develop solutions that support WRP partners and protect natural resources, while promoting sustainability, homeland security and military readiness.

Figure 4-4 Western Regional Partnership Focus Areas



Issues of common concern are addressed through committees. WRP principals first met in November 2007 and established committees to address six critical western regional issues, and those issues still require attention today:

- Border
- Disaster Preparedness
- Energy
- GIS
- Land Use
- Wildlife Corridors, Critical Habitat, and Threatened and Endangered Species

WRP committees work to better improve regional and interagency cooperation among Federal agencies, tribal leadership, states, and non-governmental organizations on critical western regional issues. WRP committees provide a forum for information exchange, issue identification, problem solving and recommendations across the WRP region. Committees are continually reviewed to maintain a resilient and dynamic organization. The focus of committee actions will be to move from knowledge gathering to collaborative action.

In addition, at the third WRP principals' meeting held in August 2010, the Principals accepted the Interim Steering Committee's recommendation to become a permanent body in order to continue to provide additional definition and direction to WRP.

4.4.7 Benefits to Range Sustainment

Over the years, SRI has gone from widespread education and outreach efforts to seeing action and success at installations and ranges across the nation. Planning agencies are meeting with DoD staff and engaging in two-way communication to discuss encroachment potential and mitigation, compatible land use planning, energy development and partnerships for greater sustainability. It is, however, incumbent upon DoD staff to reach out and engage those beneficial stakeholders.

Success Stories

Townsend Wildlife Management Area

In 2010, the State of Georgia was proud to put 6,911 acres in Long County into permanent conservation as part of the Townsend Wildlife Management Area (WMA), and as a significant buffer for the USMC Townsend Bombing Range. The property is located in the lower Altamaha River floodplain, a valuable ecological corridor in Georgia, stretching for 10 miles adjacent to the Altamaha River.

The Governor of GA stated "Permanently preserving tracts of land of this significance is integral to creating a culture of conservation in Georgia, and this is an excellent example of the State partnering with the private sector, conservation community and the Federal government to make that happen." Federal, State and private-sector partners that contributed financial and other support to the project include the U.S. Marine Corps, U.S. Forest Service, National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife

Service, Rayonier Forest Resources, The Nature Conservancy and Georgia Land Conservation Program (GLCP).

The Marine Corps played a significant role in the successful transfer of property from Rayonier Forest Resources to the GA Department of Natural Resources via critical funding and bringing USMC leadership and collaboration to multi-agency process. Utilizing SERPPAS relationships and tools provided by the Sustainable Ranges Initiative also played a crucial role in this land acquisition, benefiting State conservation efforts and the DoD mission through partnership. Providing a buffer around Townsend Bombing Range in order to sustain operations there for training all military services is critical to national security.

2010 GSA Innovation in Real Property Award, Fort A.P. Hill, VA

The GSA Innovation in Real Property Award for Asset Management recognizes achievements related to asset management planning, inventory management, performance management, utilization and disposal of real property, transportation and infrastructure improvement, and portfolio optimization. In 2010 the GSA recognized the innovation and success of the Camden Farm-Army Compatible Use Buffer (ACUB) partnership established in 2008.

On October 2, 2008, the Fort A.P. Hill-ACUB partnership placed an easement on the 500 acre Camden Farm marking several firsts, including the first time a REPI project has been able to leverage BRAC mitigation funding and the first ever programmatic agreement between the Army, Virginia State Historic Preservation Officer and The Advisory Council on Historic Preservation to implement the Army Innovative Mitigation Strategy (AIMS). The Camden Farm easement was highly effective in bringing multiple partnerships together to better manage DoD's real estate on a much larger scale. Fort A.P. Hill's cooperative agreements with The Conservation Fund, The Nature Conservancy, and The Trust for Public Land provided the means to mitigate impacts to cultural resources off post.

In the case of Camden Farm, AIMS produced a ground-breaking model programmatic agreement between the U.S. Army, The Virginia State Historic Preservation Officer and The Advisory Council on Historic Preservation to improve coordination and compliance with the NHPA. BRAC construction catalyzed a relationship between these two partnerships, however BRAC construction also impacted cultural and historic resources on the installation. By linking objectives with the ACUB program and working with conservation-minded NGO's, Fort A.P. Hill was able to garner additional regulatory and resource benefits making a significant contribution to military readiness.

Oahu's Honouliuli Preserve

In March 2010 and as part of multi-agency cooperative efforts and funding, the Trust for Public Land (TPL) and the Hawaii Department of Land and Natural Resources successfully transferred the 3,592 acre Honouliuli Preserve on Oahu to the State of Hawaii, Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW). The Preserve has been added to the DOFAW forest reserve for watershed and habitat protection. A $345K endowment has been established at the Hawaii Community Foundation to support the State's management efforts in the Preserve.

The Trust for Public Land raised $4.3M in acquisition funding from three cooperating sources. TPL raised nearly $2.7M in military funds from the Army Compatible Use Buffer Program (ACUB), $628K from the U.S. Fish & Wildlife Service Recovery Land Acquisition (RLA) Program, and nearly $1M from the Hawaii Legacy Land Conservation Fund. The ACUB program has also helped conserve 1,875 acres at Waimea Valley, Oahu in 2006, 1,129 acres at Pūpūkea-Paumalū, Oahu in 2007, and 3,716 acres at Moanalua Valley, Oahu in 2007.

The Preserve is a lowland diverse forest on the eastern slope of the Wai'anae Mountain Range where 35 threatened and endangered species live, including 16 found nowhere else in the world. The land is also part of the watershed feeding the Pearl Harbor Aquifer, the largest drinking water resource on Oahu. The Preserve also includes many very significant cultural sites including Pōhākea Pass.

Offshore Wind Energy Development

In December 2009, the Minerals Management Service requested a DoD review of a proposed offshore wind energy development area on the outer continental shelf off the Virginia Capes. The Department responded by conducting a thorough examination of potential impacts to military training, testing, and operational activities. The result was that these potential impacts were taken into account in the determination of lease blocks to be opened for offshore wind development. DoD's experience with Virginia's offshore wind effort served as a springboard for further requests from other coastal states for the Department to participate in the Bureau of Ocean Energy Management, Regulation and Enforcement task force process. The Department now works with Virginia, North Carolina, Maryland, Delaware, New Jersey, Rhode Island, Massachusetts, and Maine to help shape the future of outer continental shelf wind energy development in a manner that will meet military security objectives as well as energy security objectives for the nation.

4.5 Overview of Legislative and Regulatory Initiatives

In 2010, the Air Force has put forth two legislative initiatives for consideration. The "Study on Air Force Test and Training Range Infrastructure" is a bill crafted by Senator Ensign, Nevada-R. The bill had not passed as of September 2010, but

if enacted it would require the Air Force to study threats to, and sustainability of, the air, test and training range infrastructure. The Air Force is also participating in the report pursuant to NDAA 2010 Section 332 that assesses the viability and impacts of renewable energy development at installations.

DoD will continue to follow the processes and procedures prescribed by the Office of Management and Budget for introducing and socializing such initiatives in the future.

4.6 Readiness Reporting Improvements

As robust encroachment and capabilities assessments are conducted under the SRI, DoD is enhancing DRRS by establishing a range assessment module (RAM) to address range resource and readiness issues. DoD actions to better integrate range readiness issues into the DRRS are consistent with the Section 366(b) requirement to improve readiness reporting by reflecting the training and readiness impacts caused by constraints on the use of military lands, marine areas, and airspace.

4.6.1 The Defense Readiness Reporting System Enterprise

The OCO and U.S. military involvement in Iraq and Afghanistan have reinforced the urgent need for a robust readiness reporting system that can provide accurate, relevant, and timely information to support the full range of operational planning, as well as offer risk assessments of multiple simultaneous contingencies in the context of Defense Strategy. DoD Directive (DoDD) 7730.65, Department of Defense Readiness Reporting System Enterprise, authorized the establishment of a readiness assessment Enterprise System to calculate the capabilities and preparedness of military units to conduct wartime missions and other contingencies.

The DRRS Enterprise provides the means to manage and report on the readiness of DoD and the Military Services by building upon existing processes and readiness assessment tools to establish a capabilities-based, adaptive, near real-time readiness reporting system. The system is currently capable of reporting on the availability of resources needed to support a mission in six resource areas: Personnel, Equipment, Military Services, Training, Ordnance, and Facilities. It establishes a mission-focused, capabilities-based, common framework that provides the Combatant Commanders, Military Services, Joint Chiefs of Staff, and other key DoD users with a data-driven collaborative environment. The system allows users to evaluate, in near real-time, the readiness and capability of U.S. Armed Forces to carry out their national security missions.

The DRRS Enterprise enables commanders and force managers to look across DoD for required capabilities, identify organizations with those capabilities, and then determine the readiness of the organizations to provide the capability. Readiness to provide needed capabilities for missions is established based upon available resources, the ability of an organization to execute its Service assigned METs and METLs, and to support the Joint Force Commander's JMETL.

4.6.2 Relationship with Other Readiness Systems

The DRRS Enterprise also links to broader DoD Transformation initiatives such as training, logistics, and personnel systems. Additionally, the METs considered in the DRRS Enterprise provide the building blocks to support existing readiness processes, including the request for forces, force management, joint readiness, and adaptive planning tools. Effectively linking the DRRS with other existing and planned systems and decision support tools will further enable the emerging DoD requirement of on-demand creation and revision of executable plans, with up-to-date options, in near real time, as circumstances require. The Military Services have developed Service specific readiness reporting systems that are designed to interface with the DRRS-Enterprise. These ongoing readiness initiatives are currently focused on providing a robust organizational readiness view using information contained in the relevant authoritative databases and made available through Enhanced Status of Resources and Training Systems (ESORTS).

4.6.3 Range Assessment as a Component of DRRS

During 2009, a congressional reporting requirement House Report (H.R.) 5658 (Duncan Hunter NDAA for FY2009) directed DoD to report on:

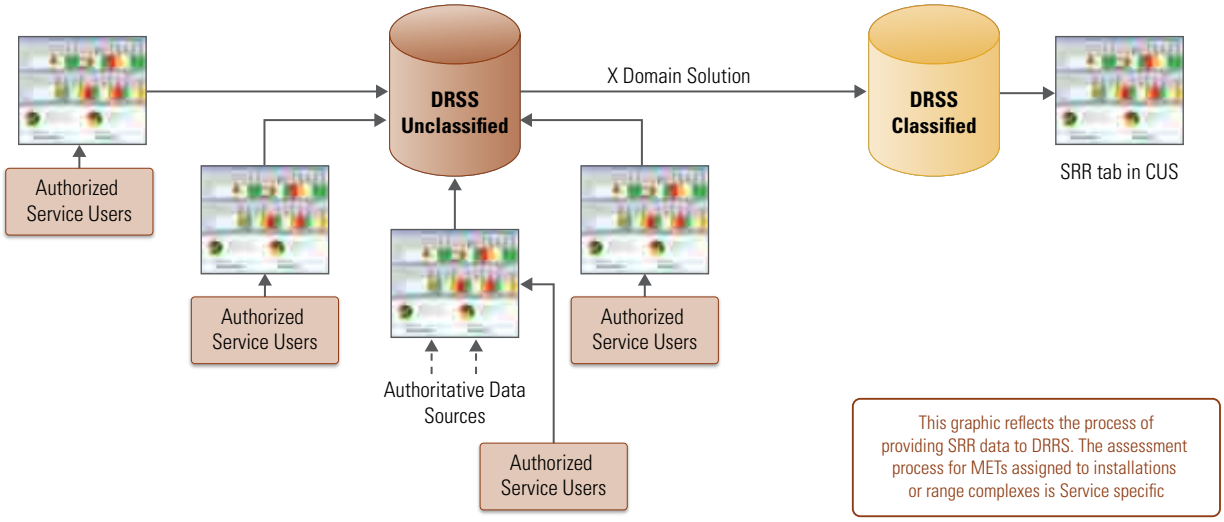
- Plans to pilot test a new functionality for training range encroachment assessment during CY2008; and
- How encroachment affects the training and readiness levels of tactical units of the Military Services.

As discussed in Chapter 3 of this report, DoD has determined a common set of thirteen Capability Attributes, twelve Encroachment Factors, and Military Service specific Training Mission Areas assigned to ranges. The assessment results have shown that the process of collecting and reporting assessments in this "cause and effect" manner is understandable, repeatable, and efficient. This capability and encroachment based assessment methodology provides DoD with a tool to perform "what-if" analysis of potential range issues as they relate encroachment and capability concerns to unit readiness.

Based on the results and feedback from SRR 2008 and 2009 data collections, a decision was made to use the manual reporting methodology and the SRR business rule as a baseline for development of a distributed on-line capability for a Range Assessment Module (RAM).

The Department began a phased concept development in January 2009 for a RAM in DRRS. The Phase I development

Figure 4-5 Planned RAM Cross Domain Solution in DRRS



focused on synchronizing the existing SRR assessment methods as a component within the DRRS business process.

Following Phase I, a Phase II effort began in mid-2009 focused on using the existing DRRS framework and functionality with range assessments to build associations with operational readiness reporting processes. This in turn supports the linkages between ranges and the operational tasks assigned to the units using these ranges. It is aimed at addressing how encroachment affects the training and readiness levels of the tactical units of the military Services.

Initial Phase II prototype development and logic testing were developed based on knowledge of existing DRRS-Strategic functionality. As a starting point for building relationships between encroachment and unit readiness, there was Service development, or identification, of over-arching range-specific Mission Essential Tasks (METs).

In one approach currently under consideration, the data from the SRR is entered in the unclassified portion of DRRS (Phase I) and transferred to a classified DRRS link (Phase II) using a cross domain solution (Figure 4-5).

DoD will coordinate with the Services to integrate range readiness from Service Specific readiness reporting systems into the DRRS-Enterprise. Service representatives from the readiness community, the installation community, and the DRRS Implementation Office (DIO) are closely coordinating. As measures are implemented, the Department is exploring the development of a Business Intelligence (BI) tool to collect operational readiness information in DRRS, which could then be related to range availability and capability, and make it available to installation or range complex managers to help build the encroachment relationships with operational readiness.

With full Phase II implementation, end-user (range operator) participation, dedicated system sustainment and additional user training, RAM will serve as an important decision support tool for both OSD and the Services.

In its full implementation, the RAM application will allow DoD and the Services to understand and visualize the relationship among range encroachment and capability by assigned mission area, and training tasks associated with operational mission areas.

The alignment between the Department and Services range assessment and readiness reporting is through the standard criteria and definitions set forth in the 2008 and subsequent SRRs, which were based in part, on other Service-specific range systems and input to RAM.

The requirements of these individual systems are sufficiently consistent for the needs of the Department and the Services. As part of the annual process improvement for the SRR, opportunities for increased interoperability of data and metrics across the Department and Service systems and processes are constantly evaluated for implementation.

4.7 Shared Information Enterprise

As the SRI continues to mature, the need to maintain, access, analyze, and share range-specific data to support reporting requirements and to inform decision makers is also maturing. DoD continues to encourage the Military Services to develop information system solutions that both satisfy Military Service and range needs, as well as share summary data and support specific information requests from OSD and other users. The system should be able to support:

- Congressional reporting;
- Range inventories, capacity, and capabilities reporting;

- Range readiness reporting;
- Investment planning;
- Budget management;
- Range sustainability initiatives; and
- Asset management.

Information management efforts will be based upon a strategy aligned to DoD and Federal information sharing goals and policies (e.g., Net-Centric Data Strategy). All efforts will contribute to the development of a shared data environment that will support range management decision-making and reporting.

4.8 Range Inventory Summary

The requirement for DoD and the Military Services to develop and maintain an inventory of operational ranges is specifically detailed in NDAA Section 366(c).

This section represents a summary of the Military Service inventories, and provides current inventory information. DoD believes an accurate inventory is necessary to support range management and planning processes. In addition to the requirement to maintain a training range inventory as set forth in NDAA Section 366(c), DoD has issued specific policy directives that require the Military Services to develop and utilize sound GIS-based range inventories and scientific data as the basis for decision-making that supports training and testing mission activities. Specific inventory details for each Military Service are provided in Appendix C, which contains maps and an inventory of the ranges, range complexes, and special use areas. Appendix E contains summaries of DoD and Military Service range sustainment policies.

The Sustainable Ranges Report Inventory is organized into the following components:

- Regional Range and SUA Maps—These maps display the location of DoD training and testing ranges and SUA around the world. The data is drawn from the Military Services and the National Geospatial Intelligence Agency (NGA). Each Military Service maintains geospatial information on their training and testing ranges.
- Tabular Range Inventory—This component of the inventory provides a list of range complexes, range descriptions, and available range types. The Military Services maintain more detailed inventories that are used to support their specific range management and sustainment processes.
- Military Training Route (MTR) Inventory—The MTR inventory includes a listing of the three types of routes: visual routes, instrument routes, and slow routes. The inventory provides information on each MTR, including the originating agency, scheduling agency, effective times, and route length.
- SUA Inventory—This portion of the inventory provides a list of SUA and includes information relating to the controlling agency, associated range complex or installation, altitudes, users (Military Service), and area.

The SRR inventory is built on Military Service inventories and information pulled from Military Service-supporting information management systems. When compiled, this inventory provides a comprehensive picture of DoD training and testing assets. In order to provide a Military Service-level perspective on range inventories, the following highlights some of the key components of the Military Service range inventories.

4.8.1 Army Range Inventory Description

Background

The Army has complied with the requirements set forth in DoDD 3200.15 by providing a comprehensive GIS-based inventory of all operational ranges with the Army operational range inventory. The operational range inventory was initiated in June 2004 and completed in April 2008. This inventory was based on an initial effort, evaluating the Army active/inactive range inventory of installations and training sites having operational ranges.

In August 2008, to improve consistency and coordination of all Installation geospatial data, the Deputy Chief of Staff for G-3/5/7 and the Assistant Chief of Staff for Installation Management issued guidance for U.S. Army Installation Geospatial Information and Services (IGI&S) data proponency, Common Installation Picture, and Quality Assurance Plans (QAPs). Based on this guidance, all Army installations are required to maintain geospatial common installation picture data and metadata for their sites; and updating of the operational range inventory has now transitioned from a centralized data collection effort to a decentralized effort. Updates of range data for installations under the Army's Sustainable Range Program (SRP) are now being compiled by Army SRP GIS Professionals per the HQDA G-37/TRS SRP GIS Program Data Development Strategy guidance issued in November 2008 with oversight from the Army Training Support Center Training Capability Manager— Live. SRP supported installations which lack on-site SRP GIS assistance, are alternately provided support from the SRP Geospatial Support Center. The geospatial data layers that represent operational ranges are required to be validated annually.

Data Elements and Sources

The range data elements created and maintained by installation SRP GIS Professionals or the SRP Geospatial

Support Center are defined in each layer's geospatial data QAP. QAPs provide the definition, information about the functional and organizational proponent(s), policies and regulations, formatting and naming convention requirements, geometry used, database storage requirements, data update frequency, acceptable source data and methods, data quality requirements, attribute definitions and requirements, and metadata requirements for each of the data layers. QAPs are living documents and are maintained by the HQDA proponent with input from the installation data stewards and other stakeholders. QAPs are reviewed, updated (as required), and published annually.

Databases and Applications

The Army Mapper is the Army's database of record for installation geospatial data. All geospatial data relating to operational ranges is stored in the Army Mapper. Geospatial range data for installations supported by the Army's SRP is required to be validated by the installation Garrison Commander, or equivalent/delegated approval authority, prior to submission to the Army Mapper database of record.

4.8.2 Marine Corps Range Inventory Description

The Marine Corps Training and Education Command's Range and Training Area Management Division (TECOM/RTAM) is responsible for managing the Marine Corps range complex inventory. The Marine Corps range complexes refer to a collection of training areas and ranges, airspace areas, and other designated attributes for training. The inventory provides a detailed list of Marine Corps range complexes, including land, air, sea, and underseaspace. The intent of the range inventory is to support Marine Corps range management and sustainment processes, including capabilities assessment, investment strategy, encroachment management, operational planning, and environmental management.

The Marine Corps first developed the inventory for the 2004 SRR based on information available in the RTAM system (RTAMS). RTAMS is a web-enabled, institutional-level, centrally managed system. It provides commanders, operating units, range managers, and all cross-Military Service users with a single source access for all range-related capabilities and resources. RTAMS uses established and developing data metrics and software. The range complex information available in RTAMS was the primary source for the initial range complex inventory. The 2010 Marine Corps inventory will follow previous review processes and use the RTAMS database and the RCMPs as primary data sources.

The Marine Corps range complex inventory is currently maintained on RTAMS, as well as in a spreadsheet format.

It uses a number of data fields (name, claimant organization, location, size, and range type) and provides GIS data with numerous data layers. The inventory is updated annually and has been significantly improved upon during the last few years due to the initiation of RCMPs which catalogue range complex baseline attributes and capabilities, and include a comprehensive inventory of ranges and SUA.

The RTAMS inventory review process is led by TECOM/RTAM, using a QA/QC process to ensure inventory consistency and accuracy.

4.8.3 Navy Range Inventory Description

The Navy range complex inventory is a detailed list of land, air, sea, and underseaspace that comprise the Navy range complexes. It encompasses major fleet training ranges, OPAREAs, SUA, and major range and test facility base (MRTFB) sites, referred to as range complexes. The inventory does not capture individual ranges and training areas not associated with a range complex. The intent of the range inventory is to support Navy range management and sustainment processes, including capabilities assessment, investment strategy, encroachment management, operational planning, and environmental management.

The Navy inventory has improved over the years due to the implementation of the Tactical Training Theater Assessment Planning (TAP) Program, which included the preparation of RCMPs. RCMPs catalog range complex baseline assets and capabilities, and include a comprehensive inventory of ranges, OPAREAs, and SUA.

The Office of the Chief of Naval Operations (OPNAV) N43 first developed the inventory for the 2004 Sustainable Ranges Report based on multiple sources that included the Navy's Ranges to Readiness Study, active/inactive range survey (2000), Fleet Training Area/Range Directory (Naval Warfare Assessment Station, Corona, 2003), Fleet OPAREA Instruction, and Fleet Area Control and Surveillance Facility Instructions. The inventory is currently maintained in a relational database, as part of the Tactical Training and Testing Ranges Repository and Management System (TRAMS), and in a spreadsheet format. As the inventory spreadsheet is updated, the TAP Repository (TAPR) database will be updated. Additional detail on the range complex inventory is provided as part of the RCMPs to include scheduling, operations, encroachment, and capabilities information. In the future, the inventory and associated information will be integrated into the TAPR.

The inventory is updated annually using the best available sources of information, as described above. The RCMP is the primary source of information for the updates. The RCMP will be updated biennially to coincide with the POM development cycle, beginning in FY2009. The updates will include an assessment of each range complex's inventory and capabilities. For the remaining range complexes, range instructions and manuals will be used to update the inventory.

The inventory review process involves a review by the United States Pacific Fleet and the United States Fleet Forces Command to ensure the most current information is reflected in the inventory. Additionally, the Navy has a QA/QC process that ensures consistency and accuracy of the inventory.

The Fleet Forces Command will use the inventory as the basis for the Navy training area geospatial library now under development in the TRAMS/Environmental Information Management System (TRAMS/EIMS) project. Space and Warfare Systems Center Charleston and Naval Facilities Engineering Command developed EIMS to meet a fleet requirement for "a single, comprehensive Navy GIS-based information management system and databases for operational and environmental planning to support operational requirements, at sea environmental issues, and range/OPAREAs compliance and encroachment concerns." TRAMS was originally developed as the TAPR with the goal of hosting all TAP-generated training area data, much of which is geospatial. However, the TAPR became TRAMS as the program moved beyond hosting only TAP data. The fleets recognized the need for a single authoritative geospatial library in EIMS, based on a comprehensive Navy training area inventory and built on maps provided by the NGA, DoD's mapping authority. The foundational maps from NGA will include training area boundaries, with all other geospatial information developed by TAP and other authoritative sources layered on top. NGA will provide web-based geospatial information so that when it updates training area boundaries, it will update the foundational maps in EIMS as well. Complete, foundational maps for all fleet range complexes are currently being worked on with the schedule dependent upon RCMP completion.

4.8.4 Air Force Range Inventory Description

The Air Force testing and training range inventory is managed and administered by the Headquarters USAF Ranges and Airspace Division. The inventory is comprised of four parts:

- U.S. air-to-ground ranges;
- Overseas ranges operated by the Air Force;
- Detailed SUA information; and
- Detailed MTR information.

The inventory is based on data elements from a variety of sources, and is in GIS format. The format allows the inventory to be searched, filtered, and displayed on a map for quick analysis. Inventory elements are stored in a variety of formats, from tabular data to geographic information sources. Major Command reports are also used to update capabilities. Every 56 days, the airspace tables are updated with information from the NGA, while range information is continuously updated. The entire inventory receives an annual review.

This Page is Intentionally Left Blank.



5 The Way Ahead

As DoD's SRI has continued to mature over the last nine years, DoD and the Military Services have made significant progress in being able to identify and act upon the external pressures that constrain the use of training and testing range resources. Critical factors in managing those pressures have been:

- Effective use of Section 2864a authorities;
- Engagement activities for compatible land, sea, and airspace use
- Both local and regional encroachment partnering activities;
- Further refining the comprehensive DoD-wide range inventory; and
- Development of clear criteria and standard methods for assessing the adequacy of range resources against current and anticipated training requirements.

Looking to the future, DoD must build upon the early successes of the SRI while continually evaluating needs and requirements associated with a constantly changing environment and using innovations to ensure the long-term sustainability of military range resources.

5.1 The Sustainable Ranges Initiative

The SRI is an ongoing process, with its greatest benefits coming from influencing and changing approaches to mission management and land use decision making. Though encroachment is an issue for ranges in general, the situation at each range is unique and requires a specific approach in order to achieve mission success. SRI is designed to help range staffs address encroachment concerns by providing training and education to staffs both inside and outside the fence line, fostering long-term partnerships to reduce the likelihood of future conflict, and attracting outside investment in mission protection. SRI helps provide tools to improve asset management on the ranges, and encourage compatible land uses off the ranges.

5.2 Compatible Land, Airspace, and Sea Space Use and Engagement and Partnering Activities

Competition for land, airspace, and sea space for siting of renewable energy infrastructure to meet national energy objectives is of paramount importance to the Department. DoD has been working on developing compatible siting considerations and sharing information with interested stakeholders to include NGO's, other government agencies, and the renewable energy industry. These considerations will protect military training, testing, and operational considerations while promoting sound environmental stewardship. The Department is also working with the Bureau of Ocean Energy Management, Regulation and Enforcement and the coastal states through a task force process to ensure that renewable energy infrastructure siting on the outer continental shelf is compatible with the Department's offshore activities. Additionally, DoD is seeking to proactively engage with stakeholders to develop compatible siting solutions through the establishment of a DoD Energy Siting Clearinghouse to facilitate fully coordinated Department positions on the compatibility of proposed projects for energy developers, government agencies, and other concerned parties.

DoD will continue to work with Congress, other Federal agencies, Native American tribes, states, local governments, NGOs, and other stakeholders to take full advantage of legislative and regulatory initiatives that support compatible land use and encroachment prevention around military installations. The REPI program conserved over 144,900 acres of land near and around DoD installations by the close of

FY2009, and demand from the Military Services for funding of projects in FY2010 was nearly 2.5 times greater than those funds appropriated for the program. Regional partnering efforts are bearing fruit, with State partners in SERPPAS and WRP investing in compatible land use, conservation, habitat restoration and management, and renewable energy. Academia is contributing to that success in a variety of studies and pilot projects directly impacting DoD efforts, while NGOs are working collaboratively to develop and implement range-wide planning efforts. DoD and the Military Services have found outreach and partnering on such issues to be the most effective way to address today's encroachment concerns while minimizing future problems and ensuring the long-term sustainability of DoD's range resources.

Through the Regional Partnerships established in the Southeast and the Southwest, GIS mapping is being used to clearly articulate DoD current and future mission requirements across these regions, particularly in areas where outlying landing fields, low-level flight routes, and helicopter training areas are located. This effort could expand to all regions of the country, if states are interested, or if there is desire among a particular set of states to coordinate efforts towards multiple and mutual benefits across a region.

It is important to note that SRI outreach, education, engagement, and partnering is a long-term part of the solution to develop true sustainability across all DoD ranges. DoD is committed to continued investment in current efforts, and to developing new tools to protect and enhance readiness. Conservation banking, as authorized in the FY2010 NDAA, holds particular promise for tapping new sources of private industry funding to leverage DoD, other Federal agency funding, and State and local government contributions. It took several decades for the challenges of encroachment to manifest themselves around ranges opened during World War II, and it will take a consistent and sustained effort to address and mitigate those challenges.

5.3 Use of Range Inventory and Encroachment and Capability Tools

DoD will make greater use of its comprehensive range inventory and standardized assessment methodology to evaluate encroachment impacts and range capabilities in a manner that is consistent across the Military Services. The tools developed to date will assist DoD and Military Service leadership with identifying at-risk ranges, recognizing emerging issues, and making informed decisions about how to focus new or additional range sustainment efforts. These actions will enhance the abilities of DoD and the Military Services to meet training requirements, and will allow for accurate and expedited responses to internal and Congressional requests for related information.

Equally important to understanding impacts on readiness is the ability to measure and effectively demonstrate the successes of SRI. The ultimate success of the SRI will be realized when DoD can prevent encroachment and avoid mission degradation before it occurs. The Military Services have efforts underway to realize this goal, as described in Chapter 4.

5.4 Sustainable Ranges Report Format and Methodologies

The 2008 SRR established a baseline for future reports on the SRI. The 2008 format presented information in a more concise format that allows progress against Congressional reporting requirements and internal goals and milestones to be more readily determined. Now in its eighth year, the SRR provides Congress with a consistent report that highlights the continued evolution of DoD's SRI. DoD expects the data to provide improved information for more precise planning in the future. The format will continue to be refined, as needed, but continue with the presentation of critical policy and guidance documents, as well as status and updates on existing and emerging implementation tools.

Each year DoD and the Military Services will conduct a one-day workshop to review and analyze the usefulness of the data collected. Strategies for improvement will be explored in order to better track OSD's progress to address training constraints caused by limitations on its ranges. DoD will continue to work with the Military Services in establishing quantifiable goals and milestones for tracking planned actions and measuring progress, and developing projected funding requirements to more fully address identified training constraints.

A National Defense Authorization Act Language

The National Defense Authorization Act for Fiscal Year 2003

Sec. 366. Training Range Sustainment Plan, Global Status of Resources and Training System, and Training Range Inventory.

[a] Plan Required—(1) The Secretary of Defense shall develop a comprehensive plan for using existing authorities available to the Secretary of Defense and the Secretaries of the military departments to address training constraints caused by limitations on the use of military lands, marine areas, and airspace that are available in the United States and overseas for training of the Armed Forces.

[2] As part of the preparation of the plan, the Secretary of Defense shall conduct the following:

[A] An assessment of current and future training range requirements of the Armed Forces; and

[B] An evaluation of the adequacy of current Department of Defense resources (including virtual and constructive training assets as well as military lands, marine areas, and airspace available in the United States and overseas) to meet those current and future training range requirements.

[3] The plan shall include the following:

[A] Proposals to enhance training range capabilities and address any shortfalls in current Department of Defense resources identified pursuant to the assessment and evaluation conducted under paragraph (2);

[B] Goals and milestones for tracking planned actions and measuring progress;

[C] Projected funding requirements for implementing planned actions; and

[D] Designation of an office in the Office of the Secretary of Defense and in each of the military departments that will have lead responsibility for overseeing implementation of the plan.

[4] At the same time as the President submits to Congress the budget for fiscal year 2004, the Secretary of Defense shall submit to Congress a report describing the progress made in implementing this subsection, including:

[A] The plan developed under paragraph (1);

[B] The results of the assessment and evaluation conducted under paragraph (2); and

[C] Any recommendation that the Secretary may have for legislative or regulatory changes to address training constraints identified pursuant to this section.

[5] At the same time as the President submits to Congress the budget for each of fiscal years 2005 through FY2008, the Secretary shall submit to Congress a report describing the progress made in implementing the plan and any additional actions taken, or to be taken, to address training constraints caused by limitations on the use of military lands, marine areas, and airspace.

[b] Readiness Reporting Improvement—Not later than 30 June 2003, the Secretary of Defense, using existing measures within the authority of the Secretary, shall submit to Congress a report on the plans of the Department of Defense to improve the Global Status of Resources and Training System to reflect the readiness impact that training constraints caused by limitations on the use of military lands, marine areas, and airspace have on specific units of the Armed Forces.

[c] Training Range Inventory—(1) The Secretary of Defense shall develop and maintain a training range inventory for each of the Armed Forces—

[A] To identify all available operation training ranges;

[B] To identify all training capacities and capabilities available at each training range; and

[C] To identify all training constraints caused by limitations on the use of military lands, marine areas, and airspace at each training range.

[2] The Secretary of Defense shall submit an initial inventory to Congress at the same time as the President submits the budget for fiscal year 2004, and shall submit an updated inventory to Congress at the same time as the President submits the budget for fiscal years 2005 through 2008

[d] GAO Evaluation—The Secretary of Defense shall transmit copies of each report required by Subsections (a) and (b) to the Comptroller General. Within 60 days after receiving a report, the Comptroller General shall submit to Congress an evaluation of the report.

[e] Armed Forces Defined—In this section, the term "Armed Forces" means the Army, Navy, Air Force, and Marine Corps.

National Defense Authorization Act for Fiscal Year 2007

Sec. 348. Five-Year Extension of Annual Report on Training Range Sustainment Plan and Training Range Inventory.

Section 366 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003 (Public Law 107-314; 116 Stat. 2522; 10 USC 113 note) is amended—

[1] in Subsections (a)(5) and (c)(2), by striking `fiscal years 2005 through 2008' and inserting `fiscal years 2005 through 2013'; and

[2] in Subsection (d), by striking `within 60 days of receiving a report' and inserting `within 90 days of receiving a report'.

B Service Mission Area Descriptions and Definitions

Army

Movement and Maneuver—The related tasks and systems that move forces to achieve a position of advantage in relation to the enemy. It includes those tasks associated with employing forces in combination with direct fire or fire potential (maneuver), force projection (movement), and mobility and counter-mobility. Movement and maneuver are the means by which commanders concentrate combat power to achieve surprise, shock, momentum, and dominance. For the purposes of the encroachment and capability assessments discussed in Chapter 3 of this report, each range will be assessed for its ability to support three movements and maneuver task areas:

- Infantry
- Armor
- Aviation

Fire Support—The related tasks and systems that provide collective and coordinated use of Army indirect fires, joint fires, and offensive information operations. It includes those tasks associated with integrating and synchronizing the effects of these types of fires with the other operating functions to accomplish operational and tactical objectives. For the purposes of the encroachment and capability assessments discussed in Chapter 3 of this report, each range will be assessed for its ability to support two fire support task areas:

- Field Artillery
- Air Defense Artillery

Intelligence—The related tasks and systems that facilitate understanding of the enemy, terrain, weather, and civil considerations. It includes those tasks associated with intelligence, surveillance, and reconnaissance. The intelligence operating function is a flexible and adjustable architecture of procedures, personnel, organizations, and equipment that provide relevant information and products relating to the threat, civil populace, and environment to commanders.

Sustainment—The related tasks and systems that provide support and services to ensure freedom of action, extend operational reach, and prolong endurance. Sustainment facilitates uninterrupted operations through means of adequate logistic support. It is accomplished through supply systems, maintenance, and other services that ensure continuous support throughout an operation.

Command and Control—The related tasks and systems that support commanders in exercising authority and direction. It includes those tasks associated with acquiring friendly information, managing all relevant information, and directing and leading subordinates. Command and control has two components: the commander and the command and control system. Information systems—including communications systems, intelligence-support systems, and computer networks—form the backbone of command and control systems. They allow commanders to lead from anywhere in their AO. Through command and control, commanders initiate and integrate all operating functions.

Protection—The related tasks and systems that preserve the force so the commander can apply maximum combat power. Preserving the force includes protecting personnel (combatant and noncombatant), physical assets, and information of the United States and multinational partners. For the purposes of the encroachment and capability assessments discussed in Chapter 3 of this report, each range will be assessed for its ability to support three protection task areas:

- Engineering

- Chemical
- Military Police

Marine Corps

Individual Level Training—The set of core and core plus skills associated with the USMC Individual Training Standards (ITS) for each element of a Marine Air Ground Task Force (MAGTF). Accordingly, the Individual Level training range provides and supports the most basic training environment associated with the MAGTF Aviation Combat Element (ACE), Ground Combat Element (GCE)—and Combat Logistics Element (CLE)—The Individual Level training range also reinforces basic infantry combat skills and supports those specific training requirements and skills associated with progressive USMC ITS and the program of instruction at each USMC Formal School.

Unit Level Training—The set of friendly force small unit offensive and defensive tactics and operations associated with expeditionary MAGTF forces against hostile or potentially hostile forces. The Unit Level training range supports all types of aircraft, weapons, special operations forces, landing forces, and ground forces employed in concerted military efforts described by the Marine Corps' Expeditionary Maneuver Warfare (EMW) doctrine, which includes Operational Maneuver from the Sea (OMFTS) and Ship to Objective Maneuver (STOM). It includes tactics and operations associated with all training phases of small unit level missions of a MAGTF.

Marine Expeditionary Unit Level Training—The set of friendly force offensive and defensive tactics and operations associated with expeditionary MAGTF forces against hostile or potentially hostile forces. The MEU Level training range supports all types of aircraft, weapons, special operations forces, landing forces, and ground forces employed in concerted military presence and engagement efforts described by the USMC's EMW doctrine, to include OMFTS and STOM.

Marine Expeditionary Brigade Level Training—The set of friendly force offensive and defensive tactics and operations associated with small-scale contingency expeditionary MAGTF forces against hostile or potentially hostile forces. The MEB Level training range supports all types of aircraft, weapons, special operations forces, landing forces, and ground forces that will be employed in concerted crisis response military efforts that are characterized by high-density, high-risk operations.

Navy

Strike Warfare (STW)—The set of friendly force air, surface, subsurface, and land-based offensive tactics and operations associated with identifying, targeting, and engaging fixed, mobile, and time-sensitive land-based targets using air-to-ground (A-G) weapons. The STW range also supports tactics and operations associated with manned and unmanned Tactical Airborne Reconnaissance, Unmanned Combat Air Vehicles, Suppression of Enemy Air Defenses (SEAD), Close Air Support (CAS), and engagement of fixed and mobile land-based targets using naval surface gunfire and sea-launched cruise missiles.

Electronic Combat (EC)—The set of friendly offensive and defensive tactics and operations associated with Electronic Attack and Electronic Protect activities. The EC range function supports identifying, degrading, or denying hostile forces the effective use of their battlefield surveillance, targeting radar and electro-optical systems, communications, counter-fire equipment, and electronically fused munitions. It is a subset of Command and Control Warfare.

Anti-Air Warfare (AAW)—The set of friendly force offensive and defensive surface-to-air (S-A) and air-to-air (A-A) tactics and operations associated with defending friendly air, surface, and land forces from emergent hostile air threats, whether launched from air, surface, or subsurface platforms. The AAW range function also supports the set of friendly force offensive A-A tactics and operations associated with gaining and maintaining air superiority or air supremacy of the battle space. The AAW range function supports the use of electronic decoys and electronic jammers used by friendly forces for the purpose of counter-targeting against airborne threats.

Anti-Surface Warfare (ASUW)—The set of friendly force air, surface, and subsurface offensive and defensive tactics and operations associated with detection, surveillance, and engagement of contacts, critical contacts of interest, and hostile at-sea surface forces. In addition to traditional training against large ships, the ASUW range function also supports a variety of training activities against small boats, and fast-moving surface vessels. The ASUW range function may also support offensive tactics and operations against designated surface targets located in ports, harbors, and anchorages.

Mine Warfare (MW)—The set of friendly force air, surface, and subsurface offensive and defensive tactics and operations associated with mine-laying and Mine Counter Measures (MCM). Offensive minelaying operations aim to dislocate the enemy war efforts and improve the security of friendly sea lines of communications by destroying, or threatening to destroy, enemy seaborne forces. MCM includes active measures (to locate and clear mined areas), passive measures (to include small object avoidance and ship routing around high threat areas), and self-protective measures (ship signature reduction).

Amphibious Warfare (AMW)—The set of friendly force offensive and defensive tactics and operations associated with providing expeditionary forces capable of projecting power ashore from the sea to accomplish a specific objective. The AMW range function may support establishing and sustaining landing forces ashore for extended periods or putting landing forces ashore only for a short period of time before withdrawing them. The AMW range function supports virtually every type of ship, aircraft, weapon, special operations force, and landing force employed in concerted military efforts described by the Operational Maneuver from the Sea (OMFTS) doctrine, which includes Expeditionary Maneuver Warfare, and Ship to Objective Maneuver. As a result, the AMW range function supports tactics and operations associated with all phases of ESG and MEU missions using OMFTS, including both amphibious assault and vertical assault tactics. The AMW range function does not support specific post-landing tactics and operations.

Anti-Submarine (ASW)—The set of friendly force air, surface, and subsurface offensive and defensive tactics and operations associated with countering hostile and potentially hostile submarine threats. The ASW range function may support open-ocean, choke point, and littoral anti-submarine missions, including detection, classification, surveillance, localization, tracking, and attack.

Naval Special Warfare (NSW)—The set of friendly force air, surface, subsurface, and land-based offensive and defensive tactics and operations associated with the five principal NSW missions: Combating Terrorism, Counter Proliferation, Special Reconnaissance, Direct Action, and Unconventional Warfare. The NSW range function supports identifying, targeting, and engaging fixed, mobile, and time sensitive land-based targets using the entire inventory of NSW weapons.

Air Force

Strategic Attack—Offensive action conducted by command authorities aimed at generating effects that most directly achieve our national security objectives by affecting the adversary's leadership, conflict-sustaining resources, and strategy.

Counterair—Operations to attain and maintain a desired degree of air superiority by the destruction, degradation, or disruption of enemy forces. Counterair's two elements, offensive counterair (OCA) and defensive counterair (DCA), enable friendly use of contested airspace and disable the enemy's offensive air and missile capabilities to reduce the threat posed against friendly forces.

Counterspace—Kinetic and non-kinetic operations conducted to attain and maintain a desired degree of space superiority by the destruction, degradation, or disruption of enemy space capability. Counterspace operations have an offensive and a defensive component.

Counterland—Air and space operations against enemy land force capabilities to dominate the surface environment and prevent the opponent from doing the same. Counterland is composed of two discrete air operations for engaging enemy land forces: air interdiction, in which air maneuver indirectly supports land maneuver or directly supports an air scheme of maneuver, and close air support (CAS), in which air maneuver directly supports land maneuver.

Countersea—Specialized collateral tasks performed in the maritime environment such as sea surveillance, anti-ship warfare, protection of sea lines of communications through antisubmarine and anti-air warfare, aerial minelaying, and air refueling in support of naval campaigns with the objective of gaining control of the medium and, to the extent possible, dominating operations either in conjunction with naval forces or independently.

Information Operations—Actions taken to influence, affect, or defend information, systems, and/or decision-making of an adversary's "observe-orient-decide-act" (OODA) loop while protecting our own.

Electronic Combat Support—Actions involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy across the electromagnetic battlespace. The operational elements of electronic warfare operations are electronic attack, electronic protection, and electronic warfare support.

Command and Control—The battlespace management process of planning, directing, coordinating, and controlling forces and operations. It involves the integration of a system of procedures, organizational structures, personnel, equipment, facilities, information, and communications designed to enable a commander to exercise authority and direction across the range of military operations.

Air Drop—Air Drop is the delivery of personnel and materiel from an aircraft in flight to a drop zone (DZ). Most airdrop procedures use parachutes to deliver loads to the ground, such as heavy equipment, container delivery systems, and personnel. Another airdrop procedure is free fall delivery. This involves dropping relatively small items, such as packaged meals or unbreakable objects like hay bales without the use of a parachute. Airdrop allows commanders to project and sustain combat power into areas where a suitable ALZ or a ground transportation network may not be available.

Air Refueling—The in-flight transfer of fuel between tanker and receiver aircraft.

Space lift—The delivery of satellites, payloads, and materiel to space.

Special Operations—The use of special airpower operations (denied territory mobility, surgical firepower, and special tactics) to conduct the following special operations functions: unconventional warfare, direct action, special reconnaissance, counterterrorism, foreign internal defense, psychological operations, and counterproliferation.

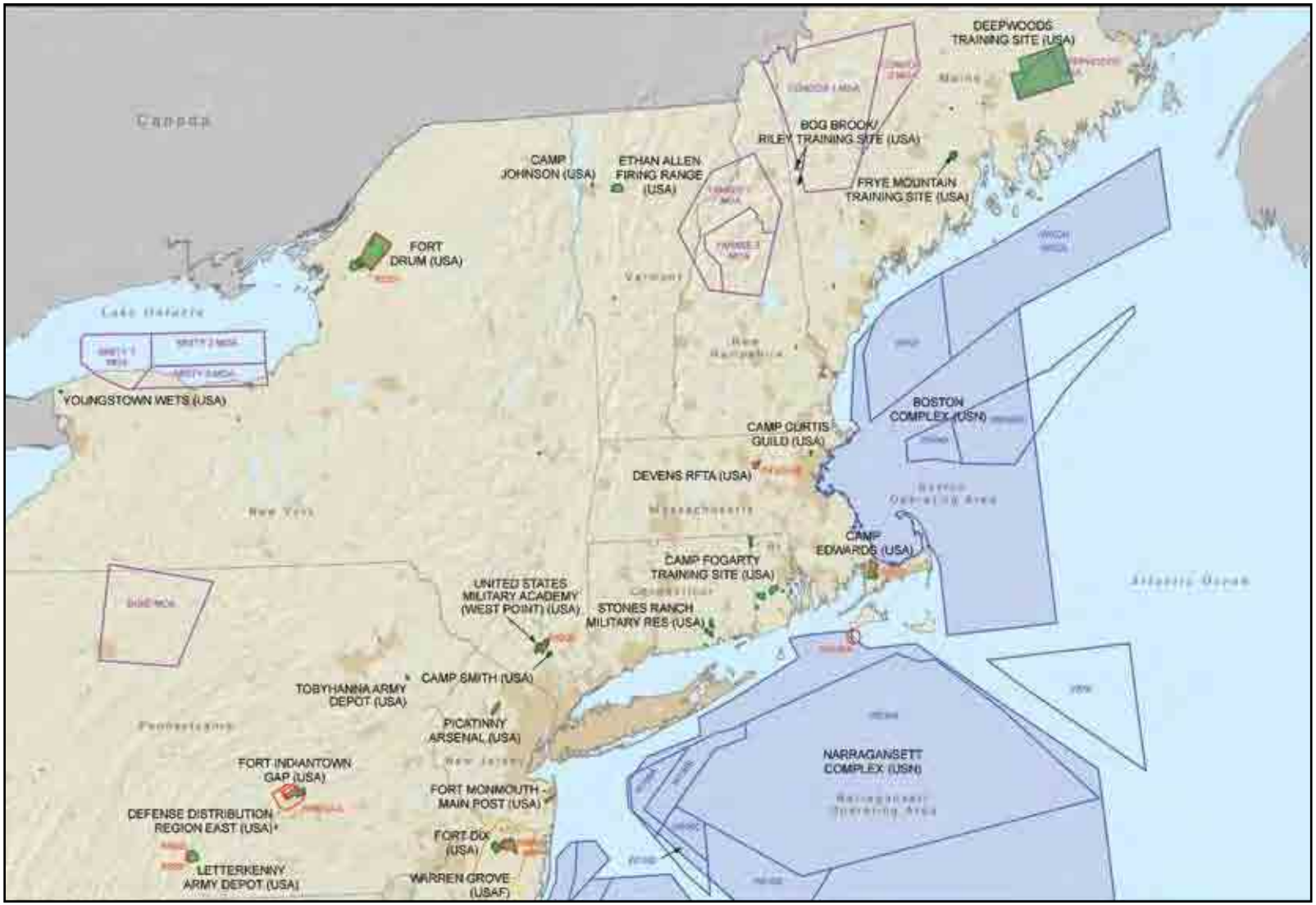
Intelligence, Surveillance & Reconnaissance—Activities involving the systematic observation of air, space, surface, or subsurface areas, places, persons, or things, by visual, aural, electronic, photographic, or other means; obtaining specific information about the activities and resources of an enemy or potential enemy through visual observation or other detection methods; or by securing data concerning the meteorological, hydrographic, or geographic characteristics of a particular area; and the resulting product of such activities.

C

Maps and Inventory of Ranges, Range Complexes, Military Training Routes, and Special Use Areas

This Page is Intentionally Left Blank.

Figure C-1 DoD Regional Range Complexes: Northeast



Testing and Training Ranges
Northeast

DoD Ranges

- U.S. Marine Corps
- U.S. Navy
- U.S. Air Force
- U.S. Army*

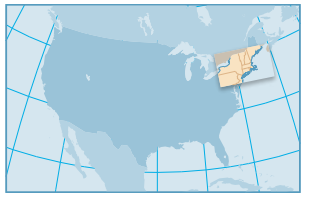
*Army ranges smaller than 500 acres are not labeled.

Special Use Airspace

- Alert Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

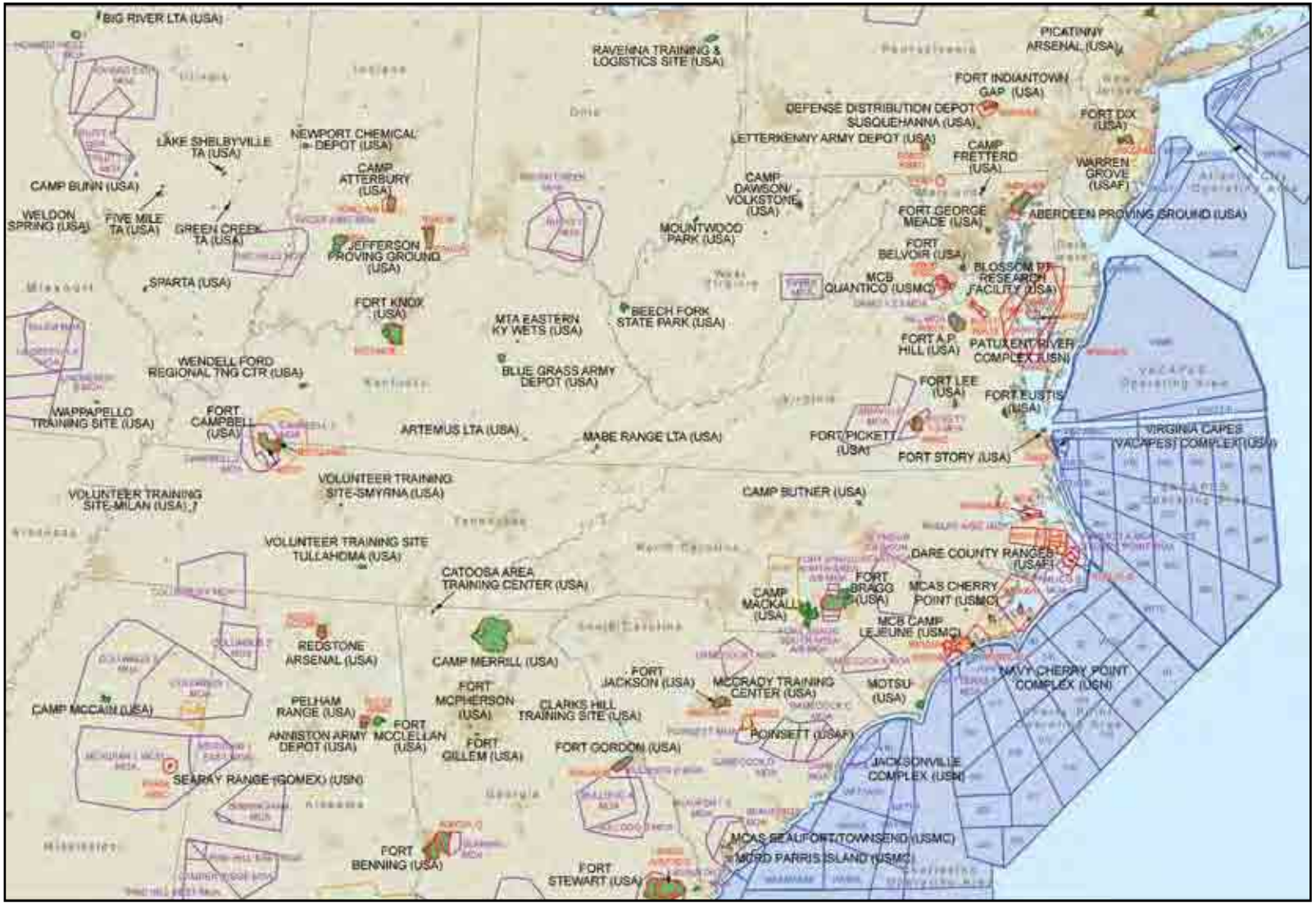
50 0 Nautical Miles

50 0 Miles



Sources: IVT, DISDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; Atlantic Fleet Inst 3120.26E, 1993.

Figure C-2 DoD Regional Range Complexes: Mid-Atlantic



Testing and Training Ranges
Mid-Atlantic

DoD Ranges

- U.S. Marine Corps
- U.S. Navy
- U.S. Air Force
- U.S. Army*

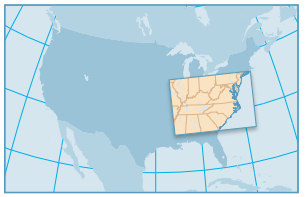
*Army ranges smaller than 500 acres are not labeled.

Special Use Airspace

- Alert Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

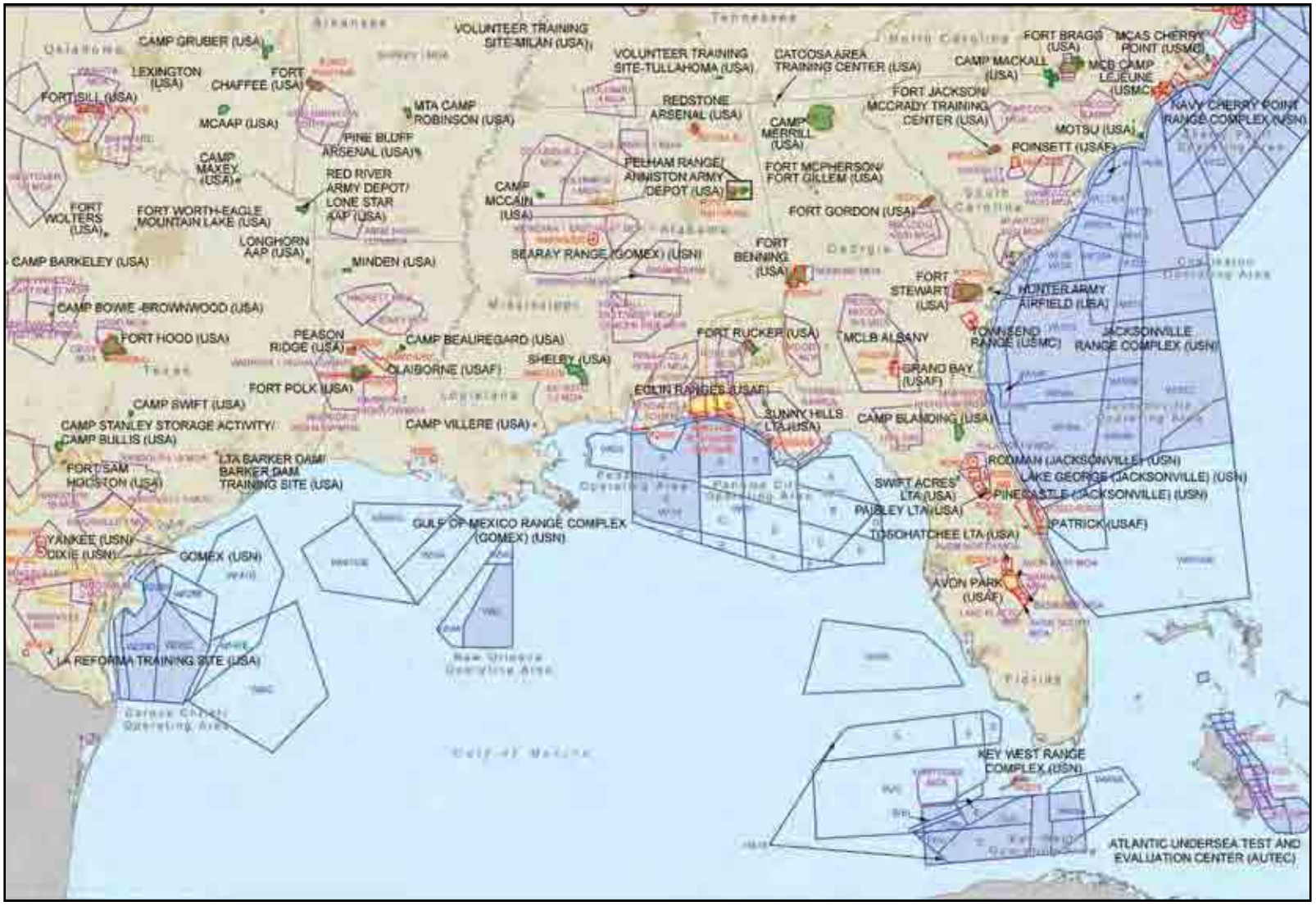
50 0 Nautical Miles

50 0 Miles



Sources: IVT, DISDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; Atlantic Fleet Inst 3120.26E, 1993.

Figure C-3 DoD Regional Range Complexes: Southeast



Sources: IVT, DISDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; Atlantic Fleet Inst 3120.26E, 1993

Figure C-4 DoD Regional Range Complexes: Northwest



Testing and Training Ranges
Northwest

DoD Ranges

- U.S. Marine Corps
- U.S. Navy
- U.S. Air Force
- U.S. Army*

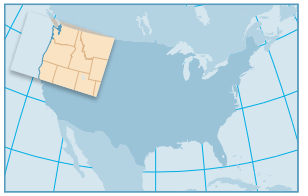
*Army ranges smaller than 500 acres are not labeled.

Special Use Airspace

- Alert Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

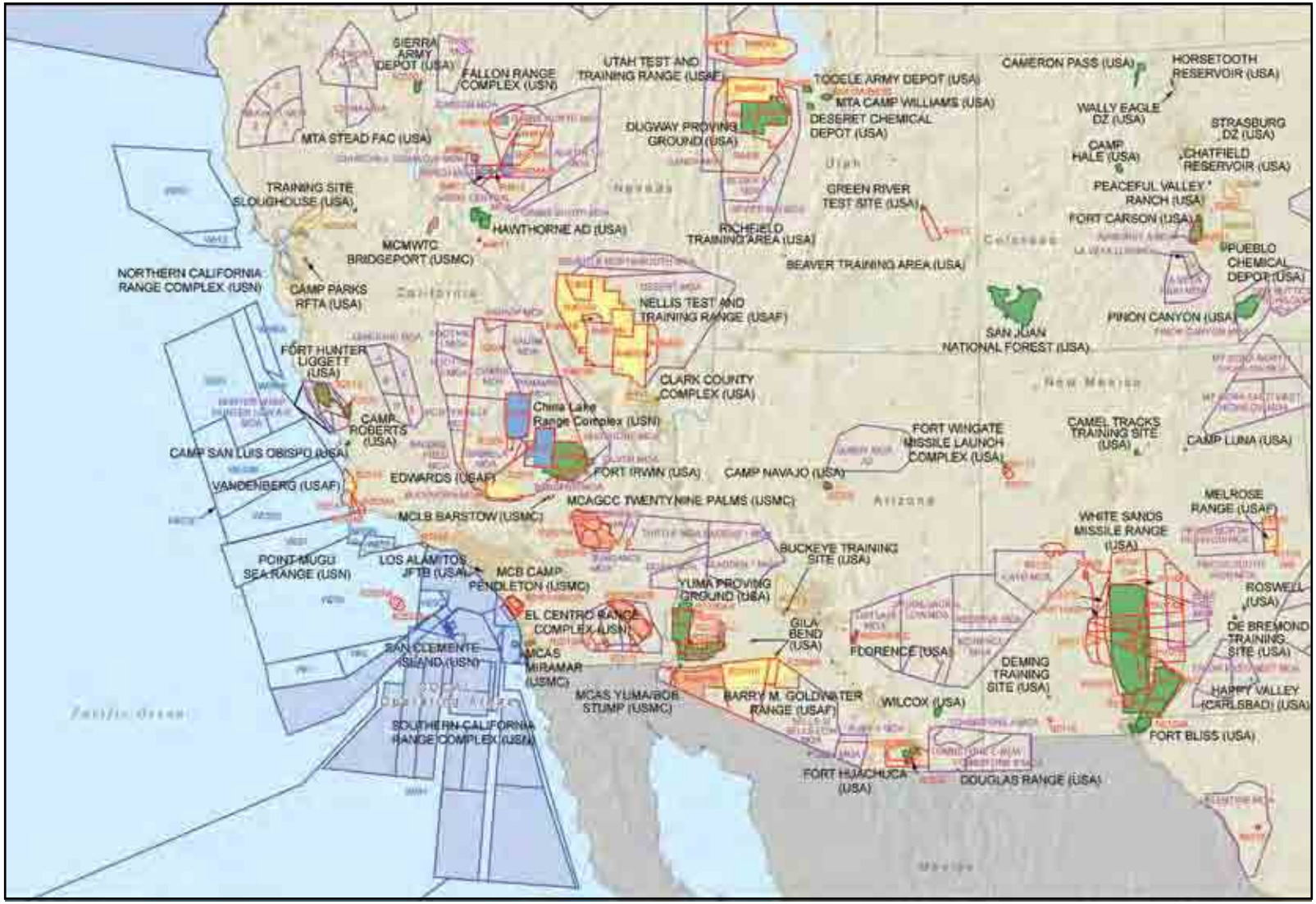
50 0 Nautical Miles

50 0 Miles



Sources: IVT, DISDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; FACSFAC San Diego Inst 3120.1E, 2000

Figure C-5 DoD Regional Range Complexes: Southwest



Testing and Training Ranges
Southwest

DoD Ranges

- U.S. Marine Corps
- U.S. Navy
- U.S. Air Force
- U.S. Army*

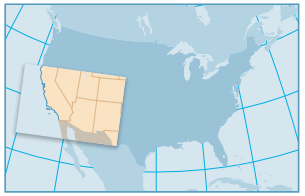
*Army ranges smaller than 500 acres are not labeled.

Special Use Airspace

- Alert Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

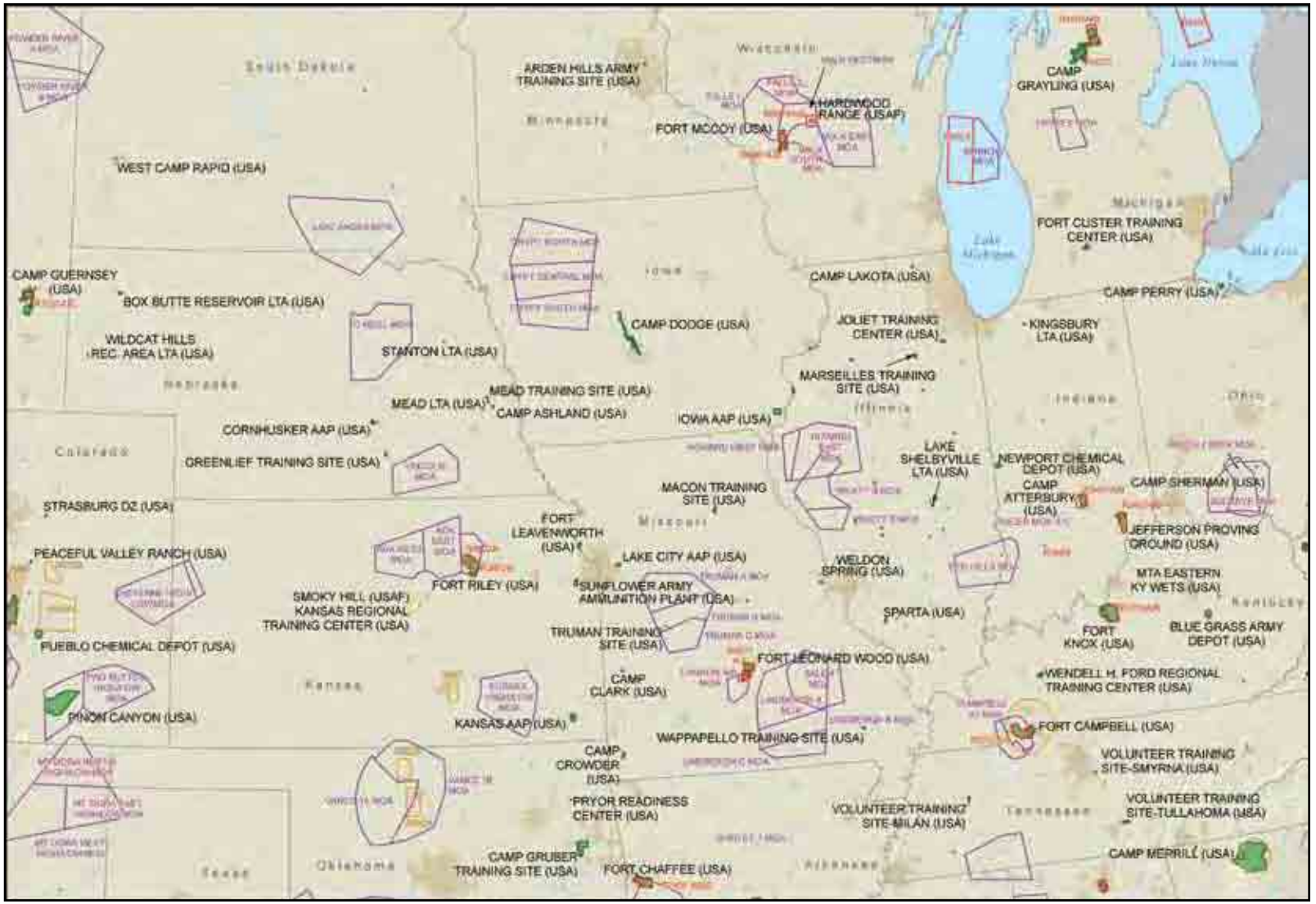
50 0 Nautical Miles

50 0 Miles



Sources: IVT, DISDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; FACSFAC San Diego Inst 3120.1E, 2000

Figure C-6 DoD Regional Range Complexes: Midwest



Testing and Training Ranges
Midwest

DoD Ranges

- U.S. Marine Corps
- U.S. Navy
- U.S. Air Force
- U.S. Army*

*Army ranges smaller than 500 acres are not labeled.

Special Use Airspace

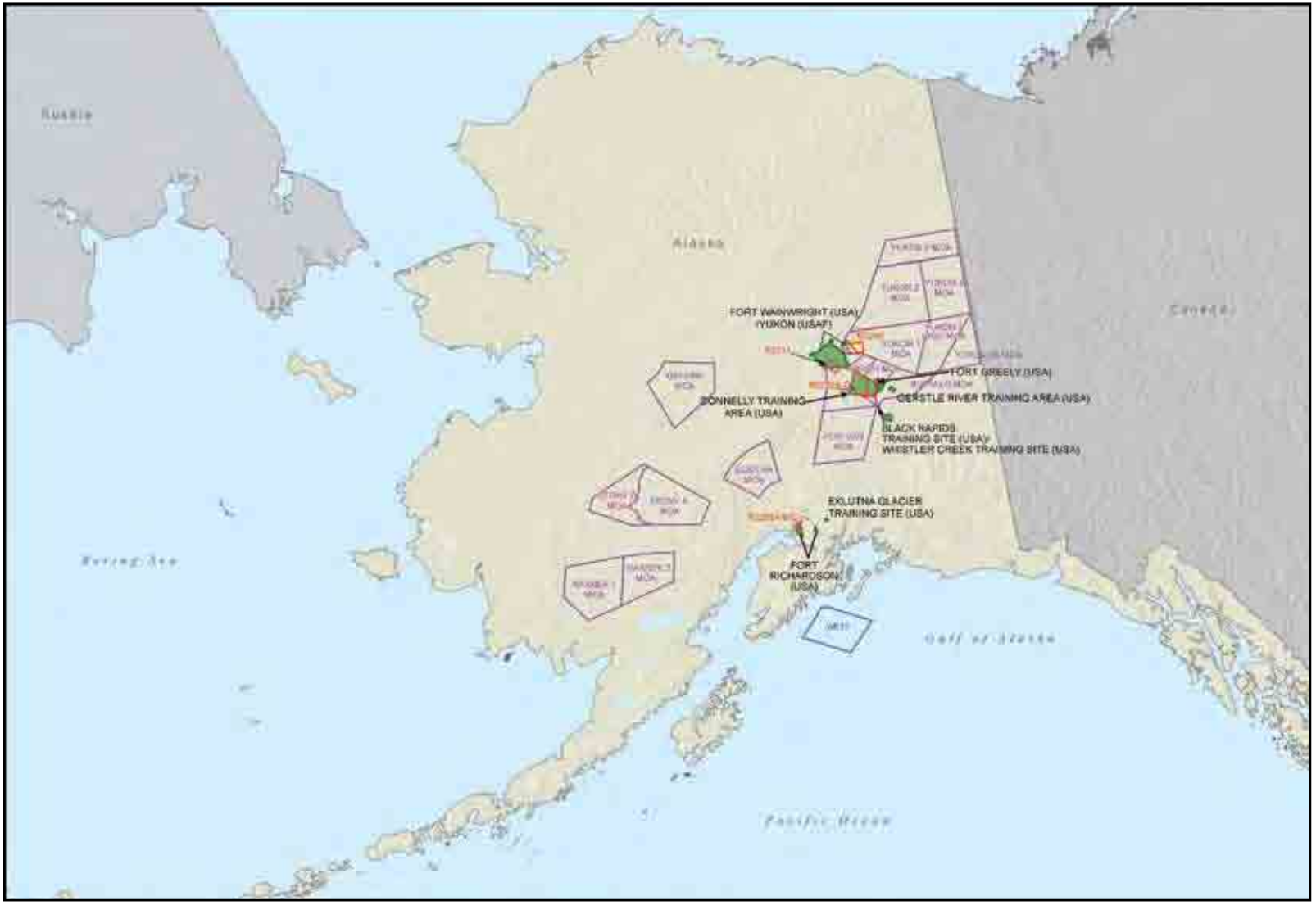
- Alert Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

50 0 Nautical Miles
50 0 Miles



Sources: IVT, DISDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; Atlantic Fleet Inst 3120.26E, 1993

Figure C-7 DoD Regional Range Complexes: Alaska



Testing and Training Ranges
Alaska

DoD Ranges

- U.S. Marine Corps
- U.S. Navy
- U.S. Air Force
- U.S. Army*

*Army ranges smaller than 500 acres are not labeled.

Special Use Airspace

- Alert Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

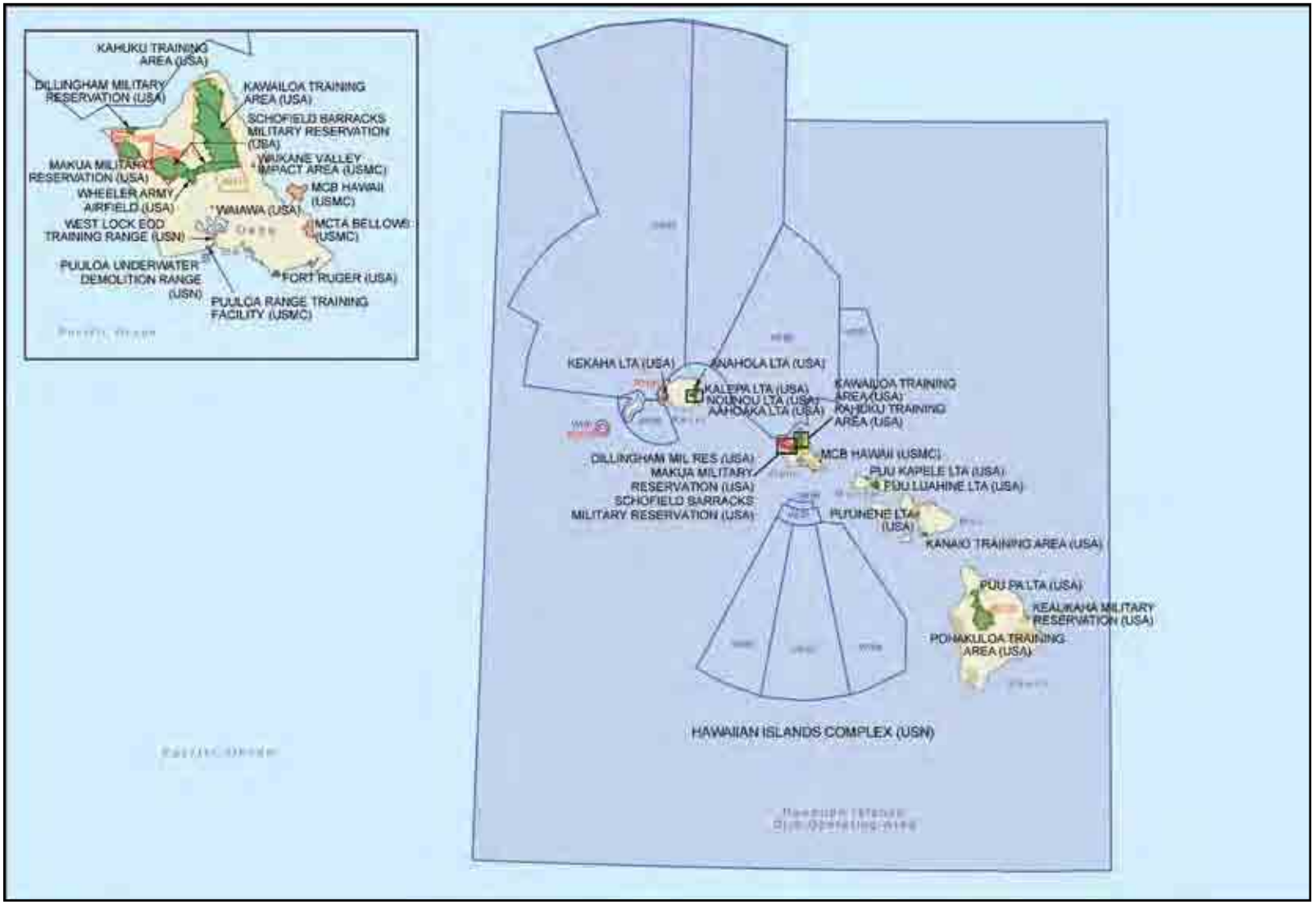
50 0 Nautical Miles

50 0 Miles



Sources: IVT, DISDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; FACSFAC San Diego Inst. 3120.1E, 2000.

Figure C-8 DoD Regional Range Complexes: Hawaii



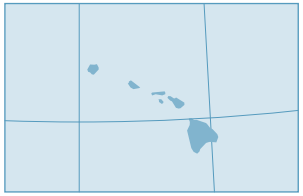
Testing and Training Ranges
Hawaii

DoD Ranges
- U.S. Marine Corps
- U.S. Navy
- U.S. Air Force
- U.S. Army*

*Army ranges smaller than 500 acres are not labeled.

Special Use Airspace
- Alert Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

50 0 Nautical Miles
50 0 Miles



Sources: IVT, DISDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; FACSFAC San Diego Inst. 3120.1E, 2000.

Figure C-9 DoD Regional Range Complexes: Europe

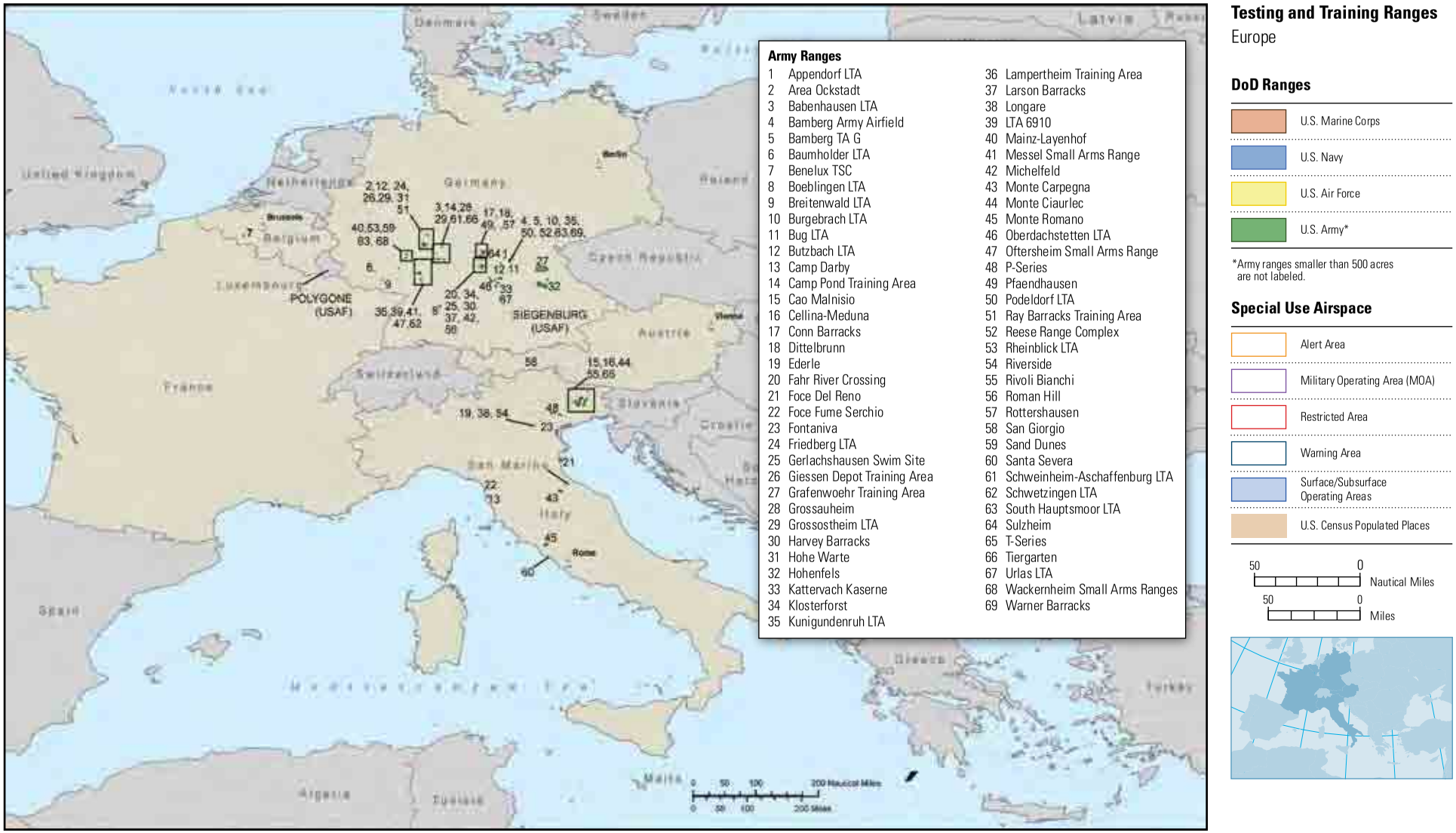
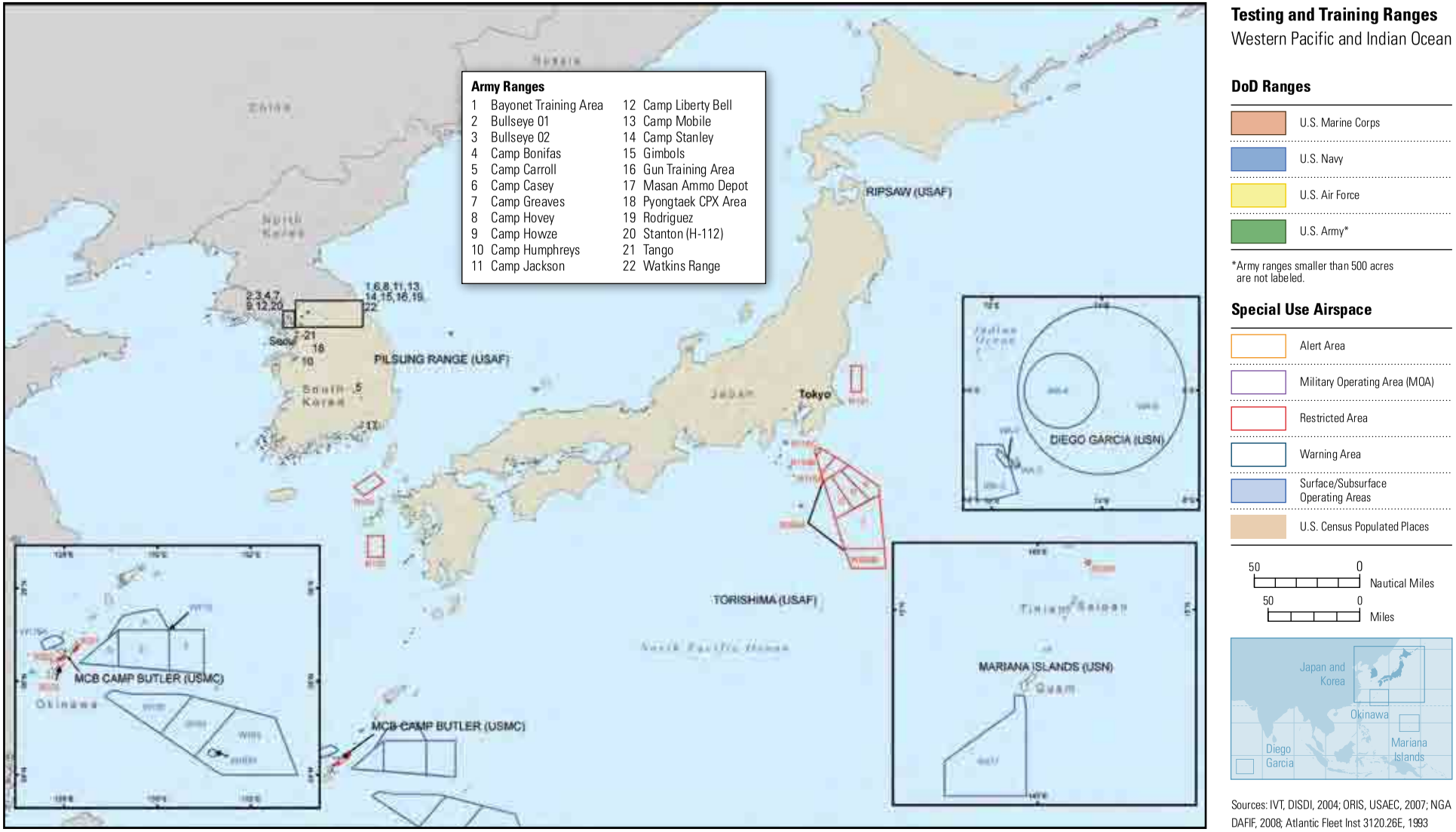


Figure C-10 DoD Regional Range Complexes: West Pacific and Indian Ocean



Sources: IVT, DISDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; Atlantic Fleet Inst 3120.26E, 1993

Table C-1 Training Range Complex Inventory

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Army	Aberdeen Proving Ground	US	MD	AMC	64,250	133	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Anniston Army Depot	US	AL	AMC	88	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Ansbach LTA	OS	Germany	USAREUR	899	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Arden Hills Army Training Site	US	MN	ARNG	1,796	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Area I (North)	OS	Korea	EUSA	41,495	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Area II (Northwest)	OS	Korea	EUSA	115	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Area III (Central)	OS	Korea	EUSA	113	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Area IV (South)	OS	Korea	EUSA	722	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Aschaffenbu RG LTA	OS	Germany	USAREUR	1,337	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Auburn	US	ME	ARNG	203	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Austin Training Property	US	NE, SD	ARNG	409	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Bangor Training Center	US	ME	ARNG	189	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Barker Dam Training Site	US	TX	ARNG	572	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Baumholder	OS	Germany	USAREUR	188	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Belton LTA	US	MO	USARC	461	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Biak Training Center	US	OR	ARNG	27,801	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Black Mountain	US	NM	ARNG	2,114	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Blossom Point Research Facility	US	MD	AMC	1,643	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Blue Grass Army Depot	US	KY	AMC	175	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Boeblingen	OS	Germany	USAREUR	1,125	0	0	0	N	N	Y	N	Y	N	N	Y	N	N	Y
	Bog Brook/Riley Deepwoods Training Site	US	ME	ARNG	341,015	0	0	0	N	N	Y	N	Y	N	N	Y	N	N	Y
	Breitenwald	OS	Germany	USAREUR	205	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Buckman	US	FL	ARNG	68	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Bucksnort Gun Club	US	MO	ARNG	10	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Buhl Training Site	US	ID	ARNG	162	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Camp Adair	US	OR	ARNG	523	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Camp Ashland - Greenleaf Training Site	US	NE	ARNG	4,263	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Army	Camp Atterbury	US	IN	ARNG	31,889	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Beauregard	US	LA	ARNG	12,558	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Blanding	US	FL	ARNG	68,543	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Camp Bowie	US	TX	ARNG	8,697	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Camp Butner	US	NC	ARNG	4,550	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Clark	US	MO	ARNG	997	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Crowder	US	MO	ARNG	4,098	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Curtis Guild	US	MA	ARNG	623	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Camp Darby	OS	Italy	USAREUR	135	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Camp Davis	US	ND	ARNG	82	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Camp Dawson	US	WV	ARNG	4,363	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Camp Edwards	US	MA	ARNG	13,285	13	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Fogarty Training Site	US	RI	ARNG	17,755	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Fretterd	US	MD	ARNG	424	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Camp Grafton	US	ND	TRADOC	11,380	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Camp Grayling	US	MI	ARNG	147,711	8,680	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Gruber	US	OK	ARNG	46,887	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Camp Guernsey	US	WY	ARNG	35,062	46	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Hartell	US	CT	ARNG	31	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Camp Johnson	US	VT	ARNG	591	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Camp Mackall	US	NC	FORSCOM	8,403	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Camp Maxey	US	TX	ARNG	6,562	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp McCain	US	MS	ARNG	12,741	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Camp Merrill	US	GA	TRADOC	340,358	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Camp Minden	US	LA	ARNG	13,637	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Camp Murray	US	WA	ARNG	113	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Camp Perry	US	OH	ARNG	343	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Rilea	US	OR	ARNG	4,188	0	0	0	N	N	Y	N	Y	N	N	Y	N	N	Y

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Army	Camp Ripley	US	MN	ARNG	50,929	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Camp Roberts	US	CA	ARNG	41,051	64	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Robinson	US	AR	ARNG	30,837	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Camp Rowland	US	CT	ARNG	38	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Camp San Luis Obispo	US	CA	ARNG	4,852	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Santiago	US	PR	ARNG	12,044	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Shelby	US	MS	ARNG	133,193	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Camp Sherman	US	NC	ARNG	430	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	N
	Camp Stanley Storage Activity	US	TX	AMC	82	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Camp Swift	US	TX	ARNG	11,663	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Camp Varnum	US	RI	ARNG	18	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Camp Villere	US	LA	ARNG	654	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Camp Williams	US	UT	ARNG	25,000	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Camp Wismer	US	WS	ARNG	3,319	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Camp Withycombe	US	OR	ARNG	165	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Campo Pond TA	OS	Germany	USAREUR	366	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Cao Malnisio	OS	Italy	USAREUR	4,098	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Casper Armory	US	WY	ARNG	27	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Catoosa	US	TN	ARNG	1,515	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Cellina-Meduna	OS	Italy	USAREUR	11,558	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Chaffee	US	AR	ARNG	63,519	81	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Clinton Training Site	US	PA	USARC	154	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Colorado Springs Training Site	US	CO	ARNG	309	1	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Conn Barracks	OS	Germany	USAREUR	127	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Cpt. Euripides Rubio Jr. Center	US	PR	USARC	51	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	De Bremond Training Center	US	NM	ARNG	1,343	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Defense Distribution Depot Susquehanna	US	PA	AMC	0	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Deseret Chemical Depot	US	UT	AMC	549	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Army	Dillingham MIL RES	US	HI	USARPAC	600	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Dona Ana Range Camp	US	NM	ARNG	64	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Duffield Industrial Park	US	VA	ARNG	74	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Dugway Proving Ground	US	UT	ATEC	763,093	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	East Haven Rifle Range	US	CT	ARNG	113	0	0	0	N	N	Y	Y	N	N	N	N	N	N	Y
	Eastern Kentucky Gun Club	US	KY	ARNG	13	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Ederle	OS	Italy	USAREUR	11	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Ethan Allen Firing Range	US	VT	ARNG	10,686	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Eustis/Fort Story	US	VA	TRADOC	3,923	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Florence Training Site	US	AZ	ARNG	25,489	61	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Floyd Edsal Training Center	US	NV	ARNG	1,525	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Foce del Reno	OS	Italy	USAREUR	8,941	0	0	0	N	N	N	Y	Y	N	N	N	N	N	N
	Foce Fume Serchio	OS	Italy	USAREUR	163	0	0	0	N	N	N	Y	Y	N	N	N	N	N	N
	Fort A.P. Hill	US	VA	MDW	74,263	928	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort Allen	US	PR	ARNG	423	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Fort Belvoir	US	VA	MDW	2,178	0	0	0	N	N	Y	Y	N	N	N	N	N	N	Y
	Fort Benning	US	GA	TRADOC	168,119	422	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Bliss	US	TX	TRADOC	1,096,153	1,597	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort Bragg	US	NC	FORSCOM	142,985	1,718	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Campbell	US	KY, TN	FORSCOM	94,121	931	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Carson/Pinon Canyon	US	CO	FORSCOM	358,504	1,153	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Custer Training Center	US	MI	ARNG	7,487	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Devens	US	MA	USARC	4,588	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort Dix	US	NJ	USARC	28,002	104	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort Drum	US	NY	FORSCOM	98,524	299	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort George G. Meade	US	MD	MDW	129	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Fort Gillem	US	GA	FORSCOM	472	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Fort Gordon	US	GA	TRADOC	49,149	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Army	Fort Hood	US	TX	FORSCOM	199,758	500	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Huachuca	US	AZ	TRADOC	73,840	815	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort Indiantown Gap	US	PA	ARNG	14,869	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Irwin	US	CA	FORSCOM	585,638	560	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort Jackson	US	SC	TRADOC	29,532	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort Knox	US	KY	TRADOC	101,220	113	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Leavenworth	US	KS	TRADOC	4,285	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Fort Lee	US	VA	TRADOC	3,097	69	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort Leonard Wood	US	MO	TRADOC	53,502	175	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort Lewis	US	WA	FORSCOM	77,577	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort McClellan	US	AL	ARNG	40	0	0	0	N	N	Y	N	N	N	N	Y	N	N	Y
	Fort McCoy	US	WI	USARC	135,601	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort McPherson	US	GA	FORSCOM	21	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Fort Meade	US	SD	ARNG	6,090	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Fort Monmouth	US	NJ	AMC	104	0	0	0	N	N	Y	N	Y	N	N	Y	N	N	Y
	Fort Nathaniel Greene	US	RI	USARC	96	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Fort Pickett	US	VA	ARNG	38,699	161	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Polk	US	LA	FORSCOM	138,126	5,471	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Richardson	US	AK	USARPAC	54,541	163	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort Riley	US	KS	FORSCOM	92,209	107	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Rucker	US	AL	TRADOC	58,204	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort Sam Houston/Camp Bullis	US	TX	MEDCOM	27,600	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Sill	US	OK	TRADOC	85,002	153	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Fort Stewart	US	GA	FORSCOM	274,291	556	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Fort Wainwright	US	AK	USARPAC	922,589	0	0	0	N	N	N	Y	Y	N	N	Y	N	N	Y
	Fort William Henry Harrison	US	MT	ARNG	6,314	0	0	0	N	N	Y	N	Y	N	N	Y	N	N	Y
	Fort Wingate Missile Launch Complex	US	NM	ATEC	6,526	0	0	0	N	N	N	N	Y	N	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Army	Fort Wolters	US	TX	ARNG	4,061	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Friedberg LTA	OS	Germany	USAREUR	8,519	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Frye Mountain Training Site	US	ME	ARNG	5,137	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Gardiner	US	ME	ARNG	106	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Grafenwoehr	OS	Germany	USAREUR	52,281	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Greely	US	AK	USARPAC	631,643	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Green River Launch Complex	US	UT	ATEC	3,944	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Guilderland	US	NY	ARNG	291	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Gunpowder MIL RES	US	MD	ARNG	227	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Happy Valley (Carlsbad)	US	NM	ARNG	721	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Hawthorne Army Depot	US	NV	AMC	35,633	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	N
	Henry H. Cobb Jr. - Pelham	US	AL	ARNG	22,139	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Hofenfels	OS	Germany	USAREUR	38,981	0	0	0	N	N	Y	N	Y	N	N	Y	N	N	Y
	Hollis Plains Training Site	US	ME	ARNG	412	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Hunter Army Airfield	US	GA	FORSCOM	2,742	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Hunter-Liggit	US	CA	USARC	153,872	113	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Idaho Falls Training Site	US	ID	ARNG	1,081	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Idaho Launch Complex	US	ID	ATEC	315	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Ike Skelton Training Site	US	MO	ARNG	24	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Indiana Range Wet Site	US	PA	ARNG	165	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Iowa AAP	US	IA	AMC	1,338	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Jefferson Proving Ground	US	IN	AMC	1,050	0	0	0	N	N	N	Y	N	N	N	N	N	N	N
	John Sevier Range	US	TN	ARNG	6	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Joliet Training Center	US	IL	USARC	3,446	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Kahuka Training Area	US	HI	USARPAC	8,833	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Kanaio Training Center	US	HI	ARNG	4,612	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Kansas AAP	US	KS	AMC	157	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Kansas Regional Training Site (Smoky Hills)	US	KS	ARNG	3,404	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Army	Kawailoa Training Area	US	HI	USARPAC	23,455	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Keaukhana MIL RES	US	HI	ARNG	434	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	N
	Kekaha	US	HI	ARNG	61	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Keystone Rifle Range	US	CA	ARNG	189	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Keystone Training Site	US	PA	USARC	452	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	La Reforma Training Site	US	TX	ARNG	4,264	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Lake City AAP	US	MO	AMC	696	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Lampertheim Training Area	OS	Germany	USAREUR	3,942	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Lander Local Training Area	US	WY	ARNG	1,353	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Lauderick Creek MIL RES	US	MD	ARNG	1,065	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Letterkenny Army Depot	US	PA	AMC	9	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Limestone Hills Training Area	US	MT	ARNG	19,120	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Lone Star AAP	US	TX	AMC	232	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Longare	OS	Italy	USAREUR	15	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Los Alamitos JFTB	US	CA	ARNG	397	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Lovell Local Training Area	US	WY	ARNG	3,606	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Mabe Range LTA	US	VA	ARNG	1,726	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Macon Training Site	US	MT	ARNG	3,062	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Makua MIL RES	US	HI	USARPAC	4,228	0	0	0	N	N	N	Y	Y	N	N	N	N	N	Y
	Marseilles Training Site	US	IL	ARNG	2,617	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	McAlester AAP	US	OK	AMC	2,245	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	McCrady Training Center	US	SC	ARNG	14,506	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Mead Training Site	US	NE	ARNG	1,185	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Messell Small Arms Range	OS	Germany	USAREUR	25	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Milan Volunteer Training Site	US	TN	ARNG	2,391	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Mobridge Training Area	US	SD	ARNG	119	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Monte Carpegna	OS	Italy	USAREUR	6,488	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N
	Monte Ciarlec	OS	Italy	USAREUR	7,925	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Army	Monte Romano	OS	Italy	USAREUR	10,207	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	MOTSU	US	NC	MTMC	7	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	MTA Camp Dodge	US	IA	ARNG	4,025	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	MTA SMR CP Pendleton	US	VA	ARNG	89	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Navajo	US	AZ	ARNG	28,349	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	New Castle Rifle Range	US	DE	ARNG	93	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Newton Falls (RAAP)	US	OH	ARNG	2,879	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	NGTC at Sea Girt	US	NJ	ARNG	120	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	NH NG Training Site	US	NH	ARNG	94	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Offersheim Small Arms Range	OS	Germany	USAREUR	3	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Onate Training Site	US	NM	ARNG	158	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Orchard (Gowen Field) Training Area	US	ID	ARNG	138,847	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Papago Park MIL RES	US	AZ	ARNG	103	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Parks RFTA	US	CA	USARC	1,985	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Pearson Ridge NC	US	LA	FORSCOM	33,456	0	0	0	N	N	N	Y	Y	N	N	N	N	N	N
	Picatinny Arsenal	US	NJ	AMC	4,545	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Pine Bluff Arsenal	US	AR	AMC	99	0	0	0	N	N	N	Y	Y	N	N	N	N	N	Y
	Plymouth Training Site	US	ME	ARNG	306	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Pocatello Training Site	US	ID	ARNG	718	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Podeldorf LTA	OS	Germany	USAREUR	1,105	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Pohakuloa Training Area	US	HI	USARPAC	109,950	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	P-Series	OS	Italy	USAREUR	5,291	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Pueblo Chemical Depot	US	CO	AMC	94	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Puu Luahine (Red Hill) LTA	US	HI	ARNG	8,314	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Racine County Line Range	US	WI	ARNG	15	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Ray Barracks Training Area	OS	Germany	USAREUR	21	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Red River Army Depot	US	TX	AMC	165	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Redfield Training Area	US	SD	ARNG	174	0	0	0	N	N	Y	N	N	N	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Army	Redstone Arsenal	US	AL	AMC	25,505	25	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Reese Range Complex	OS	Germany	USAREUR	18	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Rheinblick LTA	OS	Germany	USAREUR	44	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Ridgeway	US	PA	ARNG	7	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Rio Rancho	US	NM	ARNG	96	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Rivoli Bianchi	OS	Italy	USAREUR	235	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Roswell	US	NM	ARNG	5,376	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Santa Severa	OS	Italy	USAREUR	100	0	0	0	N	N	N	Y	Y	N	N	N	N	N	N
	Schofield Barracks MIL RES	US	HI	USARPAC	11,442	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Schweinfurt	OS	Germany	USAREUR	6,326	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Schwetzingen LTA	OS	Germany	USAREUR	249	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Scranton (Leach Range)	US	PA	AMC	101	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Seagoville LTA	US	TX	USARC	198	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Sheridan Local TA	US	WY	ARNG	3,980	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Sierra Army Depot	US	CA	AMC	4,722	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Sioux Falls Airport Training Area	US	SD	ARNG	15	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Smith	US	NY	ARNG	1,763	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Smyrna Volunteer Training Site	US	TN	ARNG	557	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Springfield Training Site	US	IL	ARNG	98	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	St. Anthony Training Site	US	ID	ARNG	3,336	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	St. George Training Area	US	UT	ARNG	369	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Stewart River	US	AK	ARNG	25,519	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Stones Ranch MIL RES	US	CT	ARNG	5,753	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Sunflower Army Ammunition Plant	US	KS	AMC	493	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Tiergarten	OS	Germany	USAREUR	234	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Tooele Army Depot	US	UT	AMC	1,450	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Truman Training Site	US	MO	ARNG	565	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	TS Caswell	US	ME	ARNG	1,094	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Army	TS NAS Fallon RG B19	US	NV	ARNG	132	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	T-Series	OS	Italy	USAREUR	7,222	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Tucumcari Training Site	US	NM	ARNG	63	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Tullahoma MIL RES	US	TN	ARNG	6,553	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Twin Falls Training Site	US	ID	ARNG	312	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Ukumehame Firing Range	US	HI	ARNG	39	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Umatilla Chemical Depot	US	OR	AMC	9	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Vail Tree Farm LTA	US	WA	USARC	166,332	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Van Vleck Ranch	US	CA	ARNG	2,685	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Wackernheim Small Arms Ranges	OS	Germany	USAREUR	32	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Waco Training Area	US	MT	ARNG	4,763	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Wappapellots	US	MO	ARNG	2,187	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Watkin Armory	US	CO	ARNG	5	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Weldon Spring	US	MO	ARNG	1,659	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Wendell H. Ford Regional Training Center	US	KY	ARNG	7,174	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	West Camp Rapid	US	SD	ARNG	566	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	West Point MIL RES	US	NY	USMA	14,101	4	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	West Silver Spring Complex	US	WI	USARC	9	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Westminster	US	VT	ARNG	38	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	White Sands Missile Range	US	NM	ATEC	3,531,715	7,321	0	0	N	N	N	Y	Y	N	N	N	N	N	Y
	Wildcat Hills State Rec. Area TA	US	NE	ARNG	853	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Williston Wets	US	ND	ARNG	345	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Wuerzburg	OS	Germany	USAREUR	3,308	0	0	0	N	N	Y	N	Y	N	N	Y	N	N	Y
	WV DNR Elk River WMA TA	US	WV	ARNG	277	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	WV DNR McClintic WMA TA	US	WV	ARNG	54	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Yakima Training Center	US	WA	FORSCOM	324,313	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Youngstown Wets	US	NY	ARNG	848	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Yuma Proving Ground	US	AZ	ATEC	1,033,361	1,500	0	0	N	N	Y	N	Y	N	N	N	N	N	Y

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Individual Army Ranges	89TH RSC Mead WET Site	US	NE	USARC	956	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	89TH RSC Sunflower WET Site	US	KS	USARC	69	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Aahoaka LTA	US	HI	ARNG	3,126	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Albuquerque LTA	US	NM	USARC	7	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	American Samoa LTA	US	AS	USARC	79	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Ananhola LTA	US	HI	ARNG	3,312	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Appendorf LTA	OS	Germany	USAREUR	328	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Area Ockstadt	OS	Germany	USAREUR	192	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Artemus LTA	US	KY	ARNG	523	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	AVN Training Area (Weyerhaeuser)	US	WA	USARC	20,443	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Babenhausen LTA	OS	Germany	USAREUR	190	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Bamberg Army Airfield	OS	Germany	USAREUR	11	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Bamberg TA G	OS	Germany	USAREUR	70	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Barada LTA	US	NE	ARNG	85	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Barker Dam LTA	US	TX	USARC	1,636	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Beaver Training Area	US	UT	ARNG	657	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Beckley City Police Range	US	WV	ARNG	2	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Beech Fork State Park	US	WV	ARNG	12,783	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Benelux TSC	OS	Belgium	USAREUR	70	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	BG Thomas Baker Training Site	US	MD	ARNG	871	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Bidwell Hill	US	CO	ARNG	40	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Black Rapids Training Site	US	AK	USARPAC	4,213	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Blanding Armory	US	UT	ARNG	28	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Bolivar LTA	US	TN	ARNG	170	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Book Cliffs Rifle Range	US	CO	ARNG	345	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Box Butte Reservoir LTA	US	NE	ARNG	13	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Brettons Wood Biathlon Range	US	NH	ARNG	1	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Buckeye Training Site	US	AZ	ARNG	1,481	0	0	0	N	N	Y	N	N	N	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Individual Army Ranges	Buckley ANG Base, CO	US	CO	ARNG	10	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Bug LTA	OS	Germany	USAREUR	111	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Bullseye 02	OS	Korea	EUSA	1,395	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Bullville Usarc	US	NY	USARC	154	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Burgebrach LTA	OS	Germany	USAREUR	249	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Camel Tracks TNG Site	US	NM	ARNG	8,349	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Cameron Pass	US	CO	ARNG	45,193	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Camp Barkeley	US	TX	ARNG	980	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Camp Fowler	US	IN	ARNG	98	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Camp Greaves	OS	Korea	EUSA	0	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Camp Hale	US	CO	ARNG	21,389	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Camp Howze	OS	Korea	EUSA	0	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Camp Humphreys	OS	Korea	EUSA	1	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Camp Keyes TS	US	ME	ARNG	1	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Camp Luna	US	NM	ARNG	133	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Camp Mabry	US	TX	ARNG	178	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Camp Seven Mile	US	WA	ARNG	340	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Casa Grande Training Site	US	AZ	ARNG	797	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Chatfield Reservoir	US	CO	ARNG	2,271	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Clarks Hill TS	US	SC	ARNG	891	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Cornhusker AAP	US	NE	USACE	6	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Douglas Training Site	US	AZ	ARNG	987	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	DZ Babich	US	MD	ARNG	113	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	DZ Beech Hill	US	WV	ARNG	189	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Eagle Mountain Lake Training Site	US	TX	ARNG	1,246	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	East Stroudsburg Armory	US	PA	ARNG	19	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Edgemeade TS Mtn Home	US	ID	ARNG	123	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Eklutna Glacier TS	US	AK	USARPAC	33	0	0	0	N	N	Y	N	N	N	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Individual Army Ranges	Ernie Pyle Usarc/Amsa #12 (G)	US	NY	USARC	2	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	FAA Radio Tower Site	US	CO	ARNG	13	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Fahr River Crossing	OS	Germany	USAREUR	3	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Felicity	US	OH	ARNG	1	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Fontaniva	OS	Italy	USAREUR	155	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Fort Mifflin	US	PA	ARNG	26	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Fort Morgan Airport	US	CO	ARNG	19	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Fort Ruger	US	HI	USARPAC	311	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Fountain Inn TS	US	SC	ARNG	21	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Freeman Field Police Range	US	IN	ARNG	2	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Garrison WET Site	US	ND	ARNG	765	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Gerlachshausen Swim Site	OS	Germany	USAREUR	0	0	0	0	N	N	N	N	N	N	N	N	N	N	N
	Gerstle River Training Area	US	AK	USARPAC	20,589	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Giessen Depot Training Area	OS	Germany	USAREUR	137	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Gila Bend Training Site	US	AZ	ARNG	637	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Gimbols	OS	Korea	EUSA	3,019	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Goodpasture DZ	US	CO	ARNG	178	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Great Bend LTA	US	KS	USARC	1	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Grossauheim	OS	Germany	USAREUR	46	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Grossostheim LTA	OS	Germany	USAREUR	1,557	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Haws Crossroads WET Site	US	TN	USARC	103	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Hayden Lake LTA	US	ID	USARC	612	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Hayford Pit LTA	US	WA	USARC	24	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Hidden Valley LTA	US	KY	ARNG	535	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Hilltop Range	US	IN	ARNG	1	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Hobbs	US	NM	ARNG	262	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Hodges TS	US	SC	ARNG	20	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Hohe Warte	OS	Germany	USAREUR	160	0	0	0	N	N	Y	N	N	N	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Individual Army Ranges	Honopou LTA	US	HI	ARNG	106	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Horsetooth Reservoir	US	CO	ARNG	5,012	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Kalepa LTA	US	HI	ARNG	902	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Katterbach Kaserne	OS	Germany	USAREUR	49	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Keamuku LTA	US	HI	USARPAC	22,640	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Kekaha LTA	US	HI	ARNG	3,193	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Kelly Canyon TS	US	ID	ARNG	3,826	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Kingsbury LTA	US	IN	USARC	919	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Kunigundenruh LTA	OS	Germany	USAREUR	113	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Lake City AAP	US	MO	AMC	696	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Lampertheim Training Area	OS	Germany	USAREUR	3,942	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Lander Local Training Area	US	WY	ARNG	1,353	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Lauderick Creek MIL RES	US	MD	ARNG	1,065	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Lebanon Readiness Center	US	NH	ARNG	0	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Leeman Field LTA	US	VA	ARNG	24	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Leroy Dilka Land	US	CO	ARNG	2	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Letterkenny Army Depot	US	PA	AMC	9	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Lexington	US	OK	ARNG	317	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Limestone Hills Training Area	US	MT	ARNG	19,120	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Lone Star AAP	US	TX	AMC	232	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Longare	OS	Italy	USAREUR	15	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Longhorn AAP	US	TX	AMC	0	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Los Alamitos JFTB	US	CA	ARNG	397	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Lovell Local Training Area	US	WY	ARNG	3,606	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	LTA 6910	OS	Germany	USAREUR	104	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	LTA Vaap	US	TN	USARC	195	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Ltc Hernan G. Pesquera Usar Center	US	PR	USARC	4	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Mabe Range LTA	US	VA	ARNG	1,726	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Individual Army Ranges	Macon Training Site	US	MT	ARNG	3,062	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Mainz-Layenhof	OS	Germany	USAREUR	249	0	0	0	N	N	N	N	N	N	N	Y	N	N	N
	Makua MIL RES	US	HI	USARPAC	4,228	0	0	0	N	N	N	Y	Y	N	N	N	N	N	Y
	Maluhia LTA	US	HI	ARNG	70	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Mankato Local Training Area	US	MN	USARC	20	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Marion LTA	US	OH	USARC	122	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Marseilles Training Site	US	IL	ARNG	2,617	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	McAlester AAP	US	OK	AMC	2,245	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	McCrady Training Center	US	SC	ARNG	14,506	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Mead Training Site	US	NE	ARNG	1,185	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Messell Small Arms Range	OS	Germany	USAREUR	25	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Michelfeld	OS	Germany	USAREUR	92	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Milan Volunteer Training Site	US	TN	ARNG	2,391	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Mitchell Training Area	US	SD	ARNG	1	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Mobridge Training Area	US	SD	ARNG	119	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Monte Carpegna	OS	Italy	USAREUR	6,488	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N
	Monte Ciarlec	OS	Italy	USAREUR	7,925	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N
	Monte Romano	OS	Italy	USAREUR	10,207	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Moosehorn	US	ME	ARNG	0	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	MOTSU	US	NC	MTMC	7	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Mountwood Park	US	WV	ARNG	3,109	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	MTA Camp Dodge	US	IA	ARNG	4,025	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	MTA SMR CP Pendleton	US	VA	ARNG	89	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	MTA Stead FAC	US	NV	ARNG	196	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Navajo	US	AZ	ARNG	28,349	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	New Castle Rifle Range	US	DE	ARNG	93	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	New River Valley Training Site	US	VA	USARC	88	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Newark LTA, NY	US	NY	ARNG	100	0	0	0	N	N	Y	N	N	N	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Individual Army Ranges	Newfane WET Site	US	NY	USARC	3	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Newport Chemical Depot	US	IN	AMC	0	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Newton Falls (RAAP)	US	OH	ARNG	2,879	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	NGTC at Sea Girt	US	NJ	ARNG	120	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	NH NG Training Site	US	NH	ARNG	94	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Nounou LTA	US	HI	ARNG	1,720	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Ocala Armory	US	FL	ARNG	0	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Offersheim Small Arms Range	OS	Germany	USAREUR	3	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Ogden Local Training Area	US	UT	USARC	132	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Onate Training Site	US	NM	ARNG	158	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Orchard (Gowen Field) Training Area	US	ID	ARNG	138,847	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Oxford	US	ME	ARNG	58	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Paisley LTA	US	FL	ARNG	11,279	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Papago Park MIL RES	US	AZ	ARNG	103	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Parks RFTA	US	CA	USARC	1,985	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Pau'Uilo LTA	US	HI	ARNG	45	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Peaceful Valley Ranch	US	CO	ARNG	1,205	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Pearson Ridge NC	US	LA	FORSCOM	33,456	0	0	0	N	N	N	Y	Y	N	N	N	N	N	N
	Peterborough Readiness Center	US	NH	ARNG	0	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Picacho Training Site	US	AZ	ARNG	352	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Picatinny Arsenal	US	NJ	AMC	4,545	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Pickens TS	US	SC	ARNG	9	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Pierre Training Area	US	SD	ARNG	5	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Pine Bluff Arsenal	US	AR	AMC	99	0	0	0	N	N	N	Y	Y	N	N	N	N	N	Y
	Platte Training Area	US	SD	ARNG	40	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Plymouth Training Site	US	ME	ARNG	306	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Pocatello Airport Local Training Area	US	ID	USARC	9	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Pocatello Training Site	US	ID	ARNG	718	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Individual Army Ranges	Podeldorf LTA	OS	Germany	USAREUR	1,105	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Pohakuloa Training Area	US	HI	USARPAC	109,950	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Poverty Flats Training Area	US	UT	ARNG	448	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Price Training Area	US	UT	ARNG	159	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	P-Series	OS	Italy	USAREUR	5,291	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Pueblo Chemical Depot	US	CO	AMC	94	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Puu Kapele LTA	US	HI	ARNG	1,109	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Puu Luahine (Red Hill) LTA	US	HI	ARNG	8,314	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Puu Pa LTA	US	HI	ARNG	13,243	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Pu'Unene LTA	US	HI	ARNG	1,610	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Racine County Line Range	US	WI	ARNG	15	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Raleigh County Firing Range	US	WV	ARNG	1	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Ramey Usar Center LTA	US	PR	USARC	53	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Ray Barracks Training Area	OS	Germany	USAREUR	21	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Raytown Training Site	US	MO	ARNG	51	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Red River Army Depot	US	TX	AMC	165	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Redfield Training Area	US	SD	ARNG	174	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Redstone Arsenal	US	AL	AMC	25,505	25	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Reese Range Complex	OS	Germany	USAREUR	18	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Rheinblick LTA	OS	Germany	USAREUR	44	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Ridgeway	US	PA	ARNG	7	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Rio Rancho	US	NM	ARNG	96	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Rittenhouse Training Site	US	AZ	ARNG	198	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Riverside	OS	Italy	USAREUR	3	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Rivoli Bianchi	OS	Italy	USAREUR	235	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Roswell	US	NM	ARNG	5,376	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Rottershausen	OS	Germany	USAREUR	142	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Safford Training Site	US	AZ	ARNG	399	0	0	0	N	N	Y	N	N	N	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Individual Army Ranges	San Giorgio	OS	Italy	USAREUR	68	0	0	0	N	N	N	N	N	N	N	Y	N	N	N
	San Juan National Forest	US	CO	ARNG	629,816	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Sand Dunes	OS	Germany	USAREUR	105	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Santa Severa	OS	Italy	USAREUR	100	0	0	0	N	N	N	Y	Y	N	N	N	N	N	N
	Schofield Barracks MIL RES	US	HI	USARPAC	11,442	0	0	0	N	N	Y	Y	Y	N	N	Y	N	N	Y
	Schweinfurt	OS	Germany	USAREUR	6,326	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Schwetzingen LTA	OS	Germany	USAREUR	249	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Scranton (Leach Range)	US	PA	AMC	101	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Seagoville LTA	US	TX	USARC	198	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Sheridan Local TA	US	WY	ARNG	3,980	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Sierra Army Depot	US	CA	AMC	4,722	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Sioux Falls Airport Training Area	US	SD	ARNG	15	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Smith	US	NY	ARNG	1,763	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Smyrna Volunteer Training Site	US	TN	ARNG	557	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Snake Creek Training Site	US	FL	ARNG	295	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	South Charleston	US	WV	ARNG	1	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	South Hauptsmoor LTA	OS	Germany	USAREUR	268	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Springfield Training Site	US	IL	ARNG	98	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	St. Anthony Training Site	US	ID	ARNG	3,336	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	St. George Training Area	US	UT	ARNG	369	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Stanton LTA	US	NE	ARNG	633	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	State Police Academy, VT	US	VT	ARNG	0	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Stewart River	US	AK	ARNG	25,519	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Stones Ranch MIL RES	US	CT	ARNG	5,753	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Strasburg DZ	US	CO	ARNG	943	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Sunflower Army Ammunition Plant	US	KS	AMC	493	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Sunny Hills LTA	US	FL	ARNG	11,091	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Swift Acres LTA	US	FL	ARNG	4,154	0	0	0	N	N	Y	N	N	N	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Individual Army Ranges	Tarlton LTA	US	OH	ARNG	118	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Tiergarten	OS	Germany	USAREUR	234	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Toledo Usarc	US	OH	USARC	28	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Tooele Army Depot	US	UT	AMC	1,450	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Tosohatchee LTA	US	FL	ARNG	3,445	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Truman Training Site	US	MO	ARNG	565	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	TS Caswell	US	ME	ARNG	1,094	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	TS NAS Fallon RG B19	US	NV	ARNG	132	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	T-Series	OS	Italy	USAREUR	7,222	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	TS-Hawk McConnelsville, OH	US	OH	ARNG	395	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Tucumcari Training Site	US	NM	ARNG	63	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Tullahoma MIL RES	US	TN	ARNG	6,553	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Twin Falls Training Site	US	ID	ARNG	312	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Ukumehame Firing Range	US	HI	ARNG	39	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Umatilla Chemical Depot	US	OR	AMC	9	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Vail Tree Farm LTA	US	WA	USARC	166,332	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Van Vleck Ranch	US	CA	ARNG	2,685	0	0	0	N	N	Y	N	N	N	N	N	N	N	Y
	Vernal Training Area	US	UT	ARNG	159	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Wackernheim Small Arms Ranges	OS	Germany	USAREUR	32	0	0	0	N	N	N	N	Y	N	N	N	N	N	Y
	Waco Training Area	US	MT	ARNG	4,763	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Waiawa	US	HI	ARNG	15	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Walker Field Airport	US	CO	ARNG	25	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Wally Eagle DZ	US	CO	ARNG	837	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Wappapellots	US	MO	ARNG	2,187	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Warner Barracks	OS	Germany	USAREUR	2	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Washington County Memorial Usarc	US	OH	USARC	16	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Watertown Training Area	US	SD	ARNG	5	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Watkin Armory	US	CO	ARNG	5	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Watkins Range	OS	Korea	EUSA	44	0	0	0	N	N	N	N	N	N	N	N	N	N	Y

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Individual Army Ranges	Weldon Spring	US	MO	ARNG	1,659	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Wells Gulch	US	CO	ARNG	57	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Wendell H. Ford Regional Training Center	US	KY	ARNG	7,174	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	West Camp Rapid	US	SD	ARNG	566	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	West Point MIL RES	US	NY	USMA	14,101	4	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	West Silver Spring Complex	US	WI	USARC	9	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Western Arng Aviation (Waats) Silverbell	US	AZ	ARNG	160	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Westminster	US	VT	ARNG	38	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Wheeler Army Airfield	US	HI	USARPAC	568	0	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Whistler Creek TS	US	AK	USARPAC	543	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Whitaker Education Training Center	US	OK	ARNG	593	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	White Sands Missile Range	US	NM	ATEC	3,531,715	7,321	0	0	N	N	N	Y	Y	N	N	N	N	N	Y
	Whitehorse Range	US	WV	ARNG	1	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Wilcox	US	AZ	TRADOC	28,814	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Wildcat Hills State Rec. Area TA	US	NE	ARNG	853	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Williston Wets	US	ND	ARNG	345	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	Wuerzburg	OS	Germany	USAREUR	3,308	0	0	0	N	N	Y	N	Y	N	N	Y	N	N	Y
	WV DNR Elk River WMA TA	US	WV	ARNG	277	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	WV DNR McClintic WMA TA	US	WV	ARNG	54	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	WV State Police Academy Range	US	WV	ARNG	12	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Wvdnr Bluestone Wma Range	US	WV	ARNG	1	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Wvdnr Plum Orchard Wma Range	US	WV	ARNG	3	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	Yakima Training Center	US	WA	FORSCOM	324,313	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	Y
	Youngstown Wets	US	NY	ARNG	848	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	Yuma Proving Ground	US	AZ	ATEC	1,033,361	1,500	0	0	N	N	Y	N	Y	N	N	N	N	N	Y

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Marine Corps	MCAS Beaufort/Townsend	US	SC	MCIEAST	5,182	1,130	0	0	Y	Y	N	Y	Y	N	N	N	N	N	Y
	MCAS Cherry Point	US	NC	MCIEAST	29,139	1,082	0	0	Y	Y	Y	Y	Y	Y	N	Y	N	N	N
	MCAS Miramar	US	CA	MCIWEST	14,311	0	0	0	N	N	Y	N	Y	N	N	N	N	N	Y
	MCAS Yuma/Bob Stump	US	AZ	MCIWEST	1,216,000	7,085	0	0	Y	Y	Y	Y	Y	Y	N	N	N	N	Y
	MCB Camp Lejeune	US	NC	MARFORLANT	107,263	151	0	0	N	Y	Y	Y	Y	N	Y	Y	N	Y	Y
	MCB Japan	OS	Japan	MARFORPAC	47,000	333	0	0	N	N	Y	Y	Y	N	Y	Y	N	N	Y
	MCB Camp Pendleton	US	CA	MARFORPAC	125,704	180	0	0	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
	MCB Hawaii	US	HI	MARFORPAC	1,986	0	0	0	N	N	Y	N	Y	N	N	Y	N	Y	Y
	MCB Quantico	US	VA	MCCDC	55,278	278	0	0	N	Y	Y	Y	Y	N	N	Y	N	N	Y
	MCLB Albany	US	GA	MATCOM	4	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	MCLB Barstow	US	CA	MATCOM	2,438	0	0	0	N	N	N	N	Y	N	N	N	N	N	N
	MCMWTC Bridgeport	US	CA	TECOM	62,000	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	MCRD Parris Island	US	SC	TECOM	1,100	0	0	0	N	N	Y	N	Y	N	N	N	N	N	N
	MCAGCC Twentynine Palms	US	CA	TECOM	601,151	1,268	0	0	N	Y	Y	Y	Y	Y	N	Y	N	N	Y
Navy	Atlantic City	US	NJ	CFFC	0	5,585	4,413	4,413	Y	N	N	N	N	N	Y	N	N	N	N
	Atlantic Test Range (Patuxent River)	US	MD, VA	NAVAIR	5,700	3,401	330	0	Y	Y	N	Y	N	Y	N	N	N	N	N
	Atlantic Undersea Test and Evaluation Center (AUTEC)	OS	Bahamas	NAVSEA	0	870	1,320	195	Y	N	N	N	N	N	Y	N	Y	N	N
	Boston	US	MA	CFFC	12,446	10,099	13,494	13,494	Y	Y	Y	N	N	N	Y	N	N	N	Y
	China Lake	US	CA	NAVAIR	1,141,200	13,661	0	0	Y	Y	N	Y	N	Y	N	N	N	N	N
	Diego Garcia	OS	BIOT	CPF	0	32,692	0	0	Y	N	N	N	N	N	N	N	N	N	N
	El Centro	US	CA	CFFC	43,948	256	0	0	Y	Y	N	Y	N	N	N	N	N	N	Y
	Fallon	US	NV	CFFC	232,481	14,182	0	0	Y	Y	Y	Y	Y	Y	N	Y	N	N	N
	Guantanamo	OS	Cuba	CFFC	8	13,175	13,118	13,118	Y	Y	Y	Y	Y	N	Y	N	N	N	N
	Gulf of Mexico	US	FL, MS, TX	CFFC	10,057	38,393	17,469	17,469	Y	Y	N	Y	Y	N	Y	N	N	Y	N
	Hawaii	US	HI	CPF	303	94,083	214,638	214,638	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Y
	Jacksonville	US	FL, GA	CFFC	17,728	61,265	50,098	50,098	Y	Y	N	Y	Y	N	Y	N	N	N	N
	Japan	OS	Japan	CPF	0	10,165	0	0	Y	N	N	N	N	N	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Navy	Key West	US	FL	CFFC	1	24,812	8,282	8,282	Y	Y	N	N	Y	Y	Y	N	N	N	Y
	Mariana Islands	US	CNMI, Guam	CPF	24,894	8,726	8,698	8,698	Y	N	Y	N	Y	N	Y	Y	N	Y	Y
	Narragansett	US	RI	CFFC	0	13,005	27,208	27,208	Y	N	N	N	N	N	Y	N	N	N	N
	Navy Cherry Point	US	NC	CFFC	0	18,718	18,718	18,718	Y	N	N	N	N	Y	Y	N	N	N	Y
	Northern California (NOCAL)	US	CA	CFFC	0	19,681	0	0	Y	N	N	N	N	N	N	N	N	N	N
	Northwest Training Range Complex	US	CA, OR, WA	CFFC	49,674	42,714	128,103	128,103	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y
	Okinawa	OS	Japan	CPF	0	35,129	0	0	Y	Y	N	N	N	N	N	N	N	N	N
	Pt. Mugu Sea Range	US	CA	NAVAIR	15,000	27,712	27,278	0	Y	Y	N	N	N	Y	Y	N	N	N	N
	Southern California (SOCAL)	US	CA	CFFC	43,437	113,231	120,000	7,699	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	VACAPES	US	NC, VA	CFFC	1,543	29,925	28,916	28,916	Y	Y	Y	N	Y	N	Y	Y	N	Y	N
Air Force	Adirondack	US	NY	ANG	75,000	200	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Airburst	US	CO	ANG	4,257	26	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Atterbury	US	IN	ANG	18,500	103	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Avon Park	US	FL	ACC	106,073	1,400	0	0	Y	Y	N	N	N	N	N	N	N	N	N
	Barry M. Goldwater Range	US	AZ	AETC	1,607,018	3,906	0	0	Y	Y	N	N	N	Y	N	N	N	N	N
	Belle Fourche ESS	US	SD	ACC	183	0	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Blair Lake	US	AK	PACAF	2,560	22,000	0	0	N	Y	N	N	N	N	N	N	N	N	N
	Bollen	US	PA	ANG	10,657	42	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Cannon	US	MO	ANG	4,600	339	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Claiborne	US	LA	AFRC	7,800	135	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Dare County Ranges	US	NC	ACC	46,621	1,184	0	0	Y	Y	N	N	N	Y	N	N	N	N	N
	Draughon	OS	Japan	PACAF	0	0	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Edwards Ranges	US	CA	AFMC	50,080	20,000	0	0	Y	Y	N	N	N	Y	N	N	N	N	N
	Eglin Ranges	US	FL	AFMC	463,360	133,979	0	0	Y	Y	N	N	N	Y	N	N	N	N	N
	Falcon	US	OK	AFRC	5,200	1,845	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Grand Bay	US	GA	ACC	6,000	17,290	0	0	N	Y	N	N	N	N	N	N	N	N	N
	Grayling	US	MI	ANG	145,025	63	0	0	Y	Y	N	N	N	Y	N	N	N	N	N
	Hardwood	US	WI	ANG	7,263	84	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Holloman	US	NM	ACC	207,800	2,256	0	0	Y	Y	N	N	N	Y	N	N	N	N	N

Training Range Complex Inventory

Military Service	Range Complex	United States (US) or Overseas (OS)	State or Country	Command/ Component	Range Description				Range Type										
					Land Area for Ranges (acres)	Special Use Airspace (sq nm)	Sea Surface Area (sq nm)	Underwater Tracking Area (sq nm)	Air-to-Air or Air-to-Surface	Air-to-Ground	Land Maneuver	Land Impact Area	Land Firing Range	C2W/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area	Other
Air Force	Jefferson	US	IN	ANG	50,000	160	0	0	Y	Y	N	N	N	Y	N	N	N	N	N
	Lone Star ESS	US	TX	ACC	90	0	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	McMullen	US	TX	ANG	2,800	63	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Melrose	US	NM	AFSOC	66,033	22,000	0	0	Y	Y	N	N	N	Y	N	N	N	N	N
	Mountain Home Ranges	US	ID	ACC	120,844	18,526	0	0	Y	Y	N	N	N	Y	N	N	N	N	N
	Nevada Testing and Training Range	US	NV	ACC	2,919,890	12,000	0	0	Y	Y	N	N	N	Y	N	N	N	N	N
	Oklahoma	US	AK	PACAF	25,600	22,000	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Patrick	US	FL	AFSOC	14,591	25,239	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Pilsung	OS	Korea	PACAF	0	0	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Poinsett	US	SC	ACC	12,521	1,500	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Polygone	OS	France/ Germany	USAFE	0	0	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Razorback	US	AR	ANG	5,760	128	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Shelby Ranges	US	MS	ANG	26,676	0	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Siegenberg	OS	Germany	USAFE	0	0	0	0	N	Y	N	N	N	N	N	N	N	N	N
	Smoky Hill	US	KS	ANG	33,875	53	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Snyder ESS	US	TX	ACC	90	0	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Torishima	OS	Japan	PACAF	0	0	0	0	N	Y	N	N	N	N	N	N	N	N	N
	Townsend	US	GA	ANG	5,183	288	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Utah Testing and Training Ranges	US	UT	ACC	1,712,000	12,574	0	0	Y	Y	N	N	N	Y	N	N	N	N	N
	Vandenberg	US	CA	AFSOC	100,751	334	0	0	N	N	N	N	N	N	N	N	N	N	Y
	Warren Grove	US	NJ	ANG	9,416	30	0	0	N	Y	N	N	N	Y	N	N	N	N	N
	Yukon	US	AK	PACAF	25,600	22000	0	0	N	Y	N	N	N	Y	N	N	N	N	N

This Page is Intentionally Left Blank.

Table C-2 Military Training Route (MTR) Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR002	20 OSS/OSOA, Shaw AFB, SC 29152-5000 DSN 965-1121/1122, C 803-895-1121/1122, Fax	20 OSS/OSOS, Shaw AFB, SC 29152 Duty hrs DSN 965-1118/1119, C803-895-1118/1119.	Continuous	125
IR012	4 OSS/OSR, Seymour Johnson AFB, NC 27531-5004 DSN 722-2672, C919-722-2672.	4 OSS/OSOSF, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129	Continuous	144
IR015	347 OSS/OSKA, Moody AFB, GA 31699-1899 DSN 460-4131, C229-257-4131.	347 OSS/OSOS, Moody AFB, GA 31699-1899 Mon-Fri 0730-1630L exc holidays DSN 460-4	Continuous	164
IR016	347 OSS/OSKA, Moody AFB, GA 31699-1899 DSN 460-4131, C229-257-4131.	347 OSS/OSOS, Moody AFB, GA 31699-1899 Mon-Fri 0730-1630L exc holidays DSN 460-4	Continuous	167
IR017	187 FW, 5187 Selma Highway, Montgomery, AL 36108-4824 DSN 358-9255, C334-394-725	Same as Originating Activity	Continuous	201
IR018	FACSFAC JAX, NAS Jacksonville, FL 32212 DSN 942-2004/2005, C904-542-2004/2005, A	Same as Originating Activity	0700-2400 local daily	401
IR019	FACSFAC JAX, NAS Jacksonville, FL 32212 DSN 942-2004/2005, C904-542-2004/2005, A	Same as Originating Activity	0700-2400 local daily	454
IR020	FACSFAC JAX, NAS Jacksonville, FL 32212 DSN 942-2004/2005, C904-542-2004/2005, A	Same as Originating Activity	0700-2400 local daily	392
IR021	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ Mon-Fri, occasionally on weekends	451
IR022	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ weekdays, occasional weekends	322
IR023	CG MCAS CHERRY POINT, ATTN RAC-DIROPS, Cherry Point, NC 28533 DSN 582-3466, C252	Central Scheduling Division, MCAS Cherry Point, NC 28533 DSN 582-4040/4041, C252	Continuous	224
IR026	FACSFACJAX, PO Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005 C904-54	Same as Originating Activity	By NOTAM	55
IR027	FACSFACJAX, PO Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005 C904-54	Same as Originating Activity	By NOTAM	12
IR030	Commander Naval Air Warfare Center, Weapons Division, Code 52911GE, NAWS, Point	Same as Originating Activity	Daylight hours only, daily	260
IR031	Commander Naval Air Warfare Center, Weapons Division, Code 52911GE, NAWS, Point	Same as Originating Activity	Daylight hours only, daily	260
IR032	Commander Naval Air Warfare Center, Weapons Division, Code 52911GE, NAWS, Point	Commander Fleet Area Control and Surveillance Facility Jacksonville, Naval Air S	Daylight hours	167
IR033	Commander Naval Air Warfare Center, Weapons Division, Code 52911GE, NAWS, Point	Commander Fleet Area Control and Surveillance Facility Jacksonville, Naval Air S	Daylight hours	211
IR034	347 Rescue Wing, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33	347 Rescue Wing, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 3	0600-2400 local	150
IR035	437 AW/C-17 OSS/OSA Charleston AFB, SC 29404 DSN 673-7692, C843-963-7692.	20 OSS/OSOS, Shaw AFB, SC 29152-5000 Duty hours DSN 965-1118/1119 C803-895-1118,	0600-2200 local, daily	198
IR036	437 AW/C-17 OSS/OSOT Charleston AFB, SC 29404 DSN 673-5613, C803-566-5613.	20 OSS/OSOS, Shaw AFB, SC 29152-5000 Duty hours DSN 965-1118/1119 C803-895-1118,	0600-2200 local, daily	178

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR037	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	Mon-Fri 1200-0400Z++, occasional weekends	213
IR038	FACSFAC, NAS Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	Sunrise-Sunset, Mon-Fri, occasional weekends	398
IR040	FACSFAC, NAS Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	Mon-Fri 1200-0400Z++, occasional weekends	176
IR044	COMTRAWING ONE, NAS Meridian, MS 39309-0136 DSN 637-2347, C601-679-2347.	Same as Originating Activity	Sunrise-Sunset	161
IR046	347 Rescue Wing, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33	347 Rescue Wing, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 3	0700-2400 local, daily	171
IR047	347 Rescue Wing, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33	347 Rescue Wing, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 3	0700-2400 local, daily	67
IR048	347 Rescue Wing, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33	347 Rescue Wing, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 3	0700-2400 local, daily	31
IR049	347 Rescue Wing, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33	347 Rescue Wing, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 3	0700-2400 local, daily	87
IR050	347 Rescue Wing, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33	347 Rescue Wing, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 3	0700-2400 local, daily	109
IR051	347 Rescue Wing, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33	347 Rescue Wing, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 3	0700-2400 local, daily	196
IR053	347 Rescue Wing, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33	347 Rescue Wing, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 3	0600-2400 local, daily	136
IR055	347 WG, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33621-5205	347 WG, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 33621-5205	0600-2400 local, daily	138
IR056	347 WG, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33621-5205	347 WG, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 33621-5205	0600-2400 local	206
IR057	16 OSS/DOAA, Hurlburt Field, FL 32544 DSN 579-7409, C850-884-7409.	16 OSS/DOO, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Continuous	416
IR059	16 OSS/DOAA, Hurlburt Field, FL 32544 DSN 579-7409, C850-884-7409.	16 OSS/DOO, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Continuous	436
IR062	COMSTRKFIGHTWINGLANT, Oceana NAS, Virginia Beach, VA 23460 DSN 433-4013, C757-43	FACSFAC VACAPES, Oceana , NAS Virginia Beach, VA 23460 DSN 433-1228, C757-433-12	Continuous	507
IR066	14 OSS/OSOP, Columbus AFB, MS 39710 DSN 742-7560/7633, C662-434-7560/7633.	50 FTS, Columbus AFB, MS 39710 DSN 742-7734/7735, C662-434-7734/7735.	Sunrise-Sunset Mon-Fri	285
IR067	14 OSS/OSOP, Columbus AFB, MS 39710 DSN 742-7560/7633, C662-434-7560/7633.	48 FTS, Columbus AFB, MS 39710 DSN 742-7840/7847, C662-434-7840/7847.	Sunrise-Sunset Mon-Fri	312

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR068	14 OSS/OSOP, Columbus AFB, MS 39710 DSN 742-7560/7633, C662-434-7560/7633.	48 FTS, Columbus AFB, MS 39710 DSN 742-7840/7847, C662-434-7840/7847.	Sunrise-Sunset Mon-Fri	149
IR070	14 OSS/OSOP, Columbus AFB, MS 39710-5000 DSN 742-7560/7633, C662-434-7560/7633.	48 FTS, Columbus AFB, MS 39710 DSN 742-7840/7847, C662-434-7840/7847.	Sunrise-Sunset daily	260
IR077	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ Mon-Fri; occasional weekends	276
IR078	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ Mon-Fri; occasional weekends	276
IR079	FACSFA, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ Mon-Fri; occasional weekends	246
IR080	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ Mon-Fri; occasional weekends	267
IR081	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ Mon-Fri; occasional weekends	216
IR082	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ Mon-Fri; occasional weekends	270
IR083	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ Mon-Fri; occasional weekends	298
IR089	437 OSS/OSOT, Charleston AFB, SC 29404 DSN 673-5554, C843-963-5554.	437 OSS/OSOT, Charleston AFB, SC 29404 DSN 673-5552, C843-963-5552. Non duty hrs	0600-2400 local, daily, Jan, Mar, May, Jul, Sep and Nov only	177
IR090	437 OSS/OSOT, Charleston AFB, SC 29404 DSN 673-5554, C843-963-5554.	437 OSS/OSOT, Charleston AFB, SC 29404 DSN 673-5552, C843-963-5552. Non duty hrs	0600-2400 local, daily, Feb, Apr, Jun, Aug, Oct and Dec only	177
IR091	14 OSS/OSOP Columbus AFB, MS 39710 DSN 742-7560/7633 C662-434-7560/7633.	50 FTS Columbus AFB, MS 39710 DSN 742-7734/7735, C662-434-7734/7735.	Sunrise-Sunset Mon-Fri	179
IR102	49 OSS/OSTA, 700 Delaware Ave., Holloman AFB, NM 88330-8017 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Daylight hours by NOTAM	520
IR103	301 OG/SUA, NAS JRB Fort Worth, TX 76127 DSN 739-6903/6904/6905, C817-782-6903/6	Same as Originating Activity	0600-2200 local, daily	117
IR105	301 OG/SUA, NAS JRB, Ft. Worth, TX 76127 DSN 739-6903/6904/6905, C817-782-6903/6	Same as Originating Activity.	0600-2200 local, daily	212
IR107	27 SOSS/OSTA 110 E. Sextant Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2521	27 SOSS/OSOS 110 E. Sextant Ave., Suite 1080, Cannon AFB, NM 88103 DSN 681-2276,	Continuous	655
IR109	27 SOSS/OSTA 110 E. Sextant Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2521	27 SOSS/OSOS 110 E. Sextant Ave., Suite 1080, Cannon AFB, NM 88103 DSN 681-2276,	Continuous	747
IR111	27 SOSS/OSTA 110 E. Sextant Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2521	7 SOSS/OSOS 110 E. Sextant Ave., Suite 1080, Cannon AFB, NM 88103 DSN 681-2276,	Continuous	661

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR112	27 SOSS/OSTA 110 E. Sextant Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2521	27 SOSS/OSOS 110 E. Sextant Ave., Suite 1080, Cannon AFB, NM 88103 DSN 681-2276,	Continuous	641
IR113	27 SOSS/OSTA 110 E. Sextant Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2521	27 SOSS/OSOS 110 E. Sextant Ave., Suite 1080, Cannon AFB,NM 88103. Req for use s	Continuous	781
IR115	49 OSS/OSTA, 700 Delaware Ave., Holloman AFB, NM 88330-8017 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Daylight hours by NOTAM	62
IR116	49 OSS/OSTA, 700 Delaware Ave., Holloman AFB, NM 88330-8017 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Daylight hours by NOTAM	62
IR117	188 FW, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 24 hr in advance. Min	Continuous (except Sunday 1000-1200 local)	117
IR117	188FW Arkansas ANG, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 72 hr in advance. Min	Continuous (except Sunday 1000-1200 local)	71
IR120	188 FW, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 24 hr in advance. Min	Continuous (except Sunday 1000-1200 local)	81
IR121	188 FW, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 24 hr in advance. Min	Continuous (except Sunday 1000-1200 local)	120
IR122	49 OSS/OSTA, 700 Delaware Ave., Holloman AFB, NM 88330-8017 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Continuous (except Sunday 1000-1200 local)	28
IR123	301 OG/SUA, NAS JRB Fort Worth, TX 76127 DSN 739-6903/6904/6905, C817-782-6903/6	Same as Originating Activity	0700-2200 local	403
IR124	301 OG/SUA, NAS JRB Fort Worth, TX 76127 DSN 739-6903/6904/6905, C817-782-6903/6	Same as Originating Activity	0700-2200 local	245
IR126	7 OSS/A3R, 965 Ave. D-4, Ste. 109, Dyess AFB, TX 79606 DSN 461-3666, C325-696-36	7 OSS/A3R, 966 Ave. D-4, Ste. 109, Dyess AFB, TX 79606 DSN 461-3665, C325-696-36	Continuous	807
IR127	12 OSS/OSOA, 501 I Street East, Randolph AFB, TX 78150 DSN 487-5580, C210-652-55	99th FTS, 1450 5th Street East, Randolph AFB, TX 78150 DSN 487-6746, C210-652-67	Sunrise-Sunset	243
IR128	7 OSS/A3R, 965 Ave. D-4, Ste. 109, Dyess AFB, TX 79606 DSN 461-3666, C325-696-36	7 OSS/A3R, 966 Ave. D-4, Ste. 109, Dyess AFB, TX 79606 DSN 461-3665, C325-696-36	Continuous	651
IR129	12 OSS/OSOA, 501 I Street East, Randolph AFB, TX 78150 DSN 487-5580, C210-652-55	99th FTS, 1450 5th Street East, Randolph AFB, TX 78150 DSN 487-6746, C210-652-67	Sunrise-Sunset	279
IR130	49 OSS/OSTA, 700 Delaware Ave., Holloman AFB, NM 88330-8017 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Daylight hours by NOTAM	28
IR131	49 OSS/OSTA, 700 Delaware Ave., Holloman AFB, NM 88330-8017 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Daylight hours by NOTAM	32
IR132	49 OSS/OSTA, 700 Delaware Ave., Holloman AFB, NM 88330-8017 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Daylight hours by NOTAM	32

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR133	49 OSS/OSOA, 700 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	0700-2300 local	329
IR134	49 OSS/OSOA, 700 Delaware Ave., Holloman AFB, NM 88440-8014 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Sunrise-0600Z++	205
IR135	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283, C361-516-6518/6283/6	Same as Originating Activity	Sunrise-Sunset, daily	137
IR136	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283, C361-516-6518/6283/6	Same as Originating Activity	Sunrise-Sunset, daily	162
IR137	58 OSS/DOO, Kirtland AFB, NM 87117-5861 DSN 263-5979/5888, C505-853-5979/5888/57	Same as Originating Activity	Continuous	219
IR139	301 OG/SUA, NAS JRB Fort Worth, TX 76127 DSN 739-6903/6904/6905, C817-782-6903/6	Same as Originating Activity	0600-2200 local, daily	102
IR141	49 OSS/OSTA, 700 Delaware Ave., Holloman AFB, NM 88330-8017 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Daylight hours by NOTAM	520
IR142	49 OSS/OSOA, 700 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Sunrise-0600Z++	206
IR145	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	25 FTS/DISP, Vance AFB, OK 73705-5202 DSN 448-6038, C580-213-6038.	30 min after Sunrise-30 min before Sunset and active days per local directives	187
IR146	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	25 FTS/DISP, Vance AFB, OK 73705-5202 DSN 448-6038, C580-213-6038.	30 min after Sunrise-30 min before Sunset and active days per local directives	185
IR147	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283, C361-516-6518/6283/6	Same as Originating Activity	Sunrise to 30 minutes after Sunset, daily	122
IR148	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283, C361-516-6518/6283/6	Same as Originating Activity	Daily 0600-2230 local	172
IR149	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283, C361-516-6518/6283/6	Same as Originating Activity	Daily 0600-2230 local	213
IR150	7 OSS/OSOR, 966 Ave. D-4, Ste. 117, Dyess AFB, TX 79607 DSN 461-3666, C325-696-3	7 OSS/OSOR, 966 Ave. D-4, Ste. 117, Dyess AFB, TX 79607 DSN 461-3665, C325-696-3	Continuous	295
IR154	97 OSS/DOA, 400 N. Sixth Street, Bldg 164, Rm 4, Altus AFB, OK 73522 DSN 866-609	97 OSS/OSK, 516 S. Sixth Street, Ste A, Altus AFB, OK 73523 DSN 866-7110/6617.	0830-0230 local Mon-Fri	220
IR155	97 OSS/DOA, 400 N. Sixth Street, Bldg 164, Rm 4, Altus AFB, OK 73522 DSN 866-609	97 OSS/OSK, 516 S. Sixth Street, Ste A, Altus AFB, OK 73523 DSN 866-7110/6617.	0830-0230 local Mon-Fri	213
IR164	188 FW, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 24 hr in advance. Min	Continuous (except Sunday 1000-1200 local)	110
IR166	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283, C361-516-6518/6283/6	Same as Originating Activity	0600-2400 local, daily	184

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR167	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283, C361-516-6518/6283/6	Same as Originating Activity	0600-2400 local, daily	119
IR169	47 OSS/OSOR, 570 2nd Street, Ste. 6, Laughlin AFB, TX 78843-5222 DSN 732-5864, C	87 FTS/DOS, 570 2nd Street, Laughlin AFB, TX 78843 DSN 732-5484, C830-298-5484.	Sunrise-Sunset daily	175
IR170	47 OSS/OSOR, 570 2nd Street, Ste. 6, Laughlin AFB, TX 78843-5222 DSN 732-5864, C	87 FTS/DOS, 570 2nd Street, Laughlin AFB, TX 78843 DSN 732-5484, C830-298-5484.	Sunrise-Sunset daily	191
IR171	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	25 FTS/DISP, Vance AFB, OK 73705-5202 DSN 448-6038, C580-213-6038.	30 min after Sunrise-30 min before Sunset and active days per local directives	175
IR172	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	Same as Originating Activity.	30 min after Sunrise-30 min before Sunset and active days per local directives	165
IR173	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	Same as Originating Activity.	30 min after Sunrise-30 min before Sunset and active days per local directives	160
IR174	509 OSS/OSKA, 905 Spirit Blvd., Whiteman AFB, MO 65305 DSN 975-1713/1754, C660-6	Same as Originating Activity	Continuous	546
IR175	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	25 FTS/DISP, Vance AFB, OK 73705-5202 DSN 448-6038, C580-213-6038.	30 min after Sunrise-30 min before Sunset and active days per local directives	204
IR177	7 OSS/OSOR, 966 Ave. D-4, Ste. 117, Dyess AFB, TX 79607 DSN 461-3666, C325-696-3	7 OSS/OSOR, 966 Ave. D-4, Ste. 117, Dyess AFB, TX 79607 DSN 461-3665, C325-696-3	Continuous	363
IR178	7 OSS/A3R, 965 Ave. D-4, Ste. 109, Dyess AFB, TX 79606 DSN 461-3666, C325-696-36	Same as Originating Activity.	Continuous	1,027
IR180	7 OSS/A3R, 965 Ave. D-4, Ste. 109, Dyess AFB, TX 79606 DSN 461-3666, C325-696-36	7 OSS/A3R, 966 Ave. D-4, Ste. 109, Dyess AFB, TX 79606 DSN 461-3665, C325-696-36	Continuous	562
IR181	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	25 FTS/DISP, Vance AFB, OK 73705-5202 DSN 448-6038, C580-213-6038.	30 min after Sunrise-30 min before Sunset and active days per local directives	175
IR182	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	Same as Originating Activity.	30 min after Sunrise-30 min before Sunset and active days per local directives	165
IR183	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	Same as Originating Activity.	30 min after Sunrise-30 min before Sunset and active days per local directives	160
IR185	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	25 FTS/DISP, Vance AFB, OK 73705-5202 DSN 448-6038, C580-213-6038.	30 min after Sunrise-30 min before Sunset and active days per local directives	204

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR192	49 OSS/OSOA, 700 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Sunrise-0600Z++	562
IR193	97 OSS/DOA, 400 N Sixth St., Altus AFB, OK 73521 DSN 866-6098 C580-481-6098.	97 OSS/DOA, 400 N Sixth St., Ste 12, Altus AFB, OK 73521 DSN 866-7110.	0830-0230 local Mon-Fri	142
IR194	49 OSS/OSOA, 700 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Sunrise-0600Z++	564
IR195	49 OSS/OSOA, 700 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3244, C575-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C575-5	Sunrise-0600Z++	198
IR200	Commander Naval Air Warfare Center, Weapons Division, Code P529800E, (Naval Base	Commander Naval Air Warfare Center, Weapons Division, Code P529800E, (Naval Base	Sunrise-Sunset by NOTAM	650
IR203	Commander Strike Fighter Wing, US. Pacific Fleet, 001 (K) Street, Room 121, NAS	Same as Originating Activity	Daylight hours, OT by NOTAM	410
IR206	Commander Naval Air Warfare Center, Weapons Division, Code P3524, NAWS, Pt. Mugu	Commander Naval Air Warfare Center, Weapons Division, Code P3506, NAWS, Pt. Mugu	Daylight hours by NOTAM	120
IR207	Commander Strike Fighter Wing, US. Pacific Fleet, 001 (K) Street, Room 121, NAS	Same as Originating Activity	Daylight hours, OT by NOTAM	449
IR211	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Continuous	152
IR212	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Continuous	136
IR213	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Continuous	269
IR214	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Even numbered days only	265
IR216	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Even numbered days- daylight only	53
IR217	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Continuous	283
IR218	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Continuous	229
IR234	Commander AFFTC, 412 OSS/OSAA, 235 S Flightline Rd, Edwards AFB, CA 93523-6460 D	Commander AFFTC, 412 OSS/OSR, 300 E Yeager Blvd, Edwards AFB, CA 93524 DSN 527-4	Daylight hours by NOTAM	164
IR235	Commander AFFTC, 412 OSS/OSAA, 235 S Flightline Rd, Edwards AFB, CA 93523-6460 D	Commander AFFTC, 412 OSS/OSR, 300 E Yeager Blvd, Edwards AFB, CA 93524 DSN 527-4	Daylight hours by NOTAM	164
IR236	Commander AFFTC, 412 OSS/OSAA, 235 S Flightline Rd, Edwards AFB, CA 93523-6460 D	Commander AFFTC, 412 OSS/OSR, 300 E Yeager Blvd, Edwards AFB, CA 93524 DSN 527-4	0600-2200 local, daily	320
IR237	Commander AFFTC, 412 OSS/OSAA, 235 S Flightline Rd, Edwards AFB, CA 93523-6460 D	Commander AFFTC, 412 OSS/OSR, 300 E Yeager Blvd, Edwards AFB, CA 93524 DSN 527-4	Daylight hours by NOTAM	130
IR238	Commander AFFTC, 412 OSS/OSAA, 235 S Flightline Rd, Edwards AFB, CA 93523-6460 D	Commander AFFTC, 412 OSS/OSCS, 306 E. Popson, Edwards AFB, CA 93524-6680 DSN 527	Daylight hours by NOTAM	130
IR250	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Daylight hours on even even numbered days	251
IR252	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Daylight hours on odd numbered days	158

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR254	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Daylight hours, Mon-Fri	99
IR255	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Daylight hours, daily	67
IR264	60 OSS/OSO, 611 E St., Travis AFB, CA 94535 DSN 837-1073, C707-424-1073.	60 OSS/OSO, 611 E St., Travis AFB, CA 94535 DSN 837-5582, C707-424-5582.	By NOTAM	339
IR266	7 OSS/OSOR, 966 Ave. D-4, Ste. 118, Dyess AFB, TX 79607 DSN 461-3666, C325-696-3	7 OSS/OSOR, 966 Ave. D-4, Ste. 117, Dyess AFB, TX 79607 DSN 461-3663, C325-696-3	Continuous	458
IR275	60 OSS/OSO, 611 E St., Travis AFB, CA 94535 DSN 837-1073, C707-424-1073.	60 OSS/OSO, 611 E St., Travis AFB, CA 94535 DSN 837-5582, C707-424-5582.	By NOTAM	379
IR279	57 OSS/OSM, Nellis AFB, NV 89191 DSN 682-7891, C702-652-7891.	57 OSS/OSOS, 4450 Tyndall Ave., Nellis AFB, NV 89191 DSN 682-2040, C702-652-2040	Continuous	48
IR280	60 OSS/OSO, 611 E St., Travis AFB, CA 94535 DSN 837-1073, C707-424-1073.	60 OSS/OSO, 611 E St., Travis AFB, CA 94535 DSN 837-5582, C707-424-5582.	By NOTAM	283
IR281	60 OSS/OSO, 611 E St., Travis AFB, CA 94535 DSN 837-1073, C707-424-1073.	60 OSS/OSO, 611 E St., Travis AFB, CA 94535 DSN 837-5582, C707-424-5582.	By NOTAM	296
IR282	60 OSS/OSO, 611 E St., Travis AFB, CA 94535 DSN 837-1073, C707-424-1073.	60 OSS/OSO, 611 E St., Travis AFB, CA 94535 DSN 837-5582, C707-424-5582.	By NOTAM	191
IR286	57 OSS/OSM, Nellis AFB, NV 89191 DSN 682-7891, C702-652-7891.	57 OSS/OSOS, 4450 Tyndall Ave., Nellis AFB, NV 89191 DSN 682-2040, C702-652-2040	Continuous	385
IR293	388 RANS/RST, 6606 Cedar Ln. bldg 1274, Hill AFB, UT 84056-5812 DSN 777-4401 C80	Same as Originating Activity.	By NOTAM	311
IR300	366 OSS/OSOS, Mountain Home AFB, ID 83648 DSN 728-2172/4607 C208-828-2172. Airsp	Same as Originating Activity. Scheduling requests 0730-1630 local Mon-Fri. After	By NOTAM	390
IR301	124 WG/OGAM (ANG), 3996 W. Aeronca St., Boise Air Terminal, ID 83705-8004 DSN 42	124 WG/OSS (ANG), 3996 W. Aeronca St., Boise Air Terminal, ID 83705-8004 DSN 422	Continuous or by NOTAM	402
IR302	124 WG/OGAM (ANG), 3996 W. Aeronca St., Boise Air Terminal, ID 83705-8004 DSN 42	124 WG/OSS (ANG), 3996 W. Aeronca St., Boise Air Terminal, ID 83705-8004 DSN 422	Continuous or by NOTAM	452
IR303	366 OSS/OSOS, Mountain Home AFB, ID 83648 DSN 728-2172/4607 C208-828-2172. Airsp	Same as Originating Activity. Scheduling requests 0730-1630 local Mon-Fri. After	By NOTAM	278
IR304	366 OSS/OSOS, Mountain Home AFB, ID 83648 DSN 728-2172/4607 C208-828-2172. Airsp	Same as Originating Activity. Scheduling requests 0730-1630 local Mon-Fri. After	By NOTAM	314
IR305	124 WG/OGAM (ANG), 3996 W. Aeronca St., Boise Air Terminal, ID 83705-8004 DSN 42	124 WG/OSS (ANG), 3996 W. Aeronca St., Boise Air Terminal, ID 83705-8004 DSN 422	Continuous or by NOTAM	421
IR307	124 WG/OGAM (ANG), 3996 W. Aeronca St., Boise Air Terminal, ID 83705-8004 DSN 42	124 WG/OSS (ANG), 3996 W. Aeronca St., Boise Air Terminal, ID 83705-8004 DSN 422	Continuous or by NOTAM	402
IR308	58 OSS/DOO, Kirtland AFB, NM 87117-5861 DSN 263-5979/5888, C505-853-5979/5888/57	Same as Originating Activity	Continuous	219

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR313	366 OSS/OSOA, 1050 Desert St., Building 2215, Mountain Home AFB, ID 83648 DSN 72	Same as Originating Activity. Scheduling requests 0730-1630 local Mon-Fri. After	By NOTAM	409
IR320	7 OSS/OSOR, 966 Ave. D-4, Ste. 118, Dyess AFB, TX 79607 DSN 461-3666, C325-696-3	7 OSS/OSOR, 1001 Ave. D-4, Ste. 107, Dyess AFB, TX 79607 DSN 461-3665, C325-696-	Continuous	853
IR324	62 OSS/OSK, 1172 Levitow Blvd., McCord AFB, WA 98438 DSN 382-3615, C253-982-3615	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925. Dut	Continuous	174
IR325	62 OSS/OSK, 1172 Levitow Blvd., McCord AFB, WA 98438 DSN 382-3615, C253-982-3615	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925. Dut	Continuous	162
IR326	62 OSS/OSK, 1172 Levitow Blvd., McCord AFB, WA 98438 DSN 382-3615, C253-982-3615	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925. Dut	Continuous	185
IR327	62 OSS/OSK, 1172 Levitow Blvd., McCord AFB, WA 98438 DSN 382-3615, C253-982-3615	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925. Dut	Continuous	167
IR328	62 OSS/OSK, 1172 Levitow Blvd., McCord AFB, WA 98438 DSN 382-3615, C253-982-3615	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925. Dut	Continuous	156
IR329	62 OSS/OSK, 1172 Levitow Blvd., McCord AFB, WA 98438 DSN 382-3615, C253-982-3615	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925. Dut	Continuous	156
IR330	62 OSS/OSK, 1172 Levitow Blvd., McCord AFB, WA 98438 DSN 382-3615, C253-982-3615	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925. Dut	Continuous	112
IR341	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave., Oak H	Same as Originating Activity. Scheduling hours 0700-1600 local, Mon-Fri only. Sa	Continuous	293
IR342	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave., Oak H	Same as Originating Activity. Scheduling hours 0700-1600 local, Mon-Fri only. Sa	Continuous	329
IR343	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave., Oak H	Same as Originating Activity. Scheduling hours 0700-1600 local, Mon-Fri only. Sa	Continuous	472
IR344	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave., Oak H	Same as Originating Activity. Scheduling hours 0700-1600 local, Mon-Fri only. Sa	Continuous	322
IR346	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave., Oak H	Same as Originating Activity. Scheduling hours 0700-1600 local, Mon-Fri only. Sa	Continuous	333
IR348	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave., Oak H	Same as Originating Activity. Scheduling hours 0700-1600 local, Mon-Fri only. Sa	Continuous	297
IR409	140th OG/CC Buckley ANGB Aurora, CO 80011-9546 DSN 847-9466, C720-847-9466.	140th OG/CC Buckley AFB Aurora, CO 80011-9546. Duty Hrs 0700-1700 DSN 847-9472,	0800-1600 local, Tue-Sat	194
IR414	140th Wing/Airspace Office Buckley AFB Aurora, CO 80011-9546 DSN 847-9470/9471,	140th Wing/Airspace Office Buckley AFB Aurora, CO 80011-9546. Duty Hrs 0700-1700	0800-1600 local, Tue-Sat; OT by NOTAM	106
IR415	140th OG/CC Buckley ANGB Aurora, CO 80011-9546 DSN 847-9466, C720-847-9466.	140th OG/CC Buckley AFB Aurora, CO 80011-9546. Duty Hrs 0700-1700 DSN 847-9472,	0800-1600 local, Tue-Sat; OT by NOTAM	174

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR416	140th Wing/Airspace Office Buckley AFB Aurora, CO 80011-9546 DSN 847-9470/9471,	140th Wing/Airspace Office Buckley AFB Aurora, CO 80011-9546. Duty Hrs 0700-1700	0800-1600 local, Tue-Sat; OT by NOTAM	320
IR418	388 RANS/RST, 6066 Cedar Lane, Hill AFB, UT 84056-5812 DSN 777-9384, C801-777-93	388 RANS/RST, 6066 Cedar Lane, Hill AFB, UT 84056-5812 DSN 777-4401, C801-777-44	0700-2400 local Mon-Thu, 0700-1800 local Fri, 0800-1700 local Sat	45
IR420	388 RANS/RST, 6066 Cedar Lane, Hill AFB, UT 84056-5812 DSN 777-9384, C801-777-93	388 RANS/RST, 6066 Cedar Lane, Hill AFB, UT 84056-5812 DSN 777-4401, C801-777-44	0700-2400 local Mon-Thu, 0700-1800 local Fri, 0800-1700 local Sat	40
IR424	140th Wing/Airspace Office Buckley AFB Aurora, CO 80011-9546 DSN 847-9470/9471,	140th Wing/Airspace Office Buckley AFB Aurora, CO 80011-9546. Duty Hrs 0700-1700	0800-1600 local, Tue-Sat; OT by NOTAM	152
IR425	Commander AFFTC, 412 OSS/OSAA, 235 S. Flightline Rd. Edwards AFB, CA 93523-6460	Commander AFFTC, 412 OSS/OSR, 300 E Yeager Blvd, Edwards AFB, CA 93524 DSN 527-4	Sunrise-Sunset by NOTAM	650
IR473	28 OSS/OSXA, 1956 Scott Dr., Ste. 201, Ellsworth AFB, SD 57706-4710 DSN 675-1230	28 OSS/OSXS, 1956 Scott Dr., Ste. 201, Ellsworth AFB, SD 57706-4710 DSN 675-4246	Continuous	708
IR479	120 FW/OSAD (ANG) 2800 Airport Ave. B, Great Falls, MT 59404 DSN 791-0186, C406-	Same as Originating Activity	By NOTAM	576
IR480	120 FW/OSAD (ANG) 2800 Airport Ave. B, Great Falls, MT 59404 DSN 791-0186, C406-	Same as Originating Activity	By NOTAM	418
IR485	28 OSS/OSXA, 1956 Scott Dr., Ste. 201, Ellsworth AFB, SD 57706-4710 DSN 675-1230	28 OSS/OSXS, 1956 Scott Dr., Ste. 201, Ellsworth AFB, SD 57706-4710 DSN 675-4246	Continuous	305
IR492	28 OSS/OSXA, 1956 Scott Dr., Ste. 201, Ellsworth AFB, SD 57706-4710 DSN 675-1230	28 OSS/OSXS, 1956 Scott Dr., Ste. 201, Ellsworth AFB, SD 57706-4710 DSN 675-4246	Continuous	582
IR499	28 OSS/OSXA, 1956 Scott Dr., Ste. 201, Ellsworth AFB, SD 57706-4710 DSN 675-1230	28 OSS/OSXS, 1956 Scott Dr., Ste. 201, Ellsworth AFB, SD 57706-4710 DSN 675-4246	Continuous	355
IR500	7 OSS/OSOR, 966 Ave. D-4, Ste. 117, Dyess AFB, TX 79607 DSN 461-3666, C325-696-3	7 OSS/OSOR, 966 Ave. D-4, Ste. 117, Dyess AFB, TX 79607 DSN 461-3665, C325-696-3	Continuous	542
IR501	7 OSS/OSOR, 966 Ave. D-4, Ste. 117, Dyess AFB, TX 79607 DSN 461-3666, C325-696-3	7 OSS/OSOR, 966 Ave. D-4, Ste. 117, Dyess AFB, TX 79607 DSN 461-3665, C325-696-3	Continuous	724
IR504	509 OSS/OSKA, 905 Spirit Blvd., Whiteman AFB, MO 65305 DSN 975-1713/1754, C660-6	Same as Originating Activity	Continuous	91
IR504	509 OSS/OSOS, 905 Spirit Blvd., Whiteman AFB, MO 65305 DSN 975-1713/1754, C660-6	Same as Originating Activity	Continuous	178
IR505	114 FW (ANG), Joe Foss Field, Siouz Falls, SD 57104-0264 DSN 798-7754/46, C605-9	Same as Originating Activity	Daylight hours, Mon-Sat, OT By NOTAM	138
IR508	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7745, C605-988-	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7754/7746, C605	Daylight hours, Mon-Sat, OT By NOTAM	239
IR509	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7745, C605-988-	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7754/7746, C605	Daylight hours, Tue-Sat, OT by NOTAM	306
IR513	DET 1, 184 IW, Smoky Hill ANG Range, 8429 W Farrelly Rd, Salina, KS 67401-9407.	Same as Originating Activity	Continuous	383
IR514	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7754/46, C605-9	Same as Originating Activity	Daylight hours, Tue-Sat, OT by NOTAM	223
IR518	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7745, C605-988-	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7754/7746, C605	Daylight hours, Mon-Sat, OT By NOTAM	239

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR526	DET 1, 184 IW, Smoky Hill ANG Range, 8429 W Farrelly Rd, Salina, KS 67401-9407.	Same as Originating Activity	Continuous	308
IR527	183 FW/OSF, Capital Airport, Springfield, IL 62707 DSN 892-8202.	Same as Originating Activity	Sunrise-Sunset	173
IR592	509 OSS/OSKA, 905 Spirit Blvd., Whiteman AFB, MO 65305 DSN 975-1713/1754, C660-6	509 OSS/OSOS, 905 Spirit Blvd., Whiteman AFB, MO 65305 DSN 975-1713/1754, C660-6	Continuous	649
IR605	148th FIG (ANG), Duluth Intl., MN 55811 DSN 825-7265.	Same as Originating Activity	Daily 1400-0500Z++, available OT	135
IR606	148th FIG (ANG), Duluth Intl., MN 55811 DSN 825-7265.	Same as Originating Activity	Daily 1400-0500Z++, Usage between 0500-1400Z++ is allowable	135
IR608	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ Mon-Fri, weekends by NOTAM	258
IR609	5 OSS/OSTC, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705 DSN 453-2002/3527, C701-723-2002.	Continuous	795
IR610	5 OSS/OSTC, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705 DSN 453-2002/3527, C701-723-2002/	Continuous	777
IR613	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7754/46, C605-9	Same as Originating Activity	Daylight hours, Tue-Sat, OT by NOTAM	198
IR614	183 FW/OSF, Capital Airport, Springfield, IL 62707 DSN 892-8202.	Same as Originating Activity	Daylight hours	135
IR618	181 FW (ANG), Hulman Regional Airport, 1100 S. Petercheff St., Tere Haute, IN 47	Same as Originating Activity	Sunrise-Sunset, Tue-Sun, OT by NOTAM	134
IR644	5 OSS/OSTC, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705 DSN 453-2639/3527, C701-723-2639/	Continuous	606
IR649	5 OSS/OSTC, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705 DSN 453-2639/3527, C701-723-2639/	Continuous	186
IR654	5 OSS/OSTC, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705 DSN 453-2002/3527, C701-723-2002/	Continuous	688
IR655	5 OSS/OSTC, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705 DSN 453-2002/3527, C701-723-2002/	Continuous	1,035
IR656	5 OSS/OSTC, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705 DSN 453-2002/3527, C701-723-2002/	Continuous	940
IR678	5 OSS/A-3C, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2002/3527, C701-723-	Continuous	524
IR714	COMSTRKFIGHTWINGLANT, Oceana NAS, Virginia Beach, VA 23460 DSN 433-4013, C757-43	FACSFAC VACAPES, Oceana NAS, Virginia Beach, VA 23460 DSN 433-1228, C757-433-122	Continuous	335
IR715	COMSTRKFIGHTWINGLANT, Oceana NAS, Virginia Beach, VA 23460 DSN 433-4013, C757-43	FACSFAC VACAPES, Oceana NAS, Virginia Beach, VA 23460 DSN 433-1228, C757-433-122	Continuous	397
IR718	COMSTRKFIGHTWINGLANT, Oceana NAS, Virginia Beach, VA 23460 DSN 433-4013, C757-43	FACSFAC VACAPES, Oceana NAS, Virginia Beach, VA 23460 DSN 433-1228, C757-433-122	Continuous	493

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR719	COMSTRKFIGHTWINGLANT, Oceana NAS, Virginia Beach, VA 23460 DSN 433-4013, C757-43	FACSFAC VACAPES, Oceana NAS, Virginia Beach, VA 23460 DSN 433-1228, C757-433-122	Continuous	424
IR720	COMSTRKFIGHTWINGLANT, Oceana NAS, Virginia Beach, VA 23460 DSN 433-4013, C757-43	FACSFAC VACAPES, Oceana NAS, Virginia Beach, VA 23460 DSN 433-1228, C757-433-122	Continuous	407
IR721	20 OSS/OSOA, Shaw AFB, SC 29152-5000 DSN 965-1121/1122, C803-895-1121/1122, Fax	20 OSS/OSOS, Shaw AFB, SC 29152 Duty hrs DSN 965-1118/1119, C803-895-1118/1119.	Continuous	199
IR723	FACSFAC, Penscola, FL 32508-5217, DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ Mon-Fri, occasionally weekends	262
IR726	20 OSS/OSOA, Shaw AFB, SC 29152-5000 DSN 965-1121/1122, C803-895-1121/1122, Fax	20 OSS/OSOS, Shaw AFB, SC 29152-5000 Duty hours DSN 965-1118/1119, C803-895-1118	Continuous	144
IR743	20 OSS/OSOA, Shaw AFB, SC 29152-5000 DSN 965-1121/1122, C803-895-1121/1122, Fax	20 OSS/OSOS, Shaw AFB, SC 29152 Duty hrs DSN 965-1118/1119, C803-895-1118/1119.	Continuous	144
IR760	COMSTRKFIGHTWINGLANT, Oceana NAS, Virginia Beach, VA 23460 DSN 433-4013, C757-43	FACSFAC VACAPES, Oceana NAS, Virginia Beach, VA 23460 DSN 433-1228, C757-433-122	Continuous	362
IR761	COMSTRKFIGHTWINGLANT, Oceana NAS, Virginia Beach, VA 23460 DSN 433-4013, C757-43	FACSFAC VACAPES, Oceana NAS, Virginia Beach, VA 23460 DSN 433-1228, C757-433-122	Continuous	324
IR762	COMSTRKFIGHTWINGLANT, Oceana NAS, Virginia Beach, VA 23460 DSN 433-4013, C757-43	FACSFAC VACAPES, Oceana NAS, Virginia Beach, VA 23460 DSN 433-1228, C757-433-122	Continuous	324
IR800	104 FW, Barnes ANGB, Westfield, MA 01085-1385 DSN 636-9228/9229, C413-568-9151 e	Same as Originating Activity	Continuous	894
IR801	174 FW, Det 1, Ft. Drum, NY 13608 DSN 772-5990/2835, C315-772-5990.	Same as Originating Activity	Continuous	296
IR802	5 OSS/OSTC, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705 DSN 453-2002/3527, C701-723-2002/	Continuous	542
IR803	5 OSS/OSTC, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705 DSN 453-2002/3527, C701-723-2002/	Continuous	384
IR804	5 OSS/OSTC, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705 DSN 453-2002/3527, C701-723-2002/	Continuous	1,217
IR805	5 OSS/OSTC, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705 DSN 453-2002/3527, C701-723-2002/	Continuous	587
IR850	Commander, Naval Air Warfare Center Weapons Division, Code 52E000E, NAWS, Pt. Mu	Commander, Naval Air Warfare Center Weapons Division, Code 52911GE, NAWS, Pt. Mu	Sunrise-Sunset by NOTAM	295
IR851	Commander, Naval Air Warfare Center Weapons Division, Code 52E000E, NAWS, Pt. Mu	Commander, Naval Air Warfare Center Weapons Division, Code 52911GE, NAWS, Pt. Mu	Daily Sunrise-Sunset	390
IR852	Commander, Naval Air Warfare Center Weapons Division, Code 52E000E, NAWS, Pt. Mu	Commander, Naval Air Warfare Center Weapons Division, Code 52911GE, NAWS, Pt. Mu	Sunrise-Sunset	199

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR900	611 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	160
IR901	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	67
IR902	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	175
IR903	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	206
IR905	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	363
IR909	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	76
IR911	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	67
IR912	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	175
IR913	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	206
IR915	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	175
IR916	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	137
IR917	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	147
IR918	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	127
IR919	611 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	207
IR921	611 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	161
IR922	611 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	106
IR923	611 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	106
IR926	611 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	101

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR927	611 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	52
IR928	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	37
IR929	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	37
IR939	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	76
IR952	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	672
IR953	611 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	477
IR983	PACAF/DOCS, 25 E ST, SUITE I232, HICKAM AFB, HI 96853-5426 DSN 449-4173.	36 OSS/OSA, UNIT 14035, APO AP 96542-4035 DSN(315)-366-2770.	Continuous	552
SR038	Base Operations, Lawson AAF, Fort Benning, Ga. DSN 835-3524/2857 C706-545-3524.	Same as Originating Activity	Continuous	159
SR039	Base Operations, Lawson AAF, Fort Benning, Ga. DSN 835-3524/2857 C706-545-3524.	Same as Originating Activity	Continuous	95
SR040	94/OSS Dobbins AFB, GA 30069-5009 DSN 625-3498, C678-655-3498.	Same as Originating Activity	1200-0300Z ++	107
SR059	118 AW, 240 Knapp Blvd, Nashville, TN 37217, DSN 778-6362/6342, C615-399-5662/56	Same as Originating Activity	Continuous	178
SR060	118 AW, 240 Knapp Blvd, Nashville, TN 37217, DSN 778-6362/6342, C615-399-5662/56	Same as Originating Activity	Continuous	173
SR061	118 AW, 240 Knapp Blvd, Nashville, TN 37217, DSN 778-6362/6342, C615-399-5662/56	Same as Originating Activity	Continuous	125
SR062	118 AW, 240 Knapp Blvd, Nashville, TN 37217, DSN 778-6362/6342, C615-399-5662/56	Same as Originating Activity	Continuous	122
SR069	908 OSF/DOO, 430 W Maxwell Blvd, Bldg 1050, Maxwell AFB, AL 36112-6591 DSN 493-7	Same as Originating Activity	1400-0400Z++	124
SR070	908 OSF/DOO, 430 W Maxwell Blvd, Bldg 1050, Maxwell AFB, AL 36112-6591 DSN 493-7	Same as Originating Activity	1400-0400Z++	155
SR071	908 OSF/DOO, 430 W Maxwell Blvd, Bldg 1050, Maxwell AFB, AL 36112-6591 DSN 493-7	Same as Originating Activity	1300-0500Z++	150
SR072	908 OSF/DOO, 430 W Maxwell Blvd, Bldg 1050, Maxwell AFB, AL 36112-6591 DSN 493-7	Same as Originating Activity	1300-0500Z++	156
SR073	164 AW (ANG), Memphis Intl, TN 38118 DSN 726-7131.	Columbus AFB, MS DSN 742-7840/7847 C662-434-7840/7847.	Continuous	148
SR074	164 AW (ANG), Memphis Intl, TN 38118 DSN 726-7131.	Columbus AFB, MS DSN 742-7840/7847 C662-434-7840/7847.	Continuous	164
SR075	164 AW (ANG), Memphis Intl, TN 38118 DSN 726-7131.	Columbus AFB, MS DSN 742-7840/7847 C662-434-7840/7847.	Continuous	120
SR1001	3 OSS/DOH, 10460 L Street, Elmendorf AFB, AK 99506-2670 DSN 317-552-4658, C907-5	3 OSS/DOTS, DSN 317-552-3457, C907-552-3457.	Continuous	172
SR1002	3 OSS/DOH, 10460 L Street, Elmendorf AFB, AK 99506-2670 DSN 317-552-4658, C907-5	3 OSS/DOTS, DSN 317-552-3457, C907-552-3457.	Continuous	77
SR1003	3 OSS/DOH, 10460 L Street, Elmendorf AFB, AK 99506-2670 DSN 317-552-4658, C907-5	3 OSS/DOTS, DSN 317-552-3457, C907-552-3457.	Continuous	109

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
SR1004	3 OSS/DOH, 10460 L Street, Elmendorf AFB, AK 99506-2670 DSN 317-552-4658, C907-5	3 OSS/DOTS, DSN 317-552-3457, C907-552-3457.	Continuous	77
SR1005	3 OSS/DOH, 10460 L Street, Elmendorf AFB, AK 99506-2670 DSN 317-552-4658, C907-5	3 OSS/DOTS, DSN 317-552-3457, C907-552-3457.	Continuous	139
SR1006	3 OSS/DOH, 10460 L Street, Elmendorf AFB, AK 99506-2670 DSN 317-552-4658, C907-5	3 OSS/DOTS, DSN 317-552-3457, C907-552-3457.	Continuous	53
SR1007	3 OSS/DOH, 10460 L Street, Elmendorf AFB, AK 99506-2670 DSN 317-552-4658, C907-5	3 OSS/DOTS, DSN 317-552-3457, C907-552-3457.	Continuous	71
SR1008	3 OSS/DOH, 10460 L Street, Elmendorf AFB, AK 99506-2670 DSN 317-552-4658, C907-5	3 OSS/DOTS, DSN 317-552-3457, C907-552-3457.	Continuous	110
SR1009	3 OSS/DOH, 10460 L Street, Elmendorf AFB, AK 99506-2670 DSN 317-552-4658, C907-5	3 OSS/DOTS, DSN 317-552-3457, C907-552-3457.	Continuous	182
SR101	16 OSS/DOO, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Same as Originating Activity	Continuous	907
SR1010	3 OSS/DOH, 10460 L Street, Elmendorf AFB, AK 99506-2670 DSN 317-552-4658, C907-5	3 OSS/DOTS, DSN 317-552-3457, C907-552-3457.	Continuous	147
SR102	16 OSS/DOO, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Same as Originating Activity	Continuous	291
SR103	16 OSS/DOO, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Same as Originating Activity	Continuous	433
SR104	16 OSS/DOO, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Same as Originating Activity	Continuous	823
SR105	16 OSS/DOO, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Same as Originating Activity	Continuous	227
SR106	16 OSS/DOO, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Same as Originating Activity	Continuous	426
SR119	16 OSS/DOO, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Same as Originating Activity	Continuous	800
SR137	14 OSS/OSOP, Columbus AFB, MS 39710-5000 DSN 742-7560/7633, C662-434-7560/7633.	37/41 FTS, Columbus AFB, MS 39710-5000 DSN 742-7666/7667, C662-434-7666/7667.	SR-SS, Daily	143
SR138	14 OSS/OSOP, Columbus AFB, MS 39710 DSN 742-7560/7633, C662-434-7560/7633.	37/41 FTS, Columbus AFB, MS 39710 DSN 742-7666/7667, C662-434-7666/7667.	SR-SS, Daily	143
SR166	437 OSS/OSTA, Charleston AFB, SC 29404-5054 DSN 673-5613, C843-963-5613.	20 OSS/OSOS, Shaw AFB, SC 29152-5000 DSN 965-1118/1119, C803-895-1118/1119, FAX	Continuous	153
SR200	58 OSS/DOO, Kirtland AFB, NM 87117-5861 DSN 263-5979/5888/5701, C505-853-5979/58	Same as Originating Activity	Continuous	242
SR201	58 OSS/DOO, Kirtland AFB, NM 87117-5861 DSN 263-5979/5888/5701, C505-853-5979/58	Same as Originating Activity	Continuous	421
SR205	97 OSS/DOA, 400 N. 6th Street, Altus AFB, OK 73521 DSN 866-6098, C580-481-6098.	97 OSS/OSK 400 N. 6th Street, Suite 12, Altus AFB, OK 73521 DSN 866-7110, C580-4	0830-0230 local Mon-Fri	88
SR206	97 OSS/DOA, 400 N. 6th Street, Altus AFB, OK 73521 DSN 866-6098, C580-481-6098.	97 OSS/OSK 400 N. 6th Street, Suite 12, Altus AFB, OK 73521 DSN 866-7110, C580-4	0830-0230 local Mon-Fri	99
SR208	97 OSS/DOA, 400 N. 6th Street, Altus AFB, OK 73521 DSN 866-6098, C580-481-6098.	97 OSS/OSK, 400 N. 6th Street, Suite 12, Altus AFB, OK DSN 866-7110, C580-481-71	0830-0230 local Mon-Fri	116
SR210	58 OSS/DOO, Kirtland AFB, NM 87117-5861 DSN 263-5979/5888/5701, C505-853-5979/58	Same as Originating Activity	Continuous	148
SR211	58 OSS/DOO, Kirtland AFB, NM 871175861 DSN 263-5979/5888/5701, C505-853-5979/588	Same as Originating Activity	Continuous	189
SR212	27 SOSS/OSTA, 110 E Sexton Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2521,	27 SOSS/OSTA, 110 E Sexton Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2276,	Continuous	230

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
SR213	27 SOSS/OSTA, 110 E Sexton Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2521,	27 SOSS/OSTA, 110 E Sexton Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2276,	Continuous	235
SR214	27 SOSS/OSTA, 110 E Sexton Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2521,	27 SOSS/OSTA, 110 E Sexton Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2276,	Continuous	249
SR216	97 OSS/DOA, 400 N. 6th Street, Altus AFB, OK 73521 DSN 866-6098, C580-481-6098.	97 OSS/OSK, 400 N. 6th Street, Suite 12, Altus AFB, OK 73521 DSN 866-7110, C580-	0830-0230 local Mon-Fri	111
SR217	97 OSS/DOA, 400 N. 6th Street, Altus AFB, OK 73521 DSN 866-6098, C580-481-6098.	97 OSS/OSK, 400 N. 6th Street, Suite 12, Altus AFB, OK 73521 DSN 866-7110, C580-	0830-0230 local Mon-Fri	114
SR218	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	303
SR219	314 OSS/OSK, 380 Chief WilliamsDrive, Little Rock AFB, AR 72099-4976 DSN 731-330	Same as Originating Activity.	Continuous	262
SR220	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	198
SR221	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	840
SR222	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	131
SR223	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	137
SR224	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	292
SR225	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	362
SR226	314 OSS/OSK, 380 CMSGT Williams Street, Little Rock AFB, AR 72099-4976 DSN 731-3	314 OSS/OSK, 380 CMSGT Williams Street, Little Rock AFB, AR 72099-4976 DSN 731-3	Continuous	73
SR227	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	279
SR228	301 OG/SUA, NAS JRB Fort Worth, TX DSN 739-6903/6904/6905, C817-782-6903/6904/69	Same as Originating Activity	Continuous	193
SR229	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	248
SR230	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	311
SR231	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity.	Continuous	302
SR232	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	239
SR233	7 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	203
SR234	7 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	126
SR235	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850 C580-213-7850.	8 FTS/DOO, Vance AFB, OK 73705-5202 DSN 448-6037 C580-213-6037	Sunrise -Sunset and active days per local directives	126
SR236	317 AG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	196
SR237	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	107
SR238	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity	Continuous	98
SR239	314 OSS/OSK, 380 CMSGT Williams Street, Little Rock AFB, AR 72099-4976 DSN 731-3	314 OSS/OSK, 380 CMSGT Williams Street, Little Rock AFB, AR 72099-4976 DSN 731-3	Continuous	139

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
SR240	7 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	134
SR241	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850 C580-213-7850.	8 FTS/DOO, Vance AFB, OK 73705-5202 DSN 448-6037 C580-213-6037.	Sunrise-Sunset and active days per local directives	143
SR242	317 AG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	193
SR243	7 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	163
SR244	317 AG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	119
SR245	7 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	129
SR246	314 OSS/OSK, 380 Chief Williams Drive, Little Rock AFB, AR 72099-4976 DSN 731-33	Same as Originating Activity.	Continuous	230
SR247	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850 C580-213-7850.	8 FTS/DOO, Vance AFB, OK 73705-5202 DSN 448-6037 C580-213-6037.	Sunrise-Sunset and active days per local directives	143
SR249	7 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	197
SR250	317 AG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	81
SR251	7 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	73
SR253	71 FTS/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850 C580-213-7850.	8FTS/DOO, Vance AFB, OK 73705-5202 DSN 448-6037 C580-213-6037.	Sunrise-Sunset and active days per local directives	126
SR255	7 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	85
SR258	317 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	171
SR261	317 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	133
SR267	7 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	171
SR270	301 OG/SUA, NAS JRB Fort Worth, TX DSN 739-6903/6904/6905, C817-782-6903/6904/69	Same as Originating Activity	0700-2200 local	182
SR273	7 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	156
SR274	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	Same as Originating Activity	Sunrise to Sunset daily	169
SR275	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	Same as Originating Activity	Sunrise to Sunset daily	169
SR276	47 OSS/OSOR, 570 2nd St., Ste 6, Laughlin AFB, TX 78843-5222 DSN 732-5864, C830-	86 FTS/DOS, 80 Rio Lobo Ln, Laughlin AFB, TX 78843 DSN 732-5584, C830-298-5584.	Sunrise-Sunset daily	184
SR277	47 OSS/OSOR, 570 2nd St., Ste. 6, Laughlin AFB, TX 78843-5222 DSN 732-5864, C830	86 FTS/DOS, 80 Rio Lobo Ln, Laughlin AFB, TX 78843 DSN 732-5584, C830-298-5584.	Sunrise-Sunset daily	183
SR280	7 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	47
SR281	47 OSS/OSOR, 570 2nd St., Ste 6, Laughlin AFB, TX 78843-5222 DSN 732-5864/5337,	85 FTS/DOS, 570 2nd St., Laughlin AFB, TX 78843-5220 DSN 732-5121/5429, C830-298	Sunrise-Sunset daily	761
SR282	47 OSS/OSOR, 570 2nd St., Ste. 6, Laughlin AFB, TX 78843-5222 DSN 732-5864/5337,	85 FTS/DOS, 570 2nd St., Laughlin AFB, TX 78843-5220 DSN 732-5121/5429, C830-298	Sunrise-Sunset daily	667

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
SR283	47 OSS/OSOR, 570 2nd St., Ste 6, Laughlin AFB, TX 78843-5222 DSN 732-5864, C830-	85 FTS/DOS, 570 2nd St., Laughlin AFB, TX 78843-5220 DSN 732-5121, C830-298-5121	Sunrise-Sunset daily	133
SR284	47 OSS/OSOR, 570 2nd St., Ste. 6, Laughlin AFB, TX 78843-5222 DSN 732-5864, C830	85 FTS/DOS, 570 2nd St., Laughlin AFB, TX 78843-5220 DSN 732-5121, C830-298-5121	Close UFN	133
SR286	12 OSS/OSOA, Randolph AFB, TX 78150-5000 DSN 487-5580, C210-652-5580.	559 FTS, Randolph AFB, TX 78150 DSN 487-5661, C210-652-5661.	Sunrise-Sunset Daily, except holidays	115
SR287	12 OSS/OSOA, Randolph AFB, TX 78150-5000 DSN 487-5580, C210-652-5580.	559 FTS, Randolph AFB, TX 78150 DSN 487-5661, C210-652-5661.	Sunrise-Sunset Daily, except holidays	117
SR290	12 OSS/OSOA, Randolph AFB, TX 78150-5000 DSN 487-5580, C210-652-5580.	559 FTS, Randolph AFB, TX 78150 DSN 487-5661, C210-652-5661.	Sunrise-Sunset Daily, except holidays	120
SR292	12 OSS/OSOA, Randolph AFB, TX 78150-5000 DSN 487-5580, C210-652-5580.	559 FTS, Randolph AFB, TX 78150 DSN 487-5661, C210-652-5661.	Sunrise-Sunset daily except holidays	114
SR293	12 OSS/OSOA, Randolph AFB, TX 78150-5000 DSN 487-5580, C210-652-5580.	559 FTS, Randolph AFB, TX 78150 DSN 487-5661, C210-652-5661.	Sunrise- Sunset daily	108
SR294	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850 C580-213-7850.	8 FTS/DOO, Vance AFB, OK 73705-5202 DSN 448-6037 C580-213-6037.	Sunrise-Sunset	198
SR295	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850 C580-213-7850.	8 FTS/DOO, Vance AFB, OK 73705-5202 DSN 448-6037 C580-213-6037.	Sunrise-Sunset	194
SR296	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850 C580-213-7850.	8 FTS/DOO, Vance AFB, OK 73705-5202 DSN 448-6037 C580-213-6037.	Sunrise-Sunset	179
SR300	60 OSS/OSO, 611 E. St., Travis AFB, CA 94535 DSN 837-1075, C707-424-1075.	60 OSS/OSO, 611 E. St., Travis AFB, CA 94535 DSN 837-5582, C707-424-5582.	Continuous	763
SR301	60 OSS/OSO, 611 E. St., Travis AFB, CA 94535 DSN 837-1075, C707-424-1075.	60 OSS/OSO, 611 E. St., Travis AFB, CA 94535 DSN 837-5582, C707-424-5582.	Continuous	763
SR311	129 RQW/DOW, PO Box 103, Stop 14, Moffett Federal Afld, CA 94035-5000 DSN 359-93	Same as Originating Activity	Continuous	145
SR353	129 RQW/DOW, PO Box 103, Stop 14, Moffett Federal Afld, CA 94035-5000 DSN 359-93	Same as Originating Activity	Continuous	110
SR359	129 RQW/DOW, PO Box 103, Stop 14, Moffett Federal Afld, CA 94035-5000 DSN 359-93	Same as Originating Activity	Continuous	145
SR381	129 RQW/DOW, PO Box 103, Stop 14, Moffett Federal Afld, CA 94035-5000 DSN 359-93	Same as Originating Activity	Continuous	142
SR390	146 AW/DOXT (ANG), 106 Mulcahey Dr., Port Hueneme, CA 93041-4003 DSN 893-7590/75	Same as Originating Activity	Continuous	97
SR397	146 AW/DOXT (ANG), 106 Mulcahey Dr., Port Hueneme, CA 93041-4003 DSN 893-7590/75	Same as Originating Activity	Continuous	114
SR398	129 RQW/DOW, PO Box 103, Stop 14, Moffett Federal Afld, CA 94035-5000 DSN 359-93	Same as Originating Activity	Continuous	43
SR488	62 OSS/OSO, McChord AFB, WA 98438-1109 DSN 382-9925, C253-982-9925. During non-d	Same as Originating Activity	Continuous	30
SR489	62 OSS/OSO, McChord AFB, WA 98438-1109 DSN 382-9925, C253-982-9925. During non-d	Same as Originating Activity	Continuous	23
SR616	139 Airlift Wg., 705 Memorial Drive, St. Joseph, MO 64503-9307 DSN 356-3225/3470	Same as Originating Activity	1300-0500Z++ daily	148

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
SR617	139 Airlift Wg., 705 Memorial Drive, St. Joseph, MO 64503-9307 DSN 356-3225/3470	Same as Originating Activity	1300-0500Z++ daily	147
SR618	139 Airlift Wg., 705 Memorial Drive, St. Joseph, MO 64503-9307 DSN 356-3225/3470	Same as Originating Activity	1300-0500Z++ daily	129
SR619	139 Airlift Wg., 705 Memorial Drive, St. Joseph, MO 64503-9307 DSN 356-3225/3470	Same as Originating Activity	1300-0500Z++ daily	137
SR701	191 AG, Selfridge ANGB, MI 48045 DSN 273-4498/4441, C810-463-3664.	Same as Originating Activity	1600-0400Z++ Tue-Sat, 1600-2200Z++ Sun	177
SR702	191 AG, Selfridge ANGB, MI 48045 DSN 273-4498/4441, C810-463-3664.	Same as Originating Activity	1600-0400Z++ Tue-Sat, 1600-2200Z++ Sun	166
SR703	191 AG, Selfridge ANGB, MI 48045 DSN 273-4498/4441, C810-463-3664.	Same as Originating Activity	1600-0400Z++ Tue-Sat, 1600-2200Z++ Sun	75
SR707	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165.	Same as Originating Activity	0700-2300 local daily	142
SR708	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165.	Same as Originating Activity	0700-2300 local daily	164
SR709	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165.	Same as Originating Activity	0700-2300 local daily	105
SR710	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165.	Same as Originating Activity	0700-2300 local daily	110
SR711	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165.	Same as Originating Activity	0700-2300 local daily	115
SR712	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165.	Same as Originating Activity	0700-2300 local daily	140
SR713	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165.	Same as Originating Activity	0700-2300 local daily	117
SR714	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165.	Same as Originating Activity	0700-2300 local daily	88
SR715	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165.	Same as Originating Activity	0700-2300 local daily	148
SR727	133 TAW, Minneapolis-St. Paul Intl, MN 55111, DSN 825-5680.	Same as Originating Activity	1930-2230 lcl Tue and Thu; 1000-1500 Lcl third Sat each month; OT by NOTAM	200
SR728	133 TAW, Minneapolis-St. Paul Intl, MN 55111, DSN 825-5680.	Same as Originating Activity	1930-2230 lcl Tue and Thu; 1000-1500 Lcl third Sat each month; OT by NOTAM	179
SR729	133 TAW, Minneapolis-St. Paul Intl, MN 55111, DSN 825-5680.	Same as Originating Activity	1930-2230 lcl Tue and Thu; 1000-1500 Lcl third Sat each month; OT by NOTAM	142
SR730	133 TAW, Minneapolis-St. Paul Intl, MN 55111, DSN 825-5680.	Same as Originating Activity	1930-2230 lcl Tue and Thu; 1000-1500 Lcl third Sat each month; OT by NOTAM	136
SR731	133 TAW, Minneapolis-St. Paul Intl, MN 55111, DSN 825-5680.	Same as Originating Activity	1930-2230 lcl Tue and Thu; 1000-1500 Lcl third Sat each month; OT by NOTAM	88
SR771	440 AW/DOO, General Mitchell IAP, Milwaukee, WI 53207, DSN 741-5155/5157, FAX DS	Same as Originating Activity	2200-0330Z++ Tue-Fri; 1500-2200Z++ Sat-Sun	255
SR776	440 AW/DOO, General Mitchell IAP, Milwaukee, WI 53207, DSN 741-5155/5157, FAX DS	Same as Originating Activity	2000-0400Z++ Tue-Fri; 1600-2200Z++ Sat-Sun	159
SR781	Alpena CRTC/OTM (ANG), 5884 A Street, Alpena MI 49707-8125 DSN 741-3509/3226.	Same as Originating Activity	0700-2300 local daily	118
SR782	Alpena CRTC/OTM (ANG), 5884 A Street, Alpena MI 49707-8125 DSN 741-3509/3226.	Same as Originating Activity	0700-2300 local daily	152

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
SR785	440 AW/DOO, General Mitchell IAP, Milwaukee, WI 53207, DSN 741-5155/5157, FAX DS	Same as Originating Activity	2000-0400Z++ Tue-Fri; 1600-2200Z++ Sat-Sun	141
SR800	166 OSF/OSK, 2805 Spruance Drive, New Castle 19720-1615 DSN 445-7554 C302-323-35	Same as Originating Activity	0800-2300 local	156
SR801	166 OSF/OSK, 2805 Spruance Drive, New Castle 19720-1615 DSN 445-7554 C302-323-35	Same as Originating Activity	0800-2300 local	208
SR802	167 AW, Eastern West Virginia Regional, Martinsburg, WV 25401 DSN 242-5250.	Same as Originating Activity	Continuous	81
SR803	167 AW, Eastern West Virginia Regional, Martinsburg, WV 25401 DSN 242-5250.	Same as Originating Activity	Continuous	87
SR804	167 AW, Eastern West Virginia Regional, Martinsburg, WV 25401 DSN 242-5250.	Same as Originating Activity	Continuous	95
SR805	166 OSF/OSK, 2805 Spruance Drive, New Castle 19720-1615 DSN 445-7554 C302-323-35	Same as Originating Activity	0800-2300 local	156
SR806	167 AW, Eastern West Virginia Regional, Martinsburg, WV 25401 DSN 242-5250.	Same as Originating Activity	Continuous	122
SR807	167 AW, Eastern West Virginia Regional, Martinsburg, WV 25401 DSN 242-5250.	Same as Originating Activity	Continuous	141
SR808	167 AW, Eastern West Virginia Regional, Martinsburg, WV 25401 DSN 242-5250.	Same as Originating Activity	Continuous	171
SR820	166 OSF/OSK, 2805 Spruance Drive, New Castle 19720-1615 DSN 445-7554 C302-323-35	Same as Originating Activity	0900-2300 local daily	141
SR821	166 OSF/OSK, 2805 Spruance Drive, New Castle 19720-1615 DSN 445-7554 C302-323-35	Same as Originating Activity	0900-2300 local daily	129
SR822	911 AW, Pittsburgh Intl, PA DSN 277-8722/8761.	Same as Originating Activity	1000-0300Z Mon-Sat	125
SR823	914 AW/328 AS,10460 Wagner Dr, Niagra Falls Intl Airport, NY 14304-5010, DSN 238	Same as Originating Activity	1500-0300Z++	183
SR825	914 AW/328 AS,10460 Wagner Dr, Niagra Falls Intl Airport, NY 14304-5010, DSN 238	Same as Originating Activity	1500-0300Z++	181
SR835	166 OSF/OSK, 2805 Spruance Drive, New Castle 19720-1615 DSN 445-7554 C302-323-35	Same as Originating Activity	0900-2300 local	132
SR844	166 Airlift Gp, 166 OSF/DOW, 2600 Spruance Dr, Corporate Commons, New Castle, DE	Same as Originating Activity	0800-2359 local	153
SR845	166 Airlift Gp, 166 OSF/DOW, 2600 Spruance Dr, Corporate Commons, New Castle, DE	Same as Originating Activity	0800-2359 local	200
SR846	166 Airlift Gp, 166 OSF/DOW, 2600 Spruance Dr, Corporate Commons, New Castle, DE	Same as Originating Activity	0800-2359 local	111
SR847	166 Airlift Gp, 166 OSF/DOW, 2600 Spruance Dr, Corporate Commons, New Castle, DE	Same as Originating Activity	0800-2359 local	67
SR867	Commander, Ft Pickett, VA 23824-5000 DSN 438-8506, C804-292-8506.	Same as Originating Activity	Continuous	196
SR871	130 AG (ANG), Kanawha County, Charleston, WV 25311 DSN 366-6291.	Same as Originating Activity	0800-2300 local	150
SR872	130 AG (ANG), Kanawha County, Charleston, WV 25311 DSN 366-6291.	Same as Originating Activity	0800-2300 local	156
SR873	130 AG (ANG), Kanawha County, Charleston, WV 25311 DSN 366-6291.	Same as Originating Activity	0800-2300 local	155
SR874	130 AG (ANG), Kanawha County, Charleston, WV 25311 DSN 366-6291.	Same as Originating Activity	0800-2300 local	130
SR900	143 AW/Operations, 7 Flightline Dr, North Kingstown, RI 02852-7548 DSN 476-3405,	Same as Originating Activity	1200-0400Z++ Daily	153
SR901	143 AW/Operations, 7 Flightline Dr, North Kingstown, RI 02852-7548 DSN 476-3405,	Same as Originating Activity	1200-0400Z++ Daily	98
SR902	143 AW/Operations, 7 Flightline Dr, North Kingstown, RI 02852-7548 DSN 476-3405,	Same as Originating Activity	1200-0400Z++ Daily	160
SR904	143 AW/Operations, 7 Flightline Dr, North Kingstown, RI 02852-7548 DSN 476-3405,	Same as Originating Activity	1000-2200 local	184
SR905	143 AW/Operations, 7 Flightline Dr, North Kingstown, RI 02852-7548 DSN 476-3405,	Same as Originating Activity	1000-2200 local	97

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR025	GA ANG/CRTC/OTR Townsend Range P.O. BOX 220, GA 31331 DSN 860-3303 C912-963-3303	GA ANG/CRTC/OTR Townsend Range P.O. BOX 220, GA 31331 DSN 860-3007 C912-963-3007	0700-2200 LCL, other times by NOTAM	55
VR041	4 OSS/OSOR, Seymour Johnson AFB, NC 27531-5004 DSN 722-2672, C919-722-2672.	4 OSS/OSOS, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129/	Continuous	424
VR042	4 OSS/OSOR, Seymour Johnson AFB, NC 27531-5004 DSN 722-2672, C919-722-2672.	4 OSS/OSOS, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129/	Continuous	503
VR043	4 OSS/OSOR, Seymour Johnson AFB, NC 27531-5004 DSN 722-2672, C919-722-2672.	4 OSS/OSOS, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129/	Continuous	369
VR045	GA ANG/CRTC/OTR Townsend Range, P.O.BOX 220, Townsend, GA 31331, DSN 860-3007 C9	GA ANG/CRTC/OTR Townsend Range, P.O.BOX 220, Townsend, GA 31331, DSN 860-3303 C9	0700-2200 LCL, Mon-Fri, other time by NOTAM	55
VR054	4 OSS/OSR, Seymour Johnson AFB, NC 27531-5004 DSN 722-2672, C919-722-2672.	4 OSS/OSOSF, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129	0700-2100 local Mon-Fri, OT by NOTAM	34
VR058	20 OSS/OSTA, Shaw AFB, SC 29152 DSN 965-1121/1122, C803-895-1121/1122, Fax DSN 9	20 OSS/OSOS, Shaw AFB, SC 29152 DSN 965-1118/1119, C803-895-1118/1119. Non-duty	Continuous (Jan, Mar, May, Jul, Sep, Nov) VR-092 reverse direction other months	199
VR060	187 FW, 5187 Selma Highway , Montgomery, AL 36108-4824 DSN 358-9255, C334-394-72	Same as Originating Activity	0700-1700 Local or by NOTAM	123
VR071	4 OSS/OSR, Seymour Johnson AFB, NC 27531-5004 DSN 722-2672, C919-722-2672.	4 OSS/OSOSF, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129	0700-2100 local Mon-Fri, OT by NOTAM	29
VR073	4 OSS/OSR, Seymour Johnson AFB, NC 27531-5004 DSN 722-2672, C919-722-2672.	4 OSS/OSOSF, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129	Continuous	222
VR083	4 OSS/OSE, Seymour Johnson AFB, NC 27531 DSN 722-2672, C919-722-2672	4 OSS/OSOSF, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129	Continuous	238
VR084	4 OSS/OSR, Seymour Johnson AFB, NC 27531-5004 DSN 722-2672, C919-722-2672.	4 OSS/OSOSF, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129	Continuous	204
VR085	4 OSS/OSR, Seymour Johnson AFB, NC 27531 DSN 722-2672, C919-722-2672.	4 OSS/OSOSF, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129	Continuous	168
VR086	4 OSS/OSR, Seymour Johnson AFB, NC 27531 DSN 722-2672, C919-722-2672.	4 OSS/OSOSF, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129	Continuous	203
VR087	20 OSS/OSTA, Shaw AFB, SC 29152 DSN 965-1121/1122, C803-895-1121/1122, Fax DSN 9	20 OSS/OSOS, Shaw AFB, SC 29152 Duty hrs DSN 965-1118/1119, C803-895-1118/1119.	Continuous	185
VR088	20 OSS/OSTA, Shaw AFB, SC 29152 DSN 965-1121/1122, C803-895-1121/1122, Fax DSN 9	20 OSS/OSOS, Shaw AFB, SC 29152 Duty hrs DSN 965-1118/1119, C803-895-1118/1119.	Continuous	164
VR092	20 OSS/OSTA, Shaw AFB, SC 29152 DSN 965-1121/1122, C803-895-1121/1122, Fax DSN 9	20 OSS/OSOS, Shaw AFB, SC 29152 Duty hrs DSN 965-1118/1119, C803-895-1118/1119.	Continuous (Feb, Apr, Jun, Aug, Oct, Dec) VR-058 opposite direction other months	199
VR093	20 OSS/OSTA, Shaw AFB, SC 29152 DSN 965-1121/1122, C803-895-1121/1122, Fax DSN 9	20 OSS/OSOS, Shaw AFB, SC 29152 Duty hrs DSN 965-1118/1119, C803-895-1118/1119.	Continuous	210

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR094	1st Aviation Group (GA ARNG), Dobbins ARB, GA 30069, DSN 753-3609, C678-569-3609	1st Aviation Group (GA ARNG), Dobbins ARB, GA 30069, DSN 753-3602/3611, C678-569	Continuous	152
VR095	1st Aviation Group (GA ARNG), Dobbins ARB, GA 30069 DSN 753-3609, C678-569-3609,	1st Aviation Group (GA ARNG), Dobbins ARB, GA 30069 DSN 753-3602/3611 C678-569-3	Continuous	267
VR096	4 OSS/OSR, Seymour Johnson AFB, NC 27531 DSN 722-2672, C919-722-2672.	4 OSS/OSOSF, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129	Continuous	145
VR097	20 OSS/OSTA, Shaw AFB, SC 29152 DSN 965-1121/1122, C803-895-1121/1122, Fax DSN 9	20 OSS/OSOS, Shaw AFB, SC 29152, Duty hrs DSN 965-1118/1119, C803-895-1118/1119.	0600-2400 local daily	341
VR100	27 SOSS/OSTA, 110 E. Sextant Ave, Suite 1081, Cannon AFB, NM 88103 DSN 681-2521.	27 SOSS/OSOS, 110 E. Sextant Ave, Suite 1080, Cannon AFB, NM 88103 DSN 681-2276.	Continuous	318
VR1001	FACSFACJAX, P.O. Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005, C904	Same as Originating Activity	Continuous	389
VR1002	FACSFACJAX, P.O. Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005, C904	Same as Originating Activity	Continuous	434
VR1003	FACSFACJAX, P.O. Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005, C904	Same as Originating Activity	Continuous	488
VR1004	FACSFACJAX, P.O. Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005, C904	Same as Originating Activity	Continuous	569
VR1005	FACSFACJAX, P.O. Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005, C904	Same as Originating Activity	Continuous	280
VR1006	FACSFACJAX, P.O. Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005, C904	Same as Originating Activity	Continuous	682
VR1007	FACSFACJAX, P.O. Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005, C904	Same as Originating Activity	Continuous	173
VR1008	FACSFACJAX, P.O. Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005, C904	Same as Originating Activity	Continuous	74
VR1009	FACSFACJAX, P.O. Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005, C904	Same as Originating Activity	Continuous	76
VR101	301 OG/SUA, NAS JRB, Fort Worth, TX 76127 DSN 739-6903/04/05, C817-782-6903/04/0	Same as Originating Activity	0700-2200 local	72
VR1010	FACSFACJAX, P.O. Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005, C904	Same as Originating Activity	Continuous	26
VR1013	FACSFACJAX, P.O. Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005, C904	Same as Originating Activity	Continuous	62
VR1014	14 OSS/OSOP, Columbus AFB, MS 39710-5000 DSN 742-7560/7633, C662-434-7560/7633.	37/41 FTS, Columbus AFB, MS 39710-5000 DSN 742-7666/7667, C662-434-7666/7667.	Sunrise-Sunset daily	177
VR1016	14 OSS/OSOP Columbus AFB, MS 39710 DSN 742-7560/7633 C662-434-7560/7633	48 FTS Columbus AFB, MS 39710 DSN 742-7840/7847 C662-434-7840/7847	Sunrise-Sunset daily	395
VR1017	187 FW, 5187 Selma Highway, Montgomery, AL 36108-4824 DSN 358-9255, C334-394-725	Same as Originating Activity	0700-1730 local, OT by NOTAM	175
VR1020	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ weekdays, occasional weekends	147
VR1021	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ weekdays, occasional weekends	418
VR1022	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ weekdays, occasional weekends	173

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR1023	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ weekdays, occasional weekends	300
VR1024	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0400Z++ weekdays, occasional weekends	297
VR1030	COMTRAWING ONE, NAS MERIDIAN, MS 39309-0136 DSN 637-2487, C601-679-2487.	Same as Originating Activity	1100-0600Z++ daily	255
VR1031	COMTRAWING ONE, NAS MERIDIAN, MS 39309-0136 DSN 637-2487, C601-679-2487.	Same as Originating Activity	1100-0600Z++ daily	341
VR1032	COMTRAWING ONE, NAS MERIDIAN, MS 39309 DSN 637-2854, C601-679-2854.	Same as Originating Activity	1100-0600Z++ daily	211
VR1033	COMTRAWING ONE, NAS MERIDIAN, MS 39309 DSN 637-2854, C601-679-2854.	Same as Originating Activity	1100-0600Z++ daily	322
VR1039	FACSFACJAX, P.O. Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005, C904	Same as Originating Activity	Continuous	8
VR104	301 OG/SUA, NAS JRB, Fort Worth, TX 76127 DSN 739-6903/04/05, C817-782-6903/04/0	Same as Originating Activity	0700-2200 local	220
VR1040	CG MCAS CHERRY POINT, ATTN RAC-DIROPS, Cherry Point, NC 28533 DSN 582-3466, C252	Central Scheduling Division MCAS Cherry Point, NC 28533 DSN 582-4040/4041, C252-	Continuous	420
VR1041	CG MCAS CHERRY POINT, ATTN RAC-DIROPS, Cherry Point, NC 28533 DSN 582-3466, C252	Central Scheduling Division MCAS Cherry Point, NC 28533 DSN 582-4040/4041, C252-	Continuous	383
VR1043	CG MCAS CHERRY POINT, ATTN RAC-DIROPS, Cherry Point, NC 28533 DSN 582-3466, C252	Central Scheduling Division MCAS Cherry Point, NC 28533 DSN 582-4040/4041, C252-	0700-2300 local daily	455
VR1046	CG MCAS CHERRY POINT, ATTN RAC-DIROPS, Cherry Point, NC 28533 DSN 582-3466, C252	Central Scheduling Division MCAS Cherry Point, NC 28533 DSN 582-4040/4041, C252-	0600-1800 Local Mon-Fri	243
VR1050	14 OSS/OSOP, Columbus AFB, MS 39710-5000 DSN 742-7560/7633, C662-434-7560/7633.	48 FTS, Columbus AFB, MS 39710-5000 DSN 742-7840/7847, C662-434-7840/7847.	0700-2300 local daily	359
VR1051	14 OSS/OSOP, Columbus AFB, MS 39710-5000 DSN 742-7560/7633, C662-434-7560/7633.	48 FTS, Columbus AFB, MS 39710-5000 DSN 742-7840/7847, C662-434-7840/7847.	0700-2300 local daily	440
VR1052	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0500Z++	358
VR1054	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1300-0500Z++ daily	293
VR1055	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1300-0500Z++ 7 days a week	299
VR1056	FACSFAC, Pensacola, FL 32508-5217 DSN 922-2735, C850-452-2735.	Same as Originating Activity	1200-0500Z++	358
VR1059	20 OSS/OSTA, Shaw AFB, SC 29152 DSN 965-1121/1122, C803-895-1121/1122, Fax DSN 9	20 OSS/OSOS, Shaw AFB, SC 29152 Duty hrs DSN 965-1118/1119, C803-895-1118/1119.	Continuous	312
VR106	97 OSS/DOA, 400 N Sixth St., Altus AFB, OK 73521 DSN 866-6098, C580-481-6098.	97 OSS/OSK, 400 N Sixth St. Suite 12, Altus AFB, OK 73521 DSN 866-7110.	0830-0230 local Mon-Fri	142
VR1061	4 OSS/OSR, Seymour Johnson AFB, NC 27531 DSN 722-2672, C919-722-2672.	4 OSS/OSOSF, Seymour Johnson AFB, NC 27531-5004 DSN 722-2129/2124, C919-722-2129	Continuous	150
VR1065	347 OSS/OSOS, Moody AFB, GA 31699-1899 DSN 460-4544/3531, C229-257-4544/3531.	347 OSS/OSOS, Moody AFB, GA 31699-1899 DSN 460-4544/3531 C229-257-4544/3531. Mon	0700-2400L daily	163

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR1066	347 OSS/OSKA, Moody AFB, GA 31699-1899 DSN 460-4131, C229-257-4131.	347 OSS/OSOS, Moody AFB, GA 31699-1899 DSN 460-4544/3531, C229-257-4544/3531. Mo	0700-0000 local daily	207
VR1070	187 FW, 5187 Selma Highway, Montgomery, AL 36108-4824 DSN 358-9255 C334-394-7255	Same as Originating Activity	0700-2000 local, OT by NOTAM	99
VR1072	14 OSS/OSOP, Columbus AFB, MS 39710-5000 DSN 742-7560/7633, C662-434-7560/7633.	48 FTS, Columbus AFB, MS 39710-5000 DSN 742-7840/7847, C662-434-7840/7847.	Normally SR-2100 local, use OT not prohibited	240
VR1076	156 AW (PRANG) Muniz ANGB, 200 Jose A. (Tony) Santana Ave., Carolina, Puerto Ric	Same as Originating Activity	1100-0000Z++ (DAILY)	117
VR1077	156 AW (PRANG) Muniz ANGB, 200 Jose A. (Tony) Santana Ave., Carolina, Puerto Ric	Same as Originating Activity	1100-0000Z++ (DAILY)	197
VR1078	156 AW (PRANG) Muniz ANGB, 200 Jose A. (Tony) Santana Ave., Carolina, Puerto Ric	Same as Originating Activity	1100-0000Z++ (DAILY)	245
VR1079	156 AW (PRANG) Muniz ANGB, 200 Jose A. (Tony) Santana Ave., Carolina, Puerto Ric	Same as Originating Activity	1100-0000Z++(DAILY)	209
VR108	27 SOSS/OSTA, 110 E. Sextant Ave, Suite 1081 Cannon AFB, NM 88103 DSN 681-2521.	27 SOSS/OSOS, 110 E. Sextant Ave, Suite 1080 Cannon AFB, NM 88103 DSN 681-2276.	Continuous	236
VR1080	156 AW (PRANG) Muniz ANGB, 200 Jose A. (Tony) Santana Ave., Carolina, Puerto Ric	Same as Originating Activity	1100-0000Z++ (DAILY)	117
VR1081	156 AW (PRANG) Muniz ANGB, 200 Jose A. (Tony) Santana Ave., Carolina, Puerto Ric	Same as Originating Activity	1100-0000Z++ (DAILY)	177
VR1082	46 OSS/OSCM, 505 North Barrancas Ave, Suite 104, Eglin AFB, FL 32542-6818 DSN 87	46 OSS/OSCS, 505 North Barrancas Ave, Suite 104, Eglin AFB, FL 32542-6818 DSN 87	Normally 1200-2300Z++ Mon-Fri, available OT	189
VR1083	USAFAWC-79 Test and Evaluation Group/CD, Eglin AFB, FL 32542 DSN 872-2024, C904-	85 Test and Evaluation Squadron/DOOS, Eglin AFB, FL 32542 DSN 872-2622, C904-882	Normally 1200-2300Z++ Mon-Fri, route usage is allowable OT	209
VR1084	USAFAWC-79 Test and Evaluation Group/CD, Eglin AFB, FL 32542 DSN 872-2024, C904-	85 Test and Evaluation Squadron/DOOS, Eglin AFB, FL 32542 DSN 872-2622, C904-882	Normally 1200-2300Z++ Mon-Fri, route usage is allowable OT	101
VR1085	46 OSS/OSCM, 505 North Barrancas Ave, Suite 104, Eglin AFB, FL 32542-6818 DSN 87	46 OSS/OSCS (ROCC), 505 North Barrancas Ave, Suite 104, Eglin AFB, FL 32542-6818	Normally 1200-2300Z++ Mon-Fri, route usage is allowable OT	287
VR1087	347 Rescue Wing, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33	347 Rescue Wing, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 3	Normally 0900-2400Z++ daily, available OT	90
VR1088	347 Rescue Wing, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33	347 Rescue Wing, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 3	Normally 0900-2400Z++ daily, available OT	83
VR1089	347 Rescue Wing, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33	347 Rescue Wing, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 3	Normally 0900-2400Z++ daily, available OT	107
VR1097	347 WG, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33621-5205	347 WG, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 33621-5205	Continuous	68
VR1098	347th Rescue WG, Detachment 1/RO, 8707 North Golf Course St., MacDill AFB, FL 33	347th Rescue WG, Detachment 1/ROA, 8707 North Golf Course St., MacDill AFB, FL 3	Continuous	167
VR1102	188 FW, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 24 hr in advance. Min	Continuous (except Sunday 1000-1200 local)	83
VR1103	188 FW, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 24 hr in advance. Min	Continuous (except Sunday 1000-1200 local)	120

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR1104	188 FW, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 24 hr in advance. Min	Continuous (except Sunday 1000-1200 local)	109
VR1105	149 FTR GP (TX-ANG), Kelly AFB, TX 78241 DSN 945-5934, C210-925-5934.	Same as Originating Activity	0800-1830 local daily	93
VR1106	149 FTR GP (TX-ANG), Kelly AFB, TX 78241 DSN 969-5934.	Same as Originating Activity	0800-1830 local daily	93
VR1107	150 FW OG/CC, 2251 Air Guard Rd. SE, Kirtland AFB, NM 87117-5875 DSN 246-7426.	Same as Originating Activity	Sunrise-2200 local daily	243
VR1108	47 OSS/OSOR, 570 2nd St., Ste 6, Laughlin AFB, TX 78843-5222 DSN 732-5864, C830-	87 FTS/DOS, 570 2nd St., Laughlin AFB, TX 78843 DSN 732-5484, C830-298-5484. Sch	Sunrise-Sunset only	125
VR1109	47 OSS/OSOR, 570 2nd St., Ste. 6, Laughlin AFB, TX 78843-5222 DSN 732-5864, C830	87 FTS/DOS, 570 2nd St., Laughlin AFB, TX 78843 DSN 732-5484, C830-298-5484. Sch	Sunrise-Sunset daily	114
VR1110	301 OG/SUA, NAS JRB, Fort Worth, TX 76127 DSN 739-6903/04/05, C817-782-6903/04/0	Same as Originating Activity	0600-2200 local daily	80
VR1113	188 FW, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 24 hr in advance. Min	Continuous (except Sunday 1000-1200 local)	117
VR1113	188FW Arkansas ANG, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 72 hr in advance. Min	Continuous (except Sunday 1000-1200 local)	71
VR1116	OC-ALC/10 FLTS, 4805 West Dr, Tinker AFB, OK 73145-3300 DSN 336-7719/7710, C405-	Same as Originating Activity	Daylight hours only	164
VR1117	47 OSS/OSOR, 570 2nd St., Ste. 6, Laughlin AFB, TX 78843-5222 DSN 732-5864, C830	87 FTS/DOS, 570 2nd St., Laughlin AFB, TX 78843 DSN 732-5484, C830-298-5484. Sch	Sunrise-Sunset Sat-Sun	114
VR1120	149 FW (TX ANG), 107 Hensley Street, Kelly AFB, TX 78241-5544 DSN 945-5934, C210	Same as Originating Activity	Sunrise-Sunset	128
VR1121	149 FW (TX ANG), 107 Hensley Street, Kelly AFB, TX 78241-5544 DSN 945-5934, C210	Same as Originating Activity	Sunrise-Sunset	128
VR1122	149 FW (TX ANG), 107 Hensley Street, Kelly AFB, TX 78241-5544 DSN 945-5934, C210	Same as Originating Activity	Sunrise-Sunset	193
VR1123	149 FW (TX ANG), 107 Hensley Street, Kelly AFB, TX 78241-5544 DSN 945-5934, C210	Same as Originating Activity	Sunrise-Sunset	193
VR1124	301 OG/SUA, NAS JRB, Fort Worth, TX 76127 DSN 739-6903/04/05, C817-782-6903/04/0	Same as Originating Activity	0600-2200 local daily	57
VR1128	301 OG/SUA, NAS JRB, Fort Worth, TX 76127 DSN 739-6903/04/05, C817-782-6903/04/0	Same as Originating Activity	0600-2200 local daily	206
VR1130	188 FW, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 24 hr in advance. Min	Continuous (except Sunday 1000-1200 local)	109
VR1137	301 OG/SUA, NAS JRB, Fort Worth, TX 76127 DSN 739-6903/04/05, C817-782-6903/04/0	Same as Originating Activity	0600-2200 local daily	193
VR1138	80th Flying Training Wing, 1911 J. Ave. Ste 6, Sheppard AFB, TX 76311-2056 DSN 7	90 FTS/DOTOD, Sheppard AFB, TX 76311 DSN 736-2675/4995, C940-676-2675/4995.	Sunrise-Sunset Mon-Fri, OT by NOTAM	193
VR1139	80th Flying Training Wing, 1911 J. Ave. Ste 6, Sheppard AFB, TX 76311-2056 DSN 7	90 FTS/DOTOD, Sheppard AFB,TX 76311 DSN 736-2675/4995, C940-676-2675/4995.	Sunrise-Sunset Mon-Fri, OT by NOTAM	210
VR114	27 SOSS/OSTA, 110 E. Sextant Ave, Suite 1081, Cannon AFB, NM 88103 DSN 681-2521.	27 SOSS/OSOS, 110 E. Sextant Ave, Suite 1080, Cannon AFB, NM 88103 DSN 681-2276.	Continuous	172
VR1140	80th Flying Training Wing, 1911 J. Ave. Ste 6, Sheppard AFB, TX 76311-2056 DSN 7	90 FTS/DOTOD, Sheppard AFB, TX 76311 DSN 736-2675/4995, C940-676-2675/4995.	Sunrise-Sunset Mon-Fri, OT by NOTAM	210

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR1141	80th Flying Training Wing, 1911 J. Ave. Ste 6, Sheppard AFB, TX 76311-2056 DSN 7	90 FTS/DOTOD, Sheppard AFB, TX 76311 DSN 736-2675/4995, C940-676-2675/4995.	Sunrise-Sunset Mon-Fri, OT by NOTAM	217
VR1142	80th Flying Training Wing, 1911 J. Ave. Ste 6, Sheppard AFB, TX 76311-2056 DSN 7	90 FTS/DOTOD, Sheppard AFB, TX 76311 DSN 736-2675/4995, C940-676-2675/4995.	Sunrise-Sunset Mon-Fri, OT by NOTAM	217
VR1143	80th Flying Training Wing, 1911 J. Ave. Ste 6, Sheppard AFB, TX 76311-2056 DSN 7	90 FTS/DOTOD, Sheppard AFB, TX 76311 DSN 736-2675/4995, C940-676-2675/4995.	Sunrise-Sunset Mon-Fri, OT by NOTAM	248
VR1144	80th Flying Training Wing, 1911 J. Ave. Ste 6, Sheppard AFB, TX 76311-2056 DSN 7	90 FTS/DOTOD, Sheppard AFB, TX 76311 DSN 736-2675/4995, C940-676-2675/4995.	Sunrise-Sunset Mon-Fri, OT by NOTAM	248
VR1145	80th Flying Training Wing, 1911 J. Ave. Ste 6, Sheppard AFB, TX 76311-2056 DSN 7	90 FTS/DOTOD, Sheppard AFB, TX 76311 DSN 736-2675/4995, C940-676-2675/4995.	Sunrise-Sunset Mon-Fri, OT by NOTAM	230
VR1146	80th Flying Training Wing, 1911 J. Ave. Ste 6, Sheppard AFB, TX 76311-2056 DSN 7	90 FTS/DOTOD, Sheppard AFB, TX 76311 DSN 736-2675/4995, C940-676-2675/4995.	Sunrise-Sunset Mon-Fri, OT by NOTAM	230
VR1175	OC-ALC/10 Flight Test Sqdn, 4805 West Dr, Tinker AFB, OK 73145-3300 DSN 336-7719	Same as Originating Activity	Sunrise-Sunset	315
VR1176	OC-ALC/10 Flight Test Sqdn, 4805 West Dr, Tinker AFB, OK 73145-3300 DSN 336-7719	Same as Originating Activity	Sunrise-Sunset	315
VR118	301 OG/SUA, NAS JRB, Fort Worth, TX 76127 DSN 739-6903/04/05, C817-782-6903/04/0	Same as Originating Activity	Sunrise-Sunset Mon-Sat	82
VR1182	188 FW, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 24 hr in advance. Min	Continuous	187
VR119	71 OSS/OSOP, 301 Gritz Street, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7	32 FTS/DOOT, Vance AFB, OK 73705-5202 DSN 448-6251, C580-213-6251.	Sunrise-Sunset daily	165
VR1195	150 FW OG/CC, 2251 Air Guard Rd. SE, Kirtland AFB, NM 87117-5875 DSN 246-7426.	Same as Originating Activity	Sunrise-2200 local daily	243
VR1196	ANG CRTC-Gulfport/OSA, 4715 Hewes Ave, Gulfport, MS 39507-4324 DSN 363-6027, C22	Same as Originating Activity	Continuous	201
VR1205	COMMANDER AFFTC, 412 OSS/OSAA, 235 E. Flightline Rd., Edwards AFB, CA 93523-6460	COMMANDER AFFTC, 412 OSS/OSR, 300 E. Yeager Blvd., Edwards AFB, CA 93524 DSN 527	Continuous	193
VR1206	COMMANDER AFFTC, 412 OSS/OSAA, 235 S. Flightline Rd, Edwards AFB, CA 93523-6460	COMMANDER AFFTC, 412 OSS/OSR, 300 E. Yeager Blvd, Edwards AFB, CA 93524 DSN 527-	Continuous	45
VR1211	452 OSS/DOT, March Fld, CA 92518 DSN 447-3846, C909-655-3846.	22 OSS/DOB, March Fld, CA 92518 DSN 447-4404/2422, C951-655-4404/2422.	Continuous	106
VR1214	COMMANDER AFFTC, 412 OSS/OSAA, 235 S. Flightline Rd, Edwards AFB, CA 93523-6460	COMMANDER AFFTC, 412 OSS/OSR, 300 E. Yeager Blvd, Edwards AFB, CA 93524 DSN 527-	Continuous	224
VR1215	COMMANDER AFFTC, 412 OSS/OSAA, 235 S. Flightline Rd, Edwards AFB, CA 93523-6460	COMMANDER AFFTC, 412 OSS/OSR, 300 E. Yeager Blvd, Edwards AFB, CA 93524 DSN 527-	Sunrise-Sunset daily	118
VR1217	COMMANDER AFFTC, 412 OSS/OSAA, 235 S. Flightline Rd, Edwards AFB ,CA 93523-6460	COMMANDER AFFTC, 412 OSS/OSR, 300 E. Yeager Blvd, Edwards AFB, CA 93524 DSN 527-	Sunrise-Sunset daily	111
VR1218	COMMANDER AFFTC, 412 OSS/OSAA, 235 S. Flightline Rd, Edwards AFB, CA 93523-6460	COMMANDER AFFTC, 412 OSS/OSR, 300 E. Yeager Blvd, Edwards AFB, CA 93524 DSN 527-	Sunrise-Sunset daily	207

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR1233	355 OSS/OSOA, 3895 S. 6th St. Suite 200, Davis-Monthan AFB, AZ 85707 DSN 228-468	355 OSS/OSOSO, Davis-Monthan AFB, AZ 85707 1500-2300Z Mon-Fri, no earlier than o	1300-0530Z	275
VR125	27 SOSS/OSTA, 110 E.Sextant Ave, Suite 1081, Cannon AFB, NM 88103 DSN 681-2521.	27 SOSS/OSOS, 110 E.Sextant Ave, Suite 1080, Cannon AFB, NM 88103 DSN 681-2276.	Continuous	318
VR1250	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	355
VR1251	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	518
VR1252	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	185
VR1253	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	443
VR1254	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	246
VR1255	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	296
VR1256	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	91
VR1257	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, Rm 121, NAS Le	Same as Originating Activity	Daylight hours, OT by NOTAM	437
VR1259	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	425
VR1260	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	293
VR1261	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	386
VR1262	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	339
VR1264	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	150
VR1265	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Continuous	406
VR1266	Commanding Officer, Yuma MCAS, Box 99160 Yuma, AZ 85369-9160 DSN 269-2326/2077,	Same as Originating Activity	0700-1800 local (daylight hours)	158
VR1267	Commanding Officer, Yuma MCAS, Box 99160 Yuma, AZ 85369-9160 DSN 269-2326/2077,	Same as Originating Activity	0700-1800 local	216
VR1267A	Commanding Officer, Yuma MCAS, Box 99160 Yuma, AZ 85369-9160 DSN 269-2326/2077,	Same as Originating Activity	0700-1800 local	101
VR1268	Commanding Officer, Yuma MCAS, Box 99160 Yuma, AZ 85369-9160 DSN 269-2326/2077,	Same as Originating Activity	0700-1800 local	371
VR1293	COMMANDER AFFTC, 412 OSS/OSAA, 235 S. Flightline Rd, Edwards AFB, CA 93523-6460	COMMANDER AFFTC, 412 OSS/OSR, 300 E. Yeager Blvd, Edwards AFB, CA 93524 DSN 527-	Continuous	20
VR1300	124 WG/OGAM (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5310, C208-	124 WG/OSS (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5348, C208-4	Continuous or by NOTAM	421
VR1301	124 WG/OGAM (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5310, C208-	124 WG/OSS (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5348, C208-4	Continuous	319
VR1302	124 WG/OGAM (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5310, C208-	124 WG/OSS (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5348, C208-4	Continuous	190
VR1303	124 WG/OGAM (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5310, C208-	124 WG/OSS (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5348, C208-4	Continuous or by NOTAM	432

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR1304	124 WG/OGAM (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5310, C208-	124 WG/OSS (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5348, C208-4	Continuous or by NOTAM	452
VR1305	124 WG/OGAM (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5310, C208-	124 WG/OSS (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5348, C208-4	Continuous or by NOTAM	452
VR1350	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave, Oak Ha	Same as Originating Activity	Continuous	261
VR1351	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave, Oak Ha	Same as Originating Activity	Continuous	373
VR1352	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave, Oak Ha	Same as Originating Activity	Continuous	315
VR1353	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave, Oak Ha	Same as Originating Activity	Continuous	315
VR1354	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave, Oak Ha	Same as Originating Activity	Continuous	129
VR1355	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave, Oak Ha	Same as Originating Activity	Continuous	222
VR138	DET 1, 184 IW, Smokey Hill Ang Range, 84 W Farrelly Rd, Salina, KS 67401-9407. P	Same as Originating Activity	Continuous	190
VR140	12 OSS/OSOA, 501 I Street East, Randolph AFB, TX 78150-4333 DSN 487-5580, C210-6	560 FTS, 1450 5th Street East, Randolph AFB, TX 78150, DSN 487-3518, C210-652-35	Sunrise-Sunset, daily	241
VR142	12 OSS/OSOA, 501 I Street East, Randolph AFB, TX 78150-4333 DSN 487-5580, C210-6	99 FTS, 1450 5th Street East, Randolph AFB, TX 78150-5000 DSN 487-6746.	Sunrise-Sunset, daily	177
VR1422	388 RANS/RST, 6606 Cedar Lane, Hill AFB, UT 84056-5812, DSN 777-4401, C801-777-4	Same as Originating Activity.	0700-2400 lcl Mon-Thurs, 0700-1800 lcl Fri, 0800-1700 lcl Sat	152
VR1423	388 RANS/RST, 6606 Cedar Lane, Hill AFB, UT 84056-5812, DSN 777-4401, C801-777-4	Same as Originating Activity.	0700-2400 lcl Mon-Thurs, 0700-1800 lcl Fri, 0800-1700 lcl Sat	90
VR1427	140th Wing /DOT, Buckley ANGB, Aurora, CO 80011-9546 DSN 847-9466, C303-340-9470	140th Wing /DOT, Buckley ANGB, Aurora, CO 80011-9546 DSN 847-9472, C720-847-9472	0800-1600 local Tue-Sat, OT by NOTAM	196
VR143	301 OG/SUA, NAS JRB, Fort Worth, TX 76127 DSN 739-6903/04/05, C817-782-6903/04/0	Same as Originating Activity	0700-2200 local	371
VR144	97 OSS/DOA, 400 N Sixth St., Altus AFB, OK 73521 DSN 866-6098, C580-481-6098.	97 OSS/OSK, 400 N Sixth St. Suite 12, Altus AFB, OK 73521 DSN 866-7110.	0830-0230 local Mon-Fri	72
VR1445	388 RANS/RST, 6606 Cedar Lane, Hill AFB, UT 84056-5812, DSN 777-4401, C801-777-4	Same as Originating Activity.	0700-2400 lcl Mon-Thurs, 0700-1800 lcl Fri, 0800-1700 lcl Sat	10
VR1446	388 RANS/RST, 6606 Cedar Lane, Hill AFB, UT 84056-5812, DSN 777-4401, C801-777-4	Same as Originating Activity.	0700-2400 lcl Mon-Thurs, 0700-1800 lcl Fri, 0800-1700 lcl Sat	10
VR151	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283, C361-516-6518/6283/6	Same as Originating Activity	Daily 0600-2200 local	137
VR151	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518, C361-516-6518.	Same as Originating Activity. Scheduling hrs-0800-1600 local Mon-Fri ONLY (exclu	Daily 0600-2200 local	91
VR152	DET 1, 184 IW, Smokey Hill Ang Range, 84 W Farrelly Rd, Salina, KS 67401-9407. P	Same as Originating Activity	Continuous	190
VR1520	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7745/7746, C605	Same as Originating Activity.	Daylight hours, Mon-Sat, OT By NOTAM	279

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR1521	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7745/7746, C605	Same as Originating Activity.	Daylight hours, Mon-Sat, OT By NOTAM	279
VR1525	509 OSS/OSKA, 905 Spirit Blvd, Whiteman AFB, MO 65305 DSN 975-1713/1754, C660-68	Same as Originating Activity	Sunrise-Sunset Tue-Sun	124
VR1546	188 FW, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 24 hr in advance. Min	Continuous (except Sunday 1000-1200 local)	123
VR156	149 FTR GP (TX-ANG), Kelly AFB, TX 78241 DSN 945-5934, C210-925-5934.	Same as Originating Activity	0800-1830 local daily, Prior coordination required for Sun-Mon operations	210
VR158	80th Flying Training Wing, 1911 J. Ave. Ste 6, Sheppard AFB, TX 76311-2056 DSN 7	90 FTS/DOTOD, Sheppard AFB, TX 76311 DSN 736-2675/4995, C940-676-2675/4995.	Sunrise-Sunset Mon-Fri; OT by NOTAM	210
VR159	80th Flying Training Wing, 1911 J. Ave. Ste 6, Sheppard AFB, TX 76311-2056 DSN 7	90 FTS/DOTOD, Sheppard AFB, TX 76311 DSN 736-2675/4995, C940-676-2675/4995.	Sunrise-Sunset Mon-Fri, OT by NOTAM	206
VR1616	ANG CRTC, Camp Douglas, WI 54618-5001 DSN 871-1445 C608-427-1445.	Same as Originating Activity	Sunrise to Sunset Mon-Sat, OT by NOTAM	169
VR1617	180th TFG/DO (ANG), Toledo Express Airport, Swanton, OH 43558 DSN 580-4084.	Same as Originating Activity	Sunrise-2100 local	190
VR162	80th Flying Training Wing, 1911 J. Ave. STE 6, Sheppard AFB, TX 76311-2056 DSN73	90 FTS/DOTOD, Sheppard AFB, TX 76311 DSN 736-2675/4995, C817-676-2675/4995.	Sunrise-Sunset Mon-Fri, OT by NOTAM	233
VR1624	127th OG/CC, Selfridge ANGB, MI 48045-5029 DSN 273-5055.	Same as Originating Activity	Sunrise-Sunset	233
VR1625	127th OG/CC, Selfridge ANGB, MI 48045-5029 DSN 273-5055.	Same as Originating Activity	Sunrise-Sunset	167
VR1626	127th OG/CC, Selfridge ANGB, MI 48045-5029 DSN 273-5055/5719.	Same as Originating Activity	Sunrise-Sunset	145
VR1627	127th OG/CC, Selfridge ANGB, MI 48045-5029 DSN 273-5055.	Same as Originating Activity	Sunrise-Sunset	226
VR1628	127th OG/CC, Selfridge ANGB, MI 48045-5029 DSN 273-5055.	Same as Originating Activity	Sunrise-Sunset	283
VR1629	127th OG/CC, Selfridge ANGB, MI 48045 DSN 273-5055/5719.	Same as Originating Activity	Sunrise-Sunset	218
VR163	80th Flying Training Wing, 1911 J. Ave. Ste 6, Sheppard AFB, TX 76311-2056 DSN 7	90 FTS/DOTOD, Sheppard AFB, TX 76311 DSN 736-2675/4995, C940-676-2675/4995.	Sunrise-Sunset Mon-Fri, OT by NOTAM	195
VR1631	123 ACS, Blue Ash, OH 45242 DSN 340-2950, C513-936-2950.	Same as Originating Activity	Continuous	230
VR1632	123 ACS, Blue Ash, OH 45242 DSN 340-2950, C513-936-2950.	Same as Originating Activity	Continuous	202
VR1633	123 ACS, Blue Ash, OH 45242 DSN 340-2950, C513-936-2950.	Same as Originating Activity	Continuous	217
VR1635	183 FW/OSF, Capital Airport, Springfield, IL 62707 DSN 892-8202.	Same as Originating Activity	Sunrise-Sunset only	135
VR1636	Alpena CRTC/OTM (ANG), 5884 A. Street, Alpena, MI 49707-8125 DSN 741-3509/3226.	Same as Originating Activity	Continuous	137
VR1638	180TH TFG/DO, Toledo Express Airport, Swanton, OH 43558 DSN 580-4084.	Same as Originating Activity	Sunrise-2100 local	152
VR1639	127th OG/CC, Selfridge ANGB, MI 48045 DSN 273-5055.	Same as Originating Activity	Sunrise-Sunset	218
VR1640	122 FW, Ft. Wayne IAP, IN 46809-0122 DSN 786-1202.	Same as Originating Activity	1300-0300Z++ daily	228
VR1641	122 FW, Ft. Wayne IAP, IN 46809-0122 DSN 786-1202.	Same as Originating Activity	1300-0300Z++ daily	135
VR1642	122 FW, Ft. Wayne IAP, IN 46809-0122 DSN 786-1202.	Same as Originating Activity	1300-0100Z++ daily	176

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR1644	127th OG/CC, Selfridge ANGB, MI 48045-5029 DSN 273-5055.	Same as Originating Activity	Sunrise-Sunset	190
VR1645	127th OG/CC, Selfridge ANGB, MI 48045-5029 DSN 273-5055.	Same as Originating Activity	Sunrise-Sunset	167
VR1647	127th OG/CC, Selfridge ANGB, MI 48045-5029 DSN 273-5055.	Same as Originating Activity	Sunrise-Sunset	226
VR1648	127th OG/CC, Selfridge ANGB, MI 48045-5029 DSN 273-5055.	Same as Originating Activity	Sunrise-Sunset	283
VR1650	ANG CRTC, Camp Douglas, WI 54618-5001 DSN 871-1445 C608-427-1445.	Same as Originating Activity	0730 local-Sunset Tue-Sat, OT by NOTAM	84
VR1666	Alpena CRTC/OTM (ANG), 5884 A. Street, Alpena, MI 49707-8125 DSN 741-3509/3226.	Same as Originating Activity	Continuous	137
VR1667	180 TFG/DO, Toledo Express Airport, Swanton, OH 43558 DSN 580-4084.	Same as Originating Activity	Sunrise - 0200Z++	190
VR1668	180 TFG/DO, Toledo Express Airport, Swanton, OH 43558 DSN 580-4084.	Same as Originating Activity	Sunrise-2100 local	152
VR1679	181st TFG (ANG), Hulman Regional, Terre Haute, IN 47803 DSN 724-1234.	Same as Originating Activity	Sunrise-Sunset Tue-Sun, OT by NOTAM	264
VR168	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283, C361-516-6518/6283/6	Same as Originating Activity	0600-2400 local daily	248
VR1709	177th FW/Det 1 (ANG), Atlantic City ANGB, NJ 08234-9500 DSN 455-6707. E-mail wgr	Same as Originating Activity	Sunrise-Sunset daily	294
VR1711	113 WG, Andrews AFB, MD 20331 DSN 857-3307/08, C240-857-3307/3308/4190.	Same as Originating Activity	0730 local-Sunset daily	158
VR1712	113 WG, Andrews AFB, MD 20331 DSN 857-3307/08, C240-857-3307/3308/4190.	Same as Originating Activity	0730 local-Sunset daily	186
VR1713	113 WG, Andrews AFB, MD 20331 DSN 857-3307/08, C240-857-3307/3308/4190.	Same as Originating Activity	0730 local-Sunset daily	194
VR1721	20 OSS/OSTA, Shaw AFB, SC 29152 DSN 965-1121/1122, C803-895-1121/1122, Fax DSN 9	20 OSS/OSOS, Shaw AFB, SC 29152-5000 DSN 965-1118/1119, C803-895-1118, Fax DSN 9	Continuous	172
VR1722	192nd FG (ANG), Byrd Intl, Richmond, VA 23150 DSN 864-6411/6410.	Same as Originating Activity	Sunrise-Sunset	303
VR1726	20 OSS/OSTA, Shaw AFB, SC 29152 DSN 965-1121/1122, C803-895-1121/1122, Fax DSN 9	20 OSS/OSOS, Shaw AFB, SC 29152-5000 DSN 965-1118/1119, C803-895-1118, Fax DSN 9	Continuous	144
VR1743	20 OSS/OSTA, Shaw AFB, SC 29152 DSN 965-1121/1122, C803-895-1121/1122, Fax DSN 9	20 OSS/OSOS, Shaw AFB, SC 29152-5000 DSN 965-1118/1119, C803-895-1118, Fax DSN 9	Continuous	144
VR1753	COMSTRKFIGHTWINGLANT NAS Oceana, Virginia Beach, VA 23460-5200 DSN 433-4013, C75	FACSFAC/VACAPES, NAS Oceana, Virginia Beach, VA 23460 DSN 433-1228 C757-433-1228	Continuous	172
VR1754	COMSTRKFIGHTWINGLANT NAS Oceana, Virginia Beach, VA 23460-5200 DSN 433-4013, C75	FACSFAC/VACAPES, NAS Oceana, Virginia Beach, VA 23460 DSN 433-1228 C757-433-1228	Continuous	371
VR1755	COMSTRKFIGHTWINGLANT, NAS Oceana, Virginia Beach, VA 23460-5200 DSN 433-4013, C7	FACSFAC/VACAPES, NAS Oceana, Virginia Beach, VA 23460 DSN 433-1228 C757-433-1228	Continuous	224
VR1756	COMSTRKFIGHTWINGLANT, NAS Oceana, Virginia Beach, VA 23460-5200 DSN 433-4013, C7	FACSFAC/VACAPES, NAS Oceana, Virginia Beach, VA 23460 DSN 433-1228 C757-433-1228	Continuous	362
VR1757	COMSTRKFIGHTWINGLANT, NAS Oceana, Virginia Beach, VA 23460-5200 DSN 433-4013, C7	FACSFAC/VACAPES, NAS Oceana, Virginia Beach, VA 23460 DSN 433-1228 C757-433-1228	Continuous	168
VR1759	COMSTRKFIGHTWINGLANT, NAS Oceana, Virginia Beach, VA 23460-5200 DSN 433-4013, C7	FACSFAC/VACAPES, NAS Oceana, Virginia Beach, VA 23460 DSN 433-1228, C757-433-122	Continuous	194

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR176	150 FW OG/CC 2251, Air Guard Rd. SE, Kirtland AFB, NM 87117-5875 DSN 246-7426.	Same as Originating Activity	Normally 1500-2400Z++ daily, usage between 2400-1500Z++ is available	470
VR179	ANG CRTC-Gulfport/OSA, 4715 Hewes Ave, Gulfport, MS 39507-4324 DSN 363-6027, C22	Same as Originating Activity	Continuous	171
VR1800	174th FW, 6001 E. Molloy Rd, Syracuse, NY 13211-7099 DSN 489-9217.	174th FW, Det. 1, Ft. Drum, NY 13608 DSN 772-5990/2835 C315-772-5990.	0800 local-Sunset daily	136
VR1801	174th FW, 6001 E. Molloy Rd, Syracuse, NY 13211-7099 DSN 489-9217.	174th FW, Det. 1, Ft. Drum, NY 13608 DSN 772-5990/2835, C315-772-5990.	0800 local-Sunset daily	130
VR184	97 OSS/DOA, 400 N. Sixth Street, Altus AFB, OK 73521 DSN 866-6098 C580-481-6098.	97 OSS/OSK, 400 N. Sixth Street, Suite 12, Altus AFB, OK 73521 DSN 866-7110.	0830-0230 local, Mon-Fri	71
VR186	301 OG/SUA, NAS JRB, Fort Worth, TX 76127 DSN 739-6903/04/05, C817-782-6903/04/0	Same as Originating Activity	0700-2200 local	295
VR187	12 OSS/OSOA, 501 I Street East, Randolph AFB, TX 78150-4333 DSN 487-5580, C210-6	99 FTS, 1450 5th Street East, Randolph AFB, TX 78150-5000 DSN 487-6746.	Sunrise-Sunset, daily	243
VR188	12 OSS/OSOA, 501 I Street East, Randolph AFB, TX 78150-4333 DSN 487-5580, C210-6	99 FTS, 1450 5th Street East, Randolph AFB, TX 78150-5000 DSN 487-6746.	Sunrise-Sunset, daily	213
VR189	188 FW, 4850 Leigh Ave., Fort Smith, AR 72903-6096 DSN 778-5502.	Same as Originating Activity. Route scheduled no more than 24 hr in advance. Min	Continuous	219
VR190	97 OSS/DOA, 400 N. Sixth Street, Altus AFB, OK 73521 DSN 866-6098 C580-6098.	97 OSS/OSK, 400 N. Sixth Street, Suite 12, Altus AFB, OK 73521 DSN 866-7110.	0830-0230 local Mon-Fri	152
VR1900	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 C907-377-3005 DSN 317-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	160
VR1902	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406 C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	175
VR1905	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	372
VR1909	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 C907-377-3005 DSN 317-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	76
VR191	97 OSS/DOA, 400 N. Sixth Street, Altus AFB, OK 73521 DSN 866-6098 C580-6098.	97 OSS/OSK, 400 N. Sixth Street,Suite 12, Altus AFB, OK 73521 DSN 866-7110.	0830-0230 local Mon-Fri	152
VR1912	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	175
VR1915	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	339
VR1916	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	137

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR1926	611 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	101
VR1927	611 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	52
VR1928	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	37
VR1929	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	37
VR1939	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	76
VR196	47 OSS/OSOR, 570 2nd Street, Ste. 6, Laughlin AFB, TX 78843-5222 DSN 732-5864, C	86 FTS/DOS, 307 2nd St, Laughlin AFB, TX 78843 DSN 732-5584, C830-298-5584. Sche	Sunrise-Sunset daily	189
VR197	47 OSS/OSOR, 570 2nd Street, Ste. 6, Laughlin AFB, TX 78843-5222 DSN 732-5864, C	86 FTS/DOS, 307 2nd St, Laughlin AFB, TX 78843 DSN 732-5584, C830-298-5584. Sche	Sunrise-Sunset daily	189
VR198	97 OSS/DOA, 400 N. 6th St., Ste. A, Altus AFB, OK 73521 DSN 866-6098, C580-481-6	Same as Originating Activity	0600-0300 local, Mon-Fri, OT by NOTAM	195
VR199	97 OSS/DOA, 400 N. 6th St., Ste. A, Altus AFB, OK 73521 DSN 866-6098, C580-481-6	Same as Originating Activity	0600-0300 local, Mon-Fri, OT by NOTAM	195
VR201	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	168
VR202	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	312
VR208	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	0800-1630 local	194
VR209	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	593
VR222	57 OSS/OSOS, Nellis AFB, NV 89191-7001 DSN 682-2040, C702-652-2040.	Same as Originating Activity	Continuous	359
VR223	56 RMO/ASM, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-5855, C623-856-	56 RMO/ASMS, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-7654, C623-856	0600-2400 Mon-Fri local, Wkend/hol when sked with Goldwater Rng/Sell MOA Msn	127
VR231	56 RMO/ASM, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-5855, C623-856-	56 RMO/ASMS, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-7654, C623-856	0600-2400 Mon-Fri local, Wkend/hol when sked with Goldwater Rng/Sell MOA Msn	109
VR239	56 RMO/ASM, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-5855, C623-856-	56 RMO/ASMS, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-7654, C623-856	0600-2400 Mon-Fri local, Wkend/hol when sked with Goldwater Rng/Sell MOA Msn	300
VR241	56 RMO/ASM, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-5855, C623-856-	56 RMO/ASMS, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-7654, C623-856	0600-2400 Mon-Fri local, Wkend/hol when sked with Goldwater Rng/Sell MOA Msn	218
VR242	56 RMO/ASM, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-5855, C623-856-	56 RMO/ASMS, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-7654, C623-856	0600-2400 Mon-Fri local, Wkend/hol when sked with Goldwater Rng/Sell MOA Msn	217

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR243	56 RMO/ASM, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-5855, C623-856-	56 RMO/ASMS, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-7654, C623-856	0600-2400 Mon-Fri local, Wkend/hol when sked with Goldwater Rng/Sell MOA Msn	269
VR244	56 RMO/ASM, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-5855, C623-856-	56 RMO/ASMS, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-7654, C623-856	0600-2400 Mon-Fri local, Wkend/hol when sked with Goldwater Rng/Sell MOA Msn	272
VR245	56 RMO/ASM, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-5855, C623-856-	56 RMO/ASMS, 7224 N. 139th Drive, Luke AFB, AZ 85309-1420 DSN 896-7654, C623-856	0600-2400 Mon-Fri local, Wkend/hol when sked with Goldwater Rng/Sell MOA Msn	208
VR249	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462. Non-	Same as Originating Activity	Continuous	101
VR259	162 FW/OGC, 1660 E. El Tigre Way, Tucson, AZ 85706-6086 DSN 844-6371, C520-295-6	Same as Originating Activity	Continuous	309
VR260	162 FW/OGC, 1660 E. El Tigre Way, Tucson, AZ 85706-8086 DSN 844-6371 C520-295-63	Same as Originating Activity	Continuous	276
VR263	162 FW/OGC, 1660 E. El Tigre Way, Tucson, AZ, 85706-6086 DSN 844-6371 C520-295-6	Same as Originating Activity	Continuous	433
VR267	355 OSS/OSOA, 3895 S. 6th St. Suite 200, Davis-Monthan AFB, AZ 85707 DSN 228-468	355 OSS/OSOSO, Davis-Monthan AFB, AZ 85707 1500-2300Z Mon-Fri, no earlier than o	1300-0530Z	199
VR268	355 OSS/OSOA, 3895 S. 6th St. Suite 200, Davis-Monthan AFB, AZ 85707 DSN 228-468	355 OSS/OSOSO, Davis-Monthan AFB, AZ 85707 1500-2300Z Mon-Fri, no earlier than o	1300-0530Z++	155
VR269	355 OSS/OSOA, 3895 S. 6th St. Suite 200, Davis-Monthan AFB, AZ 85707 DSN 228-468	355 OSS/OSOSO, Davis-Monthan AFB, AZ 85707 1500-2300Z Mon-Fri, no earlier than o	1300-0530Z++	181
VR288	452 OSS/OSK, March ARB, CA 92518 DSN 447-4376, C909-655-4376.	452 OSS/OSAA, March ARB, CA 92518 DSN 447-4404/2422, C951-655-4404/2422.	Continuous	110
VR289	452 OSS/OSK, March ARB, CA 92518 DSN 447-4376, C909-655-4376.	452 OSS/OSAA, March ARB, CA 92518 DSN 447-4404/2422, C951-655-4404/2422.	Continuous	157
VR296	452 OSS/OSK, March ARB, CA 92518 DSN 447-4404/2422, C909-655-4404/2422.	452 OSS/OSAA, March ARB, CA 92518 DSN 447-4404/2422, C909-655-4404/2422.	Continuous	226
VR299	452 OSS/DOT, March Fld, CA 92518 DSN 447-3846, C951-655-3846.	22 OSS/DOB, March Fld, CA 92518 DSN 447-4404/2422, C951-655-4404/2422.	Continuous	208
VR316	124 WG/OGAM (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5310, C208-	124 WG/OSS (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5348, C208-4	Continuous or by NOTAM	301
VR319	124 WG/OGAM (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5310, C208-	124 WG/OSS (ANG), 3996 W. Aeronca St., Boise, ID 83705-8004 DSN 422-5348, C208-4	Continuous or by NOTAM	301
VR331	62 OSS/OSK, 1172 Levitow Blvd., McChord AFB, WA 98438 DSN 382-3615, C253-982-361	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925. Dut	Continuous	179
VR410	140th Wing /Airspace Office, Buckley AFB, Aurora Co, 80011-9546 DSN 847-9470/947	Same as Originating Activity.	0800-1600 local Tue-Sat, OT by NOTAM	15
VR411	140th Wing /Airspace Office, Buckley AFB, Aurora Co, 80011-9546 DSN 847-9470/947	Same as Originating Activity.	0800-1600 local Tue-Sat, OT by NOTAM	15

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR413	140th Wing /Airspace Office, Buckley AFB, Aurora Co, 80011-9546 DSN 847-9470/947	140th Wing /Airspace Office, Buckley AFB, Aurora Co, 80011-9546 DSN 847-9470/947	0800-1600 local Tue-Sat, OT by NOTAM	184
VR510	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7754/7746, C605	Same as Originating Activity	Daylight Hours Tue-Sat, OT by NOTAM	315
VR511	132 FW OG/CC (ANG), 3100 McKinley Ave, Des Moines, IA 50321-2799 DSN 256-8250 C5	Same as Originating Activity	By NOTAM, (2 hr prior notification required)	264
VR512	132 FW OG/CC (ANG), 3100 McKinley Ave, Des Moines, IA 50321-2799 DSN 256-8250 C5	Same as Originating Activity	By NOTAM, 2hr prior notification required	264
VR531	DET 1, 184 IW, Smokey Hill Ang Range, 84 W Farrelly Rd, Salina, KS 67401-9407. P	Same as Originating Activity	Continuous	181
VR532	DET 1, 184 IW, Smokey Hill Ang Range, 84 W Farrelly Rd, Salina, KS 67401-9407. P	Same as Originating Activity	Continuous	329
VR533	DET 1, 184 IW, Smokey Hill Ang Range, 84 W Farrelly Rd, Salina, KS 67401-9407. P	Same as Originating Activity	Continuous	165
VR534	DET 1, 184 IW, Smokey Hill Ang Range, 84 W Farrelly Rd, Salina, KS 67401-9407. P	Same as Originating Activity	Continuous	169
VR535	DET 1, 184 IW, Smokey Hill Ang Range, 84 W Farrelly Rd, Salina, KS 67401-9407. P	Same as Originating Activity	Continuous	179
VR536	DET 1, 184 IW, Smokey Hill Ang Range, 84 W Farrelly Rd, Salina, KS 67401-9407. P	Same as Originating Activity	Continuous	157
VR540	132 FW OG/CC (ANG), 3100 McKinley Ave, Des Moines, IA 50321-2799 DSN 256-8250 C5	Same as Originating Activity	By NOTAM, 2 hr prior notification required	319
VR541	132 FW OG/CC (ANG), 3100 McKinley Ave, Des Moines, IA 50321-2799 DSN 256-8250 C5	Same as Originating Activity	By NOTAM, 2 hr prior notification required	289
VR544	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7754/7746, C605	Same as Originating Activity	By NOTAM, 2 hours and 15 minutes prior to entry time required	121
VR545	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7754/7746, C605	Same as Originating Activity	By NOTAM, 2 hours and 15 minutes prior to entry time required	121
VR552	DET 1, 184 IW, Smokey Hill Ang Range, 84 W Farrelly Rd, Salina, KS 67401-9407. P	Same as Originating Activity	Continuous	190
VR604	148TH FIG (ANG), Duluth Intl, MN 55811 DSN 825-7265.	Same as Originating Activity	1400-0500Z++ daily, 0500-1400Z++ allowable	680
VR607	148TH FIG (ANG), Duluth Intl, MN 55811 DSN 825-7265.	Same as Originating Activity	1400-0500Z++ daily, 0500-1400Z++ allowable	680
VR615	183 FW/OSF, Capital Airport, Springfield, IL 62707 DSN 892-8202.	Same as Originating Activity	Daylight hours	167
VR619	181 TFG (ANG), Hulman Rigional Airport, Terre Haute, IN 47803 DSN 724-1234.	Same as Originating Activity	Sunrise-Sunset Tue-Sun, OT by NOTAM	136
VR634	Alpena CRTC/OTM (ANG), 5884 A. Street, Alpena, MI 49707-8125 DSN 741-3509/3226.	Same as Originating Activity	Continuous	180
VR664	Alpena CRTC/OTM (ANG), 5884 A. Street, Alpena, MI 49707-8125 DSN 741-3509/3226.	Same as Originating Activity	Continuous	181
VR704	DET 1, 193 SOG, 26139 Ammo Road, Annville, PA 17003-5180 C717-861-2475/2912 Toll	Same as Originating Activity	0800 local to Sunset daily	285
VR705	DET 1, 193 SOG, 26139 Ammo Road, Annville, PA 17003-5180 C717-861-2475/2912 Toll	Same as Originating Activity	0800 local-Sunset daily	214
VR707	DET 1, 193 SOG, 26139 Ammo Road, Annville, PA 17003-5180 C717-861-2475/2912 Toll	Same as Originating Activity	0800 local-Sunset daily	287
VR708	175 FG (ANG), Baltimore, MD 21220-2899 DSN 243-6375.	Same as Originating Activity	Sunrise-Sunset	126
VR724	174th FW, 6001 E. Molloy Rd, Syracuse, NY 13211-7099 DSN 489-9217.	174 FW, Det 1, Ft. Drum, NY 13608 DSN 772-5990/2835, C315-772-5990.	0800-Sunset daily, OT by NOTAM	141

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR725	174th FW, 6001 E. Molloy Rd, Syracuse, NY 13211-7099 DSN 489-9217.	174 FW, Det 1. Ft. Drum, NY 13608 DSN 772-5990/2835, C315-772-5990.	0800-Sunset daily, OT by NOTAM	114
VR840	104 FW, Barnes ANGB, Westfield, MA 01085-1482 DSN 698-1228/1229, C413-568-9151 e	Same as Originating Activity	0800 local-Sunset daily	175
VR841	104 FW, Barnes ANGB, Westfield, MA 01085-1482 DSN 698-1228/1229, C413-568-9151 e	Same as Originating Activity	0800 local-Sunset daily	97
VR842	104 FW, Barnes ANGB, Westfield, MA 01085-1482 DSN 698-1228/1229, C413-568-9151 e	Same as Originating Activity	0800 local-Sunset daily	87
VR931	611 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	67
VR932	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	67
VR933	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	206
VR934	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	3 OSS/OSOS, Elmendorf AFB, AK 99506-2130 DSN 317-552-2406, C907-552-2406.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	206
VR935	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	193
VR936	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	210
VR937	611 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	184
VR938	611 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	167
VR940	611 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	106
VR941	611 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	106
VR954	611 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	371
VR955	611 AOC/CC, Elmendorf AFB, 10471 20th St, Ste. 160, AK 99506 DSN 317-552-2430, C	353 CTS/JSO, Eielson AFB, AK 99702 DSN 317-377-3005, C907-377-3005.	Normal use 0800-2000 local Mon-Fri, Not available 2200-0700 local	271

* Data fields are limited to 80 characters in the source database (National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File)); therefore, some data field entries are not complete. Please refer to DoD Flight Information Publications for complete originating and scheduling activity information.

** Length calculations were performed using an the appropriate Universal Transverse Mercator zones.

Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: May 2010)).

This Page is Intentionally Left Blank.

Table C-3 Special Use Airspace (SUA) Inventory

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
A211	USA, CAIRNES APP	Fort Rucker	005000AMSL	SURFACE	USA	4580
A311	FAA, HONOLULU CERAP	Schofield, Kahuku, Kawailoa	000500AGL	SURFACE	USA	71
A371	USA, CAMPBELL AAF APP	Fort Campbell	002000AMSL	SURFACE	USA	1193
A531	USA, FORT BRAGG	Fort Bragg	001500AGL	00200AGL	USA	698
A685	FAA, ATLANTA ARTCC	Camp Merrill	000700AGL	SURFACE	USA	490
BENNING MOA, GA	FAA, COLUMBUS TWR	Fort Benning	008000AMSL	00500AGL	USA	107
CAMPBELL 1 MOA, KY	FAA, MEMPHIS ARTCC	Fort Campbell	010000AMSL	00500AGL	USA	396
CAMPBELL 2 MOA, KY	FAA, MEMPHIS ARTCC	Fort Campbell	010000AMSL	01500AGL	USA	311
DRUM 1 MOA, NY	USA, WHEELER SACK APP	Fort Drum	005000AMSL	00500AGL	USA	95
DRUM 2 MOA, NY	USA, WHEELER SACK APP	Fort Drum	005999AMSL	00100AGL	USA	84
FORT BRAGG NORTH AREA A MOA, NC	FAA, FAYETTEVILLE TWR	Fort Bragg	006000AMSL	00500AGL	USA	42
FORT BRAGG NORTH AREA B MOA, NC	FAA, FAYETTEVILLE TWR	Fort Bragg	006000AMSL	04000AMSL	USA	30
FORT BRAGG SOUTH AREA A MOA, NC	FAA, FAYETTEVILLE TWR	Fort Bragg	006000AMSL	00500AGL	USA	53
FORT BRAGG SOUTH AREA B MOA, NC	FAA, FAYETTEVILLE TWR	Fort Bragg	006000AMSL	01500AGL	USA	36
FORT STEWART B1 MOA, GA	FAA, JACKSONVILLE ARTCC	Fort Stewart	004999AMSL	00500AGL	USA	146
FORT STEWART B2 MOA, GA	FAA, JACKSONVILLE ARTCC	Fort Stewart	010000AMSL	05000AMSL	USA	146
FORT STEWART C1 MOA, GA	FAA, JACKSONVILLE ARTCC	Fort Stewart	002999AMSL	00500AGL	USA	31
FORT STEWART C2 MOA, GA	FAA, JACKSONVILLE ARTCC	Fort Stewart	010000AMSL	03000AMSL	USA	70
GRAY MOA, TX	FAA, HOUSTON ARTCC	Fort Hood	010000AMSL	02000AMSL	USA	28
HILL MOA, VA	FAA, POTOMAC APP	Fort A.P. Hill	003000AMSL	SURFACE	USA	36
HOG HIGH NORTH MOA, AR	FAA, MEMPHIS ARTCC	Fort Smith	018000AMSL	06000AMSL	USA	685
HOG HIGH SOUTH MOA, AR	FAA, MEMPHIS ARTCC	Fort Smith	018000AMSL	06000AMSL	USA	1295
HOG JRTC MOA, AR	FAA, MEMPHIS ARTCC	Fort Smith	018000AMSL	00100AGL	USA	25
HOG LOW NORTH MOA, AR	FAA, MEMPHIS ARTCC	Fort Smith	005999AMSL	00100AGL	USA	685
HOG LOW SOUTH MOA, AR	FAA, MEMPHIS ARTCC	Fort Smith	005999AMSL	00100AGL	USA	817
HOOD MOA, TX	FAA, HOUSTON ARTCC	Fort Hood	010000AMSL	02000AMSL	USA	267
HOWARD EAST MOA, IL	FAA, KANSAS CITY ARTCC	Springfield	018000AMSL	09000AMSL	USA	1853
HOWARD WEST MOA, IL	FAA, KANSAS CITY ARTCC	Springfield	018000AMSL	10000AMSL	USA	322
LAKE ANDES MOA, SD	FAA, MINNEAPOLIS ARTCC	Sioux Falls	018000AMSL	06000AMSL	USA	3498
PICKETT 1 MOA, VA	FAA, WASHINGTON, DC ARTCC	Fort Pickett	006000AMSL	00500AGL	USA	45
PICKETT 2 MOA, VA	FAA, WASHINGTON, DC ARTCC	Fort Pickett	010000AMSL	00500AGL	USA	93
PICKETT 3 MOA, VA	FAA, WASHINGTON, DC ARTCC	Fort Pickett	010000AMSL	04000AMSL	USA	23
PINON CANYON MOA, CO	FAA, DENVER ARTCC	Fort Carson	010000AMSL	00100AGL	USA	1031

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
PRUITT A MOA, IL	FAA, KANSAS CITY ARTCC	Springfield	006000AMSL	00500AGL	USA	980
PRUITT B MOA, IL	FAA, KANSAS CITY ARTCC	Springfield	003000AMSL	00500AGL	USA	426
R2101	FAA, ATLANTA ARTCC	Anniston Army Depot	005000AMSL	SURFACE	USA	2
R2102A	FAA, ATLANTA ARTCC	Fort McClellan	008000AMSL	SURFACE	USA	27
R2102B	FAA, ATLANTA ARTCC	Fort McClellan	014000AMSL	08000AMSL	USA	27
R2102C	FAA, ATLANTA ARTCC	Fort McClellan	FL240	14000AMSL	USA	27
R2103A	USA, CAIRNS APP	Fort Rucker	009999AMSL	SURFACE	USA	50
R2103B	FAA, JACKSONVILLE ARTCC	Fort Rucker	015000AMSL	10000AMSL	USA	50
R2104A	FAA, MEMPHIS ARTCC	Redstone Arsenal	012000AMSL	SURFACE	USA	17
R2104B	FAA, MEMPHIS ARTCC	Redstone Arsenal	002400AMSL	SURFACE	USA	4
R2104C	FAA, MEMPHIS ARTCC	Redstone Arsenal	012000AMSL	SURFACE	USA	4
R2104D	FAA, MEMPHIS ARTCC	Redstone Arsenal	FL300	12000AMSL	USA	17
R2104E	FAA, MEMPHIS ARTCC	Redstone Arsenal	FL300	12000AMSL	USA	4
R2202A	FAA, ANCHORAGE ARTCC	Fort Greely	009999AMSL	SURFACE	USA	170
R2202B	FAA, ANCHORAGE ARTCC	Fort Greely	009999AMSL	SURFACE	USA	395
R2202C	FAA, ANCHORAGE ARTCC	Fort Greely	FL310	10000AMSL	USA	565
R2202D	FAA, ANCHORAGE ARTCC	Fort Greely	UNLTD	FL310	USA	566
R2203A	FAA, ANCHORAGE TWR	Fort Richardson	011000AMSL	SURFACE	USA	6
R2203B	FAA, ANCHORAGE TWR	Fort Richardson	011000AMSL	SURFACE	USA	20
R2203C	FAA, ANCHORAGE TWR	Fort Richardson	005000AMSL	SURFACE	USA	1
R2205	FAA, FAIRBANKS APP	Fort Richardson	020000AMSL	SURFACE	USA	137
R2302	FAA, ALBUQUERQUE ARTCC	Navajo Ordnance Depot	010000AMSL	SURFACE	USA	4
R2303A	FAA, ALBUQUERQUE ARTCC	Fort Huachuca	015000AMSL	SURFACE	USA	266
R2303B	FAA, ALBUQUERQUE ARTCC	Fort Huachuca	FL300	08000AMSL	USA	495
R2303C	FAA, ALBUQUERQUE ARTCC	Fort Huachuca	FL300	15000AMSL	USA	233
R2306A	FAA, LOS ANGELES ARTCC	Yuma Proving Ground	FL800	SURFACE	USA	208
R2306B	FAA, LOS ANGELES ARTCC	Yuma Proving Ground	FL800	SURFACE	USA	165
R2306C	FAA, LOS ANGELES ARTCC	Yuma Proving Ground	FL400	SURFACE	USA	37
R2306D	FAA, LOS ANGELES ARTCC	Yuma Proving Ground	FL230	SURFACE	USA	15
R2306E	FAA, LOS ANGELES ARTCC	Yuma Proving Ground	FL800	SURFACE	USA	65
R2307	FAA, LOS ANGELES ARTCC	Yuma Proving Ground	UNLTD	SURFACE	USA	292
R2308A	FAA, LOS ANGELES ARTCC	Yuma Proving Ground	FL800	01500AGL	USA	552
R2308B	FAA, LOS ANGELES ARTCC	Yuma Proving Ground	FL800	SURFACE	USA	77
R2308C	FAA, LOS ANGELES ARTCC	Yuma Proving Ground	FL230	01500AGL	USA	29

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
R2310A	FAA, ALBUQUERQUE ARTCC	Florence Training Site	010000AMSL	SURFACE	USA	29
R2310B	FAA, ALBUQUERQUE ARTCC	Florence Training Site	017000AMSL	10000AMSL	USA	18
R2310C	FAA, ALBUQUERQUE ARTCC	Florence Training Site	FL350	17000AMSL	USA	15
R2311	YUMA APP, YUMA MCAS	Yuma Proving Ground	003500AMSL	SURFACE	USA	62
R2401A	FAA, MEMPHIS ARTCC	Chaffee	FL300	SURFACE	USA	16
R2401B	FAA, MEMPHIS ARTCC	Chaffee	FL300	SURFACE	USA	2
R2402	FAA, MEMPHIS ARTCC	Chaffee	FL300	SURFACE	USA	63
R2502E	FAA, HI-DESERT TRACON, EDWARDS AFB	Fort Irwin	UNLTD	SURFACE	USA	180
R2502N	FAA, HI-DESERT TRACON, EDWARDS AFB	Fort Irwin	UNLTD	SURFACE	USA	561
R2504	FAA, OAKLAND ARTCC	Camp Roberts	015000AMSL	SURFACE	USA	27
R2513	FAA, OAKLAND ARTCC	Fort Hunter-Leggett	FL240	SURFACE	USA	114
R2530	FAA, OAKLAND ARTCC	Sierra Army Deport	008600AMSL	SURFACE	USA	4
R2601A	FAA, DENVER ARTCC	Fort Carson	012499AMSL	SURFACE	USA	123
R2601B	FAA, DENVER ARTCC	Fort Carson	022499AMSL	12500AMSL	USA	123
R2601C	FAA, DENVER ARTCC	Fort Carson	034999AMSL	22500AMSL	USA	123
R2601D	FAA, DENVER ARTCC	Fort Carson	059999AMSL	35000AMSL	USA	123
R3002A	FAA, ATCT, COLUMBUS	Fort Benning	004000AMSL	SURFACE	USA	104
R3002B	FAA, ATCT, COLUMBUS	Fort Benning	008000AMSL	04000AMSL	USA	104
R3002C	FAA, ATCT, COLUMBUS	Fort Benning	014000AMSL	08000AMSL	USA	104
R3002D	FAA, ATCT, COLUMBUS	Fort Benning	008000AMSL	SURFACE	USA	79
R3002E	FAA, ATCT, COLUMBUS	Fort Benning	014000AMSL	08000AMSL	USA	79
R3002F	FAA, ATLANTA ARTCC	Fort Benning	FL250	14000AMSL	USA	118
R3002G	FAA, ATLANTA TRACON	Fort Benning	004000AMSL	SURFACE	USA	14
R3004A	FAA, ATLANTA ARTCC	Fort Benning	007000AMSL	SURFACE	USA	31
R3004B	FAA, ATLANTA ARTCC	Fort Benning	016000AMSL	007001AMSL	USA	31
R3005A	FAA, JACKSONVILLE ARTCC	Fort Stewart	FL290	SURFACE	USA	71
R3005B	FAA, JACKSONVILLE ARTCC	Fort Stewart	FL290	SURFACE	USA	46
R3005C	FAA, JACKSONVILLE ARTCC	Fort Stewart	FL290	SURFACE	USA	107
R3005D	FAA, JACKSONVILLE ARTCC	Fort Stewart	FL290	SURFACE	USA	50
R3005E	FAA, JACKSONVILLE ARTCC	Fort Stewart	FL290	SURFACE	USA	35
R3103	FAA, HONOLULU CERAP	Pohakuloa Training Area	030000AMSL	SURFACE	USA	124
R3109A	FAA, HONOLULU TWR	Schofield-Makua	008999AMSL	SURFACE	USA	9
R3109B	FAA, HONOLULU TWR	Schofield-Makua	018999AMSL	09000AMSL	USA	15
R3109C	FAA, HONOLULU TWR	Schofield-Makua	008999AMSL	SURFACE	USA	6

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
R3110A	FAA, HONOLULU TWR	Schofield-Makua	008999AMSL	SURFACE	USA	11
R3110B	FAA, HONOLULU TWR	Schofield-Makua	018999AMSL	09000AMSL	USA	21
R3110C	FAA, HONOLULU TWR	Schofield-Makua	008999AMSL	SURFACE	USA	10
R3203D	FAA, SALT LAKE CITY ARTCC	Boise	FL220	SURFACE	USA	23
R3401A	FAA, INDIANAPOLIS ARTCC	Indianapolis	FL400	SURFACE	USA	43
R3401B	FAA, INDIANAPOLIS ARTCC	Indianapolis	014000AMSL	01200AGL	USA	35
R3403A	FAA, INDIANAPOLIS ARTCC	Indianapolis	FL430	SURFACE	USA	53
R3403B	FAA, INDIANAPOLIS ARTCC	Indianapolis	FL180	01200AGL	USA	27
R3602A	FAA, KANSAS CITY ARTCC	Fort Riley	FL290	SURFACE	USA	49
R3602B	FAA, KANSAS CITY ARTCC	Fort Riley	FL290	SURFACE	USA	59
R3701	USA, CAMPBELL AAF APP	Fort Campbell	005000AMSL	SURFACE	USA	8
R3702A	FAA, MEMPHIS ARTCC	Fort Campbell	006000AMSL	SURFACE	USA	93
R3702B	FAA, MEMPHIS ARTCC	Fort Campbell	FL220	06000AMSL	USA	93
R3702C	FAA, MEMPHIS ARTCC	Fort Campbell	FL270	FL220	USA	93
R3704A	FAA, STANDIFORD TWR, LOUISVILLE	Fort Knox	010000AMSL	SURFACE	USA	113
R3704B	FAA, STANDIFORD TWR, LOUISVILLE	Fort Knox	FL220	10000AMSL	USA	113
R3803A	FAA, HOUSTON ARTCC	Fort Polk	FL180	SURFACE	USA	41
R3803B	FAA, HOUSTON ARTCC	Fort Polk	034999AMSL	FL180	USA	41
R3804A	FAA, HOUSTON ARTCC	Fort Polk	FL180	SURFACE	USA	100
R3804B	FAA, HOUSTON ARTCC	Fort Polk	003000AMSL	SURFACE	USA	14
R3804C	FAA, HOUSTON ARTCC	Fort Polk	034999AMSL	FL180	USA	100
R4001A	FAA, WASHINGTON, DC ARTCC	Aberdeen Proving Ground	UNLTD	SURFACE	USA	105
R4001B	FAA, WASHINGTON, DC ARTCC	Aberdeen Proving Ground	010000AMSL	SURFACE	USA	28
R4101	FAA, CAPE APP	Camp Edwards	009000AMSL	SURFACE	USA	14
R4102A	FAA, BOSTON ARTCC	Devens Reserve Forces Training Area	001999AMSL	SURFACE	USA	6
R4102B	FAA, BOSTON ARTCC	Devens Reserve Forces Training Area	003995AMSL	02000AMSL	USA	6
R4201A	FAA, MINNEAPOLIS ARTCC	Camp Grayling	FL230	SURFACE	USA	64
R4201B	FAA, MINNEAPOLIS ARTCC	Camp Grayling	009000AMSL	SURFACE	USA	41
R4202	FAA, MINNEAPOLIS ARTCC	Camp Grayling	008200AMSL	SURFACE	USA	5
R4301	FAA, MINNEAPOLIS ARTCC	Camp Riley	FL270	SURFACE	USA	64
R4501A	FAA, KANSAS CITY ARTCC	Fort Leonard Wood	002199AMSL	SURFACE	USA	21
R4501B(A)	FAA, KANSAS CITY ARTCC	Fort Leonard Wood	002200AMSL	SURFACE	USA	10
R4501B(B)	FAA, KANSAS CITY ARTCC	Fort Leonard Wood	001500AMSL	SURFACE	USA	0
R4501C	FAA, KANSAS CITY ARTCC	Fort Leonard Wood	005000AMSL	02200AMSL	USA	34

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
R4501D	FAA, KANSAS CITY ARTCC	Fort Leonard Wood	012000AMSL	05000AMSL	USA	34
R4501E	FAA, KANSAS CITY ARTCC	Fort Leonard Wood	FL180	12000AMSL	USA	34
R4501F	FAA, KANSAS CITY ARTCC	Fort Leonard Wood	003200AMSL	SURFACE	USA	4
R4501H	FAA, KANSAS CITY ARTCC	Fort Leonard Wood	003200AMSL	SURFACE	USA	15
R4808N	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	SURFACE	DOE	1280
R4808S	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	SURFACE	DOE	24
R4809	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	SURFACE	DOE	393
R4811	FAA, OAKLAND ARTCC	Hawthorne Army Ammunition Plant	015000AMSL	SURFACE	USA	7
R5001A	FAA, NEW YORK ARTCC	Fort Dix	004000AMSL	SURFACE	USA	23
R5001B	FAA, NEW YORK ARTCC	Fort Dix	008000AMSL	04000AMSL	USA	21
R5103(D)	FAA, ALBUQUERQUE ARTCC	Fort Bliss	UNLTD	01501AGL	USA	6
R5103(E)	FAA, ALBUQUERQUE ARTCC	Fort Bliss	UNLTD	01501AGL	USA	5
R5103A	FAA, ALBUQUERQUE ARTCC	Fort Bliss	018000AMSL	SURFACE	USA	43
R5103B	FAA, ALBUQUERQUE ARTCC	Fort Bliss	012500AMSL	SURFACE	USA	235
R5103C	FAA, ALBUQUERQUE ARTCC	Fort Bliss	UNLTD	SURFACE	USA	653
R5107A	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	SURFACE	USA	281
R5107B	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	SURFACE	USA	3140
R5107C	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	09000AMSL	USA	892
R5107D	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	022000AMSL	SURFACE	USA	551
R5107E	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	SURFACE	USA	127
R5107F	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	FL450	FL240	USA	1195
R5107G	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	FL450	FL240	USA	957
R5107H	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	009000AMSL	SURFACE	USA	814
R5107J	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	009000AMSL	SURFACE	USA	77
R5109A	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	24000AMSL	USA	1682
R5109B	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	24000AMSL	USA	1004
R5111A	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	13000AMSL	USA	404
R5111B	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	013000AMSL	SURFACE	USA	404
R5111C	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	13000AMSL	USA	318
R5111D	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	012999AMSL	SURFACE	USA	318
R5117	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	SURFACE	USA	22
R5119	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	FL350	USA	393
R5121	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	FL200	USA	38
R5123	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	SURFACE	USA	152

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
R5201	FAA, BOSTON ARTCC	Fort Drum	023000AMSL	SURFACE	USA	110
R5206	FAA, NEW YORK APP	West Point	005000AMSL	SURFACE	USA	4
R5311A	FAA, WASHINGTON, DC ARTCC	Fort Bragg	006999AMSL	SURFACE	USA	122
R5311B	FAA, WASHINGTON, DC ARTCC	Fort Bragg	011999AMSL	07000AMSL	USA	122
R5311C	FAA, WASHINGTON, DC ARTCC	Fort Bragg	028999AMSL	12000AMSL	USA	122
R5601A	FAA, FORT WORTH ARTCC	Fort Sill	FL400	SURFACE	USA	34
R5601B	FAA, FORT WORTH ARTCC	Fort Sill	FL400	SURFACE	USA	55
R5601C	FAA, FORT WORTH ARTCC	Fort Sill	FL400	SURFACE	USA	18
R5601D	FAA, FORT WORTH ARTCC	Fort Sill	FL400	00500AGL	USA	36
R5601E	FAA, FORT WORTH ARTCC	Fort Sill	006000AMSL	00500AGL	USA	9
R5801	FAA, WASHINGTON, DC ARTCC	Letterkenny Ordnance Depot	004000AMSL	SURFACE	USA	2
R5802A	FAA, NEW YORK ARTCC	Fort Indiantown Gap	005000AMSL	00200AGL	USA	12
R5802B	FAA, NEW YORK ARTCC	Fort Indiantown Gap	013000AMSL	SURFACE	USA	14
R5802C	FAA, NEW YORK ARTCC	Fort Indiantown Gap	016999AMSL	00500AGL	USA	33
R5802D	FAA, NEW YORK ARTCC	Fort Indiantown Gap	021999AMSL	17000AMSL	USA	33
R5802E	FAA, NEW YORK ARTCC	Fort Indiantown Gap	FL250	FL220	USA	97
R5803	FAA, WASHINGTON, DC ARTCC	Letterkenny Ordnance Depot	004000AMSL	SURFACE	USA	3
R6001A	FAA, JACKSONVILLE ARTCC	Fort Jackson	003200AMSL	SURFACE	USA	38
R6001B	FAA, JACKSONVILLE ARTCC	Fort Jackson	FL230	03200AMSL	USA	40
R6302A	FAA, HOUSTON ARTCC	Fort Hood	FL300	SURFACE	USA	126
R6302B	FAA, HOUSTON ARTCC	Fort Hood	011000AMSL	SURFACE	USA	15
R6302C	FAA, HOUSTON ARTCC	Fort Hood	FL300	SURFACE	USA	40
R6302D	FAA, HOUSTON ARTCC	Fort Hood	FL300	SURFACE	USA	24
R6302E	FAA, HOUSTON ARTCC	Fort Hood	FL450	FL300	USA	121
R6403	FAA, SALT LAKE CITY ARTCC	Tooele Army Depot	009000AMSL	SURFACE	USA	2
R6601	FAA, RICHMOND TWR	Fort A.P. Hill	005000AMSL	SURFACE	USA	40
R6602A	FAA, WASHINGTON, DC ARTCC	Fort Lee	003999AMSL	SURFACE	USA	36
R6602B	FAA, WASHINGTON, DC ARTCC	Fort Lee	010999AMSL	04000AMSL	USA	33
R6602C	FAA, WASHINGTON, DC ARTCC	Fort Lee	018000AMSL	11000AMSL	USA	33
R6714A	FAA, SEATTLE ARTCC	Fort Lewis	028999AMSL	SURFACE	USA	229
R6714B	FAA, SEATTLE ARTCC	Fort Lewis	028999AMSL	SURFACE	USA	25
R6714C	FAA, SEATTLE ARTCC	Fort Lewis	028999AMSL	SURFACE	USA	30
R6714D	FAA, SEATTLE ARTCC	Fort Lewis	028999AMSL	SURFACE	USA	4
R6714E	FAA, SEATTLE ARTCC	Yakima	054999AMSL	29000AMSL	USA	319

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
R6714F	FAA, SEATTLE ARTCC	Fort Lewis	028999AMSL	SURFACE	USA	14
R6714G	FAA, SEATTLE ARTCC	Fort Lewis	028999AMSL	SURFACE	USA	21
R6714H	FAA, SEATTLE ARTCC	Fort Lewis	005499AMSL	SURFACE	USA	26
R6901A	FAA, MINNEAPOLIS ARTCC	Fort McCoy	FL200	SURFACE	USA	46
R6901B	FAA, MINNEAPOLIS ARTCC	Fort McCoy	FL200	SURFACE	USA	21
R7001A	FAA, DENVER ARTCC	Camp Guernsey	007999AMSL	SURFACE	USA	46
R7001B	FAA, DENVER ARTCC	Camp Guernsey	023500AMSL	08000AMSL	USA	46
R7001C	FAA, DENVER ARTCC	Camp Guernsey	FL300	23500AMSL	USA	46
RAINIER 1 MOA, WA	FAA, SEATTLE-TACOMA APP CON	Fort Leonard Wood	009000AMSL	02000AMSL	USA	27
RAINIER 2 MOA, WA	FAA, SEATTLE-TACOMA APP CON	Fort Leonard Wood	009000AMSL	02000AMSL	USA	49
RAINIER 3 MOA, WA	FAA, SEATTLE-TACOMA APP CON	Fort Leonard Wood	009000AMSL	02000AMSL	USA	15
RILEY MOA, KS	CO, 24 Infantry Div	Fort Riley	FL180	07000AMSL	USA	325
SHIRLEY 1 MOA, AR	FAA, MEMPHIS ARTCC	Fort Smith	018000AMSL	10000AMSL	USA	3069
SILVER MOA NORTH, CA	FAA, LOS ANGELES ARTCC	Fort Irwin	009000AMSL	00200AGL	USA	360
SILVER MOA SOUTH, CA	FAA, LOS ANGELES ARTCC	Fort Irwin	007000AMSL	00200AGL	USA	19
WARRIOR 1 HIGH MOA, LA	FAA, HOUSTON ARTCC	Fort Polk	018000AMSL	10000AMSL	USA	1599
WARRIOR 1 LOW MOA, LA	FAA, HOUSTON ARTCC	Fort Polk	009999AMSL	00100AGL	USA	1599
WARRIOR 2 HIGH MOA, LA	FAA, HOUSTON ARTCC	Fort Polk	018000AMSL	10000AMSL	USA	885
WARRIOR 2 LOW MOA, LA	FAA, HOUSTON ARTCC	Fort Polk	009999AMSL	00100AGL	USA	885
WARRIOR 3 HIGH MOA, LA	FAA, HOUSTON ARTCC	Fort Polk	018000AMSL	10000AMSL	USA	1009
WARRIOR 3 LOW MOA, LA	FAA, HOUSTON ARTCC	Fort Polk	009999AMSL	00100AGL	USA	1009
R4401A	FAA, HOUSTON ARTCC	Camp Shelby	004000AMSL	SURFACE	USA(ARNG)	87
R4401B	FAA, HOUSTON ARTCC	Camp Shelby	018000AMSL	04000AMSL	USA(ARNG)	87
R4401C	FAA, HOUSTON ARTCC	Camp Shelby	FL290	18000AMSL	USA(ARNG)	87
R5401	FAA, MINNEAPOLIS ARTCC	Camp Grafton	005000AMSL	SURFACE	USA(ARNG)	3
R6412A	FAA, SALT LAKE CITY TRACON	Camp Williams	009000AMSL	SURFACE	USA(ARNG)	18
R6412B	FAA, SALT LAKE CITY TRACON	Camp Williams	010000AMSL	09000AMSL	USA(ARNG)	18
R6412C	FAA, SALT LAKE CITY TRACON	Camp Williams	009000AMSL	SURFACE	USA(ARNG)	13
R6412D	FAA, SALT LAKE CITY TRACON	Camp Williams	010000AMSL	09000AMSL	USA(ARNG)	13
RACER A MOA, IN	HQ IN ANG Det 1	Camp Atterbury	004000AMSL	00500AGL	USA(ARNG)	130
RACER B MOA, IN	HQ IN ANG, Det 1, CAMP ATTERBURY, IN	Camp Atterbury	008000AMSL	04000AMSL	USA(ARNG)	130
RACER C MOA, IN	HQ IN ANG, Det 1, CAMP ATTERBURY, IN	Camp Atterbury	018000AMSL	00500AGL	USA(ARNG)	36
(RO)W173	USAF, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USAF	6077
(RO)W182	USAF, CFAO KADENA AB	Okinawa Range Complex	004000AMSL	SURFACE	USAF	78

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
A220	USAF, MCGUIRE AFB RAPCON	McGuire AFB	004500AMSL	SURFACE	USAF	457
A231	FAA, ALBUQUERQUE ARTCC	Luke AFB	006500AMSL	00500AGL	USAF	516
A260	USAF ACADEMY	USAF Academy	017500AMSL	SURFACE	USAF	31
A440	USAF, 14 FTW COLUMBUS AFB	Columbus AFB	006500AMSL	SURFACE	USAF	217
A481	USAF, NELLIS AFB	Nellis AFB	017000AMSL	07000AMSL	USAF	252
A561	USAF, SHEPPARD AFB	Sheppard AFB	004000AMSL	SURFACE	USAF	145
A562A	USAF, VANCE AFB	Vance AFB	010000AMSL	SURFACE	USAF	119
A562B	USAF, VANCE AFB	Vance AFB	010000AMSL	SURFACE	USAF	156
A633A	USAF, LAUGHLIN AFB	Laughlin AFB	007000AMSL	SURFACE	USAF	548
A633B	USAF, LAUGHLIN AFB	Laughlin AFB	004000AMSL	SURFACE	USAF	153
A635	USAF, RANDOLPH AFB	Randolph AFB	004000AMSL	01500AMSL	USAF	139
A636	USAF, SHEPPARD AFB	Sheppard AFB	004000AMSL	SURFACE	USAF	529
A638	USAF, RANDOLPH AFB	Randolph AFB	003000AMSL	SURFACE	USAF	129
A639A	USAF, USAF ACADEMY	USAF Academy	012000AMSL	03000AGL	USAF	730
A639B	USAF, USAF ACADEMY	USAF Academy	012000AMSL	03000AGL	USAF	136
A640	USAF, RANDOLPH AFB	Randolph AFB	007500AMSL	00200AGL	USAF	2493
A682(A)	USAF, TRAVIS AFB	Travis AFB	006000AMSL	SURFACE	USAF	206
A682(B)	USAF, TRAVIS AFB	Travis AFB	003000AMSL	SURFACE	USAF	116
ADA EAST MOA, KS	FAA, KANSAS CITY ARTCC	Vance AFB	018000AMSL	07000AMSL	USAF	1124
ADA WEST MOA, KS	FAA, KANSAS CITY ARTCC	Vance AFB	018000AMSL	07000AMSL	USAF	1065
ANNE HIGH MOA, AR	FAA, FORT WORTH ARTCC	Barksdale AFB	018000AMSL	07000AMSL	USAF	683
ANNE LOW MOA, AR	FAA, FORT WORTH ARTCC	Barksdale AFB	006999AMSL	00100AGL	USAF	683
AVON EAST MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	013999AMSL	00500AGL	USAF	38
AVON NORTH MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	018000AMSL	05000AMSL	USAF	94
AVON SOUTH MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	018000AMSL	05000AMSL	USAF	116
BAGDAD 1 MOA, AZ	FAA, ALBUQUERQUE ARTCC	Luke AFB	018000AMSL	07000AMSL	USAF	1067
BAKERSFIELD MOA, CA	FAA, LOS ANGLES ARTCC	Edwards AFB	018000AMSL	02000AGL	USAF	301
BARSTOW MOA, CA	FAA, HI-DESERT TRACON, EDWARDS, CA	Edwards AFB	018000AMSL	00200AGL	USAF	162
BASINGER MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	005000AMSL	00500AGL	USAF	42
BEAK A MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	018000AMSL	12500AMSL	USAF	690
BEAK B MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	018000AMSL	12500AMSL	USAF	606
BEAK C MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	018000AMSL	12500AMSL	USAF	636
BIRCH MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	005000AMSL	00500AGL	USAF	424
BISHOP MOA, CA	FAA, LOS ANGLES ARTCC	Edwards AFB	018000AMSL	00200AGL	USAF	128

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
BRONCO 1 MOA, TX	FAA, FORT WORTH ARTCC	Cannon AFB	018000AMSL	08000AMSL	USAF	1041
BRONCO 2 MOA, TX	FAA, FORT WORTH ARTCC	Cannon AFB	018000AMSL	10000AMSL	USAF	609
BRONCO 3 MOA, TX	FAA, FORT WORTH ARTCC	Cannon AFB	018000AMSL	10000AMSL	USAF	1739
BRONCO 4 MOA, TX	FAA, FORT WORTH ARTCC	Cannon AFB	018000AMSL	10000AMSL	USAF	1764
BUCKHORN MOA, CA	FAA, LOS ANGELES ARTCC	Edwards AFB	018000AMSL	00200AGL	USAF	58
BUFFALO MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	006999AMSL	00300AGL	USAF	1648
BULLDOG A MOA, GA	FAA, ATLANTA ARTCC	Shaw AFB	009999AMSL	00500AGL	USAF	1052
BULLDOG B MOA, GA	FAA, ATLANTA ARTCC	Shaw AFB	018000AMSL	10000AMSL	USAF	1677
BULLDOG D MOA, GA	FAA, ATLANTA ARTCC	Shaw AFB	017000AMSL	00500AGL	USAF	79
CATO MOA, NM	FAA, ALBUQUERQUE ARTCC	Kirtland AFB	018000AMSL	13500AMSL	USAF	2655
CHINA MOA, CA	FAA, OAKLAND ARTCC	Beale AFB	018000AMSL	03000AGL	USAF	625
CLAIBORNE A MOA, LA	USA, POLK APP CON	Claiborne	009999AMSL	00100AGL	USAF	80
CLAIBORNE B MOA, LA	USA, POLK APP CON	Claiborne	018000AMSL	10000AMSL	USAF	80
COLUMBUS 1 MOA, MS	FAA, MEMPHIS ARTCC	Columbus AFB	018000AMSL	08000AMSL	USAF	2707
COLUMBUS 2 MOA, MS	FAA, MEMPHIS ARTCC	Columbus AFB	018000AMSL	08000AMSL	USAF	643
COLUMBUS 3 MOA, MS	FAA, MEMPHIS ARTCC	Columbus AFB	018000AMSL	08000AMSL	USAF	2664
COLUMBUS 4 MOA, MS	FAA, MEMPHIS ARTCC	Columbus AFB	018000AMSL	10000AMSL	USAF	1376
CRYSTAL MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	018000AMSL	06000AMSL	USAF	1377
CRYSTAL NORTH MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	018000AMSL	06000AMSL	USAF	410
DESERT MOA, NV	FAA, LOS ANGELES ARTCC	Nellis AFB	018000AMSL	00100AGL	USAF	5543
DEVILS LAKE EAST MOA, ND	FAA, MINNEAPOLIS ARTCC	McChord AFB	018000AMSL	03500AMSL	USAF	1773
DEVILS LAKE WEST MOA, ND	FAA, MINNEAPOLIS ARTCC	McChord AFB	018000AMSL	04000AMSL	USAF	1739
EGLIN A EAST MOA, FL	FAA, JACKSONVILLE ARTCC	Eglin AFB	018000AMSL	01000AGL	USAF	98
EGLIN A WEST MOA, FL	FAA, JACKSONVILLE ARTCC	Eglin AFB	018000AMSL	01000AGL	USAF	90
EGLIN B MOA, FL	FAA, JACKSONVILLE ARTCC	Eglin AFB	018000AMSL	01000AGL	USAF	222
EGLIN C MOA, FL	FAA, JACKSONVILLE ARTCC	Eglin AFB	018000AMSL	01000AGL	USAF	144
EGLIN D MOA, FL	FAA, JACKSONVILLE ARTCC	Eglin AFB	003000AMSL	01000AGL	USAF	133
EGLIN E MOA, FL	FAA, JACKSONVILLE ARTCC	Eglin AFB	018000AMSL	SURFACE	USAF	1143
EGLIN F MOA, FL	FAA, JACKSONVILLE ARTCC	Eglin AFB	018000AMSL	SURFACE	USAF	5
EIELSON MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	00100AGL	USAF	720
EVERS MOA, WV	FAA, WASHINGTON, DC ARTCC	Langley AFB	018000AMSL	01000AGL	USAF	479
FARMVILLE MOA, VA	FAA, WASHINGTON, DC ARTCC	Langley AFB	005000AMSL	00300AGL	USAF	1188
FOX 1 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	05000AGL	USAF	1132
FOX 2 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	07000AMSL	USAF	94

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
FOX 3 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	05000AMSL	USAF	3705
FUZZY MOA, AZ	FAA, ALBUQUERQUE ARTCC	Barry M. Goldwater Range	009999AMSL	00100AGL	USAF	444
GALENA MOA, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	01000AMSL	USAF	3910
GAMECOCK A MOA, NC	FAA, WASHINGTON, DC ARTCC	Shaw AFB (20 OSS/OSOS)	018000AMSL	07000AMSL	USAF	555
GAMECOCK B MOA, SC	FAA, JACKSONVILLE ARTCC	Shaw AFB	018000AMSL	10000AMSL	USAF	248
GAMECOCK C MOA, SC	FAA, JACKSONVILLE ARTCC	Shaw AFB	010000AMSL	00100AGL	USAF	623
GAMECOCK D MOA, SC	FAA, JACKSONVILLE ARTCC	Shaw AFB	018000AMSL	10000AMSL	USAF	839
GAMECOCK I MOA, SC	FAA, JACKSONVILLE ARTCC	Shaw AFB	006000AMSL	00100AGL	USAF	405
GANDY MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	018000AMSL	00100AGL	USAF	832
GLADDEN 1 MOA, AZ	FAA, ALBUQUERQUE ARTCC	Luke AFB	018000AMSL	05000AGL	USAF	1872
HACKETT MOA, LA	FAA, FORT WORTH ARTCC	Barksdale AFB	018000AMSL	07000AMSL	USAF	1235
HOLLIS MOA, OK	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	11000AMSL	USAF	1204
ISABELLA MOA, CA	FAA, HI-DESERT TRACON, EDWARDS AFB	Edwards AFB	018000AMSL	00200AGL	USAF	2684
JARBIDGE MOA, ID	FAA, SALT LAKE CITY ARTCC	Mt. Home AFB	018000AMSL	00100AGL	USAF	1836
JENA 1 MOA, LA	FAA, HOUSTON ARTCC	Barksdale AFB	005000AMSL	00100AGL	USAF	1075
LAKE PLACID MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	018000AMSL	07000AMSL	USAF	1085
LANCER MOA, TX	FAA, FORT WORTH ARTCC	Dyess AFB	018000AMSL	06200AMSL	USAF	3225
LAUGHLIN 1 MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	018000AMSL	09000AMSL	USAF	4972
LAUGHLIN 2 MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	018000AMSL	07000AMSL	USAF	2279
LAUGHLIN 3 HIGH MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	FL180	15000AMSL	USAF	420
LAUGHLIN 3 LOW MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	014999AMSL	07000AMSL	USAF	420
LIVE OAK MOA, FL	FAA, JACKSONVILLE ARTCC	Moody AFB	018000AMSL	08000AMSL	USAF	1208
LUCIN A MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	009000AMSL	00100AGL	USAF	1532
LUCIN B MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	007500AMSL	00100AGL	USAF	992
LUCIN C MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	006500AMSL	00100AGL	USAF	120
MARIAN MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	005000AMSL	00500AGL	USAF	204
MAXWELL 1 MOA, CA	FAA, OAKLAND ARTCC	Beale AFB	018000AMSL	11000AMSL	USAF	877
MAXWELL 2 MOA, CA	FAA, OAKLAND ARTCC	Beale AFB	018000AMSL	11000AMSL	USAF	926
MAXWELL 3 MOA, CA	FAA, OAKLAND ARTCC	Beale AFB	018000AMSL	11000AMSL	USAF	926
MOODY 1 MOA, GA	FAA, JACKSONVILLE ARTCC	Moody AFB	018000AMSL	08000AMSL	USAF	4714
MOODY 2 NORTH MOA, GA	FAA, JACKSONVILLE ARTCC	Moody AFB	007999AMSL	00500AGL	USAF	318
MOODY 2 SOUTH MOA, GA	FAA, JACKSONVILLE ARTCC	Moody AFB	007999AMSL	00100AGL	USAF	405
MOODY 3 MOA, GA	FAA, JACKSONVILLE ARTCC	Moody AFB	018000AMSL	08000AMSL	USAF	1258
MT DORA EAST HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	018000AMSL	11000AMSL	USAF	1163

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
MT DORA EAST LOW MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	010999AMSL	01500AGL	USAF	1163
MT DORA NORTH HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	018000AMSL	11000AMSL	USAF	1264
MT DORA NORTH LOW MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	010999AMSL	01500AGL	USAF	1264
MT DORA WEST HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	018000AMSL	11000AMSL	USAF	1607
MT DORA WEST LOW MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	010999AMSL	01500AGL	USAF	1607
NAKNEK 1 MOA, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	03000AGL	USAF	3894
NAKNEK 2 MOA, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	03000AGL	USAF	2758
ONTONAGON MOA, MI	FAA, MINNEAPOLIS ARTCC	Offutt AFB	018000AMSL	00500AGL	USAF	863
OWENS MOA, CA	FAA, HI-DESERT TRACON, EDWARDS AFB	Edwards AFB	018000AMSL	00200AGL	USAF	2014
OWYHEE MOA, ID	FAA, SALT LAKE CITY ARTCC	Mt. Home AFB	018000AMSL	00100AGL	USAF	1988
PANAMINT MOA, CA	FAA, HI-DESERT TRACON, EDWARDS AFB	Edwards AFB	018000AMSL	03001AGL	USAF	2051
PARADISE EAST MOA, NV	FAA, SALT LAKE CITY ARTCC	Mt. Home AFB	018000AMSL	14500AMSL	USAF	1608
PARADISE WEST MOA, OR	FAA, SALT LAKE CITY ARTCC	Mt. Home AFB	018000AMSL	14500AMSL	USAF	1840
PHELPS A MOA, NC	FAA, WASHINGTON, DC ARTCC	Seymour-Johnson AFB	018000AMSL	06000AMSL	USAF	211
PHELPS B MOA, NC	FAA, WASHINGTON, DC ARTCC	Seymour-Johnson AFB	018000AMSL	10000AMSL	USAF	77
PHELPS C MOA, NC	FAA, WASHINGTON, DC ARTCC	Seymour-Johnson AFB	018000AMSL	15000AMSL	USAF	44
POINSETT MOA, SC	USAF, SHAW APP CON	Shaw AFB	002500AMSL	00300AGL	USAF	145
PORTERVILLE MOA, CA	FAA, LOS ANGELES ARTCC	Edwards AFB	018000AMSL	02000AGL	USAF	465
POWDER RIVER A MOA, MT	FAA, SALT LAKE CITY ARTCC	Ellsworth AFB	018000AMSL	SURFACE	USAF	3047
POWDER RIVER B MOA, WY	FAA, DENVER ARTCC	Ellsworth AFB	018000AMSL	01000AGL	USAF	1385
R2206	FAA, ANCHORAGE ARTCC	13th Missile Wing	008800AMSL	SURFACE	USAF	10
R2211	FAA, ANCHORAGE ARTCC	Eielson AFB	FL310	SURFACE	USAF	134
R2301E	FAA, ALBUQUERQUE ARTCC	Luke AFB	FL800	SURFACE	USAF	1552
R2304	FAA, ALBUQUERQUE ARTCC	Luke AFB	FL240	SURFACE	USAF	345
R2305	FAA, ALBUQUERQUE ARTCC	Luke AFB	FL240	SURFACE	USAF	187
R2309	FAA, LOS ANGELES ARTCC	Yuma Proving Ground	015000AMSL	SURFACE	USAF	7
R2312	LIBBY AAF TWR	McChord AFB	014999AMSL	SURFACE	USAF	9
R2508	FAA, HI-DESERT TRACON, EDWARDS AFB	R-2508 Complex	UNLTD	FL200	USAF	12127
R2515	FAA, HI-DESERT TRACON, EDWARDS AFB	Edwards AFB	UNLTD	SURFACE	USAF	1368
R2516	FAA, LOS ANGELES ARTCC	Vandenberg AFB	UNLTD	SURFACE	USAF	134
R2517	FAA, LOS ANGELES ARTCC	Vandenberg AFB	UNLTD	SURFACE	USAF	95
R2534A	FAA, LOS ANGELES ARTCC	Vandenberg AFB	UNLTD	00500AGL	USAF	52
R2534B	FAA, LOS ANGELES ARTCC	Vandenberg AFB	UNLTD	00500AGL	USAF	54
R2602	FAA, DENVER ARTCC	Colorado Springs Training Site	SURFACE	01000AGL	USAF	1

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
R2901A	FAA, MIAMI ARTCC	Avon Park	014000AMSL	SURFACE	USAF	166
R2901B	FAA, MIAMI ARTCC	Avon Park	FL180	14000AMSL	USAF	145
R2901C	FAA, MIAMI ARTCC	Avon Park	014000AMSL	SURFACE	USAF	25
R2901D	FAA, MIAMI ARTCC	Avon Park	004000AMSL	00500AMSL	USAF	28
R2901E	FAA, MIAMI ARTCC	Avon Park	004000AMSL	01000AMSL	USAF	90
R2901F	FAA, MIAMI ARTCC	Avon Park	005000AMSL	04000AMSL	USAF	15
R2901G	FAA, MIAMI ARTCC	Avon Park	005000AMSL	SURFACE	USAF	27
R2901H	FAA, MIAMI ARTCC	Avon Park	004000AMSL	01000AMSL	USAF	32
R2901I	FAA, MIAMI ARTCC	Avon Park	004000AMSL	01500AMSL	USAF	31
R2905A	TYNDALL AFB RADAR APP	Tyndall AFB	010000AMSL	SURFACE	USAF	15
R2905B	TYNDALL AFB RADAR APP	Tyndall AFB	010000AMSL	SURFACE	USAF	25
R2914A	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	387
R2914B	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	08500AMSL	USAF	71
R2915A	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	208
R2915B	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	46
R2915C	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	08500AMSL	USAF	34
R2916	FAA, MIAMI ARTCC	Tyndall AFB	014000AMSL	SURFACE	USAF	9
R2917	USAF, EGLIN AFB APP	Eglin AFB	022999AMSL	SURFACE	USAF	20
R2918	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	16
R2919A	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	48
R2919B	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	08500AMSL	USAF	84
R2932	FAA, MIAMI ARTCC	Cape Canaveral Range Complex	004999AMSL	SURFACE	USAF	115
R2933	FAA, MIAMI ARTCC	Cape Canaveral Range Complex	UNLTD	05000AMSL	USAF	115
R2934	FAA, MIAMI ARTCC	Cape Canaveral Range Complex	UNLTD	SURFACE	USAF	169
R2935	FAA, MIAMI ARTCC	Cape Canaveral Range Complex	UNLTD	11000AMSL	USAF	404
R3008A	USAF, VALDOSTA APP	Moody AFB	010000AMSL	SURFACE	USAF	6
R3008B	USAF, VALDOSTA APP	Moody AFB	010000AMSL	00100AGL	USAF	20
R3008C	USAF, VALDOSTA APP	Moody AFB	010000AMSL	00500AGL	USAF	67
R3008C(A)	USAF, VALDOSTA APP	Moody AFB	001500AGL	SURFACE	USAF	3
R3008D	USAF, VALDOSTA APP	Moody AFB	022999AMSL	10000AMSL	USAF	93
R3202(H)	FAA, SALT LAKE CITY ARTCC	Mountain Home AFB	FL290	FL180	USAF	226
R3202(L)	FAA, SALT LAKE CITY ARTCC	Mountain Home AFB	018000AMSL	SURFACE	USAF	226
R3204A	FAA, SALT LAKE CITY ARTCC	Mountain Home AFB	000100AGL	SURFACE	USAF	14
R3204B	FAA, SALT LAKE CITY ARTCC	Mountain Home AFB	018000AMSL	00100AGL	USAF	78

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
R3204C	FAA, SALT LAKE CITY ARTCC	Mountain Home AFB	FL290	FL180	USAF	78
R3801A	FAA, HOUSTON ARTCC	Barksdale AFB	010000AMSL	SURFACE	USAF	101
R3801B	FAA, HOUSTON ARTCC	Barksdale AFB	FL180	10000AMSL	USAF	101
R3801C	FAA, HOUSTON ARTCC	Barksdale AFB	FL230	FL180	USAF	101
R3807	FAA, HOUSTON ARTCC	Tyndall AFB	015000AMSL	SURFACE	USAF	28
R4105A	FAA, CAPE APP	Barnes ANGB	009999AMSL	SURFACE	USAF	28
R4105B	FAA, CAPE APP	Barnes ANGB	018000AMSL	10000AMSL	USAF	28
R4305	FAA, MINNEAPOLIS ARTCC	Offutt AFB	FL450	SURFACE	USAF	1242
R4806E	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	00100AGL	USAF	291
R4806W	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	SURFACE	USAF	1179
R4807A	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	SURFACE	USAF	1698
R4807B	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	SURFACE	USAF	100
R5104A	FAA, ALBUQUERQUE ARTCC	Cannon AFB	018000AMSL	SURFACE	USAF	209
R5104B	FAA, ALBUQUERQUE ARTCC	Cannon AFB	023000AMSL	18000AMSL	USAF	209
R5105	FAA, ALBUQUERQUE ARTCC	Cannon AFB	010000AMSL	SURFACE	USAF	139
R5115	FAA, ALBUQUERQUE ARTCC	McChord AFB	015000AMSL	SURFACE	USAF	10
R6002A	FAA, JACKSONVILLE ARTCC	Shaw AFB	012999AMSL	SURFACE	USAF	54
R6002B	FAA, JACKSONVILLE ARTCC	Shaw AFB	018000AMSL	13000AMSL	USAF	54
R6002C	FAA, JACKSONVILLE ARTCC	Shaw AFB	FL230	FL180	USAF	54
R6316	FAA, HOUSTON ARTCC	McChord AFB	015000AMSL	SURFACE	USAF	21
R6317	FAA, HOUSTON ARTCC	McChord AFB	015000AMSL	SURFACE	USAF	21
R6318	FAA, ALBUQUERQUE ARTCC	McChord AFB	014000AMSL	SURFACE	USAF	9
R6402A	FAA, SALT LAKE CITY ARTCC	Hill AFB	FL580	SURFACE	USAF	987
R6402B	FAA, SALT LAKE CITY ARTCC	Hill AFB	FL580	00100AGL	USAF	35
R6404A	FAA, SALT LAKE CITY ARTCC	Hill AFB	FL580	SURFACE	USAF	1120
R6404B	FAA, SALT LAKE CITY ARTCC	Hill AFB	013000AMSL	SURFACE	USAF	202
R6404C	FAA, SALT LAKE CITY ARTCC	Hill AFB	FL280	00100AGL	USAF	168
R6404D	FAA, SALT LAKE CITY ARTCC	Hill AFB	FL250	13000AMSL	USAF	202
R6405	FAA, SALT LAKE CITY ARTCC	Hill AFB	FL580	00100AGL	USAF	1946
R6406A	FAA, SALT LAKE CITY ARTCC	Hill AFB	FL580	SURFACE	USAF	851
R6406B	FAA, SALT LAKE CITY ARTCC	Hill AFB	FL580	00100AGL	USAF	47
R6407	FAA, SALT LAKE CITY ARTCC	Hill AFB	FL580	SURFACE	USAF	652
R6413	FAA, DENVER ARTCC	White Sands Missile Range	UNLTD	SURFACE	USAF	204
RANDOLPH 1A MOA, TX	FAA, HOUSTON ARTCC	Randolph AFB	018000AMSL	08000AMSL	USAF	1418

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
RANDOLPH 1B MOA, TX	FAA, SAN ANTONIO TRACON	Randolph AFB	018000AMSL	07000AMSL	USAF	754
RANDOLPH 2A MOA, TX	FAA, HOUSTON ARTCC	Randolph AFB	018000AMSL	09000AMSL	USAF	1443
RANDOLPH 2B MOA, TX	FAA, HOUSTON ARTCC	Randolph AFB	018000AMSL	14000AMSL	USAF	316
REVEILLE NORTH MOA, NV	FAA, SALT LAKE CITY ARTCC	Nellis AFB	018000AMSL	00100AGL	USAF	1245
REVEILLE SOUTH MOA, NV	FAA, SALT LAKE CITY ARTCC	Nellis AFB	018000AMSL	00100AGL	USAF	439
ROSE HILL MOA, AL	FAA, JACKSONVILLE ARTCC	Eglin AFB	018000AMSL	08000AMSL	USAF	649
SALINE MOA, CA	FAA, HI-DESERT TRACON, EDWARDS AFB	Edwards AFB	018000AMSL	00200AGL	USAF	1690
SELLS 1 MOA, AZ	FAA, ALBUQUERQUE ARTCC	Luke AFB	018000AMSL	10000AMSL	USAF	3665
SELLS LOW MOA, AZ	FAA, ALBUQUERQUE ARTCC	Luke AFB	009999AMSL	03000AGL	USAF	3133
SEVIER A MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	014500AMSL	00100AGL	USAF	1011
SEVIER B MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	009500AMSL	00100AGL	USAF	2200
SEVIER C MOA, NV	FAA, SALT LAKE CITY ARTCC	Hill AFB	018000AMSL	14500AMSL	USAF	1011
SEVIER D MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	018000AMSL	09500AMSL	USAF	2200
SEYMOUR JOHNSON ECHO MOA, NC	FAA, WASHINGTON, DC ARTCC	Seymour-Johnson AFB	018000AMSL	07000AMSL	USAF	1036
SHEPPARD 1 MOA, TX	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	08000AMSL	USAF	1033
SHEPPARD 2 MOA, TX	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	08000AMSL	USAF	1264
SHOSHONE MOA, CA	FAA, LOS ANGELES ARTCC	R-2508 Complex	018000AMSL	03001AGL	USAF	1170
STONY A MOA, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	00100AGL	USAF	4068
STONY B MOA, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	02000AGL	USAF	2393
SUNNY MOA, AZ	FAA, DENVER ARTCC	Luke AFB	018000AMSL	12000AMSL	USAF	2330
SUSITNA MOA, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	10000AMSL	USAF	2474
TAIBAN MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	010999AMSL	00500AGL	USAF	235
TALON EAST HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	018000AMSL	12500AMSL	USAF	661
TALON LOW MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	012499AMSL	00300AGL	USAF	1027
TALON WEST HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	018000AMSL	12500AMSL	USAF	972
TEXON MOA, TX	FAA, HOUSTON ARTCC	Randolph AFB	018000AMSL	06000AMSL	USAF	1156
TIGER NORTH MOA, ND	FAA, MINNEAPOLIS ARTCC	McChord AFB	018000AMSL	00300AGL	USAF	2225
TIGER SOUTH MOA, ND	FAA, MINNEAPOLIS ARTCC	McChord AFB	018000AMSL	06000AMSL	USAF	1715
TOMBSTONE A MOA, AZ	FAA, ALBUQUERQUE ARTCC	David-Monthan AFB	014499AMSL	00500AGL	USAF	520
TOMBSTONE B MOA, AZ	FAA, ALBUQUERQUE ARTCC	David-Monthan AFB	014499AMSL	00500AGL	USAF	1299
TOMBSTONE C MOA, AZ	FAA, ALBUQUERQUE ARTCC	David-Monthan AFB	018000AMSL	14500AMSL	USAF	3002
TRUMAN A MOA, MO	FAA, KANSAS CITY ARTCC	Whiteman AFB	018000AMSL	08000AMSL	USAF	1107
TRUMAN B MOA, MO	FAA, KANSAS CITY ARTCC	Whiteman AFB	018000AMSL	08000AMSL	USAF	731
TRUMAN C MOA, MO	FAA, KANSAS CITY ARTCC	Whiteman AFB	018000AMSL	00500AGL	USAF	608

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
TYNDALL B MOA, FL	USAF, TYNDALL RADAR APP CON	Tyndall AFB	018000AMSL	09000AMSL	USAF	347
TYNDALL C MOA, FL	USAF, TYNDALL RADAR APP CON	Tyndall AFB	006000AMSL	00300AGL	USAF	559
TYNDALL D MOA, FL	USAF, TYNDALL RADAR APP CON	Tyndall AFB	006000AMSL	00300AGL	USAF	311
TYNDALL E MOA, FL	USAF, TYNDALL RADAR APP CON	Tyndall AFB	018000AMSL	00300AGL	USAF	893
TYNDALL F MOA, FL	USAF, TYNDALL RADAR APP CON	Tyndall AFB	018000AMSL	00300AGL	USAF	297
TYNDALL G MOA, FL	USAF, TYNDALL RADAR APP CON	Tyndall AFB	018000AMSL	01000AGL	USAF	224
TYNDALL H MOA, FL	USAF, TYNDALL RADAR APP CON	Tyndall AFB	018000AMSL	09000AMSL	USAF	559
VALENTINE MOA, TX	FAA, ALBUQUERQUE ARTCC	Holloman AFB	018000AMSL	15000AMSL	USAF	2462
VANCE 1A MOA, OK	FAA, KANSAS CITY ARTCC	Vance AFB	018000AMSL	10000AMSL	USAF	2038
VANCE 1B MOA, OK	FAA, KANSAS CITY ARTCC	Vance AFB	018000AMSL	07000AMSL	USAF	2236
VIPER A MOA, AK	FAA, FAIRBANKS TWR	Eielson AFB	010000AMSL	00500AGL	USAF	105
VIPER B MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	10000AMSL	USAF	105
W147A	FAA, HOUSTON ARTCC	Ellington Field	022999AMSL	05000AMSL	USAF	4484
W147B	FAA, HOUSTON ARTCC	Ellington Field	FL500	FL230	USAF	4484
W147D	FAA, HOUSTON ARTCC	Ellington Field	FL500	SURFACE	USAF	5469
W147E	FAA, HOUSTON ARTCC	Ellington Field	FL500	FL260	USAF	1923
W151A	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	2555
W151B	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	2521
W151C	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	1728
W151D	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	2113
W151E	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	531
W151F	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	810
W161A	FAA, JACKSONVILLE ARTCC	Shaw AFB	FL620	SURFACE	USAF	1265
W161B	FAA, JACKSONVILLE ARTCC	Shaw AFB	FL240	SURFACE	USAF	562
W168	FAA, MIAMI ARTCC	MacDill AFB	UNLTD	SURFACE	USAF	7264
W177A(A)	FAA, JACKSONVILLE ARTCC	Shaw AFB	FL500	SURFACE	USAF	1666
W177A(B)	FAA, JACKSONVILLE ARTCC	Shaw AFB	FL500	06001AMSL	USAF	210
W177B	FAA, JACKSONVILLE ARTCC	Shaw AFB	FL240	SURFACE	USAF	758
W470A	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	2022
W470B	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	2128
W470C	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	1147
W470D	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	422
W470E	FAA, MIAMI ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	1011
W470F	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	263

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
W497A	FAA, MIAMI ARTCC	Patrick AFB	UNLTD	SURFACE	USAF	2422
W497B	FAA, MIAMI ARTCC	Patrick AFB	UNLTD	SURFACE	USAF	21756
W506	FAA, NEW YORK ARTCC	NE ADS/DOOS, NY ANG	FL500	SURFACE	USAF	1796
W612	FAA, ANCHORAGE ARTCC	Elmendorf AFB	FL290	SURFACE	USAF	2556
W93(A)	FAA, SEATTLE ARTCC	McChord AFB	FL500	SURFACE	USAF	4987
W93(B)	FAA, SEATTLE ARTCC	McChord AFB	FL500	SURFACE	USAF	978
WASHITA MOA, OK	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	08000AMSL	USAF	966
WESTOVER 1 MOA, TX	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	09000AMSL	USAF	1986
WESTOVER 2 MOA, TX	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	10000AMSL	USAF	2180
WHITMORE 1 MOA, CA	FAA, OAKLAND ARTCC	Beale AFB	018000AMSL	11000AMSL	USAF	584
WHITMORE 2 MOA, CA	FAA, OAKLAND ARTCC	Beale AFB	018000AMSL	11000AMSL	USAF	618
WHITMORE 3 MOA, CA	FAA, OAKLAND ARTCC	Beale AFB	018000AMSL	11000AMSL	USAF	618
YUKON 1 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	00100AGL	USAF	3747
YUKON 2 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	00100AGL	USAF	4929
YUKON 3 HIGH MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	10000AMSL	USAF	2267
YUKON 3A LOW MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	009999AMSL	00100AGL	USAF	2267
YUKON 3B MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	02000AGL	USAF	1523
YUKON 4 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	00100AGL	USAF	3355
YUKON 5 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	05000AGL	USAF	2707
A683	WICHITA TRACON	McConnell AFB (184 ARW, KS ANG)	004500AMSL	SURFACE	USAF(ANG)	114
AIRBURST A MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	018000AMSL	01500AGL	USAF(ANG)	167
AIRBURST B MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	018000AMSL	00500AGL	USAF(ANG)	14
AIRBURST C MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	008499AMSL	00500AGL	USAF(ANG)	11
BEAVER MOA, MN	FAA, MINNEAPOLIS ARTCC	148 FIG, MN ANG	018000AMSL	00300AGL	USAF(ANG)	2494
BIG BEAR MOA, MI	FAA, MINNEAPOLIS ARTCC	148 FIG, MN ANG	018000AMSL	00500AMSL	USAF(ANG)	1751
BIRMINGHAM 2 MOA, AL	FAA, ATLANTA ARTCC	187 FW, AL ANG	009999AMSL	00500AGL	USAF(ANG)	1135
BIRMINGHAM MOA, AL	FAA, ATLANTA ARTCC	187 FW, AL ANG	018000AMSL	10000AMSL	USAF(ANG)	1165
BRUSH CREEK MOA, OH	FAA, INDIANAPOLIS ARTCC	123 ACS, OH ANG	004999AMSL	00100AGL	USAF(ANG)	721
BUCKEYE MOA, OH	FAA, INDIANAPOLIS ARTCC	123 ACS, OH ANG	018000AMSL	05000AMSL	USAF(ANG)	1653
CAMDEN RIDGE MOA, AL	FAA, ATLANTA ARTCC	187 FW, AL ANG	009999AMSL	00500AGL	USAF(ANG)	2154
CANNON A MOA, MO	FAA, KANSAS CITY ARTCC	131 TFW, Det 1, MO ANG	018000AMSL	00300AGL	USAF(ANG)	232
CANNON B MOA, MO	FAA, KANSAS CITY ARTCC	131 TFW, Det 1, MO ANG	018000AMSL	00100AGL	USAF(ANG)	16
CHEYENNE HIGH MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	018000AMSL	09000AMSL	USAF(ANG)	1863
CHEYENNE LOW MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	008999AMSL	00300AGL	USAF(ANG)	1701

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
CONDOR 1 MOA, ME	FAA, BOSTON ARTCC	NE ADS/DOOS, NY ANG	018000AMSL	07000AMSL	USAF(ANG)	2424
CONDOR 2 MOA, ME	FAA, BOSTON ARTCC	NE ADS/DOOS, NY ANG	018000AMSL	07000AMSL	USAF(ANG)	614
CRYPT CENTRAL MOA, IA	FAA, MINNEAPOLIS ARTCC	132 FW, IA ANG	018000AMSL	08000AMSL	USAF(ANG)	1479
CRYPT NORTH MOA, IA	FAA, MINNEAPOLIS ARTCC	132 FW, IA ANG	018000AMSL	08000AMSL	USAF(ANG)	1777
CRYPT SOUTH MOA, IA	FAA, MINNEAPOLIS ARTCC	132 FW, IA ANG	018000AMSL	08000AMSL	USAF(ANG)	1325
DEEPWOODS MOA, ME	FAA, BANGOR APP CON	CO, Army Avn Support Fac/ME ANG	003000AMSL	SURFACE	USAF(ANG)	205
DUKE MOA, PA	FAA, CLEVELAND ARTCC	112 ACS/DOT, PA ANG	018000AMSL	08000AMSL	USAF(ANG)	1643
EUREKA HIGH MOA, KS	FAA, KANSAS CITY ARTCC	McConnell AFB (184 ARW, KS ANG)	018000AMSL	06000AMSL	USAF(ANG)	1648
EUREKA LOW MOA, KS	FAA, KANSAS CITY ARTCC	McConnell AFB (184 ARW, KS ANG)	005999AMSL	02500AMSL	USAF(ANG)	1648
FALLS 1 MOA, WI	FAA, MINNEAPOLIS ARTCC	Volk Field ANGB	018000AMSL	00500AGL	USAF(ANG)	832
FALLS 2 MOA, WI	FAA, MINNEAPOLIS ARTCC	Volk Field ANGB	018000AMSL	00500AGL	USAF(ANG)	526
GOOSE NORTH MOA, OR	FAA, SEATTLE ARTCC	Kingsley Fld	018000AMSL	03000AGL	USAF(ANG)	1387
GOOSE SOUTH MOA, OR	FAA, SEATTLE ARTCC	Kingsley Fld	018000AMSL	10000AMSL	USAF(ANG)	738
HART NORTH MOA, OR	FAA, SEATTLE ARTCC	173 FW, OR ANG	018000AMSL	11000AMSL	USAF(ANG)	660
HART SOUTH MOA, OR	FAA, SEATTLE ARTCC	173 FW, OR ANG	018000AMSL	11000AMSL	USAF(ANG)	1825
HAYS MOA, MT	FAA, SALT LAKE CITY ARTCC	120 FW, MT ANG	018000AMSL	00300AGL	USAF(ANG)	5368
HERSEY MOA, MI	FAA, MINNEAPOLIS ARTCC	110 TASG, MI ANG	018000AMSL	05000AMSL	USAF(ANG)	576
JACKAL LOW MOA, AZ	FAA, ALBUQUERQUE ARTCC	162 FW, AZ ANG	010999AMSL	00100AGL	USAF(ANG)	677
JACKAL MOA, AZ	FAA, ALBUQUERQUE ARTCC	162 FW, AZ ANG	018000AMSL	11000AMSL	USAF(ANG)	3562
LA VETA HIGH MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	018000AMSL	13000AMSL	USAF(ANG)	1266
LA VETA LOW MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	013000AMSL	01500AGL	USAF(ANG)	203
LINCOLN MOA, NE	FAA, MINNEAPOLIS ARTCC	155 TRG, NE ANG	018000AMSL	08000AMSL	USAF(ANG)	1306
LINDBERGH A MOA, MO	FAA, KANSAS CITY ARTCC	131 FW, MO ANG	018000AMSL	07000AMSL	USAF(ANG)	2302
LINDBERGH B MOA, MO	FAA, KANSAS CITY ARTCC	131 FW, MO ANG	018000AMSL	08000AMSL	USAF(ANG)	811
LINDBERGH C MOA, MO	FAA, KANSAS CITY ARTCC	131 FW, MO ANG	018000AMSL	08000AMSL	USAF(ANG)	611
MINNOW MOA, WI	FAA, CHICAGO ARTCC	Volk Field ANGB	018000AMSL	10000AMSL	USAF(ANG)	1741
MISTY 1 MOA, NY	FAA, CLEVELAND ARTCC	174 FW, NY ANG	018000AMSL	04000AMSL	USAF(ANG)	599
MISTY 2 MOA, NY	FAA, CLEVELAND ARTCC	174 FW, NY ANG	018000AMSL	00300AGL	USAF(ANG)	717
MISTY 3 MOA, NY	FAA, CLEVELAND ARTCC	174 FW, NY ANG	018000AMSL	11000AMSL	USAF(ANG)	522
MORENCI MOA, AZ	FAA, ALBUQUERQUE ARTCC	162 FW, AZ ANG	018000AMSL	01500AGL	USAF(ANG)	1757
O NEILL MOA, SD	FAA, MINNEAPOLIS ARTCC	185 FW, IA ANG	018000AMSL	00500AGL	USAF(ANG)	2204
OUTLAW MOA, AZ	FAA, ALBUQUERQUE ARTCC	162 FW, AZ ANG	018000AMSL	08000AMSL	USAF(ANG)	1984
R3007A	FAA, JACKSONVILLE ARTCC	Townsend	013000AMSL	SURFACE	USAF(ANG)	7
R3007B	FAA, JACKSONVILLE ARTCC	Townsend	013000AMSL	1200AGL	USAF(ANG)	32

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
R3007C	FAA, JACKSONVILLE ARTCC	Townsend	013000AMSL	100AGL	USAF(ANG)	134
R3007D	FAA, JACKSONVILLE ARTCC	Townsend	FL250	013000AMSL	USAF(ANG)	167
R4207	FAA, MINNEAPOLIS ARTCC	Phelps-Collins ANGB	FL450	SURFACE	USAF(ANG)	1009
R6903	FAA, CHICAGO ARTCC	Volk Field ANGB	FL450	SURFACE	USAF(ANG)	943
R6904A	FAA, MINNEAPOLIS ARTCC	Volk Field ANGB	FL230	00150AGL	USAF(ANG)	69
R6904B	FAA, MINNEAPOLIS ARTCC	Volk Field ANGB	FL230	SURFACE	USAF(ANG)	12
RED HILLS MOA, IN	FAA, INDIANAPOLIS ARTCC	181 TFG, IN ANG, Terre Haute	018000AMSL	06000AMSL	USAF(ANG)	1371
RESERVE MOA, AZ	FAA, ALBUQUERQUE ARTCC	162 FW, AZ ANG	018000AMSL	05000AGL	USAF(ANG)	2531
RUBY 1 MOA, AZ	FAA, ALBUQUERQUE ARTCC	162 FW, AZ ANG	018000AMSL	10000AMSL	USAF(ANG)	581
SALEM MOA, MO	FAA, KANSAS CITY ARTCC	131 TFW, Det 1, MO ANG	006999AMSL	SURFACE	USAF(ANG)	1459
SNOOPY EAST MOA, MN	FAA, MINNEAPOLIS ARTCC	148 FIG, MN ANG	018000AMSL	00300AGL	USAF(ANG)	1074
SNOOPY WEST MOA, MN	FAA, MINNEAPOLIS ARTCC	148 FIG, MN ANG	018000AMSL	06000AMSL	USAF(ANG)	2773
TWO BUTTES HIGH MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	018000AMSL	10000AMSL	USAF(ANG)	1435
TWO BUTTES LOW MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	009999AMSL	00300AGL	USAF(ANG)	1435
VOLK EAST MOA, WI	FAA, CHICAGO ARTCC	Volk Field ANGB	018000AMSL	08000AMSL	USAF(ANG)	1866
VOLK SOUTH MOA, WI	FAA, CHICAGO ARTCC	Hardwood (Volk Field)	018000AMSL	00500AGL	USAF(ANG)	514
VOLK WEST MOA, WI	FAA, MINNEAPOLIS ARTCC	Volk Field ANGB	018000AMSL	00100AGL	USAF(ANG)	514
W453	FAA, HOUSTON ARTCC	ANG CRTC GULFPORT, Gulfport, MS	FL500	SURFACE	USAF(ANG)	1260
YANKEE 1 MOA, NH	FAA, BOSTON ARTCC	103 TFG/DOC, CT ANG	018000AMSL	09000AMSL	USAF(ANG)	1921
YANKEE 2 MOA, NH	FAA, BOSTON ARTCC	103 TFG/DOC, CT ANG	008999AMSL	00100AGL	USAF(ANG)	775
(RO)R177	USMC, CAMP SMEDLEY D. BUTLER	Okinawa Range Complex	003000AMSL	SURFACE	USMC	12
(RO)R201	USMC, COMDR MCB JA, OPS AND TRNG	Okinawa Range Complex	002000AMSL	SURFACE	USMC	18
(RO)R202	USMC, COMDR MCB JA, OPS AND TRNG	Okinawa Range Complex	001000AMSL	SURFACE	USMC	17
(RO)R203	USMC, COMDR MCB JA, OPS AND TRNG	Okinawa Range Complex	001000AMSL	SURFACE	USMC	1
(RO)W178A	USMC, CAMP SMEDLEY D. BUTLER	Okinawa Range Complex	013000AMSL	SURFACE	USMC	287
A530	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	018000AMSL	SURFACE	USMC	405
ABEL BRAVO MOA, CA	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	07000AMSL	USMC	89
ABEL EAST MOA, CA	FAA, LOS ANGELES ARTCC	Yuma Range Complex	012999AMSL	05000AMSL	USMC	309
ABEL NORTH MOA, CA	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	07000AMSL	USMC	664
ABEL SOUTH MOA, CA	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	07000AMSL	USMC	258
BEAUFORT 1 MOA, SC	FAA, JACKSONVILLE ARTCC	MCAS Beaufort/Townsend Range Complex	010000AMSL	00100AGL	USMC	255
BEAUFORT 2 MOA, SC	FAA, JACKSONVILLE ARTCC	MCAS Beaufort/Townsend Range Complex	007000AMSL	00100AGL	USMC	417
BEAUFORT 3 MOA, SC	FAA, JACKSONVILLE ARTCC	MCAS Beaufort/Townsend Range Complex	002000AMSL	00100AGL	USMC	276
BRISTOL MOA, CA	FAA, LOS ANGELES ARTCC	Twentynine Palms Range Complex	018000AMSL	05000AMSL	USMC	404

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
DEMO 1 MOA, VA	FAA, POTOMAC TRACON	Quantico Range Complex	005000AMSL	00500AMSL	USMC	84
DEMO 2 MOA, VA	FAA, POTOMAC TRACON	Quantico Range Complex	015000AMSL	10000AMSL	USMC	55
DEMO 3 MOA, VA	FAA, POTOMAC TRACON	Quantico Range Complex	015000AMSL	05000AMSL	USMC	84
DOME MOA, AZ	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	06000AMSL	USMC	193
HATTERAS F MOA, NC	FAA, WASHINGTON, DC ARTCC	Cherry Point/Camp Lejeune Range Complex	013000AMSL	03000AMSL	USMC	102
KANE EAST MOA, CA	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	10000AMSL	USMC	469
KANE SOUTH MOA, CA	FAA, LOS ANGLES ARTCC	Yuma Range Complex	018000AMSL	10000AMSL	USMC	72
KANE WEST MOA, CA	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	10000AMSL	USMC	611
QUAIL MOA, AZ	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	10000AMSL	USMC	1057
R2301W	FAA, LOS ANGELES ARTCC	Yuma Range Complex	FL800	SURFACE	USMC	1176
R2501E	FAA, LOS ANGELES ARTCC	Twentynine Palms Range Complex	UNLTD	SURFACE	USMC	237
R2501N	FAA, LOS ANGELES ARTCC	Twentynine Palms Range Complex	UNLTD	SURFACE	USMC	305
R2501S	FAA, LOS ANGELES ARTCC	Twentynine Palms Range Complex	UNLTD	SURFACE	USMC	197
R2501W	FAA, LOS ANGELES ARTCC	Twentynine Palms Range Complex	UNLTD	SURFACE	USMC	76
R2503A	FAA, LOS ANGELES ARTCC	Camp Pendleton Range Complex	002000AMSL	SURFACE	USMC	72
R2503B	FAA, LOS ANGELES ARTCC	Camp Pendleton Range Complex	015000AMSL	SURFACE	USMC	108
R2503C	FAA, LOS ANGELES ARTCC	Camp Pendleton Range Complex	FL270	15000AMSL	USMC	85
R2503D	FAA, SOCAL TRACON	Camp Pendleton Range Complex	11000AMSL	002000AMSL	USMC	72
R2507E	FAA, LOS ANGELES ARTCC	Yuma Range Complex	FL400	SURFACE	USMC	111
R2507N	FAA, LOS ANGELES ARTCC	Yuma Range Complex	FL400	SURFACE	USMC	214
R2507S	FAA, LOS ANGELES ARTCC	Yuma Range Complex	FL400	SURFACE	USMC	243
R5303A	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	006999AMSL	SURFACE	USMC	25
R5303B	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	009999AMSL	07000AMSL	USMC	25
R5303C	FAA, WASHINGTON, DC ARTCC	Cherry Point/Camp Lejeune Range Complex	018000AMSL	10000AMSL	USMC	25
R5304A	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	006999AMSL	SURFACE	USMC	24
R5304B	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	009999AMSL	07000AMSL	USMC	24
R5304C	FAA, WASHINGTON, DC ARTCC	Cherry Point/Camp Lejeune Range Complex	018000AMSL	10000AMSL	USMC	24
R5306A	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	018000AMSL	SURFACE	USMC	816
R5306C	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	018000AMSL	01200AMSL	USMC	164
R5306D	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	018000AMSL	SURFACE	USMC	98
R5306E	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	018000AMSL	SURFACE	USMC	4
R6608A	FAA, POTOMAC TRACON	Quantico Range Complex	010000AMSL	SURFACE	USMC	11
R6608B	FAA, POTOMAC TRACON	Quantico Range Complex	010000AMSL	SURFACE	USMC	27
R6608C	FAA, POTOMAC TRACON	Quantico Range Complex	010000AMSL	SURFACE	USMC	17

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
SUNDANCE MOA, CA	FAA, LOS ANGELES ARTCC	Twentynine Palms Range Complex	010000AMSL	00500AGL	USMC	50
TURTLE MOA, AZ	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	11000AMSL	USMC	1718
W74(A)	FAA, JACKSONVILLE ARTCC	MCAS Beaufort/Townsend Range Complex	010000AMSL	SURFACE	USMC	173
W74(B)	FAA, JACKSONVILLE ARTCC	MCAS Beaufort/Townsend Range Complex	010000AMSL	03000AMSL	USMC	9
(RJ)R104	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	020000AMSL	SURFACE	USN	606
(RJ)R105	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	UNLTD	SURFACE	USN	671
(RJ)R116A	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	UNLTD	SURFACE	USN	558
(RJ)R116B	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	012000AMSL	SURFACE	USN	464
(RJ)R116C	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	009000AMSL	SURFACE	USN	59
(RJ)R121	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	035000AMSL	SURFACE	USN	516
(RJR599)A	COMNAVFORJAPAN	Japan Range Complex	UNLTD	SURFACE	USN	6995
(RJR599)B	COMNAVFORJAPAN	Japan Range Complex	UNLTD	SURFACE	USN	1449
(RO)W173	USN, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USN	6089
(RO)W173D	USN, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USN	1048
(RO)W173E	USN, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USN	2866
(RO)W173F	USN, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USN	2164
(RO)W175	USN, CFAO KADENA AB	Okinawa Range Complex	004000AMSL	SURFACE	USN	0.01
(RO)W181	USN, CFAO KADENA AB	Okinawa Range Complex	004000AMSL	SURFACE	USN	3501
(RO)W183A	USN, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USN	3706
(RO)W184	USN, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USN	6835
(RO)W185	USN, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USN	2769
A292	USN, COMTRAWING SIX	NAS Pensacola	003000AMSL	SURFACE	USN	3440
A632A	USN, CORPUS CHRISTI NAS	NAS Corpus Christi	018000AMSL	06000AMSL	USN	2073
A632B	USN, CORPUS CHRISTI NAS	NAS Corpus Christi	018000AMSL	SURFACE	USN	1329
A632C	USN, CORPUS CHRISTI NAS	NAS Corpus Christi	018000AMSL	SURFACE	USN	513
A632D	USN, CORPUS CHRISTI NAS	NAS Corpus Christi	010999AMSL	06000AMSL	USN	1856
A632E	USN, CORPUS CHRISTI NAS	NAS Corpus Christi	008999AMSL	06000AMSL	USN	901
A632F	USN, CORPUS CHRISTI NAS	NAS Corpus Christi	018000AMSL	03000AGL	USN	412
A680	USN, WHIDBEY NAS APP	Whidbey Island Range Complex	003000AMSL	SURFACE	USN	28
AUSTIN 1 MOA, NV	FAA, SALT LAKE CITY ARTCC	Fallon Range Complex	FL350	00200AGL	USN	2407
AUSTIN 2 MOA, NV	FAA, SALT LAKE CITY ARTCC	Fallon Range Complex	FL350	00200AGL	USN	843
BOARDMAN MOA, OR	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	018000AMSL	04000AMSL	USN	358
BRADY HIGH MOA, TX	FAA, HOUSTON ARTCC	Fort Worth NAS JRB	018000AMSL	06000AMSL	USN	966
BRADY LOW MOA, TX	FAA, HOUSTON ARTCC	Fort Worth NAS JRB	005999AMSL	00500AGL	USN	966

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
BRADY NORTH MOA, TX	FAA, FORT WORTH ARTCC	Fort Worth NAS JRB	018000AMSL	03600AMSL	USN	156
BROWNWOOD 1 EAST MOA, TX	FAA, FORT WORTH ARTCC	Fort Worth NAS JRB	018000AMSL	07000AMSL	USN	570
BROWNWOOD 1 WEST MOA, TX	FAA, FORT WORTH ARTCC	Fort Worth NAS JRB	018000AMSL	07000AMSL	USN	555
BROWNWOOD 2 EAST MOA, TX	FAA, FORT WORTH ARTCC	Fort Worth NAS JRB	018000AMSL	07000AMSL	USN	457
BROWNWOOD 2 WEST MOA, TX	FAA, FORT WORTH ARTCC	Fort Worth NAS JRB	018000AMSL	07000AMSL	USN	592
BROWNWOOD 3 MOA, TX	FAA, FORT WORTH ARTCC	Fort Worth NAS JRB	018000AMSL	13000AMSL	USN	697
BROWNWOOD 4 MOA, TX	FAA, FORT WORTH ARTCC	Fort Worth NAS JRB	018000AMSL	13000AMSL	USN	321
CARSON MOA, NV	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	00500AGL	USN	131
CHINOOK A MOA, WA	USN, WHIDBEY IS NAS APP	Whidbey Island Range Complex	005000AMSL	00300AMSL	USN	23
CHINOOK B MOA, WA	USN, WHIDBEY IS NAS APP	Whidbey Island Range Complex	005000AMSL	00300AMSL	USN	33
CHURCHILL HIGH MOA, NV	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	09000AMSL	USN	63
CHURCHILL LOW MOA, NV	FAA, OAKLAND ARTCC	Fallon Range Complex	009000AMSL	00500AGL	USN	71
D3002	NASSAU, ACC	AUTEC	00500AMSL	SURFACE	USN	94
D3003A	NASSAU, ACC	AUTEC	UNLTD	SURFACE	USN	237
D3003B	NASSAU, ACC	AUTEC	UNLTD	SURFACE	USN	146
D3003C	NASSAU, ACC	AUTEC	UNLTD	SURFACE	USN	143
DOLPHIN NORTH MOA, OR	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	018000AMSL	11000AMSL	USN	5719
DOLPHIN SOUTH MOA, OR	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	018000AMSL	11000AMSL	USN	1766
FOOTHILL 1 MOA, CA	FAA, OAKLAND ARTCC	NAS Lemoore	018000AMSL	02000AGL	USN	826
FOOTHILL 2 MOA, CA	FAA, OAKLAND ARTCC	NAS Lemoore	018000AMSL	02000AGL	USN	869
GABBS CENTRAL MOA, NV	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	00100AGL	USN	921
GABBS NORTH MOA, NV	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	00100AGL	USN	2695
GABBS SOUTH MOA, NV	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	00100AGL	USN	286
HUNTER HIGH MOA, CA	FAA, OAKLAND ARTCC	NAS Lemoore	018000AMSL	11000AMSL	USN	997
HUNTER LOW A MOA, CA	FAA, OAKLAND ARTCC	NAS Lemoore	010999AMSL	00200AGL	USN	492
HUNTER LOW B MOA, CA	FAA, OAKLAND ARTCC	NAS Lemoore	010999AMSL	02000AGL	USN	147
HUNTER LOW C MOA, CA	FAA, OAKLAND ARTCC	NAS Lemoore	010999AMSL	03000AGL	USN	82
HUNTER LOW D MOA, CA	FAA, OAKLAND ARTCC	NAS Lemoore	006000AMSL	01500AGL	USN	207
HUNTER LOW E MOA, CA	FAA, OAKLAND ARTCC	NAS Lemoore	003000AMSL	01500AGL	USN	69
KINGSVILLE 1 MOA, TX	FAA, HOUSTON ARTCC	GOMEX Range Complex	018000AMSL	08000AMSL	USN	3324
KINGSVILLE 2 MOA, TX	FAA, HOUSTON ARTCC	GOMEX Range Complex	018000AMSL	13000AMSL	USN	383
KINGSVILLE 3 MOA, TX	FAA, HOUSTON ARTCC	GOMEX Range Complex	018000AMSL	08000AMSL	USN	1840
KINGSVILLE 4 MOA, TX	FAA, HOUSTON ARTCC	GOMEX Range Complex	018000AMSL	09000AMSL	USN	2067
Lemoore MOA A	FAA,OAKLAND ARTCC	NOCAL Range Co mplex	FL180	05000AMSL	USN	321

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
Lemoore MOA B	FAA,OAKLAND ARTCC	NOCAL Range Co mplex	FL180	13000AMSL	USN	441
Lemoore MOA C	FAA,OAKLAND ARTCC	NOCAL Range Co mplex	FL180	16000AMSL	USN	551
Lemoore MOA D	FAA,OAKLAND ARTCC	NOCAL Range Co mplex	FL180	05000AMSL	USN	367
Lemoore MOA E	FAA,OAKLAND ARTCC	NOCAL Range Co mplex	FL180	05000AMSL	USN	311
MAYPORT HIGH MOA, FL	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	018000AMSL	03000AMSL	USN	68
MAYPORT LOW MOA, FL	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	002999AMSL	00500AMSL	USN	68
MERIDIAN 1 EAST MOA, MS	FAA, MEMPHIS ARTCC	Meridian Complex	018000AMSL	08000AMSL	USN	709
MERIDIAN 1 WEST MOA, MS	FAA, MEMPHIS ARTCC	Meridian Complex	018000AMSL	08000AMSL	USN	3936
OKANOGAN A MOA, WA	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	018000AMSL	09000AMSL	USN	2604
OKANOGAN B MOA, WA	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	008999AMSL	00300AGL	USN	961
OKANOGAN C MOA, WA	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	008999AMSL	00300AGL	USN	741
OLYMPIC A MOA, WA	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	018000AMSL	06000AMSL	USN	921
OLYMPIC B MOA, WA	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	018000AMSL	06000AMSL	USN	698
PALATKA 1 MOA, FL	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	018000AMSL	03000AGL	USN	458
PALATKA 2 MOA, FL	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	018000AMSL	03000AGL	USN	280
PAMLICO A MOA, NC	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	018000AMSL	08000AMSL	USN	227
PAMLICO B MOA, NC	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	018000AMSL	08000AMSL	USN	855
PENSACOLA NORTH MOA, FL	FAA, JACKSONVILLE ARTCC	GOMEX Range Complex	018000AMSL	10000AMSL	USN	1213
PENSACOLA SOUTH MOA, FL	FAA, PENSACOLA TOWER	GOMEX Range Complex	018000AMSL	10000AMSL	USN	1408
PINE HILL EAST MOA, MS	FAA, ATLANTA ARTCC	Meridian Complex	018000AMSL	10000AMSL	USN	1261
PINE HILL WEST MOA, MS	FAA, ATLANTA ARTCC	Meridian Complex	018000AMSL	10000AMSL	USN	1059
R1002	CDR, NS Guantanamo Bay	Guantanamo Complex	050000AMSL	SURFACE	USN	56
R2505	FAA, HI-DESERT TRACON, EDWARDS AFB	China Lake Range Complex	UNLTD	SURFACE	USN	779
R2506	FAA, HI-DESERT TRACON, EDWARDS AFB	China Lake Range Complex	006000AMSL	SURFACE	USN	48
R2510A	FAA, LOS ANGELES ARTCC	El Centro Range Complex	015000AMSL	SURFACE	USN	181
R2510B	FAA, LOS ANGELES ARTCC	El Centro Range Complex	FL400	15000AMSL	USN	124
R2512	FAA, LOS ANGELES ARTCC	El Centro Range Complex	FL230	SURFACE	USN	75
R2519	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	21
R2524	FAA, HI-DESERT TRACON, EDWARDS AFB	China Lake Range Complex	UNLTD	SURFACE	USN	707
R2535A	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	100000AMSL	SURFACE	USN	63
R2535B	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	100000AMSL	SURFACE	USN	37
R2906	FAA, JACKSONVILLE TRACON	Jacksonville Range Complex	014000AMSL	SURFACE	USN	75
R2907A	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL230	SURFACE	USN	89
R2907B	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	009000AMSL	SURFACE	USN	52

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
R2908	FAA, PENSACOLA TRACON	Jacksonville Range Complex	012000AMSL	SURFACE	USN	52
R2910	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL230	SURFACE	USN	78
R2910(A)	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	009000AMSL	SURFACE	USN	13
R2910(B)	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	009000AMSL	SURFACE	USN	26
R2910(C)	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	006000AMSL	SURFACE	USN	57
R3101	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	52
R3107	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	FL180	SURFACE	USN	28
R3404	FAA, HULMAN TWR, TERRE HAUTE	Naval Ammunitions Depot, Crane	002500AMSL	SURFACE	USN	3
R4002	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	FL220	SURFACE	USN	40
R4005	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	024999AMSL	SURFACE	USN	316
R4006	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	024999AMSL	03500AMSL	USN	1458
R4007	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	004999AMSL	SURFACE	USN	163
R4008	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	FL850	FL250	USN	1300
R4009	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	012500AMSL	05000AMSL	USN	28
R4404A	FAA, MEMPHIS ARTCC	Meridian Complex	011500AMSL	SURFACE	USN	4
R4404B	FAA, MEMPHIS ARTCC	Meridian Complex	011500AMSL	01200AGL	USN	78
R4404C	FAA, MEMPHIS ARTCC	Meridian Complex	014500AMSL	11500AMSL	USN	78
R4803	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	SURFACE	USN	28
R4804A	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	SURFACE	USN	88
R4804B	FAA, OAKLAND ARTCC	Fallon Range Complex	FL350	FL180	USN	88
R4810	FAA, OAKLAND ARTCC	Fallon Range Complex	017000AMSL	SURFACE	USN	87
R4812	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	SURFACE	USN	107
R4813A	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	SURFACE	USN	417
R4813B	FAA, OAKLAND ARTCC	Fallon Range Complex	FL350	FL180	USN	417
R4816N	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	01500AGL	USN	406
R4816S	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	00500AGL	USN	331
R5113	FAA, ALBUQUERQUE ARTCC	Office of Naval Research, Atmospheric Sciences	FL450	SURFACE	USN	19
R5301	FAA, WASHINGTON ARTCC	VACAPES Range Complex	014000AMSL	SURFACE	USN	6
R5302A	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	014000AMSL	SURFACE	USN	11
R5302B	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	014000AMSL	00100AGL	USN	67
R5302C	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	003000AMSL	00100AGL	USN	11
R5313A	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	018000AMSL	SURFACE	USN	21
R5313B	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	013000AMSL	00100AGL	USN	78
R5313C	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	013000AMSL	00100AGL	USN	22

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
R5313D	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	013000AMSL	00500AGL	USN	61
R5314A	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL205	SURFACE	USN	24
R5314B	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL205	00500AGL	USN	65
R5314C	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL205	00500AGL	USN	18
R5314D	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL205	SURFACE	USN	30
R5314E	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL205	SURFACE	USN	60
R5314F	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL205	00500AGL	USN	25
R5314H	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	010000AMSL	00500AGL	USN	77
R5314J	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	006000AMSL	01000AGL	USN	211
R5701(A)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL200	SURFACE	USN	78
R5701(B)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	010000AMSL	SURFACE	USN	11
R5701(C)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	006000AMSL	SURFACE	USN	31
R5701(D)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	010000AMSL	SURFACE	USN	21
R5701(E)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	006000AMSL	SURFACE	USN	64
R5706	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	010000AMSL	03500AMSL	USN	107
R6312(A)	FAA, HOUSTON ARTCC	GOMEX Range Complex	023000AMSL	01000AGL	USN	7
R6312(B)	FAA, HOUSTON ARTCC	GOMEX Range Complex	023000AMSL	SURFACE	USN	67
R6312(C)	FAA, HOUSTON ARTCC	GOMEX Range Complex	023000AMSL	SURFACE	USN	79
R6606	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL510	SURFACE	USN	33
R6609	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	FL200	SURFACE	USN	125
R6611A	FAA, WASHINGTON, DC ARTCC	NAVSEA Dahlgren	FL400	SURFACE	USN	22
R6611B	FAA, WASHINGTON, DC ARTCC	NSWC Dahlgren	FL600	FL400	USN	22
R6612	FAA, WASHINGTON, DC ARTCC	NAVSEA Dahlgren	007000AMSL	SURFACE	USN	6
R6613A	FAA, WASHINGTON, DC ARTCC	NAVSEA Dahlgren	FL400	SURFACE	USN	18
R6613B	FAA, WASHINGTON, DC ARTCC	NSWC Dahlgren	FL600	FL400	USN	18
R6701	USN, WHIDBEY ISLAND NAS APP	Whidbey Island Range Complex	005000AMSL	SURFACE	USN	21
R6703A	FAA, SEATTLE-TACOMA APP	Whidbey Island Range Complex	014000AMSL	SURFACE	USN	14
R6703B	FAA, SEATTLE-TACOMA APP	Whidbey Island Range Complex	005000AMSL	SURFACE	USN	4
R6703C	FAA, SEATTLE-TACOMA APP	Whidbey Island Range Complex	014000AMSL	SURFACE	USN	20
R6703D	FAA, SEATTLE-TACOMA APP	Whidbey Island Range Complex	005000AMSL	SURFACE	USN	5
R7201	FAA, GUAM CENTER/RAPCON	Marianas Range Complex	FL600	SURFACE	USN	28
RANCH HIGH MOA, NV	FAA, OAKLAND ARTCC	Fallon Range Complex	013000AMSL	09000AMSL	USN	98
RANCH MOA, NV	FAA, OAKLAND ARTCC	Fallon Range Complex	009000AMSL	00500AMSL	USN	315
RENO MOA, NV	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	13000AMSL	USN	1016

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
ROBERTS MOA, CA	FAA, OAKLAND ARTCC	Whidbey Island Range Complex	014999AMSL	00500AGL	USN	87
ROOSEVELT A MOA, WA	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	018000AMSL	09000AMSL	USN	3149
ROOSEVELT B MOA, WA	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	008999AMSL	00300AGL	USN	2191
STUMPY POINT MOA, NC	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	007999AMSL	SURFACE	USN	123
TORTUGAS MOA, FL	FAA, MIAMI ARTCC	Key West Range Complex	018000AMSL	05000AMSL	USN	1116
W1001	CDR, NS Guantanamo Bay	Guantanamo Complex	045000AMSL	SURFACE	USN	13118
W102H	FAA, BOSTON ARTCC	Boston Range Complex	FL600	17001AMSL	USN	3443
W102L	FAA, BOSTON ARTCC	Boston Range Complex	017000AMSL	SURFACE	USN	3443
W103	FAA, BOSTON ARTCC	Boston Range Complex	002000AMSL	SURFACE	USN	1479
W104A	FAA, BOSTON ARTCC	Boston Range Complex	010000AMSL	SURFACE	USN	315
W104B	FAA, BOSTON ARTCC	Boston Range Complex	018000AMSL	SURFACE	USN	1508
W104C	FAA, BOSTON ARTCC	Boston Range Complex	UNLTD	FL180	USN	1508
W105A	FAA, BOSTON ARTCC	Narragansett Range Complex	FL500	SURFACE	USN	10326
W105B	FAA, BOSTON ARTCC	Narragansett Range Complex	FL180	SURFACE	USN	1318
W106A	FAA, BOSTON ARTCC	Narragansett Range Complex	003000AMSL	SURFACE	USN	358
W106B	FAA, BOSTON ARTCC	Narragansett Range Complex	008000AMSL	SURFACE	USN	506
W106C	FAA, BOSTON ARTCC	Narragansett Range Complex	010000AMSL	SURFACE	USN	227
W106D	FACSFAC, VACAPES, OCEANA NAS	Narragansett Range Complex	005999AMSL	SURFACE	USN	270
W107A	FAA, WASHINGTON, DC ARTCC	Atlantic City Range Complex	UNLTD	SURFACE	USN	4810
W107B	FAA, WASHINGTON, DC ARTCC	Atlantic City Range Complex	001999AMSL	SURFACE	USN	226
W107C	FAA, WASHINGTON, DC ARTCC	Atlantic City Range Complex	018000AMSL	SURFACE	USN	550
W110	USN, FACSFAC, VACAPES	VACAPES Range Complex	FL230	SURFACE	USN	1858
W122(1)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	883
W122(10)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	657
W122(11)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	838
W122(12)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	776
W122(13)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	1090
W122(14)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	1087
W122(15A)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	953
W122(15B)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	41
W122(16)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	979
W122(17)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	741
W122(18)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	820
W122(19)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	890

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
W122(2)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	1062
W122(20)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	789
W122(21)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	1029
W122(22)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	614
W122(23)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	443
W122(3)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	931
W122(4)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	688
W122(5)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	644
W122(6)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	797
W122(7)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	798
W122(8)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	505
W122(9)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	665
W132A	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	UNLTD	SURFACE	USN	1007
W132B	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL240	SURFACE	USN	364
W133	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	004500AMSL	SURFACE	USN	1744
W134	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	UNLTD	04500AMSL	USN	1744
W155A	FAA, JACKSONVILLE ARTCC	GOMEX Range Complex	FL600	SURFACE	USN	2241
W155B	FAA, JACKSONVILLE ARTCC	GOMEX Range Complex	FL600	SURFACE	USN	2674
W155C	FAA, JACKSONVILLE ARTCC	GOMEX Range Complex	FL600	SURFACE	USN	525
W157A	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL430	SURFACE	USN	8104
W157B	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL240	SURFACE	USN	2311
W157C	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	005000AMSL	SURFACE	USN	10400
W158A	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL430	SURFACE	USN	5797
W158B	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL240	SURFACE	USN	2800
W158C	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	UNLTD	FL430	USN	22011
W158E	FAA, JACKSONVILLE NAS TRACON	Jacksonville Range Complex	001200AMSL	SURFACE	USN	545
W158F	FAA, JACKSONVILLE NAS TRACON	Jacksonville Range Complex	001700AMSL	01200AMSL	USN	172
W159A	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL430	SURFACE	USN	1963
W159B	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL240	SURFACE	USN	1039
W174A	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	3343
W174B(A)	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	10203
W174B(B)	FAA, MIAMI ARTCC	Key West Range Complex	005500AMSL	SURFACE	USN	211
W174C(A)	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	1001
W174C(B)	FAA, MIAMI ARTCC	Key West Range Complex	005500AMSL	SURFACE	USN	397

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
W174D	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	2795
W174D(A)	FAA, MIAMI ARTCC	Key West Range Complex	FL700	05500AMSL	USN	431
W174E	FAA, MIAMI ARTCC	Key West Range Complex	010000AMSL	SURFACE	USN	281
W174F	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	807
W174G	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	457
W186	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	009000AMSL	SURFACE	USN	755
W187	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	FL180	SURFACE	USN	78
W188	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	35535
W189	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	8003
W190	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	1613
W191	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	003000AMSL	SURFACE	USN	292
W192	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	3469
W193	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	4558
W194	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	4071
W196	FAA, HONOLULU TWR	Hawaiian Islands Range Complex	002000AMSL	SURFACE	USN	91
W228A	FAA, HOUSTON ARTCC	GOMEX Range Complex	FL450	SURFACE	USN	1319
W228B	FAA, HOUSTON ARTCC	GOMEX Range Complex	FL450	SURFACE	USN	1124
W228C	FAA, HOUSTON ARTCC	GOMEX Range Complex	FL450	SURFACE	USN	3604
W228D	FAA, HOUSTON ARTCC	GOMEX Range Complex	FL450	SURFACE	USN	1937
W237A(HI)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL500	FL230	USN	2039
W237A(LO)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL230	SURFACE	USN	2039
W237B(HI)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL500	FL230	USN	1520
W237B(LO)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL230	SURFACE	USN	1520
W237C	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	UNLTD	SURFACE	USN	1542
W237D	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	UNLTD	SURFACE	USN	1631
W237E	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL270	SURFACE	USN	1823
W237F	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	UNLTD	SURFACE	USN	3904
W237G	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	UNLTD	SURFACE	USN	2327
W237H	FAA, OAKLAND ARTCC	Whidbey Island Range Complex	FL270	SURFACE	USN	5902
W237J	FAA, OAKLAND ARTCC	Whidbey Island Range Complex	FL270	SURFACE	USN	4301
W260	FAA, OAKLAND ARTCC	Northern California Range Complex	FL600	SURFACE	USN	5681
W283	FAA, OAKLAND ARTCC	Northern California Range Complex	FL600	SURFACE	USN	5912
W285A	FAA, OAKLAND ARTCC	Northern California Range Complex	FL450	SURFACE	USN	1838
W285B	FAA, OAKLAND ARTCC	Northern California Range Complex	FL450	08000AMSL	USN	745

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
W289	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	11787
W289N	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	FL240	SURFACE	USN	108
W290	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	FL800	SURFACE	USN	474
W291	FAA, LOS ANGELES ARTCC	SOCAL Range Complex	FL800	SURFACE	USN	112821
W386	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	UNLTD	SURFACE	USN	9614
W386(A)	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL230	SURFACE	USN	151
W387A	USN, FACSFAC VACAPES	VACAPES Range Complex	023999AMSL	SURFACE	USN	2296
W387B	USN, FACSFAC VACAPES	VACAPES Range Complex	UNLTD	FL240	USN	2296
W412	FAA, LOS AGELES ARTCC	Pt. Mugu Range Complex	003000AMSL	SURFACE	USN	376
W465A	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	1474
W465B	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	1452
W465C	FAA, MIAMI ARTCC	Key West Range Complex	FL700	FL210	USN	844
W50A	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL750	SURFACE	USN	27
W50B	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL750	SURFACE	USN	63
W50C	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL750	SURFACE	USN	33
W513	FAA, OAKLAND ARTCC	San Francisco Range Complex	FL600	SURFACE	USN	574
W517	FAA, GUAM CERAP	Marianas Range Complex	UNLTD	SURFACE	USN	8698
W532N	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	4054
W532S	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	1428
W532E	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	3977
W537	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	3079
W54A	FAA, HOUSTON ARTCC	New Orleans NAS JRB	FL400	SURFACE	USN	1321
W54B	FAA, HOUSTON ARTCC	New Orleans NAS JRB	FL240	SURFACE	USN	367
W54C	FAA, HOUSTON ARTCC	New Orleans NAS JRB	FL400	FL240	USN	367
W570	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL500	SURFACE	USN	4485
W59A	FAA, HOUSTON ARTCC	New Orleans NAS JRB	FL500	05000AMSL	USN	2527
W59B	FAA, HOUSTON ARTCC	New Orleans NAS JRB	027999AMSL	05000AMSL	USN	3400
W59C	FAA, HOUSTON ARTCC	New Orleans NAS JRB	FL500	FL280	USN	3400
W60	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	788
W602	FAA, HOUSTON ARTCC	Pt. Mugu Range Complex	FL250	SURFACE	USN	10451
W61	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	1472
W72(13)A	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	001999AMSL	SURFACE	USN	318
W72(13)B	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	FL600	USN	318
W72(1A)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	482

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

2011 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (nm2)*
W72(1B)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	647
W72(1C)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	733
W72(1D)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	795
W72(1E)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	801
W72(1F)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	889
W72(20)A	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	001999AMSL	SURFACE	USN	313
W72(20)B	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	FL600	USN	313
W72(2A)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	513
W72(2B)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	694
W72(2C)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	790
W72(2D)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	861
W72(2E)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	871
W72(2F)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	972
W72(3A)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	569
W72(3B)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	895
W72(3C)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	1118
W72(3D)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	1274
W72(3E)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	1107
W92	FAA, HOUSTON ARTCC	GOMEX Range Complex	FL400	SURFACE	USN	2607

* Area calculations were performed using the appropriate Universal Transverse Mercator zones.

This Page is Intentionally Left Blank.

D

Acronym List

A

A-A	Air-to-Air
AAR	After Action Review
AAV	Amphibious Assault Vehicle
AAW	Anti-Air Warfare
ABW	Air Base Wing
ACC	Air Combat Command
ACE	Aviation Combat Element
ACHP	Advisory Council on Historic Preservation
ACM	Air Combat Maneuvers
ACP	Army Campaign Plan
ACUB	Army Compatible Use Buffer
AD	Armored Division
ADA BDE	Air Defense Artillery Brigade
ADIZ	Air Defense Identification Zone
AFB	Air Force Base
AFC	Area Frequency Coordinator
AFFTC	Air Force Flight Test Center
AFI	Air Force Instruction
AFP	Artillery Firing Positions
AFRIC	Air Force Range Investment Council
AFRL	Air Force Research Laboratory
A-G	Air-to-Ground
AGL	Above Ground Level
AGM	Air-to-Ground Tactical Missile
AGR	Aerial Gunnery Range
AICUZ	Air Installations Compatible Use Zones
AIMS	Army Innovative Mitigation Strategy
AKO	Army Knowledge Online
ALCUP	Airport Land Use Compatibility Plan
AMCOM	Aviation and Missile Command
AMP	Assault Maneuver Positions
AMW	Amphibious Warfare
ANG	Air National Guard
AO	Area of Operations
AOC	Air and Space Operations Center
AOTC	Army Operational Test Command
APAFR	Avon Park Air Force Range
AR	Army Regulation
ARC	Airspace Range Council
ARC	Armored Reconnaissance Course
ARFORGEN	Army Force Generation
ARNG	Army National Guard

ARTCC	Air Route Traffic Control Center
ASOS	Air Support Operations Squadron
ASW	Anti-Submarine Warfare
ASUW	Anti-Surface Warfare
ATC	Air Traffic Control
ATCAA	Air Traffic Control Assigned Airspace
ATR	Atlantic Test Range
ATV	All-Terrain Vehicle
AUTEC	Atlantic Undersea Test and Evaluation Center
AWSS	Aviation Weapon Scoring System

B

BAX	Battle Area Complex
BCT	Brigade Combat Team
BDE	Brigade
BDU	Bomb Dummy Unit
BES	Battle Effects Simulators
B&G	Bombing and Gunnery
BI	Business Intelligence
BLM	Bureau of Land Management
BMGR	Barry M. Goldwater Range
BO	Biological Opinion
BOEMRE	Bureau of Ocean Energy Management, Regulation and Enforcement
BRAC	Base Realignment and Closure
BS	Bomb Squadron
BSA	Basic Surface Attack
BSRC	Bob Stump Range Complex
BTS	Brown Tree Snake
BUDS	Basic Underwater Demolition/SEAL
BW	Bomb Wing

C

C2	Command and Control
CAA	Clean Air Act
CAF	Combat Air Force
CAS	Close Air Support
CATC	Combined Arms Training Center
CCAFS	Cape Canaveral Air Force Station
CCD	Combat Capability Document
CES	Civil Engineer Squadron
CFGI	Contingency Forge Generation Installation
CFA	Controlled Firing Area
CFR	Code of Federal Regulations
CLUS	Camp Lejeune Land Use Study
CMAGR	Chocolate Mountains Aerial Gunnery Range
CNIC	Commander, Naval Installations Command
CNMI	Commonwealth of the Northern Mariana Islands
CNO	Chief of Naval Operations
CNRSW	Commander Navy Region Southwest
COA	Course of Action
COCOM	Combatant Command
COE	Corps of Engineers
COEFOR	Contemporary Operating Environment Force
CONUS	Continental United States
COSCOM	Corps Support Command
COSMC	Corporate Operating Space Management Construct
CPLO	Community Plans and Liaison Office
CPF	Commander Pacific Fleet
CQC	Close Quarter Combat
CQD	Close Quarter Defense
CRTC	Combat Readiness Training Center
CSAR	Combat Search and Rescue
CSE	Center Scheduling Enterprise
CSH	Combat Support Hospital

CSSE	Combat Service Support Element
CTA	Central Training Area
CTC	Combat Training Center
CTR	Combat Training Range
CWC	Composite Warfare Commander
CY	Calendar Year

D

DA	Department of the Army
DAGIR	Digital Air-Ground Integration Range
DAMO-TRS	Army Training Support Systems Division
DCA	Defensive Counterair
DCAST	Data Collection and Scheduling Tool
DCBR	Dare County Bombing Range
DDS	Display and Debriefing Subsystem
DEAD	Destruction of Enemy Air Defenses
DENIX	Defense Environmental Network Information Exchange
DENTAC	Dental Activity
DESI	Diesel Electric Submarine Initiative
DFAC	Dining Facilities
DHS	Department of Homeland Security
DIADS	Digital Integrated Air Defense System
DIO	DRRS Implementation Office
DMO	Distributed Mission Operations
DMPRC	Digital Multi-Purpose Range Complex
DMPTR	Digital Multi-Purpose Training Range
DPRI	Defense Policy Review Initiative
DoD	Department of Defense
DoDD	Department of Defense Directive
DOFAW	Division of Forestry and Wildlife
DOI	Department of the Interior
DOT	Department of Transportation
DOT&E	Director, Operational Test and Evaluation
DPG	Dugway Proving Ground
DPW	Directorate of Public Works
DRRS	Defense Readiness Reporting System
DTA	Donnelly Training Area
DT&E	Developmental Test and Evaluation
DTRA	Defense Threat Reduction Area
DZ	Drop Zone

E

EA	Environmental Assessment
EAP	Encroachment Action Plan
EC	Electronic Combat
EC&C	Electronic Control & Countermeasures
ECCM	Electronic Counter-Countermeasures
ECP	Encroachment Control Plan
EER	Extended Echo Range
EFH	Essential Fish Habitat
EFTR	Edwards Flight Test Range
EFV	Expeditionary Fighting Vehicle
EIMS	Environmental Information Management System
EIS	Environmental Impact Statement
ELMR	Enterprise Land Mobile Radio
EMP	Enhanced Marksmanship Program
EMS	Electromagnetic Spectrum
EMW	Expeditionary Maneuver Warfare
EOD	Explosives Ordnance Disposal
EP	Encroachment Partnering
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESORTS	Enhanced Status of Resources and Training Systems
ETTC	Eglin Test and Training Range
EW	Electronic Warfare

F

FAA	Federal Aviation Administration

FACSFACSD	Fleet Area Control and Surveillance Facility, San Diego
FCC	Federal Communications Commission
FCLP	Field Carrier Landing Practice
FDM	Farallon de Medinilla
FDNF	Forward Deployed Naval Forces
FDRLO	Fort Drum Regional Liaison Organization
FEMA	Federal Emergency Management Agency
FORSCOM	U.S. Army Force Command
FL	Flight Level
FM	Frequency Modulation
FMC	Fully Mission Capable
FRTP	Fleet Response Training Plan
FRP	Fleet Response Plan
FRS	Fleet Replacement Squadron
FRTP	Fleet Response Training Plan
FS	Fighter Squadron
FSO	Full Spectrum Operations
FTRC	Fallon Training Range Complex
FTS	Fighter Training Squadron
FTU	Formal Training Unit
FTX	Forward Training Exercise
FW	Fighter Wing
FWS	Fish and Wildlife Service
FY	Fiscal Year
FYDP	Future Years Defense Program

G

GAF	German Air Force
GAO	Government Accountability Office
GBTE	Gull-Billed Tern
GCE	Ground Combat Element
GCTS	Ground Combat Training Squadron
GDPR	Global Defense Posture and Realignment
GDSCC	Goldstone Deep Space Communications Complex
GIS	Geographic Information System
GLCP	Georgia Land Conservation Program
GOJ	Government of Japan
GPS	Global Positioning System
GRASI	Gulf Regional Airspace Strategic Initiative
GSU	General Service Unit

H

HAHO	High Altitude High Opening (parachute training)
HALO	High Altitude Low Opening (parachute training)
HARM	High-Speed Anti-Radiation Missile
HASC	House Armed Services Committee
HBCT	Heavy Brigade Combat Team
HEI	High-Explosive Incendiary
HIANG	Hawaii National Guard
HRC/PMRF	Hawaiian Range Complex/Pacific Missile Range Facility
HQ	Headquarters
HQDA	Headquarters Department of Army
HQ USAF	Headquarters United States Air Force
H.R.	House Report
HWAD	Hawthorne Ammunition Depot

I

IADS	Integrated Air Defense System
IAW	In Accordance With
IBCT	Infantry Brigade Combat Team
ICEMAP	Installation Complex Encroachment Management Action Plan
ICRMP	Integrated Cultural Resource Management Plan
ID	Infantry Division
IED	Improvised Explosive Device
IFDS	Integrated Frequency Deconfliction System
IFF	Introduction to Fighter Fundamentals

IGI&S	Installation Geospatial Information and Services
IGPBS	Integrated Global Presence and Basing Strategy
INRMP	Integrated Natural Resource Management Plan
IO	Information Operation
IPR	In-Process Review
IPT	Integrated Product Team
IR	Infrared
IRSS	Integrated Range Status System
ISR	Intelligence, Surveillance, and Reconnaissance
ITAM	Integrated Training Area Management
ITESS	Instrumented Tactical Engagement Simulation System
ITWSS	Track While Scan Simulator
IWG	Integrated Working Group

J

JAEC	Joint Assessment and Enabling Capability
JAWSS	Joint Advanced Weapons Scoring System
JBLM	Joint Base Lewis-McChord
JDAM	Joint Direct Attack Munition
JFO	Joint Fires Observer
JLUS	Joint Land Use Study
JMETL	Joint Mission Essential Task List
JNTC	Joint National Training Capability
JPARC	Joint Pacific Alaska Range Complex
JRFL	Joint Restricted Frequency List
JRTC	Joint Readiness Training Center
JSF	Joint Strike Fighter
JSOW	Joint Standoff Weapon
JTAC	Joint Terminal Attack Controller
JTFEX	Joint Task Force Exercise
JTIDS	Joint Tactical Information Distribution System
JTE	Joint Threat Emitter

K

KSC	Kennedy Space Center

L

LCAC	Landing Craft Air Cushion
LETE	California Least Tern
LFA	Low Frequency Active
LFAM	Live-Fire and Maneuver
LFE	Large Force Employments
LFS	Lead-Free Slug
LFTIS	Live Fire Training Investment Strategy
LGB	Laser-Guided Bomb
LMR	Land Mobile Radio
LOA	Letter of Agreement
LOMAH	Location of Misses and Hits Range
LVC	Live, Virtual, and Constructive
LZ	Landing Zone

M

MAEWR	Mid-Atlantic Electronic Warfare Range
MAG-31	USMC Beaufort
MAGTF	Marine Air-Ground Task Force
MAGTFTC	Marine Air-Ground Task Force Training Center
MAJCOM	Major Command
MANPAD	Man Portable Air Defense System
MCA	Mission Critical Area, Navy
MCA	Military Construction, Army
MCAGCC	Marine Corps Air-Ground Combat Center
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MCI	Marine Corps Installation
MCLB	Marine Corps Logistics Base
MCM	Mine Counter Measures

MCMWTC	Marine Corps Mountain Warfare Training Center
MCOE	Maneuver Center of Excellence
MCOLF	Marine Corps Outlying Landing Field
MCRD	Marine Corps Recruit Depot
MCRP	Marine Corps Reference Publication
MDS	Mission Design Series
MEB	Marine Expeditionary Brigade
MEDDAC	Medical Support Activity
MEF	Marine Expeditionary Force
MET	Mission Essential Task
METL	Mission Essential Task List
MEU	Marine Expeditionary Unit
MFA	Mid-Frequency Active
MHRC	Mountain Home Range Complex
MILCON	Military Construction
MILES	Multiple Integrated Laser Engagement System
MIRC	Mariana Islands Range Complex
MMPA	Marine Mammal Protection Act
MMRP	Military Munitions Response Program
MOA	Memorandum Of Agreement/Military Operating Area
MOS	Military Occupational Specialty
MOUT	Military Operations in Urban Terrain
MPA	Marine Protected Area
MPMG	Multi-Purpose Machine Gun
MPPEH	Material Potentially Possessing an Explosive Hazard
MPRC	Multi-Purpose Range Craft
MPTR	Multi-Purpose Training Range
MR	Management Review
MRTFB	Major Range and Test Facility Base
M&S	Modeling and Simulation
MSL	Mean Sea Level
MSR	Main Supply Route
MTR	Military Training Route
MW	Mine Warfare
MWR	Morale, Welfare, and Recreation

N

NACD	National Association of Conservation Districts
NACo	National Association of Counties
NAF	Naval Air Facility
NALF	Naval Auxiliary Landing Field
NARC	National Association of Regional Councils
NAS	National Airspace System
NAS	Naval Air Station
NASA	National Aeronautical and Space Administration
NAWC	Naval Air Warfare Center
NAWCWPNS	Naval Air Warfare Center Weapons Division
NCO	Non-Commissioned Officer
NCSL	National Conference of State Legislatures
NDAA	National Defense Authorization Act
NEPA	National Environmental Policy Act
NEW	Net Explosive Weight
NEXRAD	Next Generation Weather Radar
NFC	Numbered Fleet Commander
NG	National Guard
NGA	National Geospatial-Intelligence Agency
NGO	Non-Governmental Organization
NHPA	National Historic Preservation Act
NMAC	Naval Mine and Anti-Submarine Warfare Command
NMC	Not Mission Capable
NMFS	Navy and National Marine Fisheries Service
NOCAL	Northern California
NOV	Notice of Violation
NRDC	Natural Resources Defense Council

NSFS	Naval Surface Fire Support
NSAWC	Naval Strike Air Warfare Center
NSW	Naval Special Warfare
NTIA	National Telecom and Information Administration
NTC	National Training Center
NTTR	Nevada Test and Training Range
NSW	Naval Special Warfare
NUWC	Naval Undersea Weapons Center
NVG	Night Vision Goggle
NVD	Night Vision Device
NWSTF	Naval Weapons System Training Facility

O

OASN(I&E)	Office of the Assistant Secretary of the Navy (Installations and Environment)
OCA	Offensive Counterair
OCO	Overseas Contingency Operations
OCS	Outer Continental Shelf
ODUSD(I&E)	Office of the Deputy Under Secretary of Defense (Installations & Environment)
ODUSD(R)	Office of the Deputy Under Secretary of Defense (Readiness)
OEA	Office of Economic Adjustment
OEF	Operation Enduring Freedom
OEIS	Overseas Environmental Impact Statement
OIF	Operation Iraqi Freedom
OIPT	Overarching Integrated Product Team
OLF	Outlying Landing Field
O&M	Operations and Maintenance
OMA	Operation and Maintenance - Army
OMCM	Organic Mine Counter Measures
OMFTS	Operational Maneuver from the Sea
OODA	Observe-Orient-Decide-Act
OPAREA	Operating Area
OPFOR	Opposing Forces
OPNAV	Office of the Chief of Naval Operations
OPTEMPO	Operation Tempo
OSD	Office of the Secretary of Defense
OT&E	Operation Test and Evaluation
OTICC	OSD Test Investment Coordinating Committee
OUSD(P&R)	Office of the Under Secretary of Defense (Personnel and Readiness)

P

PACFLT	Pacific Fleet
PAO	Public Affairs Office
PACNORWEST	Pacific Northwest
PCMS	Pinon Canyon Maneuver Site
PGM	Precision Guided Munition
PMC	Partially Mission Capable
PNs	Project Numbers
POM	Program Objective Memorandum
PPBE	Planning, Programming, Budgeting, and Execution
PTA	Poinsett Transition Area
PTA	Pohakuloa Training Area
PTAE	Pre-mobilization Training and Assistance Element
PTR	Primary Training Range
PUTR	Portable Undersea Tracking Range

Q

QAP	Quality Assurance Plan
QA/QC	Quality Assurance/Quality Control

R

RAICUZ	Range Air Installations Compatible Use Zones
RRAM	Range Assessment Module
RAND	Research and Development
RANS	Range Squadron

RCD	Required Capabilities Document
RCMP	Range Complex Master Plan
RCO	Range Control Officer
RCW	Red-Cockaded Woodpecker
RDT&E	Research, Development, and Testing and Evaluation
REPI	Readiness and Environmental Protection Initiative
RFA	Radio Frequency Authorizations
RIE	Range Information Enterprise
RIMPAC	Rim of the Pacific
RLA	Recovery Land Acquisition
ROC	Range Operations Center
ROA	Range Operating Agency
ROCC	Range Operation Control Center
ROD	Record of Decision
ROMO	Range of Military Operations
ROTC	Reserve Officer Training Corps
RPA	Remotely Piloted Aircraft
RPV	Remotely Piloted Vehicle
RRPB	Requirements Review Prioritization Board
RSB	Reserve Craft Beach
RSC	Regional Support Center
RTAM	Range and Training Area Management
RTAMS	Range and Training Area Management System
RTKN	Real Time Kill Notification
RTLS	Range and Training Land Strategy
RTPP	Readiness and Training Policy and Programs

S

S-A	Surface-to-Air
SADL	Situation Awareness Data Link
SAF/IE	Secretary of the Air Force/Installations and Environment
SAM	Surface to Air Missile
SAR	Search and Rescue
SBCT	Stryker Brigade Combat Team
SCI	San Clemente Island
SCINI	Senior Commanders Installation Needs and Issues
SCIRC	San Clemente Island Range Complex
SCORE	Southern California Offshore Range
SCUBA	Self Contained Underwater Breathing Apparatus
SDB	Small Diameter Bomb
SDZ	Surface Danger Zone
SEAD	Suppression of Energy Air Defenses
SERPPAS	Southeast Regional Partnership for Planning and Sustainability
SHANGR	Smoky Hill Air National Guard Range
SHOBA	Shore Bombardment Area
SHPO	State Historic Preservation Office
SIMCAS	Simulated Close Air Support
SIPRNET	Secret Internet Protocol Router Network
SNPL	Western Snowy Plover
SOCAL	Southern California Range Complex
SOF	Special Operations Forces
SOP	Standard Operating Procedure
SOS	Special Operations Squadron
SOUC	Special Operations Urban Complex
SPECOPS	Special Operations
SPOE	Seaport of Embarkation
SRI	Sustainable Ranges Initiative
SRM	Sustainment, Restoration and Modernization
SROC	Senior Readiness Oversight Council
SRP	Sustainable Range Program
SRR	Sustainable Ranges Report
SSTC	Silver Strand Training Complex
STOM	Ship to Objective Maneuver
STW	Strike Warfare

STX	Situational Training Exercise
SUA	Special Use Airspace
SUBPAC	Submarine Force U.S. Pacific Fleet
SWAG	Shockwave Action Generator

T

TACP	Tactical Air Control Party
TACTS	Tactical Aircrew Combat Training System
TAP	Tactical Training Theater Assessment Planning
TAPR	Tactical Training Theater Assessment Planning Repository
TAPR	TAP Repository
TC	Training Circular
TCTS	Tactical Combat Training System
T&E	Test & Evaluation
TECOM	Training and Education Command
TENA	Training Enabling Architecture
TERF	Terrain Flight
TES	Test and Evaluation
TESS	Tactical Engagement Simulation System
TFI	Total Force Integration
TPL	Trust for Public Land
TRADOC	US Army Training and Doctrine Command
T&R/ITS	Training Readiness/Individual Training Standards
TRAMS	Testing Ranges Repository and Management System
TSPI	Time and Space Position Information
TSS	Training Support Systems
TSV	Theater Support Vessel
TTP	Tactics Techniques and Procedures
TYCOM	Type Commander

U

UAS	Unmanned Aerial System
UAV	Unmanned Aerial Vehicle
USAF	United States Air Force
USAFE	U.S. Air Forces in Europe
USAG-HI	U.S. Army Garrison Hawaii
USARPAC	U.S. Army Pacific
USASOC	U.S. Army Special Operations Command
UFR	Un-Funded Requirement
UHF	Ultra High Frequency
UJTL	Universal Joint Task List
ULT	Unit Level Training
UOC	Urban Operations Complex
U.S.	United States
USAR	United States Army Reserve
USDA	U.S. Department of Agriculture
USFF	U.S. Fleet Forces
USFJ	U.S. Forces Japan
USFS	U.S. Forestry Service
USFWS	U.S. Fish and Wildlife Service
USMC	United States Marine Corps
USAMAA	U.S. Army Manpower Analysis Agency
U.S.C.	United States Code
USWTR	Undersea Warfare Center Training Range
UTTR	Utah Test and Training Range
UXO	Unexploded Ordnance

V

VACAPES	Virginia Capes
VDGIF	Virginia Department of Game and Inland Fisheries
VHF	Very High Frequency

W

WDZ	Weapons Danger Zone
WGA	Western Governors' Association
WGEF	Wind Generated Energy Farm
WIPT	Working Integrated Product Team

WISS	Weapons Impact Scoring System
WMA	Wildlife Management Area
WRETS	Wideband Remote Emitter Threat System
WRP	Western Regional Partnership

Y

YTC	Yakima Training Center

E DoD and Service Sustainable Ranges Policy and Guidance

The following tables identify and describe overarching Departmental and Service range sustainment policy and guidance.

Table E-1 Overarching DoD Range Sustainment Policy and Guidance

DoD Range Sustainment Policy and Guidance	Description
DoD Directive 3200.11, Major Range and Test Facility Base (MRTFB)	Establishes policy and assigns responsibilities for the sizing, operation, and maintenance of the MRTFB.
DoD Directive 3200.15, Sustainment of Ranges and Operating Areas	Establishes policy and assigns responsibilities for the sustainment of training and test ranges and OPAREAs in DoD. It includes information and requirements focused on operational and mission requirements, encroachment concerns, data needs, planning and budgeting, range management, and stakeholder involvement.
DoD Instruction 3200.16, Operational Range Clearance	Assigns responsibilities and prescribes procedures for conducting range clearance. It includes information on the use and management of operational ranges in ways that ensure their safety and long-term sustainability, and a requirement to periodically review operational range management policies and procedures to determine the degree and frequency of range clearance required to support DoD's Sustainable Range Management Program.
DoD Directive 4715.11, Environmental and Explosives Safety Management on Operational Ranges Within the United States	Establishes policy and assigns responsibilities for the sustainable use and management of operational ranges located within the United States (U.S.), and for the protection of DoD personnel and the public from explosive hazards on operational ranges located within the U.S. It includes information and requirements focused on managing operational ranges in a manner that maintains readiness, ensures the long-term viability of operational ranges, limits the potential for explosives mishaps and damages, and addresses environmental issues surrounding munitions constituents.
DoD Directive 4715.12, Environmental and Explosives Safety Management on Operational Ranges Outside the United States	Assigns responsibilities for the sustainable use and management of operational ranges located outside the U.S., and for the protection of DoD personnel and the public from explosive hazards on operational ranges located outside the U.S. It includes information and requirements focused on managing operational ranges in a manner that maintains readiness, ensures the long-term viability of operational ranges, limits the potential for explosives mishaps and damages, and addresses environmental issues surrounding munitions constituents.
DoD Directive 4715.13, Department of Defense Noise Program	Establishes policy and assigns responsibilities for a coordinated DoD Noise Program. It also provides for establishment of a DoD Noise Working Group. For the purposes of this instruction, noise is defined as unwanted sound generated from the operation of military weapons or weapons systems (e.g., aircraft, small arms, tank guns, artillery, missiles, bombs, rockets, mortars, and explosives) that affects either people, animals (domestic or wild), or structures on or in areas in proximity of a military installation; occupational noise exposure and underwater sound associated with ship testing and training activities are specifically excluded from this definition. The program focuses on identifying, researching, and effectively reducing adverse effects from the noise associated with military test and training operations consistent with maintaining military readiness, without degrading mission capabilities.

Table E-1 Overarching DoD Range Sustainment Policy and Guidance (continued)

DoD Range Sustainment Policy and Guidance	Description
DoD Instruction 4715.14, Operational Range Assessments	Establishes and implements procedures to assess the potential environmental impacts of military munitions use on operational ranges. The purpose of these procedures is to assist Components in determining whether there has been a release or substantial threat of a release of munitions constituents from operational ranges to off-range areas, and whether that release or substantial threat of a release creates an unacceptable risk to human health or the environment.
DoD Instruction 3030.3, Joint Land Use Study (JLUS) Program	Implements policies, assigns responsibilities, and prescribes procedures for executing the JLUS Program as administered by the Department of Defense, Office of Economic Adjustment (OEA). The purpose of the JLUS Program is to help local communities fund comprehensive plan development to resolve perceived community/ installation land use incompatibilities. The JLUS program also can provide technical and financial assistance to the planning agencies for developing master plans that are consistent (when economically feasible) with the noise, accident potential, and safety concerns of the local installation.

Table E-2 Army Range Sustainment Policy and Guidance

Army Range Sustainment Policy and Guidance	Description
Army Regulation 350-19, *The Army Sustainable Range Program*	Published in August 2005 by the Office of the Deputy Chief of Staff G3. The regulation defines responsibilities and prescribes policies for implementing the Sustainable Range Program (SRP) on Army controlled training and test ranges and lands. The regulation assigns responsibilities and provides policy for programming, funding, and execution of the Army's SRP, which is made up of its two core programs: the Range and Training Land Program, which includes range modernization and range operations, and the Integrated Training Area Management Program for land maintenance and repair. The regulation also provides policy and guidance on integrated planning to support sustainable ranges at the installation level, a focused Outreach Communications Campaign, and tools for identifying and assessing current and future encroachment challenges.

Table E-3 Marine Corps Range Sustainment Policy and Guidance

Marine Corps Range Sustainment Policy and Guidance	Description
Marine Corps Range Operations Order (OpOrd)	Will be a comprehensive, Service-level plan to sustain and modernize Marine Corps ranges and training areas. The objective of the OpOrd is to integrate and synchronize range and training area initiatives at Headquarters, Marine Corps and Training and Education Command (TECOM)/RTAM with Marine Corps operational training requirements and range current and planned required capabilities. The OpOrd is a coordinated family of documents that addresses the status of Marine Corps training ranges, their future development, and the administration and resourcing of range management. The OpOrd will include a review of Marine Corps training requirements, Marine Corps range policies and planning initiatives, Marine Corps range capabilities and shortfalls, JNTC and Joint Universal Task List requirements, and other Marine Corps-specific range issues.
Marine Corps Order (MCO) 3550.10, Range Management and Control	Establishes the responsibilities, policies, and procedures pertaining to the safety and management of operational ranges, training areas, and associated training facilities within the Marine Corps. It further defines and describes the functions associated with ranges and training areas, and the responsibilities attendant to those functions.
MCO 3550.9, Range Certification and Recertification	An integral part of the Marine Corps' overarching ground range safety program. Range certification is the function by which safety and environmental compliance are enhanced without compromising training requirements and standards. The order defines the certification and re-certification process that meets an approved set of requirements applicable to an assigned role and mission. Applied appropriately, the range certifications/re-certification will allow for the effective and efficient use of existing training ranges while not compromising safety and the environment.
MCO 3570.1B, Range Safety	Establishes the range safety policies and responsibilities for all Marine Corps ranges and training areas. It establishes the minimum safety standards through Surface Danger Zones (SDZ), and institutes the requirements for individual range safety programs for all live fire and non-live fire ranges and training areas. The order establishes a risk-management process to identify and control range hazards by defining the principles and deviation authorities that control range operations.
MCO 3550.12 Operational Range Clearance Program	Establishes policies and procedures for management of the range clearance program at headquarters, regional, and installation levels.
Range Environmental Vulnerability Assessment (REVA) Reference Manual	Dated May 2009. A key component of the Marine Corps Sustainable Range Program is the REVA program. REVA was developed to help Marine Corps understand the potential environmental impacts of range operations and identify actions that will keep ranges operational while protecting human health and the environment. It is a proactive program that supports Marine Corps and DoD goals and policies.
MCO 11011.22B Policies and Procedures for Encroachment Control Management	Establishes responsibilities for planning, preventing, and controlling encroachment

Table E-4 Navy Range Sustainment Policy and Guidance

Navy Range Sustainment Policy and Guidance	Description
Navy's Mid-Frequency Active Sonar Effects Analysis Interim	Established 6 March 2006. Provides consistent interim policy and internal guidance to Fleet Commanders and other Echelon II commands to assess potential effects of mid-frequency (1 kHz–10 kHz) active sonar use incident to Navy military readiness and scientific research activities. The policy establishes deadlines by which affected commands must develop and submit plans and programming requests to implement this Interim Policy.
OPNAV Instruction 11010.40, *Encroachment Management Program*	Forms the foundation of the Navy's Encroachment Management Program. The instruction defines the roles and responsibilities of certain Navy Commands, defines encroachment challenges and impacts, establishes a database to capture issues, establishes the Encroachment Action Plan process, and establishes the Encroachment Partnering Program.
OPNAV Instruction 3550.1A, *RAICUZ Program*	A joint instruction with the Marine Corps, was updated on 28 January 2008. The revision is to provides more technical details on establishing range compatibility zones and revises the roles and responsibilities within the Department of Navy.
Draft Range Sustainment Policy	Defines roles and responsibilities of Navy Commands with respect to range sustainment and the Navy's TAP programs. The range sustainment policy also establishes deadlines for completion of range sustainment programs to include RSEPA, RCMPs, and environmental planning documents.
Draft Range Sustainability Environmental Program Assessment (RSEPA) Policy Implementation Manual	RSEPA is the Navy's program for assessing the environmental condition of land-based training and test ranges within the U.S. and its territories. The manual outlines roles and responsibilities for the RSEPA program, and establishes standards for how the program should be implemented.

Table E-5 Air Force Range Sustainment Policy and Guidance

Air Force Range Sustainment Policy and Guidance	Description
Transforming the Air Force—The Relevant Range…Enabling Air Force Operations	The Air Force's strategic vision for its ranges and airspace. This document provides guidance for building and sustaining relevant ranges to meet the needs of the warfighter. This document emphasizes the development of comprehensive range planning, which includes MAJCOM roadmaps and individual comprehensive range plans, based upon key investment areas. The investment areas provide the foundation for supporting a relevant range and a mechanism to articulate range and airspace requirements. This document also implements a continuous review process, linked to the programming cycle, to ensure that the vision, policy and guidance, roadmaps, and range management plans remain current and resourced for the future.
Air Force Policy Directive 13-2, Air Traffic Control, Airspace, Airfield, and Range Management	Encourages the sustainment of a flying environment that promotes safety and permits realistic training by providing policies to govern the use of airspace, training weapons ranges, and support facilities and equipment controlled by the Air Force, the Air National Guard (ANG), and the U.S. Air Force Reserve.
Air Force Instruction (AFI) 13-201, Air Force Airspace Management	Provides guidance and procedures for developing and processing Special Use Airspace (SUA). It covers aeronautical matters governing the efficient planning, acquisition, use, and management of airspace required to support Air Force flight operations. It applies to activities that have operational or administrative responsibility for using airspace. It establishes practices to decrease disturbances from flight operations that might cause adverse public reaction, and provides flying unit Commanders with general guidance for dealing with local problems.
AFI 13-212, Range Planning and Operations	Sets forth an integrated operational and engineering approach to range management. It is the primary document governing Air Force planning as it relates to training and test ranges. AFI 13-212 consists of three volumes, each addressing a different aspect of range management: Volume 1, Range Planning and Operations; Volume 2, Range Construction and Maintenance; and Volume 3, SAFE-RANGE Program Methodology.
Operational Range Assessment Plan (ORAP)	Developed to provide Air Force facilities with guidance for consistently completing a defensible assessment of potential environmental impacts to off-range receptors from military munitions used on training and test ranges and range complexes. Headquarters U.S. Air Force, Office of the Civil Engineer, Asset Management and Operations Division (HQ USAF/A7CA) developed the ORAP as part of the Air Force Operational Range Environmental Program. The program's goal is to ensure that the operational range natural infrastructure is capable and available to support the Air Force's test and training mission. In order to ensure the long-term viability of training and test ranges, a standardized and scientifically defensible methodology is required for assessing off-range munitions constituent migration and for responding to any associated threats to human health. This plan complies with requirements set forth in DoDD 4715.11, DoDI 4715.11, and DoDI 4715.12.

Table E-5 Air Force Range Sustainment Policy and Guidance (continued)

Air Force Range Sustainment Policy and Guidance	Description
Operational Range Integrated Program Plan	The Air Force is committed to sustaining its operational training and test ranges. As a demonstration of this commitment, HQ USAF/A7CA developed an Integrated Program Plan to assist Air Force installations with a systematic approach for aligning environmental asset planning and management with mission requirements for training and test ranges. This approach is necessary to satisfy natural infrastructure management responsibilities, a fundamental element of the Air Force's overall Range Sustainment Initiative framework. The time period for the Integrated Program Plan is FY2006 through FY2010. It details the Air Force Operational Range Environmental programmatic vision, mission, overall and specific interim goals, and the near, and mid-term strategic actions required for success. Each strategic objective is documented to include background details, performance measures, and specific steps necessary to accomplish the objective. The plan will be updated annually based on a combination of performance measurement and evaluation and application of the knowledge gained through execution of range sustainment activities.
Air Force Natural Infrastructure Assessment (NIA) Guide **See Update*	HQ USAF/A7CA developed a Natural Infrastructure Assessment Guide which was finalized and distributed in FY2007. It provides HQ USAF, MAJCOM, and installations with a methodology for conducting and maintaining the NIA. The NIA provides a series of indicators that illustrates the relative degree of encroachment for each NI asset. These indicators shall be considered by senior leaders, at all levels, in making subsequent management decisions regarding the sustainment, restoration, and modernization of NI assets to support mission requirements within the existing planning, programming, and budgeting system.


DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA