2010 | Report to Congress on

Sustainable Ranges

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Foreword

This report is the seventh in a series of reports required by Congress to address the Department of Defense's (DoD's) efforts to provide for the long-term sustainability of its training ranges. These efforts are carried out through the Department's Sustainable Ranges Initiative (SRI). Although this report is focused on training ranges, the efforts of the SRI are broader in scope.

The SRI recognizes that access to military installations, ranges, operating areas, and other lands, seaspace, airspace, and frequency spectrum is essential to provide the realistic training and testing environments to prepare our soldiers, sailors, airmen, and marines, and their associated equipment for the diverse peacetime and wartime missions they are called upon to support around the globe. Over the past several decades, access to these resources has been increasingly challenged by, among other things, encroachment—external factors that inhibit the ability of the military to use its installations, ranges, airspace, and other operating areas to conduct effective training and testing. In response, 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 to address the encroachment challenge. The result was a broad-based, multi-faceted initiative aimed at addressing encroachment and range sustainment that has come to be known as SRI. These facets have included 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), tri-chaired by the Deputy Under Secretary of Defense for Readiness, the Deputy Under Secretary of Defense for Installations and Environment, and the Deputy Director for Operational Test and Evaluation with membership from senior officials from each Military Department and offices within the Secretary of Defense. A lower body, the Working Integrated Product Team (WIPT) meets regularly to implement the OIPT's recommendations and direction. Over the years, this SROC-led initiative has succeeded in, among other things, the following:

- 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 capabilities and encroachment pressures
- Obtaining conservation partnership authority and annual Congressional funding for compatible land use buffers under the Readiness and Environmental Protection Program
- Establishing broad-based partnerships for sustainable planning, including the Southeast Regional Partnership for Planning and Sustainability and the Western Regional Partnership

- Facilitating the sharing of geographic information systems and decision-support information to foster community-driven planning and compatible land use partnerships.

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

- Mitigate pressures on training and test activities from competing land and seaspace uses
- Address frequency spectrum competition
- Meet military airspace challenges
- Manage increasing military demand for range lands
- Address impacts from new energy infrastructure and renewable energy initiatives
- Anticipate climate change initiatives
- Prepare for evolving environmental oversight and regulation.

These focus areas are now reflected in the various Services' goals and milestones. As the SRI evolves, it will continue to assess 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 working with Congress to this end.

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1 Introduction

The need to train as we fight is fundamental to our armed forces. Ranges are some of our most valued assets—they provide contiguous, unencumbered space to replicate, as closely as possible, the operational environment of an assigned mission. Installations and ranges are critical to maintaining the readiness and mission effectiveness of the United States (U.S.) military. These assets must be available when and where needed, with the capabilities to support current and future military mission requirements. Creating and sustaining a network of ranges in the long-term 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 Sustainable Ranges Initiative (SRI) to create the framework for addressing these fundamental issues. Strategic elements of the initiative include policy, programming, leadership and organization, legislation, outreach, an information enterprise, and comprehensive reporting to Congress. A key component of the SRI is the annual Sustainable Ranges Report (SRR) to Congress.

The 2010 SRR updates the prior reports submitted by DoD and addresses the following:

- Service methodologies and approaches to determining range requirements (Chapter 2)
- A standardized assessment of range capabilities and encroachment impacts specific to each Service (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 to 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 2010 SRR was developed with the following assumptions:

- Accelerates 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
- Addresses Section 320 requirements as they apply to ranges and to those areas not addressed in DoD's Readiness and Environmental Protection Initiative (REPI) Report to Congress

- Updates Military Service-specific information on goals and milestones
- Puts additional emphasis on "Military Service Special Interest" issues for each Military Service to identify ranges issues it deems to be critical or important in explaining the current state of its ranges
- Responds to specific commentary offered by the U.S. Government Accountability Office (GAO) on the 2009 SRR
- Maintains the structure and format of the 2009 report to enhance comparability.

1.1 Background

To properly prepare U.S. forces for mission success, DoD must 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. 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 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 some existing range resources and infrastructure under additional strain. Coupled with the constraints placed on range activities as the result of their proximity to growing communities and their associated economic development, there is a very real concern about the ability of the range resources and infrastructure to continue to support training at the level required by the Military Services.

In addition to training activities, ranges also support T&E activities related to system development, operational testing, and other similar activities. Sustaining ranges that are primarily focused on supporting T&E activities is also critical to national security, in part because a significant amount of training is undertaken on those ranges. In many cases, capability requirements and encroachment impairments are quite different depending upon 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.

In order to sustain these valuable assets, the SRI emphasizes a comprehensive approach to the sustainability of all ranges. SRI 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. SRI advocates for policy and funding in support of range sustainability and provides coordination of efforts between the OSD and the Military Services. Additionally, 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.

In addition to ranges exclusively under the stewardship of DoD, the U.S. military conducts training and T&E activities on land that is owned or managed by other U.S. government agencies such as the Bureau of Land Management (BLM), the states and private owners, subject to formal use agreements between the Department and non-government organizations, land owners, and other federal agencies. DoD also utilizes various land air, sea, and undersea spaces under the administration of other nations with their permission and international areas. In each case, DoD must deal with a different group of stakeholders at the federal/national, state, and local level in order to create the conditions required to sustain ranges in a way that supports the mission and the vested interests of the stakeholders.

1.2 Legislative Requirements and GAO Comments to the 2009 Sustainable Ranges Report

The 2010 DoD Report to Congress on Sustainable Ranges (the SRR) is an update to the 2009 report. The report was developed in response to Section 366 of the 2003 National Defense Authorization Act (NDAA) and Section 320 of the 2004 NDAA.[1] Under Section 366, 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 Armed Forces. Section 366 also required DoD to submit an annual progress report to Congress through 2013.

Section 320 required DoD to report on the impacts of civilian community encroachment on military installations and training and test ranges,[2] as well as impacts from certain legal requirements on military readiness activities.

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

NDAA Section 366 requires the GAO to provide Congress with an independent evaluation of DoD's annual report on sustainable ranges. In its assessment of the 2009 Sustainable Ranges Report, the GAO acknowledged that:

- DoD has 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 2009 SRR; however, two recommendations were made to further improve the range requirements, capabilities assessments and future comprehensive plans. GAO recommended that at the direction of the Secretary of Defense, the Under Secretary of Defense for Personnel and Readiness, in consultation with the Secretaries of the military departments, consider the following two items in future reports:

- Establishment of quantifiable goals and trackable milestones in order to measure DoD's progress to mitigate training shortfalls caused by training range limitations; and
- Detailed estimates that project future funding requirements in order to provide the best information to Congressional decision makers in order to address training shortfalls caused by limitations on training resources.

This 2010 SRR makes progress towards both recommendations. The new goals and milestones in Chapter 4 are designed to be more measurable and trackable. Table 4-11 has also been expanded to include future funding requirements through FY15.

1.3 Linking the 2010 Sustainable Ranges Report 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 addresses important sections of the FY2004 NDAA Section 320(a), (b), and (d) requirements to report on encroachment on military installations and ranges that require, or may reasonably require, safety or operational buffer areas, and on DoD's plans to respond to such encroachment. 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 capabilities from encroachment. This SRR identifies existing impacts to mission from encroachment. The REPI Report to Congress summarizes the Department's use of the 2684a authority to both reduce existing encroachment, but more importantly to work proactively to avoid potential future encroachment. Chapter 3 of this report also includes a special interest section for each Military Service that discusses encroachment and other related installation issues. and Chapter 4 address REPI as it relates to DoD partnering, engagement, and education.

The focus of the SRR is on training. Although the Report touches on test and evaluation 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. Section 320 of the FY2004 NDAA, however, requires DoD to report on the impact of civilian community encroachment on test ranges and installations supporting research, development, test and evaluation activities as well. The Strategic Plan for DoD T&E Resources has contributed to the fulfillment of this requirement through the inclusion of an encroachment section. Beginning with the 2010 Strategic Plan, the test community will report in detail on encroachment factors impacting research, development, test, and evaluation activities. This reporting will be based on the assessment survey process developed for the training ranges in the SRR, but will be modified to fit the needs of the T&E community. This will ensure that encroachment issues become a key consideration in the planning and maintaining of a robust test and evaluation infrastructure throughout DoD.

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 to the 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).

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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 because the ability to train in a realistic environment is directly related to the U.S. military's current readiness and future mission success. DoD provides Service men and women with training opportunities that cover the full range of skills needed to ensure forces are deployed with the highest possible assurance of mission success and survival. These training opportunities are founded in the availability of the appropriate training range resources and infrastructure.

In order to ensure that the appropriate range resources are available, range requirements need to be well articulated from the training community to the training support or range community. These range requirements are founded in and derived from training requirements.

The Military Services develop their training requirements using broadly similar, though not identical, processes. These processes provide a structure to systematically develop requirements based on a series of strategic guidance documents and other information sources which include:

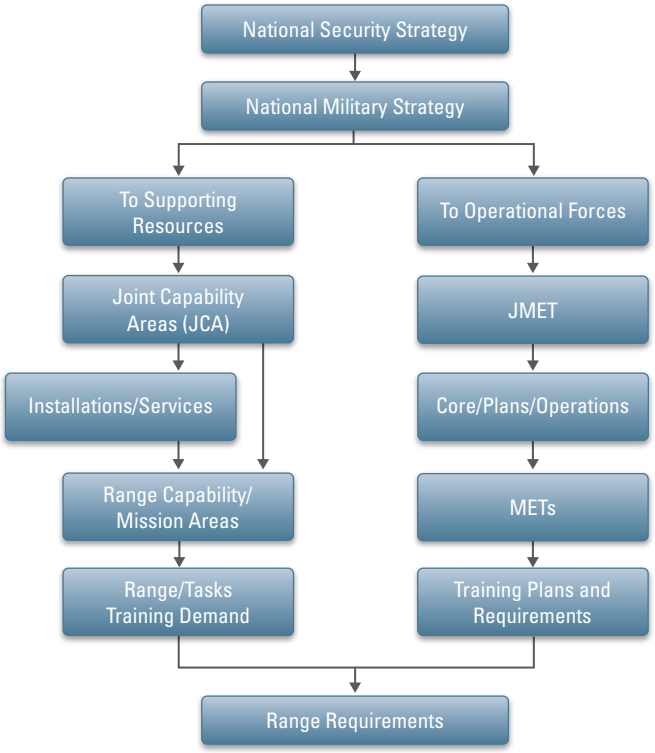
- The National Security Strategy of the United States
- The National Military Strategy of the United States
- Guidance for Development of the Force
- Guidance for Employment of the Force
- The Universal Joint Task List (UJTL) of the United States and global security environment in which the military 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 previous military experience, training evolutions, and experimentation.

Starting with the strategic guidance documents and working down to more specific tactics, techniques, and procedures, the Military Services determine how they will operate in the near term. From their planned operations, based on the UJTL and the Joint Mission Essential Task List (JMETL), the Military Services identify and develop mission essential tasks (METs). 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 systems 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

Figure 2-1 Training Requirement and Range Requirement Development Process



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 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. This uncertainty is somewhat tempered by the fact that platforms, weapons, and systems are becoming ever 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 systems change in the future, the Military Services will need to change the way that 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 Training Transformation 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.

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.

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 infrastructure has four pillars, and must consist of credible and adaptive opposing forces, with 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. 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, the JNTC is a significant addition to DoD's training infrastructure.

For purposes of this report, the JNTC is most relevant as it addresses range sustainability and modernization efforts, as well as LVC training and the role LVC will play in addressing training requirements and readiness and reporting systems. Detailed information on the Training Transformation

Program can be found in DoD's Training Transformation Strategic Plan and FY2006-FY2011 Implementation Plan.[3,4]

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.

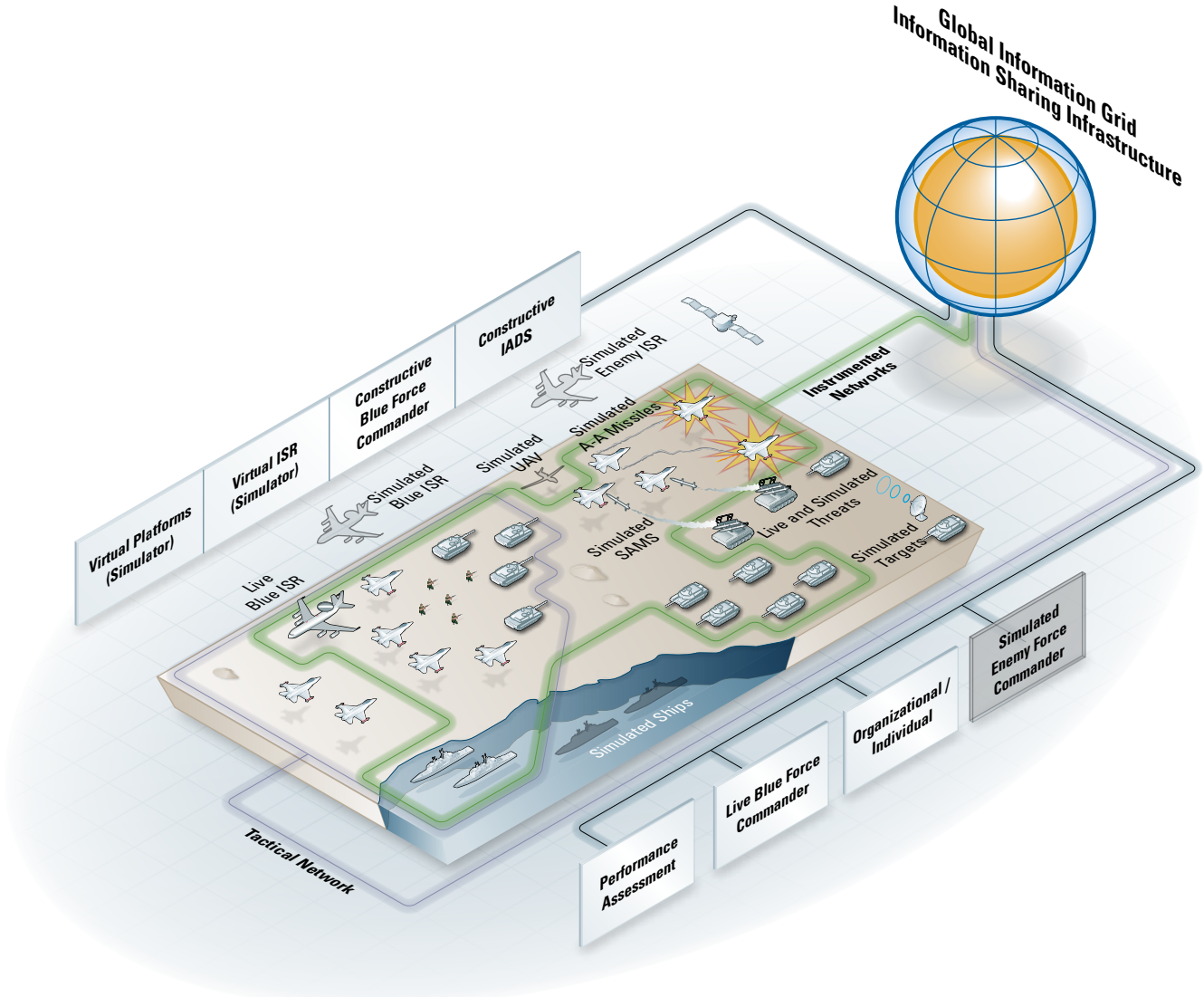
Live, Virtual, and Constructive Training

The following definitions are provided for clarity to understand the concept of live, virtual, and constructive in the context of 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, providing the ability for integrated forces to conduct training operations nearly identical to real-world operations. It is composed of live, virtual, and constructive domains, each providing distributed LVC components that when integrated, provide a seamless and transparent environment with fully functional interaction between participants to the limit of their respective operational system capabilities. The Military

Figure 2-2 The LVC Training Environment



3 Department of Defense Strategic Plan for Transforming DoD Training, 8 May 2006, Office of the Under Secretary of Defense for Personnel and Readiness, Director, 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.

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.
- An 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

Mission and training objectives for each of the respective Military Services drive current and future training range and operations area requirements. The following paragraphs provide insight into Military Service-specific assessment of range capabilities and encroachment issues 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), the 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 U.S. 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 BRAC05, the Army identified a shortfall of maneuver training land on the majority of its major installations in the continental U.S. 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, BRAC05 consolidations, GDPR moves, Army Force Generation (ARFORGEN), and anticipated increases in the area of operations for the Future Combat Vehicle and Brigade Combat Team (BCT) modernization 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 (SRP). The purpose of the RTLS is 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 requirement planning based on the peacetime assumption that all units are at home station and available to conduct training.

Current and Future Range Requirements

Army range facilities are currently adequate to meet the throughput and surge requirements necessary to support training for current deployments; however, it is increasingly challenging to fund the operation of range facilities under the expanded training schedule required to keep pace with deployments. The Army resources its range operations on a peacetime schedule of 242 days a year; however, Army installations are operating their ranges, particularly collective training and urban operation training facilities, for reset and mobilization on a 24-hour, 7 day-a-week schedule for short, intense periods of time. For example, range operations staff at Camp Atterbury, IN, and Camp Shelby, MS, have doubled the number of range personnel to accommodate expanded

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.

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 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 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 result of the planning process is the creation of a Range Complex Master Plan (RCMP). The RCMP is a sustainable range operations tool that uses a Geographic Information System (GIS) platform and 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 looks to improve training capability through targeted and prioritized training land acquisition when specific feasibility criteria exist. 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. This is captured in the RTLS approved in 2003 and updated since. The following is an update of the Army's ongoing land expansion projects that have been approved by OSD.

- 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 FY2010. The final expansion areas are expected to be opened for training in FY2011.
- Fort Polk—OSD approved the Fort Polk expansion proposal in July 2008. The National Environmental Policy Act (NEPA) process began in April 2009 and the final environmental impact statement and record of decision are scheduled to be complete in the summer of 2010.
- Texas Army National Guard—OSD approved the South Texas Training Site (approximately 85 miles due south of San Antonio) expansion proposal in March 2008 and the U.S. Army Corps of Engineers is currently completing the real estate planning report.
- Fort Carson, Pinon Canyon Maneuver Site (PCMS)—OSD approved the Fort Carson, PCMS expansion proposal in February 2007. Due to significant opposition to the expansion proposal, the Army will take no further action on PCMS expansion until land owners formally notify the Army of their willingness to sell or lease their land to the Army.
- Fort Benning—OSD approved the Fort Benning expansion proposal in January 2010. The NEPA process will begin in the third quarter of 2010.

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 strategy which will place all units continuously in a reset, train, or ready status.

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.

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

Table 2-3 Army Mission Areas

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

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.

Three new ranges have been added to the inventory of modernized ranges as a result of new doctrinal changes: the Convoy Live Fire Course, the Engineer Multipurpose Assault 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.

A key component of the Army's overall modernization process is the construction of the next generation of Army ranges—the digital range. These digital 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.

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, sea space, 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, in that range requirements depend on training needs determined by changing operational requirements. Of immediate concern, Marine Corps ranges must support training cycles for wartime deployments. Moreover, 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:

- inability to exercise a large scale MAGTF in a "live" training scenario;
- 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; and
- 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 end-strength growth 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 this chapter. 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 the resources it has and access to other Military Service ranges to meet most of its training needs. The Marine Corps is aggressively investing in range modernization and transformation in order to address as many shortfalls as possible within available resources. Marine Corps planning is centered on six cornerstone objectives:

- Preserve and enhance live-fire combined arms training, including the capability to support large-scale exercises;
- Recapture littoral training capabilities at Camp Lejeune and Camp Pendleton;
- Leverage technology and provide feedback for better training;
- Mitigate encroachment;
- Facilitate cross-service utilization; and
- Support 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

The Mission Capable Ranges program implements detailed planning processes for determining range requirements and investment priorities. One foundation of the Mission Capable Ranges Initiative 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 upon the MCRP, installation-specific Range Complex Management Plans (RCMP) are

developed to guide execution of range transformation. The Marine Corps has programmed to fund, initiated, or completed RCMPs for its major training bases.

Identifying operational range requirements is a dynamic process, in that range requirements depend on training needs determined by changing operational requirements. Of immediate concern, Marine Corps ranges must support training cycles for wartime deployments.

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. This effort constitutes the largest investment program in Marine Corps training ranges since World War II. These investments have significantly enhanced the capability of Marine Corps operational ranges to accomplish their missions.

Mission Areas

Marine Corps forces are organized, trained, and equipped to deploy as MAGTFs. The MAGTF is a scalable, task-organized force consisting of the following 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. The Marine Expeditionary Brigade (MEB) is a large-scale MAGTF, smaller than a MEF, while a Marine Expeditionary unit (MEU) is the smallest standing MAGTF. 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, namely: 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, Marine Expeditionary Unit (MEU)-level training, and Marine Expeditionary Brigade (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

Mission Areas	
Individual Level	MAGTF Marine Expeditionary Unit (MEU) Level
Unit Level	MAGTF Marine Expeditionary Brigade (MEB) Level
Unit Level	MAGTF Marine Expeditionary Force (MEF) Level

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/OPAREA infrastructure. The Navy accomplishes most of its training on ranges and OPAREAs located near concentrations of forces in the U.S. 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 across the Composite Warfare Commander (CWC) concept. Each Carrier Strike Group and Expeditionary Strike 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 Fleet 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 has several land, water, and air ranges managed by the Commander Naval Air Forces Pacific and Naval Special Warfare Command. While these commands, and their subordinates, 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. Because of 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 TYCOMs. Navy TYCOMs are responsible for establishing the training requirements in each Navy Warfare Area 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)/Program Review 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 2-7 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)

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 demployment. 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.

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

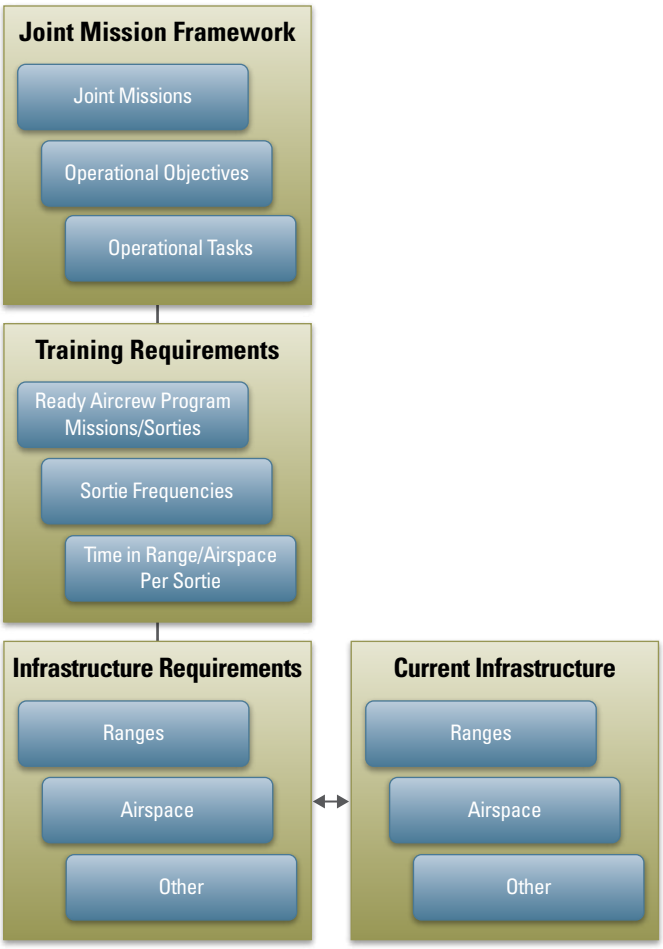
2.3.4 Air Force Requirements

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.

Figure 2-3 Framework for Developing Air Force Infrastructure Requirements



Current and Future Requirements

The first step in this requirements identification and translation process starts with the 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 relationship is illustrated in Figure 2-4.

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 proximate to base operating locations. Quantitatively, the available training time on proximate 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

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

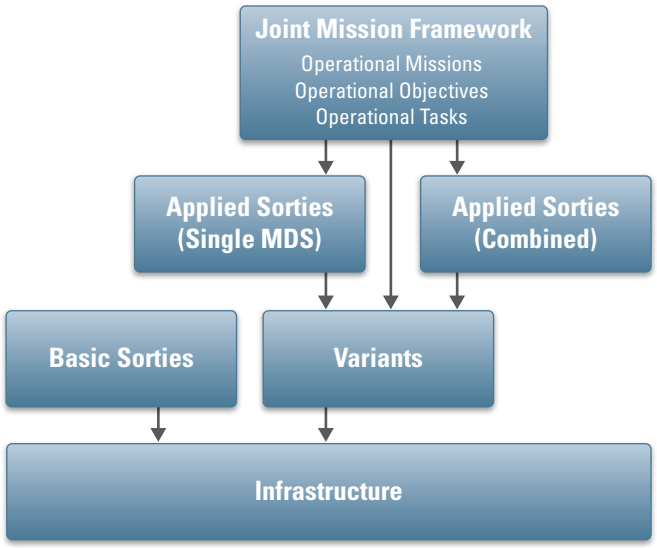


Table 2-8 Air Force Mission Areas

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	

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.

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 support required training as well as the current impacts of encroachment on the 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, the 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 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 developed 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). Working with the Military Services, DoD provided detailed guidance and definitions for common capability attributes and common encroachment factors to ensure consistency and standardization. Additionally, DoD established a connection between range capabilities attributes and encroachment factors to range-related mission areas. Military Service mission areas are presented in Chapter 2, and defined in Appendix B. The Military Services then assessed the ability of each of their ranges to support training for its given mission areas against the 13 common capability attributes and the 12 common encroachment factors developed by DoD and the Military Services.

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), 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 or blank represents the situation where an assessment for a given mission area is not performed against a particular attribute.

This scale is consistent with the developing standards within the Defense Readiness Reporting System (DRRS), where "red" means the assigned mission cannot be achieved, "yellow" means the mission can be achieved but there is greater risk, and "green" means the assigned mission can be achieved.

3.1.2 Encroachment Assessment

The impact to mission readiness from encroachment is difficult to assess. It is important to understand that encroachment promotes workarounds, workarounds increase mission risk, and mission risk can build over time before a specific mission failure is evident. While it is important for Military Services' operational forces to adapt to real-time operational constraints, the 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.
- 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 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 that affects either people, animals (domestic or wild), or structures on or in proximity to military training areas. This does 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/range complexes for the mission risks associated with actual restrictions and workarounds related to the various Encroachment Factors detailed in this report. 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 or blank represents the situation where an encroachment factor does not exist for a given mission area.

3.1.3 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.

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. As shown in Figure 3-1, the interactions between the various mission areas (1 through 5 as examples), and the 13 common capability attributes, are assessed for mission impacts using the red, yellow, green (R/Y/G) rating scale discussed in Section 3.1.1.

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 one or more of the training tasks associated with each Mission Area to prescribed doctrinal standards or conditions. Other red ratings, indicating capability attribute shortfalls that are severely impacting mission areas are: Scoring and Feedback systems for Mission Areas 1 and 5, Small Arms Ranges for all five mission areas, and Range Support for Mission Area 5, and so on.

Less severe impacts can be seen in the yellow ratings, such as those for threats in Mission Area 4 and MOUT facilities in Mission Areas 2-5. 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. These attributes are sufficient to provide training in the five mission areas to doctrinal conditions and standards.

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. The completed table provides the basic information used to generate the overall rating on the sliding bar view, and a comprehensive pie-chart view, of the capabilities Range A provides to train for five different mission areas. This is baseline data, representing a static point in time, and alone does not provide insight into trends based on changing external conditions.

In this example, an overall rating and sliding scale were generated using a weighted average method to calculate a Capability Score on a scale of 0 to 10, with zero being no capability or red, and 10 being full capability or green. For this

example range there were 31 green, 7 yellow, and 17 red responses. Additionally, 10 attributes were not assessed. The weighting plan is 0 for red, 5 for yellow, and 10 for green. Using these numbers, the total weighted score for this example is 345. The weighted average (in this example 6.27) is determined by dividing the weighted score (345) by the total number of responses (55). The weighted average becomes the range's capability score, 6.27, as shown in Figure 3-1.

This sliding scale provides a baseline needed for future trend analysis. To represent the overall relationship of red/yellow/green assessments, a pie chart view is provided. Additional observations can be readily seen from the pie charts. For example, of all the capability factors necessary to provide assigned training for Range A, the pie chart shows that 31% are so severely degraded that some facet of training cannot be accomplished to even a marginal level.

3.1.4 Example Encroachment Assessment and Analysis

The following discussion details an example Encroachment Assessment and Analysis. Figure 3-2 illustrates the format DoD used to collect, evaluate, and analyze range encroachment information.

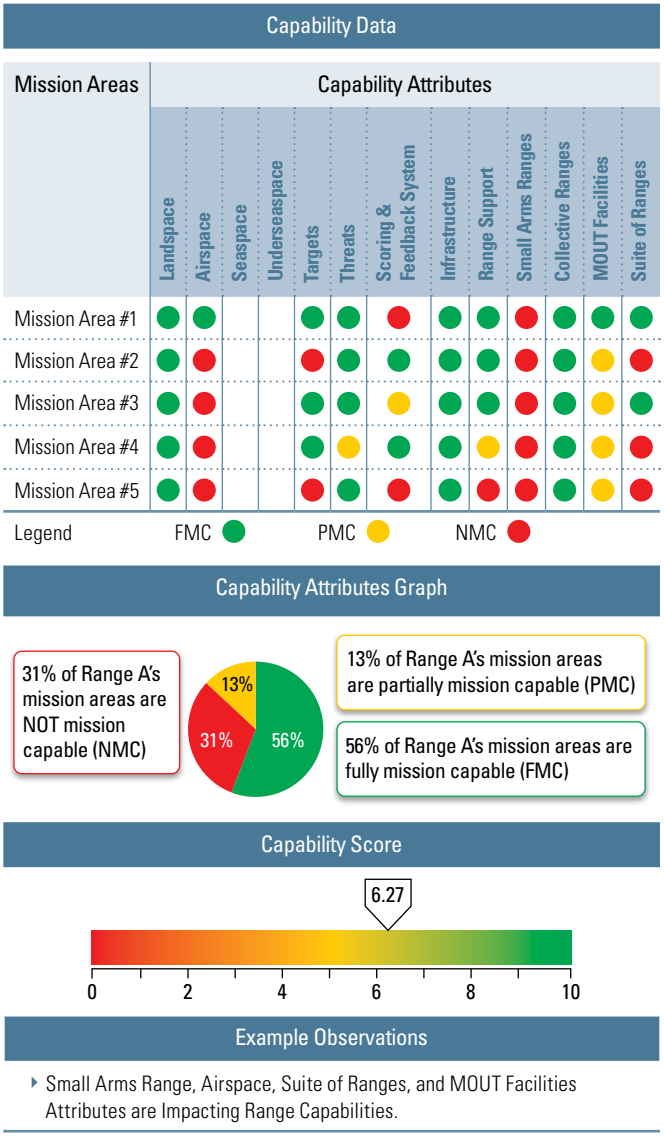
Each Military Service's individual ranges/range complexes were assessed for the impact encroachment currently has on their ability to support their assigned training missions using 12 common encroachment factors. As shown in the figure, the interactions between the various mission areas (1 through 5 as examples) and the 12 common encroachment factors are assessed for mission impacts using the red, yellow, green (R/Y/G) rating scale discussed in Section 3.1.2 and similarly to the capability assessment.

This example shows that Range A is being assessed against its ability to support training for its five mission areas. As seen in Figure 3-2, the red ratings for Adjacent Land Use in Mission Areas 3 and 5 indicate that there is some sort of incompatible development in proximity to the range that is severely affecting or putting at risk the range's ability to support training for those two mission areas at risk. 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 for Mission Area 3, Maritime Sustainability for Mission Area 1, Airspace for Mission Area 3, Wetlands for Mission Areas 4 and 5, and Air Quality for Mission Area 3.

Moderate encroachment impacts can be seen in the yellow ratings, such as those for Adjacent Land Use in Mission Area 2 and Noise Restrictions and Water Quality/Supply with Mission Area 3. The number of green assessments indicate that the majority of 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.

Figure 3-1 Example Capability Assessment and Analysis

Range A: Example Capabilities Data as Provided by Services

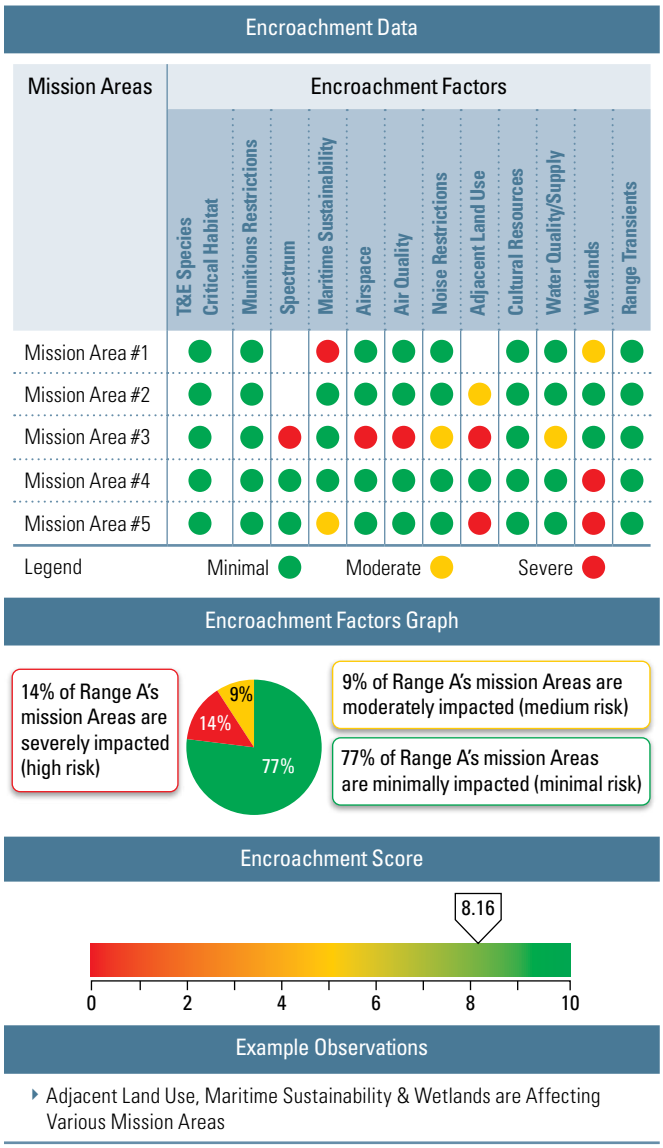


Where an encroachment factor is assessed against a mission area, a red, yellow, or green rating is assigned. Where an encroachment factor does not exist for a mission area at a given range, the blocks are rated white as previously defined. The completed table provides the basic information used to generate the overall rating on the sliding scale view, and a comprehensive pie-chart view, of the impact encroachment is currently having on Range A's ability to provide training for five different mission areas.

In this example, an overall rating and sliding bar were generated using a weighted average method to calculate an

Figure 3-2 Example Encroachment Assessment and Analysis

Range A: Example Encroachment Data as Provided by Services



overall Encroachment Score on a scale of 0 to 10, with zero being a severe encroachment/high risk situation or red, and 10 being a minimal/low risk situation or green.

For the example range in Figure 3-2, there were 44 green, 5 yellow, and 8 red responses. Additionally, 3 factors were not assessed.

The weighting plan is 0 for red, 5 for yellow, and 10 for green. Using these numbers, the total weighted score for this example is 465. The weighted average (in this example 8.16) is determined by dividing the weighted score (465) by the total number of responses (57). The weighted average becomes the range's encroachment score, 8.16, as shown in Figure 3-2.

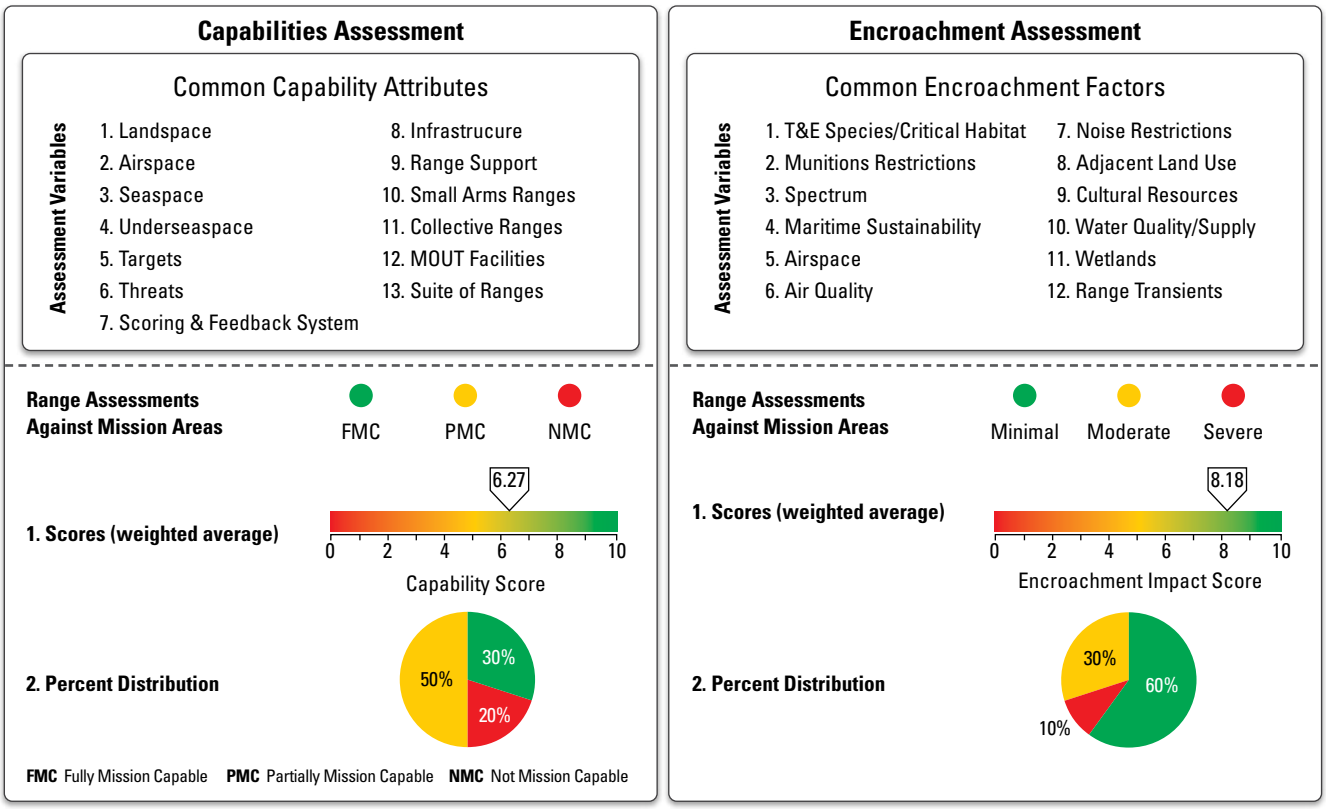
This sliding scale establishes the baseline needed for future trend analysis. A pie chart view is provided to represent the overall relationship of red/yellow/green assessments. Some additional observations can be readily seen from the pie charts. For example, of all the encroachment factors assessed, the majority are not a concern with only 23% having a moderate (yellow) or severe (red) impact.

The intent of this analysis is to ensure that training ranges are assessed against mission areas that are specifically related to training requirements. Figure 3-3 provides a comparison of Military Services' standards methods, analysis, and reporting for capabilities and encroachment assessments on the range training Mission.

With the establishment of a defensible methodology and Military Service participation and validation through the 2008, 2009 and 2010 data collection, DoD is making progress in assuring the data are consistent and reliable for making informed decisions. This year's report includes additional data analyses focusing on range-specific program changes. This gives DoD the ability to analyze the data and take a closer look at the SRP at both the macro and micro levels. The following analyses and associated figures are presented and discussed in Section 3.2 Assessment Results and Discussions for each Military Service:

- Assessment Data Summary—A composite of the capability and encroachment responses (red/yellow/green) are each presented for each range in table format and scores calculated using the previously described methodology;
- Pie Charts—The Assessment Data Summary results from above are aggregated and presented as pie charts showing the percentage of each color rating for all the ranges for the 2010 assessments juxtaposed against the 2008/2009 assessments;
- Assessment by Range—A horizontal bar chart showing the aggregated color responses;
- Capability Attribute and Encroachment Factor Assessment—Horizontal bar chart showing the Military Service level aggregates of the color responses across the 13 capability attributes and 12 encroachment factors that are common to all Military Services;
- Capability and Encroachment Assessment Across Mission Area—Horizontal bar chart showing color responses for the Military Service-specific mission areas;

Figure 3-3 Comparison of the Capability and Encroachment Assessment Methodologies



While considering these assessments, it is important to remember that although they reflect a long-term enterprise view of a broad DoD training range program, each year's assessment is merely 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. Readers are encouraged to avail themselves of the Summary Observations sections and specific rating comments provided for each range to get a better perspective of the dynamics associated with changes in capability attributes and encroachment factors for a particular range. Additional specific observations are included in each Military Service's respective Special Interest Sections.

3.2 Assessment Results and Discussions

3.2.1 Army

Army Training Range Capability Assessment Analysis Results[6]

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

- Army's Fully Mission Capable (FMC) assessments (green) increased from 46% in 2009 to 70% in 2010
- Partially Mission Capable (PMC) assessments (yellow) decreased from 38% to 12%
- Not Mission Capable (NMC) assessments (red) increased from 16% to 18%
- Army's overall capability score increased from 6.49 to 7.61 (Figure 3-4).

The three areas with the greatest number of red and yellow (red + yellow) capability assessments were: Range Support (84 + 1), Small Arms Range (21+17), and Collective Range (11 +6) (Figure 3-8). Refer to the range specific assessments for more information.

The Army's 15 individual range assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-12).

Army Training Range Encroachment Assessment Analysis Results

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

- Army's minimal risk assessments (green) decreased from 86% in 2009 to 85% in 2010
- Moderate risk assessment (yellow) increased from 13% to 15%
- Severe risk assessments (red) reduced from 1 % to <0.20%
- Army's overall encroachment score marginally decreased from 9.23 to 9.22 (Figure 3-5).

The three Encroachment Factors with the greatest number of red and yellow assessed impacts were: Threatened & Endangered Species and Critical Habitat (1+26), Cultural Resources (0+14), and Wetlands (0+12) (Figure 3-9). Refer to the range specific assessments for more information.

The Army's 15 individual encroachment assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-12).

6 Of the 450 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. Twenty-one that represent the Army's Tier I ranges are assessed in this chapter. 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. Only Tier I sites are included in the assessments due to the impracticality of compiling the information for every range. The Tier I installations represent 88% 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	10	2	33	7.56
Fort Bliss	12	0	33	7.33
Fort Bragg	6	6	33	8.00
Fort Campbell	9	9	27	7.00
Fort Carson/Pinyon Canyon	8	9	28	7.22
Fort Drum	6	5	35	8.15
USAG Hawaii	6	9	30	7.67
Fort Hood	9	5	31	7.44
Fort Irwin	5	12	34	7.84
Fort Lewis	13	5	27	6.56
Fort Polk	9	3	39	7.94
Fort Riley	6	4	35	8.22
Fort Stewart	13	2	30	6.89
Fort Wainwright	6	6	33	8.00
Yakima TC	6	4	35	8.22
HQ Army Summary	**124**	**81**	**483**	**7.61**

Table 3-2 Army Encroachment Assessment Data Summary

Range	Severe	Moderate	Minimal	Encroachment Scores
Fort Benning	1	8	30	8.72
Fort Bliss	0	8	33	9.02
Fort Bragg	0	7	35	9.17
Fort Campbell	0	0	39	10.00
Fort Carson/Pinyon Canyon	0	0	33	10.00
Fort Drum	0	0	39	10.00
USAG Hawaii	0	11	34	8.78
Fort Hood	0	4	38	9.52
Fort Irwin	0	12	28	8.50
Fort Lewis	0	7	34	9.15
Fort Polk	0	4	37	9.51
Fort Riley	0	3	30	9.55
Fort Stewart	0	10	26	8.61
Fort Wainwright	0	8	32	9.00
Yakima TC	0	8	33	9.02
HQ Army	**1**	**90**	**501**	**9.22**

Figure 3-4 Army's Capability Chart

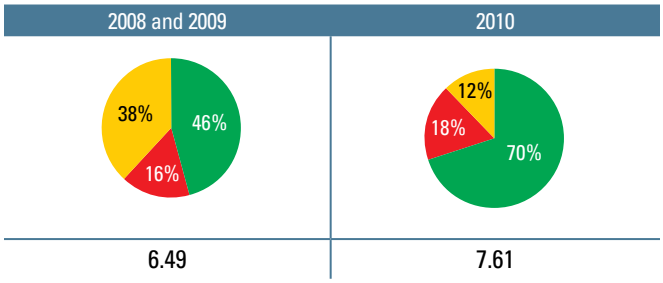


Figure 3-5 Army's Encroachment Chart

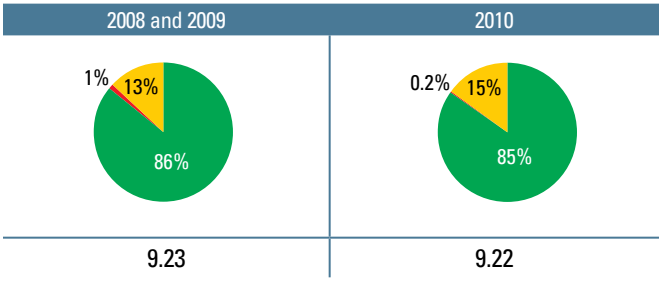


Figure 3-6 Capability Assessments by Range

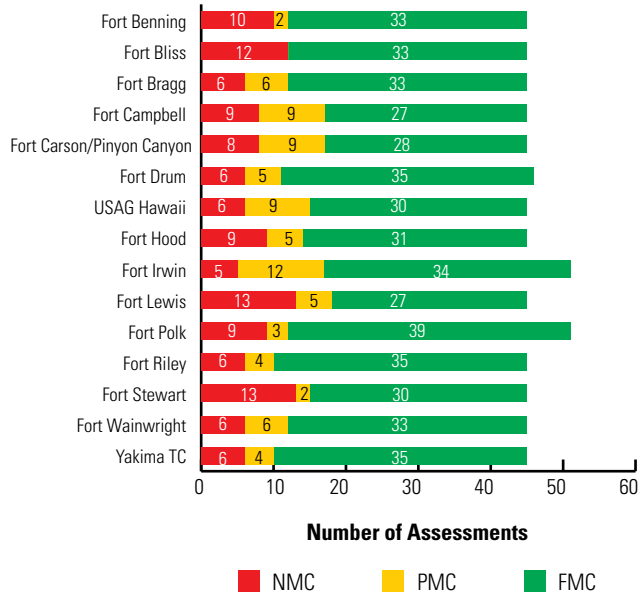


Figure 3-7 Encroachment Assessments by Range

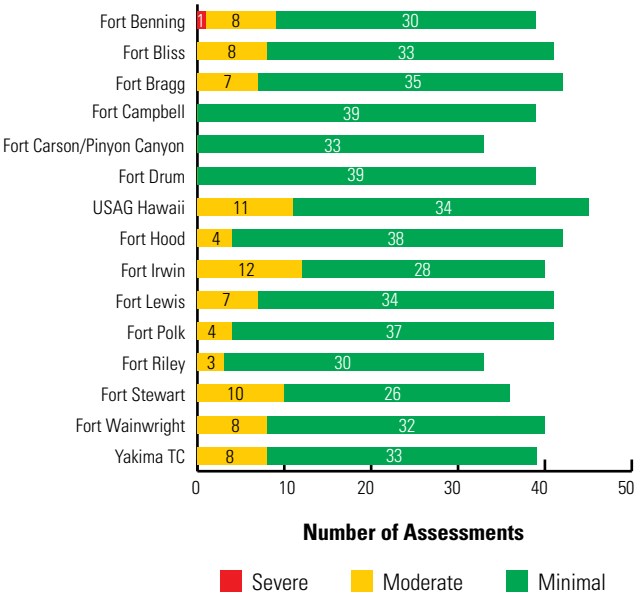


Figure 3-8 Capability Assessment by Attributes

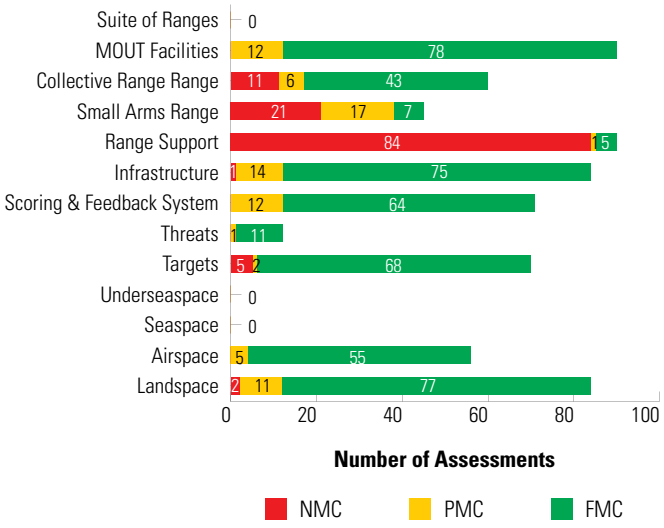


Figure 3-9 Encroachment Assessment by Factors

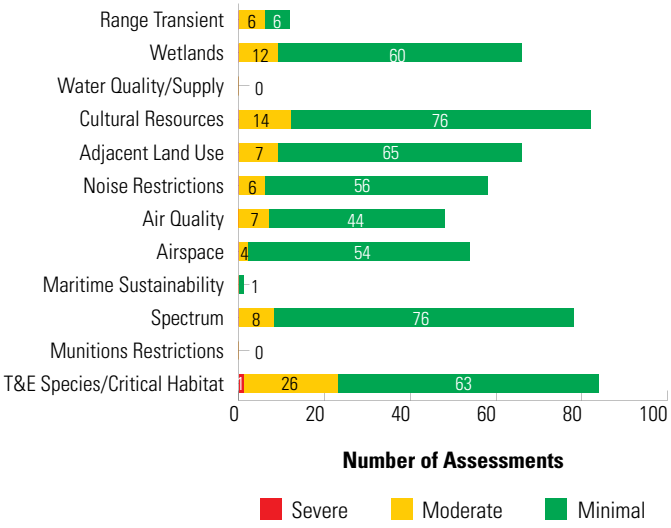


Figure 3-10 Capability Assessment by Mission Areas

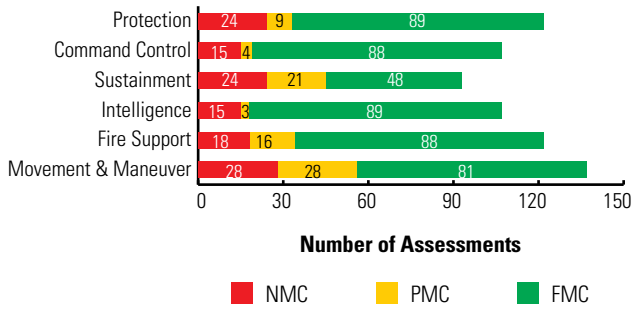
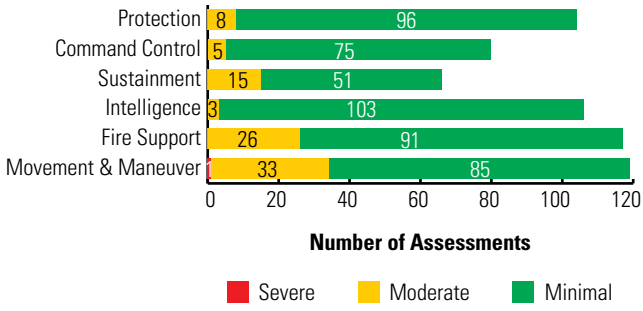


Figure 3-11 Encroachment Assessment by Mission Areas



Army Special Interest Section

General Issues

The Army SRP maintains an inventory and general management data for 102 installations encompassing three tiers. The Army tiers were established using training 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 Tier I sites are included in the assessments due to the impracticality of compiling the information for every range. The Tier I installations represent 88% of the training load on Army active duty ranges.

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 landpower 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 are 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 2003 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 05 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 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 are encroaching on military lands and creating "islands of biodiversity" on Army installations. 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.

Stationing changes directed by BRAC 05 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 IBCT activated at Fort Bragg
Fort Carson	DIV HQ moved from Fort Hood to Fort Carson
Fort Carson	1 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 05 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	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 ID moved from Germany to Fort Riley

In January 2007, President Bush asked Congress for authority to increase the overall strength of the Army by 74,200 soldiers over the next five years. This growth will mitigate shortages in units, soldiers, and time to train that would otherwise inhibit the Army from meeting readiness goals and supporting strategic requirements. In September 2007, the Secretary of Defense approved the Army's proposal to accelerate growth for the Active component and Army National Guard. The Army must grow, adjust its force structure, and station its units and soldiers to meet the strategic requirements of the contemporary global security environment.

To meet this need, the Army developed a plan to station and realign units to optimize training, leader development, and combat readiness. This stationing plan integrates BRAC, GDPR, and Army growth and is facilitated by military construction. Table 3-5 identifies installations which received or retained 1,000 soldiers or more during Army growth.

Table 3-5 Actions Under Army Growth

Installation Impacted	Type of Unit	Action
Fort Carson	IBCT	Retained
Fort Stewart	IBCT (converted from an HBCT)	Conversion
Fort Polk	Battlefield Surveillance Brigade	Growth
Fort Bliss	1 IBCT and Fires Brigade	Growth

Several installations had growth or retention that exceeded 1,000 soldiers, but did not have units that would significantly increase the maneuver training land requirement. For example, Fort Hood had 24 units, 3,273 soldiers, but the type of units caused only a small increase to the maneuver land shortfall at Fort Hood. This was part of the effort to rebalance the Army forces with available training land and to leverage existing cantonment facilities within the Army.

Critical Issues: Range Capabilities

Unmanned Aerial Systems (UASs)

The Army will field 1,550 UASs to BCTs and Combat Aviation Brigades in FY10. 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 is in the process of completing its assessment for range and airspace requirements for UAS and finalizing a UAS Training Strategy, estimated to be completed in December 2009, which will define the use of the Army UAS fleet through 2024.

Funding Challenges

The Office of the Deputy Chief of Staff, G-3/5/7, Training Directorate, Training Support Systems (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 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, world-wide, is not at a level consistent with the rate of growth in validated and critical training requirements that reflect Commanders' needs.

As the ACP reaches maturity and Operation Iraqi Freedom (OIF) and Operation Enduring Force (OEF) demands shift and evolve, the Army will see more units training to full spectrum at home station. The anticipated result will be a surge in home station training over increasingly longer cycles. Consequently, TSS requirements to modernize, operate, and sustain ranges and maneuver training land will increase. This funding needs to keep pace with the critical requirements to address Commanders' needs in the operational and institutional training domains.

Historically, programmed resource increases have been decremented as a year of execution approaches. Resource trends from POM 08-13, POM 10-15, and the most recent FY10 budget, reduced the level of TSS funding between FY08 and FY10. TSS was reduced $155M in FY10, representing a 9% reduction of the original FY10 funding projection; funding is now at 81% of critical requirements. $96M of the total FY10 reduction was in Army operations and maintenance, representing Army civilian pay, contractor

services and day-to-day operating budgets. These programs together, manage and operate training systems. The actual impact of this cut is a 28% reduction to operating funds for TSS services, including range operations and ITAM, since civilian pay is fenced. In FY11-15, TSS will be reduced $521M, representing a 5% reduction of original funding as programmed at the completion of POM 10-15. The new funding level is 78% of total critical requirements, with critical requirements already representing 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; or multiple appropriations. Funding levels need to be consistent with critical requirements to address Commanders' needs in the operational and institutional training domains.

Litigation Challenges

The Army is working to resolve litigation issues that are currently limiting critical live-fire assets training and the Army's ability to resolve landspace shortfall issues at key installations. One example is the ongoing litigation at Makua Military Reservation in Hawaii; limiting the Army's ability to meet home-station training requirements for soldiers stationed there. Additionally, the Army continues to work through the issues limiting the proposed expansion of the Pinyon Canyon Maneuver Site in Colorado. Current land restrictions limit training capability for soldiers stationed at Fort Carson.

Critical Issues: Encroachment Capabilities

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 actively 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.

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Figure 3-12 Army Capability and Encroachment Assessment Detail

Fort Benning Assessment Details

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	PMC	FMC			FMC		FMC	FMC	NMC	NMC	NMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		FMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Sustainment	PMC							FMC	NMC	NMC	FMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Protection	FMC				FMC		FMC	FMC	NMC	NMC	FMC	FMC	

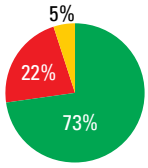
Legend: FMC PMC NMC

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	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

Summary Percent Distribution



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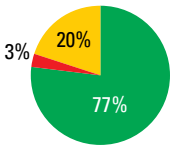
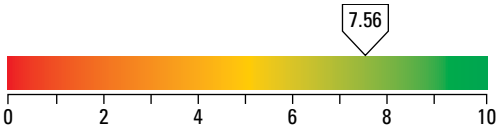
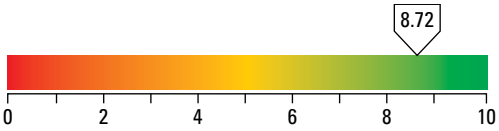


Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Range Support is the capability area that most impacts the training mission.
2. Movement and Maneuver is the mission area that is most impacted.
3. The stand up of the Maneuver Center of Excellence will require range construction and project coordination in order to meet the Army's timeline. The footprint required to support the range construction projects will likely increase the existing land space shortfalls in the out-years. A funding shortfall will limit non-salary range operations through FY11; resulting in continued capability shortfalls in Range Support. Range shortfalls are being programmed in the FY12-17 POM and this will likely result in increased range capability in the out-years.

Summary Observations

1. The Threatened and Endangered Species/Critical Habitat Encroachment Factor has the greatest impact on the training mission.
2. Movement and Maneuver is the mission area that is most impacted.
3. Realignment of the Armor School from Fort Knox to Fort Benning is resulting in encroachment due to eastward sprawl from Columbus and endangered species (*e.g.,* the Red Cockaded Woodpecker). This will cause an increase in training restrictions/impacts due to encroachment. The Army is seeking to address these impacts through the use of the Army Compatible Use Buffer Program.

Fort Benning Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	🟡	Fort Benning has a doctrinal training land shorfall that has been documented in accordance with AR 350-19. Fort Benning has determined that the maximum training benefit can be achieved by purchasing up to 82,800 acres of additional training land to accomodate training for the Armored Reconnaissance Course (ARC) and the Ranger Training Brigade (RTB), as well as additional training land to support a heavy maneuver battalion; will allow Fort Benning to better support training for TRADOC, FORSCOM, and USASOC tenant units, simultaneously. Funding is programmed in support of training land purchase at Fort Benning starting in FY11. Fort Benning is also pursuing other strategies including partnerships with the Tri-County Area Governments in the ACUB/JLUS programs and funding opportunities for these programs.
	Sustainment	🟡	Same as above.
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding 25% below the Army critical requirement; limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command and Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Ranges	Movement and Maneuver	🔴	The installation has 17 small arms ranges being built to support MCOW/Armor School BRAC requirements. Construction in the range complex limits capability of existing ranges. The ranges will not be completed in FY10.
	Sustainment	🔴	Same as above.
	Protection	🔴	Same as above.
Collective Ranges	Movement and Maneuver	🔴	The installation has 4 collective gunnery 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 FY10.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/ Critical Habitat	Movement and Maneuver	🔴	Fort Benning has 5 TES and 96 species of 'conservation concern'. Persistant restrictions deny access to +450 acres but the buffer areas and numerous definitions of restrictions have placed unusually difficult conditions on 5 ranges and resulted in the closure of a LFX Plt MTC range this year. The impact of MCOE construction requirements has resulted in a JBO for the Installation.The Army is planning to implement the appropriate mitigation strategy 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 operations restrict participation of high performance fixed wing aircraft in joint training exercises due to current airspace limitations; result is current spatial capability attributes makes it difficult to contain high performance aircraft during joint training exercises involving Close Air Support. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
Noise Restrictions	Fire Support	🟡	Firing of weapons .50 caliber or greater is restricted. Units must notify the Fort Benning Public Affairs Office of any firing during restricted hours; information then distributed through the local news media, and local governments. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
Adjacent Land Use	Fire Support	🟡	Developmental encroachment along the western and north western boundaries is increasing. Live-fire activities increase the perceived noise pollution and tracked vehicle movement increase the perceived air pollution and erosion potential to surrounding property and minimize the installation's options and ability to balance mission and stewardship requirements. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
Cultural Resources	Movement and Maneuver	🟡	There are 3,974 cultural resource sites encompassing 7,420 acres on post. 856 sites encompass 3,995 acres that are restricted to no ground disturbing activity. Another approximately 90 sites covering about 726 acres are anticipated to be included in the NHRP. An estimated 264 sites with an approximate total of 2,747 acres will be restricted to non-ground disturbing activity on post. Sites may need to be excavated and removed from further management consideration, freeing the acreage with reference to CRM. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
	Fire Support	🟡	Same as above.
Wetlands	Movement and Maneuver	🟡	There are 16,926 acres of wetlands within the installation boundary that impose 2 major restrictions to training: loss of heavy maneuver training area, and crossing sites required to traverse the wetlands requires channelization, which hinders realistic training. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

Fort Bliss Assessment Details

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	NMC	NMC	NMC	NMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		NMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Sustainment	FMC							FMC	NMC	NMC	FMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Protection	FMC				FMC		FMC	FMC	NMC	NMC	FMC	FMC	

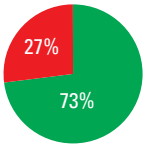
Legend: FMC (Full Mission Capable) PMC (Partial Mission Capable) NMC (Non Mission Capable)

Encroachment Data

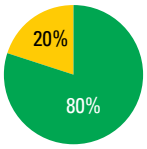
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Minimal		Moderate		Minimal	Moderate	Moderate	Moderate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

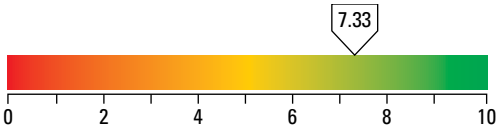
Summary Percent Distribution



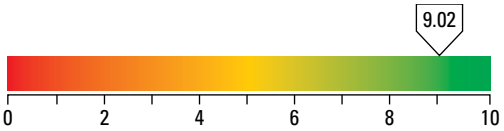
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Range Support is the capability area that is most impacted.
2. Movement and Maneuver is the mission area that is most impacted.
3. BRAC, Grow the Army (GTA), and the Global Defense Posture Realignment (GDPR) initiatives will require range construction and project coordination in order to meet the Army's timeline; a funding shortfall will limit non-salary range operations through FY11 and likely result in continued capability shortfalls in Range Support. Range shortfalls are being programmed in the FY12-17 POM and this will likely result in increased range capability in the out-years.

Summary Observations

1. Spectrum has the greatest impact on the training mission.
2. Movement and Maneuver is the mission area that is most impacted.
3. Re-stationing and close proximity to El Paso is accelerating the conflict between the military mission and regional development. Training impacts will likely increase due to incompatible adjacent land use. The Army will seek to address these impacts through the use of the Army Compatible Use Buffer Program.

Fort Bliss Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Movement and Maneuver	🔴	Oro Grande Base Camp lacks sufficient facilities to accommodate unit training densities.
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding 25% below the Army critical requirement; limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command & Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Ranges	Movement and Maneuver	🔴	Installation has a deficit of 6 small arms ranges in FY10.
	Sustainment	🔴	Same as above.
	Protection	🔴	Same as above.
Collective Ranges	Movement and Maneuver	🔴	Collective gunnery ranges will be under construction during FY10.
	Fire Support	🔴	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
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 Army will continue to work to mitigate these restrictions and is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
	Sustainment	🟡	Same as above.
	Command & Control	🟡	Same as above.
Air Quality	Movement and Maneuver	🟡	Fugitive dust emissions migrating from unpaved tank rails and roads can obscure visibility on public highways and impact surrounding residential areas in the City of El Paso, and townships of Oro Grande and Chaparral. State regulations (NM and TX) prohibit the nuisance occurrence by dust on public roads and residential areas. Fort Bliss works to minimize and mitigate dust emissions on selected unpaved roads and maneuver trails with dust suppressants to ensure military mission is unimpeded by air quality issues, violations of state rules, citizens complaints or other enforcement mechanisms.
Noise Restrictions	Movement and Maneuver	🟡	Once all BRAC and GTA units are on stationed at Fort Bliss, it is likely to result in restrictions based on conflicts with the local community. Army purchased an easement to preclude specific land uses on 5,200 acres of NM Trust land in and effort to mitigate restrictions.
	Fire Support	🟡	Same as above.
Adjacent Land Use	Movement and Maneuver	🟡	Same as above.
	Fire Support	🟡	

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

Fort Bragg Assessment Details

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		PMC	FMC	NMC	PMC	FMC	FMC	
Fire Support	FMC	FMC			FMC		PMC	FMC	NMC		FMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Sustainment	FMC							FMC	NMC	PMC	FMC	FMC	
Command Control	FMC	FMC			FMC		PMC	FMC	NMC			FMC	
Protection	FMC				FMC		FMC	FMC	NMC	PMC	FMC	FMC	

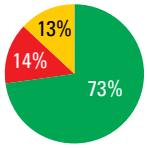
Legend: FMC, PMC, NMC

Encroachment Data

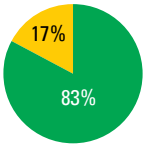
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	PMC		FMC		FMC	FMC	PMC	PMC	PMC		FMC	
Fire Support	PMC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

Legend: Minimal, Moderate, Severe

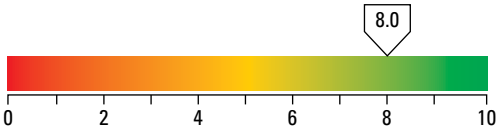
Summary Percent Distribution



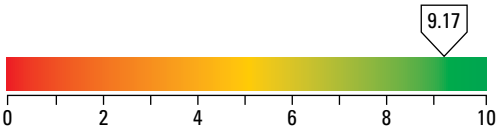
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Range Support is the capability area that most impacts training.
2. Movement and Maneuver is the mission area that is most impacted.
3. There is a funding shortfall which will limit non-salary range operations through FY11; likely result in continued capability shortfalls in Range Support. Range shortfalls are being programmed in the FY12-17 POM and this will likely result in increased range capability in the out-years.

Summary Observations

1. The Threatened and Endangered Species/Critical Habitat, Noise Restriction, and Adjacent Land Use Encroachment Factors have the greatest impact on the training mission.
2. Movement and Maneuver is the training mission that is most impacted.
3. Army efforts to protect Red Cockaded Woodpecker habitat have reduced most endangered species encroachment impacts and future efforts will address rapidly sprawling development from Fayetteville due to BRAC. Specifically, the Army is seeking to address future impacts through the use of the Army Compatible Use Buffer Program.

Fort Bragg Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Movement and Maneuver	🟡	Ft. Bragg does not have an assigned Aviation Weapon Scoring System to support 82AVN and the NG units that conduct aerial gunnery on the installation.
	Fire Support	🟡	Same as above.
	Command & Control	🟡	Same as above.
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding 25% below the Army critical requirement; limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Ranges	Movement and Maneuver	🟡	Current defecit in machine gun training ranges.
	Sustainment	🟡	Same as above.
	Protection	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Movement and Maneuver	🟡	Ft. Bragg has three federally endangered plant species and two federally endangered species; restrictions apply to maneuvers, bivouacs, weapons firing, noise, pyrotechnics, digging, and any fixed activity lasting over a 2-hour period. Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
	Fire Support	🟡	Same as above.
Noise Restrictions	Movement and Maneuver	🟡	Artillery and demolition greater than 25 lbs are not permitted on Sundays between the hours of 1000-1200, there is also no battalion massing of 155 or higher between the hours of 2300-0500 daily. The Army continues to implement workarounds in order to avoid training shortfalls.
	Fire Support	🟡	Same as above.
Adjacent Land Use	Movement and Maneuver	🟡	The installation has a munition control measure for the use of smoke and riot control agents to ensure the smoke and/or riot control agents do not drift across roads used by civilian traffic. The installation also has a training control measure that limits the employment of smoke and tear agents within 500 meters of quarters and game warden stations. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
	Fire Support	🟡	Same as above.
Cultural Resources	Movement and Maneuver	🟡	Ft. Bragg has 1,075 acres of cultural resources sites that have restricted training. No digging is permitted within these sites and no off-road maneuvers of heavy vehicles (anything larger then a HMMWV). Ft. Bragg is working with stakeholders on implementing an efficient mitigation strategy.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

Fort Campbell Assessment Details

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	PMC	PMC			FMC		PMC	FMC	NMC	NMC	FMC	PMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		FMC	PMC	
Intelligence	FMC	FMC			FMC		FMC	FMC	NMC			PMC	
Sustainment	FMC							FMC	NMC	NMC	FMC	PMC	
Command Control	FMC	FMC			FMC		FMC	FMC	NMC			PMC	
Protection	FMC				FMC		FMC	FMC	NMC	NMC	FMC	PMC	

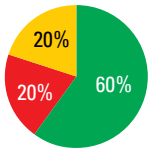
Legend: FMC, PMC, NMC

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
Movement and Maneuver	Minimal		Minimal		Moderate	Moderate	Moderate	Moderate	Minimal		Minimal	
Fire Support	Minimal		Minimal		Moderate	Moderate	Moderate	Moderate	Minimal		Minimal	
Intelligence	Minimal		Minimal		Moderate		Moderate	Moderate	Minimal		Minimal	
Sustainment	Minimal		Minimal						Minimal		Minimal	
Command Control	Minimal		Minimal		Moderate				Minimal		Minimal	
Protection	Minimal		Minimal			Moderate	Moderate	Moderate	Minimal		Minimal	

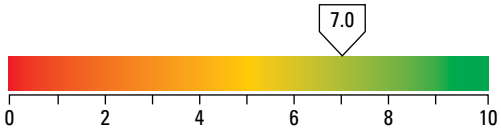
Legend: Minimal, Moderate, Severe

Summary Percent Distribution

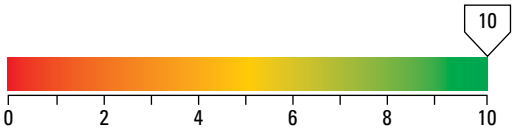


Summary Percent Distribution

Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Range Support is the capability area that is most impacted.
2. Movement and Maneuver is the mission area that is most impacted.
3. There is a funding shortfall which will limit non-salary range operations through FY11; likely result in continued capability shortfalls in Range Support. Range shortfalls are being programmed in the FY12-17 POM and this will likely result in increased range capability in the out-years.

Summary Observations

1. There are minimal impacts to the training mission due to encroachment.
2. There are minimal impacts to all training mission mission areas.
3. Planned growth and transformation could accelerate conflict between urbanization and airfield operations; likely cause an impact to training due to encroachment on adjacent land. The Army will look to implement the Army Compatible Use Buffer Program if this occurs.

Fort Campbell Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	🟡	Units are limited in their training maneuvers due to limited available land. Unit movement is constrained to short 1-3 kilometer movements, depending on which training area the unit is assigned. Maneuver of multiple company size units at their doctrinal distances is constrained.
Airspace	Movement and Maneuver	🟡	Controlled airspace over the installation limits the ability of the units to conduct air training excercises to doctrinal standards in terms of dispersion, flight techniques, and integration with other assets, such as Unmanned Aerial Systems.
Scoring & Feedback System	Movement and Maneuver	🟡	Installation does not have an assigned aviation weapon scoring system to support the two combined aviation brigades and the Task Force 160 Special Operations Aviation Regiment. The Army has scheduled the system for temporary use at the installation.
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding 25% below the Army critical requirement; limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Ranges	Movement and Maneuver	🔴	Installation has a deficit of 2 machine gun and 3 small arms ranges in FY10.
	Sustainment	🔴	Same as above.
	Protection	🔴	Same as above.
MOUT Facilities	Movement and Maneuver	🟡	Insufficient individual MOUT training throughput (Shoot House/Urban Assault Course).
	Fire Support	🟡	Same as above.
	Intelligence	🟡	Same as above.
	Sustainment	🟡	Same as above.
	Command Control	🟡	Same as above.
	Protection	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment

No Comments.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

Fort Carson/Pinon Canyon Assessment Details

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	NMC	FMC			FMC		FMC	FMC	NMC	PMC	FMC	PMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		FMC	PMC	
Intelligence	FMC	FMC			FMC		FMC	FMC	NMC			PMC	
Sustainment	NMC							FMC	NMC	PMC	FMC	PMC	
Command Control	FMC	FMC			FMC		FMC	FMC	NMC			PMC	
Protection	FMC				FMC		FMC	FMC	NMC	PMC	FMC	PMC	

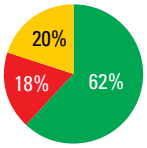
Legend: FMC PMC NMC

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
Movement and Maneuver	Minimal		Minimal		Moderate	Moderate	Moderate	Moderate	Moderate			
Fire Support	Minimal		Minimal		Moderate	Moderate	Moderate	Moderate	Moderate			
Intelligence	Minimal		Minimal		Moderate		Moderate	Moderate	Moderate			
Sustainment	Minimal		Minimal						Moderate			
Command Control	Minimal		Minimal		Moderate				Moderate			
Protection	Minimal		Minimal			Moderate	Moderate	Moderate	Moderate			

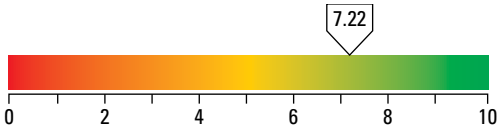
Legend: Minimal Moderate Severe

Summary Percent Distribution

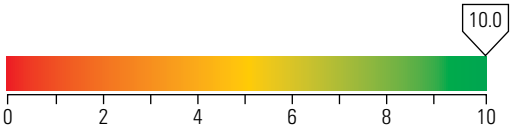


Summary Percent Distribution

Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Range Support is the capability area that is most impacted.
2. Movement and Maneuver and Sustainment are the mission areas that are most impacted.
3. Increasing military training from re-stationing and transformation will continue to put pressure on the installations training land-space, as more training will have to occur on the same acreage. There is a funding shortfall which will limit non-salary range operations through FY11.

Summary Observations

1. There are minimal encorachment impacts on the training mission.
2. All mission areas are minimally impacted.
3. Training requirements will increase as a result of re-stationing and transformation actions. Training impacts will likely occur due to increasing growth and adjacent land use from Colorado Springs and Pueblo, Colorado. The Army will seek to mitigate this impact through the use of the Army Compatible Use Buffer program.

Fort Carson/Pinon Canyon Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	🔴	Fort Carson/PCMS has a doctrinal training land shortfall documented in accordance with AR 350-19. Due to a significant increase in training requirements resulting from Army Transformation to a modular force, additional training land is required to maintain realistic training scenarios. Maximum training benefit can be achieved by purchasing/leasing up to 100,000 acres of additional training land from willing sellers or leasers. The Army will take no further action on PCMS expansion until formally approached by a land owner(s) who are willing to sell or lease land to the Army.
	Sustainment	🔴	Same as above.
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding 25% below the Army critical requirement; limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Ranges	Movement and Maneuver	🟡	Deficit of infantry squad range
	Sustainment	🟡	Same as above.
	Protection	🟡	Same as above.
MOUT Facilities	Movement and Maneuver	🟡	Urban assault course and CACTF will not be complete in FY10
	Fire Support	🟡	Same as above.
	Intelligence	🟡	Same as above.
	Sustainment	🟡	Same as above.
	Command Control	🟡	Same as above.
	Protection	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment

No Comments.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

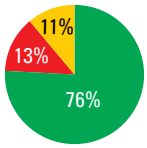
Fort Drum Assessment Details

Capability Data

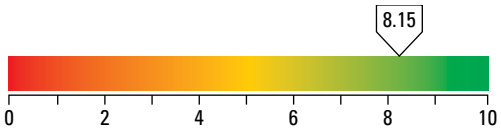
Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	PMC	PMC			FMC		FMC	FMC	NMC	FMC	FMC	FMC	
Fire Support	FMC	PMC			FMC		FMC	FMC	NMC		FMC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

Legend: FMC ● PMC ● NMC ●

Summary Percent Distribution



Overall Capability Score



Summary Observations

1. Range Support is the capability area that is most impacted.
2. Movement and Maneuver and Sustainment are the mission areas that are most impacted.
3. There is a funding shortfall which will limit non-salary range operations through FY11; will likely result in continued capability shortfalls in Range Support.

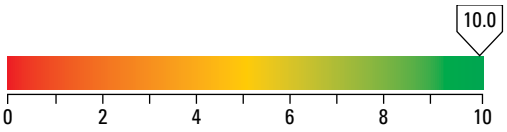
Encroachment Data

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		Minimal		Moderate	Moderate	Moderate	Moderate	Moderate		Minimal	
Fire Support	Minimal		Minimal		Moderate	Moderate	Moderate	Moderate	Moderate		Minimal	
Intelligence	Minimal		Minimal		Moderate		Moderate	Moderate	Moderate		Minimal	
Sustainment	Minimal		Minimal						Moderate		Minimal	
Command Control	Minimal		Minimal		Moderate				Moderate		Minimal	
Protection	Minimal		Minimal			Moderate	Moderate	Moderate	Moderate		Minimal	

Legend: Minimal ● Moderate ● Severe ●

Summary Percent Distribution

Overall Encroachment Score



Summary Observations

1. There are minimal impacts on the training mission due to encroachment.
2. There are minimal impacts on all training mission areas.
3. Range construction to support re-stationing and transformation is causing wetland impacts and cannot be addressed through on-post mitigation. The Army is seeking to address these impacts through the use of the Army Compatible Use Buffer program.

Fort Drum Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	🟡	Fort Drum has a doctrinal training land shortfall per AR 350-19.
	Sustainment	🟡	Same as above.
Airspace	Movement and Maneuver	🟡	The restricted airspace available does not meet the ceiling requirements for high angle weapon systems, such as the 155mm and Stinger.
	Fire Support	🟡	Same as above.
Range Support	Movement and Maneuver	🔴	Non-salary Range operations funding 25% below the Army critical requirement; limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/ techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Ranges	Sustainment	🟡	The 40mm training round is manpower intensive to clear from facilities, SA is defined as .50 cal and below.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment

No Comments.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

Hawaii Assessment Details

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	PMC	FMC			FMC		PMC	FMC	NMC	PMC	PMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		PMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Sustainment	FMC							FMC	NMC	PMC	PMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Protection	FMC				FMC		FMC	FMC	NMC	PMC	PMC	FMC	

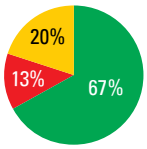
Legend: FMC PMC NMC

Encroachment Data

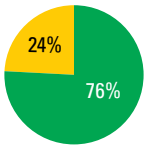
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	PMC		FMC		FMC	FMC	FMC	FMC	PMC		FMC	PMC
Fire Support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

Legend: Minimal Moderate Severe

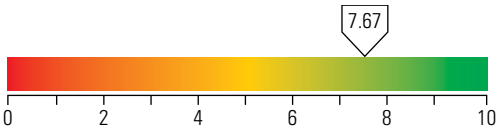
Summary Percent Distribution



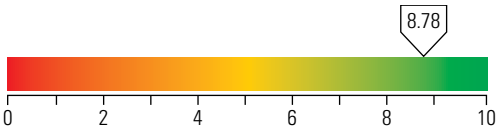
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Range Support is the capability area that is most impacted.
2. Movement and Maneuver is the mission area that is most impacted.
3. Live fire has not occurred on Makua (Oahu) since October 2004.

Summary Observations

1. The Cultural Resources Encroachment Factor has the greatest impact on the training mission.
2. The Movement and Maneuver and Sustainment are the mission areas that are most impacted.
3. Army transformation is causing decreased compatibility between Oahu Training Areas and targeted resort development on the North Shore; will likely cause continued training impacts associated with encroachment. The Army is seeking to addres these impacts through the use of the Army Compatible Use Buffer program.

Hawaii Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	🟡	Increased maneuver throughput is required due to 2 Stryker Brigade Combat Teams being based in Hawaii; limited maneuver area on Oahu and logistically SBCTs have to move by boat to PTA to conduct a portion of their METL training. Hawaii is still short on required maneuver land due to much of the area not being able to support the Stryker vehicle due to environmental go and no-go areas.
Scoring & Feedback System	Movement and Maneuver	🟡	Current MOUT facility lacks instrumentation to provide quality AAR process.
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding 25% below the Army critical requirement; limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Ranges	Movement and Maneuver	🟡	Deficit Machine Gun Range.
	Sustainment	🟡	Same as above.
	Protection	🟡	Same as above.
Collective Ranges	Movement and Maneuver	🟡	Deficit Aviation Gunnery Capability.
	Fire Support	🟡	Same as above.
	Sustainment	🟡	Same as above.
	Protection	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/ Critical Habitat	Movement and Maneuver	🟡	Restrictions in some areas result in no armor movement; the Army continues to mitigate against this restriction.
	Sustainment	🟡	Same as above.
	Protection	🟡	Same as above.
Cultural Resources	Movement and Maneuver	🟡	Access to cultural resources at Makua Military Reservation by native Hawaiian groups has been challenged; therefore, resuming live fire training at Makua continues to be delayed pending additional litigation.
	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 motocross riders use the Kahuku training area on weekends; the Army continues to work to mitigate against the encroachment.
	Sustainment	🟡	Same as above.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

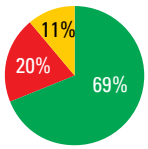
Fort Hood Assessment Details

Capability Data

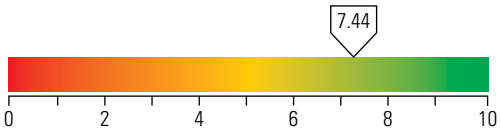
Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	FMC	FMC			FMC		PMC	PMC	NMC	NMC	FMC	FMC	
Fire Support	FMC	FMC			FMC		PMC	PMC	NMC		FMC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

Legend: FMC PMC NMC

Summary Percent Distribution



Overall Capability Score



Summary Observations

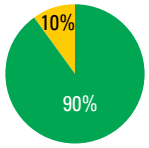
1. Range Support is the capability area that is most impacted.
2. Movement and Maneuver is the mission area that is most impacted.
3. There is a funding shortfall which will limit non-salary range operations through FY11; will likely result in continued capability shortfalls in Range Support. Range shortfalls are being programmed in the FY12-17 POM and this will likely result in increased range capability in the out-years.

Encroachment Data

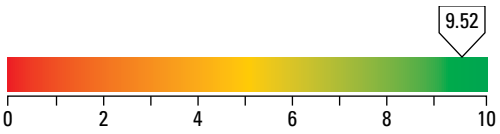
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Moderate		Minimal		Minimal	Minimal	Minimal	Minimal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

Summary Percent Distribution



Overall Encroachment Score



Summary Observations

1. The Threatened and Endangered Species/Critical Habitat and Cultural Resources Encroachment Factors have the greatest impact on the training mission.
2. Movement and Maneuver is the mission area that is most impacted.
3. Development to the west of the city of Killeen is spreading along the south-western boundary of the installation, adjacent to the primary maneuver training area. Training impacts due to adjacent land use will likely increase.

Fort Hood Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Movement and Maneuver	🟡	Audio/video capture and feedback systems on non-instrumented ranges are antiquated and in need of upgrade to support the quality automated after action review necessary to better support the Instrumented Force of today.
	Fire Support	🟡	Same as above.
Infrastructure	Movement and Maneuver	🟡	There are approximately 400 miles of improved maneuver trails, of which 53% are in need of repair.
	Fire Support	🟡	Same as above.
	Sustainment	🟡	Same as above.
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding 25% below the Army critical requirement; limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Ranges	Movement and Maneuver	🔴	Ft Hood small arm ranges support individual to team level qualification and up to platoon live fire exercises. Ft Hood is currently short 4 multi-purpose machine gun (MPMG) ranges with one MPMG under construction in FY 11. Additional ranges will be addressed in Army Master Range Plan beyond FY11.
	Sustainment	🔴	Same as above.
	Protection	🔴	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Movement and Maneuver	🟡	Approximately 7% of the installation has training restrictions due to nesting seasons of endangered species for 5 months each year. There are digging restrictions that affect 19% of the operational area. The Army will continue to work to mitigate these restrictions, and is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
	Fire Support	🟡	Same as above.
Cultural Resources	Movement and Maneuver	🟡	The Army is unable to review and classify potential sites as either eligible or ineligible sites to support training and/or range upgrades due to insufficient funding. The Army will continue to work to make appropriate classifications so that training can be maximized on the installation, and is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
	Sustainment	🟡	Same as above.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

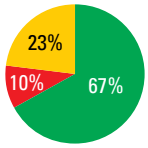
Fort Irwin Assessment Details

Capability Data

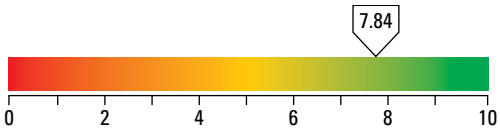
Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
	Capability Attributes												
Movement and Maneuver	FMC	FMC			NMC	FMC	PMC	PMC	FMC	FMC	FMC	FMC	
Fire Support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

Legend: FMC, PMC, NMC

Summary Percent Distribution



Overall Capability Score



Summary Observations

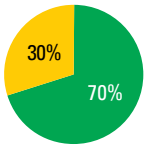
1. Targets is the capability area that is most impacted.
2. Fire Support is the mission area that is most impacted.
3. HQDA is reviewing the live fire requirements at the NTC.

Encroachment Data

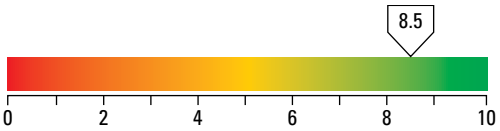
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Movement and Maneuver	Minimal		Minimal	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

Legend: Minimal, Moderate, Severe

Summary Percent Distribution



Overall Encroachment Score



Summary Observations

1. The Threatened and Endangered Species/Critical Habitat and Air Quality Encroachment Factors have the greatest impact on the training mission.
2. All mission areas are equally impacted.
3. The Desert Tortoise management requirements continue to delay use of expansion areas at the National Training Center.

Fort Irwin Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Movement and Maneuver	🔴	Need 100% replacement of antiquated targets to support rotational live fire training.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Command Control	🔴	Same as above.
	Protection	🔴	Same as above.
Threats	Fire Support	🟡	Need current BES to replace Hoffman devices. Current targets will not support.
Scoring & Feedback	Movement and Maneuver	🟡	Need life cycle replacement of targetry and scoring systems to support rotational live fire.
	Fire Support	🟡	Same as above.
	Intelligence	🟡	Same as above.
	Command Control	🟡	Same as above.
	Protection	🟡	Same as above.
Infrastructure	Movement and Maneuver	🟡	Need funding to repair MSR's and tank trails for rotational training.
	Sustainment	🟡	Need funding to repair MSR's and maneuver trails for rotational training.
Range Support	Sustainment	🟡	Need life cycle replacement of targetry and scoring systems to support rotational live fire. Need 100% replacement of antiquated targets to support rotational live fire training.
Small Arms Ranges	Sustainment	🟡	The shortfall ranges are scheduled for construction.
Collective Ranges	Fire Support	🟡	Need funding for MPTR (PN 70520) to support M1 and M2 gunnery requirements.
	Sustainment	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
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.
	Fire Support	🟡	Same as above.
	Intelligence	🟡	Same as above.
	Sustainment	🟡	Same as above.
	Command & Control	🟡	Same as above.
	Protection	🟡	Same as above.
Air Quality	Movement and Maneuver	🟡	13% of the operational area is affected by smoke/obscurant restrictions. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
	Fire Support	🟡	Same as above.
	Intelligence	🟡	Same as above.
	Sustainment	🟡	Same as above.
	Command & Control	🟡	Same as above.
	Protection	🟡	Same as above.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

Fort Lewis Assessment Details

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	FMC	FMC			FMC		FMC	PMC	NMC	NMC	NMC	FMC	
Fire Support	FMC	FMC			PMC		FMC	PMC	NMC		NMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Sustainment	FMC							PMC	NMC	NMC	NMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Protection	FMC				FMC		FMC	FMC	NMC	NMC	NMC	FMC	

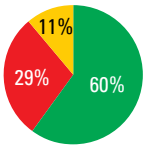
Legend: FMC = Fully Mission Capable; PMC = Partially Mission Capable; NMC = Not Mission Capable

Encroachment Data

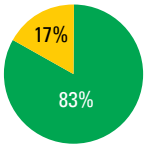
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Movement and Maneuver	Moderate		Minimal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

Legend: Minimal = Minimal Encroachment; Moderate = Moderate Encroachment; Severe = Severe Encroachment

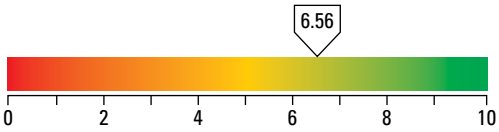
Summary Percent Distribution



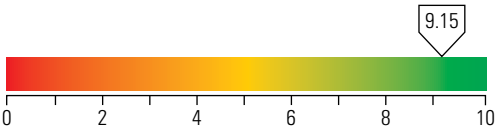
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Range Support is the capability area that is most impacted.
2. Movement and Maneuver is the mission area that is most impacted.
3. There is a funding shortfall which will limit non-salary range operations through FY11; will likely result in continued capability shortfalls in Range Support. Range shortfalls are being programmed in the FY12-17 POM and this will likely result in increased range capability in the out-years.

Summary Observations

1. The Threatened and Endangered Species/Critical Habitat Encroachment Factor has the greatest impact on the training mission.
2. Fire Support is the mission area that is most impacted.
3. Currently four candidate butterfly species have not been listed as threatened and endangered species. Training impacts/restrictions due to threatened and endangered species will likely increase in the future. The Army is seeking to mitigate TES impacts through the use of the Army Compatible Use Buffer program.

Fort Lewis Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Movement and Maneuver	🟡	Fort Lewis currently has restricted airspace designated; updates with FAA are working to expand these areas to better facilitate UAS and special forces jump capability.
Targets	Fire Support	🟡	Targetry shortages limit replacement targets for the Artillery Impact Area and impact the ability of Field Artillery units to shoot at appropriate targetry; anti-armor range also requires armored targets to replace the ones that have deteriorated over the years.
Infrastructure	Movement and Maneuver	🟡	Fort Lewis maneuver trails and roads in training areas are in need of repair; limits maneuver training and access to maneuver compartments.
	Fire Support	🟡	Same as above.
	Sustainment	🟡	Same as above.
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding 25% below the Army critical requirement; limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Ranges	Movement and Maneuver	🔴	Fort Lewis, with the exception of .50 cal qualification ranges, has sufficient small arms ranges to support our customer base. Updates and new ranges for compliance with ARRM have been identified through the POM cycle.
	Sustainment	🔴	Same as above.
	Protection	🔴	Same as above.
Collective Ranges	Movement and Maneuver	🔴	SBCTs stationed at Fort Lewis require a modernized collective gunnery range.
	Fire Support	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Protection	🔴	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Movement and Maneuver	🟡	Bald Eagles along Muck Creek on Ft Lewis restricts the use of a portion of range 87 from 1 Dec. through 31 Mar. annually. Portions of Range 76 are within the habitat for the Taylors Checkerspot Butterfly. Mitigation restricts off road vehicular movement.
	Fire Support	🟡	Same as above.
	Sustainment	🟡	Same as above.
	Protection	🟡	Same as above.
Noise Restrictions	Fire Support	🟡	The only limitations involve demolition poundage based on Installation Compatible Use Noise Zoning study 54-34-3468-83. Units are limited to 20 pounds in any one detonation or group of simultaneous detonations.
Wetlands	Movement and Maneuver	🟡	Fort Lewis has 8338 acres of wetlands. There are restrictions to training except for dismounted maneuver. The Army continues to mitigate this restriction with workarounds.
	Fire Support	🟡	Same as above.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

Fort Polk Assessment Details

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	PMC	FMC			FMC	FMC	FMC	FMC	NMC	NMC	FMC	FMC	
Fire Support	PMC	FMC			FMC	FMC	FMC	FMC	NMC		FMC	FMC	
Intelligence	FMC	FMC			FMC	FMC	FMC	FMC	NMC			FMC	
Sustainment	PMC					FMC		FMC	NMC	NMC	FMC	FMC	
Command Control	FMC	FMC			FMC	FMC	FMC	FMC	NMC			FMC	
Protection	FMC				FMC	FMC	FMC	FMC	NMC	NMC	FMC	FMC	

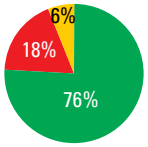
Legend: FMC, PMC, NMC

Encroachment Data

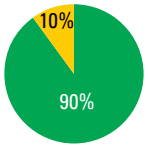
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	PMC		FMC		FMC	FMC	FMC	FMC	FMC		PMC	
Fire Support	PMC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

Legend: Minimal, Moderate, Severe

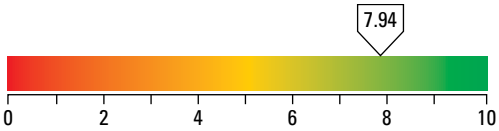
Summary Percent Distribution



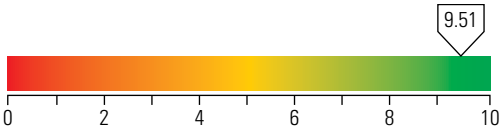
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Range Support is the capability area that is most impacted.
2. Movement and Maneuver and Sustainment are the mission areas that are most impacted.
3. There is a funding shortfall which will limit non-salary range operations through FY11; will likely result in continued capability shortfalls in Range Support. Range shortfalls are being programmed in the FY12-17 POM and this will likely result in increased range capability in the out-years.

Summary Observations

1. The Threatened and Endangered Species/Critical Habitat Encroachment Factor has the greatest impact on the training mission.
2. Movement and Maneuver is the mission area that is most impacted.
3. Construction of the Battle Area Complex is being impacted due to Red Cockaded Woodpecker critical habitat mitigation. The Army is seeking to address this impact through the use of the Army Compatible Use Buffer program.

Fort Polk Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	🟡	Fort Polk has a doctrinal training land shortfall per AR 350-19. The maximum training benefit can be achieved by acquiring up to 100,000 acres of additional training land to allow a Joint Readiness Training Center (JRTC) rotation to train simultaneously with a Brigade Combat Team (BCT) sized unit; would also enable installation to accommodate range live fire and maneuver training at the same time, as well as enhance the installation's ability to meet the nation's Joint Training goals. Funding for training land purchase is currently programmed in FY10-FY13.
	Fire Support	🟡	Same as above.
	Sustainment	🟡	Same as above.
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding is 25% below the Army critical requirement; severely limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Ranges	Movement and Maneuver	🔴	Many of the Fort Polk small arms ranges are WWII and/or Vietnam vintage complexes and, therefore, not in compliance with the current TC 25-8, but are capable of providing down range feed back.
	Sustainment	🔴	Same as above.
	Protection	🔴	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Movement and Maneuver	🟡	Endangered species habitat restricts, prohibits, and limits maneuver training on the installation. The Red-Cockaded Woodpeckers, Louisiana Pine Snake and feral horses are protected species that are present at Fort Polk. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
	Fire Protection	🟡	Same as above.
	Sustainment	🟡	Same as above.
Wetlands	Movement and Maneuver	🟡	Wetlands restrict training on Fort Polk.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

Fort Riley Assessment Details

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	PMC			FMC		FMC	FMC	NMC	PMC	FMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		FMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Sustainment	FMC							FMC	NMC	PMC	FMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Protection	FMC				FMC		FMC	FMC	NMC	PMC	FMC	FMC	

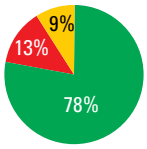
Legend: FMC PMC NMC

Encroachment Data

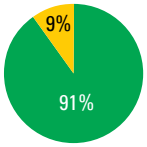
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Minimal		Minimal		Moderate	Minimal	Minimal	Moderate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

Legend: Minimal Moderate Severe

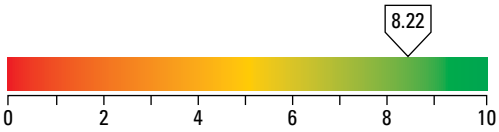
Summary Percent Distribution



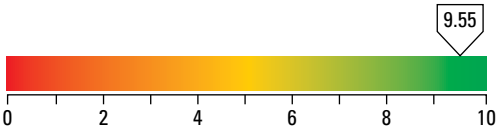
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Range Support is the capability that is most impacted.
2. Movement and Maneuver is the mission area that is most impacted.
3. There is a funding shortfall which will limit non-salary range operations through FY11; will likely result in continued capability shortfalls in Range Support. Range shortfalls are being programmed in the FY12-17 POM and this will likely result in increased range capability in the out-years.

Summary Observations

1. The Adjacent Land Use Encroachment Factor has the greatest impact on the training mission.
2. Movement and Maneuver is the mission area that is most impacted.
3. Noise complaints resulting from training activities will increase as encroachment from Manhattan, Kansas continues to increase. The Army will seek to address these adjacent land use impacts through the use of the Army Compatible Use Buffer program.

Fort Riley Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Movement and Maneuver	🟡	Fort Riley lacks the horizontal airspace to support the conduct of large force on force exercises. Approximately 9 square miles of training area is civil Class D airspace controlled by Manhattan Municipal Airport.
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding 25% below the Army critical requirement; limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Range	Movement and Maneuver	🟡	Requires multi-purpose machine gun upgrade.
	Sustainment	🟡	Same as above.
	Protection	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Airspace	Movement and Maneuver	🟡	Fort Riley lacks the horizontal airspace to support the conduct of large force on force exercises. Approximately 9 square miles of training area is civil Class D airspace controlled by Manhattan Municipal Airport. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
Adjacent Land Use	Movement and Maneuver	🟡	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 where hazardous activities are restricted. To avoid shutting down the airport, Fort Riley typically does not fire in the CFA. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
	Fire Support	🟡	Same as above.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

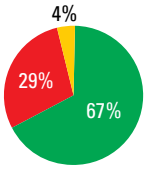
Fort Stewart Assessment Details

Capability Data

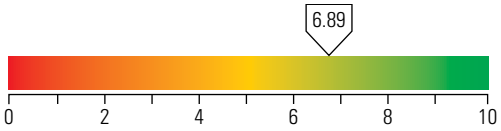
Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Movement and Maneuver	PMC	FMC			FMC		FMC	FMC	NMC	NMC	NMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	FMC	NMC		NMC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

Legend: FMC PMC NMC

Summary Percent Distribution



Overall Capability Score



Summary Observations

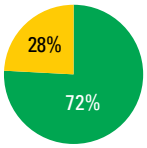
1. Range Support is the capability that is most impacted.
2. Movement and Maneuver and Sustainment are the mission areas that are most impacted.
3. There is a funding shortfall which will limit non-salary range operations through FY11; will likely result in continued capability shortfalls in Range Support. Range shortfalls are being programmed in the FY12-17 POM and this will likely result in increased range capability in the out-years.

Encroachment Data

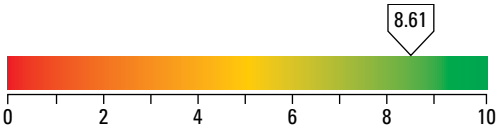
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	MINIMAL		MODERATE		MINIMAL	MINIMAL	MINIMAL	MINIMAL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

Legend: Minimal Moderate Severe

Summary Percent Distribution



Overall Encroachment Score



Summary Observations

1. The Spectrum Encroachment Factor has the greatest impact on the training mission.
2. Movement and Maneuver and Fire Support are the mission areas that are most impacted.
3. Increased adjacent land use and development will continue to impact/restrict training. The Army is seeking to mitigate wetlands and incompatible land use encroachment through the use of the Army Compatible Use Buffer program.

Fort Stewart Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Movement and Maneuver	🟡	Fort Stewart has a doctrinal training land shortfall per AR 350-19.
	Sustainment	🟡	Same as above.
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding is 25% below the Army critical requirement; severely limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Range	Movement and Maneuver	🔴	Deficit of machine gun range upgrades and Infantry platoon/squad ranges.
	Sustainment	🔴	Same as above.
	Protection	🔴	Same as above.
Collective Ranges	Movement and Maneuver	🔴	Deficit of infantry platoon/squad ranges.
	Fire Support	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Protection	🔴	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
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 radio units training in the field use, and crowding and overlapping of the RF bands used by land mobile radio and some unmanned aerial vehicle control 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.
	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 that are restricted to training; the Army continues to work to mitigate these restrictions.
	Fire Support	🟡	Same as above.
Wetlands	Movement and Maneuver	🟡	Approximately 1/3 of Fort Stewart is wetlands. New ranges and other construction currently planned through FY14 and will considerably elevate the training capability of the Installation. Additional wetland areas are being purchased to mitigate wetland impact from future range construction projects.
	Fire Support	🟡	Same as above.
	Sustainment	🟡	Same as above.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

Fort Wainwright Assessment Details

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	NMC	PMC	FMC	FMC	
Fire Support	FMC	FMC			FMC		FMC	PMC	NMC		FMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Sustainment	FMC							PMC	NMC	PMC	FMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Protection	FMC				FMC		FMC	FMC	NMC	PMC	FMC	FMC	

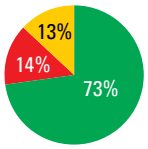
Legend: FMC, PMC, NMC

Encroachment Data

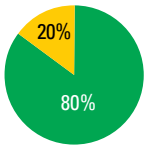
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Minimal			Minimal	Minimal	Minimal	Minimal	Minimal	Moderate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

Legend: Minimal, Moderate, Severe

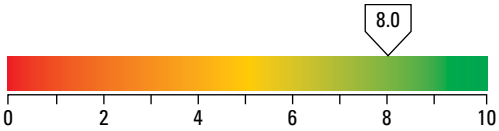
Summary Percent Distribution



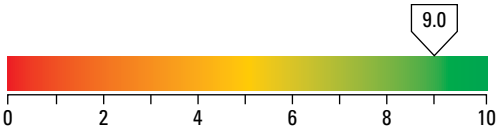
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Range Support is the capability area that is most impacted.
2. Movement and Maneuver and Sustainment are the mission areas that are most impacted.
3. There is a funding shortfall which will limit non-salary range operations through FY11; will likely result in continued capability shortfalls in Range Support. Range shortfalls are being programmed in the FY12-17 POM and this will likely result in increased range capability in the out-years.

Summary Observations

1. The Range Transients Encroachment Factor has the greatest impact on the training mission.
2. Movement and Maneuver is the mission area that is most impacted.
3. Increased wetland regulation in Alaska will seriously impact range development and range use. This will increase training impacts/restrictions.

Fort Wainwright Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Movement and Maneuver	🟡	Poor road infrastructure is an issue based on seasonal fluctuations (freeze/thaw cycles) and creates challenging trail accessibility. Original trail construction (pre-CY 2000) methods did not produce suitable driving surfaces for modern fighting vehicles.
	Fire Support	🟡	Same as above.
	Sustainment	🟡	Same as above.
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding 25% below the Army critical requirement; severely limiting installation support for short term training requests, range reconfiguration projects to support emerging tactics/ techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command Control	🔴	Same as above.
	Protection	🔴	Same as above.
Small Arms Ranges	Movement and Maneuver	🟡	Small arms ranges are reaching their lifespan and are currently programmed for modernization; timetable must be maintained to avoid equipment failure at critical reset times.
	Sustainment	🟡	Same as above.
	Protection	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Cultural Resources	Movement and Maneuver	🟡	Much of withdrawn lands have yet to be surveyed for cultural resources. Fort Wainwright will continue to revisit the 106 process to mitigate encroachment.
Wetlands	Movement and Maneuver	🟡	There are camouflage net/bivouac, heavy and light maneuver, and smoke/obscurant restrictions due to wetland areas. Mitigation reduces the affect of encroachment; however, compensatory mitigation costs are prohibitive in nature. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
	Fire Support	🟡	Same as above.
	Sustainment	🟡	Same as above.
Range Transients	Movement and Maneuver	🟡	Each year the installation exercises a "cabin abatement" program to eliminate cabins built by hunters and other recreational users on land withdrawn for military use. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
	Fire Support	🟡	Same as above.
	Sustainment	🟡	Same as above.
	Protection	🟡	Same as above.

Figure 3-12 Army Capability and Encroachment Assessment Detail (Continued)

Yakima Training Center Assessment Details

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	NMC	FMC	FMC	FMC	
Fire Support	FMC	FMC			PMC		FMC	PMC	NMC		FMC	FMC	
Intelligence	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Sustainment	FMC							PMC	NMC	FMC	FMC	FMC	
Command Control	FMC	FMC			FMC		FMC	FMC	NMC			FMC	
Protection	FMC				FMC		FMC	FMC	NMC	FMC	FMC	FMC	

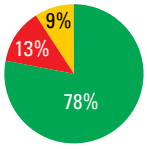
Legend: FMC, PMC, NMC

Encroachment Data

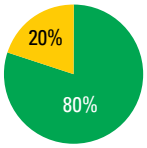
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Movement and Maneuver	Moderate		Minimal		Moderate	Minimal	Minimal	Minimal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

Legend: Minimal, Moderate, Severe

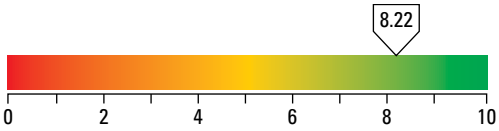
Summary Percent Distribution



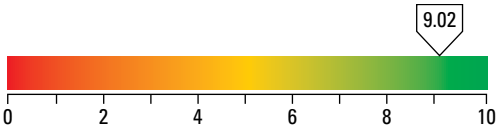
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Range Support is the capability area that is most impacted.
2. Movement and Maneuver is the mission area that is most impacted.
3. There is a funding shortfall which will limit non-salary range operations through FY11; will likely result in continued capability shortfalls in Range Support.

Summary Observations

1. The Threatened and Endangered Species/Critical Habitat Encroachment Factor has the greatest impact on the training mission.
2. Movement and Maneuver and Fire Support are the mission areas that are most impacted.
3. Sage grass is not currently listed as an endangered species; however due to agreements with local stakeholders, the Army limits its maneuver training in order to avoid impacting the local sage grass population. This will likely cause continued training impacts.

Yakima Training Center Assessment Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Fire Support	🟡	Targetry shortages limit replacement targets for the artillery impact area and impact the ability of field artillery units to shoot at appropriate targetry; anti-armor range also requires armored targets to replace the ones that have deteriorated over the years.
Infrastructure	Movement and Maneuver	🟡	
	Fire Support	🟡	
	Sustainment	🟡	
Range Support	Movement and Maneuver	🔴	Non-salary range operations funding 25% below the Army critical requirement; limits installation support for short term training requests, range reconfiguration projects to support emerging tactics/techniques and procedures, and preventive maintenance.
	Fire Support	🔴	Same as above.
	Intelligence	🔴	Same as above.
	Sustainment	🔴	Same as above.
	Command and Control	🔴	Same as above.
	Protection	🔴	Same as above.

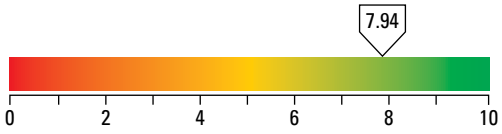
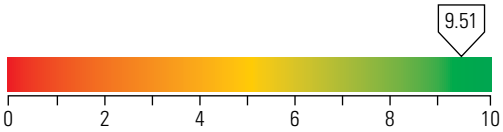
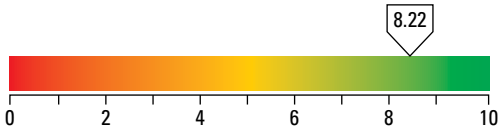
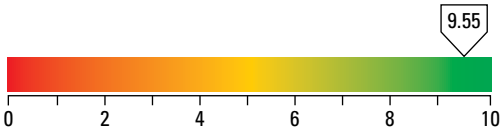
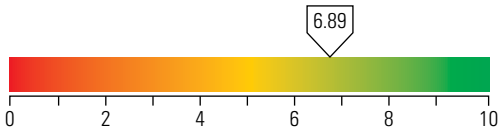
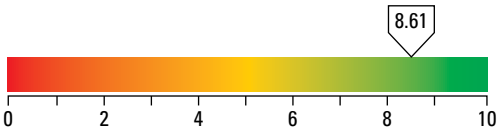
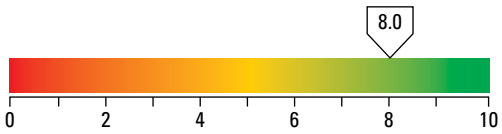
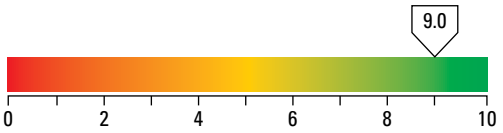
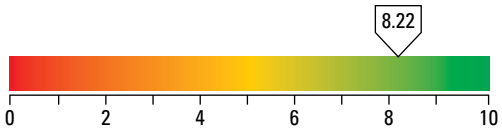
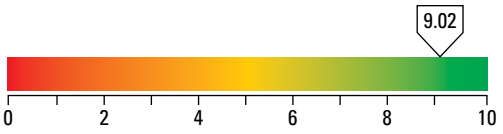
Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Movement and Maneuver	🟡	Constraints to training occur within the sage-grouse protection area, approximately 13% of the installation. The Army is planning to implement the appropriate mitigation strategy in order to avoid training shortfalls.
	Fire Support	🟡	Same as above.
	Sustainment	🟡	Same as above.
	Protection	🟡	Same as above.
Airspace	Movement and Maneuver	🟡	No live fire within 2000 meter of Interstate 90 due to airspace reserved for General Aviation Aircraft to fly along Interstate 90. The Army continues to work to mitigate this restriction.
	Fire Support	🟡	Same as above.
Wetlands	Movement and Maneuver	🟡	The Army continues to work with stakeholders to mitigate self imposed restrictions associated with local flora.
	Fire Support	🟡	Same as above.

Table 3-6 Army Range Capability and Encroachment Assessment Comparison

Range Name	Capability Score	Encroachment Score
Fort Benning	7.56	8.72
Fort Bliss	7.33	9.02
Fort Bragg	8.0	9.17
Fort Campbell	7.0	10
Fort Carson / Pinon Canyon	7.22	10.0
Fort Drum	8.15	10.0
Hawaii	7.67	8.78
Fort Hood	7.44	9.52
Fort Irwin	7.84	8.5
Fort Lewis	6.56	9.15

Table 3-6 Army Range Capability and Encroachment Assessment Comparison (Continued)

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

3.2.2 Marine Corps

Marine Corps Training Range Capability Assessment Results[7]

The U.S. Marine Corps (USMC) Range Capability Assessment data from 9 USMC range complexes are summarized and presented in Table 3- 7.

- USMC's FMC assessments (green) increased from 28% in 2009 to 37% in 2010
- PMC assessments (yellow) decreased from 59% to 53%
- NMC assessments (red) decreased from 13% to 10%
- USMC's overall capability score increased from 5.73 to 6.34 (Figure 3-13).

The three areas with the greatest number of red and yellow (red + yellow) capability assessments were: Scoring and Feedback (6+13), Targets (3+17), and Landspace (5+8) (Figure 3-17). Refer to the range specific assessments for more information.

The USMC's 9 individual range assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-21).

Marine Corps Training Range Encroachment Assessment Results

USMC Range Encroachment Assessment data from the 9 USMC range complexes are summarized in Table 3-8.

- USMC's minimal risk assessments (green) decreased from 66% in 2009 to 60% in 2010
- Moderate risk assessment (yellow) increased from 26% to 29%
- Severe risk assessments (red) increased to 11%
- USMC's overall encroachment score marginally reduced from 7.90 to 7.44 (Figure 3-14).

The three Encroachment Factors with the greatest number of red and yellow (red + yellow) impacts were: Adjacent Land Use, Munitions Response, and Threatened & Endangered Species and Critical Habitat (Figure 3-18). Refer to the range specific assessments for more information.

The USMC's 9 individual encroachment assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-21).

While the Marine Corps deviated from the approach used by the other Military Services to define mission areas, the Marine Corps approach is consistent with all the source documents and methodologies by which the Marine Corps manages and resources its ranges.

7 Of the 14 ranges identified in the Marine Corps' range inventory in Appendix C, five are not assessed. Marine Corps Logistics Base (MCLB) Albany, MCLB Barstow, Marine Corps Air Station Miramar, and Marine Corps Recruit Depot (MCRD) Parris Island have no ranges other than small arms ranges used for the limited purpose of weapons qualification training. Due to their limited nature, the Marine Corps does not intend to formally evaluate them unless their mission changes or some encroachment factor threatens their ability to function. Additionally, Camp Butler has not been formally evaluated, but an RCMP is underway. Camp Butler's assessment will be included in the SRR once the RCMP is complete.

Table 3-7 Marine Corps Capability Assessment Data Summary

Range	NMC	PMC	FMC	Capability Scores
Beaufort/Townsend	0	4	10	8.57
Bridgeport	0	8	0	5.00
Camp Lejeune	3	16	11	6.33
Cherry Point	0	4	11	8.67
Hawaii	6	12	4	4.55
Camp Pendleton	5	16	9	5.67
Quantico	0	12	6	6.67
Twentynine Palms	6	15	13	6.03
Yuma/Bob Stump	0	18	9	6.67
HQ USMC	**20**	**105**	**73**	**6.34**

Table 3-8 Marine Corps Encroachment Assessment Data Summary

Range	Severe	Moderate	Minimal	Encroachment Scores
Beaufort/Townsend	0	0	22	10.00
Bridgeport	4	14	2	4.50
Camp Lejeune	0	16	17	7.58
Cherry Point	0	7	15	8.41
Hawaii	5	6	10	6.19
Camp Pendleton	9	3	21	6.82
Quantico	4	4	14	7.27
Twentynine Palms	0	7	32	9.10
Yuma/Bob Stump	5	13	12	6.17
HQ USMC	**27**	**70**	**145**	**7.44**

Figure 3-13 Marine Corps Capability Chart

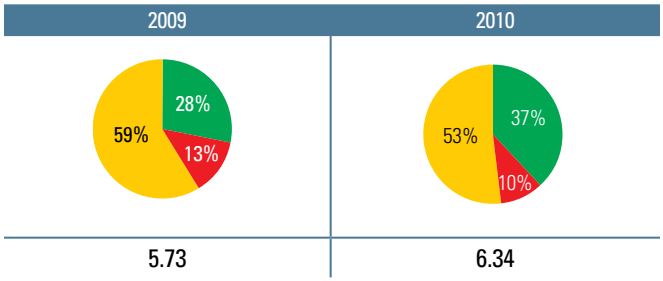


Figure 3-14 Marine Corps Encroachment Chart

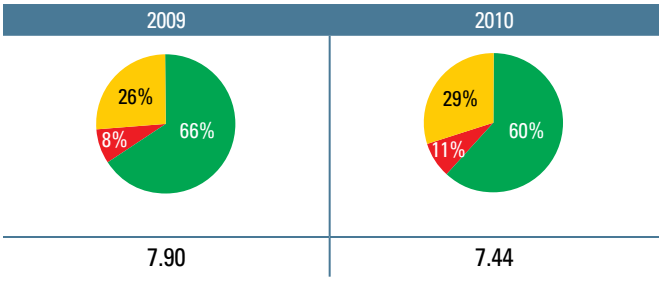


Figure 3-15 Marine Corps Capability Assessments by Range

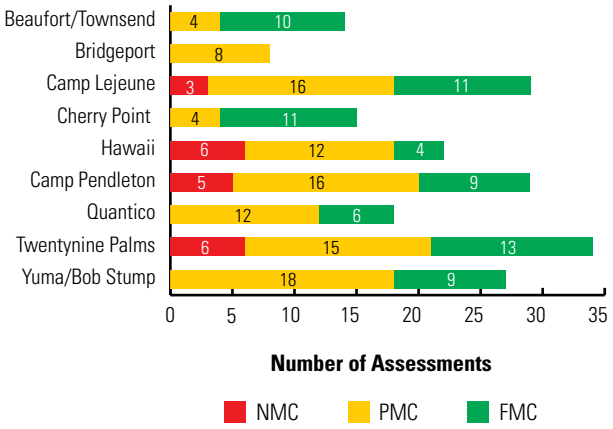


Figure 3-16 Marine Corps Encroachment Assessments by Range

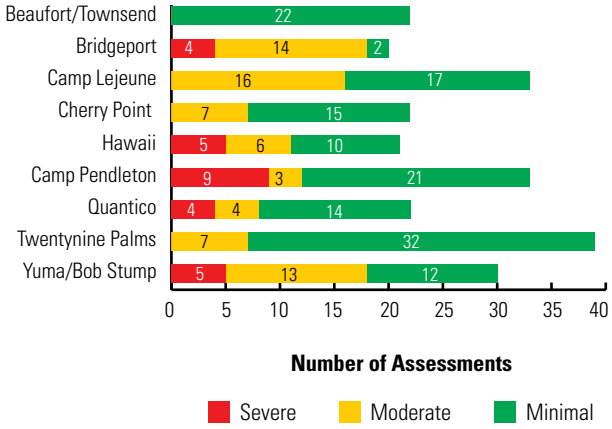


Figure 3-17 Marine Corps Capability Assessment by Attributes

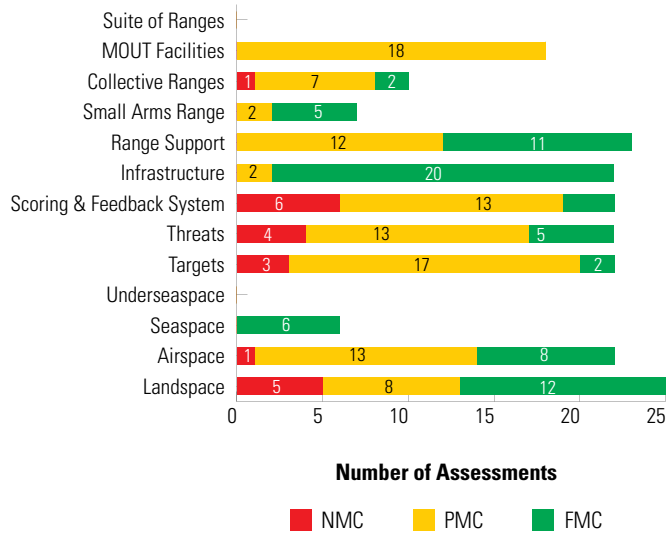


Figure 3-18 Marine Corps Encroachment Assessment by Factors

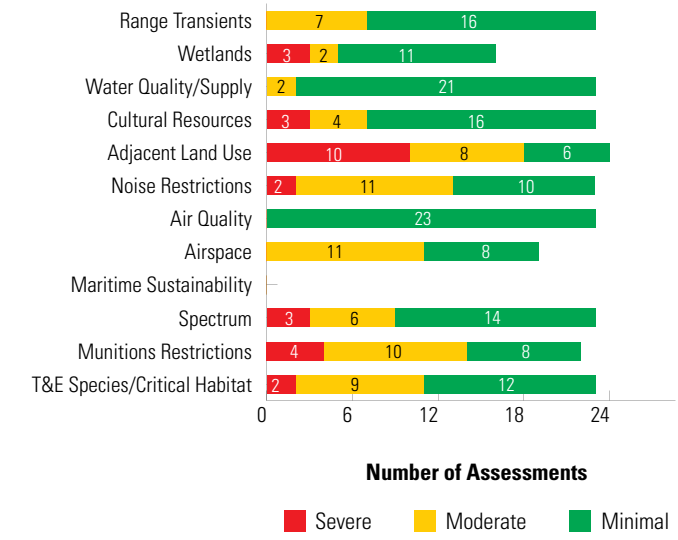


Figure 3-19 Marine Corps Capability Assessment by Mission Areas

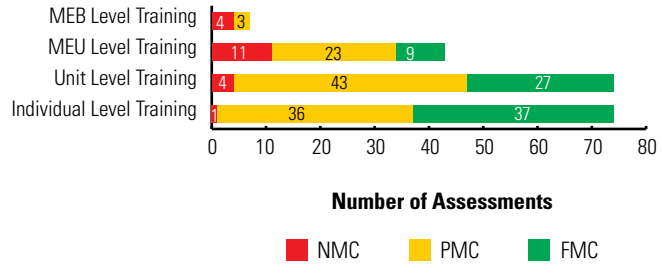
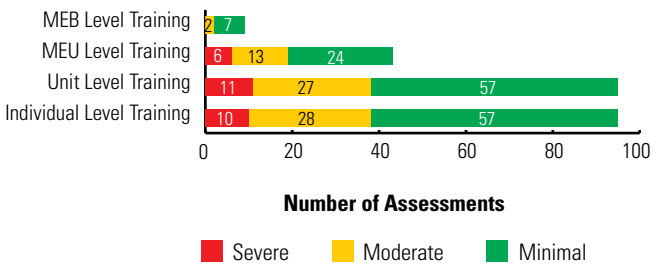


Figure 3-20 Marine Corps Encroachment Assessment by Mission Areas



Marine Corps Special Interest Section

General Issues

Over the past decade, the Marine Corps has increasingly recognized that transforming its installations and ranges is essential to aligning its infrastructure to support forces, weapon systems, doctrine, and tactics for the foreseeable future. Accordingly, the Marine Corps is aggressively executing a range modernization program, the scope of which is unprecedented. Deficiencies in Marine Corps range inventory are of two types: inadequate range capabilities leading to substandard training opportunities, and lack of range capacity leading to loss of training opportunities or reliance on alternative training sites (such as other Military Services' ranges). The Marine Corps Mission Capable Ranges Initiative is directed at both types of deficits through capability enhancements and establishment of additional capacity through development of new ranges.

The USMC identified 14 range complexes in an effort to ensure a complete inventory. Four additional installations (Marine Corps Air Station (MCAS) Miramar, MCRD Parris Island, MCLB Albany, and MCLB Barstow) contain only small arms ranges that support local individual re-qualification efforts, or in the case of Parris Island, provide entry-level small arms training. These four installations are not considered to be range complexes; therefore, the Marine Corps has categorized them as "other" as it is not the Marine Corps' intent to formally evaluate them unless their mission changes or some encroachment factor threatens their ability to function. Of the ten remaining complexes, only Camp Butler has not been formally evaluated (had an RCMP performed); the Camp Butler RCMP was initiated in FY09.

Critical Issues: Range Capabilities

The Marine Corps has identified Military 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 Military Service level focus on the following three critical deficiencies:

- Marine Corps ranges presently lack the capability to fully exercise a large 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/MAGTF 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 DoD, the Marine Corps is proceeding with analysis and assessments in support of land expansion and establishment of additional airspace.
- 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 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 help alleviate training-related deficits experienced by marines stationed in Okinawa and Hawaii.
- 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 MCAS Yuma/Bob Stump on the west coast. A preliminary study of Townsend bombing range is underway to assess its capabilities to address this issue.

Critical Issues: Encroachment Factors

The impact of each category of encroachment factor differs across Marine Corps installations. 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. Accordingly, the data must be carefully considered in order to fully understand the encroachment effects on each installation. The encroachment score for Marine Corps installations in total should be considered against the backdrop of each installation's encroachment score. In addition, the encroachment assessment merely evaluates effects on current operations; it does not predict how future operations may be affected by encroachment. Changes in installation readiness activities due to changes in doctrine and equipment, or changes in encroachment threats are not captured by this encroachment assessment. For instance, the introduction of new equipment, such as the Joint Strike Fighter, may result in significant degradation of encroachment scores at those installations supporting this new aircraft.

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 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 and 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 (ALUCP) guidelines, and for potential impacts on the installation mission. These efforts are intended to ensure that adequate safety and operation buffers are maintained. The cost of establishing additional buffers, if practically feasible, would be substantial given the urban land use profile in the area.

Figure 3-21 Marine Corps Capability and Encroachment Assessment Detail

Beaufort/Townsend Assessment Details

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
Individual Level Training	PMC	FMC			PMC	FMC	FMC	FMC	FMC				
Unit Level Training	PMC	FMC			PMC	FMC	FMC	FMC	FMC				
MEU Level Training													
MEB Level Training													

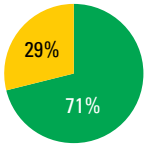
Legend: FMC, PMC, NMC

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
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												

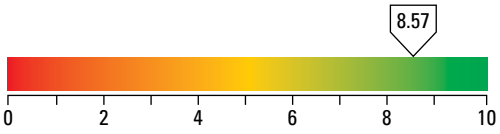
Legend: Minimal, Moderate, Severe

Summary Percent Distribution

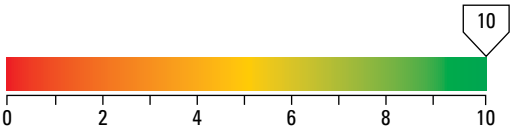


Summary Percent Distribution

Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Doctrinal range requirmements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C).
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.

Beaufort/Townsend Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Individual Level Training	●	Landspace does not support training using modern inventory of standoff weapons, such as JDAM, in that surface/weapons danger zones for these weapons exceeds boundaries of the range. USMC has undertaken preliminary analysis of feasibility of range expansion in order to accomodate standoff weapons air-to-ground deliveries.
	Unit Level Training	●	Same as above.
Targets	Individual Level Training	●	The range lacks mobile targets, affecting training realism. Range modernization/transformation program is addressing shortfalls consistent with available resources and USMC priorities.
	Unit Level Training	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment

No Comments.

Figure 3-21 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Bridgeport Assessment Details

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 ●

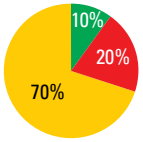
Encroachment Data

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												

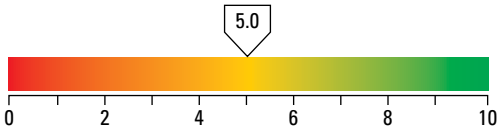
Legend: Minimal ● Moderate ● Severe ●

Summary Percent Distribution

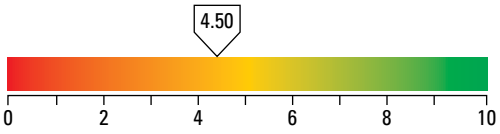
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MWTC Bridgeport is currently undergoing RCMP analysis, to be completed during in FY10. Observations made in the course of RCMP development are the basis for this assessment.
2. Bridegport generally has the capability to support required non-live fire training; however, limitations on munitions use. target and training infrastrucuture emplacement, and other land use constraints affect capability to fully support training requirements. Personnel training at MWTC make extensive use of other-Service ranges in the region for live-fire and maneuver training.

Summary Observations

1. 70% of the range complex mission is moderately or severely impacted by encroachment factors.
2. Adjacent Land Use, Munition Restrictions, and Wetlands are the encroachment factors with greatest impact on the training mission.
3. Range Complex Management Plan is being prepared, with expected completion FY10. An Encroachment Control Plan (ECP) is planned for FY10/11
4. To mitigate encorachment impacts, units training at Bridgeport make extensive use of other-Service ranges, particularly the live-fire training capabilities of the Hawthrorne Western Ammunition Depot, Nevada (U.S. Army).

Bridgeport Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Individual Level Training	🟡	Training land is sufficiently extensive to support required training; however limitations on available land affect capability to fully support training. Analysis is underway to examine acquisition of in-holdings (private lands within the forest area) to develop permanent training structures such as MOUT facilities in order to mitigate 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 Western Ammunition Depot, and Fallon Training Range Complex to supplement training conducted at MWTC. Hawthorne and Fallon permit live fire, but lacks ranges to support extended live-fire and maneuver training by Marines.
Airspace	Individual Level Training	🟡	Use of MWTC by aviiation assets presents substantial challenges; no special use arispace is designated.
	Unit Level Training	🟡	Same as above.
Infrastructure	Individual Level Training	🟡	USFS is primarily responsible for road maintenance in the forest lands, inlcuding on MWTC. MWTC is generally not authorized to develop range infrastructure.
	Unit Level Training	🟡	Same as above.
Range Support	Individual Level Training	🟡	Communication infrastrucutre improvements to enhance range controal and range safety are in porgress and are in the environmental assessment stage.
	Unit Level Training	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species	Individual Level Training	🟡	Presence of sensitive species seasonally restricts use of some areas of MWTC; presence of these resources significantly constrains the ability to identfy landing zones (LZs) for rotary aircraft. 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 land is managed by the USFS; military training proceeds pursuant the 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 few circumscribed areas. Fire danger as a significant concern, as is public safety. Extensive live-fire training is not feasible at MWTC.
	Unit Level Training	🔴	Same as above.
Spectrum	Individual Level Training	🟡	Communications infrastructure does not support adequate safety and operational vhf/hf net to cover all training areas; planned upgrades include installation of Enterprise Land Mobile Radio infrastructure and system, which requires USFS concurrence with ongoing Environmental Assessment effort.
	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 restrictions on military uses of USFS lands that comprise MWTC.
	Unit Level Training	🟡	Same as above.
Adjacent Land Use	Individual Level Training	🔴	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. Most adjacent lands are designated as wilderness pursuant to the Wilderness Act, generally not available for training. Recent Congressional designation of Training Areas 10 and 11 as a National Winter Recreation Area for snowmobiles will impact USMC ability to use lands for winter training.
	Unit Level Training	🔴	Same as above.
Cultural Resources	Individual Level Training	🟡	Cultural sites must be surveyed and assessed by USFS before training activities in areas with potentially significant sites are permitted. Cultural sites presently constrain ground moverment and maneuver training and ability to identify suitable LZs for rotary aircraft. Environmental analysis underway to address these 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; wastewater 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; constraining training in these areas. Wetlands also constrian ability to identfy suitable landing zones (LZs) for rotary aircraft. Current environmental analysis 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 (i.e., most live-fire training prohibited). Recent designation of adjacent lands as a winter recreation area for snowmobiles will directly impact USMC ability to use those lands for winter training.
	Unit Level Training	🟡	See preceding comment.

Figure 3-21 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Camp Lejeune Assessment Details

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
Individual Level Training	FMC	FMC	FMC		PMC	PMC	PMC	FMC	FMC	FMC		PMC	
Unit Level Training	PMC	PMC	FMC		PMC	NMC	PMC	FMC	FMC		PMC	PMC	
MEU Level Training	NMC	PMC	FMC		PMC	NMC	PMC	FMC	FMC		PMC	PMC	
MEB Level Training													

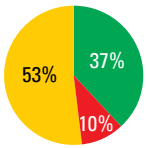
Legend: FMC, PMC, NMC

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
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

Summary Percent Distribution



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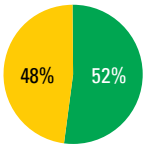
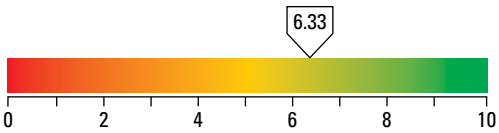
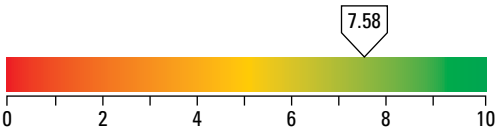


Overall Capability Score



Overall Encroachment Score



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.
2. Critical deficits noted in available training land and airspace, 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).
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 FY10.

Camp Lejeune Limitation Details

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.
	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 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).
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.
Targets	Individual Level Training	🟡	Not all ranges and targets meet 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 USMC priorities.
	Unit Level Training	🟡	Targets do not meet full T&R training requirements - limited structural/urban targets; infantry targets are limited to 4 specific ranges; minimal waterborne training standards for 30mm main gun; demolition/explosive restrictions. Inert ordnance only authorized up to 500 lbs at BT-11; 35 lbs TNT equivalent for BT-11; no cluster munitions; no structural/urban targets. 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; Impact areas only support inert A-G and indirect fire ordnance; No structural/urban targets. Inert ordnance only authorized up to 500 lbs at BT-11; 35 lbs TNT equivalent for BT-11; no structural/urban targets. Range modernization/transformation program is addressing shortfalls consistent with available resources and USMC 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 USMC priorities.
	Unit Level Training	🔴	OPFOR is normally makeshift or non-existent and not formally instructed on enemy tactics or techniques.
	MEU Level Training	🔴	No dedicated OPFOR; normally makeshift and controlled by handlers not trained in enemy tactics or techniques.
Scoring & Feedback Support	Individual Level Training	🟡	Tracking - radar inputs only; RC - 2-D capability only; EC&C - operational unit owned & 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 USMC priorities.
	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 USMC priorities.
	MEU Level Training	🟡	Same as above.
MOUT Facilities	Individual Level Training	🟡	Development of new MOUT facilities has received focused attention throughout USMC, resulting in significant improvements; however deficiencies remain. Range modernization /transformation program is addressing shortfalls consistent with available resources and USMC priorities.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.

Camp Lejeune Limitation Details (Continued)

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/ Critical Habitat	Individual Level Training	●	Constraints on training due to presence of ESA-listed red-cockaded woodpecker (RCW), especially within G-10 impact area. Bombing operations are restricted to inert ordnance; bombing with live ordnance shifted to other bases. Consultations ongoing with USFWS 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 the 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; restricts much of the beach for amphibious and other types of training during this time. Dunes are "out of bounds" and must be maneuvered around. Solution has not been realized
Munitions Restrictions	Individual Level Training	●	Bombing operations restricted to inert ordnance, due in part to concerns about the noise levels; additional constraints 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 suspended since 1998 due to noise complaints from the nearby community (although noise levels were within DoD standards).
	MEU Level Training	●	Use of smoke at Camp Johnson is prohibited except when the wind blows to the south to ensure smoke does not drift to nearby communities. (CLUS App. D. Part II. 1 and 2)
Airspace	Individual Level Training	●	No fixed wing operations are allowed in R5303 and R5304. Ranges the SUA supports cannot be active unless the area has aviation radar coverage; R5306D cannot be expanded due to civilian use of beach and Hwy 17 corridor. Ship to shore movements require aircraft to use airspace other than restricted areas to complete scenario based training. OLF Atlantic Field is a multi-use facility located in the R-5306D/3A where fleet units train. Increased civilian density in nearby areas leads to increase in noise complaints about aircraft flying tactical profiles in the day and night environment. Airspace and operating hours are anticipated to become more restrictive as nearby populations grow.
	Unit Level Training	●	Same as above.
	MEU Level Training	●	Same as above.
Noise Restrictions	Individual Level Training	●	Recent construction near OLFs has restricted helo / V-22 operations due to noise complaints; noise concerns for newly populated areas near R-5306C & R-5306D affect ability to conduct low altitude tactical training. Bombing operations are restricted to inert ordnance, due in part to concerns about the noise levels. Ship to shore movements often require aircraft to use airspace other than restricted areas to complete scenario based training. Noise complaints are increasing against aircraft flying at tactical profiles in the day and night environment, including users of OLF Atlantic. Tank operations at SR-7 Range have been suspended due to noise complaints. Base's flexibility to absorb the requirements of future force structure and weapons training needs may be hampered by noise constraints. Remedy includes ongoing community liaison; limited success.
	Unit Level Training	●	Same as above.
	MEU Level Training	●	Same as above.
Adjacent Land Use	Individual Level Training	●	The nearby population surged after a decade of stable development (over 10% growth). 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. Remedy includes ongoing community liaison; limited success.
	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 run aground in inlets adjacent to or within the base, leading to training disruptions. Remedy includes ongoing community liaison; limited success.

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Figure 3-21 Marine Corps Capability and Encroachment Assessment Detail (Continued)

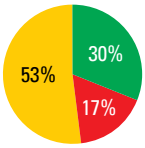
Camp Pendleton Assessment Details

Capability Data

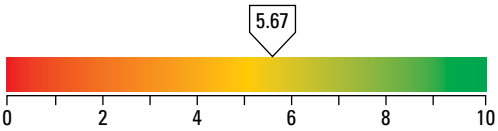
Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Individual Level Training	FMC	FMC	FMC		FMC	PMC	NMC	FMC	PMC	FMC		PMC	
Unit Level Training	PMC	PMC	FMC		PMC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

Legend: FMC, PMC, NMC

Summary Percent Distribution



Overall Capability Score



Summary Observations

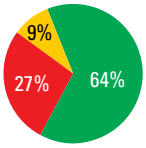
1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCB Camp Pendleton RCMP provides data for this assessment.
2. Deficits noted in available training land and airspace, and lack of threat capabilities, automated targets, and scoring and feedback systems.
3. Capability shortfalls generally affect all levels of training.

Encroachment Data

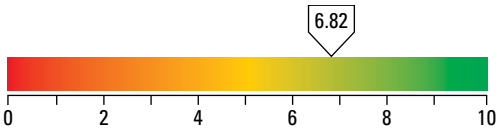
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Individual Level Training	Moderate	Minimal	Minimal		Minimal	Minimal	Minimal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

Legend: Minimal, Moderate, Severe

Summary Percent Distribution



Overall Encroachment Score



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. 27% of the training mission is severely affected by encroachment, and 9% is moderately affected. Urbanization trends in region will continue to exert ever-increasing pressure on training capabilities.
3. Development of Encroachment Control Plan is planned for FY10/11.

Camp Pendleton Limitation Details

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 IAW MCRP 3-0C. Urbanization 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 across 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. Range modernization/transformation program is addressing shortfalls consistent with available resources and USMC priorities.
	MEU Level Training	🟡	Same as above.
Threats	Individual Level Training	🟡	Range requires a comprehensive electronic training environment supporting basic through advanced collective; 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. Efforts underway to study OPFOR capability alternatives and to develop shortfall strategies; role player program (not a program-of-record) is significant training enhancement.
	Unit Level Training	🟡	Same as above.
	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	🔴	Most existing ranges lack modern scoring and feedback systems. Range modernization /transformation program is addressing shortfalls consistent with available resources and USMC priorities.
	Unit Level Training	🔴	Unit and MEU-level training requires enhanced instrumentation for training event reconstruction, debriefing, and replay; generally lacking such capabilities. Range modernization/transformation program is addressing shortfalls consistent with available resources and USMC priorities. Recent construction of state-of-the-art instrumented MOUT facility will mitigate some issues.
	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 ranges have telephone capability. The installation does not have exercise command and control circuits nor a secure comms capability for range control. Range modernization/transformation program is addressing shortfalls consistent with available resources and USMC priorities.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Camp Pendleton lacks comprehensive exercise control capabilities integrated with range control functions. Range modernization/transformation program is addressing shortfalls consistent with available resources and USMC priorities.
Collective Ranges	Unit Level Training	🟡	See comments above regarding land, airspace, range control, target, and scoring deficits. Range modernization/transformation program is addressing shortfalls consistent with available resources and USMC priorities.
	MEU Level Training	🟡	See comments above regarding land, airspace, range control, target, and scoring deficits.
MOUT Facilities	Individual Level Training	🟡	Development of new MOUT facilities has received focused attention throughout USMC and resulted in significant improvements, however, deficiencies remain. Range modernization/transformation program is addressing shortfalls consistent with available resources and USMC priorities.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.

Camp Pendleton Limitation Details (Continued)

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Individual Level Training	🟡	Presence of multiple ESA-listed species constrict ability to train (i.e., digging/earth moving), limitations on use of military vehicles in some training areas, limitations on training use of beaches, and encumbrances such as long-term leases. Base coordinates and consults extensively with USFWS, in order to reduce constraints on training resulting from application of ESA.
	Unit Level Training	🟡	Same as above.; impacts on training from ESA-based constraints are more severe for complex unit-level and MEU-level training.
	MEU Level Training	🟡	Same as above.
Adjacent Land Use	Individual Level Training	🔴	High density urban infrastructure contiguous to base inhibits ability to train and constrains training in some areas due to noise considerations. Urbanization of region pressures off-installation natural resources; increasing base responsibility for natural resource conservation. Urbanization affects access to off-base 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 also encumbered by long-term leasing outgrants to the State, a nuclear power plant facility, and agriculture field operations. "Initiatives to reclaim training land formerly used for agricultural leases are being executed; planning is underway to determine how to reclaim lands currently leased to the State. Buffer lands acquisition program is being executed, but partners with funding are becoming very scarce as the State continues with its budget crisis.
	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	🔴	Cultural resources on beaches result in limitations on use, which are cumulative with other limitations such as ESA-based restrictions. Base coordinates and consults State Historic Preservation Office, with 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. Base coordinates and consults with U.S. Army Corps of Engineers to help in reducing training constraints.
	Unit Level Training	🔴	Same as above.
	MEU Level Training	🔴	Same as above.

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Figure 3-21 Marine Corps Capability and Encroachment Assessment Detail (Continued)

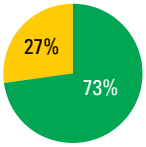
Cherry Point Assessment Details

Capability Data

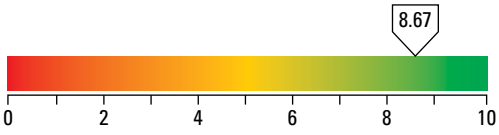
Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Individual Level Training	FMC	FMC			PMC	PMC	PMC	FMC	FMC	FMC			
Unit Level Training	FMC	FMC			PMC	PMC	PMC	FMC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

Legend: FMC, PMC, NMC

Summary Percent Distribution



Overall Capability Score



Summary Observations

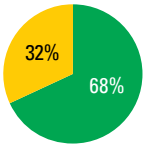
1. Operational Training Ranges Required Capabilities (MCRP 3-0C) and the Range Complex Management Plan (RCMP) are the references for this assessment.
2. Targets and Scoring and Feedback deficits are the most significant capability attribute impacting the overall mission.
3. Capability shortfalls affect all levels of training equally.

Encroachment Data

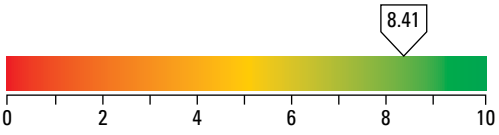
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Individual Level Training	Minimal	Moderate	Minimal		Minimal	Minimal	Moderate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

Legend: Minimal, Moderate, Severe

Summary Percent Distribution



Overall Encroachment Score



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.

Cherry Point Limitation Details

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 USMC priorities.
	Unit Level Training	●	Same as above.
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 USMC priorities.
	Unit Level Training	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Individual Level Training	●	Aerial bombing and gunnery ranges BT-9 and BT-11 are surrounded by NC Public Trust Waters with the intra-coastal waterway; area supports fisheries and recreation. Associated limitations on surface/weapons danger zone restrict allowable munitions for aerial bombing and gunnery using BT-9 and BT-11; areas are also used by water-borne craft in practicing shallow water target engagements; however, the firing of primary weapon using .50 caliber munitions from surface platforms is restricted at BT-11. Remedy includes ongoing community liaison; limited success.
	Unit Level Training	●	Same as above.
Noise Restrictions	Individual Level Training	●	The installation operates a Class C range for explosive ordnance disposal; capable of disposing of up to 150 lbs. Net Explosive Weight (NEW). The base has self-imposed limitations of 50 lbs. NEW to ensure noise attenuation 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; increasing impacts to the base's ability to execute training. ALF Bogue also has major urban encroachment. BT-9 and BT-11 affected by civilian use of surrounding waters (see above). 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. Remedy includes ongoing community liaison; limited success.
	Unit Level Training	●	Same as above.
Range Transients	Individual Level Training	●	The waters surrounding BT-9 and BT-11 are used extensively for civilian activities. MCOLF Atlantic is a high value 1,200 acre airfield facility used for numerous supporting arms (aviation) activities; 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 3-21 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Hawaii Assessment Details

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
Individual Level Training	PMC				PMC	PMC	PMC	FMC	FMC	PMC		PMC	
Unit Level Training	NMC	PMC			PMC	PMC	PMC	FMC	FMC		NMC	PMC	
MEU Level Training	NMC				NMC	NMC	NMC					PMC	
MEB Level Training													

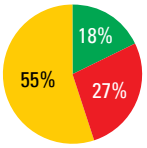
Legend: FMC, PMC, NMC

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
Individual Level Training	Minimal	Severe	Minimal			Minimal	Moderate	Severe	Moderate	Minimal	Minimal	Moderate
Unit Level Training	Minimal	Severe	Minimal			Minimal	Moderate	Severe	Moderate	Minimal	Minimal	Moderate
MEU Level Training								Severe				
MEB Level Training												

Legend: Minimal, Moderate, Severe

Summary Percent Distribution



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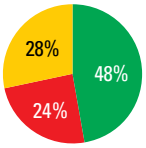
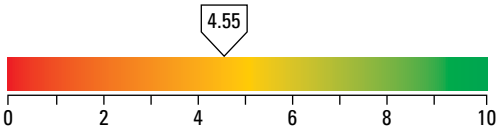


Overall Capability Score



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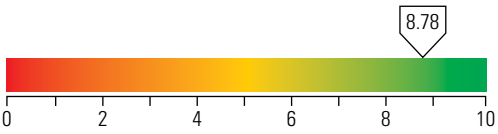

Summary Observations

1. Doctrinal range requirmements 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 noted in available training land and airspace, impacting ability to conduct required training or develop sufficent ranges. Hawaii-based Marine units rely extensively, and for some training, exclusively on other-Service ranges. Other significant deficits are lack of modern automated targets. Ability of Marine Corps Range Modernization / Transformation program to address land and airspace deficits is marginal.
3. Capability shortfalls generally affect all levels of training.

Summary Observations

1. 48% 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, Munition Restrictions, and Noise Restrictions are the encroachment factors with greatest impact on training mission.
3. Encroachment Control Plan (ECP) is planned for FY 10/11.
4. Urbanized nature of Oahu and associated impacts on range uses increasingly affect capability of installation to fully support home-station training requirements of assigned operational forces. Units accomplish required training by extensively utilizing other-Service ranges in Hawaii for training.

Hawaii Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Individual Level Training	🟡	MCB Hawaii ranges support limited live-fire training at the individual level; live fire training of artilllerymen and heavy mortarmen is prohibited. Convoy operation training is not feasible due to space constraints and 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, requiring travel, and subject to range scheduling conflicts.
	Unit Level Training	🔴	MCB Hawaii ranges support limited live-fire training and the infantry squad level, and do not support collective training employing live fire for platoons or companies. Live fire training of artillery batteries and weapons companies (81 mm mortar) is prohibited. Maneuver training (non-live fire) of platoon and company sized units limited to Bellows training area. Training events employing multiple distributed units is not feasible.
	MEU Level Training	🔴	Battalion-level training is not feasible due to insufficient land. Home station units of Marine Infantry Regiment rely on use of other Service ranges and airspace in Hawaii; requiring travel and subject to range scheduling conflicts.
Airspace	Unit Level Training	🟡	No restricted airspace over USMC ranges; no over-land low level training routes are feasible on Oahu. Required training relies on use of other Service ranges and airspace in Hawaii, requiring travel, and subject to range scheduling conflicts.
Targets	Individual Level Training	🟡	Ranges lack automated, fixed and mobile targets, reducing training realism and effectiveness and training assessment capability. Lack of available training space severely constrains options for range development, threat system employment, and target emplacement.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🔴	Same as above.
Threats	Individual Level Training	🟡	Ranges lack realistic, modern threat representation and simulation capability, reducing training realism and effectiveness and training assessment capability. Lack of available training space severely constrains options for range development, threat system employment, and target emplacement emplacement.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🔴	Same as above.
Scoring & Feedback System	Individual Level Training	🟡	Ranges lack realistic, modern threat representation and simulation capability, reducing training realism and effectiveness and training assessment capability. Range modernization/transformation program is addressing shortfalls consistent with available resources. Increased use of MILES 2000-type technology and renewal of the LOMAH maintenance contract for rifle marksmanship range will help to mitigate instrumentation shortfalls.
	Unit Level Training	🟡	Same as above.; lack of available training space severely constrains options for range development, threat system employment, and target emplacement.
	MEU Level Training	🔴	Same as above.
Small Arms Ranges	Individual Level Training	🟡	Insufficient land area for range development limits required small arms training to static ranges. Refer also to comments regarding deficits in targets, threat systems, and scoring & feedback capabilities.
Collective Ranges	Unit Level Training	🔴	Insufficient land area for range development and lack of airspace preclude collective training except at most basic levels on MCB Hawaii.
MOUT Facilities	Individual Level Training	🟡	Development of new MOUT facilities has received focused attention throughout the Marine Corps. Investments in state-of-the-art MOUT facilities are programmed. Range modernization/transformation program is continuing to address shortfalls consistent with available resources.
	Unit Level Training	🟡	Same as above.
	MEU Level Training	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Individual Level Training	🔴	Live fire using artillery or 81 mm mortar munitions are prohibited, impacting training of home-station infantry weapons companies and artillery batteries. Solution has not been realized.
	Unit Level Training	🔴	Same as above.
Noise Restrictions	Individual Level Training	🟡	Community consistently raises concerns about aircraft noise. Recent impacts include no close air support (CAS) training available to support beach landings during RIMPAC multi-national exercise. Airfield hours of operation accommodate noise concerns of community and flight patterns and course rules are in place to reduce impact on community.
	Unit Level Training	🟡	Same as above.
Adjacent Land Use	Individual Level Training	🔴	Live fire training is prohibited at Marine Corps Training Area Bellows (amphibious and MOUT training area), and is limited at Kaneohe Bay due to proximity to surrounding community. Urbanized character of area limits ability to develop existing or additional ranges, and training is generally confined to static positions using small arms. Limited ship-to-shore training areas available. Community noise concerns noted above. Light sources in surrounding communities preclude night vision training for air crews. Convoy training on public roads is not feasible due to traffic congestion.
	Unit Level Training	🔴	Same as above.
	Individual Level Training	🔴	Same as above.
Cultural Resources	Individual Level Training	🟡	Existing areas in some cases are considered to be archaeologically or culturally sensitive and cannot be disturbed per cultural resources and native Hawaiian organizations constraints. Environmental impacts analysis addresses issues, as appropriate.
	Unit Level Training	🟡	Same as above.
Range Transients	Individual Level Training	🟡	Live fire ranges required to cease operations when civilian watercraft enter confines of range SDZ which extends into ocean behind impact area. Mitigation measures include placing personnel on watch for boat traffic in impact area of range, installing radios to communicate with boat traffic, and having military vessels intercept civilian boats in SDZs. Updated notices to all mariners; costly mitigation.
	Unit Level Training	🟡	Same as above.

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Figure 3-21 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Quantico Assessment Details

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
Individual Level Training	FMC	FMC			PMC	PMC	PMC	FMC	PMC	PMC		PMC	
Unit Level Training	FMC	FMC			PMC	PMC	PMC	FMC	PMC		PMC	PMC	
MEU Level Training													
MEB Level Training													

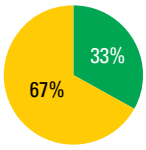
Legend: FMC, PMC, NMC

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
Individual Level Training	Minimal	Moderate	Minimal		Moderate	Minimal	Severe	Severe	Minimal	Minimal	Minimal	Minimal
Unit Level Training	Minimal	Moderate	Minimal		Moderate	Minimal	Severe	Severe	Minimal	Minimal	Minimal	Minimal
MEU Level Training												
MEB Level Training												

Legend: Minimal, Moderate, Severe

Summary Percent Distribution



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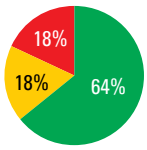

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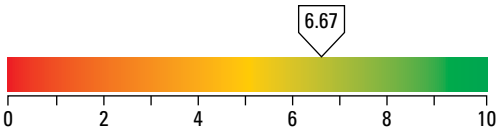
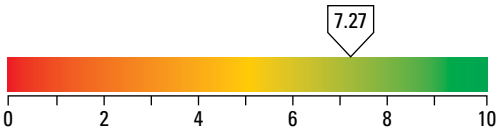


Overall Encroachment Score



Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCB Quantico is currently undergoing RCMP analysis, to be completed during in FY10. 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, Munition 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 installation to fully support initial officer training at The Basic School, and the Infantry Officer Course MOS training.
4. Encroachment Control Plan (ECP) has been completed, and is being executed.

Quantico Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Individual Level Training	🟡	Ranges lack automated, fixed and mobile targets, reducing 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, reducing training realism and effectiveness, and training assessment capability. Range Modernization/Transformation program 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, reducing training realism and effectiveness, and training assessment capability. Range Modernization/Transformation program addressing shortfalls 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.
Range Support	Individual Level Training	🟡	Same as Individual Level Training comment under Targets.
	Unit Level Training	🟡	Same as above.
Small Arms Ranges	Individual Level Training	🟡	See Scoring & Feedback and Target comments.
Collective Ranges	Unit Level Training	🟡	The base 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, as noted above, reducing 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 facilities has received focused attention throughout USMC, resulting in significant improvements; however deficiencies remain. Range Modernization/ Transformation program continues to address shortfalls consistent with available resources and USMC priorities.
	Unit Level Training	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Individual Level Training	🟡	Use of explosive ordnance is limited by noise concerns; the base is 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.
	Unit Level Training	🟡	Same as above.; munitions restrictions have substantially degraded unit-level training capabilities, particularly for platoon and company-level collective training. ECP completed.
Airspace	Individual Level Training	🟡	Between 2000-2008, nearby population 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. ECP completed; however, sufficient solutions have not been realized.
	Unit Level Training	🟡	See preceding comment.
Noise Restrictions	Individual Level Training	🔴	Between 2000-2008, nearby population has increased by 30% (U.S. Census Bureau). Burgeoning population exerts significant encroachment pressure on the base, including land uses restrictions for live fire training (noise concerns). Encroachment pressures have significantly reduced the capability of the base to support unit training, and increasingly affect its capability to support individual training of newly commissioned lieutenants at The Basic School. ECP completed; however, sufficient solutions have not been realized.
	Unit Level Training	🔴	Same as above.
Adjacent Land Use	Individual Level Training	🔴	Same as Individual Level Training comment under Noise Restrictions.
	Unit Level Training	🔴	Same as above.; base does not support live-fire and maneuver training at the infantry-company level due to constraints on use of larger-caliber small arms and indirect fire weapons systems organic to the infantry company. Platoon-level training capability is substantially degraded.

Figure 3-21 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Twentynine Palms Assessment Details

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	●	●			●	●	●		●			●	

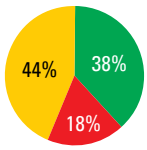
Legend: FMC ● PMC ● NMC ●

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 ●

Summary Percent Distribution



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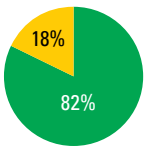
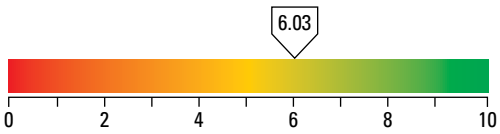


Overall Capability Score



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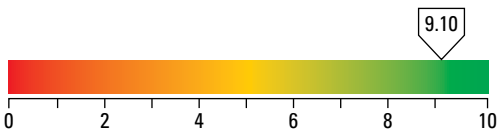


Summary Observations

1. Doctrinal range requirements are derived from Operational Training Ranges Required Capabilities (MCRP 3-0C). MCAGCC RCMP provides data for this assessment.
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.

Twentynine Palms Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	MEU Level Training	🟡	Insufficient land and air space to meet USMC doctrinal range capabilities requirements (MCRP)3-0C) and to conduct large-scale MAGTF and joint exercises involving all elements of combined arms training. Land and airspace expansion planning underway, including preparation of an Environmental Impact Statement addressing proposed alternatives to meet requirements.
	MEB Level Training	🔴	Same as above.
Airspace	MEU Level Training	🟡	Same as above.
	MEB Level Training	🔴	Same as above.
Targets	Unit Level Training	🟡	There are a number of required ranges and target areas that either do not exist or need modernization to meet USMC training requirements; shortfalls span all levels of unit training and include infantry and mechanized automated ranges and targets, battle-course ranges and targets, assault/breaching/demolition ranges, and others. Range modernization/ transformation program is addressing shortfalls consistent with available resources and USMC priorities. Recent construction of state-of-the-art instrumented MOUT facility will mitigate some issues.
	MEU Level Training	🔴	Target shortfalls affect realism of MAGTF training. Due to the nature and size of the training area, target systems for large exercises are generally not automated. Range modernization /transformation program is addressing shortfalls consistent with available resources and USMC priorities.
	MEB Level Training	🔴	Same as above.
Threats	Unit Level Training	🟡	MCAGCC requires a comprehensive electronic training environment supporting basic through advanced collective that 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. 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.
	MEU Level Training	🟡	Same as above.
	MEB Level Training	🟡	Same as above.
Scoring & Feedback	Unit Level Training	🟡	Some existing ranges lack modern scoring and feedback systems. Range modernization /transformation program is addressing shortfalls consistent with available resources and USMC priorities.
	MEU Level Training	🔴	MAGTF-level training requires enhanced instrumentation for training event reconstruction, debriefing, and replay; currently lacking. Range modernization/transformation program is addressing shortfalls consistent with available resources and USMC priorities. 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	🟡	Same as Target comments above
	MEU Level Training	🟡	Same comments as 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 USMC, resulting in significant improvements; however deficiencies remain. Range modernization/transformation program is addressing shortfalls consistent with available resources and USMC 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	Comment
Spectrum	Individual Level Training	🟡	Congested frequency spectrum limits frequency availability/deconfliction and 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. Modification interruptions of training result from capabilities of fixed wing aviation assets to ingress/egress in tactical profiles over range areas. Initiative to expand airspace access ongoing in coordination with FAA in context of land expansion.
	MEU Level Training	🟡	Same as above.
	MEB Level Training	🟡	Same as above.

Figure 3-21 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Yuma/Bob Stump Training Range Complex Assessment Details

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
Individual Level Training	G	Y			Y	Y	Y	G	Y	G		Y	
Unit Level Training	G	Y			Y	Y	Y	G	Y		G	Y	
MEU Level Training	G	Y			Y	Y	Y	G	Y		G	Y	
MEB Level Training													

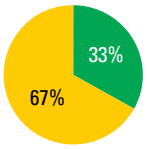
Legend: FMC (G) PMC (Y) NMC (R)

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
Individual Level Training	Y	Y	R		Y	G	Y	Y	G	G		G
Unit Level Training	R	Y	R		Y	G	Y	Y	G	G		G
MEU Level Training	R	Y	R		Y	G	Y	Y	G	G		G
MEB Level Training												

Legend: Minimal (G) Moderate (Y) Severe (R)

Summary Percent Distribution



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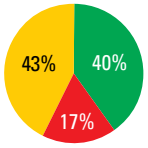
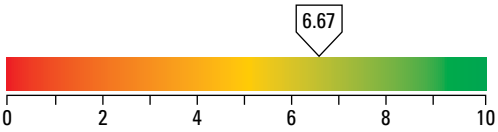
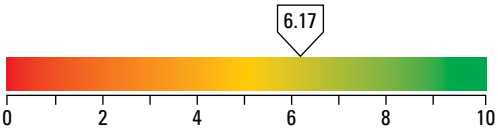


Overall Capability Score



Overall Encroachment Score



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.
2. The Yuma/Bob Stump Range Complex includes the Chocolate Mountains Aerial Gunnery Range (CMAGR). CMAGR is also used extensively by Naval Special Warfare (NSW) commands, which maintain a permanent facility at CMAGR. NSW ranges are not assessed here.
3. Significant deficits 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) completed and is being executed.

Yuma/Bob Stump Training Range Complex Limitation Details

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; altitude blocks are not consistent causing the airspace to be to be fragmented. Airspace has limited availability to non-participating units during WTI, Desert Talon, and unit dets to MCAS Yuma/Bob Stump. Efforts ongoing to improve scheduling and management to optimize availability and use of airspace. Coordinating with FAA to provide enhanced airspace for larger training events and 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; 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 A-A radar missile presentation aircraft. 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 include 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; no scoring feedback in R-2507. Debrief capability is limited to MCAS Yuma/Bob Stump, MCAS Miramar, and NAF El Centro and low altitude communication is limited. EC&C is limited to R-2301W; no secure EC&C circuits. Range modernization/transformation program is addressing shortfalls consistent with available resources. Initiatives include investment in JNTC compliant tracking and EC&C equipment to cover entire range complex; provide staffing support for ROCC, 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. 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.
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 addressing shortfalls consistent with available resources.
	Unit Level Training	●	Same as above.
	MEU Level Training	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
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 result for some training activities involving high explosive ordnance, due to requirement to physically inspect the ranges for endangered wildlife species. Yuma/ Bob Stump maintains close coordination with USFWS to address ESA-based constraints on training.
	Unit Level Training		Same as above.; impact greater on Unit and MEU Level Training than Individual.
	MEU Level Training		Same as above.; impact greater on Unit and MEU Level Training than Individual.
Munitions Restrictions	Individual Level Training		Convoy security elements are not authorized to depart existing roads or trails which limits the realism of required training due to UXO presence; range clearance procedures mitigate impacts.
	Unit Level Training		Same as above.
	MEU Level Training		Same as above.
Spectrum	Individual Level Training		MCAS Yuma/Bob Stump is a joint military-civilian use airfield; civilian aircraft operations 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, Department of Homeland Security initiaitives (SBINet), 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/Bob Stump 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) is adversely effected. Current impacts are manageable; however trends 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 en route weather issues, commercial air traffic may re-route around or through MCAS restricted airspace. The use of MCAS airspace is typically granted by MCAS if not being utilized by scheduled military training, but emergency cases have led to LA Center assuming the airspace, affecting military training. Aircraft (a/c) ordnance takeoffs and recoveries are restricted to certain runways. Civilian a/c ops often delay military a/c takeoffs and require military a/c to extend traffic pattern for proper spacing to land. Crop dusters operating within 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 only in one direction, inhibiting realistic training. Main problem now stems from supersonic aircraft "speeding" prior to entering the supersonic corridor (R2301W/BMGR). Housing construction near the sonic boom corridor will lead to more noise complaints, sonic boom impacts (damage), and possible flight restrictions. 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 also contribute. 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.
Adjacent Land Use	Individual Level Training		The regional population in Yuma County, AZ increased 20% between 2000-2008 and is expected to continue, 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 training with Night Vision Devices. Noise concerns have resulted in alteration of flight corridors to mitigate community impacts. MCAS Yuma/Bob Stump'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
Beaufort/ Townsend	8.57	10
Bridgeport	5.0	4.50
Camp Lejeune	6.33	7.58
Cherry Point	8.67	8.41
Hawaii	4.55	8.78
Camp Pendleton	5.67	6.82
Quantico	6.67	7.27
Twentynine Palms	6.03	9.10
Yuma/Bob Stump	6.67	6.17

3.2.3 Navy

Navy Training Range Capability Assessment Results[8]

The Navy Range Capabilities Assessment data from the 22 Navy range complexes are summarized in Table 3-10.

- Navy's FMC assessments (green) increased from 55% in 2009 to 57% in 2010
- PMC assessments (yellow) decreased from 35% to 34%
- NMC assessments (red) decreased from 10% to 9%
- Navy's overall capability score increased from 7.28 to 7.37 (Figure 3-22).

The three areas with the greatest number of red and yellow (red + yellow) capability assessments were: Scoring and Feedback Systems (22+37), Threats (14+45), and Targets (15 +36) (Figure 3-26). Refer to the range specific assessments for more information.

The Navy's 22 individual range assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-30).

Navy Training Range Encroachment Assessment Results

The Navy addresses threatened and endangered species together with maritime sustainment as a matter of practicality with the regulatory community. As such, the Navy incorporates the impacts of threatened and endangered species into the assessment of maritime sustainability encroachment, except where threatened and endangered species are terrestrial issues. Further, the Navy conducts a more detailed approach by assessing only the relevant encroachment factors at each range complex to yield more accurate results.

The Navy Encroachment Assessment data from the 22 Navy range complexes are summarized in Table 3-11.

- Navy's minimal risk assessments (green) decreased from 72% in 2009 to 70% in 2010
- Moderate risk assessment (yellow) increased from 27% to 29%
- Severe risk assessments (red) increased from 1% to 2%
- Navy's overall encroachment score marginally reduced from 8.49 to 8.41 (Figure 3-23).

The three Encroachment Factors with the greatest number of red and yellow (red + yellow) impacts were: Maritime Sustainability (6+36), Spectrum (4+64), and Range Transients (0+40) (Figure 3-27). Refer to the range specific assessments for more information.

The Navy's 22 individual encroachment assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-30).

8 Of the 23 ranges identified in the Navy's range inventory in Appendix C, only Diego Garcia is not assessed. Diego Garcia consists only of sea space and has limited utility. Due to this the Navy does not intend to formally assess Diego Garcia.

Table 3-10 Navy Capability Assessment Data Summary

Range	NMC	PMC	FMC	Capability Scores
Atlantic City	0	3	11	8.93
Atlantic Test Range	0	17	24	7.93
AUTEC	0	1	35	9.86
Boston	0	2	12	9.29
Cherry Point	2	22	28	7.50
China Lake	0	1	27	9.82
El Centro	0	1	4	9.00
Fallon	0	18	5	6.09
Gulf of Mexico	0	4	25	9.31
Guantanamo	0	0	17	10.00
Hawaiian Islands	2	21	35	7.84
Jacksonville	1	19	24	7.61
Japan	9	22	13	5.45
Key West	0	7	7	7.50
Mariana Islands	37	11	11	2.80
Narragansett	0	3	4	7.86
NOCAL	4	8	18	7.33
Northwest	0	22	30	7.88
Okinawa	9	31	10	5.10
Pt. Mugu Sea Range	0	4	47	9.61
SOCAL	5	29	26	6.75
VACAPES	2	18	24	7.50
HQ Navy	**71**	**264**	**437**	**7.37**

Table 3-11 Navy Encroachment Assessment Data Summary

Range	Severe	Moderate	Minimal	Encroachment Scores
Atlantic City	0	4	8	8.33
Atlantic Test Range	0	20	40	8.33
AUTEC	0	9	18	8.33
Boston	0	4	6	8.00
Cherry Point	2	8	26	8.33
China Lake	0	15	25	8.13
El Centro	0	0	11	10.00
Fallon	0	10	33	8.84
Gulf of Mexico	0	7	18	8.60
Guantanamo	1	7	32	8.88
Hawaiian Islands	1	17	43	8.44
Jacksonville	3	14	23	7.50
Japan	2	6	21	8.28
Key West	0	2	9	9.09
Mariana Islands	1	29	33	7.54
Narragansett	0	2	3	8.00
NOCAL	0	2	22	9.58
Northwest	0	10	42	9.04
Okinawa	2	14	33	8.16
Pt. Mugu Sea Range	0	18	56	8.78
SOCAL	1	22	42	8.15
VACAPES	0	13	27	8.38
HQ Navy	**13**	**233**	**571**	**8.41**

Figure 3-22 Navy Capability Chart

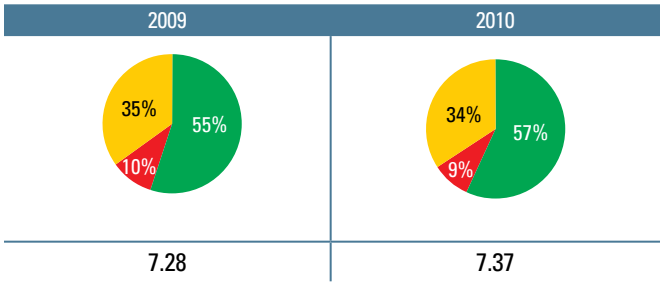


Figure 3-23 Navy Encroachment Chart

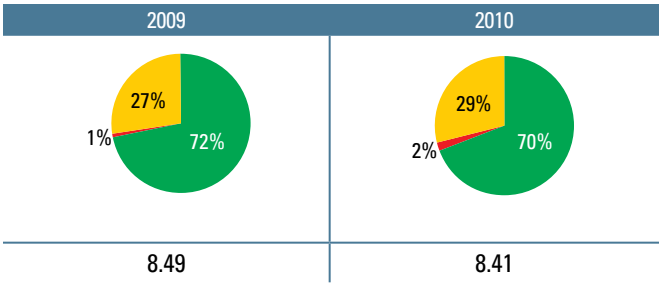


Figure 3-24 Navy Capability Assessments by Range

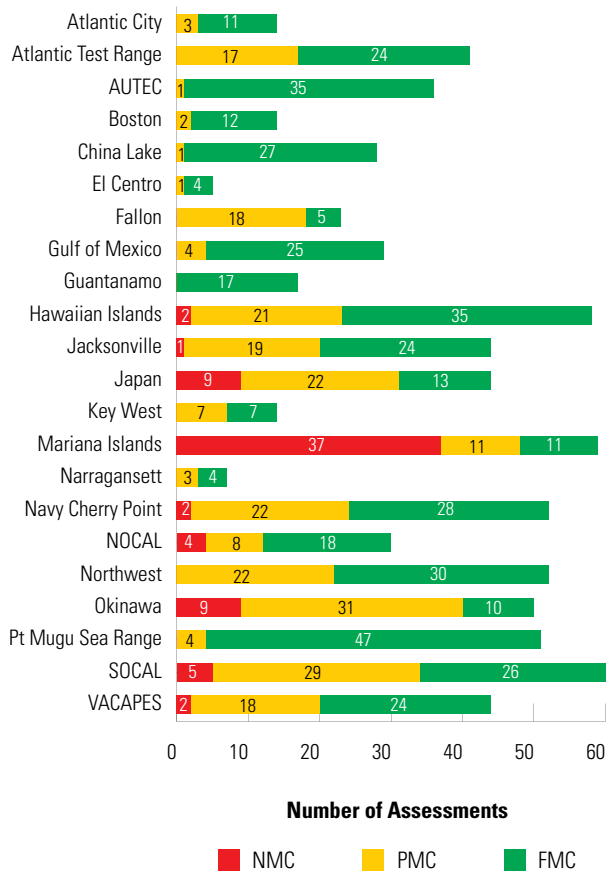


Figure 3-25 Navy Encroachment Assessments by Range

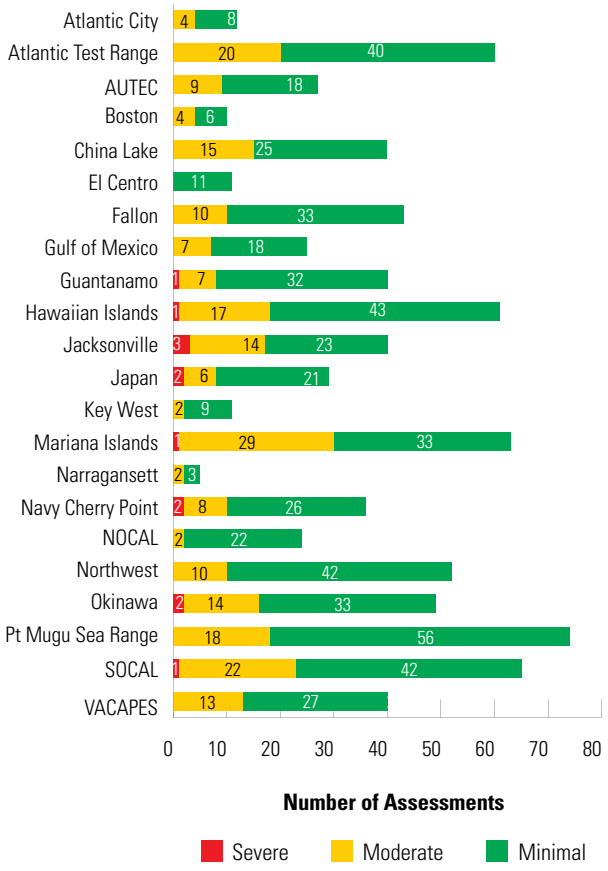


Figure 3-26 Navy Capability Assessment by Attributes

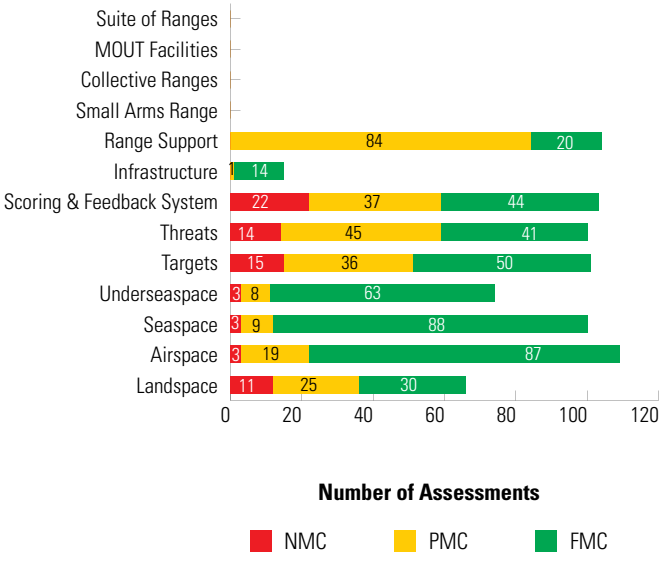


Figure 3-27 Navy Encroachment Assessment by Factors

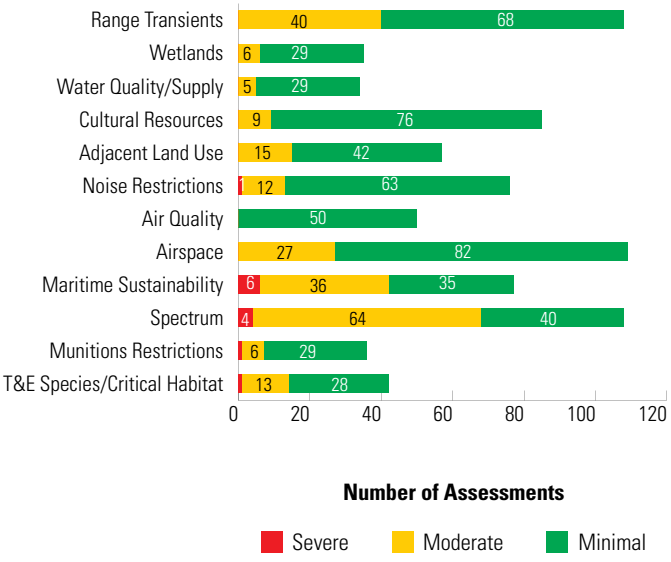


Figure 3-28 Navy Capability Assessment by Mission Areas

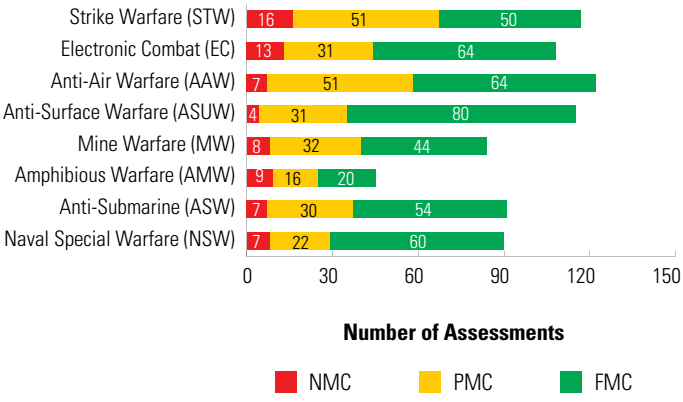
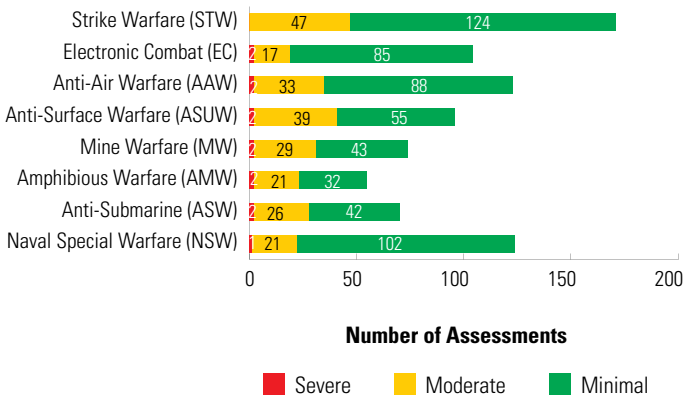


Figure 3-29 Navy Encroachment Assessment by Mission Areas



Navy Special Interest Section

General Issues

Over the course of range reporting *via* the SRR, data collection and analysis methodologies have improved the value of the range assessments and permits socialization of Navy program decisions and challenges. The assessments' greatest value is in supporting yearly budget planning processes where priorities are set within the training range community and then competed with other readiness priorities that support the Fleet Response Plan. The assessments provide advocacy and visibility to training ranges' requirements in the face of competition for limited resources that will support overall Navy readiness objectives.

In this section, the Navy expands on significant shortfalls in training range capabilities and the impacts of encroachment on training ranges. This section also highlights critical non-range related training limitations. External influences increasingly result in a more controlled and restrained training environment and shape how the Navy trains to achieve combat readiness. When appropriate, each of these issues will be assessed in the POM-12 budget planning cycle.

Critical Issues—Range Capability

Individual range capabilities assessed as NMC impact training range support to the fleet in varying degrees. Three such capabilities assessed as NMC are also identified by the Chief of Naval Operations' (CNO) Maritime Strategy as fleet priorities. These limitations impact a training range's ability to support the Navy's ability to achieve a qualitative degree of combat readiness in all warfare areas. 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 SOCAL, 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 Training Space, Targets, Threats, Scoring and Feedback (NMC)—Maturing training range capabilities in the Marianas remain a Navy objective. As the regional joint force presence increases, the overall size of naval forces and the user demand for training ranges will continue to grow. Despite this growth, numerous range support challenges remain unresolved including: expansion of special use airspace, installation of scoring and feedback systems, procurement of an undersea warfare training range, and procurement of threat systems for air, surface, and subsurface users. A comprehensive DoD 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 (NMC)—Since the previous Sustainable Ranges report, Navy completed consultations with federal regulators and completed a final environmental impact statement (EIS) in June 2009 for installation of a future undersea warfare training range (USWTR) in the operating area off the coast of Jacksonville, Florida. In July 2009, the Assistant Secretary of the Navy for Installations and Environment signed the record of decision (ROD), which permits forward progress with procurement and installation of the USWTR range. When complete, the USWTR will cover roughly 500 square-nautical miles within the water space commonly referred to as the Jacksonville OPAREA. As a result of close coordination with the National Marine Fisheries Service, the USWTR range will be located well outside the areas identified as critical habitats for the North Atlantic Right Whale. This new capability will add value to combat readiness training for surface and air units preparing for anti-submarine operations by increasing realism and providing valuable feedback to the operators.
- SOCAL, Cherry Point, and VACAPES/Mine Warfare Scoring and Feedback (NMC)—As a result of Defense BRAC decisions, all Continental United States (CONUS) Mine Counter Measure (MCM) ships are centralized in Naval Station San Diego, and the last of the MCM aircraft will move to Naval Air Station Norfolk by the end of the year. Relocation of these assets from the Gulf of Mexico limits training support due to the insufficient inventory of modern instrumented mine targets, the absence of a mine shape field, and the lack of a scoring and feedback capability for both the Atlantic and Pacific Fleets. These issues negatively impact Mine Warfare training, inhibit the development of countermeasure tactics, and reduce combat proficiency. The lack of accessible and modern simulated mine fields is considerably challenging to the rotational crews who must complete MCM certifications prior to deployment.

Critical Issues—Encroachment Factors

The situation regarding encroachment remains essentially unchanged in this report as it existed and was described in the 2009 SRR. Three encroachment factors that received severe/moderate ratings and adversely impact training range support to the fleet are Spectrum Restrictions, Maritime Sustainability, and Threatened Endangered Species.

- Spectrum Restrictions (Severe/Moderate)—Increased non-military demand for use of the electromagnetic spectrum (EMS) results in encroachment into traditional military frequency bands set aside by the Federal Communications Commission (FCC) and foreign regulators. Additionally, advances in military data link technology require expanded bandwidth support that

exacerbates an already congested spectrum. In this report, Okinawa and Japan range complexes received a severe rating in electronic combat/spectrum assessments for their inability to support electronic combat ranges. In anticipation of constrained EMS support to the current fielding of the Tactical Combat Training System, numerous range complexes are assessed as moderate in anti-air warfare/spectrum. Ranges such as Pt. Mugu Sea Range, SOCAL and VACAPES, which are located in electronically dense environments, have extremely limited abilities to support this airborne tracking system. Additionally, range support to LINK 16 is considerably limited at Navy Cherry Point, Fallon, Hawaii, and Jacksonville due to the systems' large bandwidth requirement.

- Maritime Sustainability & Threatened and Endangered Species (Severe/Moderate)—Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions for marine mammal protection all contribute to reduced training flexibility and opportunities, segmented training, and reduced training realism - particularly during integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid-frequency active (MFA) sonar. Coral and essential fish habitat conservation and sea turtle nesting are encroachment issues that inhibit amphibious landing operations on the beaches in the Marianas Islands. Scrub jays, indigo snakes and gopher tortoises impose training restrictions at the Jacksonville range complex. Threatened and endangered species require significant mitigation efforts at San Nicolas Island (Pt. Mugu Sea Range) and San Clemente Island (SOCAL). The Navy has developed mitigation measures to ensure the protection of marine species and all threatened and endangered species while balancing maritime training with national security requirements, but the impact to realistic training will continue.

Critical Issues—Non-Range Specific

The range-centric nature of this report fails to capture specific training challenges external to range complexes that impact the Navy's ability to achieve required readiness levels. Specifically, Maritime Mitigation Measures, efforts to establish a second mid-Atlantic Outlying Landing Field (OLF), and Outer Continental Shelf development are issues that require a keen foresight to strike a balance between the Nation's security needs and other public interests.

- Maritime Mitigation Measures—The Endangered Species Act and Marine Mammal Protection Act require consultations with, and authorizations from, regulatory agencies when federal agency activities, including DoD, have adverse impacts on protected species and habitats. These consultations and authorizations require mitigations that have moderate to severe impacts on 17 training or testing range complexes, particularly those incorporating the use of sonar into all appropriate mission areas. Maritime protective and mitigation measures, regulatory requirements, and court directed training restrictions all contribute to reduced training flexibility, segmented training, and reduced training realism.
- Mid-Atlantic Outlying Landing Field—The Navy is continuing to examine five sites in Virginia and North Carolina for an outlying landing field (OLF) to support Field Carrier Landing Practice (FCLP) training for aircraft stationed at, and transient to, Naval Air Station (NAS) Oceana and Naval Station Norfolk. Training capacity at Naval Auxiliary Landing Field (NALF) Fentress is, at times, exceeded when the Fleet Replacement Squadron and a Carrier Air Wing are required to conduct concurrent FCLP training. Concurrent training requirements for squadrons based at these airfields can exceed NALF Fentress capacity up to 63% of the time during summertime when hours of darkness are limited. Additionally, due to residential development around NALF Fentress, the landing pattern ground track and altitude have been modified to avoid direct over flight of, and to abate aircraft noise levels in, residential neighborhoods. As such, a new OLF is required to provide year-round capacity to support FCLP training requirements under the Fleet Response Plan, provide operational flexibility needed to respond to emergent national defense requirements, and to provide FCLP training that accurately replicates at-sea operating conditions in an environment that mitigates risk.

  Having explored the development of an OLF since 2000, the Navy continues to take into consideration the impact on local communities of the placement and operation of an OLF and to examine means to mitigate the impact on those communities. As part of that consideration, the Navy continues to engage and consult with the State of North Carolina and the Commonwealth of Virginia, as well as local governments and other public stakeholders, to identify ways to mitigate impacts, to evaluate opportunities for economic assistance, and to minimize the land removed from the state tax base.
- Development within Mission Critical Offshore Ranges—Military offshore ranges support training exercises and test events which require full freedom of maneuver and tactical options to stress unit and group tactics. These exercises and events are paramount to advancing the combat readiness of the nation's maritime forces and providing them the ability to advance and defend our Nation's interests. Energy development in areas critical to fleet readiness and test programs, including the erection of permanent or temporary structures above or below water, could be of significant concern but requires Navy evaluation on a case-by-case basis.

- Encroachment Action Plans (EAP)—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. In 2009, the Navy completed 25 EAPs while continuing to develop 21 additional plans. The Navy EAP program includes Range Complexes and Target Areas such as: VACAPES, Dare County Bombing Range, Pinecastle, R-2508 Range Complex, Atlantic Test Range, McMullen Target Area, Pt. Mugu Sea Range, San Clemente Island, Northwest Range Complex, and PMRF Kauai with future projects at El Centro 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 December 2009, the Navy acquired 7,343 acres of restrictive easements using OSD REPI, Navy EP, and partner funding to prevent incompatible development. The Navy signed 13 multi-year Encroachment Protection Agreements with partners at 11 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, and NAS Whiting Field in support of initial naval aviator training. Projects were also completed at NAS Pensacola, NAS Whidbey Island, OLF Coupeville, Meridian Sea Ray Target Range, and NS Everett.

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Figure 3-30 Navy Capability and Encroachment Assessment Detail

Atlantic City Assessment Details

Atlantic City Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Anti-Air Warfare (AAW)	●	Threat air helicopter and supersonic OPFOR are not available, which reduces realism, inhibits tactics, increases personnel op tempo, and increases O&M costs. Investing in an increased number and type of aircraft and augmentation for OPFOR through Commercial Air Services will help.
Range Support	Anti-Air Warfare (AAW)	●	There is no web-based scheduling system with pre-event, real-time, and post-event module; prevents the most efficient use of the range and does not completely document range training usage or ordnance expended in range areas. A standard web-enable scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Anti-Air Warfare (AAW)	●	The employment of Link 16, SPY-1, and IFF are restricted; limit spectrum operations and competition for frequency spectrum will add increased pressure on available bandwidth for Naval operations. 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.
	Anti-Surface Warfare (ASUW)	●	Same as above.
Maritime Sustainability	Anti-Air Warfare (AAW)	●	As part of maritime protective measures, there are restrictions on ordnance in water at night, high sea state, and low visibility. General maritime protective measures create avoidance areas, segment training/reduce realism, and prohibit certain training events. Fleet Forces Command (FFC) is analyzing environmental impacts and will consult the NMFS on VAST/IMPASS, bombing exercises, and mining exercises. Better information on species distribution and effects of routine training operations on individual animals may allow a tightening of the various zones of influence that govern avoidance distances.
	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Atlantic Test Range (Patuxent River) Assessment Details

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	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				

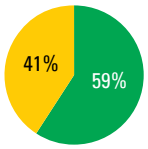
Legend: FMC PMC NMC

Encroachment Data

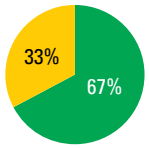
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Moderate	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

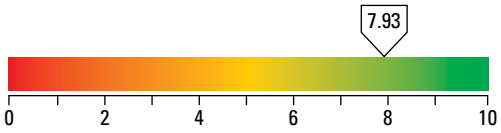
Summary Percent Distribution



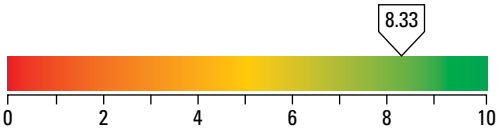
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Airspace is the capability attribute that is most impact 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.

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.

Atlantic Test Range (Patuxent River) Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	The 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. No longer able to use Bloodsworth Island for impact operations; offer land-based targets but are limited to no-drop training.
	Electronic Combat (EC)	●	The 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.
	Naval Special Warfare (NSW)	●	Same as above.
Airspace	Strike Warfare (STW)	●	The 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; limited realistic training. Continue to provide the resources and capabilities to support a subset of the total Navy mission warfare requirements.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Mine Warfare (MW)	●	The 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; limited realistic training. Continue to provide the resources and capabilities to support a subset of the total Navy mission warfare requirements.
Seaspace	Strike Warfare (STW)	●	The 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; offer sea-based targets but are limited to no-drop and or limited "blue bomb" training operations.
	Electronic Combat (EC)	●	The 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.
	Mine Warfare (MW)	●	The 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.
Underseaspace	Mine Warfare (MW)	●	Same as above.
	Naval Special Warfare (NSW)	●	The complex provides the resources and capabilities to support a subset of the total Navy mission warfare requirements; limited realistic training. Continue to provide the resources and capabilities to support a subset of the total Navy mission warfare requirements.
Targets	Strike Warfare (STW)	●	The complex provides the resources and capabilities to support a subset of the total Navy mission warfare requirements; no longer able to use Bloodsworth Island for impact operations. Complex offers a variety of land, sea and aerial targets but are limited to no-drop and/or "blue bomb" training operations.
	Mine Warfare (MW)	●	The 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 water depth limitations would limit the full range of target requirements.
Threats	Strike Warfare (STW)	●	The complex provides the resources and capabilities to support a subset of the total Navy mission warfare requirements. ATR offers a variety of land, sea and aerial based targets/threats (full spectrum sensor stimulation) but are limited to no-drop and/or "blue bomb" training operations.
	Mine Warfare (MW)	●	The complex and the associated SUA provides the resources and capabilities to support a subset 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; limited realistic training. Continue to provide the resources and capabilities to support a subset of the total Navy mission warfare requirements.
	Naval Special Warfare (NSW)	●	The complex provides the resources and capabilities to support a subset of the total Navy mission warfare requirements; limited realistic training. Continue to provide the resources and capabilities to support a subset of the total Navy mission warfare requirements.

Atlantic Test Range (Patuxent River) Limitation Details (Continued)

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Strike Warfare (STW)	●	Reduction of available spectrum coupled with the increase in spectrum requirements limits our ability to schedule certain types of events and many concurrent activities. Work through the Range Commanders Council to address spectrum requirements at the national level.
	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 that increase volume of traffic and spill in to the SUA can limit/change flight operations. Proposed expansion of Washington Air Defense Identification Zone (ADIZ) would force workarounds or negative impacts to operations. Continue coordination to mitigate impacts.
	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.
Noise Restrictions	Strike Warfare (STW)	●	Noise impacts on communities continues to be a moderate problem, with NAS Patuxent River currently modifying operations to reduce noise. 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. Increased noise complaints could compromise operations through pressure to modify or discontinue specific ops. Continue to respond to community concerns via multiple outreach efforts.
	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. Continue 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.

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Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Atlantic Undersea Test and Evaluation Center (AUTEC) Assessment Details

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	●	●	●	●	●	●	●		●				

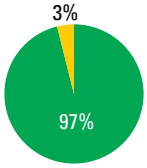
Legend: FMC ● PMC ● NMC ●

Encroachment Data

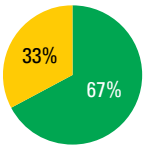
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare												
Electronic Combat			●		●		●					●
Anti-Air Warfare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

Legend: Minimal ● Moderate ● Severe ●

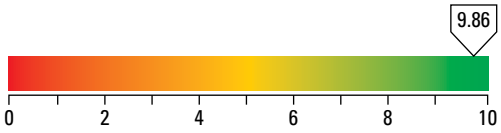
Summary Percent Distribution



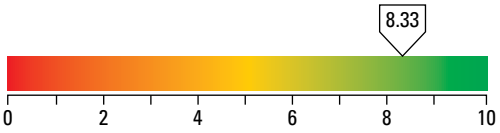
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Capability attribute most impacting range mission performance: Targets
2. Mission area most severely impacted: ASUW
3. Projected status: No change.

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.

Atlantic Undersea Test and Evaluation Center (AUTEC) Limitation Details

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 N.E.W. limits. This reduces realism and limits tactics. Investing in spectral augmentation and investigate options to obtain inert Hellfire to help.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.
	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. Continuing dialogue with the FAA may to help ameliorate the airspace restrictions.
	Anti-Submarine (ASW)	●	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	●	Commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. 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.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Boston Assessment Details

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													

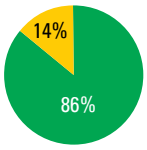
Legend: FMC ● PMC ● NMC ●

Encroachment Data

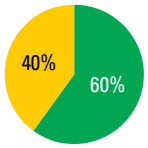
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare												
Electronic Combat												
Anti-Air Warfare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

Legend: Minimal ● Moderate ● Severe ●

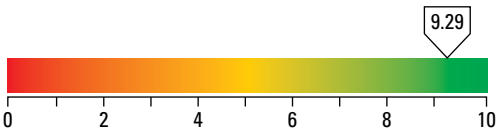
Summary Percent Distribution



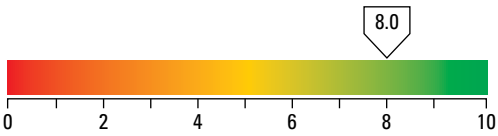
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Capability attribute most impacting range mission performance: Range Support
2. Mission area most severely impacted: All
3. Projected status: No change.

Summary Observations

1. Spectrum and Maritime Sustainability are the encroachment factors having the greatest impact on training.
2. ASUW and ASW are equally encroached.

Boston Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Anti-Surface Warfare (ASUW)	●	There is no web-based scheduling system with pre-event, real-time, and post-event module; prevents the most efficient use of the range, does not completely document range training usage or ordnance expended in range areas. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Submarine (ASW)	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Anti-Surface Warfare (ASUW)	●	Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted; 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.
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.
	Anti-Submarine (ASW)	●	Same as above.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Cherry Point Assessment Details

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	NMC		PMC				
Amphibious Warfare	FMC	FMC	FMC	FMC	PMC	PMC	FMC		PMC				
Anti-Submarine		FMC	FMC	FMC	FMC	PMC	NMC		PMC				
Naval Special Warfare													

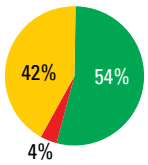
Legend: FMC PMC NMC

Encroachment Data

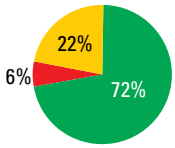
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare		Minimal	Moderate	Minimal	Moderate		Minimal		Minimal			Minimal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

Legend: Minimal Moderate Severe

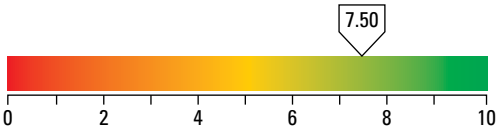
Summary Percent Distribution



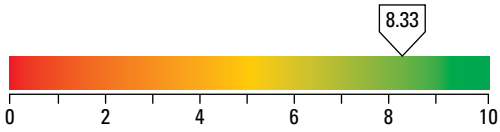
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Capability attribute most impacting range mission performance: Scoring and Feedback Systems
2. Mission area most severely impacted: ASW & MIW
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. he Navy continues to consult and discuss with stakeholders various strategies that can lessen encroachment impacts.

Cherry Point Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	No land in the Navy Cherry Point range; area in contiguous Marine Corps ranges provides some land space and contains two targets, but the land size does not meet minimum requirements. Additional land is only available at Dare County Bombing Range and does not fully support size or topography requirements for placement of required number of targets. Use of live ordnance is not supported and area too small to support standoff PGM weapons. Limitations prohibit certain training events; reduce realism; reduce life fire proficiency. No local options for increasing land availability.
	Anti-Air Warfare (AAW)	●	Land 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. Limitations prohibit certain training events; reduce realism; reduce life fire proficiency; increase op tempo. Overland ACM training is conducted at Fallon Range Training Complex; no additional land options are available.
Airspace	Strike Warfare (STW)	●	Land only available at adjacent Marine Corps ranges; provides some land space, but 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; area is not cleared for supersonic operations. Limitations reduce realism; inhibit new tactics development; reduce live fire proficiency. 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.
Targets	Strike Warfare (STW)	●	No targets are available in the range, but two targets are moderately supported by contiguous USMC ranges, but do not allow live ordnance. Limitations reduce realism; prohibit certain events; increase personnel op tempo; increase O&M costs. Improvements are expected due to recent investment planning for targets, but still require additional investment in moving and urban targets located in an area that will support STW.
	Electronic Combat (EC)	●	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; prohibits certain training events; reduces realism.Should invest in upgrades to MAEWR to cover range of required threats and targets.
	Mine Warfare (MW)	●	Insufficient training mines to support increased MIW training requirements from MH-60 and MH-53 helicopter squadrons; prohibits certain training events; reduces realism; inhibits tactics; increases personnel op tempo; increases O&M costs. Should 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; 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; reduces realism; prohibits certain events. Should 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. 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; reduces realism, inhibits new tactics development; increases personnel op tempo; increases O&M costs. Should invest in additional commercial air services to serve as OPFOR.
	Amphibious Warfare (AMW)	●	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 are not available; reduces realism; inhibits new tactics development. Provide funding to develop a dedicated threat of live, virtual, and constructive OPFOR.
	Anti-Submarine (ASW)	●	Limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. Prohibits certain training events; reduces realism; inhibits tactics; increases personnel op tempo; increases O&M costs. Should invest in additional threat OPFOR; increase availability of submarines through the DESI and aircraft through CAS.

Cherry Point Limitations Detail (Continued)

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Strike Warfare (STW)	🟡	OPAREA lacks full TSPI and EC&C coverage; no M&S capabilities; lacks real-time kill notification. Reduces realism; prohibits certain events; increases personnel op tempo; increases O&M costs. Should 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. Reduces realism; inhibits tactics; increases personnel op tempo, increases O&M costs. Should 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)	🟡	Lacks full TSPI coverage; no M&S capabilities; no automatic scoring. Reduces realism; inhibits tactics; increases personnel op tempo, increases O&M costs. Should expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities.
	Mine Warfare (MW)	🔴	No designated mine training area with target mine shapes and instrumentation; prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; increases personnel op tempo; increases O&M costs; provides no feedback as to effectiveness of planning tactics. Should establish mine training areas suitable for temporary deployment of recoverable inert moored, bottom, and floating mine shapes and instrumented training mines to support major exercise deep and shallow water MIW events.
	Anti-Submarine (ASW)	🔴	No underwater tracking range, scoring capability, M&S, or post mission feedback. Prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel op tempo; increases O&M costs. Should develop and fund east coast USWTR; expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities.
Range Support	Strike Warfare (STW)	🟡	No web-based scheduling system with pre-event, real-time, and post-event module; prevents most efficient use of range, does not completely document range training usage or ordnance expended in range areas. Should develop a standard web-enabled scheduling and data collection system.
	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; 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. 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)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
Maritime Sustainability	Anti-Surface Warfare (ASUW)	🔴	Maritime protective and mitigation measures undertaken in compliance with evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.
	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 interrupt the flow of tactical flight operations from W-122 to the R-5306 airspace; 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)	🟡	Commercial shipping, commercial fishing, and private pleasure boating encroaches on training, either by delaying events or forcing relocation to less than optimum locations. 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.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

China Lake Assessment Details

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	●	●			●	●	●	●	●				

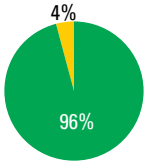
Legend: FMC ● PMC ● NMC ●

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 ●

Summary Percent Distribution



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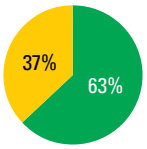
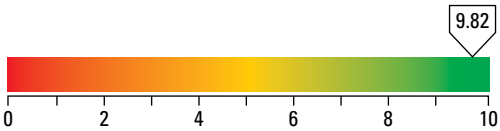
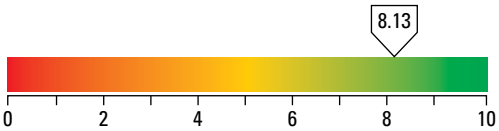


Overall Capability Score



Overall Encroachment Score



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 mission area that is impacted the most.
3. No change in capability is anticipated for the future.

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 mission area that is impacted the most.

China Lake Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Electronic Combat (EC)	●	The lack of improved sites on the electronic combat range for threat emitters reduces "time to target" realism achieved with diversity and quick placement the emitters, a key element of fleet training. Planned actions to remedy: 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 requires significant mitigation effort to support training activities. Updating the INRMP (In progress; ECD 2010), continuing mitigations, and updating EIS (ECD: Jan. 2014) will help resolve this.
Spectrum	Strike Warfare (STW)	●	The reduction of available spectrum coupled with the increase in spectrum requirements limits our ability to schedule certain types of events and many concurrent activities. Coordinating at the local level to deconflict when possible and working through the chain of command and Range Commanders Council to address spectrum requirements at the national level will help resolve this.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare	●	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.
	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. Growth in the Indian Wells Valley has the potential to impact the range mission if not managed properly and growth in other areas further removed from China Lake also negatively impact the mission. 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.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
Cultural Resources	Strike Warfare (STW)	●	There are 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 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. Performing cultural resource surveys for large portions of the ranges, getting a Programmatic Agreement with SHPO, and updating the China Lake EIS should help.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Naval Special Warfare (NSW)	●	Same as above.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

El Centro Assessment Details

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													

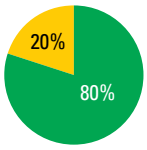
Legend: FMC ● PMC ● NMC ●

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												

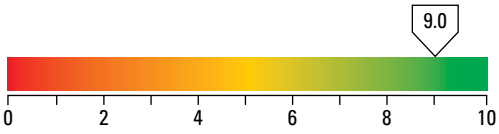
Legend: Minimal ● Moderate ● Severe ●

Summary Percent Distribution

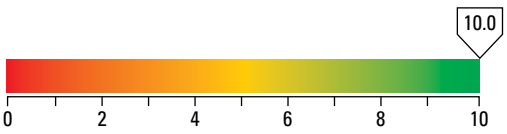


Summary Percent Distribution

Overall Capability Score



Overall Encroachment Score



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. The designation of an El Centro range manager would ensure more efficient and effective range management.

Summary Observations

1. There is no encroachment that has a negative impact on training at the range.

El Centro Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Strike Warfare (STW)	●	There is no web-based scheduling system with pre-event, real-time, and post-event module; prevents the most efficient use of range, does not completely document range training usage or ordnance expended in range areas. A standard web-enable scheduling and data collection system should be developed. There is no designated range manager for El Centro; precludes efficient execution of range management functions. Designating a range manager position for El Centro should help.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments

No Comments.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Fallon Assessment Details

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			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				

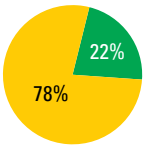
Legend: FMC, PMC, NMC

Encroachment Data

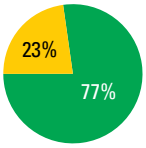
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Minimal	Minimal	Moderate		Moderate	Minimal	Moderate	Minimal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

Legend: Minimal, Moderate, Severe

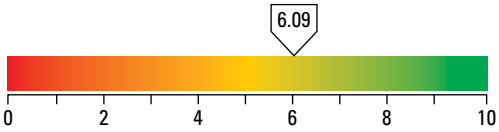
Summary Percent Distribution



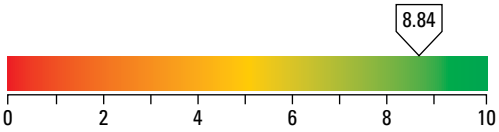
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Capability attribute most impacting range mission performance: Threats
2. Mission area most severely impacted: EC; followed closely by AAW & STW.
3. Projected status: No immediate change.

Summary Observations

1. Spectrum is the encroachment factor having the greatest impact on training.
2. All 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.

Fallon Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	Area size does not meet requirements, limits weapons type and employment tactics; use of lasers not allowed in all directions; N.E.W. restricted in some areas. This reduces realism, inhibits new tactics development, and reduces live fire proficiency. No investment recommendation; no planned action.
	Anti-Air Warfare (AAW)	●	Flare use is restricted for flights below 2,000 Ft which impacts helicopter training by reducing realism, inhibiting new tactics development, and reducing live fire proficiency. No investment recommendation; no planned action.
	Naval Special Warfare	●	Same as Strike Warfare (STW)
Airspace	Strike Warfare (STW)	●	Altitude restrictions limit tactics that may be employed. There is limited supersonic employment, especially in target areas, which reduces realism, inhibits new tactics development, limits application of new weapon technologies, and reduces live fire proficiency. No investment recommendation; no planned action.
	Electronic Combat (EC)	●	Restrictions are moderate for helicopters due to restricted flare use, and have minimal impact for fixed-winged aircraft. This reduces realism, inhibits tactics development, and reduces live fire proficiency. No investment recommendation; no planned action.
	Anti-Air Warfare (AAW)	●	Same as Strike Warfare (STW)
Targets	Strike Warfare (STW)	●	There are a limited number of tactically significant targets; no IR augmentation; no moving, structural, or urban targets. This reduces realism, inhibits new tactics development, limits application of new weapon technologies, and reduces live fire proficiency. Investing in upgraded scoring options, Time Sensitive Target program targets, Tactical targets, fixed and mobile EC sites, and urban complex will help.
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. This reduces realism, inhibits new tactics development, limits application of new weapons technologies, and reduces live fire proficiency. Investing in fully mobile threat systems, simulators with TSPI integration, upgraded Integrated Air defense System, and EC threat systems through level 4 will help.
	Electronic Combat (EC)	●	The EC threat level does not meet requirements. The 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. Investing in fully mobile threat systems, simulators with TSPI integration, upgraded Integrated Air defense System, and EC threat systems through level 4 will help.
	Anti-Air Warfare (AAW)	●	Same as Strike Warfare (STW)
	Naval Special Warfare	●	Threats not sufficient for training; reduces realism; inhibits new tactics development; limits application of new weapons technologies; reduces live fire proficiency. Recommend investment in sufficient threats for mission.
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. Investing in EC systems, range EC&C architecture, JNTC & TENA compatible systems will help.
	Electronic Combat (EC)	●	The capacity of the system does not meet requirements, is not JNTC or TENA compliant, and has no automatic RTKN. SAM simulation does not meet requirements and remote debrief is limited. This inhibits new tactics development and reduces live fire proficiency. Investing in EC systems, range EC&C architecture, JNTC & TENA compatible systems will help.
	Anti-Air Warfare (AAW)	●	Same as Strike Warfare (STW)
Range Support	Strike Warfare (STW)	●	There is no web-based scheduling system with pre-event, real-time, and post-event module. The lack of the required scheduling system prevents the most efficient use of the range, and does not completely document range training usage or ordnance expended in range areas. Develop a standard web-enable scheduling and data collection system.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
	Naval Special Warfare	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Strike Warfare (STW)	●	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 all impact FRTC training. Issue insoluble.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
Airspace	Strike Warfare (STW)	●	There are FAA altitude caps; supersonic restrictions; VFR corridor interruptions; run-in headings restrictions, and helicopter restrictions. Encroachment prohibits training events, segments training/reduces realism, constrains flight altitudes, inhibits new tactics development, and complicates night/all-weather training. Issue insoluble.
	Anti-Air Warfare (AAW)	●	Same as above.
Noise Restrictions	Strike Warfare (STW)	●	There is supersonic flight prohibition below 11,000 feet and above MSL impacts tactical training. These restrictions affect training realism, tactics, and night/all-weather operations. Issue insoluble.
	Anti-Air Warfare (AAW)	●	Same as above.
Adjacent Land Use	Naval Special Warfare	●	Power lines and telecommunications towers impact low altitude helicopter training and tactics. No solution.
Range Transients	Strike Warfare (STW)	●	Range management must provide range clearance for livestock. Livestock encroachment segments training/ reduces realism. Issue unsolvable.
	Naval Special Warfare	●	Same as above.

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Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Guantanamo Assessment Details

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 ●

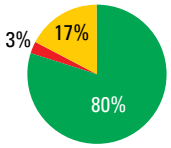
Encroachment Data

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		●	●	●	●	●	●	●	●	●	●	●

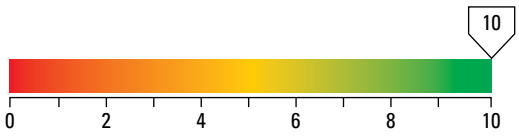
Legend: Minimal ● Moderate ● Severe ●

Summary Percent Distribution

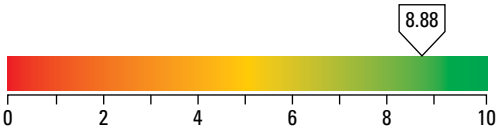
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Capability attribute most impacting range mission performance: NA
2. Mission area most severely impacted: NA
3. Projected status: NA

Summary Observations

1. Maritime Sustainability and Range Transients are the encroachment factors having the greatest impact on training.
2. ASUW and ASW are the mission areas affected most by encroachment.
3. The Navy continues to consult and discuss with stakeholders the various encroachment issues affecting Navy training at Guantanamo Bay.

Guantanamo Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
No Comments.			

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Strike Warfare (STW)		Aerial bombing and mortar firing has created a buildup of UXO that prevents maintenance of range targets and restricting the use of the land impact areas for STW. The presence of UXO creates avoidance areas, reduces range access, segments training/reduces realism, and reduces live fire proficiency. Investment in range clearance of UXO for Hicacal, Palma, and Granadillo ranges will help.
	Naval Special Warfare		UXO presence prevents maintenance of range targets and restricts access within the range to designated roads and firing lines only. An EOD detachment from Mayport, Florida, clears newly identified UXO on the range quarterly and is available for emergent UXO issues if identified. UXO conditions may deteriorate further without consideration and funding of range clearance.
Spectrum	Anti-Surface Warfare (ASUW)		SPY-1 radar and SPS-49 radar are restricted per Annex Kilo to Commander, Fleet Forces Command, Commander, Atlantic Fleet Operations Order 2000-03; limits spectrum operations. 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. 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-Surface Warfare (ASUW)		Maritime protective and mitigation measures undertaken in compliance with evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.
	Anti-Submarine (ASW)		Same as above.
Range Transients	Anti-Surface Warfare (ASUW)		Commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. 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.
	Anti-Submarine (ASW)		Same as above.
	Naval Special Warfare		Same as above.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Gulf of Mexico Assessment Details

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	●	●	●	●	●	●	●		●				

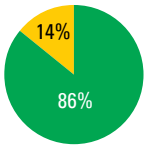
Legend: FMC ● PMC ● NMC ●

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 ●

Summary Percent Distribution



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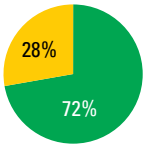
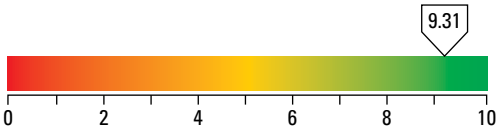
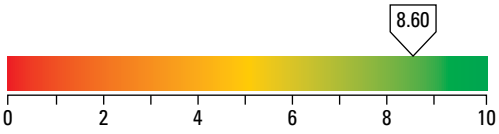


Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Capability attribute most impacting range mission performance: Range Support
2. Mission area most severely impacted: All
3. Projected status: No immediate change.

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.

Gulf of Mexico Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Anti-Air Warfare (AAW)	●	There is no web-based scheduling system with pre-event, real-time, and post-event module. This prevents the most efficient use of the range, and does not completely document range training usage or ordnance expended in range areas. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	Same as above.
	Mine Warfare (MW)	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Anti-Air Warfare (AAW)	●	The employment of Link 16 is restricted; 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 Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.
	Mine Warfare (MW)	●	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	●	Commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. 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.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Hawaiian Islands Assessment Details

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	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				

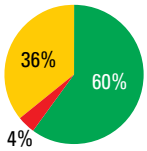
Legend: FMC, PMC, NMC

Encroachment Data

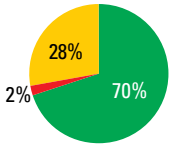
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Moderate	Minimal	Moderate	Minimal	Moderate	Minimal	Minimal	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			Minimal
Naval Special Warfare	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

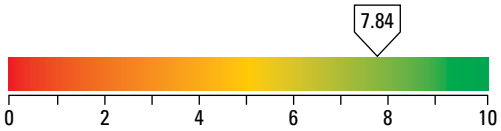
Summary Percent Distribution



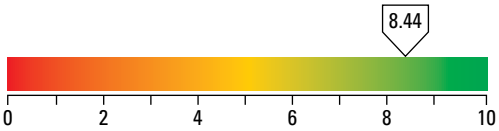
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



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.

Summary Observations

1. Spectrum and Maritime Sustainability are the encroachment factors having greatest impact on training.
2. All Mission areas have substantial encroachment.
3. Designation of critical habitat for the Hawaiian Monk Seal 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.

Hawaiian Islands Limitation Details

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. This reduces realism and inhibits tactics development. There is 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. This reduces realism by preventing detection and targeting of terrain following aircraft. There is no land space is available to solve this problem.
	Naval Special Warfare	🟡	Lacks maneuver space with a beachfront, live fire areas, MOUT; segments training, thereby reducing realism; inhibits tactics; reduces live fire proficiency. There is no land space is available to solve this problem.
Airspace	Strike Warfare (STW)	🟡	Unable to conduct low-level ingress over land to an air-to-ground range area with a realistic strike package. This reduces realism and inhibits tactics development. There is no solution due to unavailability of land and airspace.
Targets	Strike Warfare (STW)	🟡	There are no raked, strafe, structural, revetted, or moving targets. This does not meet requirements for live fire and realistic strike missions and reduces realism and live fire proficiency. Upgrading targets to meet training requirements should be implemented. 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. Acquiring additional surface targets should be implemented.
	Mine Warfare (MW)	🟡	Existing mine training field does not realistically portray a threatening environment; reduces realism, inhibits tactics, and limits application of new weapons technologies. The situation will get worse when OMCM systems are deployed if improvements are not made. Anticipate deployment of new training mine fields at a future date.
	Anti-Submarine (ASW)	🟡	Target capabilities are downgraded by lack of target maintenance capabilities at the range, thereby reducing the quantity of available required targets. This reduces live fire proficiency and reduces realism. Developing a capability to perform maintenance on ASW targets at the range complex should be implemented.
	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. Solution is to 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. This reduces realism and inhibits tactics development. Acquiring EC systems that provide a high density, multi-threat axis capability through level 4 should be implemented.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	There is no dedicated threat OPFOR. There is a shortage of the required number and variety of threat aircraft; reduces realism. Investigating the availability of Hawaii Air National Guard to serve in an OPFOR role should be implemented.
	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. Acquiring additional threat OPFOR should be implemented.
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. Improving targets to include TSPI, EC&C, M&S, scoring and debrief capabilities should be implemented.
	Anti-Air Warfare (AAW)	🟡	The system lacks required capacity and needs upgrades to prevent obsolescence. A lack of adequate instrumentation reduces the overall effectiveness of flights due to lower quality debrief information. Investing in additional or new equipment to upgrade current systems should be implemented.

Hawaiian Islands Limitation Details (Continued)

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Range Support	Strike Warfare (STW)	●	There is no web-based scheduling system with pre-event, real-time, and post-event module; prevents the most efficient use of range and does not completely document range training usage or ordnance expended in range areas. A standard web-enabled scheduling and data collection system should be developed.
	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.

Hawaiian Islands Limitation Details (Continued)

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. 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. The Record of Decision 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. Federal and State environmental regulators and NGOs are focusing on the populations and habitat, both land and marine, on/around K-Rock. Sea bird population surveys by vessel were conducted by USN contractors and staff in July 2009 ;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; 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.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Maritime Sustainability	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures undertaken in compliance with evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.
	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
	Anti-Submarine (ASW)		Same as above.
Airspace	Strike Warfare (STW)		Due to competition for the same airspace and scheduling conflicts, at times, Navy P-3s usage of the airspace is limited and HIANG flights may be cancelled. Commercial and private aviation conflicts with Naval operations throughout the range complex. Encroachment prohibits certain P-3 or HIANG training events in the area. Commercial traffic in the airspace causes delays and segments training. Coordinating scheduling of airspace with primary range users and the FAA should be implemented.
	Anti-Air Warfare (AAW)		Same as above.
Adjacent Land Use	Strike Warfare (STW)		STW range is insufficient in size to support all requiremetns. Land withdrawal/procurement is problematic due to development/other factors.
Cultural Resources	Strike Warfare (STW)		There are cultural sites and resources throughout the range complex; 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)		Commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. 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.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Jacksonville Assessment Details

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	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	PMC	FMC	PMC		PMC				
Amphibious Warfare													
Anti-Submarine		FMC	FMC	FMC	FMC	PMC	NMC		PMC				
Naval Special Warfare													

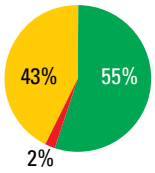
Legend: FMC, PMC, NMC

Encroachment Data

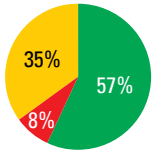
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	PMC	FMC	PMC	FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Electronic Combat	FMC		FMC		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

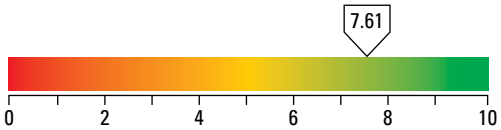
Summary Percent Distribution



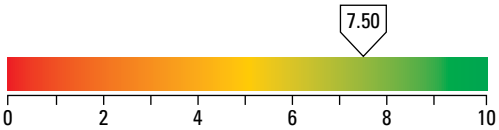
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Capability attribute most impacting range mission performance: Scoring & Feedback Systems
2. Mission area most severely impacted: ASW
3. Projected status: EIS for USWTR is projected to be completed in CY2009.

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 Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🟡	Land 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 supports NSFS or CSAR training, or standoff PGM delivery. Prohibits certain training events; reduces realism; increases personnel op tempo. Recommend identifying east coast areas of sufficient size to support standoff weapons training.
	Anti-Air Warfare (AAW)	🟡	Land does not fully support size or topography requirements, or surface combatant detection of aircraft over land. Use of flares is restricted. Prohibits certain training events; reduces realism; increases personnel op tempo. Overland ACM training is conducted at Fallon Range Training Complex; no additional options available.
Airspace	Strike Warfare (STW)	🟡	Land and its associated restricted airspace are adjacent to JAX at-sea air-space requiring MOA for transition between the sea and landspace areas. Reduces realism; inhibits new tactics development; reduces live fire proficiency. OPAREAs lacks characteristics for realistic tactical approaches and does not support the area size to meet minimum training requirements. 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.
Targets	Strike Warfare (STW)	🟡	Urban area is too small, no LACM or NSFS land area targets, no moving targets, targets lack infrared signatures. Prohibits training events; reduces realism; limits application of new weapon technologies; inhibits tactics development; reduces live fire proficiency, increases personnel op tempo; increases O&M costs. Recommend invest in required targets.
	Mine Warfare (MW)	🟡	No recoverable inert floating mine shapes; provides no means to determine effectiveness of planning tactics; reduces realism; inhibits tactics. Recommend develop and procure recoverable inert floating mine shapes to support deep water MIW training.
Threats	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. Recommend updating upgrade schedule to preclude severe degradation of system capability.
	Anti-Air Warfare (AAW)	🟡	No helicopter or supersonic threat OPFOR; reduces realism; increases personnel op tempo; increases O&M costs. Recommend increase the number and type of commercial air services.
	Anti-Submarine (ASW)	🟡	Limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. Prohibits certain training events; reduces realism; inhibits tactics; increases personnel op tempo; increases O&M costs. Recommend investing in additional threat OPFOR. and increasing availability of submarines through the DESI and aircraft through CAS.
Scoring & Feedback	Strike Warfare (STW)	🟡	Incomplete TSPI & EC&C OPAREA coverage; needs scoring, RTKN and M&S systems; increases personnel op tempo; 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.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	OPAREA coverage is not complete; modeling & simulation is inadequate; no RTKN. Existing instrumentation systems are not supportable through the FYDP; reduces realism; inhibits tactics; increases personnel op tempo, 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.
	Anti-Surface Warfare (ASUW)	🟡	Same as STW comment
	Mine Warfare (MW)	🟡	No designated mine training area with target mine shapes and instrumentation; prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; increases personnel op tempo; increases O&M costs; provides no feedback as to effectiveness of planning tactics. Recommend establishing a mine training area suitable for temporary deployment of recoverable inert floating mine shapes to support major exercise deep water MIW events. No completion date identified.
	Anti-Submarine (ASW)	🔴	No underwater tracking range, scoring capability, M&S, or post mission feedback; prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel op tempo; increases O&M costs. USWTR EIS to be completed CY09; expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities.
Range Support	Strike Warfare (STW)	🟡	No web-based scheduling system with pre-event, real-time, and post-event module. Link-16 not available at range to monitor training. Prevents most efficient use of range, does not completely document range training usage or ordnance expended in range areas. Lack of Link-16 prevents monitoring of OPAREA events. Recommend a standard web-enable scheduling and data collection system be developed and range needs to be updated with Link-16 capability.
	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.

Jacksonville Limitations Detail (Continued)

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. 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, SPY-1 radar, SPS 49 radar, and IFF are restricted; 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. 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)	🟡	Same as above.
	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 evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.
	Mine Warfare (MW)	🔴	Same as above.
	Anti-Submarine (ASW)	🔴	Same as above.
Airspace	Strike Warfare (STW)	🟡	During launches at Cape Canaveral, the FAA closes southern portions of the Jacksonville OPAREA and associated airspace, depending on launch parameters. Closure 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)	🟡	Commercial shipping and fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. 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.

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Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Japan Assessment Details

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													

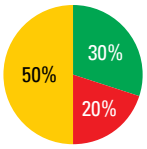
Legend: FMC ● PMC ● NMC ●

Encroachment Data

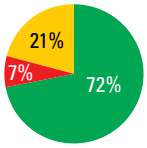
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare			●	●	●		●		●			●
Electronic Combat			●		●							●
Anti-Air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

Legend: Minimal ● Moderate ● Severe ●

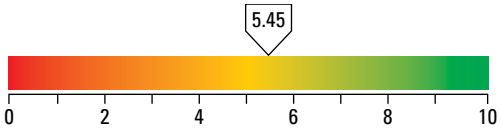
Summary Percent Distribution



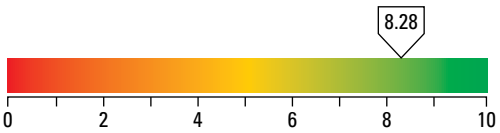
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Capability attribute most impacting range mission performance: Scoring & Feedback System
2. Mission area most severely impacted: All
3. Projected status: TCTS and PUTR deployment are expected to provide a modest improvement; recommend 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 encroachment and ensure unfettered use of training ranges and operating areas.

Japan Limitations Detail

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.
	Electronic Combat (EC)	🔴	Same as above.
	Anti-Air Warfare (AAW)	🟡	No overland airspace supports AAW training; same as above.
Airspace	Strike Warfare (STW)	🟡	No Navy controlled range available, some airspace and 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.
	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; limits application of new technologies; inhibits new tactics development; increases personnel op tempo, increases O&M costs. Pursue opportunities with other Services, countries, and in-theater ranges.
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 point.
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.
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.
	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.
	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.
	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.
	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.
	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.
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 and pursue MPRC with EC capabilities. New CAS contract expected to improve OPFOR support.
	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.

Japan Limitations Detail (Continued)

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
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 FY08, and although it is an AAW system, it is expected to marginally improve STW.
	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.
Range Support	Strike Warfare (STW)	🟡	No web-based scheduling system with pre-event, real-time, and post-event module. Lack of the required scheduling system prevents most efficient use of range, does not completely document range training usage or ordnance expended in range areas. A standard web-enabled scheduling and data collection system should be developed.
	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
Spectrum	Strike Warfare (STW)	🟡	Restrictions on RF emissions limit the use of the Tactical Combat Training System; 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.
	Electronic Combat (EC)	🔴	No EW training ranges due to 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)	🔴	Same as STW comment
	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	Anti-Surface Warfare (ASUW)	🟡	LFA SONAR activity is restricted in the waters off Japan; prohibit certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. The Navy takes normal precautions to clear range areas and to avoid marine mammals when present, in compliance with the Navy's General Maritime Protective and Mitigation Measures.
	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 removes the noise encroachment at Atsugi.
	Anti-Air Warfare (AAW)	🟡	Same as above.

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Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

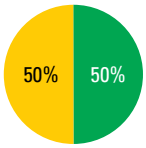
Key West Assessment Details

Capability Data

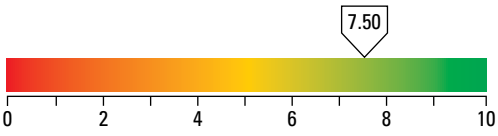
Mission Areas	Landspace	Airspace	Seaspace	Underseaspace	Targets	Threats	Scoring & Feedback System	Infrastructure	Range Support	Small Arms Ranges	Collective Ranges	MOUT Facilities	Suite of Ranges
Strike Warfare													
Electronic Combat													
Anti-Air Warfare	FMC	FMC	FMC		PMC	FMC	PMC		PMC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

Legend: FMC, PMC, NMC

Summary Percent Distribution



Overall Capability Score



Summary Observations

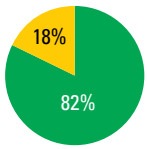
1. Capability attribute most impacting range mission performance: Scoring & Feedback Systems
2. Mission area most severely impacted: All
3. Projected status: No immediate change.

Encroachment Data

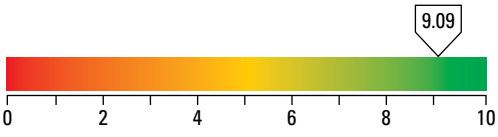
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare												
Electronic Combat												
Anti-Air Warfare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

Legend: Minimal, Moderate, Severe

Summary Percent Distribution



Overall Encroachment Score



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 Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Anti-Air Warfare (AAW)	●	Minimal target support; air targets are not available unless scheduled in advance (long lead time). Increases personnel op tempo and O&M costs. Recommend providing targets at the range area. Current workaround solution: targets may be arranged for training if sufficient lead time is available to schedule and if the required targets are available.
	Anti-Surface Warfare (ASUW)	●	No organic range capability; surface targets are not available for live fire unless scheduled in advance (long lead time). Prohibits certain training events' reduces realism; limits application of weapon technologies; inhibits tactics development; increases personnel op tempo; increases O&M costs. Recommend providing targets at the range area. Current workaround solution: targets may be arranged for training if sufficient lead time is available to schedule and if the required targets are available.
Threats	Anti-Surface Warfare (ASUW)	●	No dedicated surface threat; prohibits certain training events; reduces realism; limits application of new weapon technologies; inhibits tactics development; increases personnel op tempo; increases O&M costs. Recommend providing threats at the range area. Current workaround solution: threats may be arranged for training if sufficient lead time is available to schedule and if the required threats are available.
Scoring and Feedback System	Anti-Air Warfare (AAW)	●	Exercise coordination & control not available over the entire OPAREA, especially for surface ships; modeling & simulation not available; RTKN is available by voice only. Prohibits certain training events; reduces realism; increases personnel op tempo; increases O&M costs. Recommend investing in systems to support EC&C, M&S and scoring, and debriefing.
	Anti-Surface Warfare (ASUW)	●	Same as above.
Range Support	Anti-Air Warfare (AAW)	●	No web-based scheduling system with pre-event, real-time, and post-event module. Lack of the required scheduling system prevents most efficient use of range, does not completely document range training usage or ordnance expended in range areas. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	Same as above.

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 startle 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 is underway to determine frequency of sonic booms, potential affects on personnel/property and minimum distance requirements to preclude future noise complaints.
Wetlands	Anti-Air Warfare (AAW)	●	Wetland vegetation encroachment obstructs air traffic controllers' lines of site with aircraft, affects radar performance, and poses a strike hazard to aircraft landing or taking off at Boca Chica Airfield. Air traffic control obstruction could affect access to portions of the KW range complex airspace. Recommendation: implement actions to restore and enhance airfield clearance safety areas; no current action.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Mariana Islands Assessment Details

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	NMC	NMC	FMC	FMC	NMC	NMC	NMC		PMC				
Electronic Combat	NMC	FMC	NMC	FMC	NMC	NMC	NMC		PMC				
Anti-Air Warfare	NMC	PMC	FMC		NMC	NMC	NMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	NMC	NMC	NMC		PMC				
Mine Warfare		FMC	PMC	NMC	NMC	NMC	NMC		PMC				
Amphibious Warfare	NMC	NMC	NMC		NMC	NMC	NMC		PMC				
Anti-Submarine		FMC	FMC	NMC	NMC	NMC	NMC		PMC				
Naval Special Warfare	NMC	PMC	NMC	NMC	NMC	NMC	NMC		PMC				

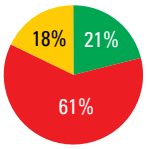
Legend: FMC, PMC, NMC

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
Strike Warfare	PMC	PMC	PMC	FMC	PMC	FMC	PMC	PMC	FMC	FMC	FMC	PMC
Electronic Combat	FMC		FMC		PMC	FMC	FMC	FMC				FMC
Anti-Air Warfare			PMC		PMC	FMC	PMC	PMC				FMC
Anti-Surface Warfare			PMC	PMC	FMC				FMC			FMC
Mine Warfare			PMC	PMC	FMC				FMC	FMC		PMC
Amphibious Warfare	NMC		PMC	PMC	FMC		FMC	FMC	PMC		PMC	PMC
Anti-Submarine		FMC	PMC	PMC	FMC				FMC			FMC
Naval Special Warfare	PMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	PMC	FMC	PMC	PMC

Legend: Minimal, Moderate, Severe

Summary Percent Distribution



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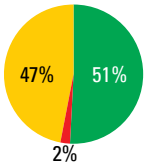
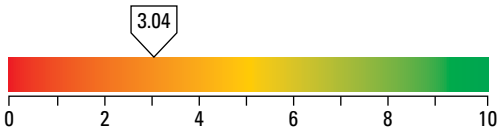
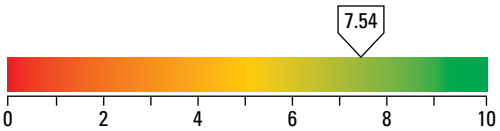


Overall Capability Score



Overall Encroachment Score



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.

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. Training requirements, ranges, and operating areas are identified and assessed in the Mariana Islands Range Complex EIS and the Guam and CNMI Relocation EIS; under development.

Mariana Islands Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🔴	Land area is too small and 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, A-G range and training area with an associated warning area.
	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.
	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.
	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. Limitations prevent conduct of AMW training. Integrate Navy AMW airspace requirements into Marine Corps amphibious feasibility study.
	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.
	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.
	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.
	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.
Seaspace	Electronic Combat (EC)	🔴	No OPAREA exists to support EC; prevents training. Establish an OPAREA to support EC training.
	Mine Warfare (MW)	🟡	Insufficient geographic references for aerial mine laying; no designated OPAREA for mine laying. Prevents proper procedures for aerial mining. Designate geographic reference point and OPAREA for aerial mining.
	Amphibious Warfare (AMW)	🔴	No suitable seaspace supported by required beach front available; prevents conduct of AMW training. Integrate Navy AMW sea space requirements into Marine Corps amphibious feasibility study
	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.
Underseaspace	Mine Warfare (MW)	🔴	No dedicated area for SWAG or mine avoidance training; extreme water depth and lack of variance in sea bottom are problematic; limits mine countermeasures training. Study feasibility of installing a mine training range with instrumented shapes, false targets, and mines for SWAG training.
	Anti-Submarine (ASW)	🔴	No UTR; lack of shallow water. Prevents tracking torpedoes shots to determine hit/miss. 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; 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; does not support 2000 lb ordnance or cluster munitions or multiple strike packages; does not have spectral signatures; limits live fire and realistic training. Conduct feasibility study to establish high fidelity, inert, A-G range and training area with associated warning area.
	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.
	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.
	Anti-Surface Warfare (ASUW)	🔴	Same as above.
	Mine Warfare (MW)	🔴	No targets available from range; users sometimes supply their own targets; will degrade training capability for OMCM units. Study feasibility of installing a mine range with instrumented mines, false targets, and mines for SWAG training.
	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.
	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.
	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.

Mariana Islands Limitations Detail (Continued)

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Strike Warfare (STW)	🔴	No OPFOR is available at the range; full range of STW training that requires OPFOR support not available. Study feasibility of establishing OPFOR resources at the range complex.
	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.
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.
	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)	🟡	No web-based scheduling system with pre-event, real-time, and post-event module. Lack of the required scheduling system prevents most efficient use of range, does not completely document range training usage or ordnance expended in range areas. A standard web-enable scheduling and data collection system should be developed.
	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 Limitations Detail (Continued)

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, raises flight altitudes, 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)	🔴	MMPA, ESA, 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 operations. Coral and essential fish habitat conservation, marine mammal protection, munitions in the water, turtle nesting, and BTS protocols are encroachment issues that influence training activities. LCAC and 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. 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.
Munitions Restrictions	Strike Warfare (STW)	🟡	Devegetation and erosion on FDM caused by explosive munitions has restricted and prohibited certain munitions expenditures; restrictions create avoidance areas, prohibit certain training events. Users are continually reminded to use only authorized munitions and to keep munitions on island.
	Naval Special Warfare	🟡	Not 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. Navy is pursuing a RCRA designation for the EOD pit in the Ordnance Annex.
Spectrum	Strike Warfare (STW)	🟡	Employment of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted; 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)	🟡	Same as above.
	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 evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.

Mariana Islands Limitations Detail (Continued)

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 due to tremendous pressure from airlines. Warfare areas participating in combined arms training are impacted by the current lack of SUA over land areas. Encroachment from airspace restrictions creates avoidance areas, prohibits certain training events, reduces range access, segments training/reduces realism, inhibits new tacts 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; 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)		Same as STW comment
Noise Restrictions	Strike Warfare (STW)		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)		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. 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.
Cultural Resources	Amphibious Warfare (AMW)		When a 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; restrictions create avoidance areas, prohibit certain training events; currently insoluble. Navy should attempt to renegotiate the terms of the consultation.
	Naval Special Warfare		The pervasiveness of cultural resources in the Marianas limits locations for NSW ranges and training areas where special operations forces would logically train.
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		Same as above.
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, and is pursuing an exclusion zone around FDM for safety reasons.
	Mine Warfare (MW)		Same as above.
	Amphibious Warfare (AMW)		Same as above.
	Naval Special Warfare		Commercial and private fishing boats and dive boats frequent near-shore areas throughout the Marianas; no enforced surface danger zones over the water.Transient boat traffic interrupts or stops military training activity.

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Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Narragansett Assessment Details

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													

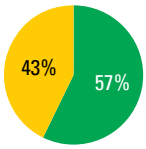
Legend: FMC ● PMC ● NMC ●

Encroachment Data

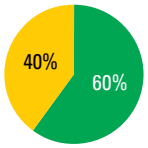
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare												
Electronic Combat												
Anti-Air Warfare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

Legend: Minimal ● Moderate ● Severe ●

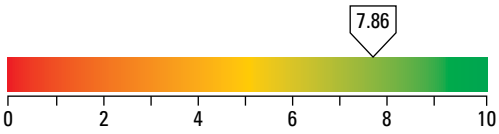
Summary Percent Distribution



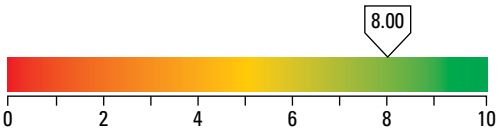
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



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.

Narragansett Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Anti-Submarine (ASW)	●	Limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. Prohibits certain training events; reduces realism; inhibits tactics; increases personnel op tempo; increases O&M costs. Solution - invest in additional threat OPFOR and increase availability of submarines through the DESI and aircraft through CAS.
Scoring & Feedback Systems	Anti-Submarine (ASW)	●	No underwater tracking range, scoring capability, M&S, or post mission feedback. Prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel op tempo; increases O&M costs. Solution - expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities.
Range Support	Anti-Submarine (ASW)	●	No web-based scheduling system with pre-event, real-time, and post-event module; lack of the required scheduling system prevents most efficient use of range, does not completely document range training usage or ordnance expended in range areas. A standard web-enabled scheduling and data collection system should be developed.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Anti-Submarine (ASW)	●	Employment of Link 16, SPY-1 radar, and IFF are restricted; 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 evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Northern California (NOCAL) Assessment Details

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	NMC	NMC	FMC	FMC	NMC	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				

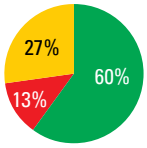
Legend: FMC PMC NMC

Encroachment Data

Mission Areas	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	Minimal	Minimal	Minimal		Minimal			Moderate
Electronic Combat												
Anti-Air Warfare			Minimal		Minimal	Minimal	Minimal					Moderate
Anti-Surface Warfare			Minimal	Minimal	Minimal				Minimal			Minimal
Mine Warfare												
Amphibious Warfare												
Anti-Submarine												
Naval Special Warfare			Minimal	Minimal	Minimal	Minimal	Minimal		Minimal			Minimal

Legend: Minimal Moderate Severe

Summary Percent Distribution



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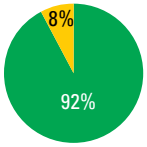
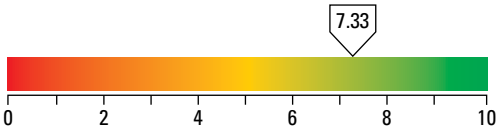
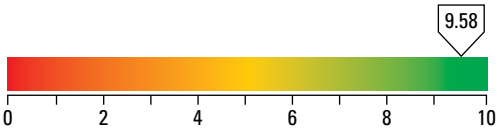


Overall Capability Score



Overall Encroachment Score



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) Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🔴	There is no Navy owned land-space; Army Ft 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. Units must rely on out-of-area training to fulfill basic level requirements. Prohibits training events; complicates night and all-weather training; reduces realism; limits tactics; reduces live fire proficiency; increases personnel op tempo; increases O&M costs. Should develop an instrumented air-to-ground range in NOCAL training area; Investigate other feasible range areas.
Airspace	Strike Warfare (STW)	🔴	Same as above.
	Anti-Air Warfare (AAW)	🟡	Distance too far from Lemoore, ocean water temperature too cold (safety), supersonic flight restricted to greater than 30nm from land and above 30K ft; increases travel time to the training area; inhibits employment of tactics; decreases realism. Will work with FAA to reduce limitations on SUA.
Targets	Strike Warfare (STW)	🔴	Only one target site exists; no DMPIs or raked targets; prohibits certain training; reduces realism; limits application of new technologies; inhibits some tactics; reduces live fire proficiency; increases personnel op tempo; increases O7M costs. Will investigate other feasible range areas.
Threats	Strike Warfare (STW)	🟡	Helicopter OPFOR not available; commercial OPFOR extremely limited; no supersonic OPFOR; EC OPFOR extremely limited. Reduces realism; inhibits tactics; increases personnel op tempo; increases O&M costs. Solution - increase funding for commercial OPFOR; provide for additional target vessel services to support air and EC OPFOR.
	Anti-Air Warfare (AAW)	🟡	Same as above.
Scoring and Feedback System	Strike Warfare (STW)	🔴	No TSPI coverage of NOCAL MOAs; no M&S capability; no scoring system; no debriefing capability. Increases O&M costs, personnel op tempo; reduces realism, inhibits tactics. Fielding of TCTS will provide needed upgrade; need to invest in JNTC compliant M&S. Should investigate other feasible range areas; be proactive with public stakeholders to regain use of training areas.
	Anti-Air Warfare (AAW)	🟡	Same as above.
Range Support	Strike Warfare (STW)	🟡	No web-based scheduling system with pre-event, real-time, and post-event module. Lack of the required scheduling system prevents most efficient use of range, does not completely document range training usage or ordnance expended in range areas. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Air Warfare (AAW)	🟡	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Naval Special Warfare	🟡	Same as above.

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. Encroachment requires aircrews to direct their attention away from the mission at-hand to avoid collisions or near misses with civil aircraft and 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.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Northwest Training Range Complex Assessment Details

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	FMC	PMC	PMC		PMC				
Electronic Combat	FMC	FMC	PMC	FMC	PMC	FMC	PMC		PMC				
Anti-Air Warfare	FMC	FMC	FMC		PMC	PMC	PMC		PMC				
Anti-Surface Warfare		FMC	FMC	FMC	PMC	PMC	FMC		PMC				
Mine Warfare		FMC	FMC	FMC	FMC	FMC	FMC		PMC				
Amphibious Warfare													
Anti-Submarine		FMC	FMC	FMC	FMC	FMC	FMC		PMC				
Naval Special Warfare	PMC	FMC	FMC	PMC	PMC	FMC	FMC		PMC				

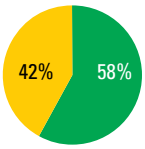
Legend: FMC PMC NMC

Encroachment Data

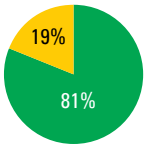
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal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

Legend: Minimal Moderate Severe

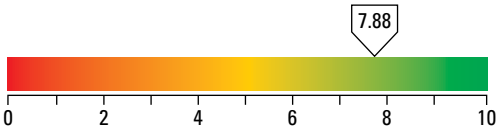
Summary Percent Distribution



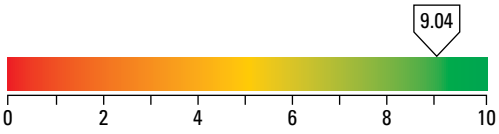
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



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.

Summary Observations

1. Maritime Sustainability is the encroachment factor with the most impact on training.
2. ASW 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.

Northwest Training Range Complex Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	●	Size does not meet requirements; live ordnance not allowed, however use of live ordnance at Basic and Intermediate level is limited. Inhibits tactics development; limits application of new weapon technologies; increases personnel op tempo; increases O&M costs. Solution - redevelop bombing range area; establish second target complex per range required capabilities document.
Airspace	Strike Warfare (STW)	●	Size and altitudes do not meet requirements; supersonic operations are not allowed over land Inhibits tactics development; limits application of new weapon technologies; increases personnel op tempo; increases O&M costs. Solution - coordinate larger areas higher altitudes to meet requirements.
Seaspace	Electronic Combat (EC)	●	Land area where EC emitter is located can not support seaspace EC; inhibits tactics development; limits application of new weapon technologies; increases personnel op tempo; increases O&M costs. Navy already owns potential land area along coast where EC emitters may be located; need to acquire EC emitters.
Targets	Electronic Combat (EC)	●	Limited threat representative fixed and mobile targets available; inhibits tactics development; limits application of new weapon technologies; increases personnel op tempo; increases O&M costs. Acquisition of relocatable EC threat emitters is under way; acquisition of "Smart targets" (visually representative of threats) needs to be initiated.
	Anti-Air Warfare (AAW)	●	No towed target or subscale target capability in range complex; reduces live fire proficiency; limits application of new weapon technologies; increases personnel op tempo; increases O&M costs. Need to invest in commercial air services with target towing and other target capabilities.
	Anti-Surface Warfare (ASUW)	●	No targets available; targets provided by range users; reduces realism; inhibits tactics; limits application of new weapon technologies; reduces live fire proficiency; increases personnel op tempo; increases O&M costs. Need to invest in required self propelled, towed, programmed or remote controlled targets.
Threats	Strike Warfare (STW)	●	Full required EC threat level does not exist at bombing range; no live or virtual rotary or fixed wing threat exists at the bombing range. Acquisition of relocatable EC threat simulators has been initiated. Coordinate with other range users (USAF, Oregon Air or Army Guard) to provide threat support or use Contract Air Service.
	Anti-Air Warfare (AAW)	●	No dedicated OPFOR; reduces realism; inhibits tactics development; increases personnel op tempo; increases O&M costs. Should invest in commercial air services equipped with required threat augmentation. No completion date identified.
	Anti-Surface Warfare (ASUW)	●	Same as above.
Scoring & Feedback System	Strike Warfare (STW)	●	Lacks instrumentation; no real-time or debrief capability. Increases personnel op tempo; reduces realism; increases O&M costs; inhibits tactics development. Should invest in instrumentation that will meet requirements for an instrumented range.
	Electronic Combat (EC)	●	Same as above.
	Anti-Air Warfare (AAW)	●	Same as above.
Range Support	Strike Warfare (STW)	●	No web-based scheduling system with pre-event, real-time, and post-event module; prevents most efficient use of range, does not completely document range training usage or ordnance expended in range areas. A standard web-enabled scheduling and data collection system should be developed.
	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 Limitations Detail (Continued)

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Electronic Combat (EC)	●	Jamming 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, segments training/ reduces realism, limits application of new weapons technologies, and inhibits 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.
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures undertaken in compliance with evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.
	Mine Warfare (MW)	●	Same as above.
	Anti-Submarine (ASW)	●	Same as above.
Airspace	Electronic Combat (EC)	●	VQ Aircrews based at NAS Whidbey Island train in electronic reconnaissance in Darrington OpArea; experience difficulty getting clearance from Seattle ARTCC (FAA) to climb above FL 250. The aircraft are vectored around by Seattle ARTCC causing delays, wasting airborne training time; restrictions result in reduced range access. Developing an EC training emitter along the coast would allow VQ aircraft to train offshore where W-237 has areas of unlimited ceilings.
Adjacent Land Use	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.
Range Transients	Anti-Submarine (ASW)	●	Commercial and private shrimp fishing boats congregate in Dabob Bay for several weeks in late April to mid June. Native Americans fishing for clams & shrimp traverse across NUWC RDT&E ranges without contacting NUWC Operations, thereby interfering with ongoing events. 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.
	Naval Special Warfare (NSW)	●	Commercial and private shrimp fishing boats congregate in Dabob Bay for several weeks in late April to mid June; Native Americans fishing for clams & shrimp traverse across NUWC RDT&E ranges without contacting NUWC Operations, interfering with ongoing events. The Navy continues to work with law enforcement agencies to enforce the Dabob Bay Restricted area during RDT&E and occasional NSW training activities. Native American and civilian fishing boats occasionaly inhibit EODMU-11 underwater detonation training in Crescent Harbor; NAS Whidbey Island is pursuing a surface/subsurface restricted area designation in Crescent Harbor to deter range transients.

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Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Okinawa Assessment Details

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	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													

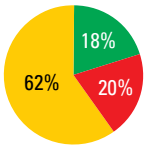
Legend: FMC, PMC, NMC

Encroachment Data

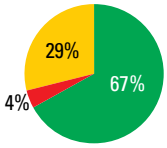
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Minimal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

Legend: Minimal, Moderate, Severe

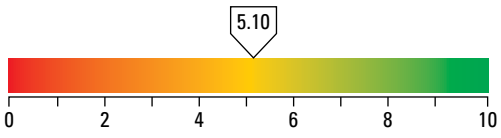
Summary Percent Distribution



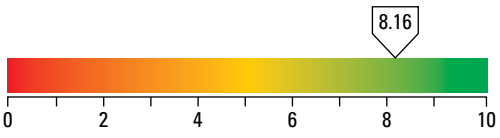
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Capability attributes most impacting range mission performance: 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 encroachment strategies that will reduce encroachment while ensuring quality training operations.

Okinawa Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🟡	Land area is too small; prohibits certain training events, reduces realism, limits application of new technologies, inhibits new tactics development, reduces live fire proficiency, increases personnel op tempo, increases O&M costs. Pursue opportunities with other Services.
	Electronic Combat (EC)	🔴	No land area supports EC training; political and frequency spectrum constraints: prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M. Conduct feasibility study for EC assets to be incorporated into a high fidelity, inert, A-G training range. Pursue Multi-purpose Range Craft (MPRC) with EC assets.
	Anti-Air Warfare (AAW)	🟡	No overland airspace supports AAW training; prohibits certain training events, reduces realism, limits application of new technologies, inhibits new tactics development, reduces live fire proficiency, increases personnel op tempo, increases O&M costs. Pursue opportunities with other Services.
	Amphibious Warfare (AMW)	🔴	Not contiguous with required size of beachfront area. Beach area is very limited; area does not support NSFS; prohibits certain training events, reduces realism, limits application of new technologies, inhibits new tactics development, reduces live fire proficiency, increases personnel op tempo, increases O&M costs. Pursue opportunities with other Services.
Airspace	Anti-Air Warfare (AAW)	🟡	No overland airspace supports AAW training; prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Pursue opportunities with other Services.
	Amphibious Warfare (AMW)	🟡	No airspace over beaches that meet training requirements; prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Pursue opportunities with other Services.
	Anti-Submarine (ASW)	🟡	Sufficient airspace, but it is not supported by an Underwater Training Range; prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Pursue MPRC; continue deployment of Portable Underwater Training Range (PUTR).
Seaspace	Mine Warfare (MW)	🟡	Insufficient geographic references, water is too deep; prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Pursue opportunities with other Services.
	Amphibious Warfare (AMW)	🟡	Not contiguous with required size of beachfront area; prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Pursue opportunities with other Services.
	Anti-Submarine (ASW)	🟡	Sufficient seaspace, but it is not supported by an Underwater Training Range; prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Pursue MPRC; continue deployment of PUTR.
Underseaspace	Mine Warfare (MW)	🟡	Sufficient space, however, 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. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Pursue opportunities with other Services, evaluate feasibility of installing a mine range with instrumented shapes, false targets, bottom mines, mines approved for SWAG training. Evaluate feasibility of creating a shallow water OPAREA.
	Amphibious Warfare (AMW)	🟡	Same as Seaspace AMW comment
	Anti-Submarine (ASW)	🟡	Insufficient areas with water less than 600 ft deep and not supported by an Underwater Training Range; prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Pursue MPRC; continue deployment of PUTR.

Okinawa Limitations Detail (Continued)

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Strike Warfare (STW)	🟡	Limited targets available; prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Pursue opportunities with other Services. Procure high fidelity targets.
	Electronic Combat (EC)	🔴	No dedicated targets available; prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Conduct feasibility study for EC assets to be incorporated into a high fidelity, inert, A-G training range and pursue MPRC with EC assets.
	Anti-Air Warfare (AAW)	🟡	No supersonic targets available; no dedicated targets available. Reduces live fire proficiency; increases personnel op tempo; increases O&M costs. Solution - increase availability of CAS; pursue MPRC options.
	Mine Warfare (MW)	🟡	No dedicated targets that meet full training requirements; prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Pursue opportunities with other Services. Evaluate feasibility of installing a mine range with instrumented shapes, false targets, bottom mines, mines approved for SWAG training. Evaluate feasibility of creating a shallow water OPAREA.
	Amphibious Warfare (AMW)	🟡	No targets available to support AMW; prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Pursue opportunities with other Services.
	Anti-Submarine (ASW)	🟡	No dedicated targets available; units typically supply their own expendable targets. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel op tempo; increases O&M costs. Increase availability of ASW targets by pursuing MPRC support.
Threats	Strike Warfare (STW)	🔴	No dedicated OPFOR available; reduces realism; limits application of new technologies; inhibits new tactics development. Solution - improve availability of CAS, number and variety of threats. Pursue MPRC with EC capability.
	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.
Scoring and Feedback System	Strike Warfare (STW)	🔴	No permanent instrumentation exists; reduces realism; limits application of new technologies; complicates night and all weather training. Solution - continue planned deployment of TCTS. Evaluate potential to accelerate its deployment.
	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.
Range Support	Strike Warfare (STW)	🟡	No web-based scheduling system with pre-event, real-time, and post-event module. Lack of the required scheduling system prevents most efficient use of range, does not completely document range training usage or ordnance expended in range areas. A standard web-enabled scheduling and data collection system should be developed.
	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	Comment
Threatened & Endangered Species/Critical Habitat	Amphibious Warfare (AMW)	🟡	Marines change tactics to avoid interacting with the dugong when it is spotted. Dugong live in the near-shore waters and their presence can interrupt amphibious operations. 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).
	Electronic Combat (EC)	🔴	No EW training ranges due to 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 TCTS; 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)	🟡	Same as AAW comment
Maritime Sustainability	Anti-Surface Warfare (ASUW)	🟡	LFA SONAR activity is restricted in the waters off Okinawa; prohibits certain training events, segment training/reduce realism, reduce training days, limit application of new weapons technologies, and inhibit new tactics development. Navy takes normal precautions to clear range areas and to avoid marine mammals when present, in compliance with the Navy's General Maritime Protective and Mitigation Measures.
	Mine Warfare (MW)	🟡	Same as above.
	Amphibious Warfare (AMW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
Airspace	Strike Warfare (STW)	🟡	SUA is partially or fully shut down when civil or commercial air traffic is routed through or strays into SUA; operations cease/be delayed until the range is cleared, surface to unlimited. Restrictions create avoidance areas, segment training/reduce realism, prohibit certain training events, reduce range access, and reduce live-fire proficiency; delays operations until range clears. Coordination with Okinawa aviation controllers helps to ameliorate the impacts of SUA incursion by non-military aircraft. Air operations in the vicinity of Area India 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 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. Using established USFJ procedures, continue to have the USFJ work through the GOJ, who notify 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.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Pt. Mugu Sea Range Assessment Details

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	FMC	FMC		FMC	FMC	FMC	FMC	FMC				
Electronic Combat	FMC	FMC	FMC		FMC	FMC	FMC	FMC	FMC				
Anti-Air Warfare	FMC	FMC	FMC		FMC	FMC	FMC	FMC	FMC				
Anti-Surface Warfare		FMC	FMC		FMC	FMC	FMC	FMC	FMC				
Mine Warfare													
Amphibious Warfare	PMC	FMC	FMC		FMC	FMC	FMC	FMC	FMC				
Anti-Submarine		FMC	FMC	FMC					PMC				
Naval Special Warfare	PMC	FMC	FMC		FMC	FMC	FMC	FMC	FMC				

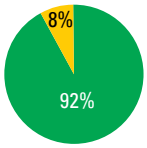
Legend: FMC PMC NMC

Encroachment Data

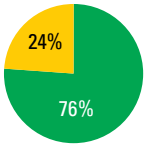
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	PMC	FMC	PMC	FMC	FMC	FMC	FMC	FMC	PMC	PMC	FMC	FMC
Electronic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

Legend: Minimal Moderate Severe

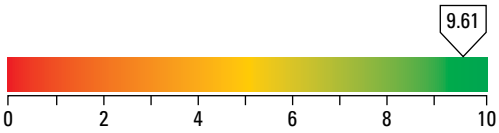
Summary Percent Distribution



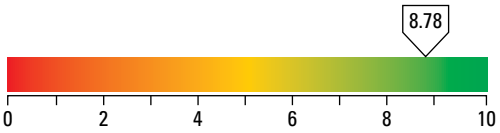
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



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.

Summary Observations

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. Operations on the Sea Range will be seriously impacted if current and proposed regulations promote ships to move outside the Santa Barbara Channel and transit through the range. As a result of California air quality regulations that went into effect 1 July 2009, ship traffic through the range has already increased. Additional regulations that would require speed reduction in the channel to reduce emissions and the risk of whale strikes would provide additional incentives to the shippers.

Pt. Mugu Sea Range Limitations Detail

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, resulting in limited realistic training. No planned remedy available.
	Amphibious Warfare (AMW)	●	There are limited areas on San Nicolas Island and Pt. Mugu Sea Range where this type of training can be conducted; limited realistic training. No planned remedy available.
	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)	●	The Sea Range has sufficient air, sea and underseaspace, but no systems, e.g. underwater tracking, to support ASW activities. The Sea Range supports some ASW activities; limited realistic training. No planned remedy.

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 Pt. Mugu Sea Range and San Nicolas Island requires significant mitigation effort to support training activities. 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)	●	Reduction of available spectrum coupled with the increase in spectrum requirements; limits ability to schedule certain types of events and many concurrent activities. 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.
	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; ASW training can only be conducted in a small portion of the Sea Range. No planned remedy.
Cultural Resources	Strike Warfare (STW)	●	There are hundreds of archeological sites on San Nicolas Island; 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; limited realistic training. Plan is to continue mitigations.
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.

Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

Southern California (SOCAL)

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	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	NMC	PMC	NMC		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				

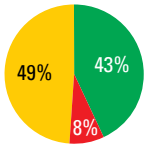
Legend: FMC, PMC, NMC

Encroachment Data

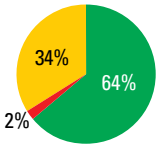
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	PMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	PMC	FMC	FMC	FMC
Electronic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

Legend: Minimal, Moderate, Severe

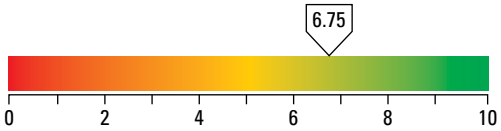
Summary Percent Distribution



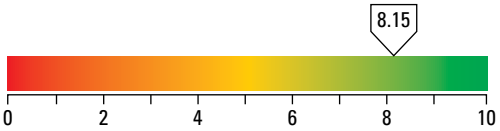
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

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

Summary Observations

1. Spectrum is the encroachment factor having the most effect 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.

SOCAL Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🟡	Cannot support two separate concurrent strikes; use of live ordnance limited to specific areas of the range complex. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. No solution except to use other ranges.
	Amphibious Warfare (AMW)	🔴	Required beach, terrain, and land area sizes not available; reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel op tempo; increases O&M costs. No solution except to use other ranges.
	Naval Special Warfare	🟡	Limited maneuver area; limited beach front areas. supports basic level training, but additional land is required for more advanced training; reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. Invest in MOUT; road infrastructure; firing range areas.
Underseaspace	Anti-Submarine (ASW)	🟡	Water depths and bottom topography do not provide adequate training in shallow water and littoral; does not support EER or LFA operations. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution—develop UTR.
Targets	Strike Warfare (STW)	🟡	No moving targets; limited number of structural targets; no urban terrain targets; inadequate designated mean point of impact at each site. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - invest in smart targets and upgrades to current targets.
	Electronic Combat (EC)	🟡	No visually significant targets; live ordnance not allowed. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - invest in smart targets and EC threat levels through level 4.
	Anti-Air Warfare (AAW)	🟡	No supersonic targets or targets with a jamming capability; altitude restrictions. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - invest in supersonic targets and additional drones with active jamming capabilities.
	Mine Warfare (MW)	🔴	Existing mid and deep water minefields do not represent sufficient mine threat composition for conducting emergent mine hunting and influence sweeping training. No representative mine threat targets and no shallow water mine field capability. SUBPAC and NMAWC require expanded mid to deep water mine fields on Tanner. Realistic threat representative mine shapes needed for LCS, MH-60S OAMCM and MCM class-1 ships arriving in San Diego between 2009-2013. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - invest in establishing shallow water mine fields seeded with sufficient mine threat composition targets. Establish mid-depth mine fields (2) on tanner Banks for SUBPAC ULT and NMAWC integrated training.
	Amphibious Warfare (AMW)	🔴	Required target types are not available, including beach obstacles, beach defenses, NSFS areas, mines. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - install exposed and submerged targets and beach obstacles that may be engaged with live ordnance.
	Naval Special Warfare	🔴	No range targets meet requirements; reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. Invest in a wide range of NSW required targets.

SOCAL Limitations Detail (Continued)

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Strike Warfare (STW)	🟡	No dedicated threat aircraft available in required quantity. EC threats not available above level 2; no capability for virtual threat aircraft. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - invest in enhanced EC threat capabilities.
	Electronic Combat (EC)	🟡	Realistic OPFOR responses not available; EC threats not available above level 2 Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution -invest in enhanced EC threat capabilities.
	Anti-Air Warfare (AAW)	🟡	No dedicated threat aircraft; not available in required quantity. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - invest in contract air threat OPFOR with EC augmentation.
	Anti-Surface Warfare (ASUW)	🟡	No dedicated air or surface threat capability in required numbers; EC threats not available above level 2; command and control capability for OPFOR does not meet requirements. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - invest in enhanced EC threat capabilities.
	Mine Warfare (MW)	🟡	No dedicated threat aircraft or submarines. EC threats not available above level 2.2. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - invest in enhanced EC threat capabilities.
	Amphibious Warfare (AMW)	🟡	No live, virtual, constructive threat ground force; EC threats not available above level 2. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - invest in enhanced EC threat capabilities.
	Anti-Submarine (ASW)	🟡	No dedicated threat aircraft, submarines, or surface ships; not available in required quantity. EC threats not available above level 2. No capability for virtual threat aircraft. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - invest in enhanced EC threat capabilities.
	Naval Special Warfare	🟡	No live, virtual, constructive threat ground forc; reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. Invest in enhanced EC threat capabilities.
Scoring & Feedback System	Strike Warfare (STW)	🟡	No modeling & simulation capability; no scoring capabilities. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - invest in M&S systems.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Mine Warfare (MW)	🔴	No modeling & simulation capability; no scoring capabilities. Limitations reduce realism; inhibit new tactic development; limit application of new weapon technologies; reduce live fire proficiency; increase personnel op tempo; increase O&M costs. Solution - 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.
	Amphibious Warfare (AMW)	🟡	Same as ASUW comment
	Anti-Submarine (ASW)	🟡	Same as ASUW comment
	Naval Special Warfare	🟡	Same as ASUW comment
Range Support	Strike Warfare (STW)	🟡	No web-based scheduling system with pre-event, real-time, and post-event module. Lack of the required scheduling system prevents most efficient use of range, does not completely document range training usage or ordnance expended in range areas. A standard web-enabled scheduling and data collection system should be developed.
	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 ASUW comment

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	🟡	Fire restrictions and species protection affect activities at the SCIRC and 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.
	Amphibious Warfare (AMW)	🟡	Fire restrictions and species protection affect activities at the SCIRC. Loggerhead Shrike and the San Clemente Sage Sparrow limit training opportunities on San Clemente Island. California Least Tern and Western Snowy Plover are present on the beaches of Silver Strand Training Complex. 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.
Munitions Restrictions	Strike Warfare (STW)	🟡	There are munitions restrictions on SHOBA that affect related training activity and create avoidance areas, prohibit certain training events, segment training/reduce realism, limit application of new technologies, and inhibit new tactics development. SHOBA users must restrict munitions use to approved types, amounts, and expenditure locations. Operations involving munitions must be conducted during times of reduced fire potential and in areas where species are not prevalent.
	Amphibious Warfare (AMW)	🟡	Same as above.; SSTC conforms to restrictions on small arms and munition expenditures and to prohibitions on land detonations.
	Naval Special Warfare	🟡	There are munitions restrictions on SHOBA that affect related training activity. SHOBA users must restrict munitions use to approved types,amounts, and expenditure locations.
Spectrum	Strike Warfare (STW)	🟡	Use of Link 16, SPY-1 radar, SPS 49 radar, and IFF are restricted; 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. 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 evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.
	Mine Warfare (MW)	🟡	Same as above.
	Anti-Submarine (ASW)	🟡	Same as above.
Noise Restrictions	Mine Warfare (MW)	🔴	Concerns with noise impacts on the Imperial Beach community from SSTC MCM operations prohibited expanding Immediate Action Drills, mine neutralization, and direct action training for EOD personnel. Restrictions create avoidance areas, prohibit certain training events, reduce range access, reduce realism, inhibits tactics development, and limit application of new technologies. No solution; recommend the Navy re-engage with the public to permit siting an EOD pit on the SSTC.
Adjacent Land Use	Mine Warfare (MW)	🟡	Concerns about public use 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; create avoidance areas, prohibit certain training events, reduce range access, reduce realism, inhibit tactics development, and limit application of new technologies. Navy continues coordination with public stakeholders to educate on matters of SSTC training.

SOCAL Limitations Detail (Continued)

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
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); creates avoidance areas, reduces range access, reduces realism, inhibits tactics development. 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.
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; 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 SOCAL EIS avoidance measures.
	Amphibious Warfare (AMW)	●	Same as above.
Range Transients	Anti-Surface Warfare (ASUW)	●	Commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. 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.
	Naval Special Warfare	●	Same as above.

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Figure 3-30 Navy Capability and Encroachment Assessment Detail (Continued)

VACAPES

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	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	NMC		PMC				
Amphibious Warfare													
Anti-Submarine		FMC	FMC	FMC	FMC	PMC	NMC		PMC				
Naval Special Warfare													

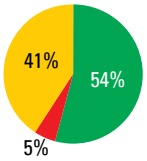
Legend: FMC, PMC, NMC

Encroachment Data

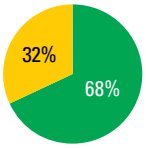
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strike Warfare	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Minimal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

Legend: Minimal, Moderate, Severe

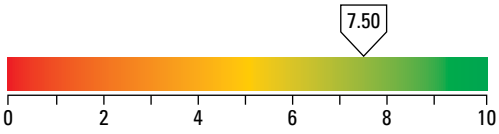
Summary Percent Distribution



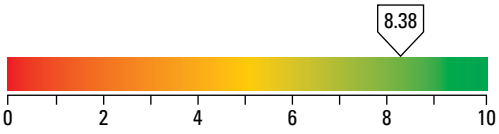
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Capability attribute most impacting range mission performance: Scoring & Feedback Systems
2. Mission area most severely impacted: ASW, MIW
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.

VACAPES Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strike Warfare (STW)	🟡	Land is only available at Dare County Bombing Range, and 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 area to support NSFS training or CSAR training. Prohibits certain training events; reduces realism; increases personnel op tempo. Identify east coast land areas of sufficient size to support standoff weapons and CSAR training.
	Anti-Air Warfare (AAW)	🟡	Land is only available at Dare County Bombing Range, and does not fully support size or topography requirements, or support surface combatant detection of aircraft over land. Use of flares is restricted. Prohibits certain training events; reduces realism; increases personnel op tempo. Overland ACM training is conducted at Fallon Range Training Complex; no additional options available within VACAPES.
Targets	Strike Warfare (STW)	🟡	Live ordnance not allowed; Urban area too small; NSFS not supported ashore; required targets do not provide both visual and infrared signatures. Prohibits certain training events; reduces realism; limits application of weapon technologies; reduces live fire proficiency; increases personnel op tempo; increases O&M costs. Increase number and variety of targets with more realistic signatures; install no drop ordnance instrumentation where applicable.
	Electronic Combat (EC)	🟡	Additional targets required to achieve required density and more representative threat. Prohibits certain training events; reduces realism; limits application of weapon technologies; reduces live fire proficiency; increases personnel op tempo; increases O&M costs. Increase number and variety of EC threats. Install portable systems where applicable.
	Mine Warfare (MW)	🟡	Insufficient training mines and range areas to support increased MIW training. VACAPES must support Navy's principal MH-60 and MH-53 MIW helicopter squadrons. Prohibits certain training events; reduces realism; inhibits tactics; increases personnel op tempo; increases O&M costs. Procure appropriate mix of recoverable and expendable inert bottom and moored mine shapes and instrumented bottom training mines to populate a series of permanent MIW training areas.
Threats	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. 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 not available; no dedicated supersonic threat OPFOR available. Reduces realism; inhibits tactics; increases personnel op tempo; increases O&M costs. Increase number and types of air threat OPFOR.
	Anti-Submarine (ASW)	🟡	Limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. Prohibits certain training events; reduces realism; inhibits tactics; increases personnel op tempo; increases O&M costs. Invest in additional threat OPFOR. Increase availability of submarines through the DESI and aircraft through CAS.
Scoring & Feedback System	Strike Warfare (STW)	🟡	OPAREA coverage is not complete; modeling & simulation is inadequate; no RTKN. Reduces realism; inhibits tactics; increases personnel op tempo, increases O&M costs. Expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities.
	Electronic Combat (EC)	🟡	Same as above.
	Anti-Air Warfare (AAW)	🟡	Same as above.
	Anti-Surface Warfare (ASUW)	🟡	Same as above.
	Mine Warfare (MW)	🔴	No designated mine training area with target mine shapes and instrumentation. Prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; increases personnel op tempo; increases O&M costs; provides no feedback as to effectiveness of planning tactics. Establish mine training areas with permanent inert moored and bottom mine shapes and instrumented training mines to support ULT with the full suite of Navy mine countermeasures and neutralization systems.
	Anti-Submarine (ASW)	🔴	No underwater tracking range, scoring capability, M&S, or post mission feedback. Prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel op tempo; increases O&M costs. Develop and fund east coast USWTR. Expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities.
Range Support	Strike Warfare (STW)	🟡	No web-based scheduling system with pre-event, real-time, and post-event module; prevents most efficient use of range, does not completely document range training usage or ordnance expended in range areas. A standard web-enabled scheduling and data collection system should be developed.
	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.

VACAPES Limitations Detail (Continued)

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Strike Warfare (STW)	●	Employment of Link 16 is restricted; 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; 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 evolving regulatory requirements have resulted in training restrictions that reduce training flexibility, force segmented training, and ultimately reduce training realism. While all at-sea training is impacted to some degree, impacts are most significant to integrated warfare training and, in particular, those activities using active underwater acoustic sources or in-water explosive ordnance. The Navy, in cooperation with National Marine Fisheries Service (NMFS), has developed science based protective and mitigation measures that adequately protect marine species while accommodating military readiness activities as national security requirements. The Navy continues to develop comprehensive Environmental Impact Statements and obtain appropriate permits and authorizations for its range complexes to ensure military training complies with applicable laws and regulations. Nevertheless, as in the recent past, 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 and the Endangered Species Act. Endangered species/critical habitat encroachment from North Atlantic right whale and other marine species restrictions creates avoidance areas, reduces training days, prohibits certain training events, reduces range access, segments training/reduces realism, limits application of new technologies, raises flight altitudes, reduces live fire proficiency, increases personnel tempo, and increases O&M costs. Continue education of Fleet units to adhere to the maritime protective and mitigation measures, and continue public education outreach.
	Mine Warfare (MW)	●	Same as above.
	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 encroachment affects STW by limiting targetry opportunities at DCBR, and 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)	●	Commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations. 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.

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Table 3-12 Navy Range Capability and Encroachment Assessment Comparison

Range Name	Capability Score	Encroachment Score
Atlantic City	8.93	8.33
Atlantic Test Range	7.93	8.33
AUTEC	9.86	8.33
Boston	9.29	8.0
Cherry Point	7.50	8.33
China Lake	9.82	8.13
El Centro	9.0	10.0
Fallon	6.09	8.84
Gulf of Mexico	9.31	8.60
Guantanamo	10	8.88

Table 3-12 Navy Range Capability and Encroachment Assessment Comparison (Continued)

Range Name	Capability Score	Encroachment Score
Hawaiian Islands	7.84	8.44
Jacksonville	7.61	7.50
Japan	5.45	8.28
Key West	7.50	9.09
Mariana Islands	2.80	7.54
Narragansett	7.86	8.00
NOCAL	7.33	9.58
Northwest	7.88	9.04
Okinawa	5.10	8.16
Pt. Mugu Sea Range	9.61	8.78

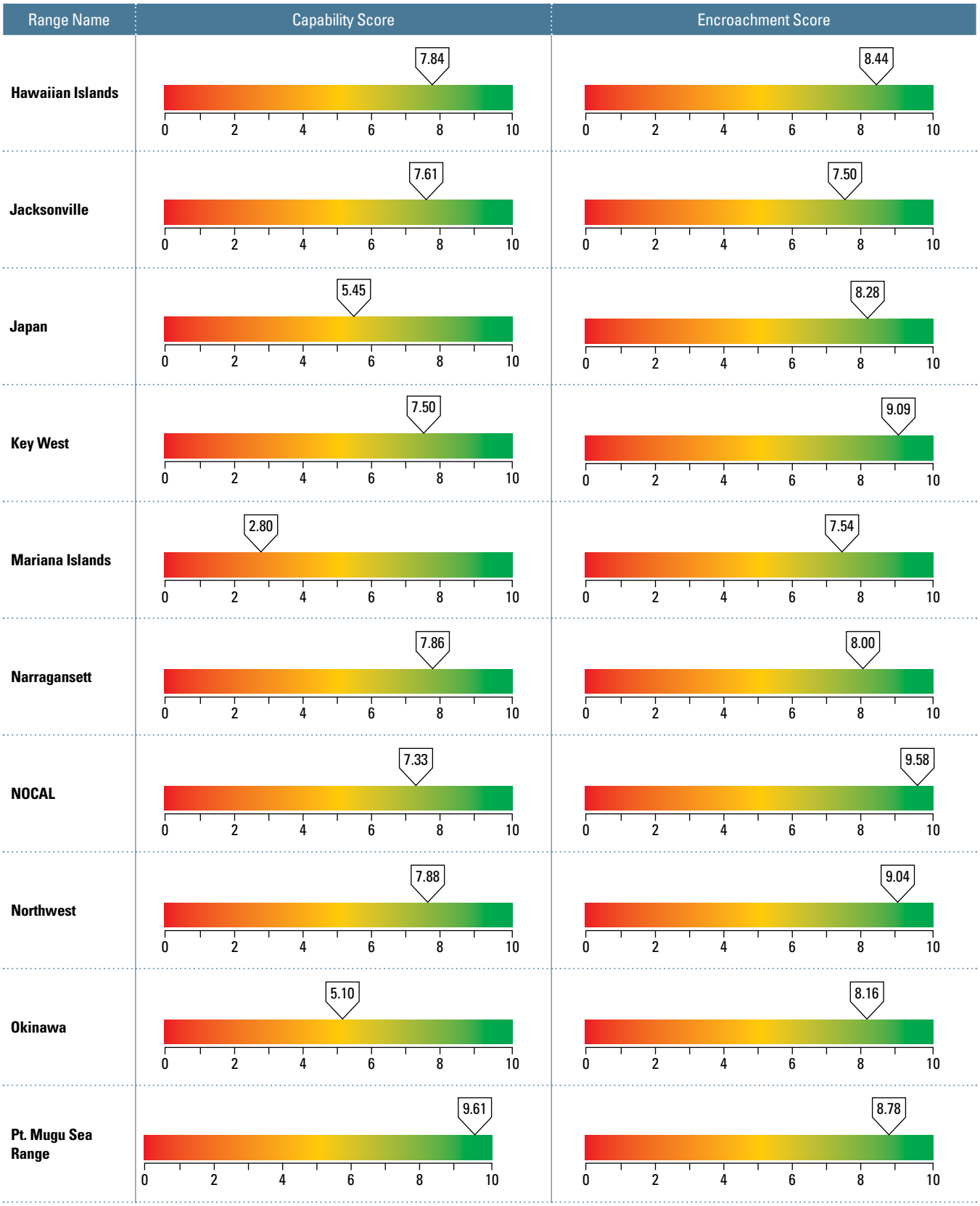
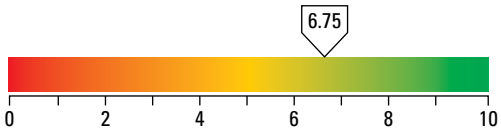
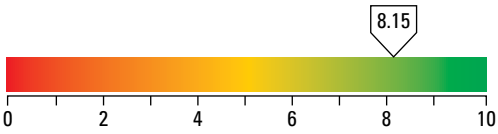
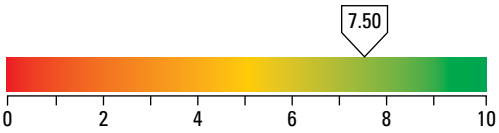
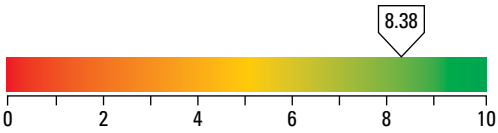


Table 3-12 Navy Range Capability and Encroachment Assessment Comparison (Continued)

Range Name	Capability Score	Encroachment Score
SOCAL		
VACAPES		

3.2.4 Air Force

Air Force Training Range Capability Assessment Results[9]

The Air Force Range Capability Assessment data from 36 Air Force range complexes are summarized and presented in Table 3-13.

- Air Force's FMC assessments (green) increased from 74% in 2009 to 81% in 2010
- PMC assessments (yellow) decreased from 22% to 16%
- NMC assessments (red) decreased from 4% to 3%
- Air Force's overall capability score increased from 8.52 to 8.91 (Figure 3-31).

The three areas with the greatest number of red and yellow (red + yellow) capability assessments were: Suite of Ranges (97+50), Threats (22+69), and MOUT Facilities (30+20) (Figure 3-35). Refer to the range specific assessments for more information.

The Air Force's 36 individual range assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-40).

Air Force Training Range Encroachment Impact Assessment Results

The Air Force Range Encroachment Assessment data from 36 Air Force range complexes are summarized and presented in Table 3-14.

- Air Force's minimal risk assessments (green) increased from 82% in 2009 to 86% in 2010
- Moderate risk assessment (yellow) decreased from 17% to 13%
- Severe risk assessments (red) reduced from 1% to 0.70%
- Air Force's overall encroachment score increased from 9.07 to 9.28 (Figure 3-32).

The three Encroachment Factors with the greatest number of red and yellow (red + yellow) impacts were: Airspace (4+77), Adjacent Land Use (7+50), and Munitions Restrictions (0+49) (Figure 3-36). Refer to the range specific assessments for more information.

The Air Force's 36 individual encroachment assessments along with comments for red and yellow ratings are included at the end of this section (Figure 3-40).

9 Of the 39 ranges in the Air Force's range inventory in Appendix C, 5 were not assessed. Adirondack, Bell Fourche ESS, and Snyder ESS were excluded in this report and will be assessed in 2011; Lone Star ESS is no longer in use by the U.S. Air Force; and Polygone is a multi-nationally operated NATO site not operated by the U.S. Air Force. Jik-do and Idesuna Jima were two ranges that were assessed but were not included in the inventory. Both are uninhabited rock islands owned by host nations with agreements allowing U.S. Air Force use.

Table 3-13 Capability Assessment Data Summary

Range	NMC	PMC	FMC	Capability Scores
Airburst	0	0	69	10.00
Atterbury	1	7	36	8.98
Avon Prk	0	7	85	9.62
Blair Lakes	0	15	39	8.61
BMGR	1	11	41	8.77
Bollen	0	19	58	8.77
Cannon	9	38	11	5.17
Claiborne	0	6	8	7.86
Dare County Ranges	0	5	56	9.59
Edwards Ranges	9	38	47	7.02
Eglin Ranges	0	37	80	8.42
Falcon	0	0	64	10.0
Grand Bay	0	5	72	9.68
Grayling	0	10	80	9.44
Hardwood	0	9	81	9.50
Holloman	4	3	86	9.41
Idesuna Jima (W-174)	8	14	2	3.75
Jefferson	0	14	67	9.14
Jik-do	4	14	6	5.42
McMullen	7	33	23	6.27
Melrose	0	0	75	10.00
Mt Home Ranges	0	0	75	10.00
NTTR	8	13	69	8.39
Oklahoma	0	16	83	9.19
Pilsung	4	11	18	7.12
Poinsett	0	5	127	9.81
Razorback	1	6	76	9.52
RIPSAW	9	22	15	5.65
Shelby Ranges	0	2	97	9.90
Siegenburg	0	4	2	6.67
Smoky Hill	1	0	65	9.85
Torishima	8	10	4	4.09
Townsend	0	4	67	9.72
UTTR	0	2	86	9.89
Waren Grove	0	3	74	9.81
Yukon	0	15	84	9.24
HQ AF	**74**	**398**	**2028**	**8.91**

Table 3-14 Encroachment Assessment Data Summary

Range	Severe	Moderate	Minimal	Encroachment Scores
Airburst	0	0	74	10.00
Atterbury	0	11	20	8.23
Avon Prk	0	11	70	9.32
Blair Lakes	0	18	48	8.64
BMGR	0	8	38	9.13
Bollen	0	15	73	9.15
Cannon	0	16	68	9.05
Claiborne	0	0	20	10.0
Dare County Ranges	0	6	60	9.55
Edwards Ranges	0	6	34	9.25
Eglin Ranges	0	45	107	8.52
Falcon	0	0	64	10.0
Grand Bay	0	3	96	9.85
Grayling	1	8	90	9.49
Hardwood	0	18	81	9.09
Holloman	0	0	121	10.00
Idesuna Jima(W-174)	2	10	5	5.88
Jefferson	1	23	73	8.71
Jik-do	9	3	24	7.08
McMullen	0	3	74	9.81
Melrose	2	0	78	9.75
Mt Home Ranges	0	0	88	10.00
NTTR	2	38	81	8.26
Oklahoma	0	27	94	8.88
Pilsung	0	7	46	9.34
Poinsett	0	2	130	9.92
Razorback	0	5	87	9.73
RIPSAW	2	25	33	7.58
Shelby Ranges	0	4	95	9.80
Siegenburg	0	4	4	7.50
Smoky Hill	0	0	88	10.00
Torishima	0	6	6	7.50
Townsend	0	9	90	9.55
UTTR	0	3	85	9.83
Waren Grove	0	4	73	9.74
Yukon	0	27	94	8.88
HQ AF	**19**	**365**	**2412**	**9.28**

Figure 3-31 Air Force Capability Chart

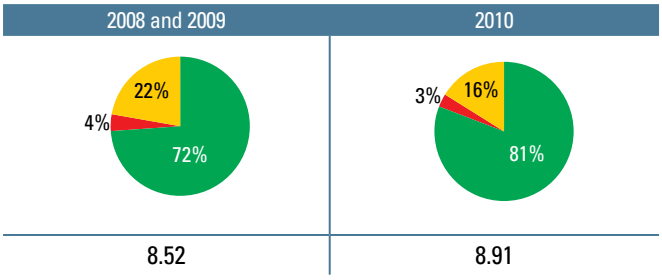


Figure 3-32 Air Force Encroachment Chart

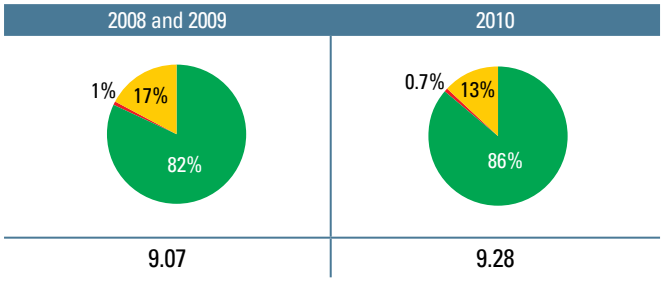


Figure 3-33 Capability Assessments by Range

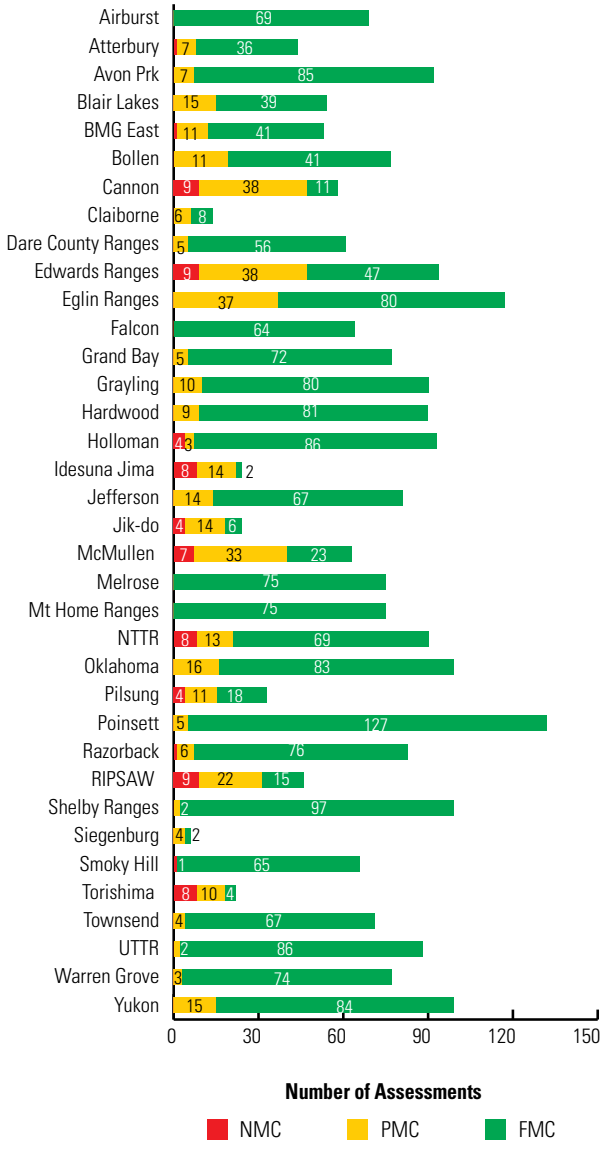


Figure 3-34 Encroachment Assessments by Range

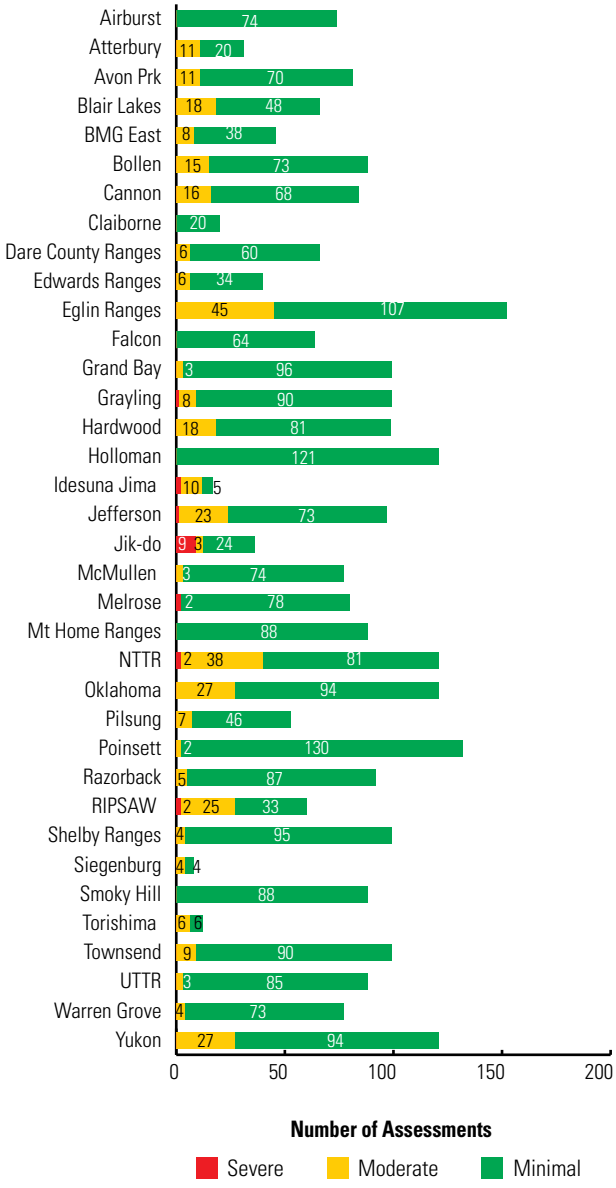


Figure 3-35 Air Force Capability Assessment by Attributes

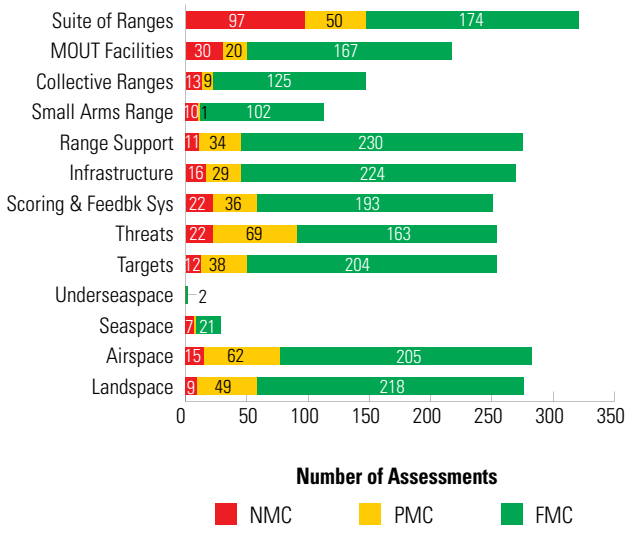


Figure 3-36 Air Force Encroachment Assessment by Factors

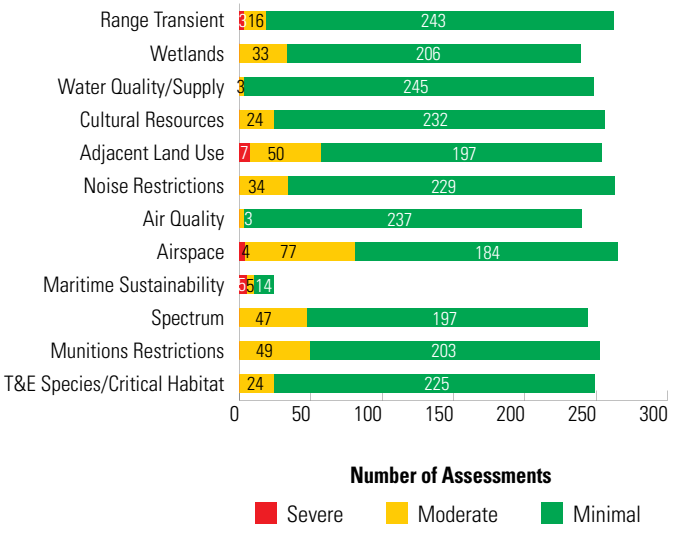


Figure 3-37 Air Force Capability Assessment by Mission Areas

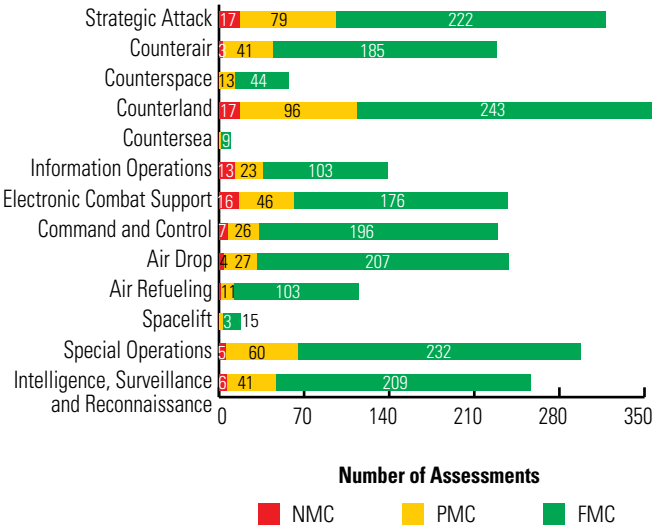
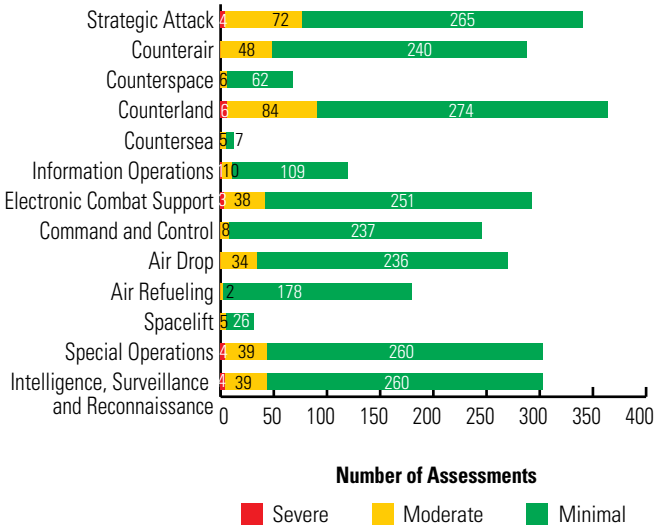


Figure 3-38 Air Force Encroachment Assessment by Mission Areas



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.

Figure 3-39 Illustration of ATCAA Relocation.

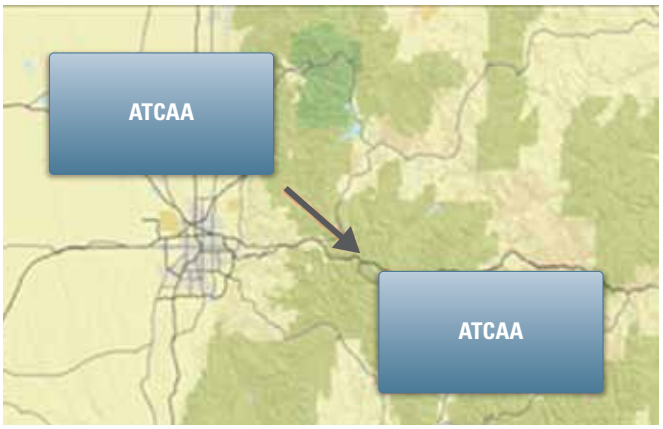


Figure 3-40 Air Force Capability and Encroachment Assessment Detail

Airburst Assessment Details

Airburst Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments

No Comments.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment

No Comments.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Atterbury Assessment Details

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	●	●			●	●	●	●	●		●	●	●

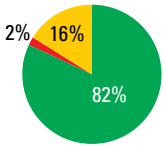
Legend: FMC ● PMC ● NMC ●

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 ●

Summary Percent Distribution



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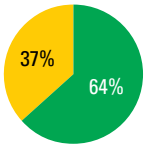
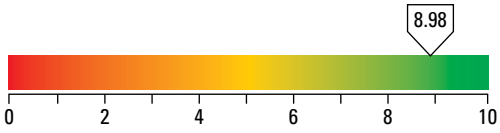
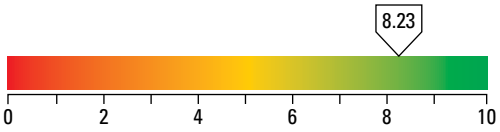


Overall Capability Score



Overall Encroachment Score



Summary Observations

Summary Observations

Atterbury Limitation Details

Capability Observations

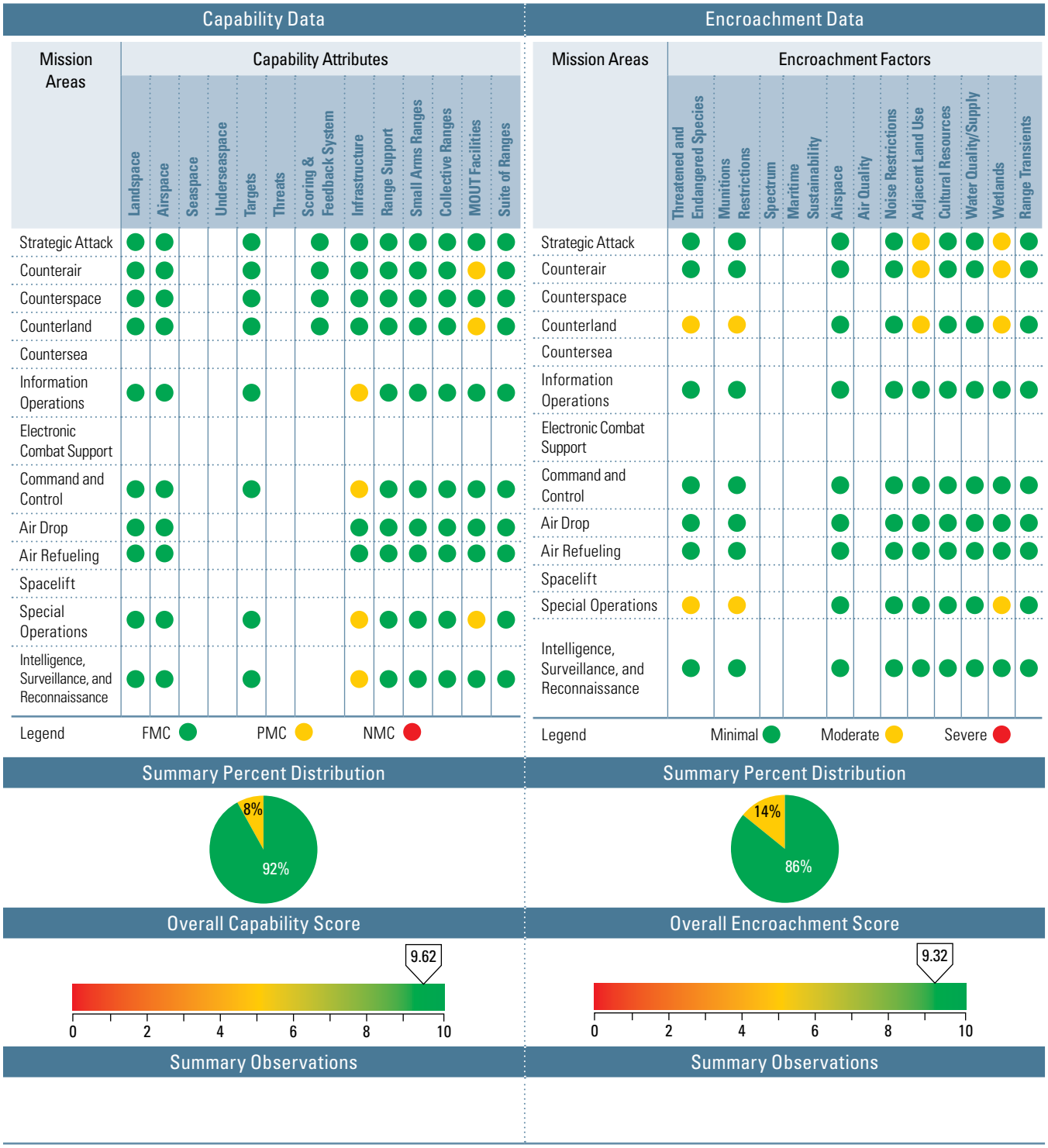
Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Counterair	🔴	No Air to Air shot scoring capability
MOUT Facilities	Strategic Attack	🟡	Under construction
	Counterland	🟡	Same as above.
	Special Operations	🟡	Same as above.
	Intelligence, Surveillance and Reconnaissance	🟡	Same 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	🟡	Same as above.
	Counterair	🟡	Same as above.
	Counterland	🟡	Same as above.
Cultural Resources	Counterland	🟡	
Water Quality/ Supply	Counterland	🟡	
Range Transients	Counterair	🟡	Occasional civilian aircraft entering airspace

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Avon Park Assessment Details



Avon Park Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Infrastructure	Information Operations	●	The lack of SIPRNet reduces capability. Range is in the process of correctly. Funding is required to resolve.
	Command and Control	●	Same as above.
	Special Operations	●	Same as above.
	Intelligence, Surveillance and Reconnaissance	●	Same as above.
MOUT Facilities	Counterair	●	Warfighters have requested a more robust MOUT site to reflect a realistic battle space commonly found in southwest Asia. Efforts are continually underway to expand and improve the north Mout site. Target material/labor funding will be needed.
	Counterland	●	Same as above.
	Special Operations	●	Same as above.

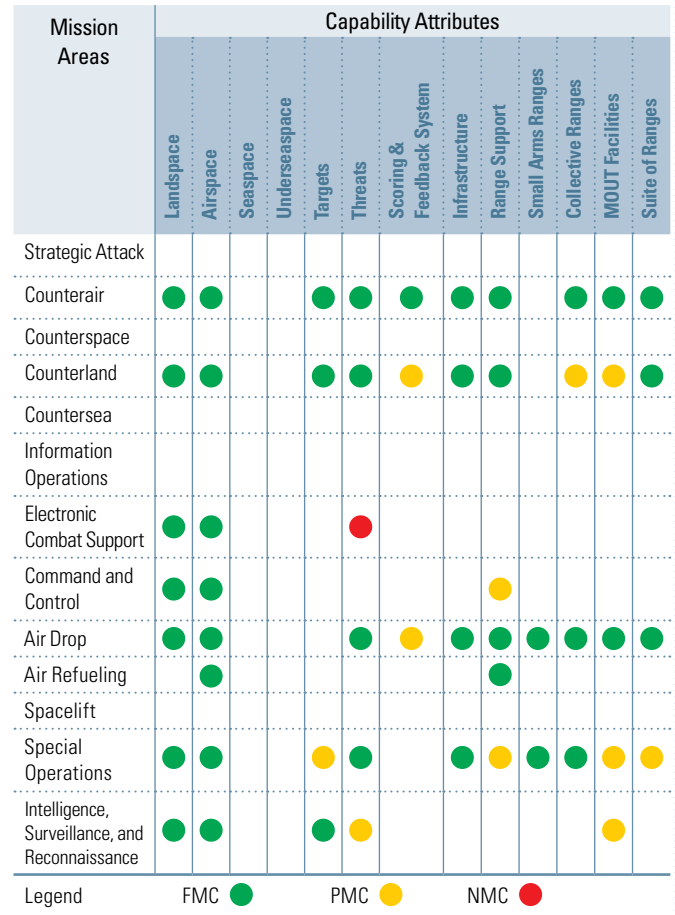
Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Counterland	●	Range has five T&E listed species. This condition will continued to be monitored IOT minimize risk and continue OPS.
	Special Operations	●	Same as above.
Munitions Restrictions	Counterland	●	Same as above.
	Special Operations	●	Same as above.
Adjacent Land Use	Strategic Attack	●	Future urban development is likely surrounding the range. JLUS will help to manage future growth. Community Planner (CP) is needed. JLUS provides a temporary CP. Long term fix is to hire a permanent CP.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
Wetlands	Strategic Attack	●	Range issues will always exist involving range wetlands. An effort to produce a range wide FONPA is being considered to minimize impact.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Special Operations	●	Same as above.

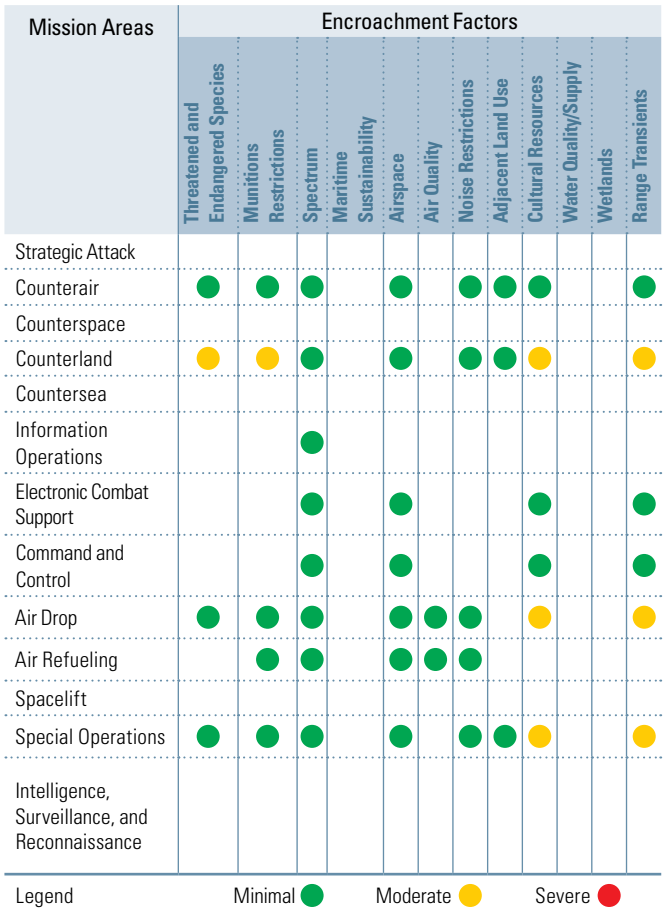
Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Barry M Goldwater Range (BMGR) Assessment Details

Capability Data



Encroachment Data



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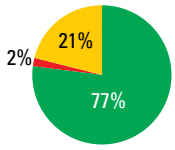

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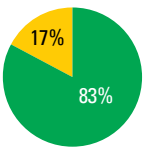
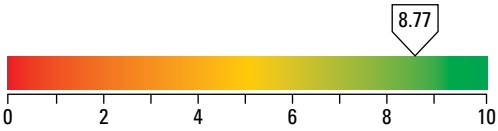
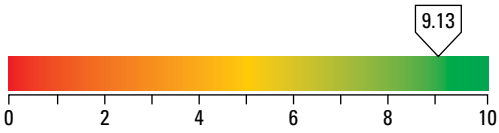


Overall Capability Score



Overall Encroachment Score



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.
2. Better fidelity MOUT facilities is the single most attribute effecting the training mission--both from a targeting perspective and a ground maneuver perspective.
3. BMGR-E primarily supports basic F-16, A-10, and AH-64 training. Based on proximity users, the range also supports units to include operational A-10; HC-130/HH-60; the Air Reserve Air Guard Test Center; and USMC Weapons and Tactics Instructor Course training. While not a core competency of the range, supporting Special Operations and like training is the most effected training area on the BMGR.

Summary Observations

1. 83% of the range/range complex mission areas are fully capable and are not impacted by encroachment factors.
2. 17% of the range/range complex missions areas are moderately impacted by encroachment factors, but are being addressed.
3. Future/different military mission requirements may be more or less impacted in the future by range transients and cultural resources. Cultural impact is prevalent given magnitude of archeological finds on range and impact is mitigated through need, assessment, and resolution. Range transient issue is sporadic based on Border Patrol effectiveness and overall flow of illegal traffic but raises concern due to lack of solid visibility downrange. Sonoran Pronghorn population increasing due in part to a joint captive breeding venture. Introduction of a second herd being proposed by USFWS; potential exist to de-list the species if herd continues to grow at current rate.
4. Solar development gaining significant interest in development on the northern border of the BMGR-E (west of Gila Bend, AZ).

Barry M Goldwater Range (BMGR) Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Targets	Special Operations	🟡	Limited targets designed for special ops (people/pop ups, *etc.*); limited opportunities for special ops and combat search and rescue. 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 2010; target area specific funding source unknown.
Threats	Electronic Combat Support	🔴	No interactive threats; limited threat generation and no electronic means for real time feedback capability to Magnum, ECM or maneuver; little to no realistic assessment to threat reaction training Plan to continue push for interactive system; spiral development of legacy UMTE system; pursue for JTE deployment to the BMGR-E
	Intelligence, Surveillance, & Reconnaissance	🟡	Limited threat generation down range limits ISR techniques; little to no realistic training opportunity. Plan to continue push electronic systems development and integration onto range complex.
Scoring & Feedback System	Counterland	🟡	No scoring on tactical ranges; aircrew are forced into air-scoring weapons impact or VTR assess. Plan to leverage an existing WISS from a manned range and relocate to a specified area in one of the tactical ranges.
	Air Drop	🟡	No scoring for air drop zones but CSAR crews require scored drops and are limited to manned ranges (due to only scoring available). Plan to leverage an existing WISS from a manned range and relocate to a specified area in one of the tactical ranges for more tactical drop applications. Currently no need/requirement to instrument DZ for 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; A/G advisory service available but ATC- like facility and positive control necessary to sustain future operations. Safety concerns for individuals on the ground; restrictions to aircrew based on low situational awareness from a C2 perspective. Planned actions include: 1. Current C2 node continues to grow in support of range and airspace opeations--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 trunked 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 down range.
	Special Operations	🟡	Limited maneuver areas and no instrumented MOUT facilities; unique ground maneuver, TTP opportunity are extremely limited. Plan to continue to develop limited MOUT facilities; Current EIS addressing small tactical team land-nav requirements (ROD expected in Spring 2010).
Collective Ranges	Counterland	🟡	Range is primarily air maneuver centric, limited opportunity to integrate full spectrum air with ground maneuver such as convoy escort. Provides limited opportunity to execute full scale TTPs. Plan to develop scenario based profiles to allow for convoy escort.
MOUT Facilities	Counterland	🟡	MOUT targets are small; not center of gravity-type areas. There is limited opportunity to engage (with weapons employment) in a realistic urban training environment. Plan to continue to build and reconfigure current target environments with more urban settings, fidelity. Current EIS addressing the addition of a 'sensor target area' that will be instrumented for electronic combat; provide different lighting schemes and high fidelity urban buildings for targeting opportunities (area will be dry only to protect investment).
	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 and results in limited utility/operational use. Plan to 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, & Reconnaissance	🟡	Same as above.
Suite of Ranges	Special Operations	🟡	Same as above.

Barry M Goldwater Range (BMGR) Limitation Details (Continued)

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/ Critical Habitat	Counterland	●	Sonoran Pronghorn antelope presence on range closes targets; slows EOD/maintenance activity. Continuing program of unique on-going assessment and avoidance measures; current Biological Opinion under review and proposed negotiation to allow for take; readdress target closure mandates; ECD spring 2010. Additional captive breeding pilot being proposed by USFWS-herd will be classified 'experimental'; should not have any operational impact to mission unless mix with existing herd and become protected.
Munitions Restrictions	Counterland	●	HEI bullets not allowed on range due to EOD and safety; limits training opportunity. Plan to consider developing an HEI only target area, contained ECD.
Cultural Resources	Counterland	●	Complex land rich in cultural artifacts; requires assessment and mitigation of each site that may or may not effect operations. Cultural resource surveys and Section 106 consultation required for most operational undertakings (outside existing/historical target sets); discovery may impact training objectives and limit scope of operations. Plan to 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; EIS is progress to address expanded land use for target placement (ROD expected in Spring 2010).
	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. Incidents lead to range closures; cease weapons expenditures. Plan to continue interaction with Customs Border Protection agents; continue research on feasibility of ground based ground detection radar systems in interest of human safety.
	Air Drop	●	Same as above.
	Special Operations	●	Same as above.

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Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Blair Lakes Assessment Details

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	PMC	PMC			FMC	PMC	FMC	FMC	FMC			FMC	FMC
Counterspace													
Counterland	PMC	PMC			FMC	PMC	FMC	FMC	FMC			FMC	FMC
Countersea													
Information Operations													
Electronic Combat Support	FMC	FMC			FMC	PMC	PMC	FMC	FMC			FMC	FMC
Command and Control													
Air Drop	FMC	PMC			FMC	FMC	FMC	FMC	FMC			FMC	PMC
Air Refueling													
Spacelift													
Special Operations	FMC	FMC			FMC	PMC	FMC	FMC	FMC			FMC	PMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			PMC	PMC	PMC	FMC	FMC			FMC	FMC

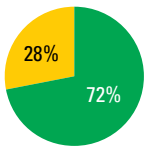
Legend: FMC, PMC, NMC

Encroachment Data

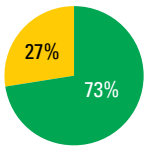
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack												
Counterair	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Counterspace												
Counterland	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Moderate	Minimal
Countersea												
Information Operations												
Electronic Combat Support	Minimal	Minimal	Moderate		Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
Command and Control												
Air Drop	Moderate	Minimal	Minimal		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Moderate	Minimal
Air Refueling												
Spacelift												
Special Operations	Minimal	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Moderate	Minimal

Legend: Minimal, Moderate, Severe

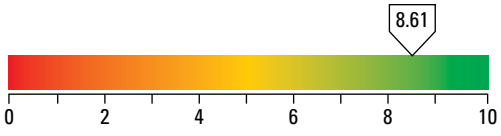
Summary Percent Distribution



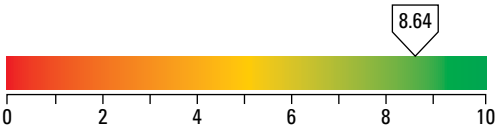
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

- Blair Lakes-R-2211 is a conventional box pattern range. It does not support Strategic Attack, Counterspace, IO, and Air Refueling operations. There are limited provisions for Joint Air/Ground Manuever operations, Special Operations part-task training, and some C4ISR.

Summary Observations

- Blair Lakes R-2211 is a conventional box pattern range only. It has limited provisions for Joint Air/Ground Manuever operations. Air space is too small for Strategic Attack, Counterspace, IO, and Air Refueling operations. There are some provisions for Special Operations Part-task training and C4ISR.

Blair Lakes Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Counterair	●	Small range limits counterair operations.
	Counterland	●	Small range limits counterland operations.
Airspace	Counterair	●	Small range limits counterair operations.
	Counterland	●	Small range limits counterland operations.
	Air Drop	●	Small airspace limits long run-ins for air land operations.
Targets	Intelligence, Surveillance, Reconnaissance	●	Year-round access limited; inhibis placement of C4ISR targets.
Threats	Counterair	●	Threats not normally emplaced on Blair Lakes.
	Counterland	●	Same as above.
	Electronic Combat Support	●	Same as above.
	Special Operations	●	Same as above.
	Intelligence, Surveillance, Reconnaissance	●	Same as above.
Scoring and Feedback System	Electronic Combat Support	●	Threats not normally emplaced on Blair Lakes; feedback infrastructures in place if threats emplaced.
	Intelligence, Surveillance, Reconnaissance	●	Feedback infrastructures in place if C4ISR assets/targets in place.
Suite of Ranges	Air Drop	●	Limited tactical airlift/airdrop capability due to limited access; some DZ's exist on army lands in surrounding land.
	Special Operations	●	Some restrictions due to real-world air/space operations.

Blair Lakes Limitation Details (Continued)

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/ Critical Habitat	Air Drop	●	Prime Moose/Wildlife habitat, Tundra
Munitions Restrictions	Counterair	●	Limited ability to host heavy-weight inert munitions. Primary munitions are: BDU-33, small arms, and 20/ 25/30mm TP.
	Counterland	●	Small range space limits full spectrum counter land operations.
Spectrum	Electronic Combat Support	●	Some restrictions due to real-world air/space operations
Airspace	Counterair	●	Relatively small restricted area for large scale exercises with multiple platforms/weapons.
	Counterland	●	Same as above.
	Electronic Combat Support	●	Same as above.
	Air Drop	●	Limited tactical airlift/airdrop capability due to limited access. Some DZ's exist on army lands in surrounding land.
	Special Operations	●	Limited tactical capability due to limited access.
Noise Restrictions	Electronic Combat Support	●	Fairbanks population near northern border of area.
Adjacent Land Use	Counterair	●	MOA and Restricted Area surounded by wetlands, sensitive forest lands, and civil airways.
	Counterland	●	Same as above.
	Electronic Combat Support	●	Same as above.
	Air Drop	●	Same as above.
	Intelligence, Surveillance, Reconnaissance	●	Same as above.
Wetlands	Counterland	●	Sensitive Tundra areas in and around range.
	Air Drop	●	Sensitive Tundra areas in and around range.
	Strategic Attack	●	Sensitive Tundra areas in and around range.

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Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Bollen Assessment Details

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

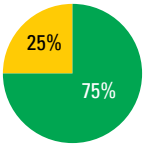
Legend: FMC, PMC, NMC

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

Summary Percent Distribution



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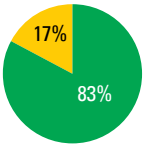
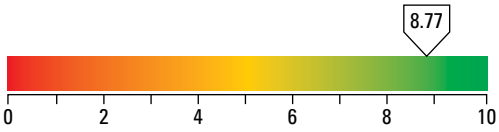
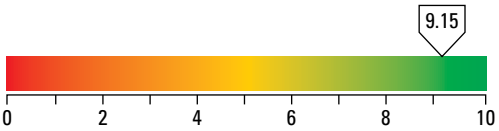


Overall Capability Score



Overall Encroachment Score



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 the 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

- See Capabilities Observations

Bollen Limitation Details

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. Need for increased 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 creates minimal training benefit. A funding request for upgrade has been made.
	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

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Airdrop	●	Protected species has prohibited personnel drops and limits ability to maintain safe drop zone.
Munitions Restrictions	Strategic Attack	●	Small landspace restricts munitions types; no planned remedy.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
Air Space	Strategic Attack	●	Small airspace limits tactics. Solution is 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	●	Missions not permitted 2300-0700L; limits night training. No planned remedy.
	Counterland	●	Same as above.
	Electronic Combat Support	●	Same as above.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Cannon Assessment Details

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	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	PMC	PMC				

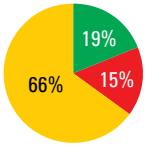
Legend: FMC, PMC, NMC

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
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	Moderate	Minimal	Minimal	Minimal	Minimal
Command and Control	Minimal		Minimal		Minimal	Minimal	Minimal	Moderate	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

Summary Percent Distribution



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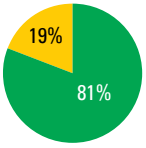
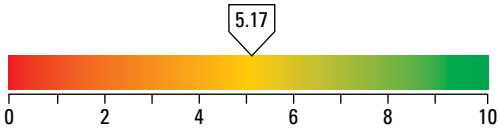
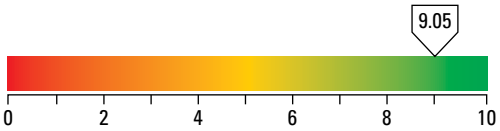


Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Cannon Range primarily provides a joint training environment for Counterland. 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 a driving factor behind many of areas rated "Yellow."
3. 85% of rated areas are fully or partially mission capable.

Summary Observations

1. 19% of the range is MODERATELY impacted by encroachment factors.
2. Adjacent Land Use is the single highest encroachment factor affecting the training mission (6 yellow responses).
3. Counterland, as the predominate range training mission, is the most affected mission area (3 yellow responses).

Cannon Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack	🟡	Adjoining land uses and infrastructure limit/preclude certain ordnance deliveries due to WDZ containment; no planned remedy.
	Counterland	🟡	Adjoining land uses and infrastructure limit/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 air drop due to vegetation, terrain, and adjacent HE impact area.
	Special Operations	🟡	Same as Counterland comment.
Airspace	Strategic Attack	🔴	Insufficient volume and attributes of airspace for large force exercises or bomber aircraft maneuver; marginal for fighter aircraft conducting strategic attack training.
	Counterland	🟡	Volume and attributes of airspace limit 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 limit some types of defensive reactions.
	Command and Control	🟡	Volume of airspace limits types of C2 aircraft which can use range airspace; other nearby airspace can accommodate Iron Triad (Lindbergh MOA/ATCAA).
	Air Drop	🟡	Volume and attributes of airspace limit tactics and ordnance.
	Special Operations	🟡	Volume and attributes of airspace limit tactics and ordnance.
	Intelligence, Surveillance, Reconnaissance	🟡	Volume of airspace limits types of ISR aircraft which can use range airspace; other nearby airspace can accommodate manned ISR. And range accommodates space-based ISR. Restricted airspace suitable for small and micro-UAS, marginal for medium UAS.
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, 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 (e.g., RWR Lite x2, Smokey SAM launchers x2).
	Counterland	🟡	Limited capability to replicate a few tactical surface-to-air threats (e.g., RWR Lite x2, Smokey SAM launchers x2). 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	🔴	Same as Strategic Attack comment
	Command and Control	🔴	No capability to provide threats effecting C2 at a level higher than JTAC/AFAC/Flt Lead.
	Air Drop	🟡	Same as Strategic Attack comment.
	Special Operations	🟡	Same as Counterland comment.
	Intelligence, Surveillance, Reconnaissance	🔴	Same as Strategic Attack comment.
Scoring & Feedback	Strategic Attack	🟡	Portion of target array is unscoreable; 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; scoreable target array will increase this FY with phase 2 and 3 of JAWSS installation.
	Counterland	🟡	Same as Strategic Attack comment
	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	🟡	Same as Strategic Attack comment
	Intelligence, Surveillance, Reconnaissance	🔴	Same as Strategic Attack comment; o substantial capability to provide feedback for ISR training.

Cannon Limitation Details (Continued)

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
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 FY05 cut off access to host US Army post, nearly eliminating joint ground force access; increases time for JTACs to reach Cannon Range and certain OPS.
	Information Operations	🟡	Limited volume of space to improve/add hardware.
	Electronic Combat Support	🟡	Same as above.
	Command and Control	🔴	Insufficient volume of space for a C2 unit to mobilize and operate out of existing buildings.
	Special Operations	🟡	Same as Counterland comment.
	Intelligence, Surveillance, Reconnaissance	🟡	No small paved runway available for small ISR platforms requiring a prepared or hard surface.
Range Support	Strategic Attack	🟡	Insufficient number of personnel to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day.
	Counterland	🟡	Same as Strategic Attack comment; UHF/VHF systems at 100% capacity, additional hardware required for mission growth.
	Information Operations	🟡	Same as Strategic Attack comment; SIPRNET consistently unreliable; limited NIPRNET bandwidth
	Electronic Combat Support	🟡	Same as Strategic Attack comment
	Command and Control	🟡	Same as Strategic Attack comment
	Air Drop	🟡	Same as Strategic Attack comment; limited personnel and equipment to handle CDS or HE air drops.
	Special Operations	🟡	Same as Strategic Attack comment
	Intelligence, Surveillance, Reconnaissance	🟡	Same as Strategic Attack comment
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 Counterland comment.
	Special Operations	🟡	Same as Counterland comment; need to add sim-round capable shoot complex; required to integrate total mission from infiltration through exfiltration with air-to-ground platforms.

Cannon Limitation Details (Continued)

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Response	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	●	Same as above.
	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, Reconnaissance	●	Same as above.
Adjacent Land Use	Strategic Attack	●	New (Jan 08) adjoining US Army Multi-Purpose Machine Gun Range (.50 cal) closes Cannon Range to all use approx. 30-60 hours/month. 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.; adjoining live fire convoy course limits minimum altitudes over a portion of the range and ground personnel locations (Range and JTAC) 20% of time.
	Electronic Combat Support	●	Same as Strategic Attack comment
	Air Drop	●	Same as Counterland comment
	Special Operations	●	Same as Counterland comment
	Intelligence, Surveillance, Reconnaissance	●	Same as Strategic Attack comment

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Claiborne Assessment Details

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	PMC	FMC	FMC	FMC				
Counterair	PMC	PMC			FMC	PMC	FMC	FMC	FMC				
Counterspace													
Counterland													
Countersea													
Information Operations													
Electronic Combat Support													
Command and Control													
Air Drop													
Air Refueling													
Spacelift													
Special Operations													
Intelligence, Surveillance, and Reconnaissance													

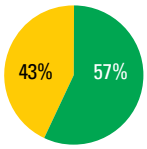
Legend: FMC, PMC, NMC

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	Minimal	Minimal				Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Counterair	Minimal	Minimal				Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Counterspace													
Counterland													
Countersea													
Information Operations													
Electronic Combat Support													
Command and Control													
Air Drop													
Air Refueling													
Spacelift													
Special Operations													
Intelligence, Surveillance, and Reconnaissance													

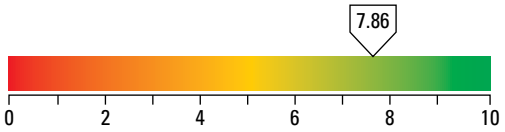
Legend: Minimal, Moderate, Severe

Summary Percent Distribution

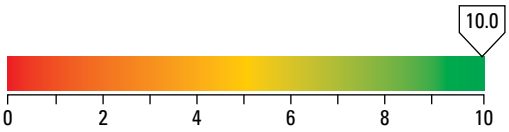


Summary Percent Distribution

Overall Capability Score



Overall Encroachment Score



Summary Observations

Summary Observations

Claiborne Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack	●	Claiborne is a small range located in a US national forest; no live weapon training is authorized. Due to the size of the range, inert JDAM or LGB weapons cannot be dropped. No additional land can be acquired; no remedy
	Counterland	●	Same as above.
Airspace	Strategic Attack	●	Same as above.
	Coutnerland	●	Same as above.
Threats	Strategic Attack	●	Range has only a RWR lite threat emitter. A-10s are the primary user and do not often use threat emitters. Secondary users are B-52s; require more robust ECM environment. Sortie durations could be greatly reduced, resulting in significant fuel savings. B-52s do not currently use range often due to limited threat emitter.
	Counterland	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
No comments.			

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Dare County Ranges Assessment Details

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	●	●			●				●		●	●	●

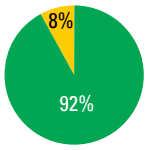
Legend: FMC ● PMC ● NMC ●

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 ●

Summary Percent Distribution



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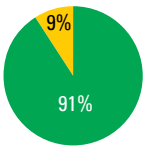
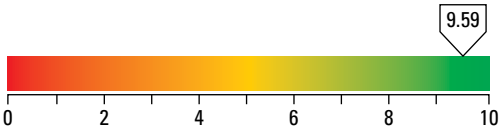
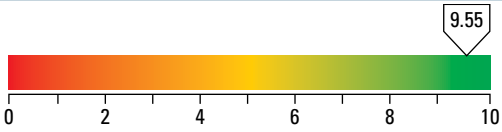


Overall Capability Score



Overall Encroachment Score



Summary Observations

Summary Observations

Dare County Ranges Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Intelligence, Surveillance, and Reconnaissance	●	UAS operation outside of restricted airspace is currently prohibited. Most urban areas available for CAS training in DCBR underly the R-5314J portion of the range which does not provide enough airspace for UAS operation. There is currently no plan in place to expand the R-5314J portion of the airspace. However, continual improvements to the DCBR impact area to simulate urban CAS will mitigate this issue. DCBR recently completed a 600' x 600' MOUT target set which is often utilized by both conventional and SOF JTACs.
Threats	Strategic Attack	●	DCBR currently has a very limited threat replication capability. We have smokey sams, and RAW lights which require the operator to visually acquire the targeted aircraft. We are currently working on an ATC/Mode-3 tracker system for the RAW lights to enable BVR engagement. ETIC: 2010.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Electronic Combat Support	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Strategic Attack	●	DCBR is home to the Red Cockaded Woodpecker (endangered species). This species has minimial impact on training, but does limit expansion or other environmentally impacting construction. The current mitigation plan is to maintain a healthy RCW population through monitoring and importing new pairs when applicable. No further mitigation is currently necessary.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
Wetlands	Strategic Attack	●	DCBR consists almost entirely of coastal wetlands. Building new target pads into the wetlands requires environmental impact studies which delay expansion. This issue is currently mitigated by making extensive use of existing target pads while upgrading older targets.
	Counterair	●	Same as above.
	Counterland	●	Same as above.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Edwards Ranges Assessment Details

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	FMC			PMC	PMC	PMC	FMC	FMC	FMC	PMC	NMC	PMC
Counterair	PMC	FMC			PMC	PMC	PMC	PMC	FMC	FMC	PMC	NMC	PMC
Counterspace									FMC				
Counterland	PMC	FMC			PMC	PMC	PMC	PMC	FMC	FMC	PMC	NMC	PMC
Countersea									FMC				
Information Operations	FMC	FMC					PMC		FMC			NMC	
Electronic Combat Support	FMC	FMC					PMC		FMC			NMC	
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC	NMC	FMC
Air Drop	FMC	FMC			FMC	PMC	FMC	FMC	FMC		FMC	NMC	FMC
Air Refueling	FMC	FMC				PMC	FMC	FMC	FMC		FMC		
Spacelift									FMC				
Special Operations	PMC	FMC			PMC	PMC	PMC	PMC	FMC	FMC	PMC	NMC	PMC
Intelligence, Surveillance, and Reconnaissance	PMC	FMC			PMC	PMC	PMC	PMC	FMC		PMC	NMC	PMC

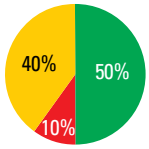
Legend: FMC, PMC, NMC

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
Strategic Attack									Severe			Minimal
Counterair		Moderate	Minimal		Minimal		Severe		Severe			
Counterspace									Severe			
Counterland			Minimal									Minimal
Countersea												
Information Operations			Moderate				Severe		Severe			
Electronic Combat Support			Moderate					Severe	Severe	Severe		Severe
Command and Control			Moderate		Minimal		Severe		Severe	Severe		Severe
Air Drop	Moderate	Severe	Minimal		Minimal	Minimal	Severe	Severe	Severe			Severe
Air Refueling												
Spacelift												
Special Operations			Minimal									
Intelligence, Surveillance, and Reconnaissance			Moderate		Minimal	Minimal	Severe		Severe			Minimal

Legend: Minimal, Moderate, Severe

Summary Percent Distribution



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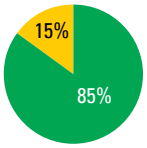
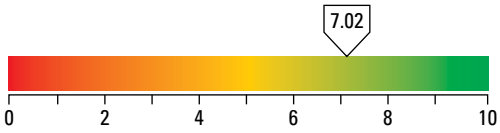
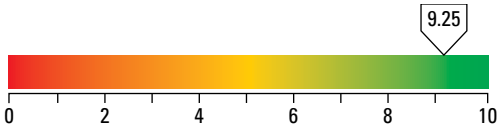


Overall Capability Score



Overall Encroachment Score



Summary Observations

This assessment addresses the capabilities of the Edwards AFB Precision Impact Range Area (PIRA) to support training activities as described in the training mission area definitions. The Edwards Flight Test Range (EFTR) to include the PIRA's primary focus and mission is the support of Test and Evaluation (T&E) with a limited capability to support training. This assessment addresses our ability to support the identified training activities with existing systems assuming no impact to the test mission or modification to the existing capabilities. It is also important to note that the EFTR does not operate as stand alone entity but as a component of the DoD Southwest Complex which includes EFTR, Ventura County NAS (Pt Mugu Sea Range), China Lake NAS, Nellis Test and Training Range, Utah Test and Training Range, White Sands Missile Range and Vandenberg AFB. At this time there are no planned actions to expand the PIRA capabilities to support the training mission. However planned improvement to the T&E infrastructure may also enhance training activities.

Summary Observations

1. 85% of the range areas are compatible and currently are not impacted by encroachment factors.
2. 15% of the range areas are moderately impacted by encroachment factors. Most of the impacts are permanent, while the remaining issues are being worked through mitigation measures.
3. In recent years, large wind and solar developments have been mandated from state and federal governments. This type of development has been proposed on lands (both private and BLM owned) surrounding our ranges. If left unaddressed, encroachment by these developments would pose constant challenges to the AFFTC mission. The impacts from vertical obstructions and radar interference would significantly affect our training/test areas, specifically the PIRA

Edwards Ranges Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack	●	The existing PIRA can support most types of counterair training activities not requiring the employment of large footprint air-to-air/ground-to-air weapons such as AIM-9 and AIM-120. However in conjunction with our DoD southwest range partners the EFTR has the necessary infrastructure to support all aspects of the counterair training mission. No planned action to expand the PIRA capabilities to support the training mission.
	Counterair	●	The existing Edwards AFB range area can support most types of counterair training activities not requiring the employment of large footprint air to air/ground to air weapons such as AIM-9 and AIM-120. However in conjunction with our DoD southwest range partners the EFTR has the necessary infrastructure to support all aspects of the counterair training mission.
	Counterland	●	The existing range area can support limited counterland training exercises. The land-space is not adequate for the employment of large footprint weapons or live fire training with some platforms such as the AC-130. However in conjunction with our DoD southwest range partners the EFTR has the necessary infrastructure to support most aspects of the mission area. No planned action to expand the PIRA capabilities to support the training mission.
	Special Operations	●	The existing range area can support limited training of Spec Ops forces. The land-space is not adequate for the employment of large force activities and is not adequate for live fire training with some Spec Ops platforms such as the AC-130. However in conjunction with our DoD southwest range partners the EFTR has the necessary infrastructure to support most aspects of the Spec Ops mission. No planned action to expand the PIRA capabilities to support the training mission.
	Intelligence, Surveillance and Reconnaissance	●	The EFTR has the capability to present both IR and visual target presentations for the purpose of testing these systems. These test arrays have some utility as training targets though probably not ideal from a war fighter perspective. No planned action to expand the PIRA capabilities to support the training mission.
Targets	Strategic Attack	●	The 412th RANS has numerous target arrays which can support aspects of the strategic attack mission area. Specific target requirements such as hardened bunkers and facilities are not available but can be built with customer funding. In addition these capabilities are available through our alliance with the other DoD southwest ranges. No planned action to expand the PIRA capabilities to support the training mission.
	Counterair	●	The EFTR can support of most types of counterair training activities not requiring the employment of large footprint air to air/ground to air weapons such as AIM-9 and AIM-120. However in conjunction with our DoD southwest range partners the EFTR has the necessary infrastructure to support all aspects of the counterair training mission. No planned action to expand the PIRA capabilities to support the training mission.
	Counterland	●	The 412th RANS has numerous target arrays which can support aspects of the counterland training mission area. Unique target requirements such as hardened bunkers, MOUT facilities, ***etc.*** are not available but can be built with customer funding or are available through our alliance with the other DoD southwest ranges. No planned action to expand the PIRA capabilities to support the training mission.
	Special Operations	●	EFTR has numerous target arrays which can be used to support aspects of the Special Operations training mission area. Unique target requirements such as hardened bunkers, MOUT facilities, ***etc.*** are not available but can be built with customer funding or are available through our alliance with the other DoD southwest ranges.
	Intelligence, Surveillance and Reconnaissance	●	The 412th RANS has the capability to present both IR and visual target presentations for the purpose of testing intel, surveillance, and reconnaissance systems. These test arrays have some utility as training targets though probably not ideal from a war fighter perspective. No planned action to expand the PIRA capabilities to support the training mission.
Threats	Strategic Attack	●	EFTR has the ability to present limited threat scenarios using ground moving targets such as armor and static airfield configurations with AAA sites. Range's command and control system/facility has the ability to generate airborne and ground threat scenarios for distribution to participants via Link-16 and SADL. EFTR does not include active threat system such as radars, Smokie SAMS, ***etc.***; these assets are available to our programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the electronic Combat Range China Lake and from other DoD southwest range partners. Users may also bring threat systems on range to meet mission requirements. No planned action to expand the PIRA capabilities to support the training mission.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Air Drop	●	Same as above.
	Air Refueling	●	Same as above.
	Special Operations	●	Same as above.
	Intelligence, Surveillance and Reconnaissance	●	Same as above.

Edwards Ranges Limitation Details (Continued)

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring and Feedback	Strategic Attack	🟡	The 412th RANS has a full array of capabilities to provide real-time scoring and feedback for the purpose of evaluating the performance of systems under test. This includes telemetry acquisition, real-time data processing and display, post test processing and playback, TSPI acquisition and display. This capability has utility as training aid though not optimized for this mission. No planned action to expand the PIRA capabilities to support the training mission.
	Counterair	🟡	Same as above.
	Counterland	🟡	Same as above.
	Information Operations	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.
	Special Operations	🟡	Same as above.
	Intelligence, Surveillance and Reconnaissance	🟡	Same as above.
Infrastructure	Counterair	🟡	The 412th RANS has the necessary infrastructure to support the test and evaluation of systems within the Airframe Power plant and Avionics mission area. This capability may have some utility as training aid though probably not ideal from a war fighter perspective. No planned action to expand the PIRA capabilities to support the training mission.
	Counterland	🟡	Same as above.
	Special Operations	🟡	Same as above.
	Intelligence, Surveillance and Reconnaissance	🟡	Same as above.
Collective Ranges	Strategic Attack	🟡	The 412 RANS has a limited capability to support the requirements for each level of training due to limited land area and the T&E mission priority. Collective range lay down is based on supporting T&E data gathering activities verses specific training scenarios. Many of the assets not available at the EFTR are available through our alliance with the other DoD southwest ranges. No planned action to expand the PIRA capabilities to support the training mission.
	Counterair	🟡	Same as above.
	Counterland	🟡	Same as above.
	Special Operations	🟡	Same as above.
	Intelligence, Surveillance and Reconnaissance	🟡	Same as above.
MOUT Facilities	Strategic Attack	🔴	MOUT capability does not currently exist on EFTR but is available through our Alliance partnerships with the other southwest ranges (Nellis & China Lake). EFTR is evaluating a future I&M effort to build a MOUT capability to satisfy unique test requirements. No planned action to expand the PIRA capabilities to support the training mission.
	Counterair	🔴	Same as above.
	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 and Reconnaissance	🔴	Same as above.

Edwards Ranges Limitation Details (Continued)

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Suite of Ranges	Strategic Attack	●	The 412 RANS has a limited capability to support the requirements for each level of training due to limited land area and T&E mission priorities. Range lay down is based on supporting T&E data gathering activities verses specific training scenarios. Many of the assets not available at the EFTR are available through our alliance with the other DoD southwest ranges. No planned action to expand the PIRA capabilities to support the training mission.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Special Operations	●	Same as above.
	Intelligence, Surveillance and Reconnaissance	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Air Drop	●	Desert tortoise presurveys may be required prior to ground disturbing activities. Stress to resources: labor, time, and financial. No remedy to date.
Munitions Restrictions	Counterair	●	The base has established a weapons test safety footprint that could extend beyond the Precision Impact Range Area using REPI. This area is a concern and the base would like to prevent encroachment by developers. The base is using REPI to attempt to mitigate via purchase or lease lands in this area of concern.
Spectrum	Information Operations	●	AFFTC impacts to spectrum require increase in both bandwidth and data links. AFFTC is currently: creating avoidance areas to reduce usage times/days, reducing range access, and increasing personnel tempo at an increase to cost and risk due to increase in UAS requirements.
	Electronic Combat Command	●	Same as above.
	Command and Control	●	Same as above.
	Intelligence, Surveillance, and Reconnaissance	●	Same as above.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Eglin Ranges Assessment Details

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	Y	Y	G	G	G	Y	Y	Y	G	G	G	Y	Y
Counterair	G	G	G		G	Y	Y	Y	G		G	Y	Y
Counterspace	G	Y	Y		Y	Y	G	G	G				
Counterland	Y	G	G		G	Y	Y	Y	G	G	G	Y	Y
Countersea	G	G	G	G	Y	G	G	G	G				
Information Operations	G	G	G		Y		Y	Y	G				
Electronic Combat Support	G	G	G		G	Y	G	G	G		G		G
Command and Control	Y	G	G		G	G	G	G	G			Y	Y
Air Drop	G	G	G			G	G	G	G				
Air Refueling	G	G	G					G	G				
Spacelift	Y	G	G				G	Y	Y				
Special Operations	Y	Y	G		G	G	G	G	G	G	G	Y	Y
Intelligence, Surveillance, and Reconnaissance	G	G	G		G	G		G	G				

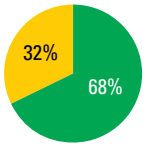
Legend: FMC (G) PMC (Y) NMC (R)

Encroachment Data

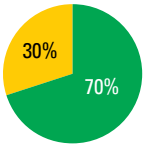
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Y	G	Y	Y	Y	G	Y	Y	G	G	G	G
Counterair	Y	G	Y	Y	Y	G	G	G	G	G	G	G
Counterspace	Y	G	Y	Y	Y	G	G	G	G	G	G	G
Counterland	Y	G	Y		Y	G	Y	Y	Y	G	Y	G
Countersea	Y	Y	Y	Y	Y	G	G	G	G	G	G	G
Information Operations	G	G	Y	G	G	G	G	G	G	G	G	G
Electronic Combat Support	G	G	Y	G	G	G	G	G	Y	G	G	G
Command and Control	G	G	Y	G	G	G	G	G	Y	G	G	G
Air Drop	G	G	Y	G	G	G	G	G	G	G	G	G
Air Refueling	G	G	G	G	G	G	G	G	G	G	G	G
Spacelift			G		Y	G	Y	Y	Y	G	Y	G
Special Operations	Y	Y	Y	Y	G	G	G	G	Y	G	Y	G
Intelligence, Surveillance, and Reconnaissance	G	G	Y	G	G	G	G	G	G	G	Y	G

Legend: Minimal (G) Moderate (Y) Severe (R)

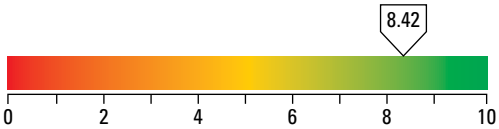
Summary Percent Distribution



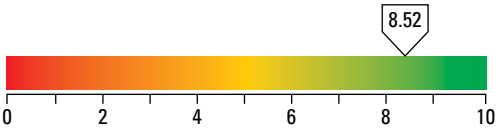
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Although there are no "red" areas under Capabilities Assessment and approximately 68% of attributes are "green"; Threats, Infrastructure, MOUT Facilities, and Suite of Ranges are the primary attribute areas that restrict the Range's test and training capability.
2. Strategic Attack is the Mission Area most affected, with 7 of the Capability Attributes graded "yellow" due to one or more restrictions.
3. Projected status should remain relatively stable in most areas, with some improvement in the MOUT Facilities and Suite of Ranges areas as more 7SFG(A) facilities are constructed.

Summary Observations

1. Although there are no "red" areas, and 70% are graded "green;" Spectrum, T&E Species, and Airspace are the factors most frequently graded "yellow."
2. Counterland is the Mission Area most affected.

Eglin Ranges Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack	●	Inadequate landspace to conduct some large footprint weapons; require flight termination systems or release over Eglin's water range. A Next Generation proposal for a remote impact area in a sparsely populated area near the Florida coast is being reviewed for resubmission; would provide a large water-to-land corridor enabling overwater launch and subsequent land impact of almost any long range standoff weapon in development or in the inventory.
	Counterland	●	Available landspace to conduct large footprint weapons reduced by siting of BRAC-directed 7SFG(A) support facilities near center of range; fewer long range standoff weapons can be dropped overland without flight termination systems, or they must be released over Eglin's water range. No planned action; EIS has been completed and Record of Decision has been signed.
	Command and Control	●	Premier Test and Training site (D-84) used by 728 TCS for Command and Control training prior to war-zone deployment closed due to local cultural resource and SHPO "re-evaluation" of initial data recovery efforts at the site. No planned action; attempts to date to obtain another review of this administrative action have been rebuffed and no "workarounds" have been proposed by the Cultural Resources office.
	Spacelift	●	Launch locations are limited by resources required, e.g., serviceable roads, utilities, and size of ground area required. All potential launch sites will be evaluated for existing infrastructure and improvements/ changes will be funded by the proponent.
	Special Operations	●	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. No planned action.
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 causing 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. 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.
	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. No planned action; Pacific Missile Range can be used for very large scale counterspace operations.
	Special Operations	●	Same as Landspace Special Operations comment
Seaspace	Counterspace	●	Same as Airspace Counterspace comment
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. No planned action.
	Countersea	●	No undersea targets available except those provided by test and training customers for specific programs; customers must provide their own undersea targets and instrumentation. Land and sea targets are available. No planned action
	Information Operations	●	Same as above.
Threats	Strategic Attack	●	SRI has numerous EC emitters, but few are representative of those faced by our forces; also range lacks OPFOR capability; battlefield effects simulators. No current program to upgrade existing EC emitters or acquire training threat simulators.
	Counterair	●	Same as above.
	Counterspace	●	Same as above.
	Counterland	●	Same as above.
	Electronic Combat Support	●	Same as above.

Eglin Ranges Limitation Details (Continued)

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Scoring & Feedback System	Strategic Attack	●	Scoring and feedback systems inadequate to support certain training and exercise operations; 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. 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 and lack of targets; limits scope of mission debriefing capabilities. No planned action.
Infrastructure	Strategic Attack	●	Inadequate facilities to support deployed assets; need exercise support facility
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Information Operations	●	Same as above.
	Spacelift	●	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. No planned action; current facilities sufficient to date.
Range Support	Spacelift	●	Same as Infrastructure Spacelift comment.
MOUT Facilities	Strategic Attack	●	No certified joint MOUT facility with adjacent ground maneuver areas is available; inability to perform maneuver and MOUT operations on a joint certified training area hampers effective joint training operations. 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.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Command and Control	●	Same as above.
	Special Operations	●	Same as above.
Suite of Ranges	Strategic Attack	●	Same as MOUT Facilities Strategic Attack comment
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Command and Control	●	Same as above.
	Special Operations	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
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; would restrict AFSOC overwater training munitions expenditures and the release of munitions during test missions over EGTR. Plan to continue to provide Mission Impact data to decision makers.
	Counterair	●	Same as above.
	Counterspace	●	Same as above.
	Counterland	●	Existence of several 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; restricts use of some land areas and littorial/riverine areas for the use of some a/c, munitions, and targets; as well as land/water training maneuvers. Plan to 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.
	Countersea	●	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; would restrict certain operations over the EGTTR, including those that were designed/intended for countersea operations. Plan to 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.
	Special Operations	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Countersea		Same as T&E Countersea comment
	Special Operations		Same as above.
Spectrum	Strategic Attack		Constraints placed on training/testing due to unavailability of, or interference with, required electromagnetic spectrum. All frequencies shall be scheduled for de-confliction to prevent RFI to its users.
	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		Same as above.
	Intelligence, Surveillance, 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; high explosive restrictions limit type of training and testing; increased civilian boat traffic makes it more time consuming to clear large areas for large footprint weapons releases. Plan to work with EGTTR customers to ensure updated Mission Impact Analyses are provided to OSD 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.
	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 restricts the use of certain operations over the EGTTR and in littoral/riverine areas, including those that were designed/ intended for Special Operations. Plan to 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.
Airspace	Strategic Attack		Increasing pressures for off-shore oil and gas exploration and production, growing civilian air transportation activities in the area, increased UAS ops from 7th SFG(A), and increased traffic/mission ops from JSF training resulting in 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. Plan to work with EGTTR customers to ensure updated Mission Impact Analyses are provided to OSD 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.
	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 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. 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.
	Countersea		Same as Airspace Strategic Attack comment
	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. No planned action.

Eglin Ranges Limitation Details (Continued)

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
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; proximity of the 7th SFG live-fire ranges to populated areas may cause public noise complaints. 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.
	Counterland	●	Low level routes and overwater approaches to the land range result in occasional noise complaints; 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. 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.
	Spacelift	●	Noise related to space launch activities may affect local communities and public sentiment might not support space launches if the noise levels were very high and on a frequent basis. 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.
Adjacent Land Use	Strategic Attack	●	Limited flight access for armed weapons systems reduces flexibility of making realistic water-to-land transitions with armed weapons systems or allowing water-to-land transitions by long range standoff weapons. 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; 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.
	Counterland	●	Urban sprawl, land use conversion from agriculture to residential, and new transportation corridors (on and off Eglin) can restrict future military operations on periphery of the Range. Plan to develop 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.
	Spacelift	●	Same as Noise Reduction Spacelift comment
Cultural Resources	Counterland	●	Known and suspected cultural resource sites along coast and in the interior of the land Range 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. 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 process to ensure the Cultural Resources office understands the full mission impact of blanket designations of suspected cultural resource sites and historical buildings.
	Electronic Combat Support	●	Premier Test and Training Site D-84 has been closed to further development due to a re-evaluation of the findings of the formal report by the local Cultural Resources office and the SHPO. The report had been used in the past to relax many of the restrictions, formerly levied on the site, before the extent and value of the site had been studied. No planned action; all attempts to date to obtain another review of this administrative action have been unsuccessful and no "workarounds" have been proposed by the Cultural Resources office.
	Command and Control	●	Premier Test and Training site (D-84) used by 728 TCS for Command and Control training prior to war-zone deployment closed due to local cultural resource and SHPO "re-evaluation" of initial data recovery efforts at the site. No planned action; attempts to date to obtain another review of this administrative action have been rebuffed and no "workarounds" have been proposed by the Cultural Resources office.
	Spacelift	●	Known and suspected cultural resource sites along coast and in the interior of the land Range could impact selection of launch location, especially on Santa Rosa Island. 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.
	Special Operations	●	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. 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.
Wetlands	Counterland	●	Land use restrictions in or near wetlands affect aircraft, munitions, and target; as well as land maneuvers. 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.
	Spacelift	●	Wetlands along the coast and in the interior of the land range would impact selection of launch location, especially on Santa Rosa Island. 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.
	Special Operations		Same as Counterland comment
	Intelligence, Surveillance, Reconnaissance	●	Same as Counterland comment

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Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Falcon Assessment Details

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	●	●			●	●	●	●	●			●	

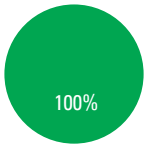
Legend: FMC ● PMC ● NMC ●

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	●	●			●	●	●	●		●		●

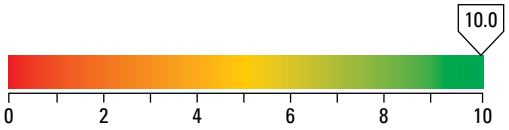
Legend: Minimal ● Moderate ● Severe ●

Summary Percent Distribution



Summary Percent Distribution

Overall Capability Score



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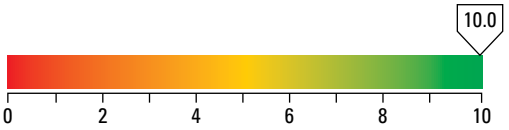


Summary Observations

- Falcon Range supports fixed-wing and helicopter operations and training as well as UAS platforms, Close Air support, SPEC OPS, NATO FTS training, Intelligence Surveillance and reconnaissance (ISR) validation, as well as air drop missions. Small arms range and personnel drop zones are in the approval stages to enhance training capabilities for SPEC OPS. A MOUT facility as well as a laser training area (Royville) with LES-M and LSTSS scoring systems round out the training spectrum. Night lighting (cover and overt) is available for targets and/or MOUT facilities upon request. A remote controlled vehicle serves as a moving target for CAS and aircrew training realism.

Summary Observations

Falcon Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments

No Comments.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment

No Comments.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Grand Bay Assessment Details

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	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	PMC
Counterair	FMC	FMC			FMC	FMC	FMC	FMC	FMC				FMC
Counterspace													
Counterland	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	PMC
Countersea													
Information Operations													
Electronic Combat Support	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	PMC
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	PMC
Air Drop	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Air Refueling	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	PMC

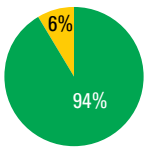
Legend: FMC, PMC, NMC

Encroachment Data

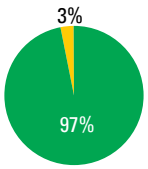
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Severe	Minimal
Counterair	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterspace												
Counterland	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Severe	Minimal
Countersea												
Information Operations												
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	Moderate	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

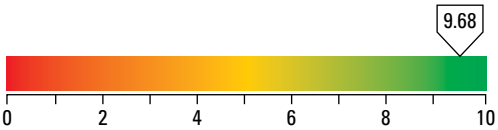
Summary Percent Distribution



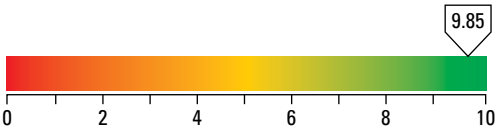
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. While Grand Bay Range is of limited size, it meets all requirements as a Basic Surface Attack range. Base officials are studying acquiring or the ability to use adjacent land by lease or easement. The range staff has made improvements and pattern adjustments for better tactical employment. The staff has also procured training assets not normally seen at larger ranges such as a moving target and realistic, full sized threats with IR signatures. In addition, internal changes to our airspace structure are being studied and/or pursued in an effort to better meet tactical training needs.

Summary Observations

1. Overall the range and airspace assets at Moody AFB meet current training requirements; however, Valdosta and the surrounding area is experiencing significant growth and development and there are associated concerns regarding mission impact. Base officials are engaged with the local communities in an effort to manage growth in a positive manner for the community but not present an adverse impact on Moody AFB. Acquisition of additional land *via* purchase or lease is being studied to protect and maintain the utility of the range for munitions releases and low level and tactical operations, as well as the transit routes to nearby military operating airspace. The base is working with local officials and community leaders on zoning actions and construction requirements to alleviate impact of construction and development through the JLUS program.

Grand Bay Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Suite of Ranges	Strategic Attack	●	Grand Bay Range is the only range immediate to Moody AFB, however land areas surrounding Moody and underneath is MOAs are sparsely populated and can be used to meet this area. Sometimes require the scheduling of other ranges/airspace in conjunction with local training exercises, however Townsend , Pinecastle, and Avon Park ranges are within acceptable operating distance. Moody has adequate airspace for currently assigned assets to meet training needs.
	Counterland	●	Grand Bay Range can support some ground training. Grand Bay cannot support large force or force on force training. Due to limited range size, ground movement in conjunction with air to ground operations are limited. Base officials are studying the possibility of using or acquiring adjacent land or other land areas in the surrounding community for ground training purposes.
	Electronic Combat Support	●	Grand Bay Range has basic electronic warfare and visual threat simulators and can deployed them within a 100 mile radius of the base. Fully capable jamming systems are not available. Grand Bay Range cannot give aircrews feedback on threat jamming, evasion, or maneuver effectiveness. No requirement for such systems based on currently assigned assets has been identified.
	Command and Control	●	Range not equipped with command and control equipment; due to the close proximity to Moody AFB airspace, command and systems installed at Moody may meet this requirement. Moody's restricted area airspace has been used to support small UAS training and operations.
	Intelligence, Surveillance, Reconnaissance	●	Not identified as a requirement that needs local range or airspace support. If the need arise, Moody AFB officials will study current capabilities of it training space. Moody does have restricted airspace that could support some UAS/directed energy training. Willingness of local communities to support air and ground training surrounding Moody AFB will help meet any requirements identified.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened and Endangered Species	Counterspace		N/A— Training of this nature not normally conducted at Grand Bay Range
	Countersea		N/A— Training of this nature not normally conducted at Grand Bay Range
	Spacelift		N/A— Training of this nature not normally conducted at Grand Bay Range
Adjacent Land Use	Air Drop	●	Aircrews have adjusted pattern in response to noise complaints from housing developments north of the base. Continued growth in that area will further impact airdrop operations. Base officials are researching development of a "slow route" that will spur an FAA aeronautical study regarding some types of contraction. The route will also be indicated on aeronautical maps that developers sometimes use for determining building locations. Base officials are deeply involved with the local community via the JLUS program to manage growth and encroachment around Moody AFB and its training spaces and are also seeking to procure or lease additional land adjacent to the range to expand training capability and protect from future encroachment.
Wetlands	Strategic Attack	●	Wetlands prevent use of land without environmental coordination. Grand Bay Range has a large amount of wetlands within its boundaries. Environmental actions have allowed use where consultation has be sought.
	Counterland	●	Same as above.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Grayling Assessment Details

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	FMC	FMC			FMC	PMC	FMC	FMC	PMC		FMC	FMC	FMC
Counterair	FMC	FMC			FMC	FMC	FMC	FMC	FMC		FMC		FMC
Counterspace													
Counterland	FMC	PMC			PMC	FMC	FMC	FMC	PMC	FMC	FMC	FMC	PMC
Countersea													
Information Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC				FMC
Electronic Combat Support	FMC	PMC			FMC	FMC	FMC	FMC	FMC				FMC
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	FMC				FMC
Air Drop	FMC	FMC			FMC	FMC	FMC	FMC	FMC				FMC
Air Refueling	FMC	FMC			FMC	FMC	FMC	FMC	FMC				FMC
Spacelift													
Special Operations	FMC	PMC			FMC	FMC	FMC	FMC	PMC	FMC	FMC	FMC	PMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC

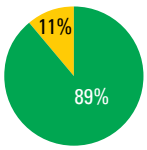
Legend: FMC, PMC, NMC

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
Strategic Attack	Minimal	Minimal	Minimal		Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal
Counterair	Minimal	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterspace												
Counterland	Minimal	Minimal	Minimal		Severe	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal
Countersea												
Information Operations												
Electronic Combat Support	Minimal	Minimal	Minimal		Moderate	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		Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

Summary Percent Distribution



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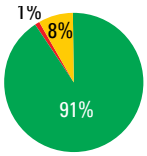
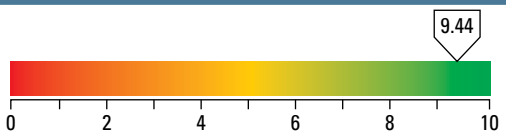
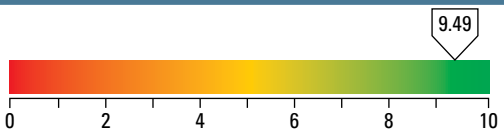


Overall Capability Score



Overall Encroachment Score



Summary Observations

Summary Observations

Grayling Limitation Details

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	🟡	Next generation weapons systems require more up to date threat simulators and the landspace to properly place them within the airspace. JTE deployment should solve issue.
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	🟡	New weapons systems have increased footprint or safety zones. This increase footprint size makes it difficult to train or employ to full capability of the weapon system based on range airspace size.
	Special Operations	🟡	New weapons systems have increased footprint or safety zones. This increase footprint size makes it difficult to train or employ to full capability of the weapon system based on range airspace size.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Airspace	Strategic Attack	🟡	Airspace is limited in size based on older aircraft and their capabilities. Currently working an airspace 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 airspace 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 airspace 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 airspace 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 airspace 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 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Hardwood Assessment Details

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	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
Electronic Combat Support	FMC	PMC			FMC	PMC	FMC	FMC	FMC				FMC
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	FMC				FMC
Air Drop	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

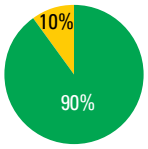
Legend: FMC, PMC, NMC

Encroachment Data

Mission Areas	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	Moderate	Minimal	Minimal	Minimal	Moderate	Moderate
Counterair	Minimal	Minimal	Moderate		Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal
Counterspace												
Counterland	Minimal	Minimal	Minimal		Moderate	Minimal	Moderate	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

Summary Percent Distribution



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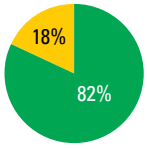
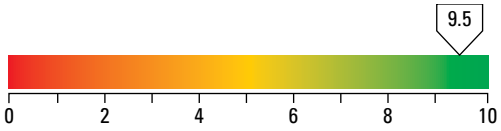
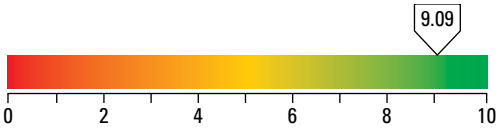


Overall Capability Score



Overall Encroachment Score



Summary Observations

- Airspace, Threats, Range Support, Suite of Ranges
- Strategic Attack, Counterland

Summary Observations

- Airspace, Noise Restrictions, Wetlands, Range Transients and Spectrum
- Strategic Attack

Hardwood Limitation Details

Capability Attributes

Attributes	Assigned Training Mission	Score	Comments
Airspace	Strategic Attack	●	Airspace is limited by lateral and vertical limits. It is adequate to accomplish most of the training required, but does restrict a small portion of the training. Supersonic flight is not authorized within the current airspace. Airspace rework is underway to meet the needs of future aircraft and should be accomplished by 2011.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Electronic Combat Support	●	Same as above.
Threats	Strategic Attack	●	Next generation weapons systems require more up to date threat simulators and landspace to properly place them within the airspace. Currently working to acquire more threats and developing agreements to place the threats within the current airspace.
	Counterair	●	Same as above.
	Electronic Combat Support	●	Same as above.
Range Support	Strategic Attack	●	Hardwood range is one of the least manned ranges throughout the NGB. Current mission types and requirements for fire support, ***etc.*** have forced creative scheduling. Current training requires approximately 40% to be at night, which has driven the range to cover more time with less personnel. Currently NGB is doing a range manpower survey and Hardwood hopes to gain personnel.
	Counterland	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
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	●	Same as above.
	Electronic Combat Support	●	Same as above.
Airspace	Strategic Attack	●	Airspace is limited in size based on older aircraft and their capabilities; expansion is difficult based on the location between two large civilian airports and their associated arrival and departure routes. Currently working an airspace review to re-work the airspace to meet the needs of current and future aircraft.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Electronic Combat Support	●	Same as above.
Noise Restrictions	Strategic Attack	●	Mission types have driven the type of training needed to more populated areas; this affects the altitude training that can be accomplished. Training for future aircraft requires the need for supercruise airspace; current airspace is only subsonic. This will be addressed in the airspace re-work.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
Wetlands	Strategic Attack	●	The range is located in an area of large quantities of wetlands; restrictions have affected ability to contract complete firebreaks, the placement of new targets, ***etc.*** Planning new target development around wetlands on the range in cooperation with natural resource advisory.
	Counterland		Same as above.
	Electronic Combat Support	●	Same as above.
	Special Operations	●	Same as above.
Range Transients	Strategic Attack	●	The range boundaries are open, but marked appropriately for the activities taking place. The number of transients across the range has increased with more ATV-type vehicles. An effort to fence the entire range is underway, and public is continually advised of activities taking place trough ATV clubs ***etc.***
	Counterland	●	Same as above.
	Electronic Combat Support	●	Same as above.
	Special Operations	●	Same as above.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Holloman Assessment Details

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	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	PMC		FMC	FMC

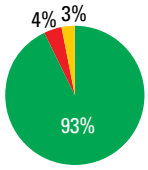
Legend: FMC, PMC, NMC

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
Strategic Attack	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterair	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterspace	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
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												
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

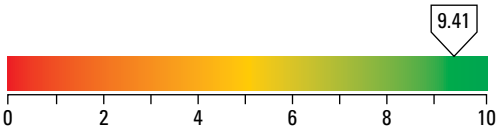
Legend: Minimal, Moderate, Severe

Summary Percent Distribution

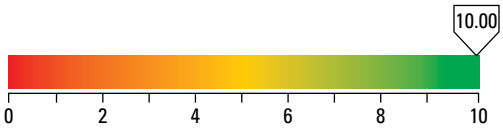


Summary Percent Distribution

Overall Capability Score



Overall Encroachment Score



Summary Observations

Summary Observations

Holloman Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Threats	Electronic Combat Support	🔴	No electronic combat support; no training capability; no fix planned at this time.
Scoring and Feedback System	Electronic Combat Support	🔴	No electronic combat support; no training capability; no fix planned at this time.
	Command and Control	🟡	Awaiting Link 16 installation; limited training capability; Link 16 install FY10.
Infrastructure	Electronic Combat Support	🔴	No electronic combat support; no training capability; no fix planned at this time
	Command and Control	🟡	Awaiting Link 16 installation; limited training capability; Link 16 install FY10.
Range Support	Electronic Combat Support	🔴	No electronic combat support; no training capability; no fix planned at this time
	Command and Control	🟡	Awaiting Link 16 installation; limited training capability; Link 16 install FY10.

Encroachment Factors

Factors	Assigned Training Mission	Score	Comment

No Comments.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Idesuna Jima Assessment Details

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	NMC	FMC		PMC	PMC	NMC	NMC	PMC			NMC	PMC
Counterair		PMC				PMC							
Counterspace													
Counterland	PMC	NMC	FMC		PMC	PMC	NMC	NMC	PMC			NMC	PMC
Countersea													
Information Operations													
Electronic Combat Support	PMC					PMC							
Command and Control													
Air Drop													
Air Refueling													
Spacelift													
Special Operations													
Intelligence, Surveillance, and Reconnaissance													

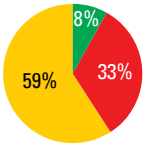
Legend: FMC, PMC, NMC

Encroachment Data

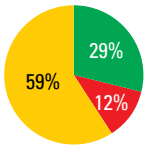
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack		Minimal	Minimal		Moderate		Minimal	Severe	Minimal			Moderate
Counterair					Moderate		Minimal					
Counterspace												
Counterland		Minimal	Minimal		Moderate		Minimal	Severe	Minimal			Moderate
Countersea												
Information Operations												
Electronic Combat Support			Moderate									
Command and Control												
Air Drop												
Air Refueling												
Spacelift												
Special Operations												
Intelligence, Surveillance, and Reconnaissance												

Legend: Minimal, Moderate, Severe

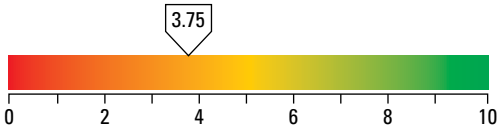
Summary Percent Distribution



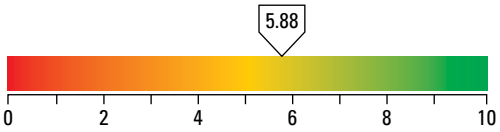
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

Summary Observations

- Overall this range marginally meets the training requirements of Joint users ranging from helicopters to jets. Impact from encroachment is limited to boat traffic occasionally transiting the impact boundaries and the proximity of the range to a neighboring Host Nation inhabited island. By closely working with Okinawa Defense Bureau and MLIT we are constantly seeking to reduced the boat encroachments. A way ahead may be to install warning buoys at the impact area boundaries to alert local fishermen and transient traffic to remain clear, however, the cost is well beyond the scope of the current range budget. Environmental is also continuing a survey of impact to local wildlife and may have additional inputs for the range within the next fiscal year.

Idesuna Jima Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack	🟡	Land size is incredibly small, will not support more modern target layouts (~35 acres). Impact area size is 2 NM - weapon profiles are limited to footprints that will fit inside this area, limiting target sets and options for training scenarios. Users have restricted profiles to keep weapons on range. AF looked into seeding the reef and other methods of expanding the current land mass but no solutions have been chosen yet. AF started asking questions about increasing the impact area size to 5AF, JCAB, ODB, and MLIT but have not made any progress; action must be taken at higher levels. If F-35 comes to Okinawa they will find themselves severely limited in A/G.
	Counterland	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above; land size does not support an EW array outside ordnance footprints (excluding helo use)
Airspace	Strategic Attack	🔴	Same as landspace Strategic Attack comment; airspace size is relatively sufficient laterally; needs to be extended vertically to encompass real world tactics. Users restricted on profiles (jet only)
	Counterair	🟡	Airspace is not commonly used for Counterair but on the occasions it is lateral and vertical confines are marginally short of needed airspace for ACM/BFM (cannot support DCA/OCA) / Not often used; therefore, no plan to fix this specific requirement (not intended use of range airspace).
	Counterland	🔴	Same as Strategic Attack comment
Targets	Strategic Attack	🟡	Targets do not mirror current requirements (urban, moving targets, etc) however they do provide aiming points. Targets do not completely mimic reality (e.g., tanks, trucks); CAS work and target ID suffers. The island is too small and remote to feasibly state more realistic training options; however, targets may be cycled out periodically to continually alter the "picture." Would require coordination with Navy and Marine assets in region on a regular basis to maintain steady stream of improvements.
	Counterland	🟡	Same as above.
Threats	Strategic Attack	🟡	There are no threat simulators on island for aircrew to practice/defend against; user must visualize the engagement versus solely on responding appropriately. Currently have biannual capability from Navy assets that come to range; however, insufficient to provide a robust training scheme. Potential additional arrangement with Navy assets in Hawaii could help remedy this.
	Counterair	🟡	Airspace is not commonly used for Counterair but on the occasions it is lateral and vertical confines are marginally short of needed airspace for ACM/BFM (cannot support DCA/OCA) Not often used; therefore, no plan to fix this specific requirement (not intended use of range airspace).
	Counterland	🟡	Same as Strategic Attack comment.
	Electronic Combat Support	🟡	Same as Strategic Attack comment.
Scoring & Feedback System	Strategic Attack	🔴	There are no scoring or feedback systems on this range; users must visually score their own munitions. Vital information lost on accuracy, weapon performance, user performance, and weapon system. Scoring system expenditure (upscaling) has been raised to AF Board, PACAF. Currently sufficient; however, will be insufficient should the F-35 is stationed at Kadena.
	Counterland	🔴	Same as above.
Infrastructure	Strategic Attack	🔴	There is no infrastructure on this range; no impact to users at this time. Plans are being made to install a PSP mat for helo use on the hilltop landing zone to maximize safety and a possible storage area on the NE side of the hill base to store long term range maintenance equipment in order to reduce need for moving it to/from the island for every maintenance op.
	Counterland	🔴	Same as above.
Range Support	Strategic Attack	🟡	The range office consists of two personnel, the ROA and the ROO. Arrival of 18 CEG will increase maintenance operations within the next fiscal year.
	Counterland	🟡	Same as above.
MOUT Facilities	Strategic Attack	🔴	Impact to CAS training and urban helo assault/insertion. No improvement planned at this time due to size and location of range.
	Counterland	🔴	Same as above.
Suite of Ranges	Strategic Attack	🟡	Range minimally supports current AF use but does not fully support sister service needs in region nor next generation aircraft requirements; range land size and airspace size are the most significant impediments.
	Counterland	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Munitions Restrictions	Strategic Attack	🟡	PGM is severely restricted due to impact area size, airspace size (alt), and proximity to neighboring Host Nation island; jet users unable to employ from correct altitudes or distances (mirroring real world). Looking to restructure airspace and re-negotiate impact area size through the Joint Committee; a lengthy process and not easily accomplished with the "draw down" of US Forces in region
	Counterland	🟡	Same as above.; CAS limitation based on airspace boundaries
Spectrum	Strategic Attack	🟡	EW is highly restricted in Okinawa and Japan in general due to the limited frequency spectrum available to US; does not severely impact training. Users must utilize EW when available; not a good threat replication due to the limited spectrum. Working with Navy to establish a robust EW simulation on a ship in open waters off Okinawa to provide realistic EW representation.
	Counterland	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.
Airspace	Strategic Attack	🟡	Airspace is severely limited because 1972 JC agreements were never revised to account for modern weapons or tactics; users required to fly profiles that do not mirror real world employment (helicopters excluded).
	Counterair	🟡	Airspace is not commonly used for Counterair but on the occasions it is lateral and vertical confines are marginally short of needed airspace for ACM/BFM (cannot support DCA/OCA) Not often used; therefore, no plan to fix this specific requirement (not intended use of range airspace).
	Counterland	🟡	Same as Strategic Attack comment
Adjacent Land Use	Strategic Attack	🔴	Neighboring Host Nation island Tonaki Jima has an agreed upon breakwater that extends into the 2 NM impact boundary of the range; lends itself to boat traffic entering and exiting the range boundary. Weapon profiles have been restricted to prevent munitions in the vicinity of traffic; user weapon releases are further restricted. Users must constantly be aware of surface traffic and check distances to continue use of ordnance. No anticipated solutions beyond those currently employed.
	Counterland	🔴	Same as above.
Range Transients	Strategic Attack	🟡	Transient boat traffic preventing ordnance use significantly impacts range. It is nearly impossible to police the area to keep boats out; users are required to cease fire if a boat enters the 2 NM impact area. Range mitigates by notifying mariners to remain clear of the area by working with ODB and booking a backup range (W-176) to minimize loss of training opportunity. Range use not impeded if training is exclusively simulation.
	Counterland	🟡	Same as above.

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Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Jefferson Assessment Details

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	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Counterair													
Counterspace													
Counterland	PMC	FMC			PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Countersea													
Information Operations	FMC	FMC			FMC	FMC	PMC	PMC	PMC			FMC	FMC
Electronic Combat Support	FMC	FMC			FMC	FMC	PMC	PMC	PMC			FMC	FMC
Command and Control	FMC	FMC			FMC	FMC	PMC	FMC	FMC			FMC	FMC
Air Drop	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Air Refueling													
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	FMC

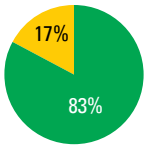
Legend: FMC, PMC, NMC

Encroachment Data

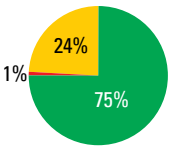
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Moderate	Minimal	Minimal		Minimal	Minimal	Moderate	Minimal	Moderate	Minimal	Minimal	Minimal
Counterair	Moderate	Minimal	Moderate		Moderate	Minimal	Moderate	Moderate		Minimal	Minimal	Minimal
Counterspace												
Counterland	Moderate	Minimal	Minimal		Minimal	Minimal	Moderate	Severe	Moderate	Minimal	Minimal	Minimal
Countersea												
Information Operations	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Electronic Combat Support	Minimal	Moderate	Moderate		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Command and Control	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Air Drop	Minimal	Moderate	Minimal		Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Air Refueling												
Spacelift												
Special Operations	Minimal	Minimal	Minimal		Minimal	Minimal	Moderate	Moderate	Moderate	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance		Minimal	Minimal		Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

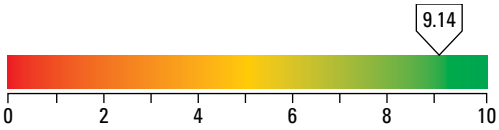
Summary Percent Distribution



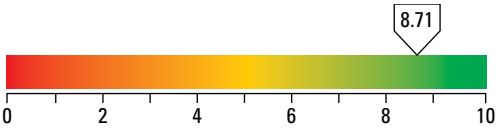
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

Summary Observations

Jefferson Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Counterland	●	Under current permit and MOU, we have approx 1,100 acres for development of target arrays.
	Special Operations	●	Same as above.
Targets	Counterland	●	Range in an Army impact field with a high degree of UXOs. Cost for EOD outside of scrapes and access roads with current budget precludes expansion/development.
	Special Operations	●	Same as above.
	Intelligence, Surveillance and Reconnaissance	●	Same as above.
Threats	Special Operations	●	Same as above.
Scoring & Feedback System	Information Operations	●	Current scoring system does not provide AAR for IO
	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 ISR
Infrastructure	Information Operations	●	Range expertise is not centric on IO
	Electronic Combat Support	●	Range expertise is not centric on ECS
Range Support	Information Operations	●	Range expertise is not centric on IO
	Electronic Combat Support	●	Range expertise is not centric on ECS

Encroachment Capabilities

Factors	Assigned Training Mission	Score	Comments
Threatened & Endangered Species	Strategic Attack	●	Several protected species surround the impact area and are under the MOAs.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
Munitions Restrictions	Electronic Combat Support	●	Bordered by CVG, SDF and IND, therefore, restricting use of ECS.
	Air Drop	●	Restricted to SAT-B drops.
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 weapon systems.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Special Operations	●	Same as above.

Jefferson Limitation Details (Continued)

Encroachment Capabilities

Factors	Assigned Training Mission	Score	Comments
Adjacent Land Use	Counterair	🟡	Adjacent land is Army owned and managed by FWS. FWS has permit for approximately 49,000 acres to the ranges 1,100 acres. Only the range footprints are authorized outside the permitted area. Much of the land is inaccessible due to UXO hazards.
	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	🟡	Range has oversight by BRAC 1988; conducting operations outside of the MOU established as a result of BRAC would require Congressional authorization.
	Counterland	🟡	Same as above.
	Special Operations	🟡	Same as above.

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Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Jik-do Assessment Details

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	FMC			NMC	NMC	PMC	FMC	PMC				PMC
Counterair													
Counterspace													
Counterland	PMC	FMC			PMC	NMC	PMC	FMC	PMC				PMC
Countersea													
Information Operations													
Electronic Combat Support													
Command and Control													
Air Drop													
Air Refueling													
Spacelift													
Special Operations	PMC	FMC			PMC	NMC	PMC	FMC	PMC				PMC
Intelligence, Surveillance, and Reconnaissance													

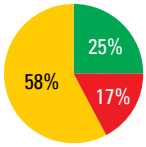
Legend: FMC, PMC, NMC

Encroachment Data

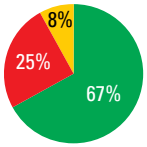
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Moderate	Minimal	Severe	Minimal	Minimal	Minimal	Severe	Minimal	Minimal	Minimal	Severe
Counterair												
Counterspace												
Counterland	Minimal	Moderate	Minimal	Severe	Minimal	Minimal	Minimal	Severe	Minimal	Minimal	Minimal	Severe
Countersea												
Information Operations												
Electronic Combat Support												
Command and Control												
Air Drop												
Air Refueling												
Spacelift												
Special Operations	Minimal	Moderate	Minimal	Severe	Minimal	Minimal	Minimal	Severe	Minimal	Minimal	Minimal	Severe
Intelligence, Surveillance, and Reconnaissance												

Legend: Minimal, Moderate, Severe

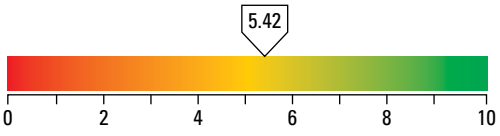
Summary Percent Distribution



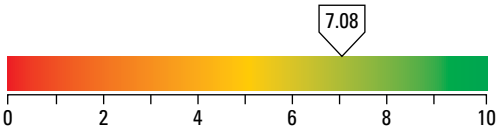
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Main limitation is range support; the US only receives 30% of available scheduled range time. Jik-do is a class B range due to its remote scoring *via* ROKAF. With the closure of Kooni Range in 2005, there are no longer Class A ranges available.
2. There is also a lack of tactical targets. The only existing "target" is the conventional circle on the large island. Full scale weapons delivery (JDAM, LGB, hellfire, inert), is available on the small island, but it is featureless and has no access to set up tactical targets.
3. Considering request for ROK to build new range to replace Kooni—no anticipated date of resolution.

Summary Observations

1. The number one encroachment issue for Jik-do is boats within 3nm of the island; accounts for 20% of attrition from scheduled range time.
2. Now that Jik-do has $50M scoring equipment to support Basic Surface Attack (BSA) missions, live ordnance like General Purpose (GP) or Maverick are not permitted, leaving location available to shoot live Maverick in Korea. Air Combat Command (ACC) goals for A-10 pilots is to shoot one live Maverick every three years.
3. Pilsung range can support limited (no Maverick) live ordnance drops on their Live Ordnance Area (LOA). Maverick shots must be accomplished on off peninsula deployments.
4. Proposal for ROKAF to gain control of waters w/in 3 nm of Jik-do to mitigate boat encroachment. No time frame yet, not expected in near term.
5. Considering request for ROK to build new range to replace Kooni—no anticipated date of resolution.

Jik-do Limitation Details

Capability Observations

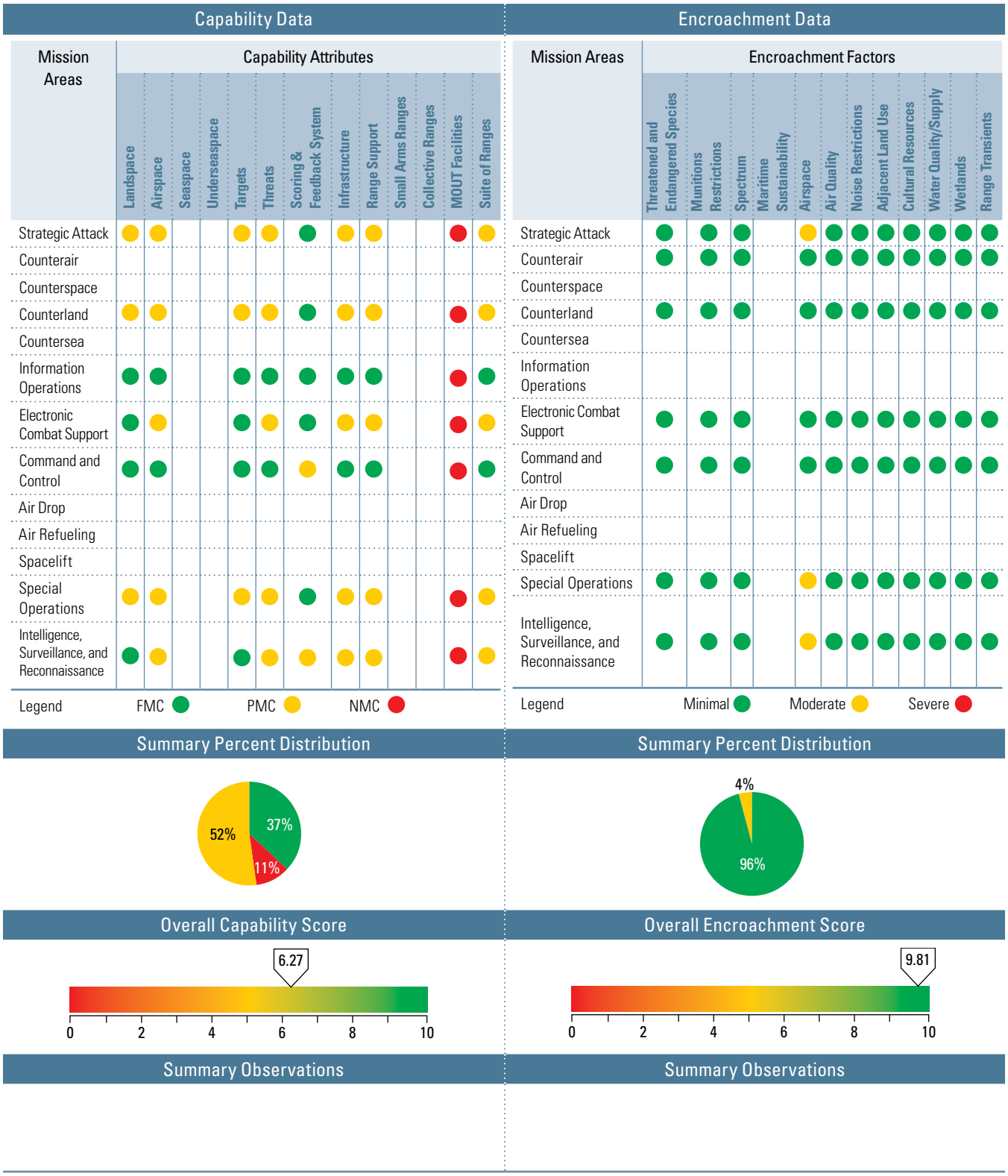
Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	Yellow	Two small islands with little ability to offer more than two general targets; very limited tactical training. Considering request for ROK to build new range to replace Kooni--no anticipated date of resolution.
	Counterland	Yellow	Same as above.
	Special Operations	Yellow	Same as above.
Targets	Strategic Attack	Red	One conventional circle that is less than 75m radius (as small as 35m at smallest part of circle); no targets on live island result in very limited tactical training. Considering request for ROK to build new range to replace Kooni--no anticipated date of resolution.
	Counterland	Yellow	Same as above.
	Special Operations	Yellow	Same as above.
Threats	Strategic Attack	Red	No threats/EW emitters available on Korean Peninsula; ROK system expected to be available at Pilsung 2011.
	Counterland	Red	Same as above.
	Special Operations	Red	Same as above.
Scoring & Feedback System	Strategic Attack	Yellow	Scoring performed by ROKAF with non-English scorers; line-up data passed via facsimile. Class B Range-flight lead control; no option for single ship sorties due to fall out- increased attrition to useable range time. No foreseeable resolution.
	Counterland	Yellow	Same as above.
	Special Operations	Yellow	Same as above.
Range Support	Strategic Attack	Yellow	Class B Range-flight lead control over US advisory frequency; ROKAF and US aircraft use separate frequencies due to language issues. No option for single ship sorties due to fall out- increased attrition to useable range time. No foreseeable resolution.
	Counterland	Yellow	Same as above.
	Special Operations	Yellow	Same as above.
Suite of Ranges	Strategic Attack	Yellow	Range is marginally suitable for conventional BSA range; limiting factors are fishing boat incursion, small scoring circle and inability to drop live bombs due to proximity of valuable equipment. US only receives 30% of the available range time.
	Counterland	Yellow	Same as above.
	Special Operations	Yellow	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Color	Comments
Munitions Restrictions	Strategic Attack	Yellow	$50M in equipment is within 2800' of furthest target, so live munitions such as Mk-82 and Maverick are not allowed to avoid damage/range closure for repair; no location available to employ Maverick in Korea- A-10 goal is 1 Maverick every 3 years/pilot. Maverick must be accomplished on off Pen deployments.
	Counterland	Yellow	Same as above.
	Special Operations	Yellow	Same as above.
Maritime Sustainability	Strategic Attack	Yellow	ROKAF owns islands, but has no control over sea surface
	Counterland	Yellow	Same as above.
	Special Operations	Yellow	Same as above.
Adjacent Land Use	Strategic Attack	Red	Fishing boats are a common transient and there have been a few instances where fishermen protest on the island; accounts for 20% of attrition from total scheduled range time. Proposal for ROKAF to gain control of waters w/in 3 nm of Jik-do to mitigate boat encroachment; no timeframe for implementation.
	Counterland	Red	Same as above.
	Special Operations	Red	Same as above.
Range Transients	Strategic Attack	Red	Same as Adjacent Land Use Strategic Attack comment.
	Counterland	Red	Same as above.
	Special Operations	Red	Same as above.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

McMullen Assessment Details



McMullen Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack		Landspace (approximately 4,000 acres (with only a 400 acre impact area - per MOU) insufficient for full-up training ops; precludes live weapon drops and severely limits full-scale inert weapon releases. There are currently no planned actions to remedy this issue.
	Counterland		Same as above.
	Special Operations		Same as above.
Airspace	Strategic Attack		Restricted area R-6312 over range inadequate for maneuver; consists of 5NM radius circle from Sfc to FL 230. R-6312 is often capped at 10K due to Houston Center and/or Navy operations. Results in limited capability for maneuver within airspace. Work underway to increase R-6312 to a 20NMx20NM area; timeline unknown.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance, Reconnaissance		Same as above.
Targets	Strategic Attack		Target impact area is approximately 400 acres per MOU, result is limited number and type of targets. Maintainability, sustainability and realistic representations of targets (JMTG) yet to be determined. Limited number of targets precludes full-up training operations; no live targets. Currently no planned actions to remedy this issue.
	Counterland		Same as above.
	Special Operations		Same as above.
Threats	Strategic Attack		Range currently authorized and uses RWR-Lite threat emitters that are aging and outdated; one emitter is in bad repair and currently inoperable. 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 pursuing authorizations for more robust systems (i.e. - AN/VPQ-1 and (JTE) Joint Threat Emitters). No timeline for improvements.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance, Reconnaissance		Same as above.
Scoring & Feedback	Command and Control		Communications infrastructure prevents "real time" relay of data to users. Increase of current connectivity to allow DMO/DTOC data is still in initial phases, inability to post live weather and current operational status impedes mission planning. No timeline for improvements.
	Intelligence, Surveillance, Reconnaissance		Same as above.
Infrastructure	Strategic Attack		Infrastructure 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 current plans to execute solution.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance, Reconnaissance		Same as above.
Range Support	Strategic Attack		Range lacks funding for a second, full-time range control officer and authorizations for additional personnel; insufficient personnel significantly impacts 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.
	Counterland		Same as above.
	Electronic Combat Support		Same as above.
	Special Operations		Same as above.
	Intelligence, Surveillance, Reconnaissance		Same as above.

McMullen Limitation Details (Continued)

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
MOUT Facilities	Strategic Attack	🔴	Range does not have an urban CAS target array for use with Air-CAS/Joint CAS, etc; no capabilities for MOUT exist. Planning for the creation of an urban CAS no-drop target in conjunction with the proposed Army purchase of 23,000 acres south of Yankee Target; anticipated by 2015-2017.
	Counterland	🔴	
	Information Operations	🔴	
	Electronic Combat Support	🔴	Same as above.
	Command and Control	🔴	Same as above.
	Special Operations	🔴	Same as above.
	Intelligence, Surveillance, Reconnaissance	🔴	Same as above.
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.
	Counterland	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.
	Special Operations	🟡	Same as above.
	Intelligence, Surveillance, Reconnaissance	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Airspace	Strategic Attack	🟡	Restricted area R-6312 over range inadequate for maneuver; consists of 5NM radius circle from Sfc to FL 230. R-6312 is often capped at 10K due to Houston Center and/or Navy operations. Results in limited capability for maneuver within airspace. Work underway to increase R-6312 to a 20NMx20NM area; timeline unknown.
	Special Operations	🟡	Same as above.
	Intelligence, Surveillance, Reconnaissance	🟡	Same as above.

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Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Melrose Assessment Details

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 ●

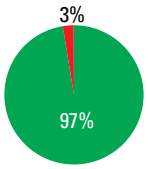
Encroachment Data

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	●	●	●		●	●	●	●	●	●	●	●

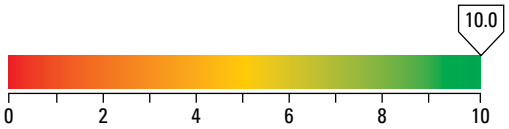
Legend: Minimal ● Moderate ● Severe ●

Summary Percent Distribution

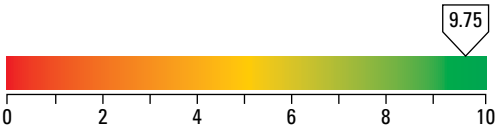
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

- Special Operations

Summary Observations

- Munitions Restrictions and Airspace
- Special Operations

Melrose Range Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
No Comments.			

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Airspace	Special Operations	●	UAS COAs not established between Cannon, Melrose, published MOA's, and WSMR.
	Intelligence, Surveillance and Reconnaissance	●	Same as above.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Mountain Home Ranges Assessment Details

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

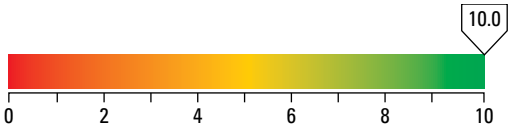
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	●	●	●		●	●	●	●	●	●	●	●
Counterair	●	●	●		●	●	●	●	●	●	●	●
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 ●

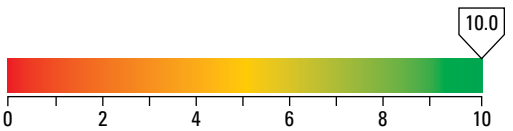
Summary Percent Distribution

Summary Percent Distribution

Overall Capability Score



Overall Encroachment Score



Summary Observations

1. 100 % of the AF's range/range complex mission areas that are applicable to the MHRC are Fully Mission Capable (FMC). Capability attributes have no significant impact on AF Assigned Training Mission Areas.
2. MHRC does not support counterspace, countersea, information, operations, spacelift, and ISR missions on a normal basis.

Summary Observations

1. 100% of the AF's range/range complex mission areas that are applicable to the HRC are fully Mission Capable.
2. Restrictions on precision munitions deliveries such as Laser Guided Bombs impact F-15E training. Weapon footprint too large for the range. New weapon footprint program in development may alleviate some of the problem.

Mountain Home Ranges Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments

No Comments.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment

No Comments.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Nevada Test and Training Range Assessment Details

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	FMC	FMC			FMC	PMC	FMC	FMC	FMC		FMC		FMC
Counterair	FMC	PMC				PMC	FMC	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		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	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

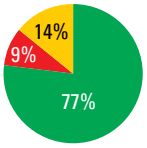
Legend: FMC, PMC, NMC

Encroachment Data

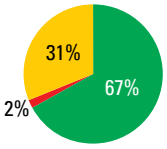
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Minimal	Minimal		Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Minimal
Counterair	Minimal	Minimal	Moderate		Moderate	Minimal	Moderate	Moderate	Moderate	Minimal	Minimal	Minimal
Counterspace	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterland	Moderate	Moderate	Minimal		Moderate	Moderate	Minimal	Moderate	Moderate	Moderate	Moderate	Minimal
Countersea												
Information Operations	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Electronic Combat Support	Moderate	Minimal	Moderate		Severe	Moderate	Minimal	Severe	Moderate	Minimal	Moderate	Minimal
Command and Control	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Drop	Moderate	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal
Air Refueling	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Spacelift												
Special Operations	Moderate	Moderate	Minimal		Minimal	Minimal	Minimal	Minimal	Moderate	Minimal	Moderate	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Moderate		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

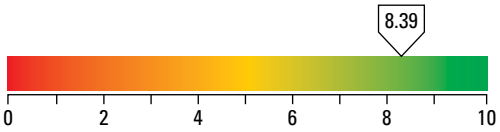
Summary Percent Distribution



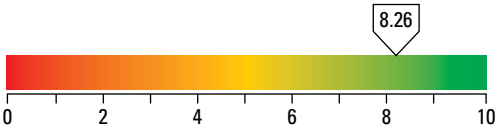
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. Most impacting performance are: Threats, Targets, Scoring and Feedback, Collective Ranges, and Suite of Ranges, in that order.
2. Mission areas impacted are: Command and Control and Information Operations
3. FY12 POM will include: a) Threat Relevancy Requirements that 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 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

1. Renewable energy proposals and project sitings surrounding the NTTR are spectrum interference impacts as RF/EMI issues. Land development and subsequent noise issues are increasing under the Desert MOA. The potential to develop the southern ranges in concert with US Fish and Wildlife approvals for co-use of the Desert National Wildlife Range.
2. Key Mission areas impacts are; Electronic Combat for training and test mediums. Strategic Attack mission is impacted by both renewable energy projects and in noise complaints. Counterair then Counterland - both by developmental pressures and land use planning constraints due to ESA, wetlands, or Air Quality.
3. Sitings of Renewable energy proposals are being addressed in cooperative relationships locally with Dept of Interior, Bureau of Land Management. At the HAF level studies are proposed with AFRL. In addition the Scientific Advisory Board is reviewing the impact and proposed studies. Noise implications have to be dealt with in planning with local communities, country commissioners and in the NTTR public outreach programs.

Nevada Test and Training Range Limitation Details

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 in surrounding communities under MOA.
	Electronic Combat Support	🟡	Limited Capability to do full-spectrum jamming. Current FAA CHAFF restrictions deny employment over the NTTR. Avoidance areas in surrounding communities under MOA. An increase in renewable energy wind farms (WGEF) has the potential to impact ability to operate in a clean electronic environment; undergoing 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	🔴	No self-contained Information Operations (IO) targets on NTTR; all IO play is based on the users and equipment they bring to the range. 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	🟡	Lack of complete electronic target set. Electronic Attack (EA) platforms do not get real-time feedback on their capabilities and their effects during training. 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. Plan to 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; still years away from ability to train on significant double digit SAM threats - ACC tracking JTE with SPO. Workarounds are planned but do not support full training objectives; aircrew must train on legacy single-digit SAMs.
	Counterair	🟡	Same as above.
	Information Operations	🔴	NTTR has no self-contained Information Operations (IO) targets; all IO based on users and equipment they bring to range; some means of facilitating IO play but no organic capability. NTTR continuing to work with JIOR to provide a mobile service to deploy at 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; should better simulate a degraded C2 system while maintaining safety with DIADS implementation and IO suite.
Scoring and Feedback Systems	Information Operations	🔴	Same comment from Threats.
	Electronic Combat Support	🟡	Same comment from Threats.
	Command and Control	🔴	Same comment from Threats.
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	🟡	Complex has no self-contained Information Operations Targets; all IO play is based on the users and the equipment that they bring to the range. NTTR has 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	Information Operations	🔴	Same as above.
	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. NTTR uses 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. NTTR does not have an operational LZ near the UOC; an AMC and SOCOM requirement NTTR is 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	🔴	Same as Information Operations comment.

Nevada Test and Training Range Limitation Details (Continued)

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Strategic Attack	🟡	Endangered Species Act (Increase costs or Risks) – The NTTR southern ranges contain habitat for the endangered Desert Tortoise. NTTR operates under a Biological Opinion (BO) issued by USFWS; constrains placement of targets. NTTR pays a one-time fee per acre of $723 for each disturbed acre of "suitable habitat" and must implement required conditions. USFWS nominated higher elevations in the southern ranges as wilderness; severely restricting ability to place threats or targets for future capabilities. There are no open venues to mitigate these issues for increased capabilities; at some point additional lands to support increase capabilities will be necessary.
	Counterland	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.; placement of threat systems must follow USFWS guidance.
	Air Drop	🟡	Same as above.; placement of drop zones must follow USFWS guidance.
	Special Operations	🟡	Special Operations ground movements are restricted due to USFWS Desert Tortoise habitat and BO requirements in lower elevations of southern range; higher elevation wilderness area designation prevents vehicle use for ground movements. There are no open venues to remedy these issues.
Munitions Restrictions	Strategic Attack	🟡	Placement of live and inert targets on the southern ranges must follow USFWS guidance/agreements; lower elevations constrained by Desert Tortoise habitat; higher elevations constrained by wilderness designation. There is no open venue to remedy these issues and address land requirements for future capabilities.
	Counterland	🟡	Same as above.
	Special Operations	🟡	Same as above.
Spectrum	Strategic Attack	🟡	Current/future renewable energy projects in and around NTTR and its associated MOAs may negatively impact the EM environment required for sensitive testing (e.g., Wilson Creek Wind Farm could substantially increase EM "noise" in the northern part of the Reveille MOA which may negatively affect A/A targeting radars and A/G mapping sensors, if constructed as planned; the Crescent Dune Solar project northwest of Tonopah, NV could produce substantial IR spectrum overlap with many ground-based and airborne sensors, if constructed as planned). Encroachment of individual renewable energy projects might fall below the threshold; however, it is clear that the many alternative and renewable energy projects may negatively affect the viability of the NTTR in the immediate and long-term. USAF is corporately reviewing these issues with the Scientific Advisory Board with a recommendation due out Fall 2010. Renewable energy encroachment is not unique to the NTTR; therefore, a centralized effort should be made to ensure the use of public lands are met while at the same time the needs of DoD test and training can be fulfilled.
	Counterair	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.
	Command and Control	🟡	Same as above.
	Intelligence, Surveillance and Reconnaissance	🟡	Same as above.
Airspace	Strategic Attack	🟡	NTTR shares approximately 847,050 acres with USFWS. USFWS has established Big Horn Sheep watering points in the mountain ranges; each requiring a 1-mi buffer zone (overflight avoidance area) in accordance with Nellis AFB and USFWS MOU. 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; lower elevations constrained by Desert Tortoise habitat; higher elevations constrained by wilderness designation. Airspace constraint for Air to Ground use—NTTR shares approximately 847,050 acres with USFWS. USFWS has established Big Horn Sheep watering points in the mountain ranges; each requiring a 1-mi buffer zone (overflight avoidance area) in accordance with Nellis AFB and USFWS MOU. No plans to challenge this long-standing restriction.
	Air Drop	🟡	DZs outside withdrawn lands are not controlled by DoD; military use of these lands must be approved by the land manger (i.e., BLM). Nellis must request a right-of-way; this process can take up to a year to accomplish appropriate NEPA and real estate instrument actions. Timely identification of the need is the best remedy to issue. There is no known long-term solution; USAF subject to BLM manager approval (could change over time).

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Air Quality	Strategic Attack	🟡	An NOV was nearly issued to Creech AFB (and the southern ranges) in February 2009 for truck traffic to Box Canyon; potential fines of $10,000/day/violation. Best practical methods must be used at all times for any quantity of disturbance (paving, watering, revegetation, chemical stabilization, phased construction, *etc.*) in northern ranges. The Title V Operating Permit has a supplemental Surface Area Disturbance Permit, # 9711-1233. If this project will disturb five acres or more a dust operating permit for surface area disturbance will be required PRIOR to construction. 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. If this project will disturb more than 1/4 acres 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, then a Clark County Dust Control Permit will be required PRIOR to construction.
	Counterland	🟡	Same as above.
	Electronic Combat Support	🟡	Any new air emission units may trigger a requirement to obtain a permit; permit modification takes from 6 months to 1+. Significant fines via NOVs can be assessed If a permit is not obtained prior to construction of an emission unit, and possible revocation of the permit which would cause operations to be hindered. Emission units that emit NOx have the potential put Creech (and the Southern Ranges) over the threshold for major source so that they will be subject to the Part 70/Title V rules and permitting (more extensive recordkeeping and reporting as well as a likely extended period for issuance of the permit). New emission units may trigger NSPS requirements, BACT requirements or emissions threshold issues. A permit modification to the Class I Operating Permit must be completed PRIOR to installation/modification/operation of any external combustion unit (boiler, furnaces) over 4 MMBtu, any emission unit with a throughput greater than 50 lbs, fuel storage tanks greater than 40,000 gallons, or any other emission units (generators, paint booths, conveyors, crushers, other mineral processing units) at the northern ranges. If any air emission units will be installed, modified, or its permitted usage level needs to increase/decrease (boiler, water heater, generator, cooling tower, incinerator, mineral processing, fuel storage(AST/UST)/dispensing, degreaser, jet engine testing, landfill, remediation,paint booth, media/abrasive blaster, incinerator, woodworking baghouse, fuel cell maintenance, *etc.*), an Authority to Construct (ATC) will be needed PRIOR to beginning installation, modification, or operation at the southern ranges. All new boilers must have a low-NOx burner on it as required by our current BACT agreement with Clark County.
Noise Restrictions	Strategic Attack	🟡	Increased development in the Coyote Springs/Sally Corridor area has brought up the discussion of moving the Supersonic overflight restriction to the north; restrictions negatively impact training by limiting the areas wherein aircrew can operate Supersonic. DoD must continually conduct outreach to educate and partner with local civic leaders to ensure lines of communication remain open (i.e., communicate the importance of military training to people moving to the area).
	Counterair	🟡	NTTR restrictions for supersonic flight; increased noise complaints have occurred due to F-22A activity. No current remedy; expect more with the F-35.
Adjacent Land Use	Strategic Attack	🟡	Numerous renewable energy projects at/near NTTR; increased urban development under the MOAs (Coyote Springs and BLM Land Sales). Current remedy is continuous contact with Federal, State and community land managers striving for compatible development. An Air Staff policy directive and a update to AFI 13-201, para 6.6. that addresses all renewable energy are necessary.
	Counterair	🟡	Same as above.
	Counterland	🟡	Same as above.
	Electronic Combat Support	🔴	Same as above.
Cultural Resources	Strategic Attack	🟡	Cultural resources affect target and threat placement on NTTR. Current remedy is timely identification of requirement to accomplish appropriate NEPA, NHPA consultation, and Native American coordination. 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). Water supporting range construction operations must be trucked long distances, resulting in large overhead costs and time. Funding for additional wells, storage tanks and water trucks to haul water to the construction sites would be a suitable remedy.
	Counterland	🟡	Same as above.

Nevada Test and Training Range Limitation Details (Continued)

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Wetlands	Strategic Attack	●	Wetlands not delineated on NTTR 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 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.

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Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Oklahoma Assessment Details

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	FMC	FMC			PMC	FMC	PMC	FMC	FMC			FMC	PMC
Counterair	FMC	FMC			FMC	FMC	PMC	FMC	FMC			FMC	FMC
Counterspace	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Counterland	PMC	FMC			PMC	FMC	PMC	FMC	FMC			FMC	PMC
Countersea													
Information Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Electronic Combat Support	FMC	FMC			FMC	PMC	FMC	FMC	FMC			FMC	FMC
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Air Drop	PMC	PMC			PMC	FMC	FMC	FMC	FMC			FMC	PMC
Air Refueling	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Spacelift													
Special Operations	FMC	FMC			FMC	FMC	PMC	FMC	FMC			FMC	PMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	FMC	PMC	FMC	FMC			FMC	FMC

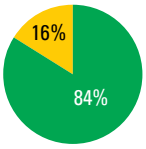
Legend: FMC, PMC, NMC

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	Moderate		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Moderate	Minimal
Counterair	Minimal	Moderate	Moderate		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Moderate	Minimal
Counterspace	Minimal	Minimal	Moderate		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterland	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Moderate	Minimal
Countersea												
Information Operations	Minimal	Minimal	Moderate		Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Electronic Combat Support	Minimal	Minimal	Moderate		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Command and Control	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Drop	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Moderate	Minimal
Air Refueling	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Spacelift												
Special Operations	Minimal	Minimal	Moderate		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Moderate		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

Summary Percent Distribution



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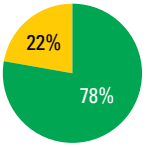
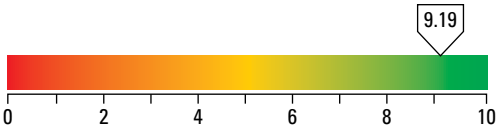
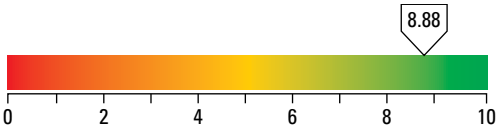


Overall Capability Score



Overall Encroachment Score



Summary Observations

Summary Observations

1. Oklahoma Impact Area is a sub-set of R-2202. Surrounding land spaces are primarily US Army Managed lands and impact areas. Access is limited to helicopter airlift in summer month, and on a bi-annual winter trail.

Oklahoma Limitation Details

Capability Observation

Attributes	Assigned Training Mission	Score	Comments
Landspace	Counterland	●	Prime Moose Habitat and Tundra areas; Remote and isolated range space limits travel to/from in the area.
	Air Drop	●	Same as above.
Airspace	Air Drop	●	No Air Land/Air Drop areas in Oklahoma.
Targets	Strategic Attack	●	Limited good condition road access limits type of targets/materials.
	Counterland	●	Same as above.
	Air Drop	●	Same as above.
Threats	Electronic Combat Support	●	Spectrum limits hamper EW Training; remote nature of range hampers threat system O&M.
Scoring & Feedback System	Strategic Attack	●	Remote and isolated range limits access and emplacement of weapons scoring systems. TSPI coverage is good.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Special Operations	●	Same as above.
	Intelligence, Surveillance and Reconnaissance	●	Same as above.
Suite of Ranges	Strategic Attack	●	Overall limitation on size of areas available for current weapon types
	Counterland	●	Same as above.
	Air Drop	●	Same as above.
	Special Operations	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Strategic Attack	●	Limited ordnance delivery patterns and impact area; Chaff limited by restrictions as note in observations.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Air Drop	●	Same as above.
Spectrum	Strategic Attack	●	Spectrum limits hamper EW Training; remote nature of range hampers threat system O&M.
	Counterair	●	Same as above.
	Counterspace	●	Same as above.
	Information Operations	●	Same as above.
	Electronic Combat Support	●	Same as above.
	Special Operations	●	Same as above.
	Intelligence, Surveillance and Reconnaissance	●	Same as above.
Airspace	Strategic Attack	●	Relatively small restricted area for large scale exercises with multiple platforms/weapons
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Electronic Combat Support	●	Remote range hamper O&M and threat movement/variety.
	Air Drop	●	Limited tactical airlift/airdrop capability due to limited access. Some DZ's exist on army lands in surrounding land.
	Special Operations	●	Limited tactical capability due to limited access.
Adjacent Land Use	Strategic Attack	●	Eastern lands are US Army impact areas, off limits to USAF. Western lands are non-military.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Information Operations	●	Same as above.
	Electronic Combat Support	●	Same as above.
	Air Drop	●	Same as above.
Wetlands	Strategic Attack	●	Sensitive Tundra areas in and around range.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Air Drop	●	Same as above.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Pilsung Assessment Details

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	FMC	PMC			FMC	PMC	FMC		FMC				PMC
Counterair	PMC	PMC			FMC	FMC	FMC	FMC	FMC				FMC
Counterspace													
Counterland	PMC	PMC			PMC	PMC	PMC	NMC	NMC				PMC
Countersea													
Information Operations													
Electronic Combat Support	FMC	FMC				NMC							NMC
Command and Control													
Air Drop													
Air Refueling													
Spacelift													
Special Operations	FMC				FMC	FMC	FMC		FMC				FMC
Intelligence, Surveillance, and Reconnaissance													

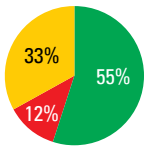
Legend: FMC, PMC, NMC

Encroachment Data

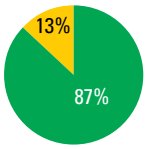
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterair	Minimal	Moderate	Minimal		Minimal	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	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Command and Control												
Air Drop												
Air Refueling												
Spacelift												
Special Operations	Minimal	Moderate	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance												

Legend: Minimal, Moderate, Severe

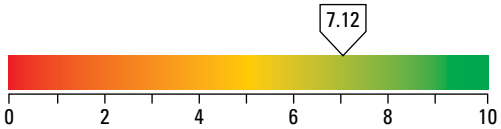
Summary Percent Distribution



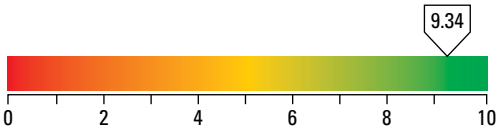
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. The primary capability that is currently lacking at Pilsung is Electronic Warfare (EW) training. There currently are no threat emitters on range or on the Korean Peninsula which has a significant impact on the ability of 7 AF units to meet their training requirements. The ROKAF is scheduled to have a rudimentary system in place by 2011.
2. Due to the terrain, low altitude training is limited. Unfortunately the only alternative is Jik-do which as an over water range is often restricted during poor visibility.
3. Considering request for ROK to build new range to replace Kooni--no anticipated date of resolution.

Summary Observations

1. The main operational constraint from encroachment is on munitions. Due to the limited size of the range, JDAM, Maverick, and Hellfire are not permitted. The only alternative is Jik-do which does not permit Maverick and inert JDAM or live Hell-fire require extensive prior coordination with the ROKAF.
2. Due to noise abatement issues, night strafe is not permitted. This leaves Jik-do as the only option for night strafe in Korea.
3. Considering request for ROK to build new range to replace Kooni--no anticipated date of resolution.

Pilsung Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Counterair	🟡	Valley limits low level maneuvering and vegetation on range drives fire codes to be high. F-16's low altitude training limited; fire codes often limit training on range to only cold spots (not scorable at night). Considering request for ROK to build new range to replace Kooni--no anticipated date of resolution.
	Counterland	🟡	Same as above.
Airspace	Strategic Attack	🟡	Airspace is small for B-52s; requires coordination of adjacent MOA's taking training away from other units (7AF and ROKAF) who normally use the airspace. No planned action to resolve.
	Counterair	🟡	Adjoining MOAs are required to operate Opposed SAT; competes for airspace time with other units. No planned action to resolve.
	Counterland	🟡	Restricted area is surrounded by MOAs requiring aircraft to enter low or "fly the line" dividing MOAs; increases coordination required to enter range can impact total time on range. No planned action to resolve
Targets	Counterland	🟡	There is no target in the live ordnance area and there is no moving target for moving target strafe; limits fidelity of realistic training for live ordnance. 7AF/A3A can coordinate upon request for inert weapons on tactical targets in the Target Valley Training Complex.
Threats	Strategic Attack	🟡	No EW emitter; No EW training available on Korean Peninsula. ROKAF system planned for 2011.
	Counterland	🟡	Smokey SAMs are often limited by fire code; limits threat reaction training. No planned action to resolve.
	Electronic Combat Support	🔴	Same as Strategic Attack comment.
Scoring & Feedback	Counterland	🟡	Lack of fire response at night leads to "cold-spot" BDUs only; no IR camera installed to score "cold-spot" BDUs so there is no night scoring. Night scoring available at Jik-do; insufficient to meet 7 AF annual requirements. Considering request for ROK to build new range to replace Kooni-no anticipated date of resolution.
Infrastructure	Counterland	🔴	There is no fire break around the live ordnance area, often leads to fires after live ordnance deployment shutting down the range until on scene ROKAF fire department can extinguish. No planned resolution.
Range Support	Counterland	🔴	Range management of brush near targets drive fire codes higher, there is no fire response after 1600L (winter), 1700L (summer); higher fire codes result in "cold spot" only procedures which are not scoreable at night. Considering request for ROK to build new range to replace Kooni- no anticipated date of resolution.
Suite of Ranges	Strategic Attack	🟡	Airspace is small for B-52s; requires coordination of adjacent MOA's and taking training away from other units (7AF and ROKAF) who share the airspace. No planned resolution.
	Counterland	🟡	Fire codes lead to drop restrictions; higher fire codes result in "cold spot" only procedures which are not scoreable at night. Considering request for ROK to build new range to replace Kooni- no anticipated date of resolution.
	Electronic Combat Support	🔴	No EW emitter; no EW training available on Korean Peninsula. ROKAF system planned for 2011.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Strategic Attack	🟡	Small range space limits live weapons (i.e., JDAM, Hellfire, Maverick); inert JDAM and live Hellfire can be employed at Jik-do with prior coordination with ROKAF, no Maverick available. Deficiency for A-10 goal of 1 Maverick every three years/pilot. Considering request for ROK to build new range to replace Kooni--no anticipated date of resolution.
	Counterair	🟡	Same as above.
	Counterland	🟡	Same as above.
	Special Operations	🟡	Same as above.
Airspace	Strategic Attack	🟡	Surrounding MOAs limit use by B-52; requires coordination of adjacent MOA's taking training away from other units (7AF and ROKAF) who share airspace. No planned resolution.
	Counterland	🟡	Terrain limits low level usage; impact is primarily to F-16's low altitude requirements. Jik-do is primary alternative; it is also often limited due to lack of discernable horizon over water during lower visibility.
Noise Restrictions	Counterland	🟡	Noise complaints restrict night strafing and strafing on ROK holiday; primary impact is to A-10s who have the most night strafe requirements. Jik-do is only alternative which has less scheduled time allocated to US (30%) and is often impacted by civilian boat incursions. Best solution is for ROK to build new US only range to replace Kooni--no anticipated date of resolution.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Poinsett Assessment Details

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	FMC	PMC			FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Counterair	FMC	PMC			FMC	PMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Counterspace	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
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	PMC	FMC	FMC	FMC	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	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Spacelift	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
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	FMC

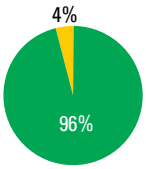
Legend: FMC, PMC, NMC

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	Minimal	Minimal		Moderate	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	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	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

Summary Percent Distribution



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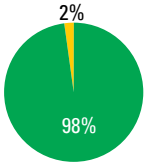
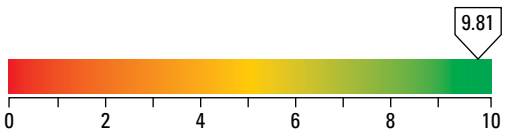
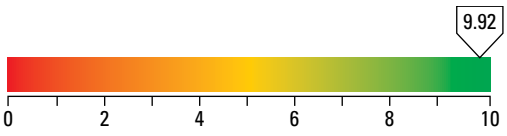


Overall Capability Score



Overall Encroachment Score



Summary Observations

- Fully Mission Capable

Summary Observations

- Minimal Encroachment Issues

Poinsett Limitation Details

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; usable for SEAD with the ability of the F-16 to create a training simulation, but no ability to be targeted from simulated threats to allow for threat reactions. There is a plan 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; elimination of the 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 a threat emitter into Bulldog.
	Counterair	●	Same as above.
	Electronic Combat Command	●	Same as above.

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 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Razorback Assessment Details

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	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

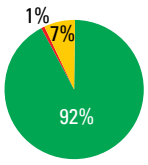
Legend: FMC, PMC, NMC

Encroachment Data

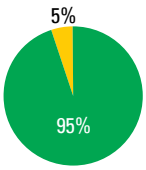
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Moderate	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterair	Minimal	Moderate	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterspace												
Counterland	Minimal	Moderate	Minimal		Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Countersea												
Information Operations	Minimal	Minimal	Minimal						Minimal		Minimal	Minimal
Electronic Combat Support	Minimal	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	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Refueling												
Spacelift												
Special Operations	Minimal	Moderate	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

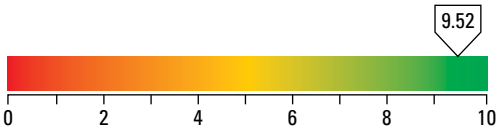
Summary Percent Distribution



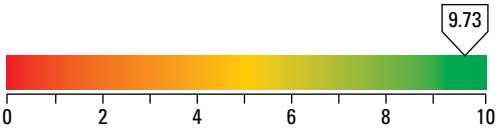
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

Summary Observations

Razorback Limitation Details

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. Range cannot support 2-shift operations.
	Command and Control	🟡	Current telephone line is severely unreliable; connectivity to Air Force systems is often not available. Pursuing the installation of new fiber optic lines.

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 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

RIPSAW Assessment Details

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													

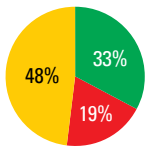
Legend: FMC ● PMC ● NMC ●

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 ●

Summary Percent Distribution



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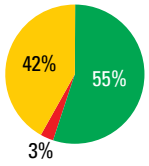
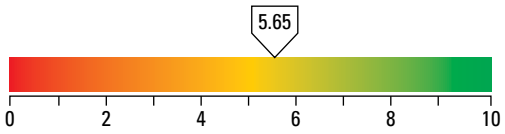
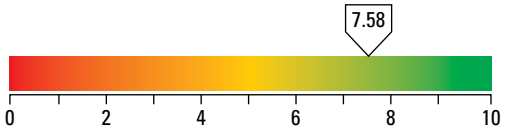


Overall Capability Score



Overall Encroachment Score



Summary Observations

Summary Observations

RIPSAW Limitations Detail

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack	🟡	Limited landspace cannot contain modern weapons' danger zones except from very limited attack axis against non-representative targets for strategic attack. Training is conducted "dry" against simulated targets in off-range areas. No further mitigation anticipated; working with USFJ/GOJ Joint Committee to resolve.
	Counterland	🟡	Restrictions due to limited land area limit realistic training; no further mitigation possible.
	Information Operations	🟡	Limited land area would limit ability to distribute threat systems to provide a realistic electronic order of battle even if frequency spectrum allowed use of threat emitters.
	Electronic Combat Support	🟡	Same as above.
Airspace	Strategic Attack	🟡	Limited size and time restrictions for use of restricted airspace and positive control airspace limit ability to realistically train to mission area; effort to expand PCA underway
	Counterland	🟡	Same as above.
	Information Operations	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.
	Air Drop	🟡	Same as above.
Targets	Strategic Attack	🟡	Limited range size and material availability limits ability to simulate strategic targets. No further mitigation planned.
	Counterland	🟡	Limited range size and limited availability of tactical targets from DRMO within Japan limits ability to simulate tactical targets. Provision of excess tactical/armored vehicles/helicopters would significantly improve counterland targets.
	Information Operations	🔴	Electronic Threats for use as targets are not provided except for RWR-lite with limited frequency clearance to single threat system (AAA). Range needs multiple UMTE or JTE with broad frequency clearance from GOJ. No efforts underway due to untenable spectrum restrictions.
	Electronic Combat Support	🔴	Same as above.
Threats	Strategic Attack	🟡	Electronic Threats for use as targets are not provided except for RWR-lite with limited frequency clearance to single threat system (AAA). Range needs multiple UMTE or JTE with broad frequency clearance from GOJ. No efforts underway due to untenable spectrum restrictions.
	Counterland	🟡	See above; range is exploring provision of visual simulation of threat systems
	Information Operations	🔴	Same as Strategic Attack
	Electronic Combat Support	🔴	Same as Strategic Attack
	Air Drop	🟡	See above; range is exploring provision of visual simulation of threat systems
Scoring & Feedback System	Information Operations	🔴	Current low-fidelity threat system (RWR-lite) has no capability to integrate with ACMI or embedded training systems to automatically validate weapons system employment or results.
	Electronic Combat Support	🔴	Same as above.
Small Arms Ranges	Counterland	🟡	Range only has capability for 40mm grenade training due to Host Nation restrictions. Surface area into water is available, but range is technically "Misawa Air-to-Ground Range" in USFJ/GOJ Joint Committee agreements. Host nation will not approve ground fire of projectile ammunition. Not a priority for pursuit of additional mitigation by 35th Fighter Wing.
Collective Ranges	Strategic Attack	🔴	Limited air/landspace and proximity of adjacent training areas limits ability for integrated operations with other assets for collective training
	Counterland	🟡	Same as above.; limited ability for small-unit collective training with Tactical Air Control Parties is available. No additional efforts underway.
	Information Operations	🔴	Same as Strategic Attack.
	Electronic Combat Support	🔴	Same as Strategic Attack.
	Air Drop	🟡	Air and landspace size limits ability to conduct large force/collective training

RIPSAW Limitation Details (Continued)

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Suite of Ranges	Strategic Attack	🟡	Limited in order by landspace, airspace, targets and threats
	Counterland	🟡	Limited in order by airspace, targets, landspace, and threats
	Information Operations	🟡	Limited in order by threats, targets, airspace and landspace from primary encroachment factor of spectrum
	Electronic Combat Support	🟡	Same as above.
	Air Drop	🟡	Limited in order by landspace and airspace

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Strategic Attack	🟡	Frequency clearance from GOJ to operate across the band of threat systems is nearly impossible; making training to any electronic combat unavailable. Embedded training capability of local aircraft (F-16CM with Harm Targeting System R7) provides partial mitigation, but embedded training is simplistic and does not validate total system operation nor replicate adversary tactics, techniques and procedures for threat system operation. Additional mitigation is underway to conduct cooperative training with local JGSDF I-HAWK and Patriot systems, but coordination with Host Nation is cumbersome. USFJ/DoS/DoD assistance to obtain frequency clearance to operate service/joint threat emitters might enable frequency clearance to operate an Electronic Warfare Range.
	Counterland	🟡	Same as above.
	Information Operations	🔴	Same as above.
	Electronic Combat Support	🔴	Same as above.
	Air Drop	🟡	Same as above.
Airspace	Strategic Attack	🟡	Actual restricted airspace is limited and supplemented with a range "Positive Control Area" (PCA) sanitized by Misawa AB radar approach control facility. PCA area is available for hazardous activities (laser/weapons transit), but extent of PCA is limited proximity to Misawa AB (10nm South), JGSDF restricted area and commercial air routes. Efforts are underway to extend PCA with additional volume for limited operating times to accommodate specialized training. Weapons employment is further restricted by USFJ/GOJ Joint Committee agreement on range restrictions originally established in 1952.; specify authorized weapons and attack restrictions which do not account for the 57 year evolution of weapons and weapon safety analysis. Efforts are underway to modify JC agreement on range restrictions.
	Counterland	🟡	Same as above.
	Information Operations	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.
Noise Restrictions	Strategic Attack	🟡	Operating hours of the range are limited by USFJ/GOJ Joint Committee agreement on use restrictions for the range originally established in 1952. Range cannot be used after 2000 hrs during Fall-Spring and 2200 hrs during summer. Operations from 2000-2200 are limited in total number per month. Efforts are underway to amend restrictions.
	Counterland	🟡	Same as above.
	Information Operations	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.
	Air Drop	🟡	Same as above.
Adjacent Land Use	Strategic Attack	🟡	Government of Japan is very sensitive to impacts on adjacent land use; land has been purchased/leased by Aomori/Misawa Defense Facilities Office (DFO) when frequent low altitude operations are routine. Several cattle farms, a port and a nuclear power plant/fuel processing facility have "no overflight" restrictions which limit access to the range and constrain operations; no current effort to increase the buffer area or alter DFO land ownership based on current use.
	Counterland	🟡	Same as above.
	Information Operations	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.
	Air Drop	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Cultural Resources	Strategic Attack	●	Formal constraints are minimal, but as a jointly operated range with JASDF, discovery of cultural sites handled on a case-by-case basis. Land area of range is historical site of regional Nanbu clan activities in Northern Japan. Archeological assessment have potential to reduce operating availability; no further mitigation planned.
	Counterland	●	Same as above.
	Air Drop	●	Same as above.
Range Transients	Strategic Attack	●	Range includes littoral region off coast to east of land range; use requires sanitization to ensure area is clear of transients and fishing boats. No additional mitigation planned beyond current observation from additional manned sites on range.
	Counterland	●	Same as above.
	Information Operations	●	Same as above.
	Electronic Combat Support	●	Same as above.
	Air Drop	●	Same as above.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Shelby Ranges Assessment Details

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	FMC	PMC			FMC	FMC	FMC	FMC	FMC	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	FMC	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	FMC	FMC	FMC	FMC	FMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC

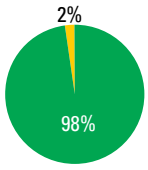
Legend: FMC, PMC, NMC

Encroachment Data

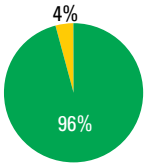
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Minimal	Moderate		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterair	Minimal	Minimal	Moderate		Moderate	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		Moderate	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

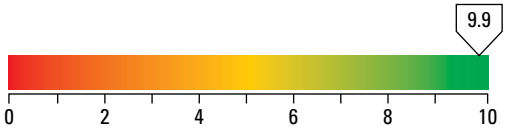
Summary Percent Distribution



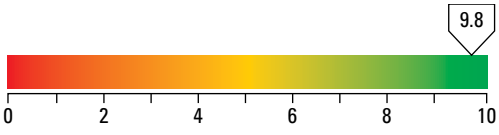
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

Summary Observations

Shelby Ranges Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Strategic Attack	●	MOA's surrounding R-4401 capped at 10,000 AGL, while the restricted airspace is available to 29,000. Current Airspace proposal will expand MOA's to 18,000 AGL with ATCAA's to 23,000. Eastern end of R-4401 will be expanded to enhance the pattern. Airspace proposal is expected to be complete and charted FY 08.
	Counterair	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comments
Spectrum	Strategic Attack	●	Range experiences overlap with Florida frequencies; limits SADL operations. Range working with limited frequencies until the spectrum is increased.
	Counterair	●	Same as above.
Air Space	Counterair	●	Both vertical and horizontal airspace are insufficient; restricts number of aircraft and types of maneuvers allowed. Unable to increase altitude in DeSoto I/II MOA horizontal; also mainly use the Gulf Airspace for AA training.
	Air Refueling	●	Same as above.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Siegenburg Assessment Details

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													

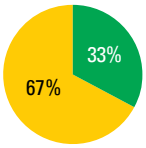
Legend: FMC ● PMC ● NMC ●

Encroachment Data

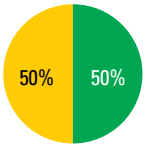
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack												
Counterair												
Counterspace												
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 ●

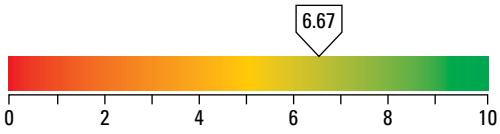
Summary Percent Distribution



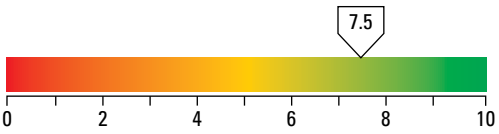
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

- Siegenburg Range does provide a training area to NATO A/C but it is limited in scope and ability. The range functions for target bombing and provides accurate scoring. Siegenburg is limited to training bombing (DM-18, DM-28, BDU-33) only. No strafe allowed, main drawback to USAFE A-10 and F-16 pilots. Facilities do function currently (constantly) under repair due to age. Facilities meet need to complete required tasks. USAFE A3 has provided funding over the last two years to fix many problems; repairs are underway. Siegenburg Range provides support to German Army Engineering School—a small demolition area on range limited to 5kg shots.

Summary Observations

- Range complying with safe/acceptable standards with limited training. Weapons safety zones being reviewed for compliance with AFI 13-212. Upon completion of review Siegenburg should operational but limited. The restrictions noted will be problematic, the operations may be restricted but the range should be able to continue its function (be it limited) as an Air-to-Ground training range.

Siegenburg Limitation Details

Capability Observations

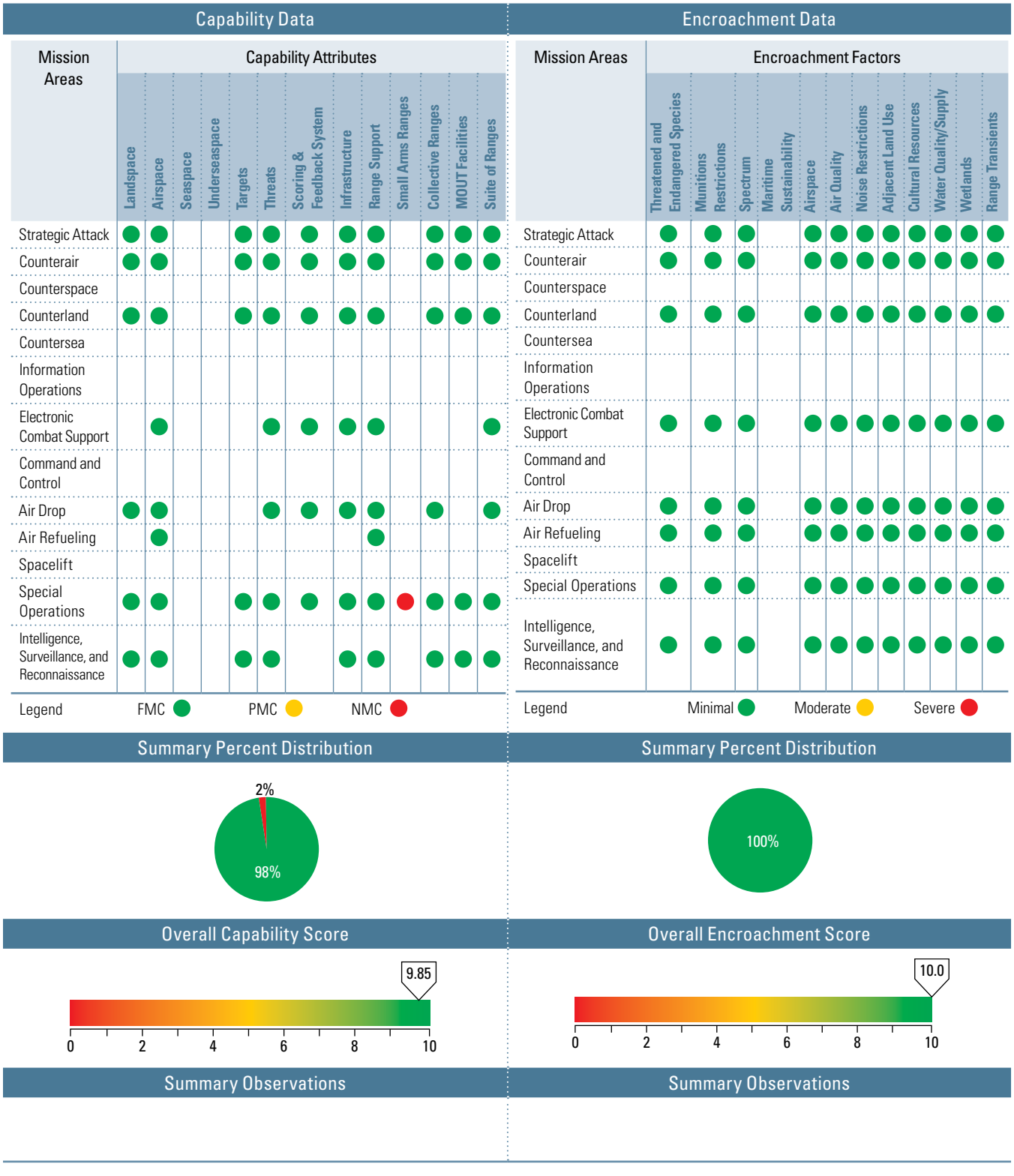
Attributes	Assigned Training Mission	Score	Comments
Landspace	Counterland	●	Range is relatively small for an air to ground range - 4500' wide at the widest point and 8100' long; size restricts some deliveries and is too short to allow strafing. There is a move to add some more area to the north for training bomb deliveries, no move to lengthen the range for possible strafing runs at this time.
Airspace	Counterland	●	Close proximity to military airport, Manching; therefore, A/C making bombing runs must make left turnouts immediately after the attack pass/delivery. A/C unable to make random attack passes; restricted to one direction. No action can be taken, close coordination maintained by RCO and ATCers when range is active eliminates conflicts.
Infrastructure	Counterland	●	Roads on range are in poor condition and buildings on range are dated. Minimal training impact, however, movement about the range in vehicles is restricted based on WX. USAFE A3 has provided funds to fix the worst of the buildings and roads, currently the work is proceeding estimated completion date on buildings EOY 2010.
Range Support	Counterland	●	Range main support base 600km away, therefore, support (range clearance, antenna maint, phone system, radio PMI's *etc.*) not readily available. Distance and lack of facilities makes cost to support a problem, travel per diem *etc.*

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Threatened & Endangered Species/Critical Habitat	Counterland	●	Main target position not optimum placement, off center right (north) on land mass. Moving to center of land mass would maximize deliveries, however could have a negative impact on noise abatement. Current plan to continue with current placement and possibly restrict deliveries. Looking forward, attempt to have German Air Force enlarge the range to the right (north) of the target placing it in the center by addition of land. This should allow most, if not all, deliveries and no adverse impact to noise abatement.
Munitions Restrictions	Counterland	●	Footprints using "Safe-Range" showed the safety zones for most deliveries exceeded range land. Training for GAF Tornados was stopped immediately; USAFE A-10's and F-16's were restricted to certain delivery methods and altitudes. Footprints using WDZ are being accomplished; it appears that some restrictions will be lifted once complete.
Airspace	Counterland	●	Close proximity to military airport, Manching; therefore, A/C making bombing runs must make left turnouts immediately after the attack pass/delivery. A/C unable to make random attack passes; restricted to one direction. No action can be taken, close coordination maintained by RCO and ATCers when range is active eliminates conflicts.
Noise Restrictions	Counterland	●	Multiple small towns/villages in the immediate vicinity of the range; A/C in traffic patterns must weave around towns on the downwind, base, and final turn until roughly 2 mile straight-in. A/C will continue to fly abnormal patterns in order to use the range and minimize noise complaints.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Smoky Hill Assessment Details



Smoky Hill Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Small Arms Range	Special Operations	●	No small arms range located on SHANGR, however, range is located immediately to the east on Army NG property leased from USAF. No significant impact to training on SHANGR other than limitation to caliber (nothing larger than 5.56), since firing can be conducted on Army ranges. No plan in place to change limitations, since firing can be conducted on Army ranges.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment

No Comments.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Torishima Assessment Details

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	NMC	FMC		PMC	PMC	NMC	NMC	FMC			NMC	PMC
Counterair													
Counterspace													
Counterland	PMC	NMC	FMC		PMC	PMC	NMC	NMC	FMC			NMC	PMC
Countersea													
Information Operations													
Electronic Combat Support	PMC					PMC							
Command and Control													
Air Drop													
Air Refueling													
Spacelift													
Special Operations													
Intelligence, Surveillance, and Reconnaissance													

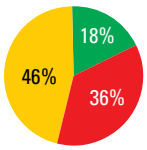
Legend: FMC, PMC, NMC

Encroachment Data

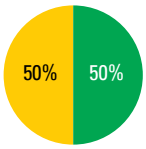
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack		Moderate		Minimal	Moderate		Minimal		Minimal			Severe
Counterair												
Counterspace												
Counterland		Moderate		Minimal	Moderate		Minimal		Minimal			Severe
Countersea												
Information Operations												
Electronic Combat Support												
Command and Control												
Air Drop												
Air Refueling												
Spacelift												
Special Operations												
Intelligence, Surveillance, and Reconnaissance												

Legend: Minimal, Moderate, Severe

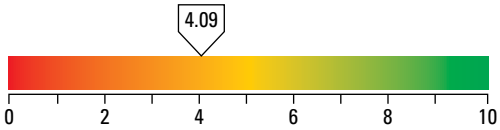
Summary Percent Distribution



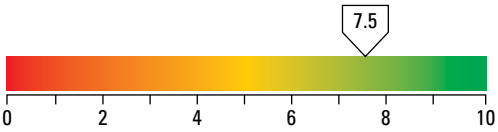
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

- See Encroachment Observations.

Summary Observations

- Overall this range marginally meets the training requirements of Joint users ranging from helicopters to jets. Impact from encroachment is limited to boat traffic occasionally transiting the impact boundaries. It is however, the hot topic of debate at 5 AF and USFJ because of a recent request to return the range outright back to Japan (ref Mr. Bishop (5AF) and Mr. Peyton (USFJ)). By closely working with Okinawa Defense Bureau and MLIT we are constantly seeking to reduced the boat encroachments. This range is essentially a rock/sand island in the ocean who's size is directly impacted by the tide level.

Torishima Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack	🟡	Land size is incredibly small; will not support more modern target layouts. Impact area size is 3 NM; weapon profiles are limited to footprints that will fit inside this area. Users have no target sets and fewer options for training scenarios and restricted profiles to keep weapons on range. No success in increasing impact area size to 5AF, JCAB, ODB, and MLIT; action must be taken at higher levels. If F-35 comes to Okinawa they will find themselves severely limited in A/G.
	Counterland	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.; land size does not support an EW array outside ordnance footprints (excluding helo use).
Airspace	Strategic Attack	🔴	Same as Landspace Strategic Attack comment. Airspace size is needs to be extended vertically and horizontally to encompass real world tactics; users restricted on profiles (jet only)
	Counterland	🔴	Same as above.
Targets	Strategic Attack	🟡	No targets on island; size, location, and live range status make this unfeasible.
	Counterland	🟡	Same as above.
Threats	Strategic Attack	🟡	No threats on island; size, location, and live range status make this unfeasible.
	Counterland	🟡	Same as above.
	Electronic Combat Support	🟡	Same as above.
Scoring & Feedback	Strategic Attack	🔴	There are no scoring or feedback systems on this range; users must visually score their own munitions. Vital information lost on accuracy, weapon performance, user performance, and weapon system.
	Counterland	🔴	Same as above.
Infrastructure	Strategic Attack	🔴	No infrastructure; not supportable. None planned.
	Counterland	🔴	Same as above.
MOUT Facilities	Strategic Attack	🔴	None; impact to CAS training and urban helo assault/insertion. No improvement planned at this time due to size and location of range.
	Counterland	🔴	Same as SA
Suite of Ranges	Strategic Attack	🟡	All comments above apply; range minimally supports current AF use but does not fully support sister service needs in region nor next generation aircraft requirement.
	Counterland	🟡	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Strategic Attack	🟡	PGM is severely restricted due to impact area size, airspace size (alt), and proximity to neighboring Host Nation island; jet users unable to employ from correct altitudes or distances (mirroring real world). Looking to restructure airspace and re-negotiate impact area size through the Joint Committee; a lengthy process and not easily accomplished with the "draw down" of US Forces in region.
	Counterland	🟡	Same as above.
Airspace	Strategic Attack	🟡	Airspace is severely limited because 1972 JC agreements were never revised to account for modern weapons or tactics; users required to fly profiles that do not mirror real world employment (helicopters excluded).
	Counterland	🟡	Same as above.
Range Transients	Strategic Attack	🟡	Largest issue is transient boat traffic preventing ordnance use. It is nearly impossible to police the area to keep boats out (Class C range). Users are required to cease fire if a boat enters the 3 NM impact area; mitigate this by notifying mariners to remain clear of the area. Work with ODB to book an alternative range (W-174) so users can quickly switch without significant training loss. If the range is being used as a simulated range only this does not impede range use.
	Counterland	🟡	Same as above.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Townsend Assessment Details

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	FMC	FMC			FMC	
Counterair	FMC	PMC			FMC	FMC	FMC	FMC	FMC			FMC	
Counterspace													
Counterland	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC		FMC	
Countersea													
Information Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	
Electronic Combat Support	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC		FMC	
Air Drop													
Air Refueling	FMC	PMC				FMC		FMC	FMC				
Spacelift													
Special Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	

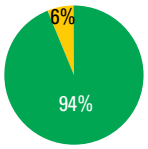
Legend: FMC, PMC, NMC

Encroachment Data

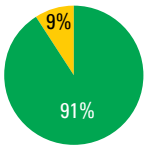
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
	Encroachment Factors											
Strategic Attack	Minimal	Moderate	Minimal		Moderate	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal
Counterair	Minimal	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterspace												
Counterland	Minimal	Minimal	Minimal		Minimal	Minimal	Moderate	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	Moderate	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Drop												
Air Refueling	Minimal	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Spacelift												
Special Operations	Minimal	Minimal	Minimal		Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal		Moderate	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

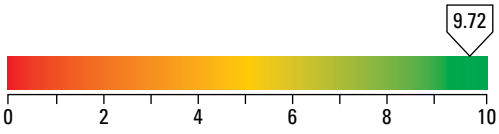
Summary Percent Distribution



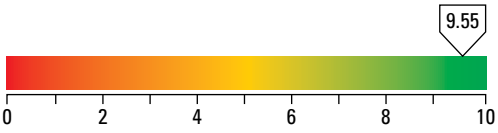
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

- Landspace and Range Support
- Strategic Attack

Summary Observations

- Airspace, Noise Restrictions, and Range Transient
- Strategic Attack, Counterair

Townsend Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Landspace	Strategic Attack	●	
Airspace	Strategic Attack	●	
	Counterair	●	
	Air Refueling	●	

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Strategic Attack	●	
	Command and Control	●	
Airspace	Strategic Attack	●	
	Counterair	●	
	Air Refueling	●	
	Intelligence, Surveillance, Reconnaissance	●	
Noise Restrictions	Strategic Attack	●	
	Counterland	●	
	Special Operations	●	

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Utah Test and Training Range Assessment Details

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	FMC	PMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Counterair	FMC	FMC			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													
Electronic Combat Support	FMC	PMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Command and Control													
Air Drop	FMC	FMC			FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC	FMC
Air Refueling	FMC	FMC			FMC	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	FMC	FMC

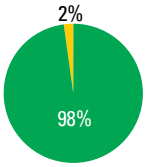
Legend: FMC, PMC, NMC

Encroachment Data

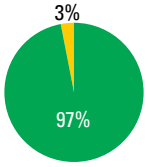
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	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	Moderate	Minimal	Minimal	Minimal
Countersea												
Information Operations												
Electronic Combat Support	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Command and Control												
Air Drop	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Moderate	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	Moderate	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

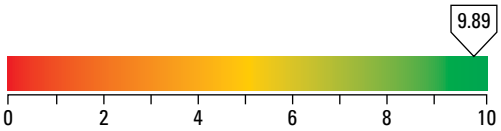
Summary Percent Distribution



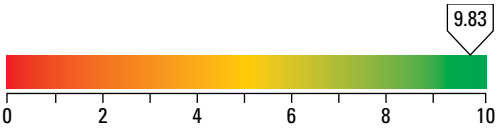
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

1. 98% of the UTTR's range/range complex mission areas are Fully Mission Capable (FMC)
2. Airspace Support is impacted by limitations during cruise missile, WSEP testing. 388 FW is forced to use White Elk ATCAA which does not support Strategic Attack or Electronic Combat.

Summary Observations

1. 97% of the range/range complex mission is free from encroachment factors.
2. Cultural Resources Encroachment involves a few very small archeological sites which require avoidance.
3. 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.

Utah Test and Training Range Limitation Details

Capability Observations

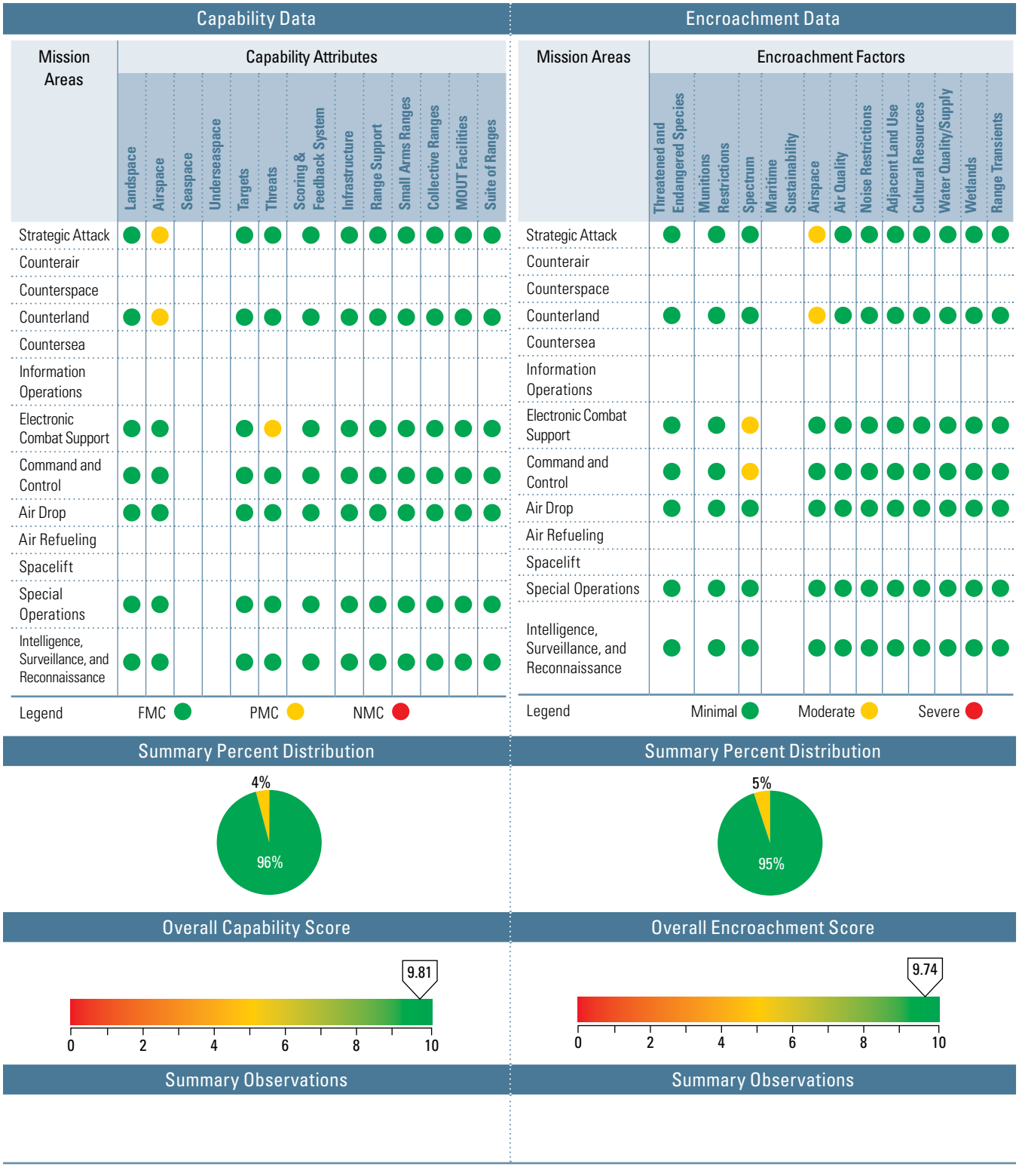
Attributes	Assigned Training Mission	Score	Comments
Airspace	Strategic Attack	●	Can be limited during cruise missile, WSEP testing forcing 388th to use White Elk ATCAA which does not support surface attacks.
	Electronic Combat Support	●	Same as above.

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Cultural Resources	Counterland	●	Archeological sites require avoidance. This avoidance has not and is not expected to limit access or 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.

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Warren Grove Range Assessment Details



Warren Grove Range Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Strategic Attack	●	
	Counterland	●	
Threat	Electronic Combat Support	●	

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Spectrum	Electronic Combat Support	●	
	Command and Control	●	
Airspace	Strategic Attack	●	
	Counterland	●	

Figure 3-40 Air Force Capability and Encroachment Assessment Detail (Continued)

Yukon Assessment Details

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	FMC	FMC			PMC	FMC	FMC	FMC	FMC			FMC	PMC
Counterair	FMC	PMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Counterspace	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Counterland	FMC	PMC			PMC	FMC	PMC	FMC	FMC			FMC	PMC
Countersea													
Information Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Electronic Combat Support	FMC	PMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Command and Control	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Air Drop	FMC	PMC			PMC	FMC	FMC	FMC	FMC			FMC	PMC
Air Refueling	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	FMC
Spacelift													
Special Operations	FMC	FMC			FMC	FMC	FMC	FMC	FMC			FMC	PMC
Intelligence, Surveillance, and Reconnaissance	FMC	FMC			PMC	PMC	FMC	FMC	FMC			FMC	FMC

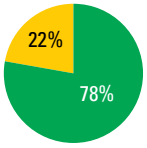
Legend: FMC, PMC, NMC

Encroachment Data

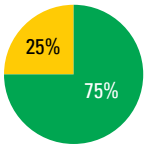
Mission Areas	Threatened and Endangered Species	Munitions Restrictions	Spectrum	Maritime Sustainability	Airspace	Air Quality	Noise Restrictions	Adjacent Land Use	Cultural Resources	Water Quality/Supply	Wetlands	Range Transients
Strategic Attack	Minimal	Moderate	Moderate		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Moderate	Minimal
Counterair	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Counterspace	Minimal	Minimal	Moderate		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Counterland	Minimal	Moderate	Minimal		Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Moderate	Minimal
Countersea												
Information Operations	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Electronic Combat Support	Minimal	Minimal	Moderate		Moderate	Minimal	Moderate	Moderate	Minimal	Minimal	Minimal	Minimal
Command and Control	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Air Drop	Minimal	Moderate	Minimal		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Moderate	Minimal
Air Refueling	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Spacelift												
Special Operations	Minimal	Moderate	Moderate		Moderate	Minimal	Minimal	Moderate	Minimal	Minimal	Minimal	Minimal
Intelligence, Surveillance, and Reconnaissance	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Legend: Minimal, Moderate, Severe

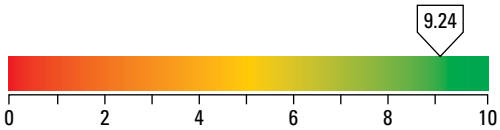
Summary Percent Distribution



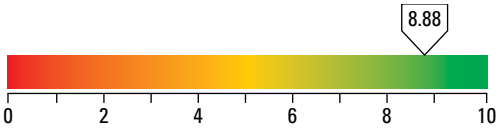
Summary Percent Distribution



Overall Capability Score



Overall Encroachment Score



Summary Observations

- Landspace, Suite of Ranges, Airspace, Targets, Scoring and Feedback System
- Strategic Attack and Counterland

Summary Observations

1. Encroachment has overall minor impact on Yukon range. Surrounding land part of Army training area which provides buffer to encroachment.
2. Hunters have access to the ranges with the exception of the impact areas.
3. Use of Chaff limited over range under certain winds aloft conditions due to interference with FAA capabilities around Fairbanks.

Yukon Limitation Details

Capability Observations

Attributes	Assigned Training Mission	Score	Comments
Airspace	Strategic Attack		Small restricted airspace for large scale exercises with multiple platforms; chaff limited by restrictions as noted in observations.
	Counterair		Same as above.
	Counterland		Same as above.
	Electronic Combat Command		Same as above.
	Air Drop		Same as above.
Targets	Strategic Attack		Limited good condition road access limits type of targets/materials
	Counterland		Same as above.
	Air Drop		Same as above.
	Intelligence, Surveillance, and Reconnaissance		Same as above.
Threats	Intelligence, Surveillance, and Reconnaissance		Limited visual, and IR replica targets. Improvement through acquisitions. Good Electronic spectrum targets.
Scoring & Feedback System	Counterland		Limited access certain times of year due to weather
Suite of Ranges	Strategic Attack		Overall limitation on size of areas available for current weapon types
	Counterland		Same as above.
	Air Drop		Limited tactical airlift/airdrop capability due to limited access. Some DZ's exist on army lands in surrounding land
	Special Operations		Some restrictions due to real-world air/space operations

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Munitions Restrictions	Strategic Attack		Chaff limited by restrictions as noted in observations; some run-in ordnance restrictions due footprint overlayment of manned threat sites and range infrastructures.
	Counterair		Same as above.
	Counterland		Same as above.
	Air Drop		Limited Air Land/Air Drop zones
	Special Operations		Restricted door gunnery patterns, highly restricted personnel movements for OPFOR
Spectrum	Strategic Attack		Limited spectrum availability for IO and IW warfare
	Counterspace		Some restrictions due to real-world air/space operations
	Electronic Combat Support		Significant limitations to use of spectrum, hampers Threat Engagement and C4ISR training
	Special Operations		Limited spectrum availability for unique communications needs
Airspace	Strategic Attack		Relatively small restricted area for large scale exercises with multiple platforms/weapons
	Counterair		Same as above.
	Counterland		Same as above.
	Electronic Combat Command		Same as above.
	Air Drop		Limited tactical airlift/airdrop capability due to limited access. Some DZ's exist on army lands in surrounding land
	Special Operations		Limited tactical capability due to limited access.
Noise Restrictions	Counterland		Fairbanks population near western border of area.
	Electronic Combat Support		Same as above.

Yukon Limitation Details

Encroachment Observations

Factors	Assigned Training Mission	Score	Comment
Adjacent Land Use	Strategic Attack	●	Fairbanks area, MOA edge and airways border western and southern edges.
	Counterair	●	Same as above.
	Counterland	●	Same as above.
	Information Operations	●	Same as above.
	Electronic Combat Support	●	Same as above.
	Air Drop	●	Same as above.
	Special Operations	●	Same as above.
Wetlands	Strategic Attack	●	Sensitive Tundra areas in and around range.
	Counterland	●	Same as above.
	Air Drop	●	Same as above.

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

Range Name	Capability Score	Encroachment Score
Airburst	10.0	10.0
Atterbury	8.98	8.23
Avon Park	9.62	9.32
Blair Lakes	8.61	8.64
BMGR	8.77	9.13
Bollen	8.77	9.15
Cannon	5.17	9.05
Claiborne	7.86	10.0
Dare County Ranges	9.59	9.55
Edwards Ranges	7.02	9.25

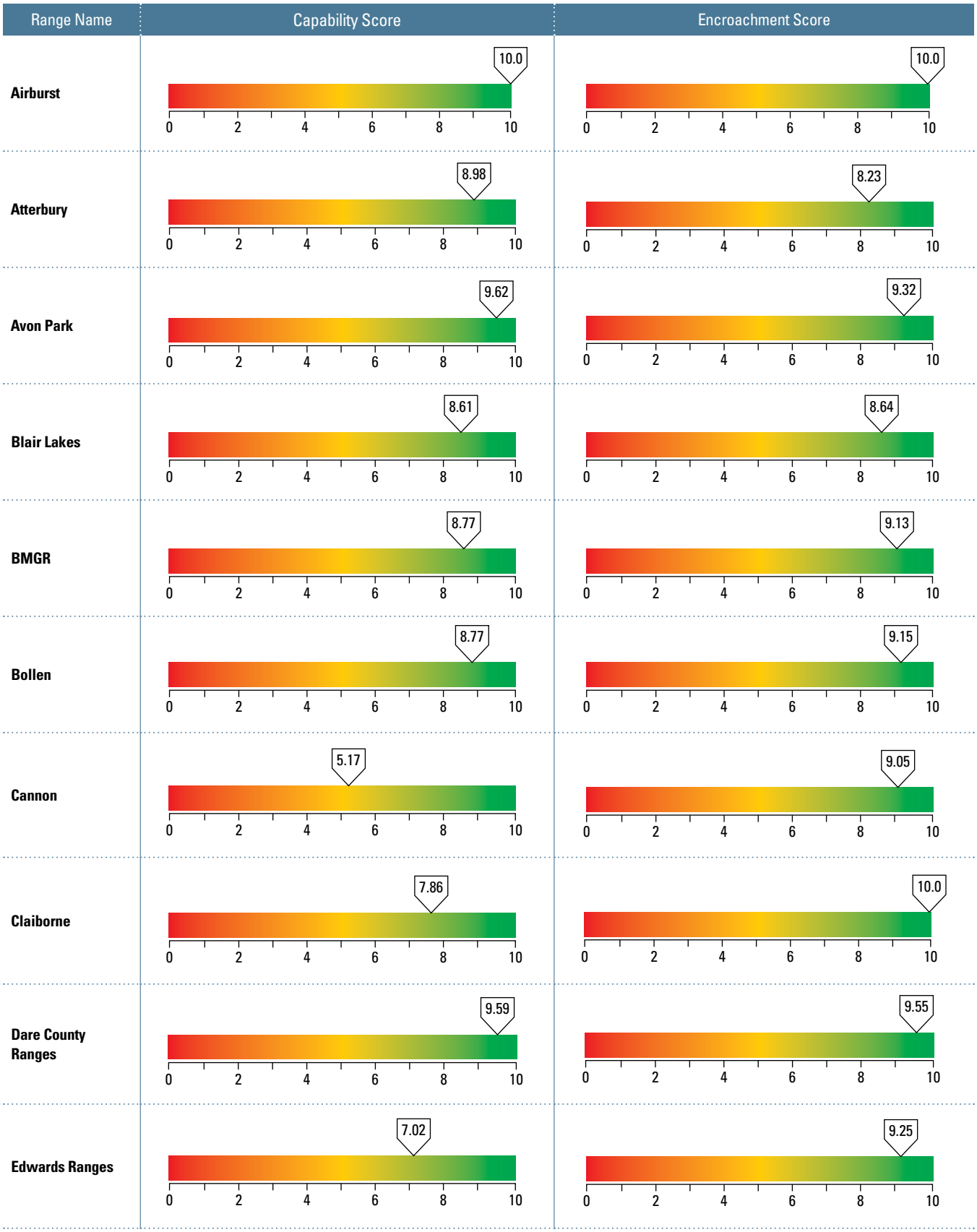


Table 3-15 Air Force Range Capability and Encroachment Assessment Comparison (Continued)

Range Name	Capability Score	Encroachment Score
Eglin Ranges	8.42	8.52
Falcon	10.0	10.0
Grand Bay	9.68	9.85
Grayling	9.44	9.49
Hardwood	9.5	9.09
Holloman	9.41	10.00
Idesuna Jima	3.75	5.88
Jefferson	9.14	8.71
Jik-Do	5.42	7.08
McMullen	6.27	9.81

Table 3-15 Air Force Range Capability and Encroachment Assessment Comparison (Continued)

Range Name	Capability Score	Encroachment Score
Melrose	10.0	9.75
Mountain Home Ranges	10.0	10.0
Nevada Test and Training Range (NTTR)	8.39	8.26
Oklahoma	9.19	8.88
Pilsung	7.12	9.34
Poinsett	9.81	9.92
Razorback	9.52	9.73
RIPSAW	5.65	7.58
Shelby Ranges	9.9	9.8
Siegenburg	6.67	7.5

Table 3-15 Air Force Range Capability and Encroachment Assessment Comparison (Continued)

Range Name	Capability Score	Encroachment Score
Smoky Hill	9.85	10.0
Torishima	4.09	7.5
Townsend	9.72	9.55
Utah Test and Training Range	9.89	9.83
Warren Grove	9.81	9.74
Yukon	9.24	8.88

3.3 Summary and Conclusion

This data will alllow 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 the 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. The 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.

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. In response, DoD has established a comprehensive range planning and management program under its SRI.

The SRI is a multi-faceted program that has reorganized the way that 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 FY10 SRR addresses FY03 NDAA Sections 366(a)(4)(c) and FY04 320(a) (2-3) requirements 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,

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.

OUSD(P&R) works with the 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 Office of the Deputy Under Secretary of Defense for Readiness (ODUSD[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 FY11. 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 FY09, 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 this year. The following graphic reflects the new goals.

2010 Goals

- **Goal 1**—Mitigate encroachment pressures on training and test 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.

Using these new goals as a common framework, the Military Services then set out to establish their own supporting milestones and actions. The structure of these new 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.

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)	**OUSD(P&R)** Deputy Director, RTPP Office of the Deputy Under Secretary of Defense (Readiness)
Army	**Office of the Deputy Chief of Staff, G-3/5/7,** Training Directorate Training Support Systems Division (DAMO-TRS)
Marine Corps	**Commanding General, Training, and Education Command** Range and Training Area Management Division[12] Range Modernization & Investment Range Operations & 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 Operations 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 Requirements** Director of Current Operations and Training Ranges and Airspace Division (HQ USAF [Headquarters United States Air Force]/A3O-AYR)

12 Executive Agent for Ranges
13 Executive Agent for Installations

Table 4-2 Encroachment Actions and Milestones

Goal—Mitigate Encroachment Pressures on Training and Test Activities from Competing Operating Space (land, air, sea, space, and cyber) uses.

Actions	Milestones
Army	
Complete the development of Installation Range Complex Master Plans (RCMPs) (see the Service special interest section for background)	▸ Finalize all RCMPs for Tier I, Tier II, and Tier III installations NLT 2nd Quarter FY10
Execute the Army Compatible Use Buffer Zone Program to protect the military mission and offset training restrictions	▸ Execute the ACUB program at 29 locations representing more than 1,000,000 acres of compatible land use permanently protected—(Completed) ▸ Revise the current ACUB Strategy to include metrics for accomplishing goals and objectives by 1st Quarter FY11
Implement a focused community research process to: provide the Army with a research-based understanding of community views regarding operational and perceived impacts of Army installations and training activities; and demonstrate an interest in public opinions, making the public part of the decision-making process.	▸ Complete a minimum of three additional research efforts by the 4th Quarter FY10 ▸ Develop an on-going strategy to continually update community research findings at all major training installations by 3rd Quarter FY10
Execute State Legislative Initiatives	▸ Through the Army Office of Environmental and Government Affairs, conduct reviews with stakeholders by 4th Quarter FY10 to discuss adverse impacts of incompatible land uses near military installations and gain their support to address these issues
Marine Corps	

Analyze and assess encroachment, quantitatively and qualitatively, at installation, regional, and Service levels.	▸ Include encroachment analysis in Regional Range Complex Management Plans (RCMPs)
	  ▸ MCI-West initiated (initiated FY09)
	  ▸ MCI-East (planned FY10)
	  ▸ MCI-PAC (planned FY11)
	▸ Execute Encroachment Control Plans (ECPs)
	▸ ECPs completed
	  ▸ MCAS Yuma
	  ▸ MCAGCC 29 Palms
	  ▸ MCB Quantico
	  ▸ MCAS Cherry Point (update in progress)
	▸ ECPs in progress (complete in FY10)
	  ▸ MCAS Beaufort/Townsend Range
	  ▸ MCB Camp Lejeune/MCAS New River
	  ▸ Joint (Navy/USMC) Guam
	▸ ECPs planned (FY10/11)
	  ▸ MCB Camp Pendleton
	  ▸ MCB Hawaii
	  ▸ MCMWTC Bridgeport
	  ▸ MCI-East Region
	  ▸ MCI-West Region
	  ▸ Northern Virginia Region
	▸ Continue to facilitate / support regional inter-agency and inter-governmental partnerships
	  ▸ Western Regional Partnership
	  ▸ Southeast Regional Partnership for Planning and Sustainability

Table 4-2 Encroachment Actions and Milestones (continued)

Goal—Mitigate Encroachment Pressures on Training and Test Activities from Competing Operating Space (land, air, sea, space, and cyber) uses.

Actions	Milestones
Navy	
Continue to analyze and assess encroachment, quantitatively and qualitatively at installation and regional levels	▸ Update applicable Encroachment Action Plans (EAPs) and complete an assessment of encroachment pressures and their impacts on the same Navy training and testing ranges using a parallel process
Continue to evaluate, plan for, and execute partnering opportunities per 10 U.S.C. Section 2684a	▸ Update applicable EAPs and identify all encroachment partnering opportunities for associated Navy training and testing ranges using a parallel process
Air Force	

Develop Center Scheduling Enterprise (CSE) system and integrate flight scheduling systems with other scheduling systems.	▸ Modify utilization reports in order to provide a complete and accurate assessment of airspace and range utilization (FY11)
	▸ Modify current airspace and range utilization reporting processes to make more effective (FY10)
	▸ Modify information operations activities so they are consistent with standard open air range activities (FY10)
	▸ Institute a streamlined version of CSE through an enterprise architecture:
	  ▸ CSE server locations set up at three locations with access and data sharing through a service-oriented architecture (FY10)
	  ▸ Provide a common system for units to schedule Air Force assets across DoD (FY09)
	  ▸ Standardize terms, practices and procedures at all Air Force ranges for scheduling and utilization reporting allowing true comparison of assets (FY10)
	  ▸ Provide a quantitative basis for defending current requirements and developing future needs (FY10)
	  ▸ Provide a single interface to the future mandatory FAA Military Airspace Data Entry (MADE) system for the scheduling of special use airspace (FY10)
	▸ Integrate CSE with other flight scheduling systems (underway) (FY10)

Table 4-3 Frequency Spectrum Actions and Milestones

Goal—Mitigate Frequency Spectrum Competition.

Actions	Milestones
Army	
Create an ACUB to protect spectrum at Ft Huachuca, home of the Electronic Proving Ground	▸ Subject to the availability of REPI funding, complete Phase III and IV of the Ft Huachuca ACUB plan in FY10 ▸ By 3rd Quarter FY10, assess issues that may impact the ACUB program at Ft Huachuca
Construct new ranges to minimize spectrum competition	▸ By FY17, complete the installation of fiber optic cabling to support a wireless network and control targetry in order to minimize spectrum and interference on 30 of 31 ranges
Marine Corps	
Analyze and assess frequency spectrum issues potentially impacting training capabilities at range complexes, at regional-level, and Service-wide.	▸ Assess operational impacts of frequency encroachment at range complex level (planned FY10–11) ▸ Incorporate frequency spectrum encroachment analysis and potential mitigation measures into planned ECPs, and updates to existing ECPs (planned FY10–11)
Navy	
Analyze and assess frequency spectrum issues potentially impacting training capabilities at the range complex and regional level	▸ By the end of FY12, update the RCMPs and EAPs to identify and assess frequency spectrum conflicts and shortfalls and the impacts on Navy training and testing
Air Force	
TBD	

Table 4-4 Airspace Actions and Milestones

Goal—Meet Military Airspace Challenges

Actions	Milestones
Army	
Develop a UAS Army Strategy and define Army use of UAS through 2024	▸ Finalize the Army's UAS training strategy and define use of UAS through 2024 by Dec 09. ▸ Finalize NEPA EA for training of UAS in restricted airspace by 3rd Quarter FY10 ▸ Complete assessment of ranges and airspace requirements to support UAS by 2nd Quarter FY10
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 Military Service levels.	▸ Include airspace analysis in Regional Range Complex Management Plans (planned FY10–11) ▸ Assess airspace requirements and shortfalls in preparation and submission of Regional Airspace Plans (FY10) (annual submittal to FAA) ▸ Initiate strategic-level assessment of range requirements and shortfalls re: training land and airspace (initiate FY10) ▸ Continue airspace expansion planning for MCAGCC Twentynine Palms (Draft EIS is scheduled to be completed by 3rd Qtr FY10) ▸ Headquarters and Regional airspace coordinators continue to track airspace issues and FAA initiatives potentially affecting military activities (ongoing)
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 Military Service levels.	▸ By the end of FY12, use RCMPs and EAPs in order 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. During the same process identify potential shortfalls in land and seaspace for each Navy range complex level
Air Force	
Develop a cooperative civil/military study of future airspace requirements.	▸ Implement Eglin BRAC DEIS mitigation measures in order to initiate a regional strategic airspace plan via the Gulf Region Airspace Initiative [GRASI] (FY10)

Table 4-5 Range Space Actions and Milestones

Goal—Manage Increasing Military Demand for Range Space

Actions	Milestones
Army	
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.	▸ By 4th Quarter FY10, begin revision of the Range and Training Land Strategy and update every two years afterward.
Execute Training Land Acquisitions to offset the nearly 5 million acre shortfall in training land assets	▸ Fort Irwin, National Training Center—The opening of the Western and Southern Expansion Areas has been delayed due to litigation, subsequent revision of the Desert Tortoise translocation plan, and preparation of appropriate NEPA documentation. ▸ Fort Carson, CO—Pinyon Canyon Maneuver Site (PCMS): PCMS expansion proposal was approved by OSD in Feb 07. Opposition to the proposed expansion of PCMS has resulted in litigation and limits training capability for soldiers stationed at Fort Carson; the Army is not currently pursuing land expansion at PCMS. ▸ Fort Polk, LA—Joint Readiness Training Center (JRTC): Fort Polk/JRTC expansion proposal was approved by OSD in Jul 08. Public engagement was initiated by Fort Polk in Dec 08; the National Environmental Policy Act (NEPA) process began in Apr 09 and the final EIS is scheduled to be complete by 4QFY10. ▸ South Texas Training Site—The South Texas Training Site (approximately 85 miles due south of San Antonio) expansion proposal was approved by OSD in Mar 08; the Master Planning was initiated in 1QFY10. ▸ Fort Benning—The Fort Benning land expansion proposal was approved by OSD in January 2010. The NEPA process will begin in the 3rd Quarter of 2010.
Utilize non-DOD sites for Army Training (Savannah River Site)	▸ Complete the necessary NEPA analysis and documentation to facilitate full training use of Savannah River Site by 4th Quarter FY10 (see the Service special interest section for background)
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 RCMPs (planned FY10–11) ▸ Facilitate enhanced cross-service utilization of range areas (cross-service use to be analyzed and quantified in Regional RCMPs beginning in FY10/11) ▸ Initiate strategic-level assessment of range requirements and shortfalls re: training land and airspace (initiate FY10) ▸ Continue land expansion planning for MCAGCC Twentynine Palms (Draft EIS is scheduled for 3rd Qtr FY10) ▸ Develop and execute other approved range expansion initiatives—Townsend Range (preliminary analysis due FY10)
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.	▸ By FY12, 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. In parallel, identify shortfalls in range capabilities in POM12 and PR13 and compete range requirements in Navy service level PPBE process
Air Force	
Coordinate range and airspace management functions via the Operating Space Enterprise Program Action Directive (OSE/PAD)	▸ Communicate across Space, Test, and Training communities (FY10) ▸ Implement planned and coordinated use of chartered bodies (FY10) ▸ Develop and implement a specified range configuration concept (FY10) ▸ Align actions to Planning, Programming, Budget and Execution (PPBE) Milestones (FY10)

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 for impact on mission	▸ As required, assess the impact of Army energy security projects and initiatives on training and readiness—Ongoing ▸ Participate on the DoD Energy Subcommittee and assess strategic implications of infrastructure policy on Army training equities as required
Marine Corps	
Support OSD-directed energy infrastructure policy and assessments.	▸ Continue to respond to requests for data and analysis on potential impacts of emerging energy infrastructure on range capabilities (as directed by OSD)
Monitor developments regarding energy infrastructure planning in western United States and engage at Regional and Headquarters levels as necessary on initiatives with potential training impacts.	▸ Continue to facilitate and support Regional inter-agency and inter-governmental partnerships
Navy	
Support OSD-directed energy infrastructure policy and assessments.	▸ Respond to requests for data and analysis on potential impacts on range capabilities and range space from proposed energy infrastructure on range capabilities ▸ By the end of FY12, complete development of a GIS assessment tool in Environmental Information Management System (EIMS) to expedite OSD-directed assessments
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)
Study potential impacts and mitigation techniques.	▸ Study wind turbine impacts and mitigation techniques (Phase 1—April 2010; Phase 2—Early FY11) ▸ Develop Tracking and/Decision making tool (FY11)

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 Report Global Climate Change directives when final ▸ Program adaptation and mitigation measures requirements in future POM cycles as required ▸ Assess Global climate change risks and vulnerabilities – Ongoing ▸ Program Global Climate Change adaptation and mitigation measures in future POM cycles ▸ Address global climate change in existing Army plans
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.	▸ During each cycle of update to the RCMPs, and composition of the SRR to Congress, analyze changes in training patterns to identify climate change as a contributing or causal factor
Air Force	
Establish Fire Prevention Procedures at Warren Grove.	▸ Implement the Warren Grove Comprehensive Range Plan (FY09) ▸ Implement the Warren Grove Risk Mitigation Plan (FY09)

Table 4-8 Environmental Stewardship Actions and Milestones

Goal—Sustain Excellence in Environmental Stewardship

Actions	Milestones
Army	
Execute the Army Range Assessment Program.	▸ Review all range assessment data from Phase I reports by 1st Quarter FY10 ▸ Conduct Phase II assessments, where required, starting in 2nd Quarter FY10
Execute environmental management and stewardship program to support sustainment of ranges and training lands.	▸ Finalize the Army Sustainability Campaign Plan by 4th Quarter FY10 ▸ Begin revising Army Regulation 200-1 Environmental Protection and Enhancement by 3rd Quarter FY10 ▸ Promulgate the compliance policy statement for the Army's Ecosystem Services by 2QFY10 (see the Service special interest section for background)
Marine Corps	

Continue executing environmental management and range sustainability programs Service-wide in accordance with applicable laws and regulations.	▸ Continue to formally engage national regulatory and legislative processes on issues with the potential to impact range sustainability or range readiness in coordination with OSD
	▸ USMC Regional Environmental Coordinators continue to engage local, regional, and state regulatory agencies on issues with the potential to impact range sustainability or range readiness
	▸ USMC to work with Department of Interior in coordination with other Services to explore biological crediting banks (wetland and ESA species banking) and regional and state levels (on going-began in FY06)
	▸ USMC continues to engage NGOs and local communities to work on regional solutions for land use conflicts, including:
	  ▸ Western Regional Partnership
	  ▸ Southeast Regional Partnership for Planning and Sustainability
	  ▸ Onslow Bight Conservation Forum
	  ▸ Sonoran Desert Military Ranges Conservation Partnership
	  ▸ Desert Managers Group

Navy	
Continue executing environmental management and range sustainability programs Service-wide in accordance with applicable laws and regulations.	▸ Renew expiring annual Marine Mammal Protection Act authorizations as needed ▸ At the end of each fiscal year, conduct an evaluation of implementation and effectiveness of Integrated Natural Resources Management Plans ▸ Complete ongoing environmental planning for at-sea operational areas and range complexes by the end of FY12
Air Force	
Provide for more accurate and flexible risk assessment and weapons footprint creation.	▸ Implement the Weapons Danger Zone (WDZ) tool (FY10)

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.,* operations & 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 and their descriptions are provided in Table 4-9. Specific examples for each category are included in Table 4-10.

Table 4-9 DoD Sustainable Ranges Initiative Funding Categories

Funding Category	Description
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.
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.
Environmental	Funds dedicated to environmental management of ranges, including range assessments, response actions, and natural and cultural resource management planning and implementation.
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.

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. This year's effort is the third attempt at collecting actual range sustainment financial data and, as such, will require refinement. Future funding will necessarily be subject to change, and is presented for planning purposes only. Military Service-wide range sustainability funding levels for FY09 through FY15 are provided in Table 4-11. FY09 values are included in this year's report to reflect a correction to the Army values presented in the FY09 SRR.

Table 4-10 Specific Examples for Funding Categories

Funding Category	Specific Examples
Modernization and Investment	▸ Construction of new Multi-Purpose Training Ranges at Army installations ▸ Construction of Improvised Explosive Device (IED) Defeat Lanes ▸ Upgrades to Small Arms Ranges
Operations and Maintenance	▸ Clearance of unexploded ordnance prior to range construction ▸ CivPay for Range Operators at Army installations
Environmental	▸ Conservation funding for INRMPs and ICRMPs ▸ Environmental mitigation costs associated with range modernization and range construction ▸ Conducting Range Assessments
Encroachment	▸ Administration and support of the Army Compatible Use Buffer (ACUB) program

Table 4-11 Service Training Range Sustainment Funding ($M)

Service	Fiscal Year						
Army	FY09*	FY10	FY11	FY12	FY13	FY14	FY15
Modernization	$328.5	$308.2	$297.6	$322.1	$488.2	$312.7	$349.3
Operations & Maintenance	$400.4	$353.0	$361.0	$372.3	$405.1	$412.4	$415.2
Environmental	$167.6	$158.0	$153.6	$161.0	$172.2	$158.1	$145.3
Encroachment†	$26.4	$27.0	$27.5	$28.1	$28.6	$29.2	$29.8
Army Total	**$922.9**	**$846.2**	**$839.7**	**$883.5**	**$1,094.1**	**$912.4**	**$939.6**
Marine Corps	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Modernization	$52.3	$9.9	$.5	$5.2	$36.8	$33.5	$25.8
Operations & Maintenance	$49.9‡	$45.9‡	$47.7‡	$55.1	$70.9	$73.0	$74.6
Environmental	$5.7	$5.7	$5.7	$5.7	$5.7	$5.7	$5.7
Encroachment	$5.0§	$7.0§	$.7§	$.7	$.7	$.7	$.7
Marine Corps Total	**$112.9**	**$68.5**	**$54.6**	**$66.7**	**$114.1**	**$112.9**	**$106.8**
Navy	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Modernization	$92.9	$111.8	$79.7	$79.5	$77.4	$75.3	$75.1
Operations & Maintenance	$177.9	$186.8	$175.8	$172.3	$174.4	$177.8	$181.1
Environmental	$8.9	$11.5	$10.9	$11.0	$11.5	$11.7	$11.9
Encroachment	$11.00	$11.0	$11.5	$12.0	$12.2	$12.4	$12.7
Navy Total	**$290.7**	**$321.1**	**$277.9**	**$274.8**	**$275.5**	**$277.2**	**$280.8**
Air Force	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Modernization	$62.0	$62.0	$62.0	$122.0	$118.7	$118.5	$99.6
Operations & Maintenance	$205.7	$205.7	$205.7	$186.0	$179.9	$184.3	$189.9
Environmental	$23.9	$23.9	$21.8	$27.7	$24.2	$24.5	$28.2
Encroachment	$6.6¶	$6.6¶	$6.6¶	No Service Input Provided			
Air Force Total	**$298.2**	**$298.2**	**$296.1**	**$335.7**	**$322.8**	**$327.3**	**$317.7**
All Services	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Service Total	**$1,624.7**	**$1,534.0**	**$1,468.3**	**$1,560.7**	**$1,806.5**	**$1,629.8**	**$1,644.9**

* *The Army FY09 data was corrected to accurately report values in the four categories.*

† *The Army's Encroachment funding line reflects Army and OSD funding to support the Army Compatible Use Buffer (ACUB) program. The Army had previously reported partner contributions as a component of this line of funding, but due to the uncertain nature of partner funding, no longer account for those contributions in this funding line. Additionally, there is no programmed funding to support the ACUB program. The FY09 funding data reflects actual program support and the FY10-15 funding is projected based on past funding levels.*

‡ *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.*

§ *The Encroachment line does not reflect funding requested from the Office of the Secretary of Defense (DUSD I&E) but not yet committed, to support compatible land use and encroachment partnering programs pursuant to 10 U.S.C. § 2684a. The Marine Corps anticipates it will receive and execute approximately $7 million of such funds in FY 2010.*

¶ *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 (M&I), Operations and Maintenance (O&M), and Environmental. It is unable to report on Encroachment funds, as that category is defined by OSD P&R.*

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.

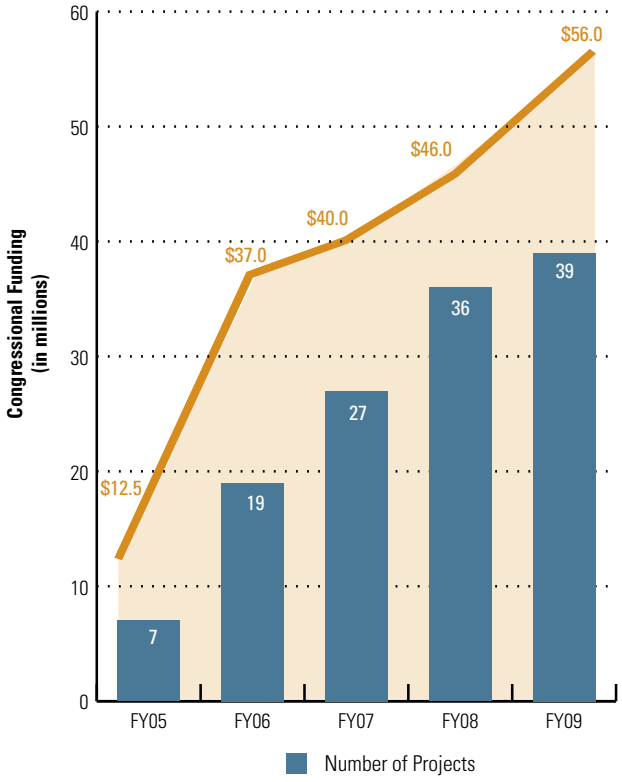
Recognizing the importance of open communication and close coordination with neighboring stakeholder communities in land-use planning and decision making, SRI has institutionalized a "toolbox" of programs and efforts that enable and support extensive partnerships focused on common needs and issues. The SRI toolbox incorporates the Readiness and Environmental Protection Initiative (REPI), Education and Engagement supporting outreach as well as in-reach within DoD, and Regional Partnering among DoD, state, federal, and NGO agencies. Collectively these efforts educate internal and external stakeholders and implement collaborative efforts outside installation and range fencelines 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 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. 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

The REPI program 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 Number of Projects and Funding Per Fiscal Year



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.

The 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 FY05 and through the end of FY08, REPI has supported Military Service partnerships with state and local governments or NGO advocates for private landowners to protect 76,225 acres of non-DoD land around installation and range lands across the nation. In total, between FY05 and FY09, REPI funding has supported projects at 53 installations and ranges in 23 states across the country.

The REPI vision is to achieve a positively adapting 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.

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 2009 REPI Report to Congress, at *https://www.denix.osd.mil/portal/page/portal/denix/range/Compatible:REPICongress*.

4.4.2 Office of Economic Adjustment Compatible Use Program

OEA provides technical assistance to installation and range officials and technical and financial assistance to neighboring states, communities, and interest groups by funding Joint Land Use Studies (JLUS). 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 JLUS, a Military Service and/or its stakeholder communities may identify an issue for which a REPI project can provide resolution. Thus, 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 fencelines.

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 Conference of State Legislatures, National Association of Counties (NACo), the National Association of Regional Councils (NARC), Western Governors Association (WGA), and many others. Examples of these efforts include:

- NACo has worked with DoD to conduct a cooperative action workshop focused on how counties, military

installations, and communities can address training constraints and community concerns around testing and training ranges using collaborative communication processes. As a liaison between counties and DoD, NACo has contributed to two of the SRI primer series as co-authors: *Working With Local Governments, A Practical Guide for Installations and Collaborative Land Use Planning, A Guide for Military Installations and Local Governments.*

- The National Conference of State Legislatures (NCSL) 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, 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 range tours at Walter Reed Army Medical Center and Fort A.P. Hill in 2009, providing a first hand look at quality of life and encroachment concerns at DoD installations to active state legislators.
- NARC 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 2009, NARC hosted the Commanding Officer of Nellis AFB as their keynote speaker at the NARC Annual Conference in Denver, Colorado, educating RC members on installation and range management and planning issues. NARC has also contributed to the SRI primer series co-authoring *Working With Regional Councils, A Guide for DoD Installations.*
- Western Governor's 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. In 2008, WGA adopted the Wildlife Corridors Initiative Report, and is now partnering with DoD to identify key wildlife corridors and crucial wildlife habitats that may lie in DoD lands in the West, and conserve those lands using conservation partnerships and GIS technology.

The SRI team also coordinates with Congress and other federal agencies and offices such as:

- Department of 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.

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 WIPT;
- 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 newsletter updates 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 fenceline. 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;*
- *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 2010 with the following:

- *Working with Developers, a Primer for Military Installation Commanders and Their Staffs;*
- *Working with NGOs;*
- *Working with Federal Agencies;* and
- *The Successful Range Tour, A Guide for Military Installations and Stakeholder Leadership.*

Davis-Monthan range tour participants have an up-close look at the size and weight of common military equipment.

A range tour at Davis Monthan AFB opens the information exchange directly from the installation to the NCSL Military Sustainability Task Force.

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. Open dialogue during these tours is encouraged—both the range tour participants and base personnel are expected to ask "hard questions" of one another. Range tours occurred in 2009 at Fort A.P. Hill, VA; Davis-Monthan AFB, AZ; and Walter Reed Army Medical Center, Washington, D.C.

Sustaining Military Readiness Conference

DoD held the most recent Sustaining Military Readiness Conference, designed to bring together DoD personnel and partners from the operational, planning, and cultural and natural resources conservation communities in August 2009. Approximately 800 individuals representing DoD, other government agencies, and NGOs engaged in discussions and educational training to promote military readiness through conservation, compatible land use planning, and encroachment mitigation. Workshops and sessions offered valuable insight and skills for mission success. Speakers presented best practices across DoD and the private sector on sustaining training and testing ranges and addressing hot issues collaboratively. Marking the success of the education and engagement efforts of SRI, speakers hailed from the Military Services as well as partner groups such as The Sierra Club, Freedom to Roam, The Nature Conservancy, the Global Maritime and Transportation School, FAA, State Legislatures, Regional Councils, Governors' offices, and many others. At the end of the conference, participants had the opportunity to attend field trips supplementing the discussions and applying lessons learned in the field. Attendee feedback indicated the high utility of this conference, and strongly supported future conferences of this nature.

4.4.4 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 three 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.

Navy and Marine Corps: Integration of Community Plans and Liaison Offices (CPLO)

Both the Navy and the Marine Corps have formed CPLOs at their installations, regions, and at Headquarters level. The purpose of these offices is to manage encroachment issues and protect mission viability through active management in local planning and community involvement. The advantage of having a staff dedicated to this function is four fold. Liaison staff can:

- Monitor developments in the community that might impact the installation;
- Keep records of installation responses to inquiries and official planning process inputs so that they are consistent over time;

- Provide the community with a single point of contact; and
- Develop personal relationships with local and regional planners and decision makers.

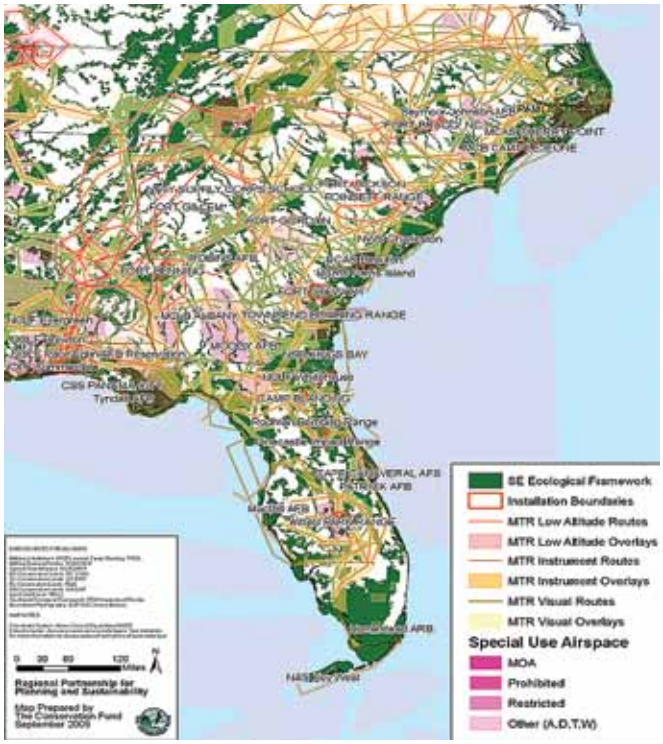
4.4.5 Regional Partnership

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 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.

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 4-2) 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.

Figure 4-2 Southeast Regional Partnership for Planning and Sustainability Focus Areas



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.

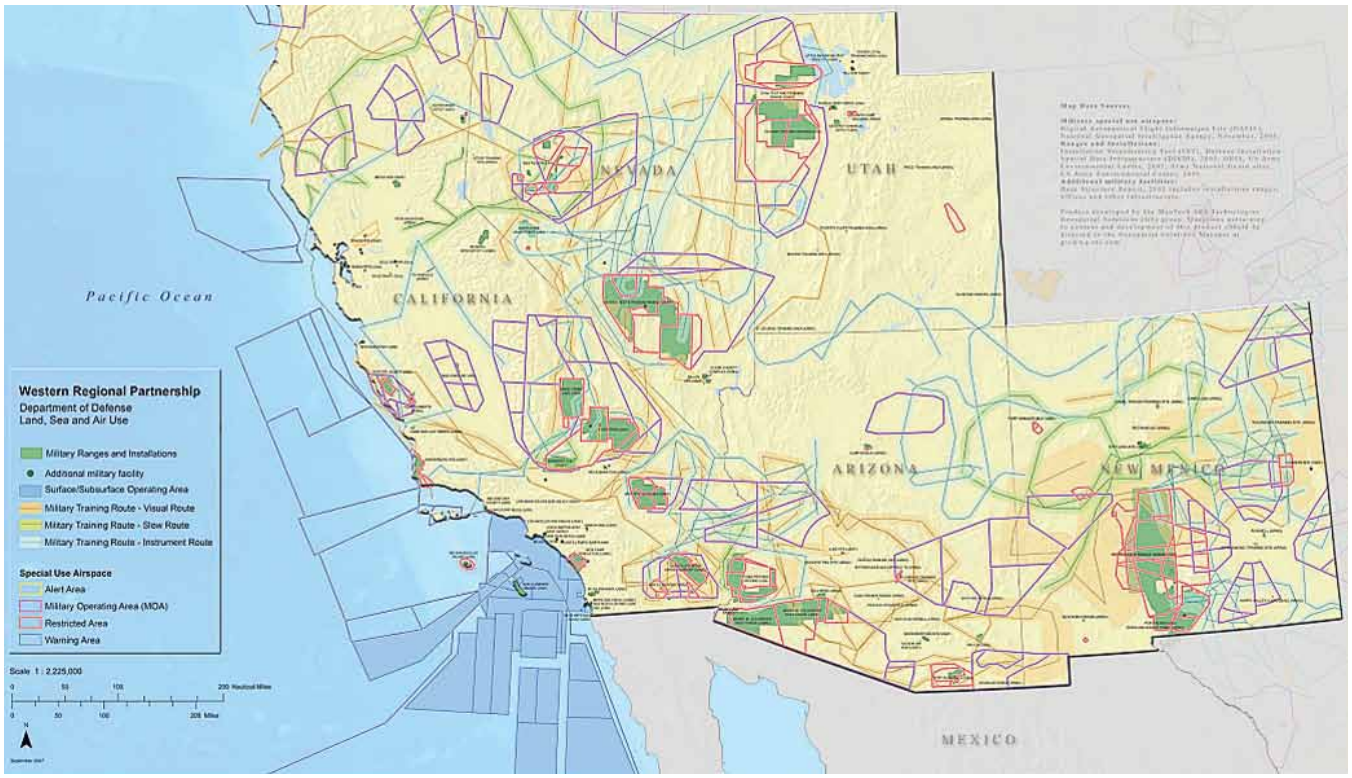
Primary activities within SERPPAS focus areas include the sharing of GIS maps and identification of potential land uses and development of partnership activities to leverage resources and promote mutual and multiple benefits to SERPPAS partners. Project focus areas include the Strategic Lands Inventory, Long Leaf Pine Conservation, the Marine Coastal Initiative, Red Cockaded Woodpecker Translocation, and the Gopher Tortoise Candidate Conservation Agreement. The 9th Principals meeting was held in November 2009 in Destin, Florida, to include a range tour of Eglin AFB.

Western Regional Partnership (*www.wrpinfo.org*)

The DoD's second regional effort, the WRP (Figure 4-3), continues to build momentum after a successful initial meeting in the fall of 2007. Several key issues were identified as starting points for potential projects under the WRP framework, which have since formed into formal sub-committees for discussion and coordinated action in their area of interest. An executive team has been formed to coordinate and communicate WRP-related activities to the Military Service principals, DoD leadership, and regional partners.

Issues of common concern throughout the partnership have been expanded further through the establishment of committees. WRP committees are working to better improve

Figure 4-3 Western Regional Partnership Focus Areas



regional and interagency cooperation among states and federal agencies on the following critical Western regional issues:

- Border;
- Disaster preparedness;
- Energy;
- GIS;
- Land use; and
- Wildlife corridors, critical habitat, and threatened and endangered species.

The WRP committees provide a forum for information exchange and a clearinghouse for focus areas across the five-state region. At the Second WRP Principals' meeting held in the Spring of 2009, the Principals supported the continuance of the committees as well as standing up an Interim Steering Committee to provide additional definition to WRP. Participants in these subgroups and in the principals' forum include DoD personnel and Military Service members from the Southwest region; senior staff from federal agencies such as the BLM, DOI, and Department of Homeland Security (DHS); tribes representatives from Arizona, California, Nevada, New Mexico and Utah. Part of the working group's tactical planning includes coordinating with parallel ongoing efforts led by the WGA. The WGA is well-positioned within the west to provide guidance and issue-related support to the WRP.

4.4.6 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. Land planning agencies are meeting with DoD staff and engaging in two-way communication to discuss encroachment potential and mitigation, compatible land use planning, and partnerships for greater sustainability.

The inherent potential for accidents and annoyances associated with military training make some types of development incompatible or unsuitable for locations in the immediate vicinity of military training and testing installations. The authority in 10 U.S.C.§ 2684a has its greatest impact in areas that are currently not developed but have potential for growth in the future, and will be most helpful in those situations where zoning and other land use controls cannot be relied upon. While the authority is less beneficial to those areas that are already heavily developed, coalitions and partnerships with NGOs such as NARC and NACo are working to assist military installation and range staff with difficulties bases face in cities, counties, and local communities regarding land use planning and incompatible development. It is, however, incumbent upon staff to reach out and engage those beneficial stakeholders.

Success Stories

Florida Forever

The state of Florida, through its Florida Forever land preservation program, has been an active partner with DoD in promoting compatible land use. The 10-year, $3 billion program—which focuses on environmental conservation, water and land restoration, as well as cultural preservation—is the largest land-acquisition program in the nation. The program gives priority to environmental needs that overlap with military needs.

In 2009, the state approved the purchase of nearly 1,400 acres in the Clear Creek and NAS Whiting Field area, a Florida Forever project area near Milton, Florida. The project included funding from REPI, which allowed the military to cost-share the protection of the land with the state. The buffer helps prevent encroachment along NAS Whiting Field while providing sustainable recreational opportunities for nearby residents.

In all, the state has invested over $900 million in acquiring over half a million acres around various strategic military bases. These buffers prevent incompatible encroachment around these installations; they preserve rural lands and crucial wildlife habitat corridors; and they provide for the conservation and restoration of important watersheds.

Cooperative Conservation Award, Fort A.P. Hill, VA

As part of the Rappahannock Land Protection Partnership, Fort A.P. Hill received DOI's 2009 Cooperative Conservation Award, which recognizes cooperative conservation achievements that involve collaborative activity among a diverse range of entities. Fort A.P. Hill was nominated alongside its other partners, including The Conservation Fund, The Nature Conservancy, and the USFWS. Fort A.P. Hill's conservation buffer projects directly support the Rappahannock Land Protection Partnership and the Rappahannock River Valley National Wildlife Refuge.

Formed in 2006, the Fort A.P. Hill partnership sought to protect land adjacent to the installation as part of the Army Compatible Use Buffer (ACUB) program. In 2009, agreements were finalized, which included REPI funding that put nearly 3,000 acres of land into conservation easements near Fort A.P. Hill. This buffer is helping to preserve the installation's training mission while also conserving valuable wildlife habitat and sensitive natural and cultural resources, including Camden Farm, a National Historic Landmark.

Warren Grove Bombing Range

The Air Force's Warren Grove Bombing Range, located in New Jersey, provides air to ground bombing and small arms training for active duty Navy and Marine Corps units, as well as Air Force active duty, Guard, and Reserve units. In addition to protecting the viability of continued training missions, the REPI project at Warren Grove Range protects the Pinelands Federal Reserve. The Reserve, also known as the Pine Barrens, was designated the nation's first National Reserve in 1978, and was designated a United Nations International Biosphere Reserve in 1983. Ownership by the New Jersey Conservancy will result in the implementation of vegetation management practices designed to minimize the risk of fire from military training exercises.

Without buffer lands properly managed to address this concern, the military mission at the range was endangered due to the potential threat of wildfire. The range shut down entirely in May 2007 for more than a year due in part to the excessive buildup of dense underbrush, which directly contributed to the severity of wildfire there and the resultant inability to control it. This is a prime example of how a land management concern can also directly become a military readiness concern. Vegetation control practices to decrease the likelihood of training-induced fires will not only minimize the number of days that the range is closed to the military, but will reduce the occurrence of natural wildfires and protect private property near the range.

Marine Corps Base Quantico and Merrimac Farm

REPI and Military Service-initiated projects in general can have strong additional benefits for nearby communities. Near Marine Corps Base (MCB) Quantico in northern Virginia, for example, the preservation of an area needed to protect the base's mission also preserved a key hunting and fishing area enjoyed by the community.

The fate of Merrimac Farm had been in question for some years while the owner and his heirs weighed a decision on selling the property. A nearly 300-acre farm adjacent to Quantico Marine Base, the property was acquired by a partnership consisting of the Virginia Department of Game and Inland Fisheries, the Prince William Conservation Alliance, and the Marine Corps. The property was incorporated into the State of Virginia's system of game preserve lands. The Marine Corps contributed nearly $1.5M towards property purchase and received a restrictive easement. The state's acquisition of the property aided by Marine Corps funds helped serve Virginia's statewide goal of reducing the development of forests and farms by 30 percent.

4.5 Overview of Legislative and Regulatory Initiatives

The Department has no formal plans or recommendations for legislative or regulatory clarifications at this time. In the future, however, DoD will follow the processes and procedures prescribed by the Office of Management and Budget for introducing such initiatives if the need arises and situation dictates the necessity to do so.

4.6 Readiness Reporting Improvements

As robust encroachment and capabilities assessments are conducted under the SRI, DoD is enhancing DRRS by

establishing a range component 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

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. DoDD 7730.65, Department of Defense Readiness Reporting System, authorized the establishment of a readiness assessment network to calculate the capabilities and preparedness of military units to conduct wartime missions and other contingencies.

The DRRS 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 pillars: 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 environment 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 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 METs and METLs, and to support the Joint Force Commander's JMETLs to prescribed standards.

4.6.2 Relationship with Other Readiness Systems

The DRRS also links to broader DoD Transformation initiatives such as training, logistics, and personnel systems. Additionally, the METs considered in the DRRS 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 are in various stages of establishing links to the DRRS Program. 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

As part of NDAA Section 366 "Sustainable Range Report to Congress," DoD and the Military Services have collaboratively identified a common set of thirteen Capability Attributes, twelve Encroachment Factors, and Military Service-specific Training Mission Areas, and have begun pilot testing for the relationship between encroachment and tactical unit readiness. The development of this SRR framework and Military Service use of the methodology for the 2008 through 2010 SRR report was intended to validate the logic model and information flow for reporting mission-based assessments and to gauge the degree of interdependency between encroachment and training range capabilities.

The results have shown that the process of collecting and reporting assessments in this "cause and effect" manner is understandable, repeatable, and efficient. If borne out by further analysis, this approach may allow DoD to perform "what-if" analysis of range issues and to better relate encroachment and capability concerns to unit readiness.

Based on these results and feedback from 2008 and 2009 data collection, DoD and the Military Services agreed to use these business rules and reporting methodologies as the baseline requirement for development of a prototype Range Assessment Module (RAM) in DRRS. The Department began Phase I development in January 2009. Functional and system requirements were developed for a phased implementation of the system. The Phase I development focused on synchronizing SRR assessment methods to DRRS business rules for data collection, assessment, and reporting. This approach is consistent with the congressional reporting requirement—House Report (H.R.) 5658 (Duncan Hunter NDAA for Fiscal Year 2009) that directed DoD to report on:

- Plans to pilot test a new functionality for training range encroachment assessment during calendar year 2008; and
- How encroachment affects the training and readiness levels of tactical units of the Military Services.

Phase I of the system development is planned and targeted to support the data collection, assessment, and development of the 2011 SRR. The intention under Phase II development will be to use the DRRS framework to establish a stand-alone RAM, and to integrate it with Military Service readiness reporting processes. This in turn should allow for the establishment of

linkages between the ranges in question and the units using these ranges, with the unit's assigned operational tasks.

With Phase II implementation, end-user (range operator) participation, and additional user training for the range assessment module, OSD expects the quality of the data to improve support for OSD/Military Service-level decision making. Eventually, the assessment data could be used to pinpoint common factors requiring action, for decision support and to conduct "what if" drills.

The alignment between DoD and the Military Services range assessment and readiness reporting is demonstrated in the 2008 and 2009 SRRs through standardized criteria and definitions. These reports were based on a supporting foundation of the Military Services' range reporting systems, Military Service-specific mission areas, and support the overall objective of establishing system and command links in DRRS. An interim report to this effect was submitted to Congress in, September 2009 (Measurement of Encroachment Impacts on Military Readiness).

OSD will continue to validate the standardized approach through 2010 and 2011 using data collection, analysis and reporting. The final report in response H.R. 110-652 on H.R. 5658, the Duncan Hunter NDAA for FY09, will expound on further improvements made in the assessment of system alignment for DoD and the Military Services.

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.
- 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.
- 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.

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 US Army Installation Geospatial Information and Services (IGI&S) data proponency, Common Installation Picture, and Quality Assurance Plans (QAPs). As such, all Army installations are required to maintain geospatial common installation picture data and metadata for their sites. As such, the updating of the operational range inventory has now transitioned from a centralized data collection effort to a decentralized one. Updates of range data for installations under HQDA G-3/5/7's SRP will be compiled by Army SRP Program GIS Professionals per the DAMO-TRS SRP GIS Program Data Development Strategy guidance issued in November 2008 from the Chief of the Training Support Systems Division of G-3/5/7, with oversight from the Army Training Support Center Training Capability Manager—Live. SRP supported Tier III installations which lack on-site SRP GIS assistance, will receive support from the SRP GIS Regional Support Center (RSC). The geospatial data layers that represent operational ranges are required to be validated at least once per year.

Data Elements and Sources

The range data elements to be created and maintained by the installation SRP GIS professionals or SRP RSC are defined in each layer's quality assurance plan. Quality assurance plans 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 & methods, data quality requirements, attribute definitions and requirements, and metadata requirements for each of the data layers. Quality assurance plans are living documents and are maintained by the headquarters proponent with input from the installation data stewards and other stakeholders.

Databases and Applications

The Army Mapper is the Army's database of record for installation geospatial data. All geospatial data relating to operational ranges will be stored in the Army Mapper. Operational range data are accessible for viewing and querying in the Army Mapper Web Map Viewer. The Web Map Viewer is an interactive mapping application that is available to anyone with an Army Knowledge Online account.

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 biannually to coincide with the POM development cycle, beginning in FY09. 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 dependant 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.

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5 The Way Ahead

As DoD's SRI has continued to mature over the last eight 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;
- 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

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 staff address encroachment concerns by providing training and education to staff both inside and outside the fenceline, 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 Use and Partnering Activities

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 70,000 acres of land near and around DoD installations by the close of FY08, and demand from the Military Services for funding of projects in FY09 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 will ultimately be expanded to all regions of the country, providing for better informed compatible land use planning decisions and ensuring range sustainability nationwide.

It is important to note that SRI outreach, education, 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 FY09 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 SRI will be realized when DoD can prevent encroachment and avoid mission degradation before it occurs. A RAND Corporation study is currently underway to develop recommendations on success criteria for the REPI program that will help DoD evaluate how buffering addresses encroachment and translate that evaluation into positive mission benefits. The Military Services have similar efforts underway as described in Chapter 4.

5.4 Management Reviews

The SRI has matured to the point that, as with any complex initiative, it would benefit from regular management reviews. While the current WIPT structure will remain in place, a formal review process was instituted by OUSD(P&R) in 2008 as a management tool. As a result of this process, new goals, actions, and milestones have been established to more accurately reflect current and future program conditions and range requirements.

5.5 Overarching Data Management Strategy

Range data is currently stored in multiple formats across DoD and the Military Services. Given the disparate nature of the data, and the prominent role that the range inventory and encroachment and capability assessments play in the SRI, an overarching data management strategy is a critical component of the review process. It is envisioned that such a strategy will be developed under the shared information enterprise. Reporting range readiness up the Military Service chains of command and through the DRRS will likely be the primary focus of initial data management efforts conducted under this overarching data management strategy.

5.6 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 seventh 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 FY08, 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'.

The National Defense Authorization Act for Fiscal Year 2004

Sec. 320. Report Regarding Impact of Civilian Community Encroachment and Certain Legal Requirements on Military Installations and Ranges and Plan to Address Encroachment.

[a] Study Required—The Secretary of Defense shall conduct a study on the impact, if any, of the following types of encroachment issues affecting military installations and operational ranges:

[1] Civilian community encroachment on those military installations and ranges whose operational training activities, research, development, test, and evaluation activities, or other operational, test and evaluation, maintenance, storage, disposal, or other support functions require, or in the future may require, safety or operational buffer areas. The requirement for such a buffer area may be due to a variety of factors, including air operations, ordnance operations and storage, or other activities that generate or might generate noise, electromagnetic interference, ordnance arcs, or environmental impacts that require or may require safety or operational buffer areas.

[2] Compliance by the Department of Defense with State Implementation Plans for Air Quality under Section 110 of the Clean Air Act (42 USC 7410).

[3] Compliance by the Department of Defense with the Solid Waste Disposal Act (42 USC 6901 et seq.) and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 USC 9601 et seq.).

[b] Matter to be Included with Respect to Civilian Community Encroachment—With respect to paragraph (1) of Subsection (a), the study shall include the following:

[1] A list of all military installations described in Subsection (a)(1) at which civilian community encroachment is occurring.

[2] A description and analysis of the types and degree of such civilian community encroachments at each military installation included on the list.

[3] An analysis, including views and estimates of the Secretary of Defense, of the current and potential future impact of such civilian community encroachment on operational training activities, research, development, test, and evaluation activities, and other significant operational, test and evaluation, maintenance, storage, disposal, or other support

functions performed by military installations included on the list. The analysis shall include the following:

[A] A review of training and testing ranges at military installations, including laboratories and technical centers of the military departments included on the list; and

[B] A description and explanation of the trends of such encroachment, as well as consideration of potential future readiness problems resulting from unabated encroachment.

[4] An estimate of the costs associated with the current and anticipated partnerships between the Department of Defense and non-Federal entities to create buffer zones to preclude further development around military installations included on the list, and the costs associated with the conveyance of surplus property around such military installations for purposes of creating buffer zones.

[5] Options and recommendations for possible legislative or budgetary changes necessary to mitigate current and anticipated future civilian community encroachment problems.

[c] Matters to Be Included With Respect to Compliance with Specified Laws—With respect to paragraphs (2) and (3) of Subsection (a), the study shall include the following:

[1] A list of all military installations and other locations at which the Armed Forces are encountering problems related to compliance with the laws specified in such paragraphs.

[2] A description and analysis of the types and degree of compliance problems encountered.

[3] An analysis, including views and estimates of the Secretary of Defense, of the current and potential future impact of such compliance problems on the following functions performed at military installations.

[A] Operational training activities.

[B] Research, development, test, and evaluation activities.

[C] Other significant operational, test and evaluation, maintenance, storage, disposal, or other support functions.

[4] A description and explanation of the trends of such compliance problems, as well as consideration of potential future readiness problems resulting from such compliance problems.

[d] Plan to Respond to Encroachment Issues—On the basis of the study conducted under Subsection (a), including the specific matter required to be addressed by Subsections (b) and (c), the Secretary of Defense shall prepare a plan to respond to the encroachment issues described in Subsection (a) affecting military installations and operational ranges.

[e] Reporting Requirements—The Secretary of Defense shall submit to the Committee on Armed Services of the Senate and the Committee on Armed Services of the House of Representatives the following reports regarding the study conducted under subsection (a), including the specific matters required to be addressed by subsections (b) and (c):

[1] Not later than January 31, 2004, an interim report describing the progress made in conducting the study and containing the information collected under the study as of that date.

[2] Not later than January 31, 2006, a report containing the results of the study and the encroachment response plan required by subsection (d).

[3] Not later than January 31, 2007, and each January 31 thereafter, through January 31, 2010 a report describing the progress made in implementing the encroachment response plan.

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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 Service Support Element (CSSE)—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, swarm attacks, 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 nonkinetic 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, antiship warfare, protection of sea lines of communications through antisubmarine and antiair 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.

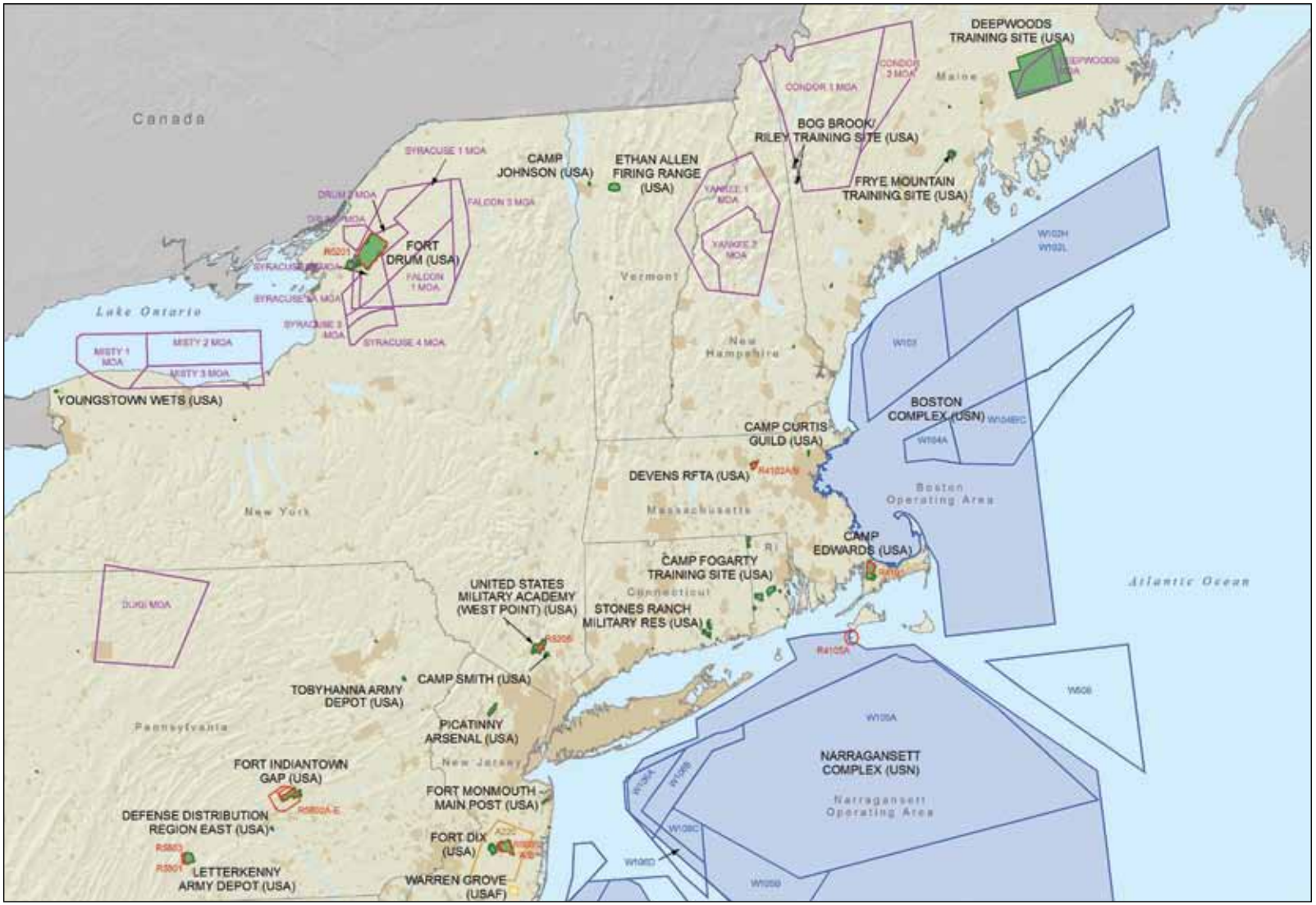
Spacelift—The delivery of satellites, payloads, and materiel to space.

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

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

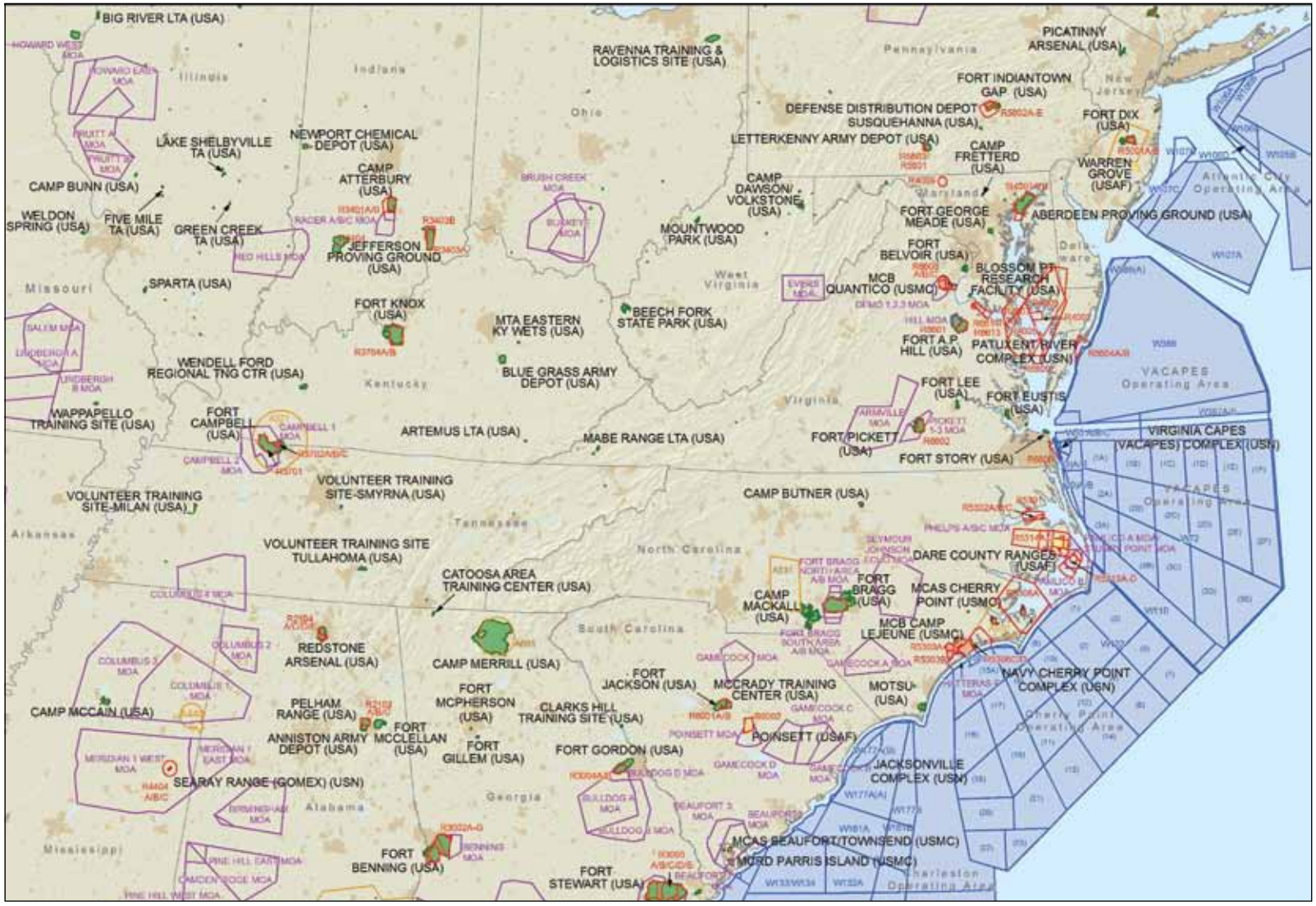
- Alert Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

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*

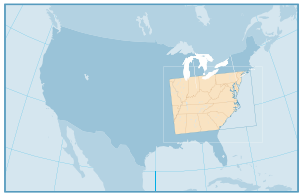
*Army ranges smaller than 500 acres are not labeled.

Special Use Airspace

- Alert Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

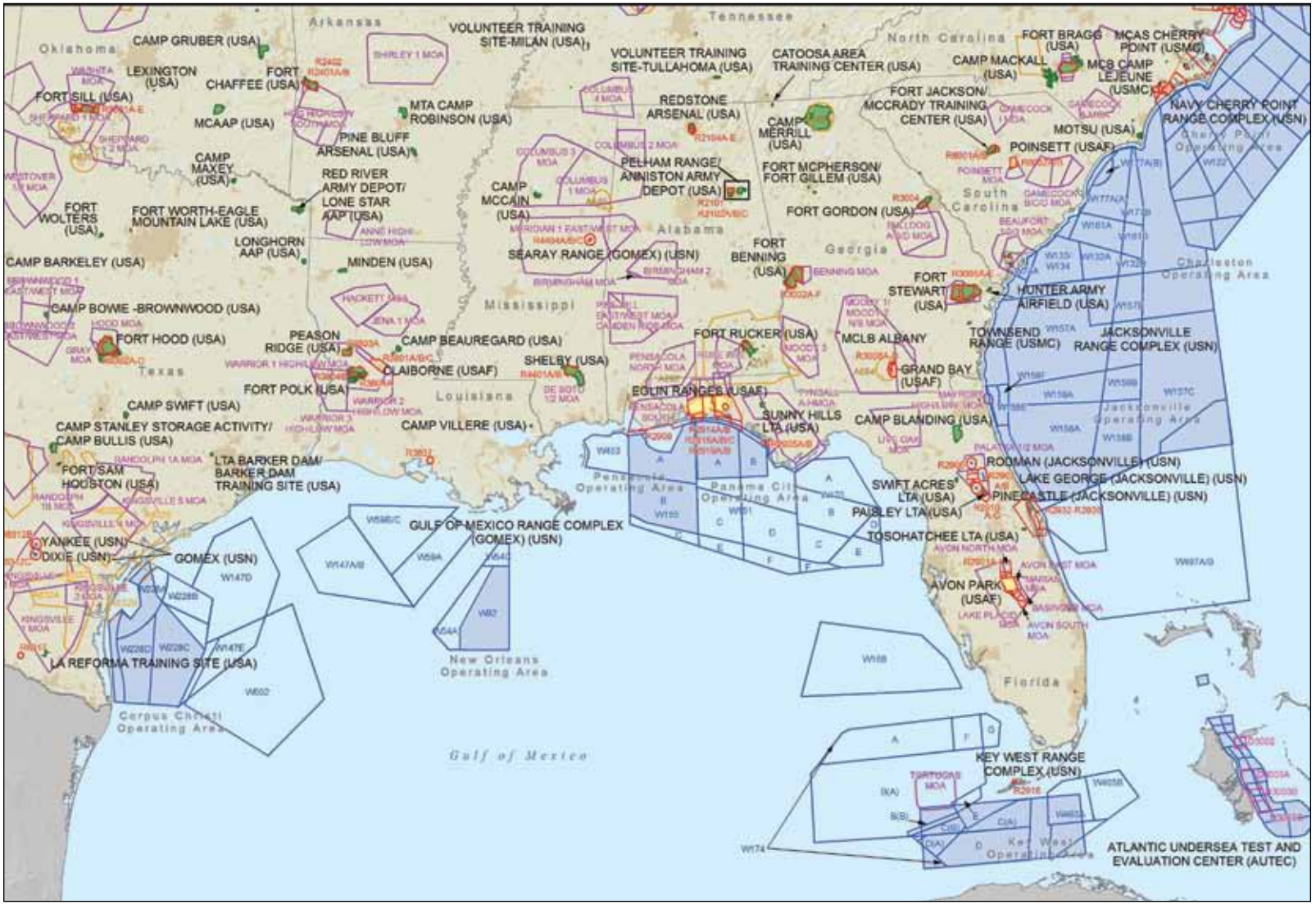
50 0 Nautical Miles

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



Testing and Training Ranges
Southeast

DoD Ranges

- U.S. Marine Corps
- U.S. Navy
- U.S. Air Force
- U.S. Army*

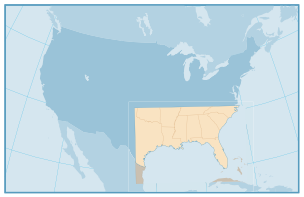
*Army ranges smaller than 500 acres are not labeled.

Special Use Airspace

- Alert Area
- Danger and Prohibited Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

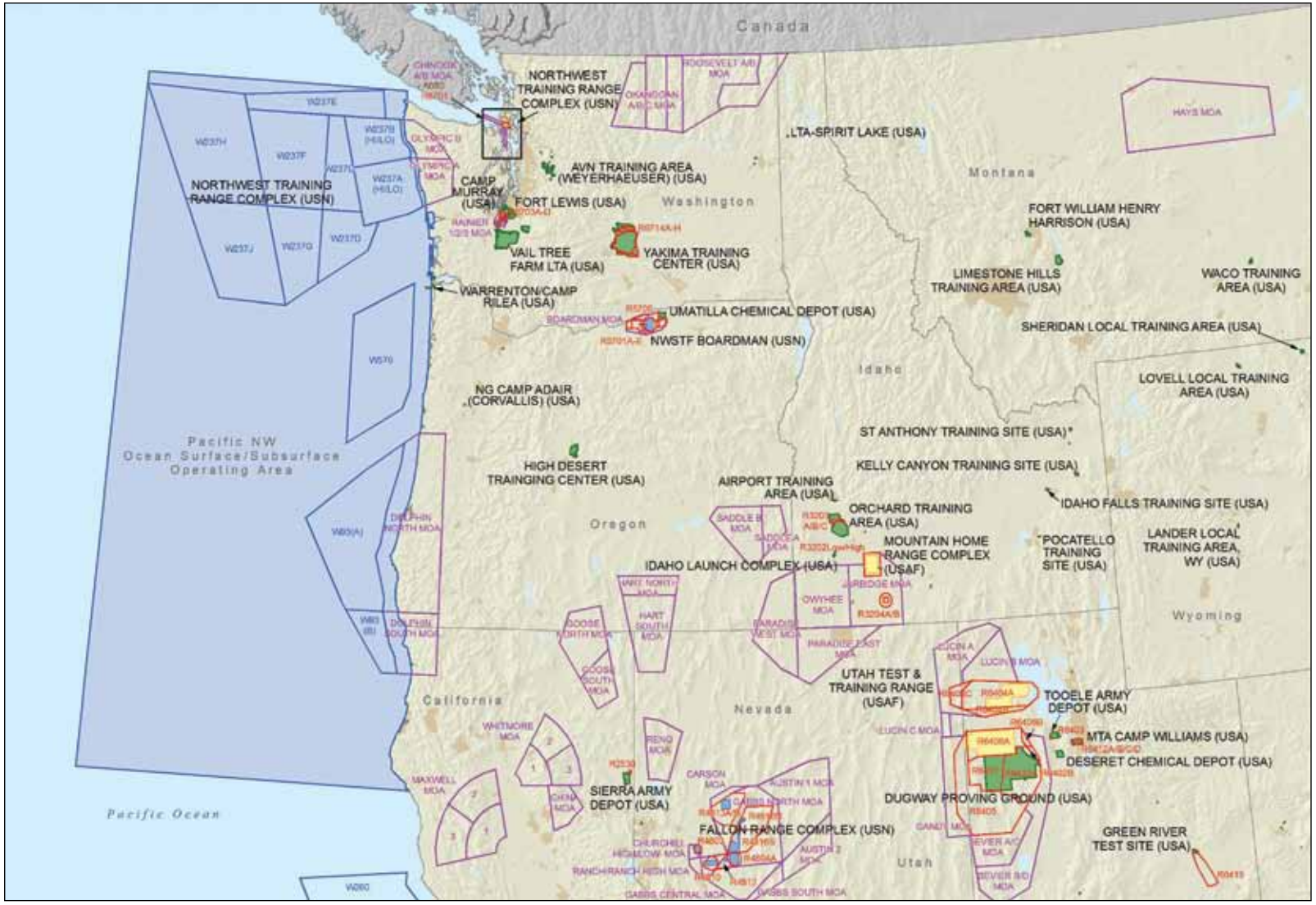
50 0 Nautical Miles

50 0 Miles



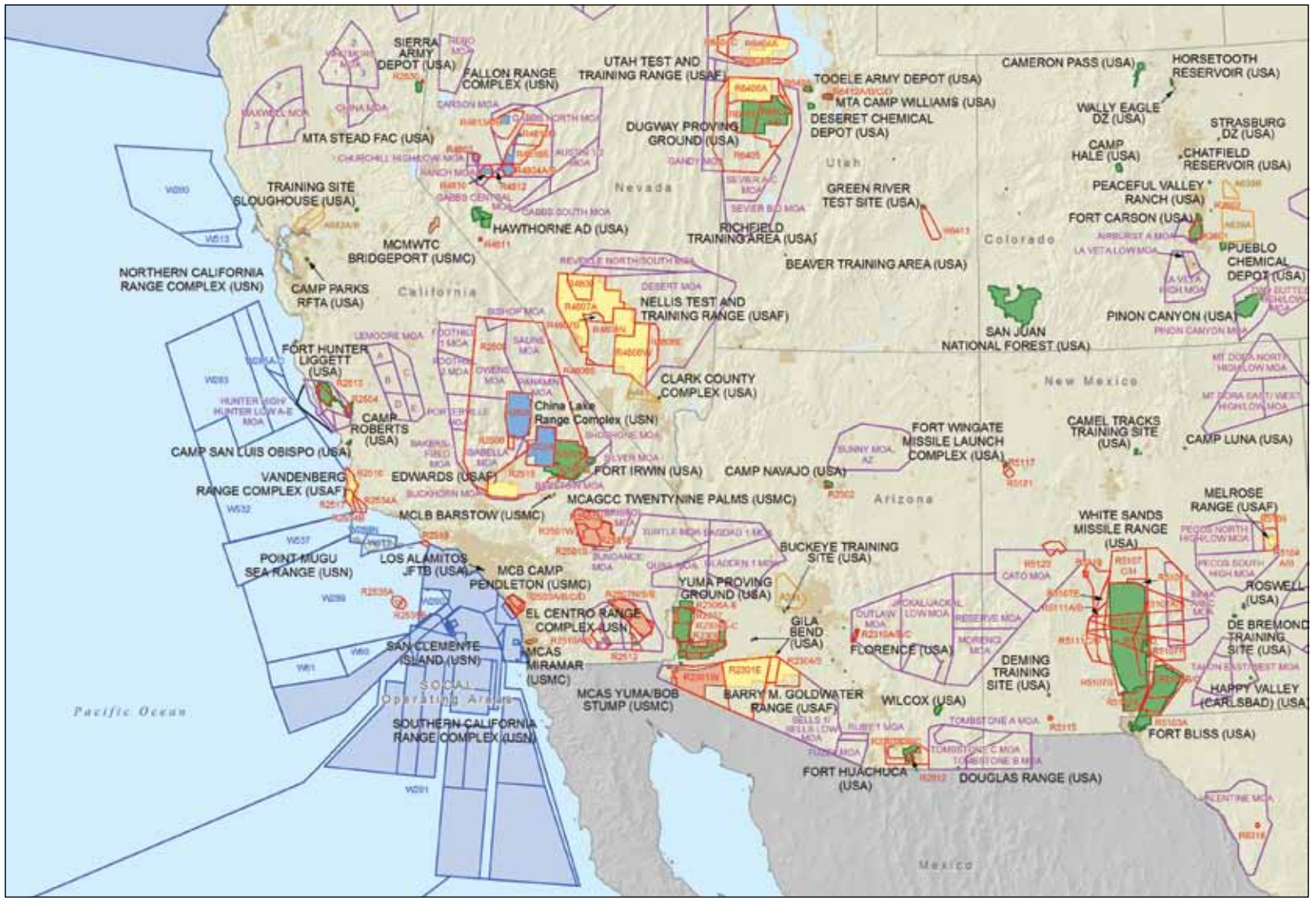
Sources: IVT, DISDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; Atlantic Fleet Inst 3120.26E, 1993

Figure C-4 DoD Regional Range Complexes: Northwest



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*

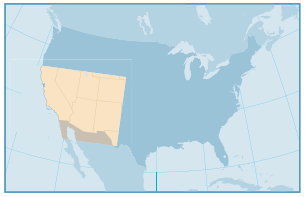
*Army ranges smaller than 500 acres are not labeled.

Special Use Airspace

- Alert Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

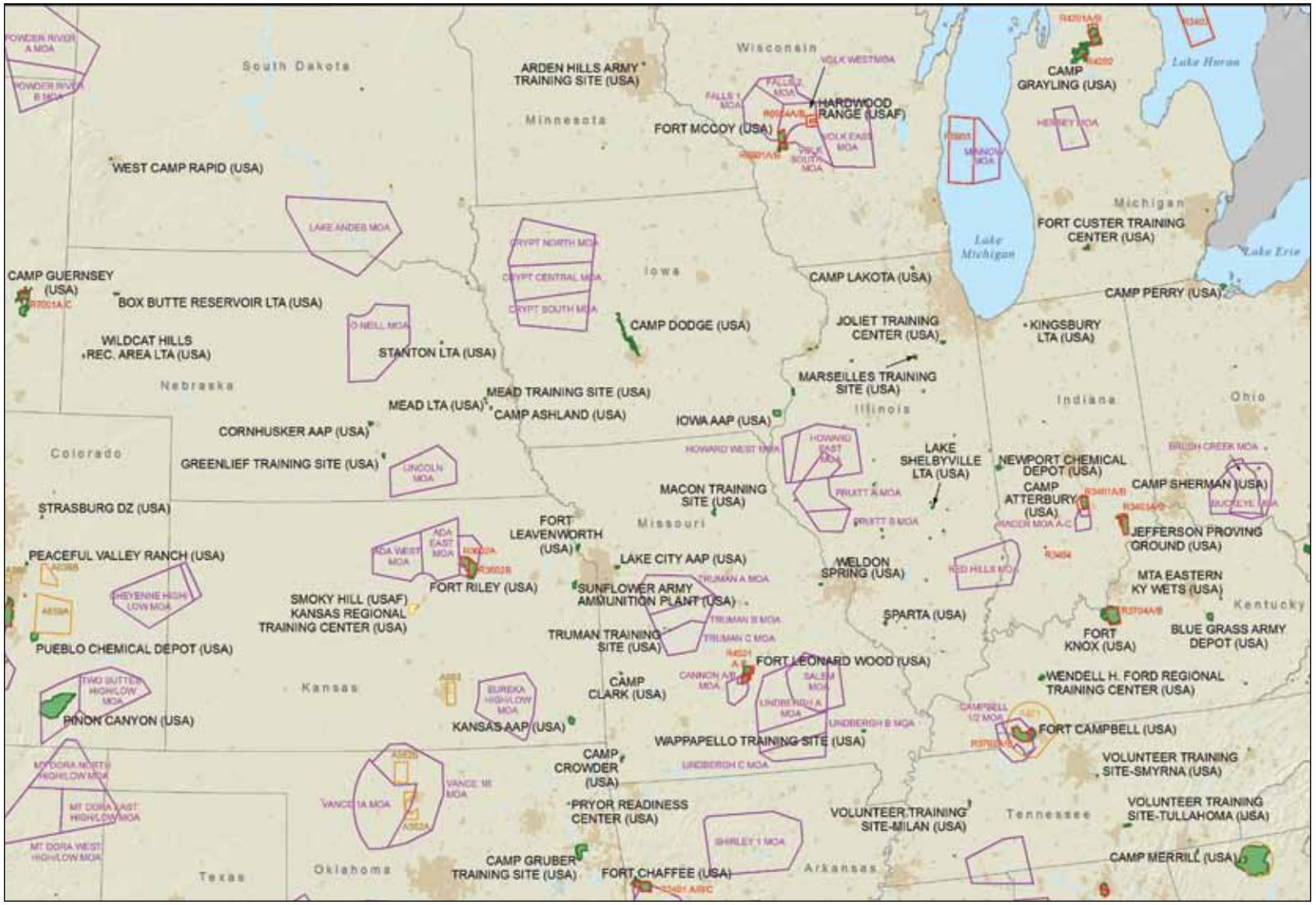
50 0 Nautical Miles

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.

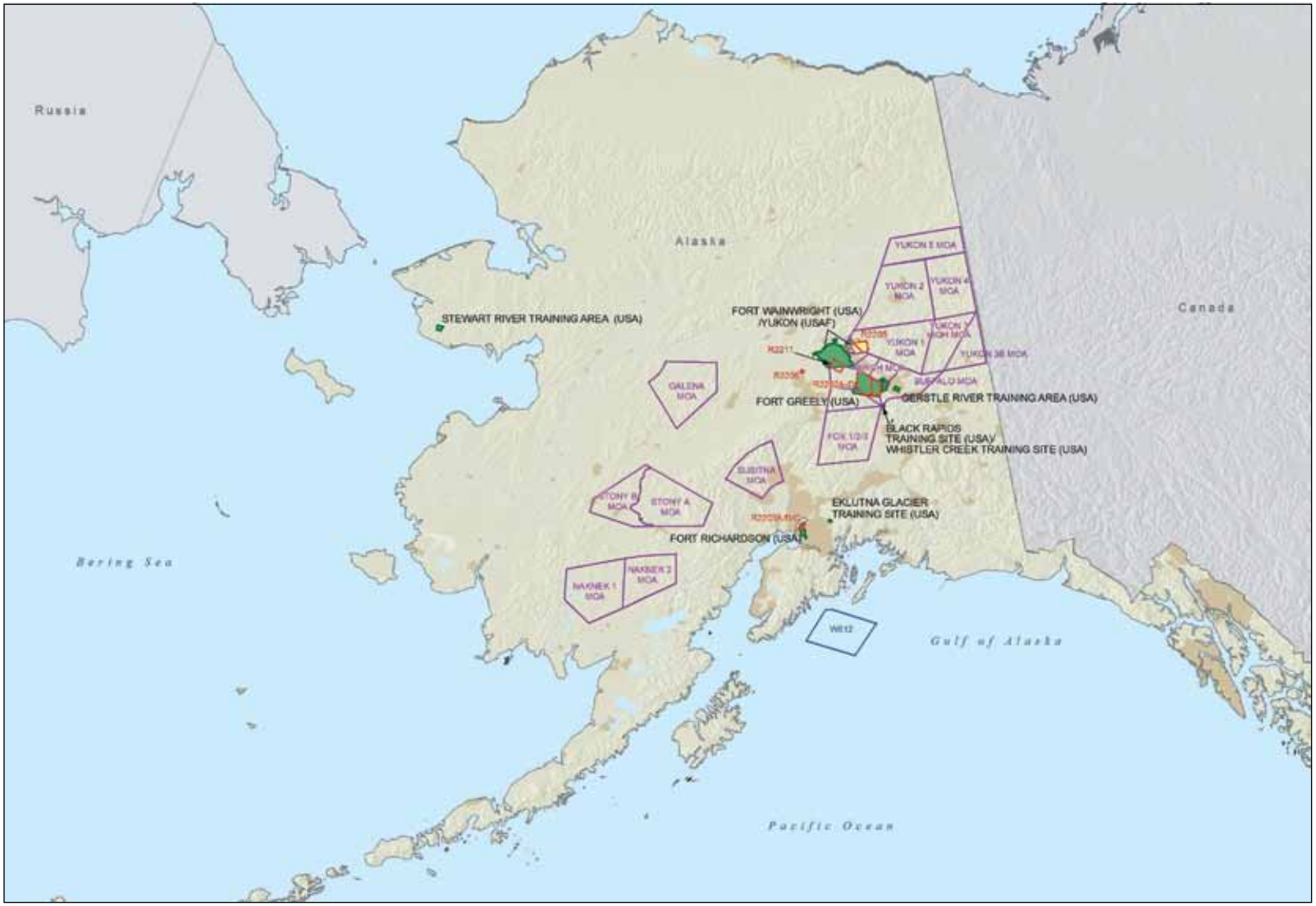
Special Use Airspace

- 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

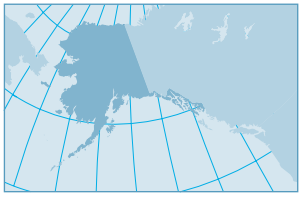
- U.S. Marine Corps
- U.S. Navy
- U.S. Air Force
- U.S. Army*

*Army ranges smaller than 500 acres are not labeled.

Special Use Airspace

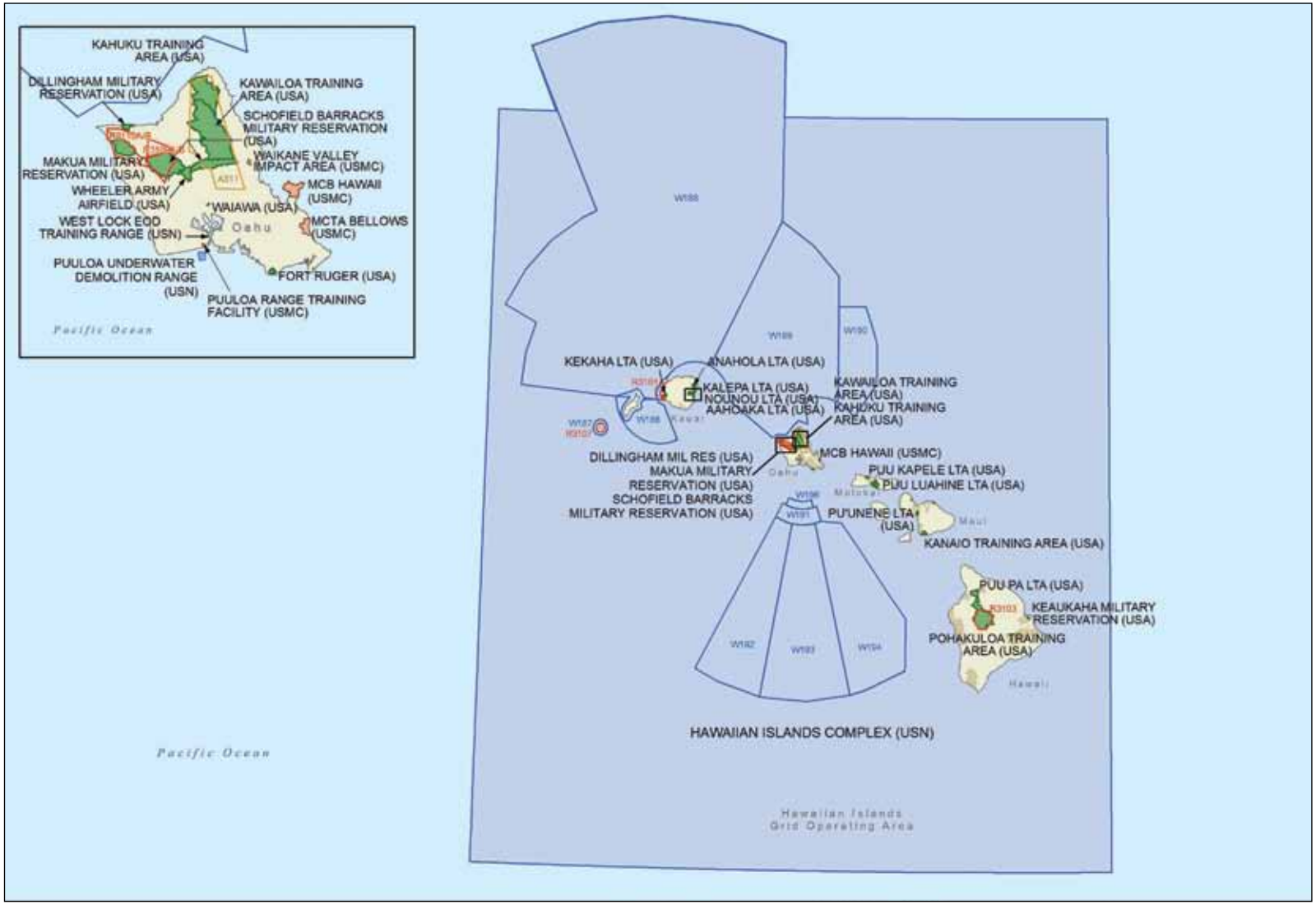
- Alert Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

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

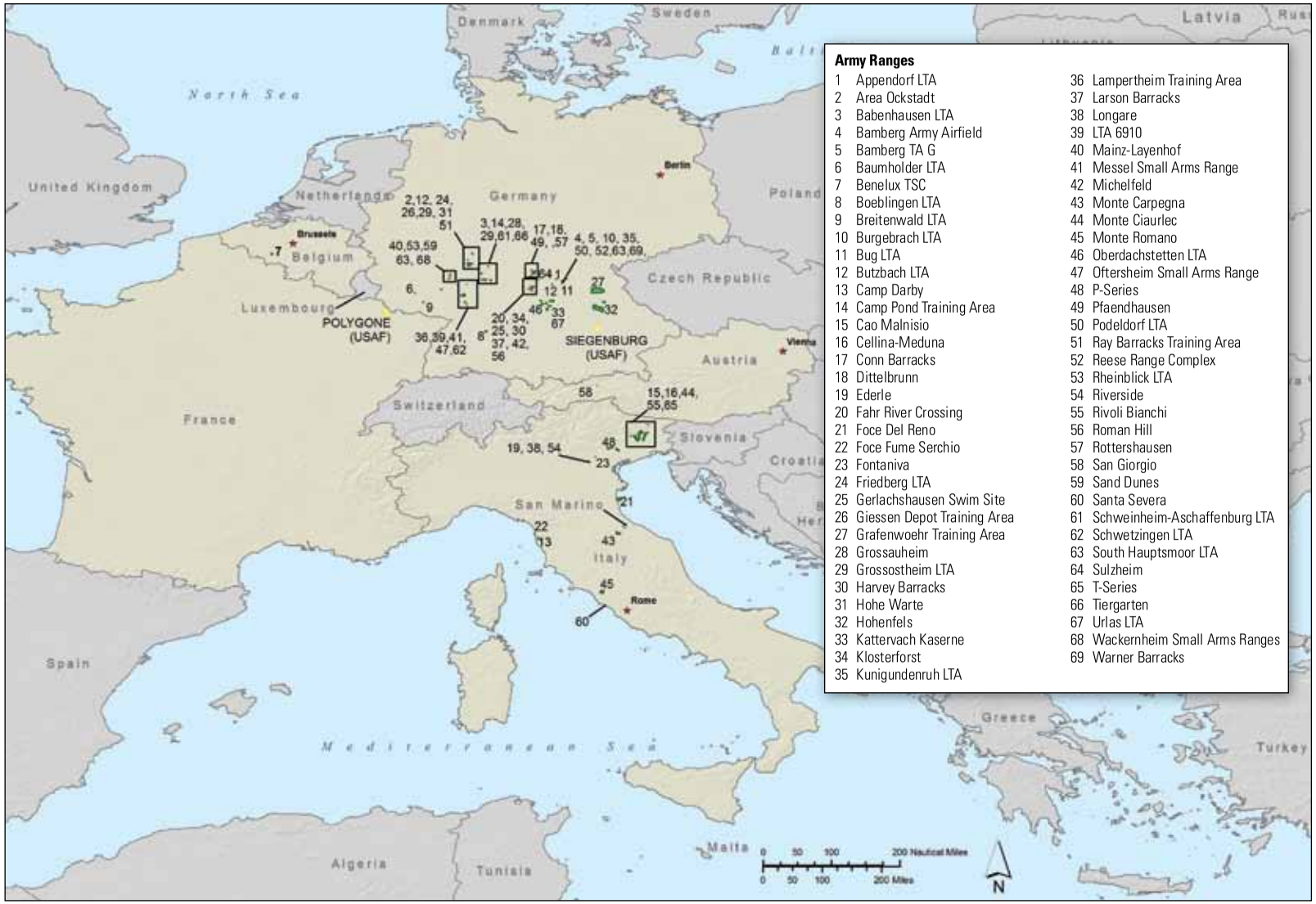
- Alert Area
- Military Operating Area (MOA)
- Restricted Area
- Warning Area
- Surface/Subsurface Operating Areas
- U.S. Census Populated Places

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



Army Ranges

1 Appendorf LTA
2 Area Ockstadt
3 Babenhausen LTA
4 Bamberg Army Airfield
5 Bamberg TA G
6 Baumholder LTA
7 Benelux TSC
8 Boeblingen LTA
9 Breitenwald LTA
10 Burgebrach LTA
11 Bug LTA
12 Butzbach LTA
13 Camp Darby
14 Camp Pond Training Area
15 Cao Malnisio
16 Cellina-Meduna
17 Conn Barracks
18 Dittelbrunn
19 Ederle
20 Fahr River Crossing
21 Foce Del Reno
22 Foce Fume Serchio
23 Fontaniva
24 Friedberg LTA
25 Gerlachshausen Swim Site
26 Giessen Depot Training Area
27 Grafenwoehr Training Area
28 Grossauheim
29 Grossostheim LTA
30 Harvey Barracks
31 Hohe Warte
32 Hohenfels
33 Kattervach Kaserne
34 Klosterforst
35 Kunigundenruh LTA
36 Lampertheim Training Area
37 Larson Barracks
38 Longare
39 LTA 6910
40 Mainz-Layenhof
41 Messel Small Arms Range
42 Michelfeld
43 Monte Carpegna
44 Monte Ciaurlec
45 Monte Romano
46 Oberdachstetten LTA
47 Oftersheim Small Arms Range
48 P-Series
49 Pfaendhausen
50 Podeldorf LTA
51 Ray Barracks Training Area
52 Reese Range Complex
53 Rheinblick LTA
54 Riverside
55 Rivoli Bianchi
56 Roman Hill
57 Rottershausen
58 San Giorgio
59 Sand Dunes
60 Santa Severa
61 Schweinheim-Aschaffenburg LTA
62 Schwetzingen LTA
63 South Hauptsmoor LTA
64 Sulzheim
65 T-Series
66 Tiergarten
67 Urlas LTA
68 Wackernheim Small Arms Ranges
69 Warner Barracks

Testing and Training Ranges
Europe

DoD Ranges

- U.S. Marine Corps
- U.S. Navy
- U.S. Air Force
- U.S. Army*

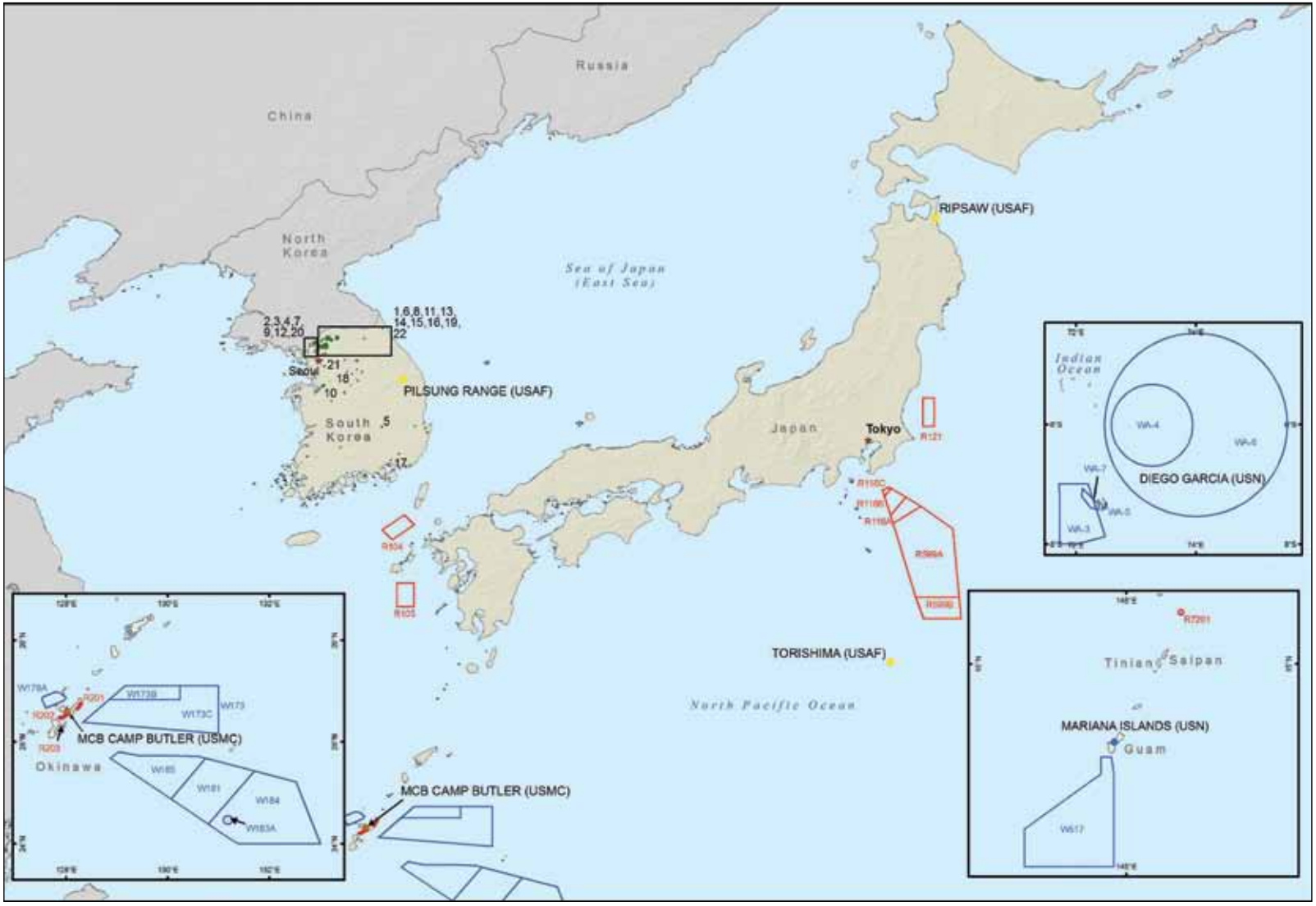
*Army ranges smaller than 500 acres are not labeled.

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

Figure C-10 DoD Regional Range Complexes: West Pacific and Indian Ocean



Testing and Training Ranges
Western Pacific and Indian Ocean

DoD Ranges

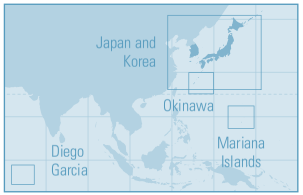
- U.S. Marine Corps
- U.S. Navy
- U.S. Air Force
- U.S. Army*

*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

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Table C-1 Range Complex Inventory

Training and Testing 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 and Testing 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 and Testing 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 and Testing Range Complex Inventory

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					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 and Testing Range Complex Inventory

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					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 and Testing Range Complex Inventory

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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

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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 and Testing Range Complex Inventory

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					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

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					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 and Testing Range Complex Inventory

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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

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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

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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 and Testing 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 and Testing Range Complex Inventory

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					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 and Testing Range Complex Inventory

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					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

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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 and Testing Range Complex Inventory

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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

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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 and Testing 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 and Testing 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 and Testing 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	MCB Camp Butler	OS	Japan	MARFORPAC	47,000	333	0	0	N	N	Y	Y	Y	N	Y	Y	N	N	Y
	MCAGCC 29 Palms	US	CA	TECOM	601,151	1,268	0	0	N	Y	Y	Y	Y	Y	N	Y	N	N	Y
	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	157,253	151	0	0	N	Y	Y	Y	Y	N	Y	Y	N	Y	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	45,217	0	0	0	N	N	Y	N	N	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
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
	Hawaiian Islands	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 and Testing 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 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	SC	ACC	46,621	1,184	0	0	Y	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 and Testing 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	ACC	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
	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
	Ripsaw	OS	Japan	PACAF	0	0	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
	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

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Table C-2 Military Training Route (MTR) Inventory

Military Training Route 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
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

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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 OSS/OSOH 110 E. Sextant Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2279 C	27 OSS/OSOS 110 E. Sextant Ave., Suite 1080, Cannon AFB, NM 88103 DSN 681-2276.	Continuous	655
IR109	27 OSS/OSOH 110 E. Sextant Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2279.	27 OSS/OSOS 110 E. Sextant Ave., Suite 1080, Cannon AFB, NM 88103 DSN 681-2276,	Continuous	747
IR111	27 OSS/OSOH 110 E. Sextant Ave., Suite 1081, Cannon AFB, NM 88103 DSN 681-2279 C	27 OSS/OSOS 110 E. Sextant Ave., Suite 1080, Cannon AFB, NM 88103 DSN 681-2276.	Continuous	661
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, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	Daylight hours by NOTAM	62
IR116	49 OSS/OSTA, 700 Delaware Ave., Holloman AFB, NM 88330-8017 DSN 572-3244, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	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)	188
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, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	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, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	Daylight hours by NOTAM	28
IR131	49 OSS/OSTA, 700 Delaware Ave., Holloman AFB, NM 88330-8017 DSN 572-3244, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	Daylight hours by NOTAM	32
IR132	49 OSS/OSTA, 700 Delaware Ave., Holloman AFB, NM 88330-8017 DSN 572-3244, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	Daylight hours by NOTAM	32

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

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 876-6518/6283/6108, C361-516-6518/6	Same as Originating Activity. Scheduling hrs 0800-1600 Mon-Fri ONLY (excluding h	Sunrise–Sunset, daily	137
IR136	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283/6108, C361-516-6518/6	Same as Originating Activity. Scheduling hrs 0800-1600 Mon-Fri ONLY (excluding h	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 876-6518/6283/6108, C361-516-6518/6	Same as Originating Activity. Scheduling hrs 0800-1600 Mon-Fri ONLY (excluding h	Sunrise to 30 minutes after Sunset, daily	122
IR148	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283/6108, C361-516-6518/6	Same as Originating Activity. Scheduling hrs 0800-1600 Mon-Fri ONLY (excluding h	Daily 0600–2230 local	172
IR149	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283/6108, C361-516-6518/6	Same as Originating Activity. Scheduling hrs 0800-1600 Mon-Fri ONLY (excluding h	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 876-6518/6283/6108, C361-516-6518/6	Same as Originating Activity. Scheduling hrs 0800-1600 Mon-Fri ONLY (excluding h	0600–2400 local, daily	184
IR167	COMTRAWING TWO, NAS Kingsville, TX 78363 DSN 876-6518/6283/6108, C361-516-6518/6	Same as Originating Activity. Scheduling hrs 0800-1600 Mon-Fri ONLY (excluding h	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

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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	1027
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

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

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 Sea RAnge	Commander Naval Air Warfare Center, Weapons Division, Code P3506, NAWS, Pt. Mugu Sea Range	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
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

* *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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	269

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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	1035

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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	1217
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 52EOOOE, 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 52EOOOE, 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 52EOOOE, NAWS, Pt. Mu	Commander, Naval Air Warfare Center Weapons Division, Code 52911GE, NAWS, Pt. Mu	Sunrise–Sunset	199
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 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	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

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
IR902	611 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	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 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	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 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	76
IR911	611 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	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 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	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 AOG/CC, 9480 Pease Ave., Ste. 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-	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 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	137
IR917	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	147
IR918	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	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

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Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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 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	37
IR929	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	37
IR939	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	76
IR952	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	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

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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

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Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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	58 SOW, 4249 Hercules Way SE, Kirtland AFB, NM 87117 DSN 263-5701, C505-853-5701	58 OSS/DOO, 4249 Hercules Way SE, Kirtland AFB, NM 87117 DSN 263-5701, C505-853-	Continuous	230
SR213	58 SOW, 4249 Hercules Way SE, Kirtland AFB, NM 87117 DSN 263-5701, C505-853-5701	58 OSS/DOO, 4249 Hercules Way SE, Kirtland AFB, NM 87117 DSN 263-5701, C505-853-	Continuous	235
SR214	58 SOW, 4249 Hercules Way SE, Kirtland AFB, NM 87117 DSN 263-5701, C505-853-5701	58 OSS/DOO, 4249 Hercules Way SE, Kirtland AFB, NM 87117 DSN 263-5701, C505-853-	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

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Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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	683
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
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

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
SR616	139 Airlift Wg., 705 Memorial Drive, St. Joseph, MO 64503-9307 DSN 356-3225/3470	Same as Originating Activity	1300–0500Z++ daily	148
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

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Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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

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Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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

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Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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 OSS/OSOH, 110 E Sextant Ave, Suite 1081, Cannon AFB, NM 88103 DSN 681-2279.	27 OSS/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

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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. Mon	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 OSS/OSOH, 110 E Sextant Ave, Suite 1081 Cannon AFB, NM 88103 DSN 681-2279.	27 OSS/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

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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)	188
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

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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 OSS/OSOH, 110 E. Sextant Ave, Suite 1081, Cannon AFB, NM 88103 DSN 681-2279.	27 OSS/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
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.	452 OSS/DOT, March Fld, CA 92518 DSN 447-4404/2422, C909-655-4404/2422.	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
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	276

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR125	27 OSS/OSOH, 110 E Sextant Ave, Suite 1081, Cannon AFB, NM 88103 DSN 681-2279.	27 OSS/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

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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	184 ARW (Kansas ANG), McConnell AFB, KS 67221-9010 (1330-2215Z wkd, scheduling r	Same as Originating Activity	0700–2100 local daily	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

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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	229
VR152	DET 1, 184 IW, Smoky 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
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

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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	173

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	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 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	175
VR1905	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	372

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR1909	611 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	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 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	175
VR1915	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	339
VR1916	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	137
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 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	37
VR1929	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	37
VR1939	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	76
VR196	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	189
VR197	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	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

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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
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

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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, C909-655-4404/2422.	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, C909-655-4404/2422.	Continuous	157
VR296	452 OSS/OSK, March ARB, CA 92518 DSN 447-4376, C909-655-4376.	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, C909-655-3846.	452 OSS/DOT, March Fld, CA 92518 DSN 447-4404/2422, C909-655-4404/2422.	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/OSKA, 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
VR413	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	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	184 ARW (Kansas ANG), McConnell AFB,KS 67221-9010 (1330-2215Z wkd, sked rqr 2 hr	Same as Originating Activity	0700–1730 local daily	181
VR532	184 ARW (Kansas ANG),McConnell AFB, KS 67221-9010 (1330-2215Z wkd, sked rqr 2 hr	Same as Originating Activity	0700–1700 local daily	329

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR533	184 ARW (Kansas ANG),McConnell AFB, KS 67221-9010 (1330-2215Z wkd, sked rqr 2 hr	Same as Originating Activity	0700–2200 local daily	165
VR534	184 ARW (Kansas ANG),McConnell AFB, KS 67221-9010 (1330-2215Z wkd, sked rqr 2 hr	Same as Originating Activity	0730–2000 local daily	169
VR535	184 ARW (Kansas ANG),McConnell AFB, KS 67221-9010 (1330-2215Z wkd, sked rqr 2 hr	Same as Originating Activity	0700–1900 local daily	179
VR536	184 ARW (Kansas ANG),McConnell AFB, KS 67221-9010 (1330-2215Z wkd, sked rqr 2 hr	Same as Originating Activity	0700–1700 local daily	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, Smoky 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
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

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	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	67
VR933	611 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	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
VR934	611 AOG/CC, 9480 Pease Ave., Ste 102, Elmendorf AFB, AK 99506-2100 DSN 317-552-2	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

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** *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: September 24, 2009 through October 21, 2009).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
VR955	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	271

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** *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: January 18, 2008 through Feburary 13, 2008).

* *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: September 24, 2009 through October 21, 2009).

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Table C-3 Special Use Airspace (SUA) Inventory

Special Use Airspace Inventory

2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm^2)**
R4808N	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	SURFACE	DOE	1,280
R4808S	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	SURFACE	DOE	24
R4809	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	SURFACE	DOE	393
R4001A	FAA, WASHINGTON, DC ARTCC	Aberdeen Proving Ground	UNLTD	SURFACE	USA	105
R4001B	FAA, WASHINGTON, DC ARTCC	Aberdeen Proving Ground	010000AMSL	SURFACE	USA	28
R2101	FAA, ATLANTA ARTCC	Anniston Army Depot	005000AMSL	SURFACE	USA	2
R3203D	FAA, SALT LAKE CITY ARTCC	Boise	FL220	SURFACE	USA	23
R4101	FAA, CAPE APP	Camp Edwards	009000AMSL	SURFACE	USA	14
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
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
A685	FAA, ATLANTA ARTCC	Camp Merrill	000700AGL	SURFACE	USA	490
R4301	FAA, MINNEAPOLIS ARTCC	Camp Riley	FL270	SURFACE	USA	64
R2504	FAA, OAKLAND ARTCC	Camp Roberts	015000AMSL	SURFACE	USA	27
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
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
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
HILL MOA, VA	FAA, POTOMAC APP	Fort A.P. Hill	003000AMSL	SURFACE	USA	36
R6601	FAA, RICHMOND TWR	Fort A.P. Hill	005000AMSL	SURFACE	USA	40
BENNING MOA, GA	FAA, COLUMBUS TWR	Fort Benning	008000AMSL	00500AGL	USA	107
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

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
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
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
A531	USA, FORT BRAGG	Fort Bragg	001500AGL	00200AGL	USA	698
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
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
A371	USA, CAMPBELL AAF APP	Fort Campbell	002000AMSL	SURFACE	USA	1,193
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
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
PINON CANYON MOA, CO	FAA, DENVER ARTCC	Fort Carson	010000AMSL	00100AGL	USA	1,031
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
R5001A	FAA, NEW YORK ARTCC	Fort Dix	004000AMSL	SURFACE	USA	23
R5001B	FAA, NEW YORK ARTCC	Fort Dix	008000AMSL	04000AMSL	USA	21
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
R5201	FAA, BOSTON ARTCC	Fort Drum	023000AMSL	SURFACE	USA	110

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
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
GRAY MOA, TX	FAA, HOUSTON ARTCC	Fort Hood	010000AMSL	02000AMSL	USA	28
HOOD MOA, TX	FAA, HOUSTON ARTCC	Fort Hood	010000AMSL	02000AMSL	USA	267
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
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
R2513	FAA, OAKLAND ARTCC	Fort Hunter-Leggett	FL240	SURFACE	USA	114
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
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
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
R6001A	FAA, JACKSONVILLE ARTCC	Fort Jackson	003200AMSL	SURFACE	USA	38
R6001B	FAA, JACKSONVILLE ARTCC	Fort Jackson	FL230	03200AMSL	USA	40
R3704A	FAA, STANDIFORD TWR, LOUISVILLE	Fort Knox	010000AMSL	SURFACE	USA	113
R3704B	FAA, STANDIFORD TWR, LOUISVILLE	Fort Knox	FL220	10000AMSL	USA	113
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
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

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
R4501C	FAA, KANSAS CITY ARTCC	Fort Leonard Wood	005000AMSL	02200AMSL	USA	34
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
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
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
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
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
R6901A	FAA, MINNEAPOLIS ARTCC	Fort McCoy	FL200	SURFACE	USA	46
R6901B	FAA, MINNEAPOLIS ARTCC	Fort McCoy	FL200	SURFACE	USA	21
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
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
WARRIOR 1 HIGH MOA, LA	FAA, HOUSTON ARTCC	Fort Polk	018000AMSL	10000AMSL	USA	1,599
WARRIOR 1 LOW MOA, LA	FAA, HOUSTON ARTCC	Fort Polk	009999AMSL	00100AGL	USA	1,599
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	1,009
WARRIOR 3 LOW MOA, LA	FAA, HOUSTON ARTCC	Fort Polk	009999AMSL	00100AGL	USA	1,009

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
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
R3602A	FAA, KANSAS CITY ARTCC	Fort Riley	FL290	SURFACE	USA	49
R3602B	FAA, KANSAS CITY ARTCC	Fort Riley	FL290	SURFACE	USA	59
RILEY MOA, KS	CO, 24 Infantry Div	Fort Riley	FL180	07000AMSL	USA	325
A211	USA, CAIRNES APP	Fort Rucker	005000AMSL	SURFACE	USA	4,580
R2103A	USA, CAIRNS APP	Fort Rucker	009999AMSL	SURFACE	USA	50
R2103B	FAA, JACKSONVILLE ARTCC	Fort Rucker	015000AMSL	10000AMSL	USA	50
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
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	1,295
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
SHIRLEY 1 MOA, AR	FAA, MEMPHIS ARTCC	Fort Smith	018000AMSL	10000AMSL	USA	3,069
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
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
R4811	FAA, OAKLAND ARTCC	Hawthorne Army Ammunition Plant	015000AMSL	SURFACE	USA	7
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

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
R3403B	FAA, INDIANAPOLIS ARTCC	Indianapolis	FL180	01200AGL	USA	27
R5801	FAA, WASHINGTON, DC ARTCC	Letterkenny Ordnance Depot	004000AMSL	SURFACE	USA	2
R5803	FAA, WASHINGTON, DC ARTCC	Letterkenny Ordnance Depot	004000AMSL	SURFACE	USA	3
R2302	FAA, ALBUQUERQUE ARTCC	Navajo Ordnance Depot	010000AMSL	SURFACE	USA	4
R3103	FAA, HONOLULU CERAP	Pohakuloa Training Area	030000AMSL	SURFACE	USA	124
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
A311	FAA, HONOLULU CERAP	Schofield, Kahuku, Kawailoa	000500AGL	SURFACE	USA	71
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
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
R2530	FAA, OAKLAND ARTCC	Sierra Army Deport	008600AMSL	SURFACE	USA	4
LAKE ANDES MOA, SD	FAA, MINNEAPOLIS ARTCC	Sioux Falls	018000AMSL	06000AMSL	USA	3,498
HOWARD EAST MOA, IL	FAA, KANSAS CITY ARTCC	Springfield	018000AMSL	09000AMSL	USA	1,853
HOWARD WEST MOA, IL	FAA, KANSAS CITY ARTCC	Springfield	018000AMSL	10000AMSL	USA	322
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
R6403	FAA, SALT LAKE CITY ARTCC	Tooele Army Depot	009000AMSL	SURFACE	USA	2
R5206	FAA, NEW YORK APP	West Point	005000AMSL	SURFACE	USA	4
R5107A	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	SURFACE	USA	281
R5107B	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	SURFACE	USA	3,140
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	1,195
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

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
R5109A	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	24000AMSL	USA	1,682
R5109B	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	UNLTD	24000AMSL	USA	1,004
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
R6714E	FAA, SEATTLE ARTCC	Yakima	054999AMSL	29000AMSL	USA	319
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
R2311	YUMA APP, YUMA MCAS	Yuma Proving Ground	003500AMSL	SURFACE	USA	62
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
R5401	FAA, MINNEAPOLIS ARTCC	Camp Grafton	005000AMSL	SURFACE	USA(ARNG)	3
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
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
R2206	FAA, ANCHORAGE ARTCC	13th Missile Wing	008800AMSL	SURFACE	USAF	10
R2901A	FAA, MIAMI ARTCC	Avon Park	014000AMSL	SURFACE	USAF	166

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
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
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
HACKETT MOA, LA	FAA, FORT WORTH ARTCC	Barksdale AFB	018000AMSL	07000AMSL	USAF	1235
JENA 1 MOA, LA	FAA, HOUSTON ARTCC	Barksdale AFB	005000AMSL	00100AGL	USAF	1075
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
R4105A	FAA, CAPE APP	Barnes ANGB	009999AMSL	SURFACE	USAF	28
R4105B	FAA, CAPE APP	Barnes ANGB	018000AMSL	10000AMSL	USAF	28
FUZZY MOA, AZ	FAA, ALBUQUERQUE ARTCC	Barry M. Goldwater Range	009999AMSL	00100AGL	USAF	444
CHINA MOA, CA	FAA, OAKLAND ARTCC	Beale AFB	018000AMSL	03000AGL	USAF	625
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
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
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	1,739
BRONCO 4 MOA, TX	FAA, FORT WORTH ARTCC	Cannon AFB	018000AMSL	10000AMSL	USAF	1,764
MT DORA EAST HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	018000AMSL	11000AMSL	USAF	1,163
MT DORA EAST LOW MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	010999AMSL	01500AGL	USAF	1,163
MT DORA NORTH HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	018000AMSL	11000AMSL	USAF	1,264
MT DORA NORTH LOW MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	010999AMSL	01500AGL	USAF	1,264
MT DORA WEST HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	018000AMSL	11000AMSL	USAF	1,607

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MT DORA WEST LOW MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	010999AMSL	01500AGL	USAF	1,607
PECOS NORTH HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	018000AMSL	11000AMSL	USAF	1,241
PECOS NORTH LOW MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	010999AMSL	00500AGL	USAF	1,039
PECOS SOUTH HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	018000AMSL	11000AMSL	USAF	1,329
PECOS SOUTH LOW MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	010999AMSL	00500AGL	USAF	951
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
TAIBAN MOA, NM	FAA, ALBUQUERQUE ARTCC	Cannon AFB	010999AMSL	00500AGL	USAF	235
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
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
R2602	FAA, DENVER ARTCC	Colorado Springs Training Site	SURFACE	01000AGL	USAF	1
A440	USAF, 14 FTW COLUMBUS AFB	Columbus AFB	006500AMSL	SURFACE	USAF	217
COLUMBUS 1 MOA, MS	FAA, MEMPHIS ARTCC	Columbus AFB	018000AMSL	08000AMSL	USAF	2,707
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	2,664
COLUMBUS 4 MOA, MS	FAA, MEMPHIS ARTCC	Columbus AFB	018000AMSL	10000AMSL	USAF	1,376
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	1,299
TOMBSTONE C MOA, AZ	FAA, ALBUQUERQUE ARTCC	David-Monthan AFB	018000AMSL	14500AMSL	USAF	3,002
LANCER MOA, TX	FAA, FORT WORTH ARTCC	Dyess AFB	018000AMSL	06200AMSL	USAF	3,225
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
BISHOP MOA, CA	FAA, LOS ANGLES ARTCC	Edwards AFB	018000AMSL	00200AGL	USAF	128
BUCKHORN MOA, CA	FAA, LOS ANGELES ARTCC	Edwards AFB	018000AMSL	00200AGL	USAF	58
ISABELLA MOA, CA	FAA, HI-DESERT TRACON, EDWARDS AFB	Edwards AFB	018000AMSL	00200AGL	USAF	2,684
OWENS MOA, CA	FAA, HI-DESERT TRACON, EDWARDS AFB	Edwards AFB	018000AMSL	00200AGL	USAF	2,014
PANAMINT MOA, CA	FAA, HI-DESERT TRACON, EDWARDS AFB	Edwards AFB	018000AMSL	03001AGL	USAF	2,051
PORTERVILLE MOA, CA	FAA, LOS ANGELES ARTCC	Edwards AFB	018000AMSL	02000AGL	USAF	465
POWDER RIVER A MOA, MT	FAA, SALT LAKE CITY ARTCC	Edwards AFB	018000AMSL	SURFACE	USAF	3,047

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POWDER RIVER B MOA, WY	FAA, DENVER ARTCC	Edwards AFB	018000AMSL	01000AGL	USAF	1,385
R2515	FAA, HI-DESERT TRACON, EDWARDS AFB	Edwards AFB	UNLTD	SURFACE	USAF	1,368
SALINE MOA, CA	FAA, HI-DESERT TRACON, EDWARDS AFB	Edwards AFB	018000AMSL	00200AGL	USAF	1,690
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	1,143
EGLIN F MOA, FL	FAA, JACKSONVILLE ARTCC	Eglin AFB	018000AMSL	SURFACE	USAF	5
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
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
ROSE HILL MOA, AL	FAA, JACKSONVILLE ARTCC	Eglin AFB	018000AMSL	08000AMSL	USAF	649
W151A	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	2,555
W151B	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	2,521
W151C	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	1,728
W151D	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	2,113
W151E	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	531
W151F	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	810
W470A	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	2,022
W470B	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	2,128
W470C	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	1,147
W470D	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	422
W470E	FAA, MIAMI ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	1,011
W470F	FAA, JACKSONVILLE ARTCC	Eglin AFB	UNLTD	SURFACE	USAF	263
BIRCH MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	005000AMSL	00500AGL	USAF	424
BUFFALO MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	006999AMSL	00300AGL	USAF	1,648

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EIELSON MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	00100AGL	USAF	720
FOX 1 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	05000AGL	USAF	1,132
FOX 2 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	07000AMSL	USAF	94
FOX 3 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	05000AMSL	USAF	3,705
R2211	FAA, ANCHORAGE ARTCC	Eielson AFB	FL310	SURFACE	USAF	134
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
YUKON 1 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	00100AGL	USAF	3,747
YUKON 2 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	00100AGL	USAF	4,929
YUKON 3 HIGH MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	10000AMSL	USAF	2,267
YUKON 3A LOW MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	009999AMSL	00100AGL	USAF	2,267
YUKON 3B MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	02000AGL	USAF	1,523
YUKON 4 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	00100AGL	USAF	3,355
YUKON 5 MOA, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	05000AGL	USAF	2,707
W147A	FAA, HOUSTON ARTCC	Ellington Field	022999AMSL	05000AMSL	USAF	4,484
W147B	FAA, HOUSTON ARTCC	Ellington Field	FL500	FL230	USAF	4,484
W147D	FAA, HOUSTON ARTCC	Ellington Field	FL500	SURFACE	USAF	5,469
W147E	FAA, HOUSTON ARTCC	Ellington Field	FL500	FL260	USAF	1,923
GALENA MOA, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	01000AMSL	USAF	3,910
NAKNEK 1 MOA, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	03000AGL	USAF	3,894
NAKNEK 2 MOA, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	03000AGL	USAF	2,758
STONY A MOA, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	00100AGL	USAF	4,068
STONY B MOA, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	02000AGL	USAF	2,393
SUSITNA MOA, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	10000AMSL	USAF	2,474
W612	FAA, ANCHORAGE ARTCC	Elmendorf AFB	FL290	SURFACE	USAF	2,556
GANDY MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	018000AMSL	00100AGL	USAF	832
LUCIN A MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	009000AMSL	00100AGL	USAF	1,532
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
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	1,120
R6404B	FAA, SALT LAKE CITY ARTCC	Hill AFB	013000AMSL	SURFACE	USAF	202
R6404C	FAA, SALT LAKE CITY ARTCC	Hill AFB	FL280	00100AGL	USAF	168

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R6404D	FAA, SALT LAKE CITY ARTCC	Hill AFB	FL250	13000AMSL	USAF	202
R6405	FAA, SALT LAKE CITY ARTCC	Hill AFB	FL580	00100AGL	USAF	1,946
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
SEVIER A MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	014500AMSL	00100AGL	USAF	1,011
SEVIER B MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	009500AMSL	00100AGL	USAF	2,200
SEVIER C MOA, NV	FAA, SALT LAKE CITY ARTCC	Hill AFB	018000AMSL	14500AMSL	USAF	1,011
SEVIER D MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	018000AMSL	09500AMSL	USAF	2,200
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
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	1,027
TALON WEST HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	018000AMSL	12500AMSL	USAF	972
VALENTINE MOA, TX	FAA, ALBUQUERQUE ARTCC	Holloman AFB	018000AMSL	15000AMSL	USAF	2,462
CATO MOA, NM	FAA, ALBUQUERQUE ARTCC	Kirtland AFB	018000AMSL	13500AMSL	USAF	2,655
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	1,188
A633A	USAF, LAUGHLIN AFB	Laughlin AFB	007000AMSL	SURFACE	USAF	548
A633B	USAF, LAUGHLIN AFB	Laughlin AFB	004000AMSL	SURFACE	USAF	153
CRYSTAL MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	018000AMSL	06000AMSL	USAF	1,377
CRYSTAL NORTH MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	018000AMSL	06000AMSL	USAF	410
LAUGHLIN 1 MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	018000AMSL	09000AMSL	USAF	4,972
LAUGHLIN 2 MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	018000AMSL	07000AMSL	USAF	2,279
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
A231	FAA, ALBUQUERQUE ARTCC	Luke AFB	006500AMSL	00500AGL	USAF	516
BAGDAD 1 MOA, AZ	FAA, ALBUQUERQUE ARTCC	Luke AFB	018000AMSL	07000AMSL	USAF	1,067
GLADDEN 1 MOA, AZ	FAA, ALBUQUERQUE ARTCC	Luke AFB	018000AMSL	05000AGL	USAF	1,872
R2301E	FAA, ALBUQUERQUE ARTCC	Luke AFB	FL800	SURFACE	USAF	1,552
R2304	FAA, ALBUQUERQUE ARTCC	Luke AFB	FL240	SURFACE	USAF	345
R2305	FAA, ALBUQUERQUE ARTCC	Luke AFB	FL240	SURFACE	USAF	187
SELLS 1 MOA, AZ	FAA, ALBUQUERQUE ARTCC	Luke AFB	018000AMSL	10000AMSL	USAF	3,665

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SELLS LOW MOA, AZ	FAA, ALBUQUERQUE ARTCC	Luke AFB	009999AMSL	03000AGL	USAF	3,133
SUNNY MOA, AZ	FAA, DENVER ARTCC	Luke AFB	018000AMSL	12000AMSL	USAF	2,330
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
BASINGER MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	005000AMSL	00500AGL	USAF	42
LAKE PLACID MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	018000AMSL	07000AMSL	USAF	1,085
MARIAN MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	005000AMSL	00500AGL	USAF	204
W168	FAA, MIAMI ARTCC	MacDill AFB	UNLTD	SURFACE	USAF	7,264
DEVILS LAKE EAST MOA, ND	FAA, MINNEAPOLIS ARTCC	McChord AFB	018000AMSL	03500AMSL	USAF	1,773
DEVILS LAKE WEST MOA, ND	FAA, MINNEAPOLIS ARTCC	McChord AFB	018000AMSL	04000AMSL	USAF	1,739
R2312	LIBBY AAF TWR	McChord AFB	014999AMSL	SURFACE	USAF	9
R5115	FAA, ALBUQUERQUE ARTCC	McChord AFB	015000AMSL	SURFACE	USAF	10
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
TIGER NORTH MOA, ND	FAA, MINNEAPOLIS ARTCC	McChord AFB	018000AMSL	00300AGL	USAF	2,225
TIGER SOUTH MOA, ND	FAA, MINNEAPOLIS ARTCC	McChord AFB	018000AMSL	06000AMSL	USAF	1,715
W93(A)	FAA, SEATTLE ARTCC	McChord AFB	FL500	SURFACE	USAF	4,987
W93(B)	FAA, SEATTLE ARTCC	McChord AFB	FL500	SURFACE	USAF	978
A220	USAF, MCGUIRE AFB RAPCON	McGuire AFB	004500AMSL	SURFACE	USAF	457
POWERS MOA, ND	FAA, MINNEAPOLIS ARTCC	Minot AFB	018000AMSL	12000AMSL	USAF	589
A684	FAA, JACKSONVILLE ARTCC	Moody AFB	004000AGL	SURFACE	USAF	313
LIVE OAK MOA, FL	FAA, JACKSONVILLE ARTCC	Moody AFB	018000AMSL	08000AMSL	USAF	1,208
MOODY 1 MOA, GA	FAA, JACKSONVILLE ARTCC	Moody AFB	018000AMSL	08000AMSL	USAF	4,714
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	1,258
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

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
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
R3204C	FAA, SALT LAKE CITY ARTCC	Mountain Home AFB	FL290	FL180	USAF	78
JARBIDGE MOA, ID	FAA, SALT LAKE CITY ARTCC	Mt. Home AFB	018000AMSL	00100AGL	USAF	1,836
OWYHEE MOA, ID	FAA, SALT LAKE CITY ARTCC	Mt. Home AFB	018000AMSL	00100AGL	USAF	1,988
PARADISE EAST MOA, NV	FAA, SALT LAKE CITY ARTCC	Mt. Home AFB	018000AMSL	14500AMSL	USAF	1,608
PARADISE WEST MOA, OR	FAA, SALT LAKE CITY ARTCC	Mt. Home AFB	018000AMSL	14500AMSL	USAF	1,840
W506	FAA, NEW YORK ARTCC	NE ADS/DOOS, NY ANG	FL500	SURFACE	USAF	1,796
A481	USAF, NELLIS AFB	Nellis AFB	017000AMSL	07000AMSL	USAF	252
DESERT MOA, NV	FAA, LOS ANGELES ARTCC	Nellis AFB	018000AMSL	00100AGL	USAF	5,543
R4806E	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	00100AGL	USAF	291
R4806W	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	SURFACE	USAF	1,179
R4807A	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	SURFACE	USAF	1,698
R4807B	FAA, LOS ANGELES ARTCC	Nellis AFB	UNLTD	SURFACE	USAF	100
REVEILLE NORTH MOA, NV	FAA, SALT LAKE CITY ARTCC	Nellis AFB	018000AMSL	00100AGL	USAF	1,245
REVEILLE SOUTH MOA, NV	FAA, SALT LAKE CITY ARTCC	Nellis AFB	018000AMSL	00100AGL	USAF	439
ONTONAGON MOA, MI	FAA, MINNEAPOLIS ARTCC	Offutt AFB	018000AMSL	00500AGL	USAF	863
R4305	FAA, MINNEAPOLIS ARTCC	Offutt AFB	FL450	SURFACE	USAF	1,242
(RO)W173	USAF, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USAF	6,077
(RO)W182	USAF, CFAO KADENA AB	Okinawa Range Complex	004000AMSL	SURFACE	USAF	78
W497A	FAA, MIAMI ARTCC	Patrick AFB	UNLTD	SURFACE	USAF	2,422
W497B	FAA, MIAMI ARTCC	Patrick AFB	UNLTD	SURFACE	USAF	21,756
R2508	FAA, HI-DESERT TRACON, EDWARDS AFB	R-2508 Complex	UNLTD	FL200	USAF	12,127
SHOSHONE MOA, CA	FAA, LOS ANGELES ARTCC	R-2508 Complex	018000AMSL	03001AGL	USAF	1,170
A635	USAF, RANDOLPH AFB	Randolph AFB	004000AMSL	01500AMSL	USAF	139
A638	USAF, RANDOLPH AFB	Randolph AFB	003000AMSL	SURFACE	USAF	129
A640	USAF, RANDOLPH AFB	Randolph AFB	007500AMSL	00200AGL	USAF	2,493
RANDOLPH 1A MOA, TX	FAA, HOUSTON ARTCC	Randolph AFB	018000AMSL	08000AMSL	USAF	1,418
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	1,443
RANDOLPH 2B MOA, TX	FAA, HOUSTON ARTCC	Randolph AFB	018000AMSL	14000AMSL	USAF	316
TEXON MOA, TX	FAA, HOUSTON ARTCC	Randolph AFB	018000AMSL	06000AMSL	USAF	1,156
PHELPS A MOA, NC	FAA, WASHINGTON, DC ARTCC	Seymour-Johnson AFB	018000AMSL	06000AMSL	USAF	211

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
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
SEYMOUR JOHNSON ECHO MOA, NC	FAA, WASHINGTON, DC ARTCC	Seymour-Johnson AFB	018000AMSL	07000AMSL	USAF	1,036
BULLDOG A MOA, GA	FAA, ATLANTA ARTCC	Shaw AFB	009999AMSL	00500AGL	USAF	1,052
BULLDOG B MOA, GA	FAA, ATLANTA ARTCC	Shaw AFB	018000AMSL	10000AMSL	USAF	1,677
BULLDOG D MOA, GA	FAA, ATLANTA ARTCC	Shaw AFB	017000AMSL	00500AGL	USAF	79
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
POINSETT MOA, SC	USAF, SHAW APP CON	Shaw AFB	002500AMSL	00300AGL	USAF	145
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
W161A	FAA, JACKSONVILLE ARTCC	Shaw AFB	FL620	SURFACE	USAF	1,265
W161B	FAA, JACKSONVILLE ARTCC	Shaw AFB	FL240	SURFACE	USAF	562
W177A(A)	FAA, JACKSONVILLE ARTCC	Shaw AFB	FL500	SURFACE	USAF	1,666
W177A(B)	FAA, JACKSONVILLE ARTCC	Shaw AFB	FL500	06001AMSL	USAF	210
W177B	FAA, JACKSONVILLE ARTCC	Shaw AFB	FL240	SURFACE	USAF	758
GAMECOCK A MOA, NC	FAA, WASHINGTON, DC ARTCC	Shaw AFB (20 OSS/OSOS)	018000AMSL	07000AMSL	USAF	555
A561	USAF, SHEPPARD AFB	Sheppard AFB	004000AMSL	SURFACE	USAF	145
A636	USAF, SHEPPARD AFB	Sheppard AFB	004000AMSL	SURFACE	USAF	529
HOLLIS MOA, OK	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	11000AMSL	USAF	1204
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
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	1,986
WESTOVER 2 MOA, TX	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	10000AMSL	USAF	2,180
A682(A)	USAF, TRAVIS AFB	Travis AFB	006000AMSL	SURFACE	USAF	206
A682(B)	USAF, TRAVIS AFB	Travis AFB	003000AMSL	SURFACE	USAF	116
R2905A	TYNDALL AFB RADAR APP	Tyndall AFB	010000AMSL	SURFACE	USAF	15
R2905B	TYNDALL AFB RADAR APP	Tyndall AFB	010000AMSL	SURFACE	USAF	25
R2916	FAA, MIAMI ARTCC	Tyndall AFB	014000AMSL	SURFACE	USAF	9
R3807	FAA, HOUSTON ARTCC	Tyndall AFB	015000AMSL	SURFACE	USAF	28

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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
A260	USAF ACADEMY	USAF Academy	017500AMSL	SURFACE	USAF	31
A639A	USAF, USAF ACADEMY	USAF Academy	012000AMSL	03000AGL	USAF	730
A639B	USAF, USAF ACADEMY	USAF Academy	012000AMSL	03000AGL	USAF	136
A562A	USAF, VANCE AFB	Vance AFB	010000AMSL	SURFACE	USAF	119
A562B	USAF, VANCE AFB	Vance AFB	010000AMSL	SURFACE	USAF	156
ADA EAST MOA, KS	FAA, KANSAS CITY ARTCC	Vance AFB	018000AMSL	07000AMSL	USAF	1,124
ADA WEST MOA, KS	FAA, KANSAS CITY ARTCC	Vance AFB	018000AMSL	07000AMSL	USAF	1,065
VANCE 1A MOA, OK	FAA, KANSAS CITY ARTCC	Vance AFB	018000AMSL	10000AMSL	USAF	2,038
VANCE 1B MOA, OK	FAA, KANSAS CITY ARTCC	Vance AFB	018000AMSL	07000AMSL	USAF	2,236
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
R6413	FAA, DENVER ARTCC	White Sands Missile Range	UNLTD	SURFACE	USAF	204
TRUMAN A MOA, MO	FAA, KANSAS CITY ARTCC	Whiteman AFB	018000AMSL	08000AMSL	USAF	1,107
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
R2309	FAA, LOS ANGELES ARTCC	Yuma Proving Ground	015000AMSL	SURFACE	USAF	7
YANKEE 1 MOA, NH	FAA, BOSTON ARTCC	103 TFG/DOC, CT ANG	018000AMSL	09000AMSL	USAF(ANG)	1,921
YANKEE 2 MOA, NH	FAA, BOSTON ARTCC	103 TFG/DOC, CT ANG	008999AMSL	00100AGL	USAF(ANG)	775
HERSEY MOA, MI	FAA, MINNEAPOLIS ARTCC	110 TASG, MI ANG	018000AMSL	05000AMSL	USAF(ANG)	576
DUKE MOA, PA	FAA, CLEVELAND ARTCC	112 ACS/DOT, PA ANG	018000AMSL	08000AMSL	USAF(ANG)	1,643
HAYS MOA, MT	FAA, SALT LAKE CITY ARTCC	120 FW, MT ANG	018000AMSL	00300AGL	USAF(ANG)	5,368
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)	1,653
LINDBERGH A MOA, MO	FAA, KANSAS CITY ARTCC	131 FW, MO ANG	018000AMSL	07000AMSL	USAF(ANG)	2,302
LINDBERGH B MOA, MO	FAA, KANSAS CITY ARTCC	131 FW, MO ANG	018000AMSL	08000AMSL	USAF(ANG)	811

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LINDBERGH C MOA, MO	FAA, KANSAS CITY ARTCC	131 FW, MO ANG	018000AMSL	08000AMSL	USAF(ANG)	611
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
SALEM MOA, MO	FAA, KANSAS CITY ARTCC	131 TFW, Det 1, MO ANG	006999AMSL	SURFACE	USAF(ANG)	1,459
CRYPT CENTRAL MOA, IA	FAA, MINNEAPOLIS ARTCC	132 FW, IA ANG	018000AMSL	08000AMSL	USAF(ANG)	1,479
CRYPT NORTH MOA, IA	FAA, MINNEAPOLIS ARTCC	132 FW, IA ANG	018000AMSL	08000AMSL	USAF(ANG)	1,777
CRYPT SOUTH MOA, IA	FAA, MINNEAPOLIS ARTCC	132 FW, IA ANG	018000AMSL	08000AMSL	USAF(ANG)	1,325
BEAVER MOA, MN	FAA, MINNEAPOLIS ARTCC	148 FIG, MN ANG	018000AMSL	00300AGL	USAF(ANG)	2,494
BIG BEAR MOA, MI	FAA, MINNEAPOLIS ARTCC	148 FIG, MN ANG	018000AMSL	00500AMSL	USAF(ANG)	1,751
SNOOPY EAST MOA, MN	FAA, MINNEAPOLIS ARTCC	148 FIG, MN ANG	018000AMSL	00300AGL	USAF(ANG)	1,074
SNOOPY WEST MOA, MN	FAA, MINNEAPOLIS ARTCC	148 FIG, MN ANG	018000AMSL	06000AMSL	USAF(ANG)	2,773
LINCOLN MOA, NE	FAA, MINNEAPOLIS ARTCC	155 TRG, NE ANG	018000AMSL	08000AMSL	USAF(ANG)	1,306
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)	3,562
MORENCI MOA, AZ	FAA, ALBUQUERQUE ARTCC	162 FW, AZ ANG	018000AMSL	01500AGL	USAF(ANG)	1,757
OUTLAW MOA, AZ	FAA, ALBUQUERQUE ARTCC	162 FW, AZ ANG	018000AMSL	08000AMSL	USAF(ANG)	1,984
RESERVE MOA, AZ	FAA, ALBUQUERQUE ARTCC	162 FW, AZ ANG	018000AMSL	05000AGL	USAF(ANG)	2,531
RUBY 1 MOA, AZ	FAA, ALBUQUERQUE ARTCC	162 FW, AZ ANG	018000AMSL	10000AMSL	USAF(ANG)	581
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)	1,825
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
SYRACUSE 1 MOA, NY	USA, WHEELER SACK APPROACH	174 FW, NY ANG	005999AMSL	00100AGL	USAF(ANG)	606
SYRACUSE 2A MOA, NY	USA, WHEELER SACK APPROACH	174 FW, NY ANG	005999AMSL	00100AGL	USAF(ANG)	89
SYRACUSE 3 MOA, NY	USA, WHEELER SACK APPROACH	174 FW, NY ANG	005999AMSL	00100AGL	USAF(ANG)	132
SYRACUSE 4 MOA, NY	USA, WHEELER SACK APPROACH	174 FW, NY ANG	003000AMSL	00100AGL	USAF(ANG)	167
RED HILLS MOA, IN	FAA, INDIANAPOLIS ARTCC	181 TFG, IN ANG, Terre Haute	018000AMSL	06000AMSL	USAF(ANG)	1,371
O NEILL MOA, SD	FAA, MINNEAPOLIS ARTCC	185 FW, IA ANG	018000AMSL	00500AGL	USAF(ANG)	2,204
BIRMINGHAM 2 MOA, AL	FAA, ATLANTA ARTCC	187 FW, AL ANG	009999AMSL	00500AGL	USAF(ANG)	1,135
BIRMINGHAM MOA, AL	FAA, ATLANTA ARTCC	187 FW, AL ANG	018000AMSL	10000AMSL	USAF(ANG)	1,165
CAMDEN RIDGE MOA, AL	FAA, ATLANTA ARTCC	187 FW, AL ANG	009999AMSL	00500AGL	USAF(ANG)	2,154
W453	FAA, HOUSTON ARTCC	ANG CRTC GULFPORT, Gulfport, MS	FL500	SURFACE	USAF(ANG)	1,260
AIRBURST A MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	018000AMSL	01500AGL	USAF(ANG)	167

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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
CHEYENNE HIGH MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	018000AMSL	09000AMSL	USAF(ANG)	1,863
CHEYENNE LOW MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	008999AMSL	00300AGL	USAF(ANG)	1,701
LA VETA HIGH MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	018000AMSL	13000AMSL	USAF(ANG)	1,266
LA VETA LOW MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	013000AMSL	01500AGL	USAF(ANG)	203
TWO BUTTES HIGH MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	018000AMSL	10000AMSL	USAF(ANG)	1,435
TWO BUTTES LOW MOA, CO	FAA, DENVER ARTCC	Buckley ANGB	009999AMSL	00300AGL	USAF(ANG)	1,435
DEEPWOODS MOA, ME	FAA, BANGOR APP CON	CO, Army Avn Support Fac/ME ANG	003000AMSL	SURFACE	USAF(ANG)	205
VOLK SOUTH MOA, WI	FAA, CHICAGO ARTCC	Hardwood (Volk Field)	018000AMSL	00500AGL	USAF(ANG)	514
GOOSE NORTH MOA, OR	FAA, SEATTLE ARTCC	Kingsley Fld	018000AMSL	03000AGL	USAF(ANG)	1,387
GOOSE SOUTH MOA, OR	FAA, SEATTLE ARTCC	Kingsley Fld	018000AMSL	10000AMSL	USAF(ANG)	738
A683	WICHITA TRACON	McConnell AFB (184 ARW, KS ANG)	004500AMSL	SURFACE	USAF(ANG)	114
EUREKA HIGH MOA, KS	FAA, KANSAS CITY ARTCC	McConnell AFB (184 ARW, KS ANG)	018000AMSL	06000AMSL	USAF(ANG)	1,648
EUREKA LOW MOA, KS	FAA, KANSAS CITY ARTCC	McConnell AFB (184 ARW, KS ANG)	005999AMSL	02500AMSL	USAF(ANG)	1,648
CONDOR 1 MOA, ME	FAA, BOSTON ARTCC	NE ADS/DOOS, NY ANG	018000AMSL	07000AMSL	USAF(ANG)	2,424
CONDOR 2 MOA, ME	FAA, BOSTON ARTCC	NE ADS/DOOS, NY ANG	018000AMSL	07000AMSL	USAF(ANG)	614
FALCON 1 MOA, NY	FAA, BOSTON ARTCC	NE ADS/DOOS, NY ANG	018000AMSL	06000AMSL	USAF(ANG)	2,040
FALCON 3 MOA, NY	FAA, BOSTON ARTCC	NE ADS/DOOS, NY ANG	018000AMSL	06000AMSL	USAF(ANG)	242
R4207	FAA, MINNEAPOLIS ARTCC	Phelps-Collins ANGB	FL450	SURFACE	USAF(ANG)	1,009
R3007A	FAA, JACKSONVILLE ARTCC	Townsend	005000AMSL	01500AGL	USAF(ANG)	7
R3007B	FAA, JACKSONVILLE ARTCC	Townsend	005000AMSL	00500AGL	USAF(ANG)	32
R3007C	FAA, JACKSONVILLE ARTCC	Townsend	013000AMSL	00100AGL	USAF(ANG)	134
R3007D	FAA, JACKSONVILLE ARTCC	Townsend	013000AMSL	01200AGL	USAF(ANG)	167
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
MINNOW MOA, WI	FAA, CHICAGO ARTCC	Volk Field ANGB	018000AMSL	10000AMSL	USAF(ANG)	1,741
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
VOLK EAST MOA, WI	FAA, CHICAGO ARTCC	Volk Field ANGB	018000AMSL	08000AMSL	USAF(ANG)	1,866
VOLK WEST MOA, WI	FAA, MINNEAPOLIS ARTCC	Volk Field ANGB	018000AMSL	00100AGL	USAF(ANG)	514
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

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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
A530	USMC, CHERRY POINT MCAS	Cherry Point/Camp Lejeune Range Complex	018000AMSL	SURFACE	USMC	405
HATTERAS F MOA, NC	FAA, WASHINGTON, DC ARTCC	Cherry Point/Camp Lejeune Range Complex	013000AMSL	03000AMSL	USMC	102
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
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
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
(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
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
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
BRISTOL MOA, CA	FAA, LOS ANGELES ARTCC	Twentynine Palms Range Complex	018000AMSL	05000AMSL	USMC	404
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

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
R2501W	FAA, LOS ANGELES ARTCC	Twentynine Palms Range Complex	UNLTD	SURFACE	USMC	76
SUNDANCE MOA, CA	FAA, LOS ANGELES ARTCC	Twentynine Palms Range Complex	010000AMSL	00500AGL	USMC	50
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
DOME MOA, AZ	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	06000AMSL	USMC	193
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	1,057
R2301W	FAA, LOS ANGELES ARTCC	Yuma Range Complex	FL800	SURFACE	USMC	1,176
R2507N	FAA, LOS ANGELES ARTCC	Yuma Range Complex	FL400	SURFACE	USMC	214
R2507S	FAA, LOS ANGELES ARTCC	Yuma Range Complex	FL400	SURFACE	USMC	243
TURTLE MOA, AZ	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	11000AMSL	USMC	1,718
W107A	FAA, WASHINGTON, DC ARTCC	Atlantic City Range Complex	UNLTD	SURFACE	USN	4,810
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
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
W102H	FAA, BOSTON ARTCC	Boston Range Complex	FL600	17001AMSL	USN	3,443
W102L	FAA, BOSTON ARTCC	Boston Range Complex	017000AMSL	SURFACE	USN	3,443
W103	FAA, BOSTON ARTCC	Boston Range Complex	002000AMSL	SURFACE	USN	1,479
W104A	FAA, BOSTON ARTCC	Boston Range Complex	010000AMSL	SURFACE	USN	315
W104B	FAA, BOSTON ARTCC	Boston Range Complex	018000AMSL	SURFACE	USN	1,508
W104C	FAA, BOSTON ARTCC	Boston Range Complex	UNLTD	FL180	USN	1,508
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	1,090
W122(14)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	1,087

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
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
W122(2)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	1,062
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	1,029
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
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
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

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
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	1,118
W72(3D)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	1,274
W72(3E)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	UNLTD	SURFACE	USN	1,107
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
R2524	FAA, HI-DESERT TRACON, EDWARDS AFB	China Lake Range Complex	UNLTD	SURFACE	USN	707
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
AUSTIN 1 MOA, NV	FAA, SALT LAKE CITY ARTCC	Fallon Range Complex	FL350	00200AGL	USN	2,407
AUSTIN 2 MOA, NV	FAA, SALT LAKE CITY ARTCC	Fallon Range Complex	FL350	00200AGL	USN	843
CARSON MOA, NV	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	00500AGL	USN	131
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
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	2,695
GABBS SOUTH MOA, NV	FAA, OAKLAND ARTCC	Fallon Range Complex	018000AMSL	00100AGL	USN	286
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
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	1,016
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
BRADY NORTH MOA, TX	FAA, FORT WORTH ARTCC	Fort Worth NAS JRB	018000AMSL	03600AMSL	USN	156

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
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
KINGSVILLE 1 MOA, TX	FAA, HOUSTON ARTCC	Gulf of Mexico Range Complex	018000AMSL	08000AMSL	USN	3,324
KINGSVILLE 2 MOA, TX	FAA, HOUSTON ARTCC	Gulf of Mexico Range Complex	018000AMSL	13000AMSL	USN	383
KINGSVILLE 3 MOA, TX	FAA, HOUSTON ARTCC	Gulf of Mexico Range Complex	018000AMSL	08000AMSL	USN	1,840
KINGSVILLE 4 MOA, TX	FAA, HOUSTON ARTCC	Gulf of Mexico Range Complex	018000AMSL	09000AMSL	USN	2,067
PENSACOLA NORTH MOA, FL	FAA, JACKSONVILLE ARTCC	Gulf of Mexico Range Complex	018000AMSL	10000AMSL	USN	1,213
PENSACOLA SOUTH MOA, FL	FAA, PENSACOLA TOWER	Gulf of Mexico Range Complex	018000AMSL	10000AMSL	USN	1,408
R6312(A)	FAA, HOUSTON ARTCC	Gulf of Mexico Range Complex	023000AMSL	01000AGL	USN	7
R6312(B)	FAA, HOUSTON ARTCC	Gulf of Mexico Range Complex	023000AMSL	SURFACE	USN	67
R6312(C)	FAA, HOUSTON ARTCC	Gulf of Mexico Range Complex	023000AMSL	SURFACE	USN	79
W155A	FAA, JACKSONVILLE ARTCC	Gulf of Mexico Range Complex	FL600	SURFACE	USN	2,241
W155B	FAA, JACKSONVILLE ARTCC	Gulf of Mexico Range Complex	FL600	SURFACE	USN	2,674
W155C	FAA, JACKSONVILLE ARTCC	Gulf of Mexico Range Complex	FL600	SURFACE	USN	525
W228A	FAA, HOUSTON ARTCC	Gulf of Mexico Range Complex	FL450	SURFACE	USN	1,319
W228B	FAA, HOUSTON ARTCC	Gulf of Mexico Range Complex	FL450	SURFACE	USN	1,124
W228C	FAA, HOUSTON ARTCC	Gulf of Mexico Range Complex	FL450	SURFACE	USN	3,604
W228D	FAA, HOUSTON ARTCC	Gulf of Mexico Range Complex	FL450	SURFACE	USN	1,937
W92	FAA, HOUSTON ARTCC	Gulf of Mexico Range Complex	FL400	SURFACE	USN	2,607
R1002	CDR, NS Guantanamo Bay	Guantanamo Complex	050000AMSL	SURFACE	USN	56
W1001	CDR, NS Guantanamo Bay	Guantanamo Complex	045000AMSL	SURFACE	USN	13,118
R3101	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	52
R3107	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	FL180	SURFACE	USN	28
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	35,535
W189	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	8,003
W190	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	1,613
W191	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	003000AMSL	SURFACE	USN	292
W192	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	3,469

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W193	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	4,558
W194	FAA, HONOLULU CERAP	Hawaiian Islands Range Complex	UNLTD	SURFACE	USN	4,071
W196	FAA, HONOLULU TWR	Hawaiian Islands Range Complex	002000AMSL	SURFACE	USN	91
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
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
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
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
W132A	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	UNLTD	SURFACE	USN	1,007
W132B	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL240	SURFACE	USN	364
W133	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	004500AMSL	SURFACE	USN	1,744
W134	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	UNLTD	04500AMSL	USN	1,744
W157A	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL430	SURFACE	USN	8,104
W157B	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL240	SURFACE	USN	2,311
W157C	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	005000AMSL	SURFACE	USN	10,400
W158A	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL430	SURFACE	USN	5,797
W158B	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL240	SURFACE	USN	2,800
W158C	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	UNLTD	FL430	USN	22,011
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	1,963
W159B	FAA, JACKSONVILLE ARTCC	Jacksonville Range Complex	FL240	SURFACE	USN	1,039
(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

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(RJ)R121	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	035000AMSL	SURFACE	USN	516
(RJR599)A	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	UNLTD	SURFACE	USN	6,995
(RJR599)B	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	UNLTD	SURFACE	USN	1,449
TORTUGAS MOA, FL	FAA, MIAMI ARTCC	Key West Range Complex	018000AMSL	05000AMSL	USN	1,116
W174A	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	3,343
W174B(A)	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	10,203
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	1,001
W174C(B)	FAA, MIAMI ARTCC	Key West Range Complex	005500AMSL	SURFACE	USN	397
W174D	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	2,795
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
W465A	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	1,474
W465B	FAA, MIAMI ARTCC	Key West Range Complex	FL700	SURFACE	USN	1,452
W465C	FAA, MIAMI ARTCC	Key West Range Complex	FL700	FL210	USN	844
R7201	FAA, GUAM CENTER/RAPCON	Marianas Range Complex	FL600	SURFACE	USN	28
W517	FAA, GUAM CERAP	Marianas Range Complex	UNLTD	SURFACE	USN	8,698
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	3,936
PINE HILL EAST MOA, MS	FAA, ATLANTA ARTCC	Meridian Complex	018000AMSL	10000AMSL	USN	1,261
PINE HILL WEST MOA, MS	FAA, ATLANTA ARTCC	Meridian Complex	018000AMSL	10000AMSL	USN	1,059
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
W105A	FAA, BOSTON ARTCC	Narragansett Range Complex	FL500	SURFACE	USN	10,326
W105B	FAA, BOSTON ARTCC	Narragansett Range Complex	FL180	SURFACE	USN	1,318
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
A632A	USN, CORPUS CHRISTI NAS	NAS Corpus Christi	018000AMSL	06000AMSL	USN	2,073
A632B	USN, CORPUS CHRISTI NAS	NAS Corpus Christi	018000AMSL	SURFACE	USN	1,329

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
A632C	USN, CORPUS CHRISTI NAS	NAS Corpus Christi	018000AMSL	SURFACE	USN	513
A632D	USN, CORPUS CHRISTI NAS	NAS Corpus Christi	010999AMSL	06000AMSL	USN	1,856
A632E	USN, CORPUS CHRISTI NAS	NAS Corpus Christi	008999AMSL	06000AMSL	USN	901
A632F	USN, CORPUS CHRISTI NAS	NAS Corpus Christi	018000AMSL	03000AGL	USN	412
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
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
A292	USN, COMTRAWING SIX	NAS Pensacola	003000AMSL	SURFACE	USN	3,440
R3404	FAA, HULMAN TWR, TERRE HAUTE	Naval Ammunitions Depot, Crane	002500AMSL	SURFACE	USN	3
R6611A	FAA, WASHINGTON, DC ARTCC	NAVSEA Dahlgren	FL400	SURFACE	USN	22
R6612	FAA, WASHINGTON, DC ARTCC	NAVSEA Dahlgren	007000AMSL	SURFACE	USN	6
R6613A	FAA, WASHINGTON, DC ARTCC	NAVSEA Dahlgren	FL400	SURFACE	USN	18
W54A	FAA, HOUSTON ARTCC	New Orleans NAS JRB	FL400	SURFACE	USN	1,321
W54B	FAA, HOUSTON ARTCC	New Orleans NAS JRB	FL240	SURFACE	USN	367
W54C	FAA, HOUSTON ARTCC	New Orleans NAS JRB	FL400	FL240	USN	367
W59A	FAA, HOUSTON ARTCC	New Orleans NAS JRB	FL500	05000AMSL	USN	2,527
W59B	FAA, HOUSTON ARTCC	New Orleans NAS JRB	027999AMSL	05000AMSL	USN	3,400
W59C	FAA, HOUSTON ARTCC	New Orleans NAS JRB	FL500	FL280	USN	3,400
R6611B	FAA, WASHINGTON, DC ARTCC	NSWC Dahlgren	FL600	FL400	USN	22
R6613B	FAA, WASHINGTON, DC ARTCC	NSWC Dahlgren	FL600	FL400	USN	18
R5113	FAA, ALBUQUERQUE ARTCC	Office of Naval Research, Atmospheric Sciences	FL450	SURFACE	USN	19
(RO)W173B	USN, CFAO KADENA AB	Okinawa Range Complex	060000AMSL	003000AMSL	USN	1,058
(RO)W173C	USN, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USN	5,026
(RO)W175	USN, CFAO KADENA AB	Okinawa Range Complex	004000AMSL	SURFACE	USN	0
(RO)W181	USN, CFAO KADENA AB	Okinawa Range Complex	004000AMSL	SURFACE	USN	3,501
(RO)W183A	USN, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USN	3,706
(RO)W184	USN, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USN	6,835
(RO)W185	USN, CFAO KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USN	2,769
R4002	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	FL220	SURFACE	USN	40

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
R4005	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	024999AMSL	SURFACE	USN	316
R4006	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	024999AMSL	03500AMSL	USN	1,458
R4007	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	004999AMSL	SURFACE	USN	163
R4008	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	FL850	FL250	USN	1,300
R4009	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	012500AMSL	05000AMSL	USN	28
R6609	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	FL200	SURFACE	USN	125
R2519	FAA, LOS ANGELES ARTCC	Pt. Mugu Sea Range Complex	UNLTD	SURFACE	USN	21
R2535A	FAA, LOS ANGELES ARTCC	Pt. Mugu Sea Range Complex	100000AMSL	SURFACE	USN	63
R2535B	FAA, LOS ANGELES ARTCC	Pt. Mugu Sea Range Complex	100000AMSL	SURFACE	USN	37
W289	FAA, LOS ANGELES ARTCC	Pt. Mugu Sea Range Complex	UNLTD	SURFACE	USN	11,787
W289N	FAA, LOS ANGELES ARTCC	Pt. Mugu Sea Range Complex	FL240	SURFACE	USN	108
W290	FAA, LOS ANGELES ARTCC	Pt. Mugu Sea Range Complex	FL800	SURFACE	USN	474
W412	FAA, LOS AGELES ARTCC	Pt. Mugu Sea Range Complex	003000AMSL	SURFACE	USN	376
W532	FAA, LOS ANGELES ARTCC	Pt. Mugu Sea Range Complex	UNLTD	SURFACE	USN	9,506
W537	FAA, LOS ANGELES ARTCC	Pt. Mugu Sea Range Complex	UNLTD	SURFACE	USN	3,079
W60	FAA, LOS ANGELES ARTCC	Pt. Mugu Sea Range Complex	UNLTD	SURFACE	USN	788
W602	FAA, HOUSTON ARTCC	Pt. Mugu Sea Range Complex	FL250	SURFACE	USN	10,451
W61	FAA, LOS ANGELES ARTCC	Pt. Mugu Sea Range Complex	UNLTD	SURFACE	USN	1,472
W260	FAA, OAKLAND ARTCC	San Francisco Range Complex	FL600	SURFACE	USN	5,681
W283	FAA, OAKLAND ARTCC	San Francisco Range Complex	FL600	SURFACE	USN	5,912
W285A	FAA, OAKLAND ARTCC	San Francisco Range Complex	FL450	SURFACE	USN	1,838
W285B	FAA, OAKLAND ARTCC	San Francisco Range Complex	FL450	08000AMSL	USN	745
W513	FAA, OAKLAND ARTCC	San Francisco Range Complex	FL600	SURFACE	USN	574
W291	FAA, LOS ANGELES ARTCC	SOCAL Range Complex	FL800	SURFACE	USN	11,2821
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
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
R5313D	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	013000AMSL	00500AGL	USN	61

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
R5314A	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL205	SURFACE	USN	46
R5314B	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL205	00500AGL	USN	58
R5314C	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL205	00500AGL	USN	53
R5314D	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL205	SURFACE	USN	3
R5314E	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL205	SURFACE	USN	5
R5314F	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL205	00500AGL	USN	22
R5314G	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	015000AMSL	00200AGL	USN	44
R5314H	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	010000AMSL	00500AGL	USN	77
R5314J	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	006000AMSL	01000AGL	USN	211
R6606	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL510	SURFACE	USN	33
STUMPY POINT MOA, NC	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	007999AMSL	SURFACE	USN	123
W110	USN, FACSFAC, VACAPES	VACAPES Range Complex	FL230	SURFACE	USN	1,858
W386	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	UNLTD	SURFACE	USN	9,614
W386(A)	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	FL230	SURFACE	USN	151
W387A	USN, FACSFAC VACAPES	VACAPES Range Complex	023999AMSL	SURFACE	USN	2,296
W387B	USN, FACSFAC VACAPES	VACAPES Range Complex	UNLTD	FL240	USN	2,296
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
A680	USN, WHIDBEY NAS APP	Whidbey Island Range Complex	003000AMSL	SURFACE	USN	28
BOARDMAN MOA, OR	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	018000AMSL	04000AMSL	USN	358
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
DOLPHIN NORTH MOA, OR	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	018000AMSL	11000AMSL	USN	5,719
DOLPHIN SOUTH MOA, OR	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	018000AMSL	11000AMSL	USN	1,766
OKANOGAN A MOA, WA	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	018000AMSL	09000AMSL	USN	2,604
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
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

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (nm²)**
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
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
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	3,149
ROOSEVELT B MOA, WA	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	008999AMSL	00300AGL	USN	2,191
W237A(HI)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL500	FL230	USN	2,039
W237A(LO)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL230	SURFACE	USN	2,039
W237B(HI)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL500	FL230	USN	1,520
W237B(LO)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL230	SURFACE	USN	1,520
W237C	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	UNLTD	SURFACE	USN	1,542
W237D	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	UNLTD	SURFACE	USN	1,631
W237E	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL270	SURFACE	USN	1,823
W237F	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	UNLTD	SURFACE	USN	3,904
W237G	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	UNLTD	SURFACE	USN	2,327
W237H	FAA, OAKLAND ARTCC	Whidbey Island Range Complex	FL270	SURFACE	USN	5,902
W237J	FAA, OAKLAND ARTCC	Whidbey Island Range Complex	FL270	SURFACE	USN	4,301
W570	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	FL500	SURFACE	USN	4,485

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D Acronym List

A

AAW	Anti-Air Warfare
ACC	Air Combat Command
ACE	Aviation Combat Element
ACP	Army Campaign Plan
ACUB	Army Compatible Use Buffer
AFB	Air Force Base
AICUZ	Air Installations Compatible Use Zones
AKO	Army Knowledge Online
ALCUP	Airport Land Use Compatibility Plan
AMW	Amphibious Warfare
ANG	Air National Guard
ARFORGEN	Army Force Generation
ARNG	Army National Guard
ATCAA	Air Traffic Control Assigned Airspace

B

BAX	Battle Area Complex
BCT	Brigade Combat Team
BLM	Bureau of Land Management
BRAC	Base Realignment and Closure

C

CAA	Clean Air Act
CAF	Combat Air Force
CAS	Close Air Support
CFR	Code of Federal Regulations
CNIC	Commander, Naval Installations Command
CNO	Chief of Naval Operations
CONUS	Continental United States
CPLO	Community Plans and Liaison Office
CWC	Composite Warfare Commander

D

DAGIR	Digital Air Ground Integration Range
DAMO-TRS	Training Support Systems Division
DCA	Defensive Counterair
DENIX	Defense Environmental Network Information eXchange
DHS	Department of Homeland Security
DMPRC	Digital Multipurpose Range Complex
DoD	Department of Defense
DoDD	Department of Defense Directive
DOI	Department of the Interior

DOT	Department of Transportation
DOT&E	Director, Operational Test and Evaluation
DRRS	Defense Readiness Reporting System
DZ	Drop Zone

E

EAP	Encroachment Action Plan
EC	Electronic Combat
ECP	Encroachment Control Plan
EIMS	Environmental Information Management System
EIS	Environmental Impact Statement
EMS	Electromagnetic Spectrum
EPA	Environmental Protection Agency
ESOTS	Ehanced Status of Resources and Training Systems

F

FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FCLP	Field Carrier Landing Practice
FMC	Fully Mission Capable
FRTP	Fleet Response Training Plan
FRP	Fleet Response Plan
FRTP	Fleet Response Training Plan
FY	Fiscal Year

G

GAO	Government Accountability Office
GCE	Ground Combat Element
GDPR	Global Defense Posture and Realignment
GIS	Geographic Information System

H

HASC	House Armed Services Committee
HQ	Headquarters
HQDA	Headquarters Department of Army
H.R.	House Report
HQ USAF	Headquarters United States Air Force

I

IED	Improvised Explosive Device
IGPBS	Integrated Global Presence and Basing Strategy
IPT	Integrated Product Team
ITAM	Integrated Training Area Management
IWG	Integrated Working Group

J

JLUS	Joint Land Use Study
JMETL	Joint Mission Essential Task List
JNTC	Joint National Training Capability
JTE	Joint Threat Emitter

L

LFTIS	Live Fire Training Investment Strategy
LVC	Live, Virtual, and Constructive

M

MAGTF	Marine Air-Ground Task Force
MAGTFTC	Marine Air-Ground Task Force Training Center
MCAGCC	Marine Corps Air-Ground Combat Center
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MCLB	Marine Corps Logistics Base
MCM	Mine Counter Measures
MCRD	Marine Corps Recruit Depot
MCRP	Marine Corps Reference Publication
MDS	Mission Design Series
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force
MET	Mission Essential Task

METL	Mission Essential Task List
MEU	Marine Expeditionary Unit
MFA	Mid-Frequency Active
MOUT	Military Operations in Urban Terrain
MR	Management Review
MRTFB	Major Range and Test Facility Base
MTR	Military Training Route
MW	Mine Warfare

N

NACo	National Association of Counties
NALF	Naval Auxiliary Landing Field
NARC	National Association of Regional Councils
NAS	National Airspace System
NAS	Naval Air Station
NCSL	National Conference of State Legislatures
NDAA	National Defense Authorization Act
NEPA	National Environmental Policy Act
NGA	National Geospatial-Intelligence Agency
NGO	Non-Governmental Organization
NMC	Not Mission Capable
NOCAL	Northern California
NTC	National Training Center
NTTR	Nevada Test and Training Range
NSW	Naval Special Warfare

O

OCA	Offensive Counterair
OCO	Overseas Contingency Operations
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
OIF	Operation Iraqi Freedom
OIPT	Overarching Integrated Product Team
OLF	Outlying Landing Field
OMA	Operations and Maintenance - Army
OODA	Observe-Orient-Decide-Act
OPAREA	Operating Area
OPFOR	Opposing Forces
OPNAV	Office of the Chief of Naval Operations
OSD	Office of the Secretary of Defense
OUSD(P&R)	Office of the Under Secretary of Defense (Personnel and Readiness)

P

PMC	Partially Mission Capable
POM	Program Objective Memorandum
PPBE	Planning, Programming, Budgeting, and Execution

Q

QA/QC	Quality Assurance/Quality Control

R

RAICUZ	Range Air Installations Compatible Use Zones
RAM	Range Assessment Module
RAND	Research and Development
RCD	Required Capabilities Document
RCMP	Range Complex Master Plan
RDT&E	Research, Development, and Testing and Evaluation
REPI	Readiness and Environmental Protection Initiative
RIE	Range Information Enterprise
ROMO	Range of Military Operations
RRPB	Requirements Review Prioritization Board
RSC	Regional Support Center
RTAM	Range and Training Area Management
RTAMS	Range and Training Area Management System
RTLS	Range and Training Land Strategy
RTPP	Readiness and Training Policy and Programs

S

SCORE	Southern California Offshore Range
SEAD	Suppression of Energy Air Defenses
SERPPAS	Southeast Regional Partnership for Planning and Sustainability
SOCAL	Southern California Range Complex
SPOE	Seaport of Embarkation
SRI	Sustainable Ranges Initiative
SROC	Senior Readiness Oversight Council
SRP	Sustainable Range Program
SRR	Sustainable Ranges Report
STW	Strike Warfare
SUA	Special Use Airspace

T

T&E	Test & Evaluation
TAP	Tactical Training Theater Assessment Planning
TAPR	Tactical Training Theater Assessment Planning Repository
TAPR	TAP Repository
TC	Training Circular
TECOM	Training and Education Command
TRAMS	Testing Ranges Repository and Management System
TSPI	Time and Space Position Information
TSS	Training Support Systems
TYCOM	Type Commander

U

UAS	Unmanned Aerial System
U.S.	United States
UJTL	Universal Joint Task List
USAF	United States Air Force
USDA	U.S. Department of Agriculture
USFF	United States Fleet Forces
USFWS	U.S. Fish and Wildlife Service
USMC	United States Marine Corps
U.S.C.	United States Code
USWTR	Undersea Warfare Center Training Range

V

VACAPES	Virginia Capes
VDGIF	Virginia Department of Game and Inland Fisheries

W

WGA	Western Governors' Association
WIPT	Working Integrated Product Team
WRP	Western Regional Partnership

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.

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.