



2009 | Report to Congress on

Sustainable Ranges

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(Personnel and Readiness)



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Foreword

This report represents the sixth in a series of reports required by Congress dealing with the Department of Defense’s (DoD) 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 required 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 act as the DoD coordinating body 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 the Sustainable Ranges Initiative. 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:

- ▶ Enacting clarifying legislative provisions to enhance military readiness
- ▶ 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.

As the SRI evolves, it will continue to assess the Department's abilities to train and 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 for they provide contiguous, unencumbered space to replicate, as closely as possible, the operational environment of an assigned mission. Installations and ranges are the foundation of our security because they 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 maintaining a network of sustainable ranges is critical to U.S. national security. Sustaining the network of ranges in the long term requires a management framework that effectively addresses mission requirements, environmental protection, and the interests and aspirations of the local community.

The Department of Defense (DoD) has developed the Sustainable Ranges Initiative (SRI) to create the framework for addressing these fundamental issues. It includes the training needs and requirements associated with DoD's national security mission; the adequacy of range resources to support the full spectrum of training missions; and limitations and restrictions on the use of land, water, airspace and spectrum resources caused by encroachment. It also includes outreach and partnership efforts designed to engage state and local communities and address encroachment on ranges generated by activity within the community as they develop and grow.

The 2009 Sustainable Ranges Report 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 Services (Chapter 3)
- ▶ Progress toward 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 2009 Sustainable Ranges Report was developed with the following assumptions:

- ▶ An accelerated 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 REPI Report to Congress
- ▶ Services could update capability and encroachment assessment data at their discretion as the 2009 report is coming too soon after the 2008 report for a data call to be broadly meaningful
- ▶ Updates Service-specific information on goals and milestones
- ▶ Adds an additional section "Service Special Interest" for each 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 GAO on the 2008 Sustainable Ranges Report
- ▶ Maintains the structure and format of the 2008 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 as they:

- ▶ 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 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 Services to support their missions.

In addition to training activities, ranges also support T&E activities that are involved with system development, operational testing and other related 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. Frequency spectrum conditions that may be acceptable for training may not be sufficient for T&E purposes. Sustaining the ranges needs to take those requirements into account and the SRI includes testing ranges.

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 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 Office of the Secretary of Defense (OSD) and the 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 utilizes land for training and T&E activities that are owned or managed by other USG agencies such as the Bureau of Land Management (BLM), the states and private owners, subject to formal use agreements between the Department and land owners. 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 constellation 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 2008 Sustainable Ranges Report

The 2009 Department of Defense (DoD) Report to Congress on Sustainable Ranges (the Sustainable Ranges Report) is an update to the 2008 Sustainable Ranges 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 limitation 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 from civilian community encroachment on military installations and training and test ranges,² as well as impacts from certain legal requirements on military readiness activities.

NDAA Section 366 requires the U.S. Government Accountability Office (GAO) to provide Congress with an independent evaluation of DoD's annual report on sustainable ranges. In its assessment of the 2008 Sustainable Ranges Report, the GAO acknowledged that:

- ▶ DoD continues to make progress in addressing most Section 366 elements and that the Report more fully addressed Congressional requirements³
- ▶ 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.

The 2009 Sustainable Ranges Report also addresses elements of Section 366 that were not included in previous reports:

- ▶ Special Interest Section for each Service that addresses: General Issues, Critical Issues: Range Capabilities, and Critical Issues: Encroachment Capabilities
- ▶ New Appendix that includes specific comments on range assessment results
- ▶ Expanded discussion of Live, Virtual and Constructive Training Strategy
- ▶ Greater detail and clarification for each funding category.

To improve the range requirements and capabilities assessments and future comprehensive plans, GAO recommends 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, include the following four items in future reports:

- ▶ Each Service's rationale for excluding the specific training ranges not included in its assessment of the adequacy of current resources to meet requirements
- ▶ The Marine Corps' individual combat training elements as the mission areas in the range capability and encroachment assessment
- ▶ An update on the actions taken by the Air Force to address DoD's modernization and investment goals for range sustainment; and
- ▶ A detailed description of all funding data included in each funding category, for each of the military Services.

See Table 1-1: 2009 Sustainable Ranges Report Organization and Incorporation of GAO Recommendations for how specific legislative requirements and comments were integrated into the current report.

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

2 Section 366 was enacted in the Bob Stump National Defense Authorization Act for FY2003, 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 (USC) 101(e).

3 U.S. Government Accountability Office, *Improvement Continues in DoD's Reporting on Sustainable Ranges, but Opportunities Exist to Improve its Range Assessments and Comprehensive Plan*, October 11, 2007.

Table 1-1 2009 Sustainable Ranges Report Organization and Incorporation of GAO Recommendations

Chapter	Summary	NDAAs Requirement	GAO 2008 Recommendation
1	Introduction Summarizes the purpose of this report, provides background information, and discusses report organization	N/A	N/A
2	Current and Future Training Requirements Provides a general overview of the processes used to develop, document, and execute training requirements, and reports on current and future training space requirements.	Section 366(a)(2)(A)	
3	Adequacy of Existing Range Resources to Meet Requirements Discusses DoD's process for the systematic evaluation of the availability, accessibility, and usability of training ranges, and the quantitative assessment of their mission support capability.	Section 366(a)(2)(B) Section 320(a)(1) Section 320(b)(1)–(3) Section 320(e) Section 366(c)	<ul style="list-style-type: none"> ▶ Marine Corps individual combat training elements as the mission areas in the range capability and encroachment assessment. ▶ Each Service's rationale for excluding specific training ranges.
4	DoD's Comprehensive Range Sustainment Plan Provides substantive information on elements of DoD's Comprehensive Range Sustainment Plan and its status—goals/actions/milestones; office designation; funding requirements; legislative/regulatory topics; compatible land use and Resource Conservation and Recovery Act/Comprehensive Environmental Response Compensation and Liability Act/Clean Air Act (RCRA/CERCLA/CAA) compliance; readiness reporting system enhancement; range information enterprise; and range inventory.	Section 366(a)(1) Section 366(3)(A)–(D) Section 366(a)(4)(A)–(C) Section 366(b) and (c) Section 320(a)(2) and (3) Section 320(c)–(e)	<ul style="list-style-type: none"> ▶ Include detailed description of funding data in each funding category. ▶ Update actions taken by Air Force to address DoD's modernization and investment goals for range modernization.
5	The Way Ahead Provides initial discussion of how comprehensive range inventory and capability assessments will be used in the future to enhance range capabilities within the context of the Comprehensive Range Sustainment Plan.	Section 366(a)	
6	Appendices Provides statutory NDAAs language; identifies and defines acronyms used throughout the document; updates maps and inventories of DoD ranges, range complexes ⁴ , and special use airspace (SUA); and provides supporting information on Service programs.	Section 366(c)	<ul style="list-style-type: none"> ▶ Each Service's rationale for excluding specific training ranges.

N/A=Not Applicable

1.3 Linking the 2009 Sustainable Ranges Report and the REPI Report

The DoD notes that its Readiness and Environmental Protection Initiative (REPI) Report to Congress, required separately under Section 2822 of the FY2006 NDAAs, describes in detail efforts to encourage compatible land use around military installations. The REPI report provides substantial information on how DoD has effectively employed the Congressional authority granted under Section 2684a of the FY2003 NDAAs to enter into cooperative conservation 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 addresses important sections of the FY2004 NDAAs 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. Chapter 3 of this report also includes a special interest section for each Service that discusses encroachment and other related installation issues.

⁴ The term "range complex" refers to a grouping of ranges or range areas (e.g., separate impact areas on a large range), and associated airspace. The term reflects the Services' longstanding practice and use of the term to enable the grouping of ranges or range areas and associated airspace for internal management purposes. The term is used differently by each Service (and that difference is thus reflected in this report). Army and Marine Corps range complexes represent the range portions of the larger Army and Marine Corps installations (excluding cantonment areas); Navy range complexes are defined as regional groupings of various land, air, and sea ranges; Air Force range complexes are defined as the airspace and land area. It is critical for readers to note that the term "range complex" has no particular relationship to the term "operational range."



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

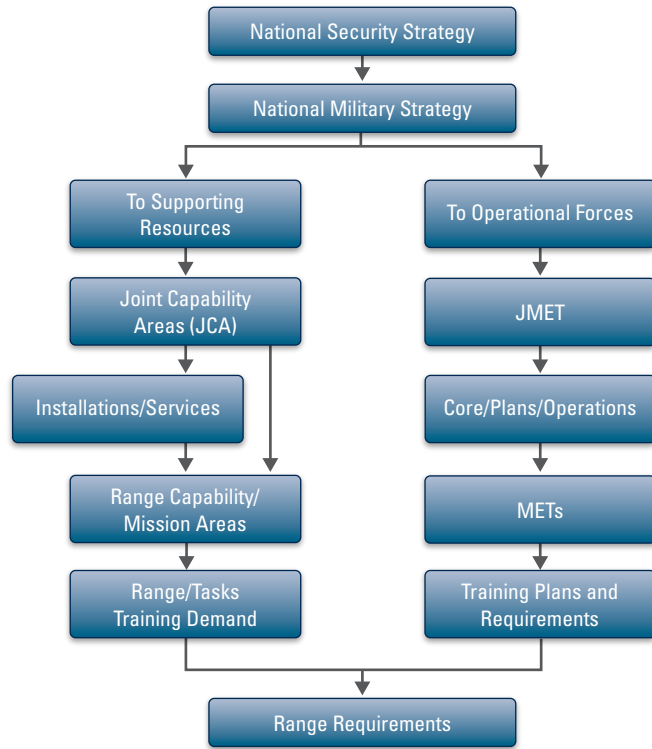
- ▶ Operational and functional profiles of the weapons and related systems that are available today and are expected to be available in the near future
- ▶ The lessons learned from previous military experience, training evolutions, and experimentation.

Starting with the strategic guidance documents and working down to more specific tactics, techniques and procedures, the 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 Services identify and develop mission essential tasks (METs). The 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 Service's METs. Figure 2-1 details this process for the development of range requirements.

2.1.1 Assessing Current and Future Requirements

The 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 Service-specific and joint tasks identified in the UJTL and 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 documents, instructions and

Figure 2-1 Training Requirement and Range Requirement Development Process



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 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 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 and 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 within an already constrained training environment. 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. Such a training 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 constructed (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*.^{5,6}

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.

1. **Live, virtual, and constructive environment:** A broadly used taxonomy for classifying training domains.
2. **Live (L)**—The natural physical environment 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.
3. **Virtual (V)**—A synthetic environment where training audience operates simulators, emulators, or operational systems.
4. **Constructive (C)**—A synthetic environment constituted by a constructive simulation where the participants, typically command and staff trainees, conduct training activities. The trainees provide stimulus to simulated forces at different levels and act upon consequences generated by the simulation.
5. **LVC component**—Any individual system, simulator, simulation that originates or represents a live, virtual, or constructive environment in which forces train.
6. **LVC**—The integration of two or more Live, Virtual, or Constructive components with at least one live and one synthetic (V or C) component.
7. **Synthetic mission-space**—The training environment created in virtual, constructive, or integrated virtual/constructive components.

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 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 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.

⁵ 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.

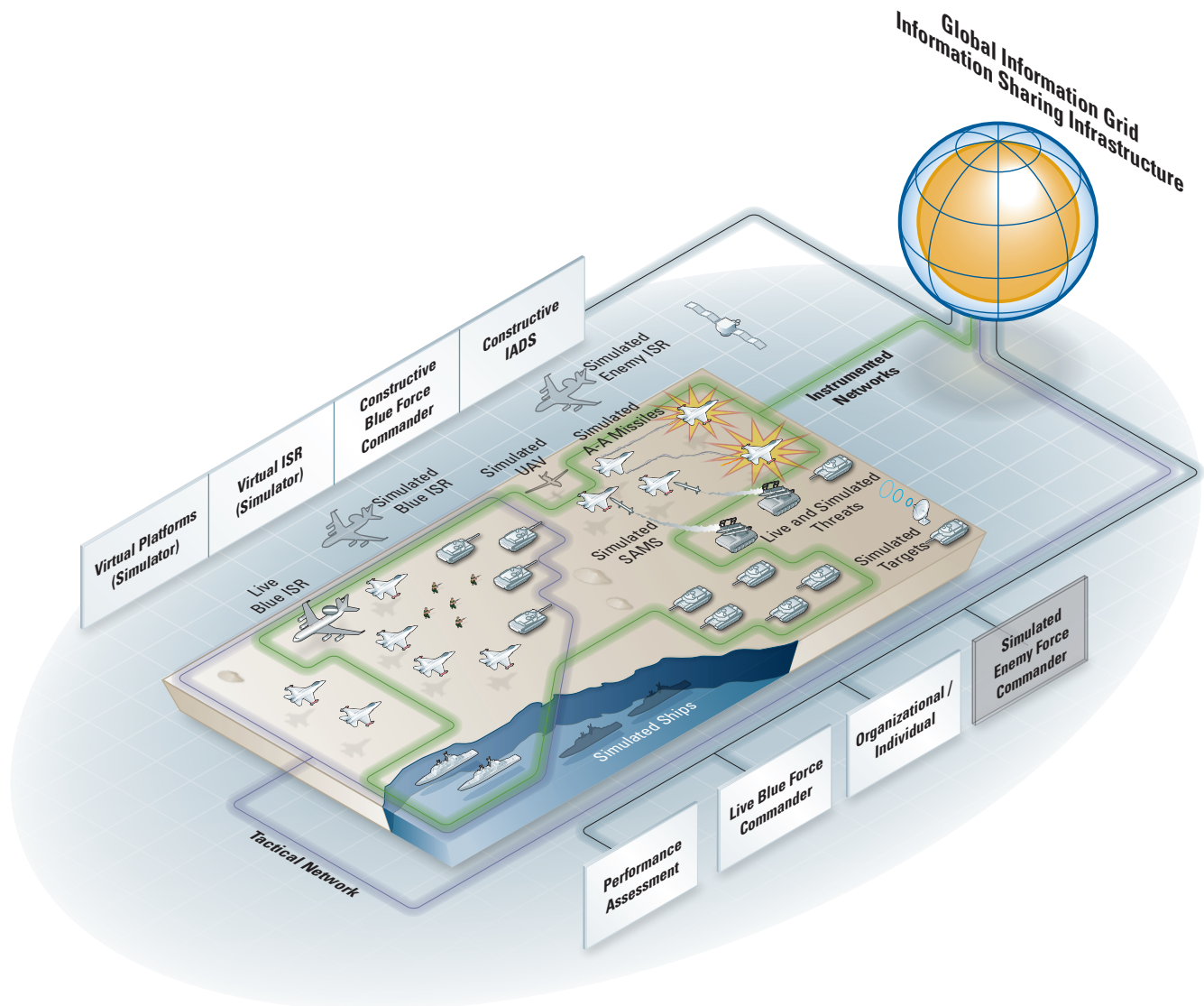
⁶ Department of Defense Training Transformation Implementation Plan FY2006-FY2011, 23 February 2006, Office of the Under Secretary of Defense for Personnel and Readiness, Director, Readiness and Training Policy and Programs.

- ▶ 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.

The individual components of LVC training are identified and described in Table 2-2.

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.

Figure 2-2 The LVC Training Environment



2.3 Service Training Range and OPAREA Requirements

Understanding the processes by which the Services derive their range resource and infrastructure requirements, and the relationship between those requirements and other strategic military initiatives, provide important context for the discussion and tabular view of encroachment and range capabilities that are provided in Chapter 3.

Table 2-2 Live, Virtual, and Constructive Training

LVC Training Component	Description
Live	<ul style="list-style-type: none"> ▶ 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	<ul style="list-style-type: none"> ▶ 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 standalone virtual mission training of combined forces, and integrated with live training providing individual platform augmentation to live force training.
Constructive	<ul style="list-style-type: none"> ▶ 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.

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 serves to organize and synchronize 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 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 BRAC 05, 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 Sustainable Ranges Report*. In addition to doctrinal requirements, BRAC 05 consolidations, GDPR moves, Army Force Generation (ARFORGEN), and increases in the area of operations for the Future Combat Systems Brigade Combat Team (BCT) also require an increase in the amount of land available to the Army.

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 (RTLIS)* was approved as a component of the Army’s Sustainable Range Program (SRP). The purpose of the RTLIS is to address the Army’s increasing land deficit. The RTLIS helps the Army prioritize its training land investment, and helps to optimize the use of range and training land assets. The RTLIS provides a long-range plan for the Army to make available the best range and training land assets, and a framework for the

Army to select the most appropriate course of action to address training land shortfalls. In analyzing land requirements, the Army does not focus on high operational tempos or surge requirements. Instead, the Army conducts its training requirements planning based on the peacetime assumption that all units are at home station and available to conduct training.

Current and Future Range Requirements

Army range facilities are currently sufficient in meeting the throughput and surge requirements necessary to support 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. While the Army resources the operation of its ranges on a peacetime schedule of 242 days a year, 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 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). This sustainable range operations tool 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 Army Campaign Plan (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 center-piece capabilities that enable full spectrum training events.

The Army also looks to improve its training land capability when specific community-oriented conditions allow. The Army will look to enter the marketplace and purchase training land only when an 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 be available from willing sellers and provide a significant solution to an existing installation deficit before it is considered for purchase as Congressionally approved project.

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 well into the future.

Additional Army Information on Expansion Initiatives

The Army’s training land acquisitions are based on a broad strategy that evaluates 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 Army’s Range and Training Land Strategy (RTLS) approved in 2003 and updated since. The following is an update of a few of the Army’s 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 1,500 acres of training land and 1,300 acres of mitigation land using prior year funds. These actions are expected to be complete by end of FY09. The final expansion area is expected to be opened for training in fall 2010.
- ▶ **Fort Polk**—OSD approved the Fort Polk expansion proposal in July 2008 and courses of actions and timelines for execution were established in November 2008. Public engagement has already begun and the National Environmental Policy Act (NEPA) process is anticipated to begin in March 2009.
- ▶ **Texas Army National Guard**—OSD approved the South Texas Training Site (approximately 85 miles due south of San Antonio) proposal for expansion in March 2008 and planning meetings to develop timelines and courses of actions are scheduled for early March 2009.

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.

Table 2-3 Army Mission Areas

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

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

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.

2.3.2 Marine Corps Requirements

Overview

Marine Corps training responsibilities are embodied in Marine Corps Tasks (MCTs), which are derived from the UJTL and Joint Tactical Tasks (JTTs). Together, the UJTL, JTTs,

and MCTs are the basis for all Marine Corps training requirements. Training requirements are further articulated in the Marine Corps Training and Readiness (T&R) Program, specified in the T&R Manual as tasks and standards. The purpose of the T&R Program is to provide commanders with standardized approaches to individual and unit-level training.

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

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

Identifying operational range requirements is a dynamic process, 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. Airspace for military operations is a vital component of the Marine Corps' required range capability. A three-dimensional training environment is necessary for live-fire training systems such as those utilizing artillery and mortars and for all aviation training activities.

New weapons systems, such as the F-35 Joint Strike Fighter and the MV-22 Osprey, will drive new range requirements, particularly the requirement for access to adequate training airspace. While many of these requirements are not yet defined, efforts are underway to assess the adequacy of current ranges in both the Southeastern and Southwestern United States to support these aircrafts. New operational/tactical doctrine, employing both legacy and new weapons systems, also impacts range planning and usage. The ability to stress a large MAGTF in a live-fire and maneuver scenario is a training requirement that is currently driving an initiative to expand the Marine Corps Air Ground Combat Center (MCAGCC) at Twentynine Palms, California. Lessons learned in the course of combat operations in Afghanistan highlight the need for, among other things, a robust mountain operations training capability. The Marine Corps Mountain Warfare Training

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.

Center (MCMWTC) near Bridgeport, California, provides, and will continue to provide, such a capability for the Marine Corps. Efforts are underway to assess and enhance the capabilities of the MCMWTC range complex to support required training in mountain warfare operations.

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.

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 Training Ranges Required Capabilities*. This MCRP describes training land, airspace, and required range facilities necessary to execute the training continuum. The *Required Capabilities Document* describes training land, airspace and required range facilities necessary to execute the training continuum. Based on the *Required Capabilities Document*, installation-specific Range Complex Management Plans are developed to guide execution of range transformation. The Marine Corps has programmed to fund, initiated, or completed Range Complex Management Plans 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. Marine Corps planning is soundly grounded in six cornerstone objectives:

- ▶ Preserve & 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; provide feedback for better training
- ▶ Mitigate encroachment

- ▶ Facilitate cross-service utilization
- ▶ Support the Joint National Training Capability.

Since 2004 the Marine Corps has invested (or is in the process of investing) nearly \$500 million in its 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 they also have environmental issues common to all of them. Environmental issues are managed by the Regional Environmental Coordinator on the staff of Navy Region Southwest. 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 but not available. Those requirements are forwarded to the fleet level, USFF and Pacific Fleet, for validation. USFF forwards the requirements to Chief of Naval Operations for assessment as input to the Navy's Program Objectives 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 (FRTTP). To meet the milestones in the FRTTP, 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 FRTTP training phases.

To quantify its range requirements for the foreseeable future, the Navy developed the Navy Range Required Capabilities Document (RCD). The RCD describes the training range capabilities required to support the training complexity, described in Table 2-6, for required range functions. All Navy Range Complexes have developed individual Range Complex Management Plans (RCMP) 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 policy, and to assist in evaluating new requirements throughout the PPBE process.

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 ⁷ unit level training (ULT) requirements—team training both onboard and ashore, unit level exercises both in port and at sea, unit qualifications, assessments, qualifications, and certifications. During the basic phase, a unit will maximize the use of both distance learning options for individual skills development, and in port synthetic training. Successful completion of the basic phase ensures units are proficient in all required Navy Mission Essential Task capabilities, meet TYCOM certification criteria, and are ready for more complex integrated training events. ULT follows a cyclical “assess, train, and certify” process which has been instituted by the TYCOMs.
Integrated	The goal of integrated phase training is to synthesize unit/staff actions into coordinated strike group operations in a challenging, multi-warfare operational environment. This phase provides an opportunity for strike group decision makers and watch-standers to complete staff planning and warfare commanders courses; conduct multi-unit in-port and at-sea training; and to build on individual skill proficiencies attained in their respective basic phase. The integrated phase is adaptable in order to provide training for Major Combat Operations, Surge certification, Ready certification, and/or tailored training to support emergent Combatant Commander requirements.
Sustainment	The sustainment phase begins upon completion of the integrated phase, continues throughout the post deployment period, and ends with the commencement of the maintenance phase. Sustainment consists of a variety of training evolutions designed to sustain operation readiness as a group, multi-unit, or unit, until and following deployment. Sustainment phase training exercises units and staffs in multi-mission planning and execution, and to interoperate in a joint/coalition environment. In-port and at-sea sustainment training allows forces to demonstrate proficiency in operating as part of a joint and coalition combined force and ensures that proficiency is maintained in all Navy METs in order to maintain Major Combat Operations Ready status. The extent of training will vary depending on the unit’s anticipated task and length of time in an MCO Ready status. During sustainment, units/groups maintain an Major Combat Operations Ready status until the commencement of the maintenance phase unless otherwise directed by Navy Fleet Commanders. Unit/group integrity during this period is vital to ensure integrated proficiency is maintained, particularly for strike groups. Deployments in support of Combatant Commander Global Force Management requirements may occur within the Sustainment Phase after numbered Fleet Commanders re-certify groups and units.

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)

7 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

Because of the emerging trend of DoD readiness impacts caused by limitations on the use of military lands, marine areas, and airspace, the Air Force Air Combat Command (ACC) in 2001 partnered with the RAND Corporation 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.

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.

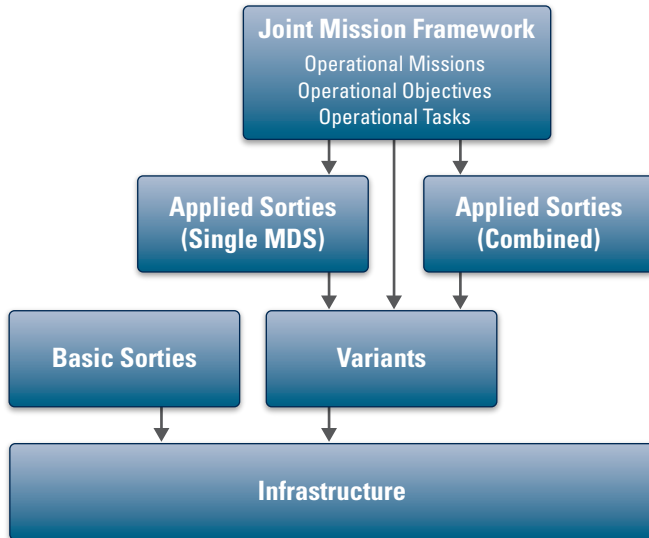
Figure 2-3 Framework for Developing Air Force Infrastructure Requirements



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

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



support the training requirements of an operating base. For a given Mission Design Series (MDS)/sortie-type combination, the requirements are translated into capacity, or the amount of operating time required on ranges and in airspace, by multiplying the required number of sorties by the time required for an individual sortie on a range and/or in an airspace. Qualitative characteristics (and corresponding information on existing assets) must satisfy certain requirements, such as minimum dimensional requirements, availability of required range equipment, and authorized operation of aircraft and systems in specific ways. Qualitative characteristics were captured for six infrastructure types: ranges, low-level routes, maneuver areas, threats, orbits, and other.

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

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.

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	



Adequacy of Existing Range Resources to Meet Training Requirements

3

NDA Section 366(a)(2)(B) requires DoD to evaluate the adequacy of current range resources. Additionally, NDA Sections 366(c)(1)(B) and (C) require DoD to identify training capabilities and 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 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 impacts of encroachment. While these initial assessments represented a significant step towards evaluating the adequacy of ranges to support training and the impacts of encroachment, shortcomings were identified and addressed in this year's effort. The DoD developed clear and concise guidance detailing the process for completing the 2008 assessment and providing the requirement information. The DoD and the 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 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 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. Service mission areas are presented in Chapter 2, and defined in Appendix B. The 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 Services.

3.1.1 Capability Assessment

The following 13 common capability attributes were developed and identified by the Services for the 2008 assessment and reporting process:

1. **Landspace**—Physical land area that has the necessary features such as topography, vegetative cover, configuration, proximity, capacity, usability, acreage, *etc.*
2. **Airspace**—Physical volume of airspace that has the necessary features such as types of use, configuration, proximity, capacity, amount, *etc.*
3. **Seaspace**—Physical sea-surface area that has the necessary features such as types of use, configuration, proximity, capacity, amount, *etc.*

4. **Underseaspace**—Physical volume of underseaspace that has the necessary features such as ocean bottom type, depth, types of use, configuration, proximity, capacity, amount, *etc.*
5. **Targets**—Various land, air, sea, and undersea presentations designed for live or simulated weapons engagement.
6. **Threats**—Various physical and simulated threat presentations such as emitters, opposing adversary forces, battlefield affect simulators, *etc.*
7. **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.
8. **Infrastructure**—Buildings, structures, or linear structures (*e.g.* roads, rail lines, pipelines, fences, pavement).
9. **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, and radio, data link; and instrumentation frequency management systems.
10. **Small Arms Ranges**—Small arms refer to ranges that accommodate weapons systems that fire rounds up through 40mm which is dud-producing.
11. **Collective Ranges**—Collective refers to ranges that provide proficiency at the team or unit level for battlefield operations.
12. **MOUT Facilities**—Military Operations in Urban Terrain (MOUT) facilities refer to terrain complexes that replicate urban environments.
13. **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.

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 of encroachment on mission readiness is difficult to assess because of the flexibility in training operations and associated resources. This flexibility is necessary to allow the Services’ operational forces to adapt to real-time operational constraints. To achieve their mission training requirements, the Services employ workarounds that 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. 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. Therefore, as part of DoD’s efforts to standardize the assessment of encroachment on training ranges, the Services were tasked to assess the impact of the following 12 encroachment factors in terms of mission risk, against their Service mission areas (as listed in Chapter 2, and defined in Appendix B).

1. **Threatened & Endangered Species/Critical Habitat**—Constraints placed on training due to regulatory requirements and/or Service guidance to manage at risk, threatened, or endangered species or associated habitat.
2. **Munitions Restrictions**—Constraints placed on training due to regulatory requirements and/or Service guidance on munitions use, munitions constituents, or residue to include range clearance.
3. **Spectrum**—Constraints placed on training due to unavailability of, or interference with, required electromagnetic spectrum.
4. **Maritime Sustainability**—Constraints placed on training due to regulatory requirements and/or Service guidance to protect and sustain the maritime environment. This includes sonar issues.
5. **Airspace**—Constraints placed on training due to the availability of airspace; these constraints may be spatial or temporal.
6. **Air Quality**—Constraints placed on training due to regulatory requirements and/or Service guidance to maintain air quality.
7. **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.
8. **Adjacent Land Use**—Constraints placed on training due to incompatible development in proximity to military training areas.
9. **Cultural Resources**—Constraints placed on training due to legal and/or regulatory requirements and/or Service guidance to manage and maintain cultural resources.
10. **Water Quality/Supply**—Constraints placed on training due to legal and/or regulatory requirements and/or Service guidance to manage water quality and supply.
11. **Wetlands**—Constraints placed on training due to legal and/or regulatory requirements and/or Service guidance to manage wetlands.
12. **Range Transients**—Constraints placed on training due to the unannounced or unauthorized presence of individuals, livestock, aircraft, or watercraft transiting ranges.

Services assessed the ranges/range complex for the risks associated with actual restrictions and workarounds related to the various Encroachment Factors presented earlier. These assessments were made based on observed use of the range with regards to availability 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 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 rating 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 4.

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.

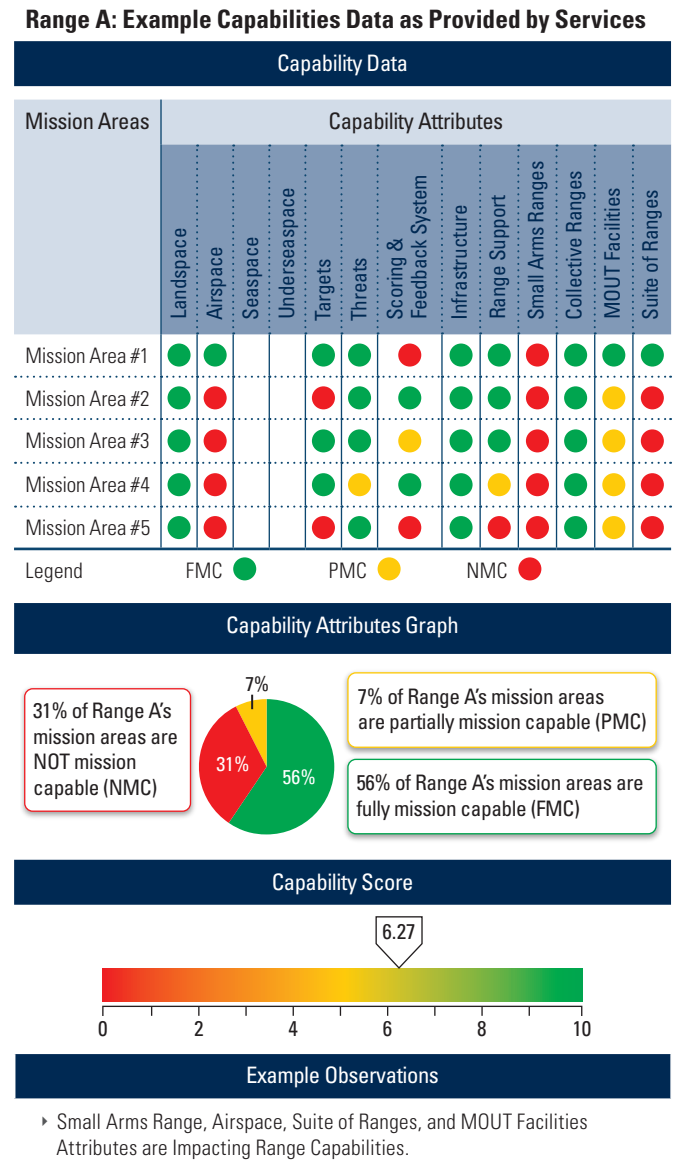
This sliding scale provides a baseline needed for future trend analysis. To represent the overall relationship of red/yellow/green assessments a pie chart view is provided. Additional observations can be readily seen from the pie charts. For example, of all the capability factors necessary to provide 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 Service's individual ranges/range complexes were assessed for the impact encroachment has on their ability to support their assigned training missions using 13 common encroachment factors. As shown in the above figure, the interactions between the various mission areas (1 through 5

Figure 3-1 Example Capability Assessment and Analysis



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 3.1.1 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 above, 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, 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 1 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.

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 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 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 this example range there were 45 green, 5 yellow, and 8 red responses. Additionally, 2 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 475. The weighted average (in this example 8.18) is determined by dividing the weighted score (475) by the total number of responses (58). The weighted average becomes the range’s encroachment score, 8.18, 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 or severe 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

Figure 3-2 Example Encroachment Assessment and Analysis
Range A: Example Encroachment Data as Provided by Services

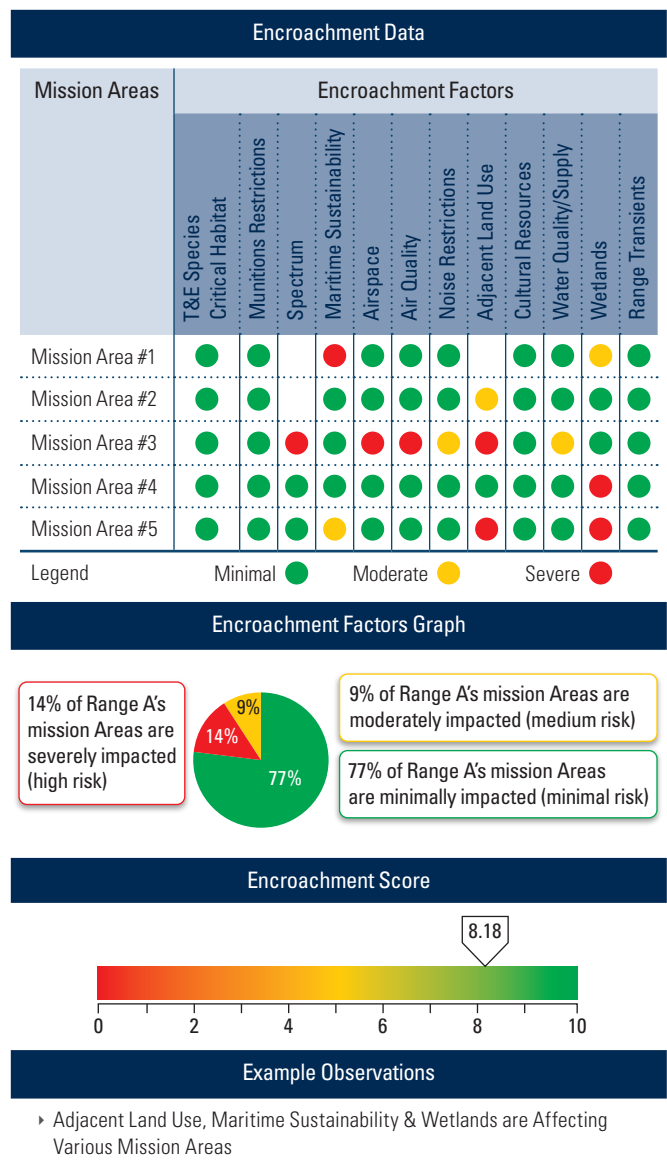
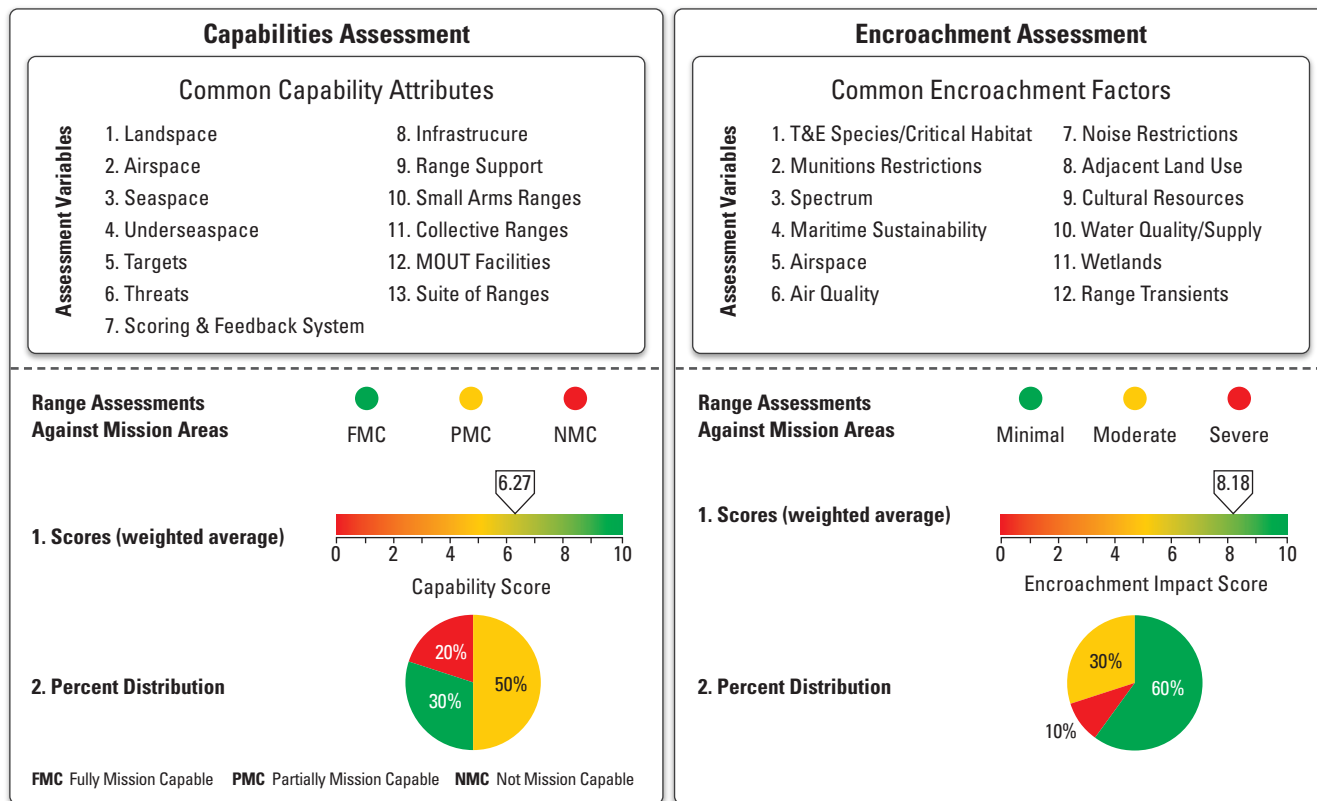


Figure 3-3 Comparison of the Capability and Encroachment Assessment Methodologies



comparison of Services’ Standards Methods, Analysis, and Reporting for Capabilities and Encroachment assessments on the range training Mission.

In this year’s report, the use of a sliding scale, as described above, and pie charts have been implemented to aggregate Service assessment data in a unit-less representation that can be quickly assessed. The relationship between encroachment and capability begins to emerge and can be used for further development of this very complex relationship.

3.2 Assessment Results and Discussions

3.2.1 Army

Army Training Range Capability Assessment Results

The results of the Army’s overall range capability assessment are:

- ▶ Army’s overall Capability Score = 6.49
- ▶ 16% of the Army’s Range Mission Areas are assessed as Not Mission Capable (NMC)

- ▶ 38% of the Army’s Range Mission Areas are assessed as Partially Mission Capable (PMC)
- ▶ 46% of the Army’s Range Mission Areas are assessed as Fully Mission Capable (FMC)

Shortfalls were identified in the Airspace, Scoring and Feed Back System, Landspace, and Infrastructure capability attributes, and all six Army mission areas were impacted. Impacted ranges, or ranges with a capability score less than the Army’s overall score of 6.49 include: Fort Bliss, Fort Drum, Fort Campbell, Fort Bragg, Fort Riley, Fort Benning, Fort Hood, and Fort Stewart. Specific comments from the Army’s range capability assessments are included in Appendix C.

Army Training Range Encroachment Assessment Results

The results of the Army’s overall range encroachment assessment are:

- ▶ Army’s overall Encroachment Score = 9.23
- ▶ 1% of the Army’s Range Mission Areas are severely impacted (High risk)

- ▶ 13% of the Army’s range Mission Areas are moderately impacted (Medium risk)
- ▶ 86% of the Army’s Range Missions Ares are minimally impacted (Minimal risk)

Encroachment factors contributing constraints were identified as: Air Quality, Wetlands, Adjacent Land Use, and T&E Species and Critical Habitat, while all six mission areas are impacted. Ranges with an encroachment score of less than 9.00 include: Fort Hood, Fort Benning, Fort Wainwright, Fort Lewis, and Yakima Training Area.

Specific comments from the Army’s range encroachment assessments are included in Appendix C.

Army Special Interest Section

General Issues

The Army Sustainable Range Program maintains an inventory and general management data for 102 installations encompassing three tiers. The Army tiers were established using criteria including: BCT stationing, intuitional 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 ARNG/state agreements and policies; the Army only maintains inventory-level data for these sites.

The Army Campaign Plan (ACP) provides direction for detailed planning, preparation, and execution of the full range of tasks necessary to provide relevant and ready land power to the Nation while maintaining the quality of the all-volunteer force. The Army is pursuing the most comprehensive transformation of its forces since the early years of World War II, but the Soldier remains the

centerpiece of our 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 increase 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 HASC Readiness Sub-committee in February 2009, the Army informed Congress of a service-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 Global Defense Posture Realignment (GDPR)

Figure 3-4 Summary: Army Range Capability Assessment

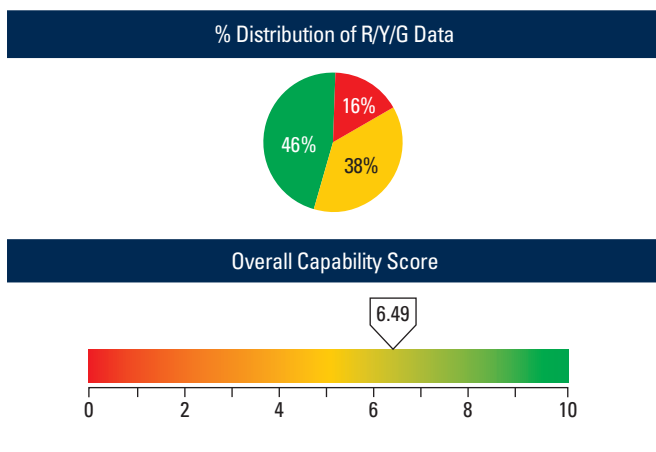
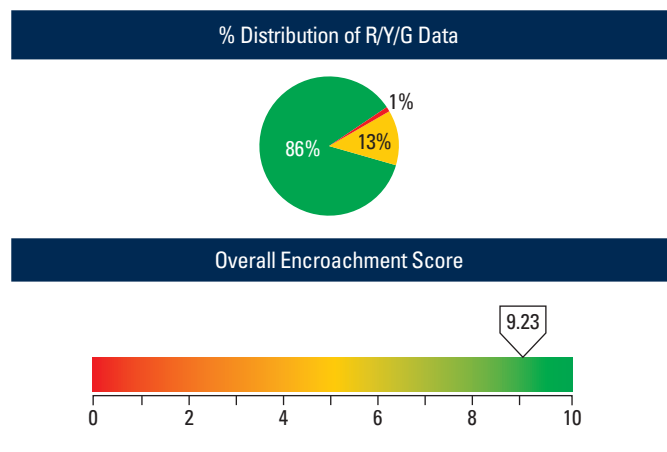


Figure 3-5 Summary: Army Range Encroachment Assessment



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 Army Force Generation Model (ARFORGEN) requires units to train to a higher level at home station because Army units must meet readiness gates 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. Increases in the concentration of endangered species at Army installations have, on many installations, increased environmental restrictions. 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 3-1 shows the BRAC authorized actions that will significantly affect training requirements.

Table 3-1 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 Global Defense Posture Realignment 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 3-2 below.

Table 3-2 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	1 st 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	1 st 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. The table below identifies installations which received or retained 1000 Soldiers or more during Army growth.

Table 3-3 Actions under Army Growth

Installation Impacted	Type of Unit	Action
Fort Carson	IBCT	Growth
Fort Carson	IBCT	Retained
Fort Stewart	IBCT	Growth
Fort Stewart	IBCT (converted from an HBCT)	Conversion
Fort Polk	Battlefield Surveillance Brigade	Growth
Fort Bliss	2 IBCTs and Fires Brigade	Growth

Several installations had growth or retention that exceeded 1,000 Soldiers cumulative, 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: Encroachment Capabilities

The results of the Army's Encroachment Assessment as depicted in Section 3.2.1 were based on supporting data (both quantitative and qualitative) from a number of sources to include but not limited to the SEP 2007 Final Encroachment Condition Module Reports for each of the Army's Tier I installations, input from Army Commands, the Installation Management Command, and HQDA staff. The charts and tables are reflective of current conditions as of December 2008 only. Additionally, the Army chose to provide encroachment assessments for Tier I installation only installations because they reflect 88% of Home Station training for the active component and where the majority of encroachment impacts are felt.

Detailed Army Training Range Capability and Encroachment Assessment Results

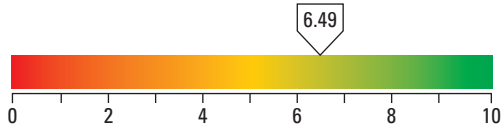
The following tables and figures present detailed information on the Army's Training Range Capability and Encroachment Assessments. The first set of tables detail the methodology used for determining the weighted averages that make-up an individual range capability and encroachment score. This information is shown for all the Army ranges assessed. The set of figures that follow provide assessment detail at the range level specific to mission areas and capability attributes and encroachment factors.

Army Training Range Capability and Encroachment Assessment Results

The results of the Army's overall range capability and encroachment assessments, based on data received from 14 Ranges/Range Complexes are presented side-by-side in Table 3-6.

Table 3-4 Army Range Capability Assessment Data Analysis

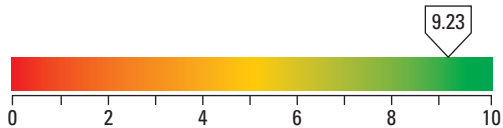
Army Range Capability Assessment Detail



Range	NMC	PMC	FMC	Total Weighted Scores	Total Assessment Points	Weighted Average
Fort Benning	5	23	17	285	45	6.33
Fort Bliss	13	21	11	215	45	4.78
Fort Bragg	11	20	14	240	45	5.33
Fort Campbell	12	19	14	235	45	5.22
Fort Carson	11	8	26	300	45	6.67
Fort Drum	17	10	18	230	45	5.11
Fort Hood	11	20	14	240	45	5.33
Fort Irwin	6	14	31	380	51	7.45
Fort Lewis	0	21	24	345	45	7.67
Fort Polk	0	13	38	445	51	8.73
Fort Riley	11	11	23	285	45	6.33
Fort Stewart	5	23	17	285	45	6.33
Fort Wainwright	0	16	29	370	45	8.22
Yakima Training Area	0	28	17	310	45	6.89
Totals	102	247	293	4,165	642	6.49

Table 3-5 Army Range Encroachment Assessment Data Analysis

Army Range Encroachment Assessment Detail



Range	Severe	Moderate	Minimal	Total Weighted Scores	Total Assessment Points	Weighted Average
Fort Benning	0	14	26	330	40	8.25
Fort Bliss	0	0	39	390	39	10.00
Fort Bragg	0	0	41	410	41	10.00
Fort Campbell	0	0	39	390	39	10.00
Fort Carson	0	5	28	305	33	9.24
Fort Drum	0	7	32	355	39	9.10
Fort Hood	2	13	26	325	41	7.93
Fort Irwin	0	2	38	390	40	9.75
Fort Lewis	0	12	29	350	41	8.54
Fort Polk	0	0	41	410	41	10.00
Fort Riley	0	0	33	330	33	10.00
Fort Stewart	0	6	30	330	36	9.17
Fort Wainwright	6	0	33	330	39	8.46
Yakima Training Area	0	9	32	365	41	8.90
Totals	8	68	467	5,010	543	9.23

Figure 3-6 Army Capability and Encroachment Assessment Detail

Army Range: Fort Benning

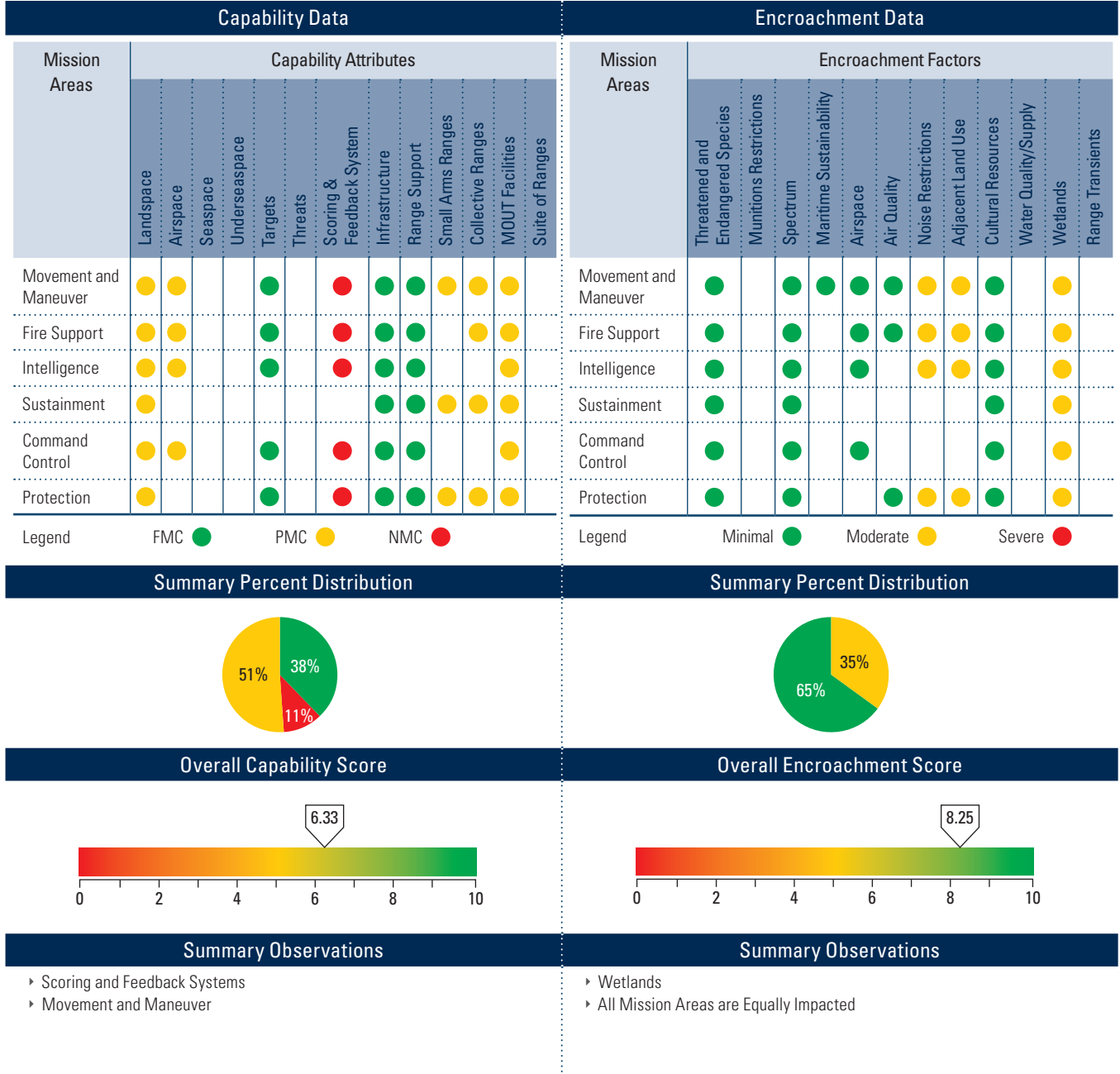


Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Fort Bliss



Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Fort Bragg



Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Fort Campbell



Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Fort Carson / Pinon Canyon Maneuver Site

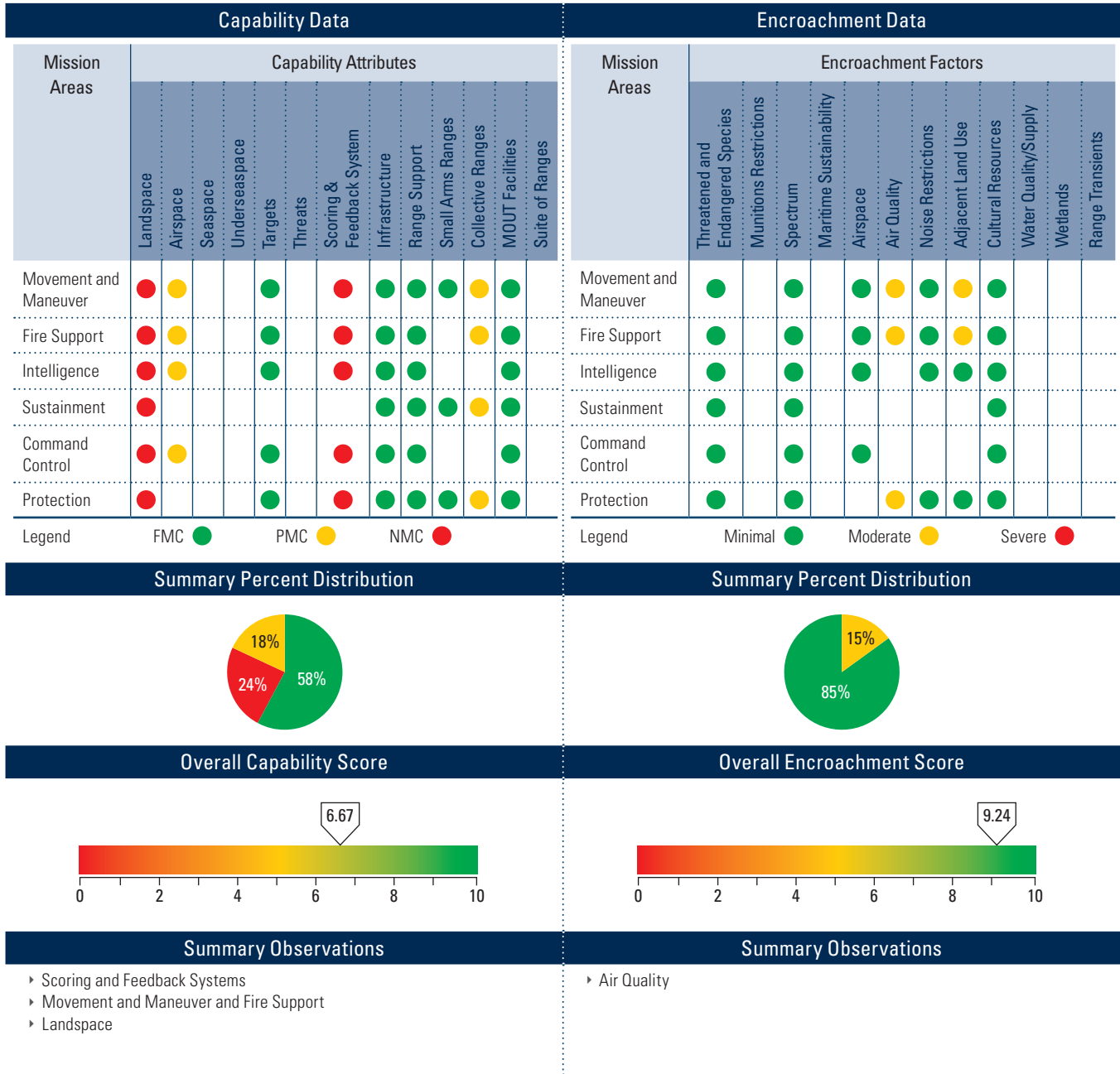


Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Fort Drum

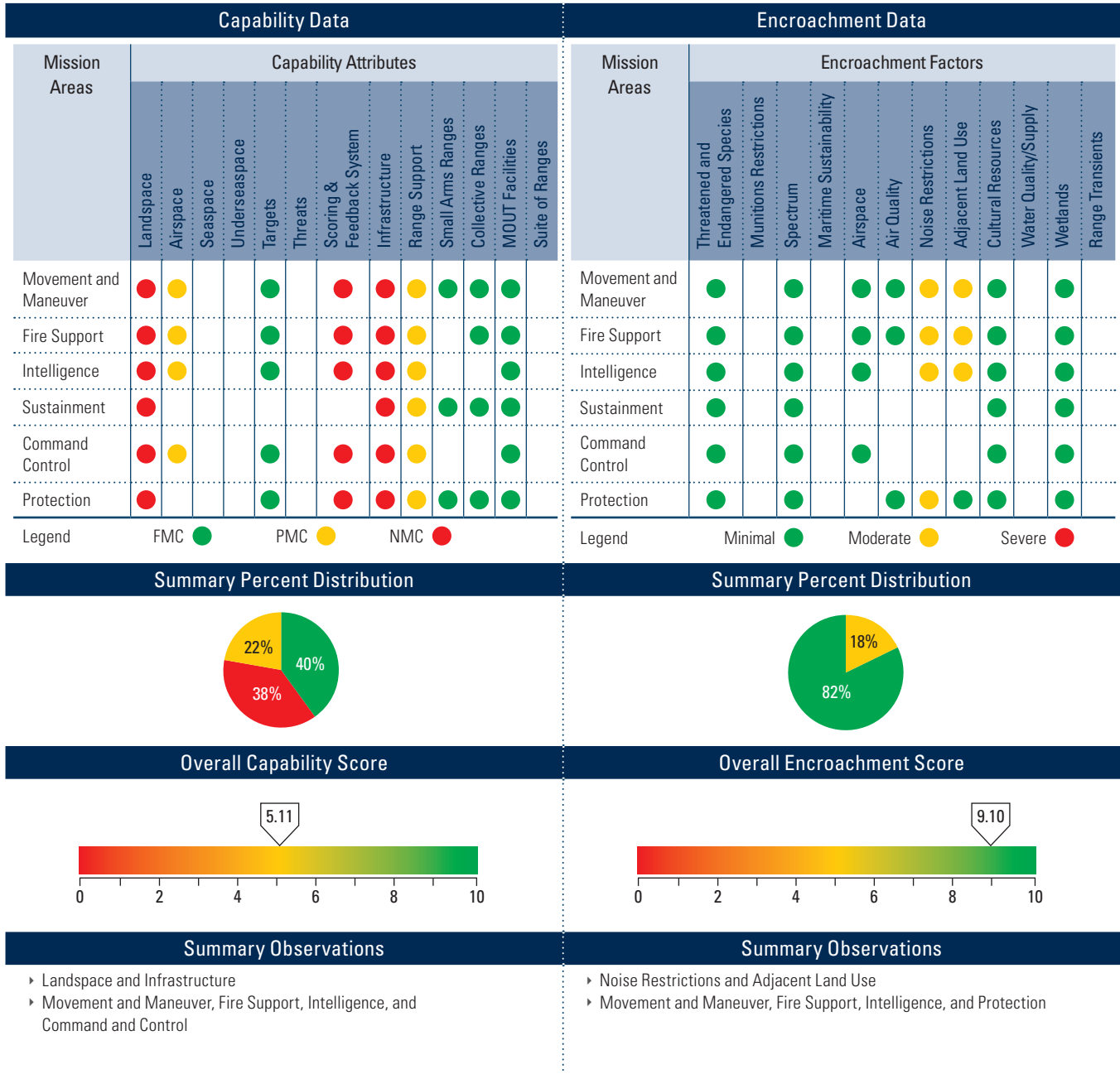


Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Fort Hood

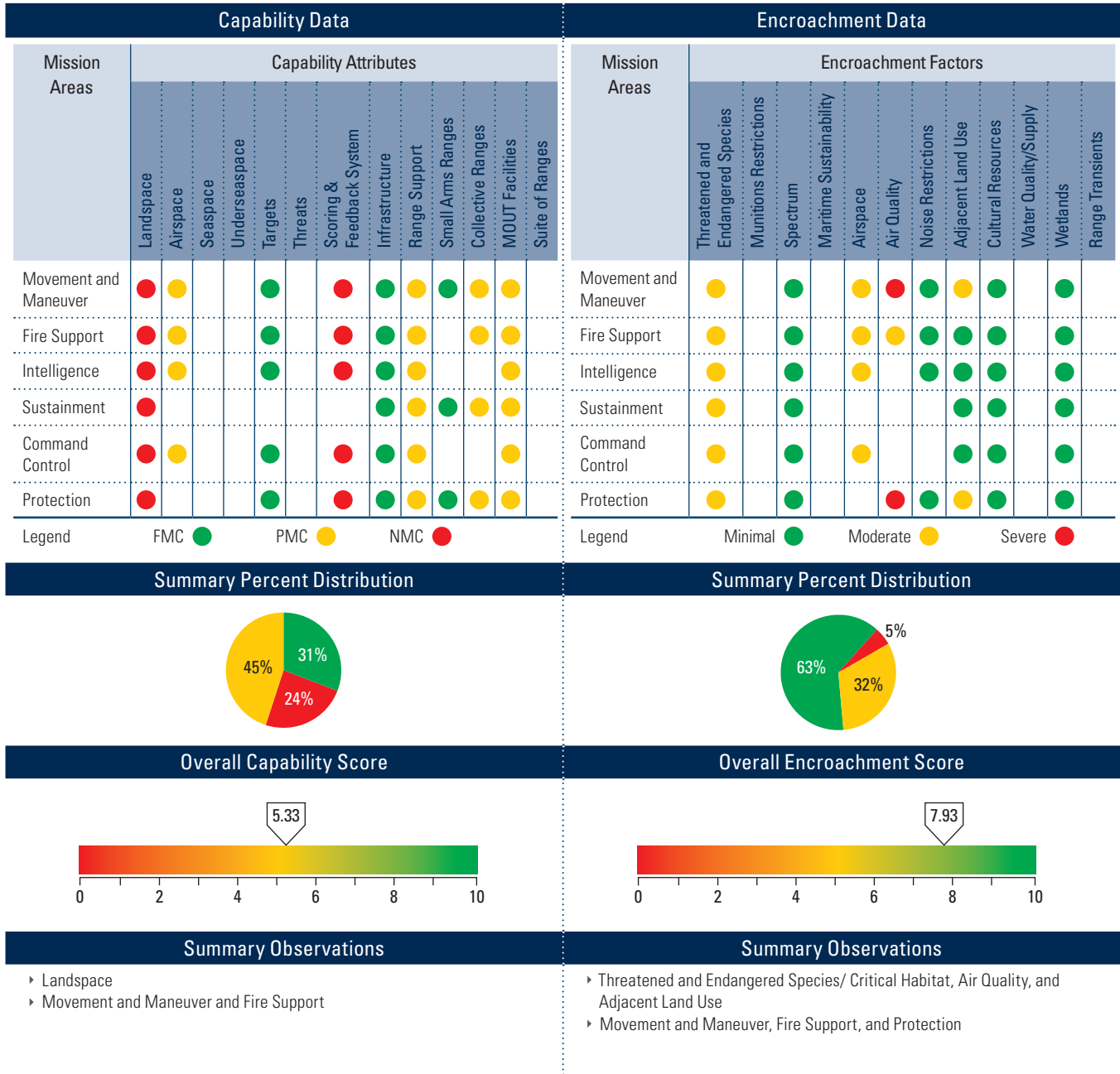


Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Fort Irwin



Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Fort Lewis

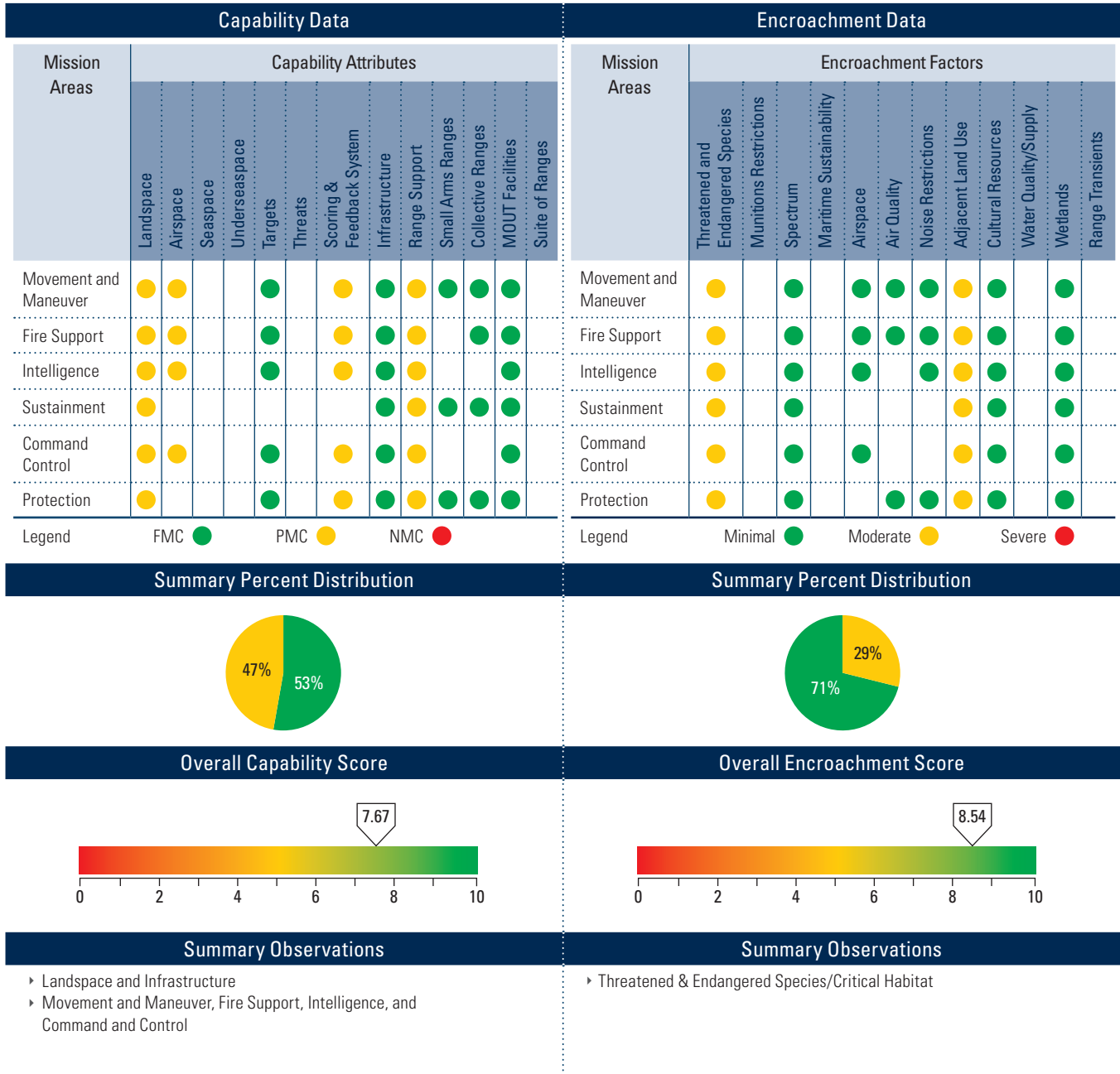


Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Fort Polk

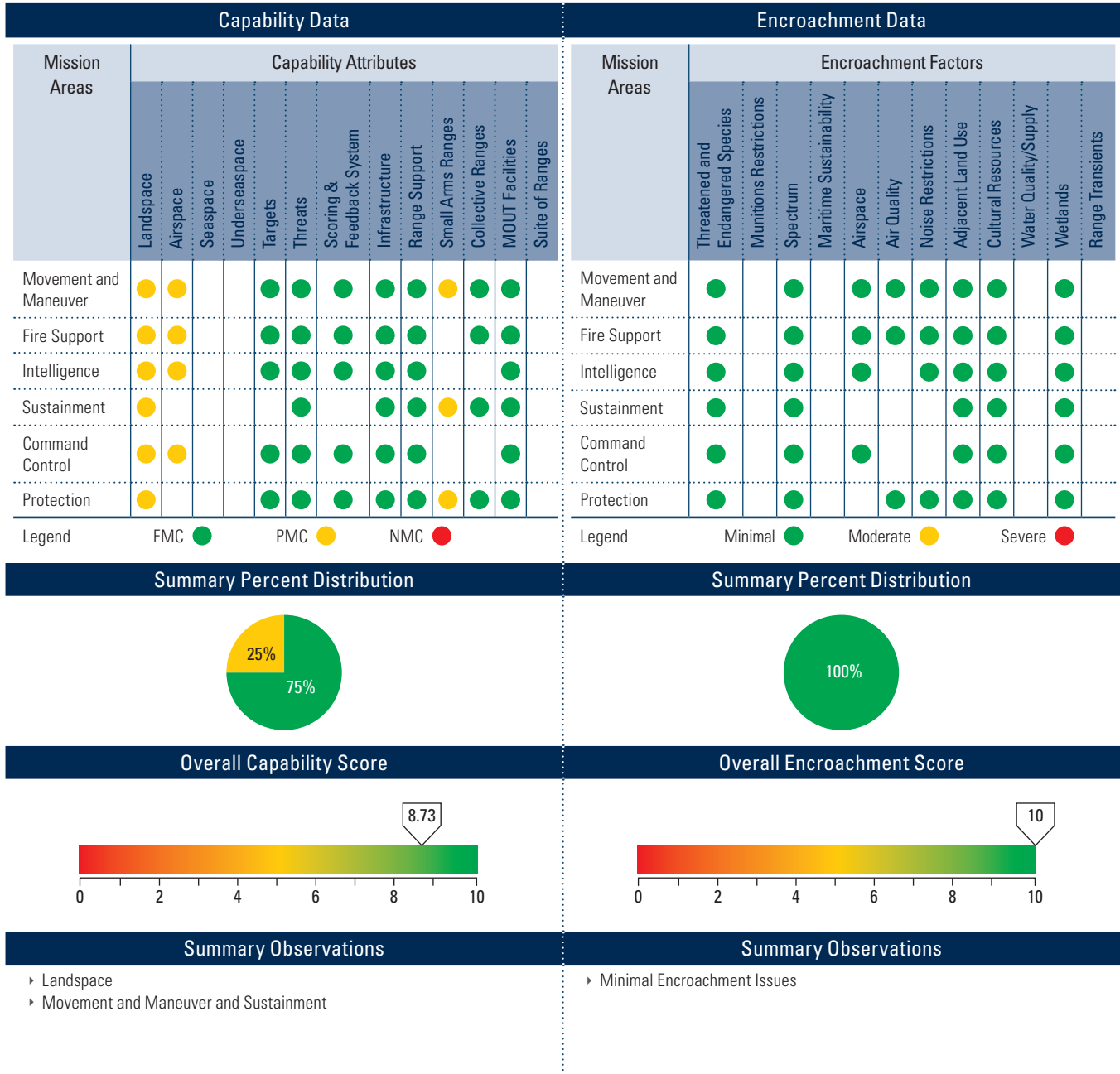


Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Fort Riley



Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Fort Stewart

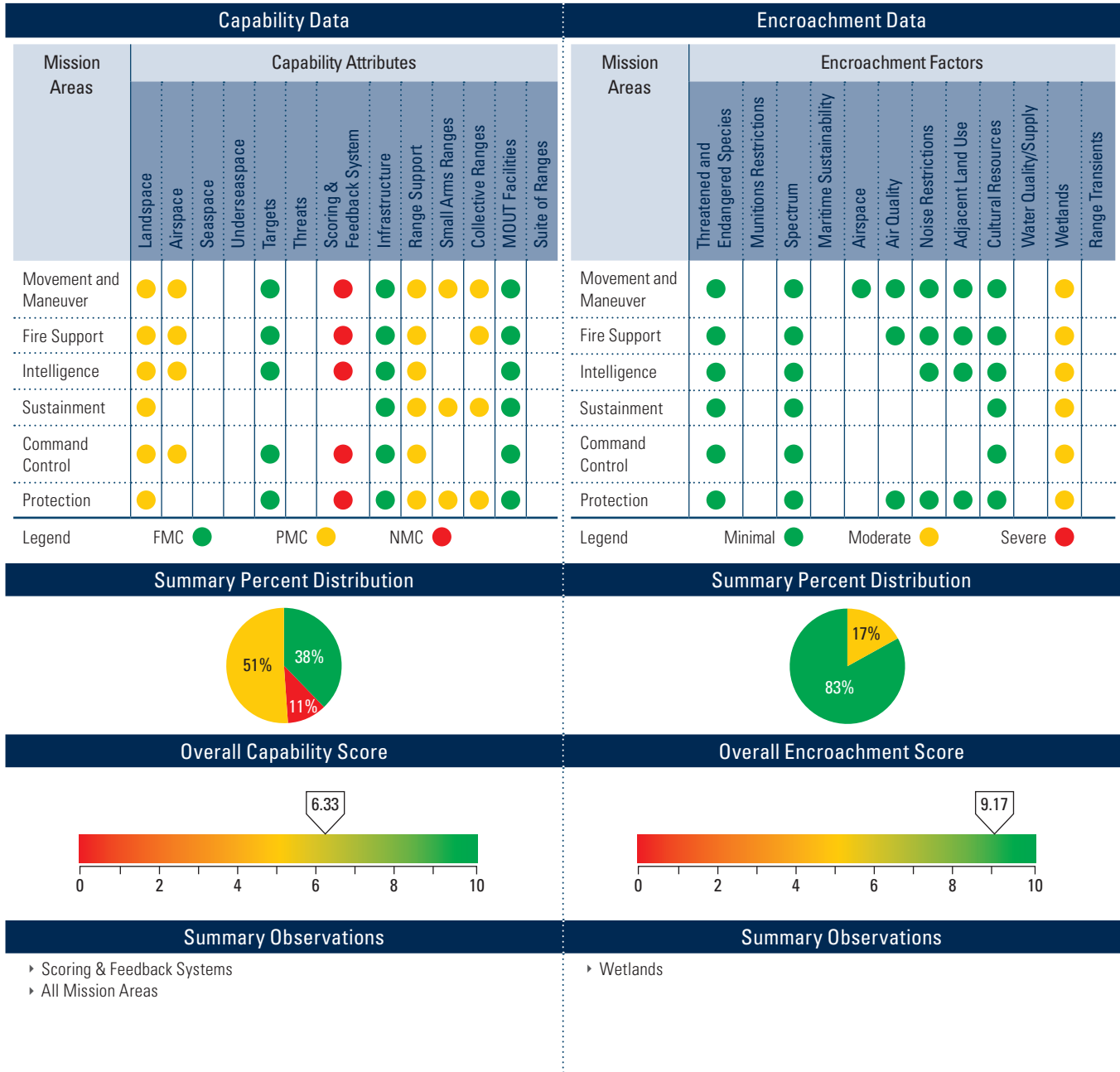


Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Fort Wainwright

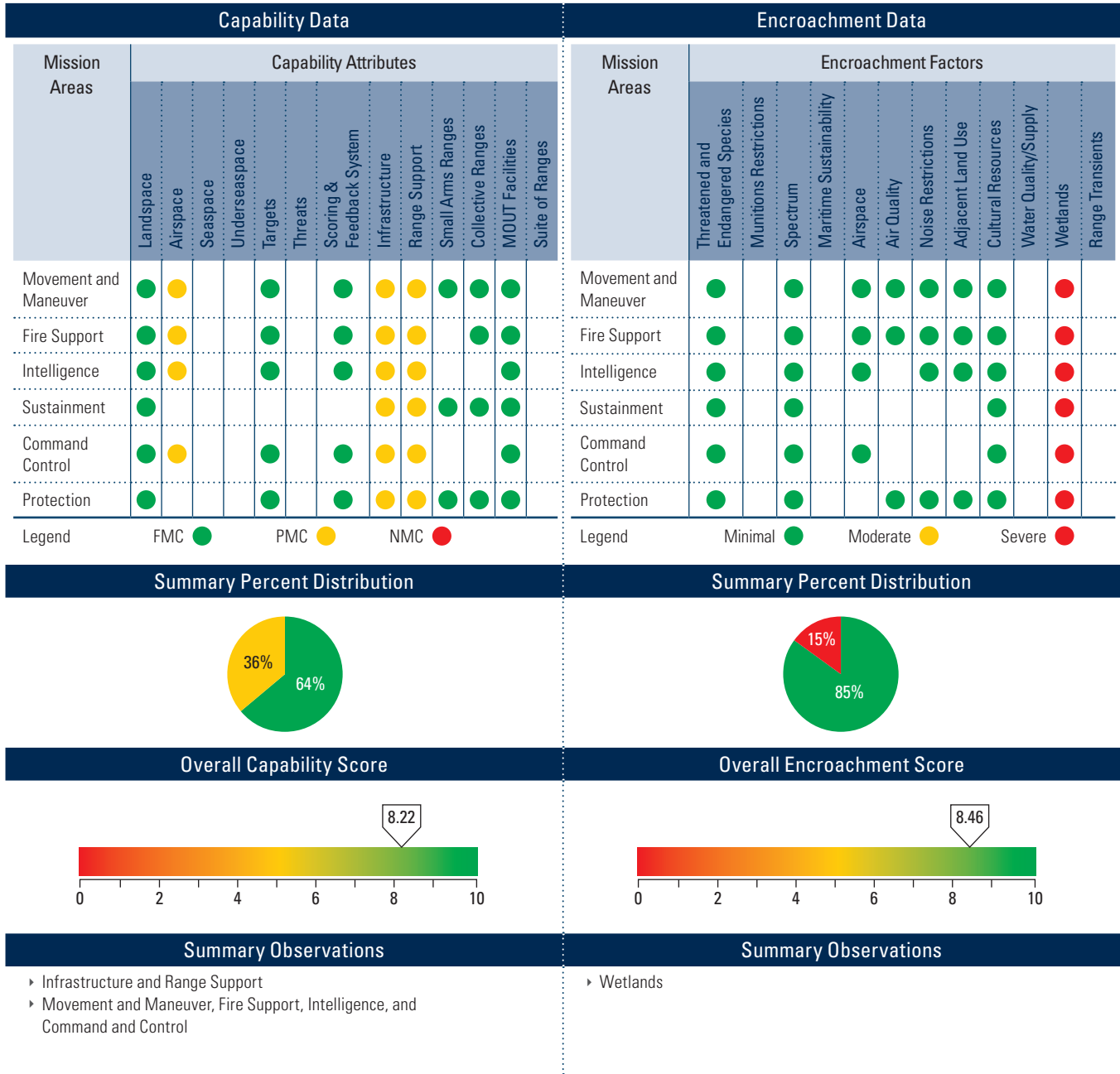


Figure 3-6 Army Capability and Encroachment Assessment Detail (Continued)

Army Range: Yakima Training Area

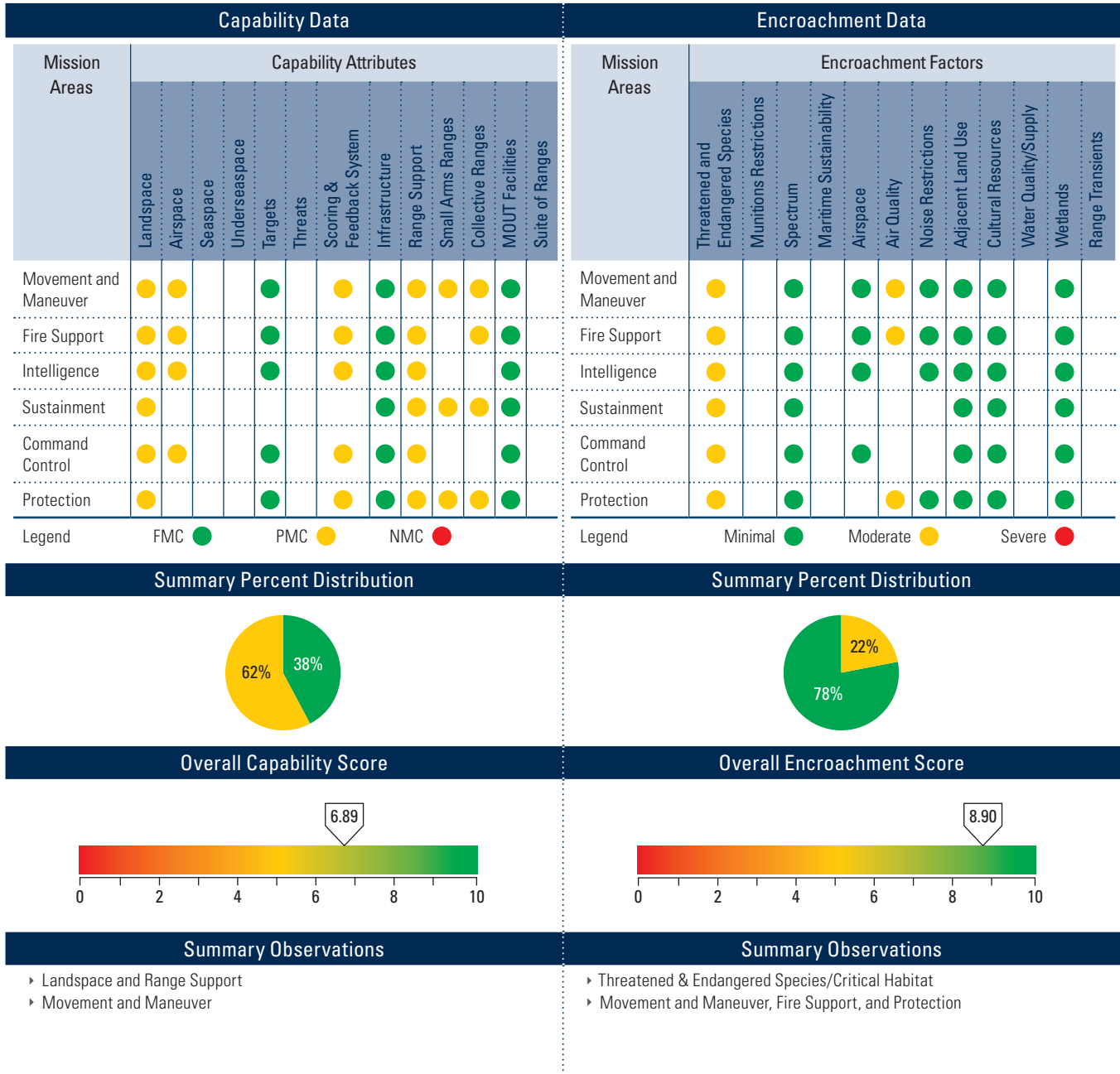


Table 3-6 Army Range Capability and Encroachment Assessment Comparison

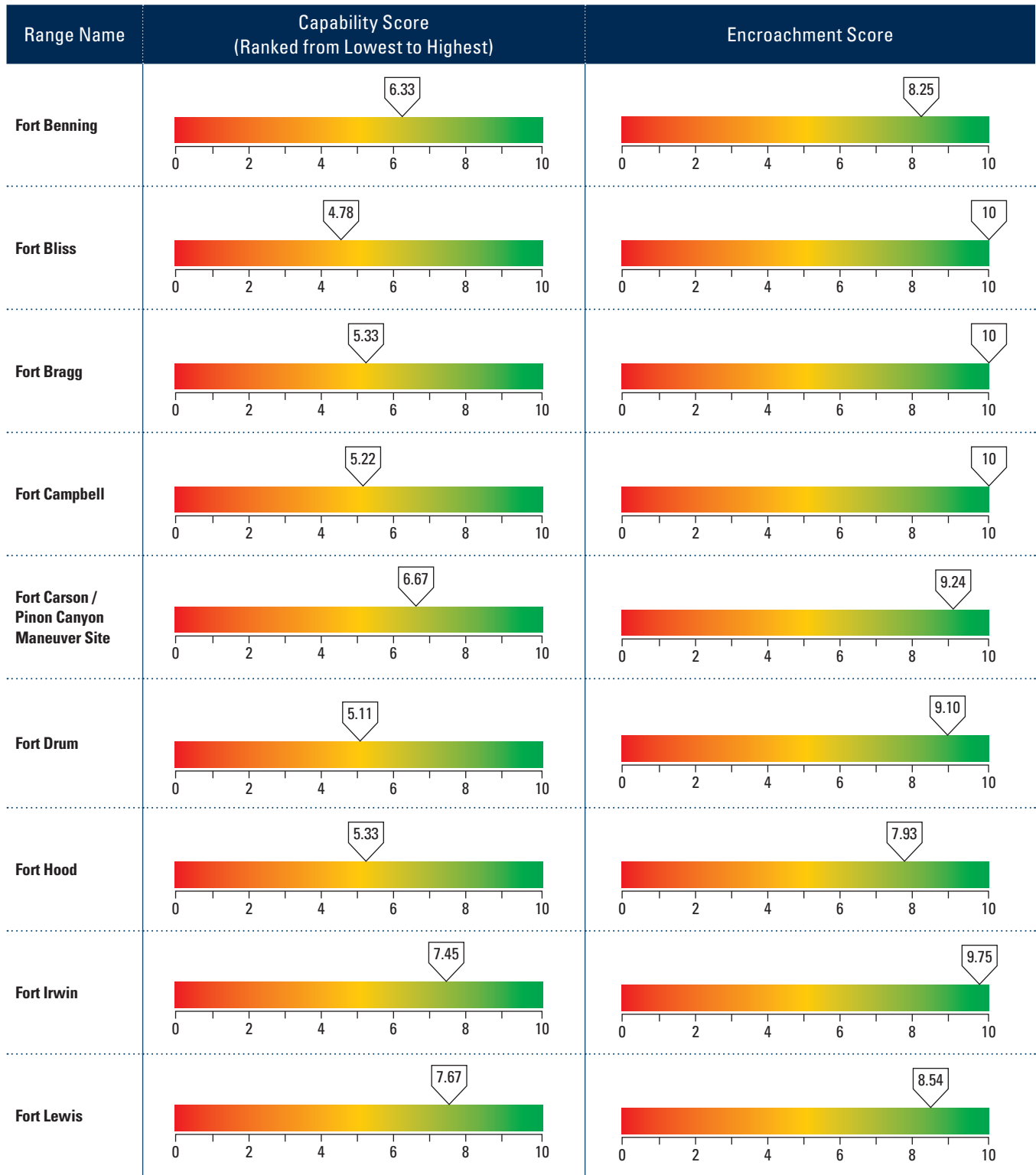
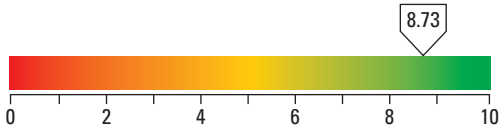
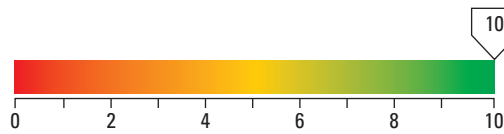
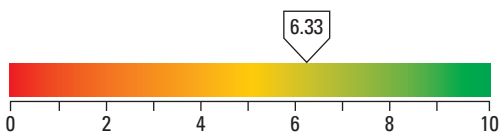
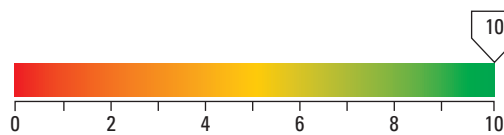
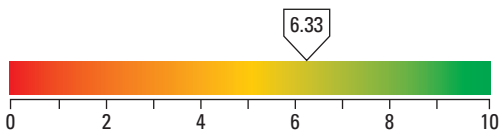
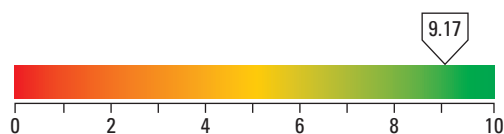
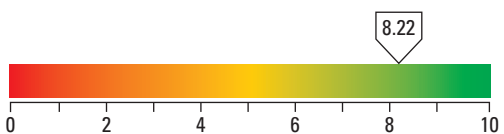
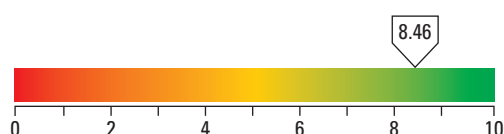
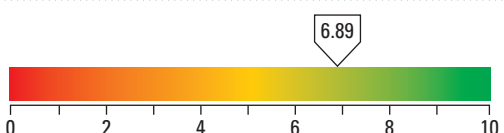
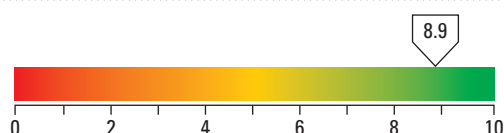


Table 3-6 Army Range Capability and Encroachment Assessment Comparison (Continued)

Range Name	Capability Score (Ranked from Lowest to Highest)	Encroachment Score
Fort Polk		
Fort Riley		
Fort Stewart		
Fort Wainwright		
Yakima Training Area		

3.2.2 Marine Corps

Marine Corps Training Range Capability Assessment Results⁷

The results of the Marine Corps’ overall range capability assessment are:

- ▶ USMC’s overall Capability Score = 5.73
- ▶ 13% of the USMC’s Range Mission Areas are assessed as NMC
- ▶ 59% of the USMC’s Range Mission Areas are assessed as PMC
- ▶ 28% of the USMC’s Range Mission Areas are assessed as FMC

At the installation level, shortfalls were identified in the landspace, scoring and feedback systems, simulated threat emitters, and target capability attributes, resulting in all four Marine Corps mission areas being impacted. Impacted ranges, or ranges with a capability score less than the overall Marine Corps score of 5.73, include: Hawaii, Camp Lejuene, MCAGCC Twentynine Palms, Camp Pendleton, and Yuma. Specific comments from the Marine Corps range capability assessment are included in Appendix C.

Marine Corps Training Range Encroachment Assessment Results

The results of the USMC’s overall range encroachment assessment are:

- ▶ USMC’s overall Encroachment Score = 7.90
- ▶ 8% of the USMC’s Range Mission Areas are severely impacted (High risk)
- ▶ 26% of the USMC’s Range Mission Areas are moderately impacted (Medium risk)
- ▶ 66% of the USMC’s Range Mission Areas are minimally impacted (Minimal risk).

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

Figure 3-7 Summary: Marine Corps Range Capability Assessment

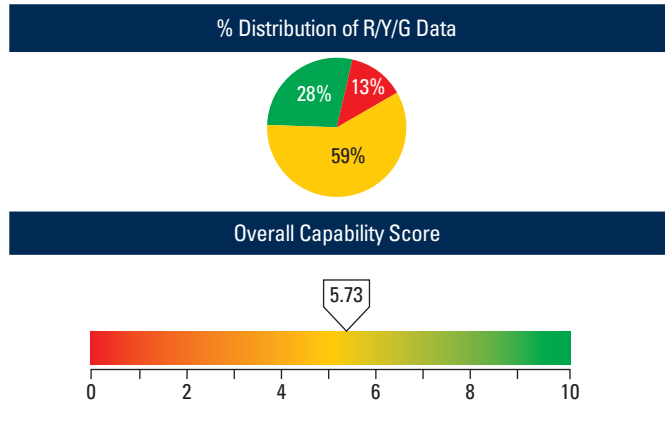
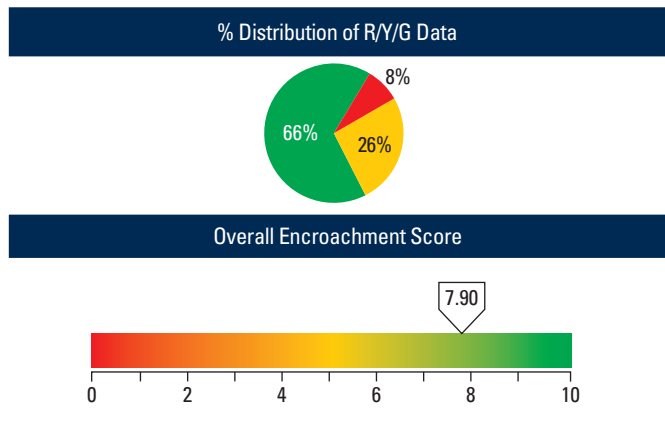


Figure 3-8 Summary: Marine Corps Range Encroachment Assessment



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 effected 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.

Encroachment factors contributing constraints are identified as: Threatened and Endangered Species, Wetlands, Noise Restrictions, and Munitions Restrictions. All four Marine

⁷ Marine Corps range assessments do not address four installations (Marine Corps Logistics Base (MCLB) Albany, MCLB Barstow, Marine Corps Air Station Miramar, and Marine Corps Recruit Depot (MCRD) Parris Island) which have no ranges other than small-arms ranges used for the limited purpose of weapons qualification training.

Corps mission areas are impacted. Ranges with an encroachment score less than the Marine Corps overall score of 7.90 include: Cherry Point, Hawaii, Camp Lejuene, Camp Pendleton, and Yuma. Specific comments from the Marine Corps encroachment capability assessment are included in Appendix C.

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 Services' ranges). The 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 of those "complexes" (Miramar, Parris Island, Albany and Barstow) are actually only small-arms ranges that support local individual re-qualification efforts, or in the case of Parris Island, provide entry level small arms training. To be consistent with the other Service inventories, and to acknowledge the limited range mission that these installations have, we will in future SRR reports, categorize them as "other" as it is not our 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) and it is now funded in FY09.

Critical Issues: Range Capabilities

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

The inability of Marine Corps ranges to fully exercise a large Marine Air Ground Task Force (MAGTF) in a realistic, doctrinally appropriate training scenario. The premiere

Marine Corps Air Ground Combat Center (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/MAGTFTC would significantly enhance the ability of the Marine Corps to continue to provide trained marines, Marine units, and MAGTFs in furtherance of national security objectives. Having obtained necessary authorizations from the Department of Defense, the Marine Corps has is proceeding with analysis and assessments in support of land expansion.

Inadequate training opportunities for the Marine units stationed in the western Pacific and 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.

In addition, 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 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.

Detailed Marine Corps Training Range Capability and Encroachment Assessment Results

The following tables and accompanying figures present detailed information on the Marine Corps' Training Range Capability and Encroachment Assessments for each range assessed. The table identifies range capability attributes and encroachment factors, and assesses each attribute or factor using a green-yellow-red scoring methodology. The figures depict score distributions and weighted overall assessment scores for each range. Capability assessments are range-specific, based on levels and types of training required to be supported by a given range.

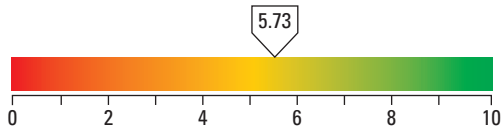
Marine Corps Training Range Summary Capability and Encroachment Assessment Results

The results of the Marine Corps' overall range capability and encroachment assessments, based on data received from 10 ranges/range complexes are presented side-by-side in Table 3-9.

While the Marine Corps deviated from the approach used by the other 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.

Table 3-7 Marine Corps Range Capability Assessment Data Analysis

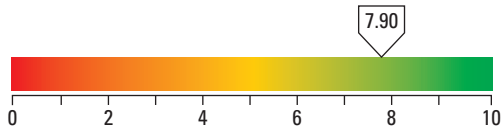
Marine Corps Range Capability Assessment Detail



Range	NMC	PMC	FMC	Total Weighted Scores	Total Assessment Points	Weighted Average
29 Palms	6	9	9	135	24	5.63
Beaufort Townsend	0	6	12	150	18	8.33
Bridgeport	0	0	0	0	0	N/A
Camp Lejeune	3	14	4	110	21	5.24
Cherry Point	0	9	6	105	15	7.00
Hawaii	5	11	3	85	19	4.47
Pendleton	5	13	3	95	21	4.52
Quantico	0	5	2	45	7	6.43
Yuma	0	17	1	95	18	5.28
Totals	19	84	40	820	143	5.73

Table 3-8 Marine Corps Range Encroachment Assessment Data Analysis

Marine Corps Range Encroachment Assessment Detail



Range	Severe	Moderate	Minimal	Total Weighted Scores	Total Assessment Points	Weighted Average
29 Palms	0	8	32	360	40	9.00
Beaufort Townsend	0	0	22	220	22	10.00
Bridgeport	4	0	16	160	20	8.00
Camp Lejeune	0	16	17	250	33	7.58
Cherry Point	0	10	12	170	22	7.73
Hawaii	2	8	12	160	22	7.27
Pendleton	8	4	18	200	30	6.67
Quantico	0	4	18	200	22	9.09
Yuma	5	9	6	105	20	5.25
Totals	19	59	153	1,825	231	7.90

Figure 3-9 Marine Corps Capability and Encroachment Assessment Detail

Marine Corps Range: 29 Palms



Figure 3-9 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Marine Corps Range: Beaufort Townsend



Figure 3-9 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Marine Corps Range: Bridgeport



Figure 3-9 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Marine Corps Range: Camp Lejeune

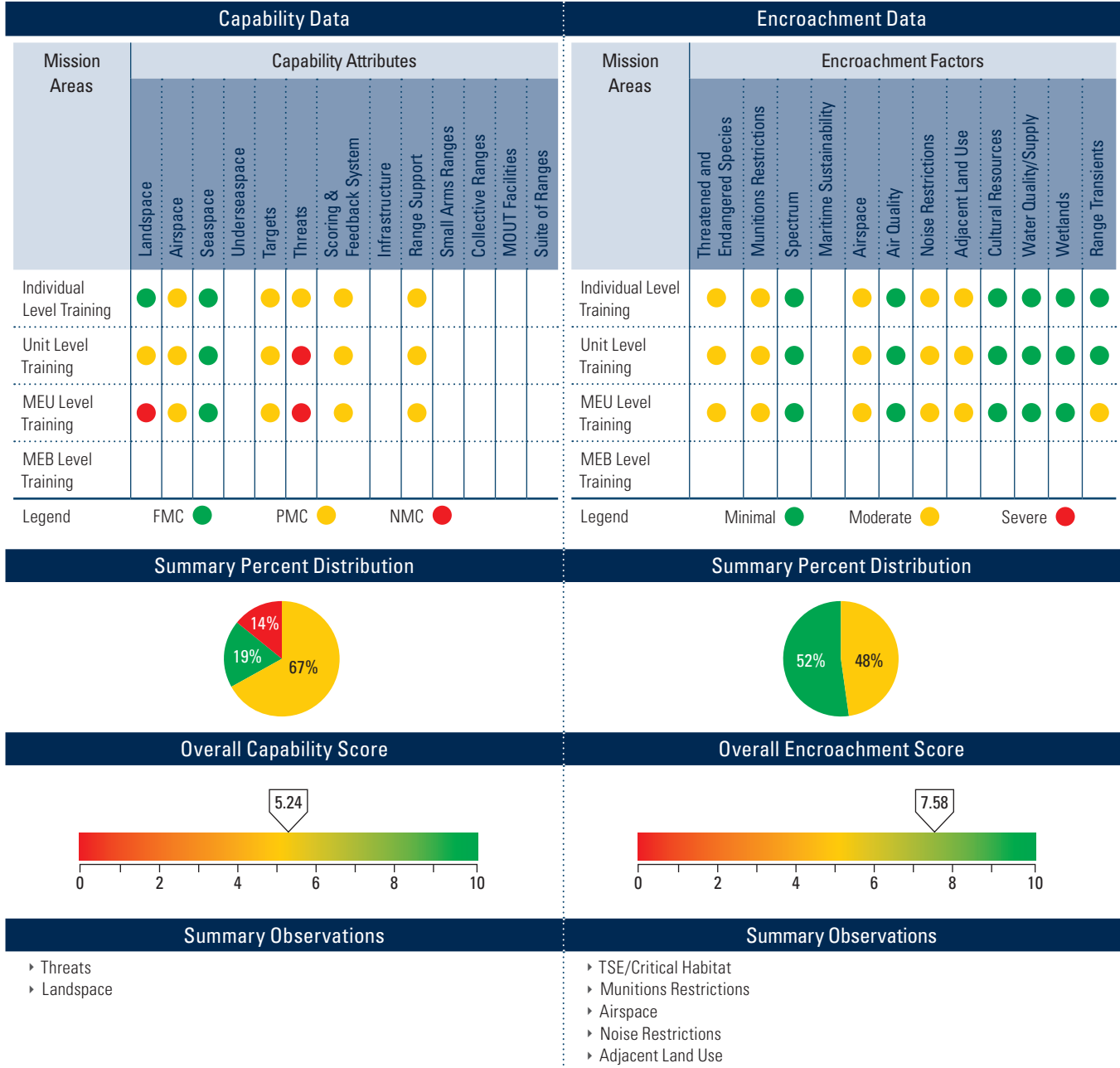


Figure 3-9 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Marine Corps Range: Cherry Point

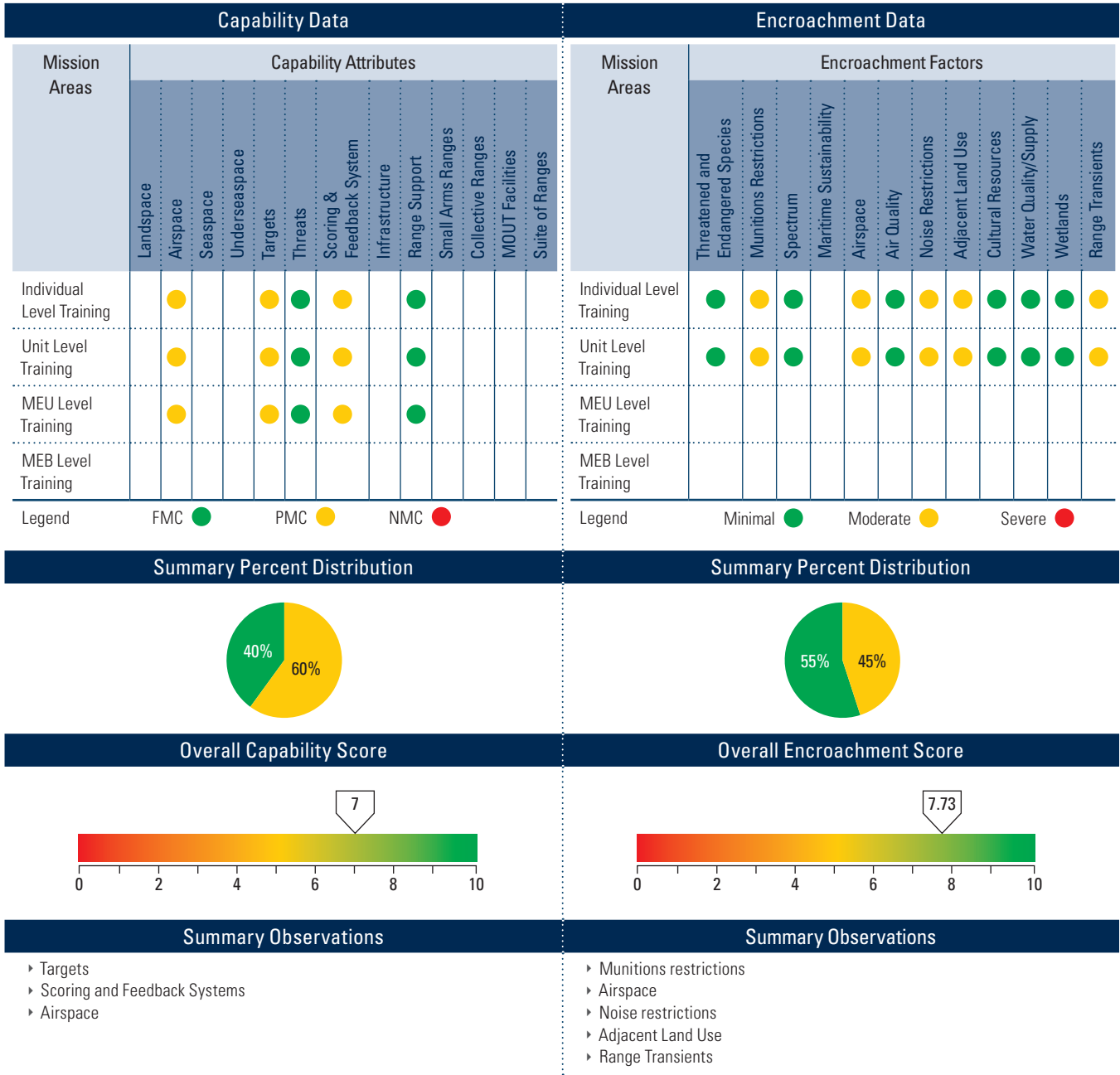


Figure 3-9 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Marine Corps Range: Hawaii

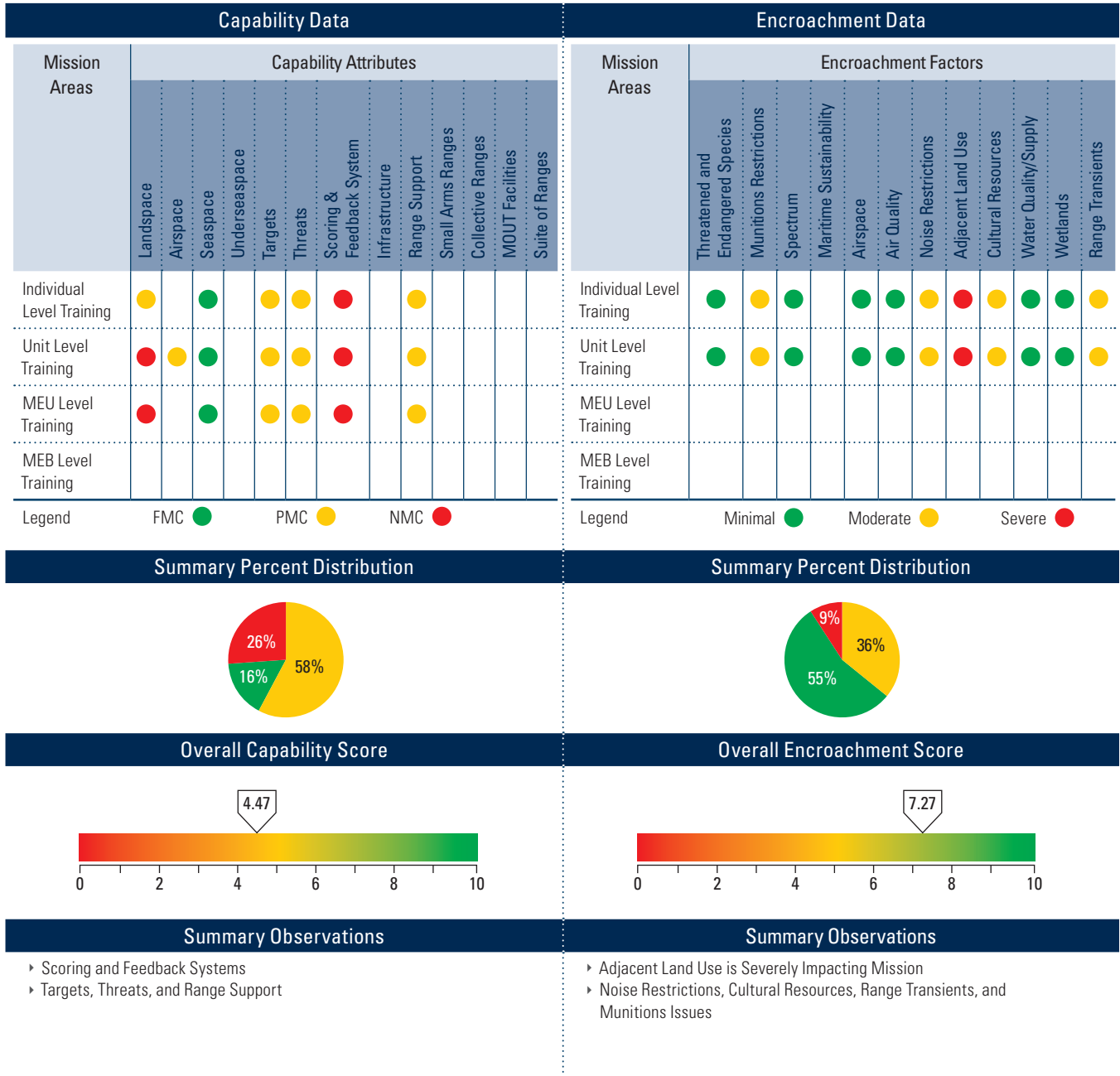


Figure 3-9 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Marine Corps Range: Pendleton



Figure 3-9 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Marine Corps Range: Quantico

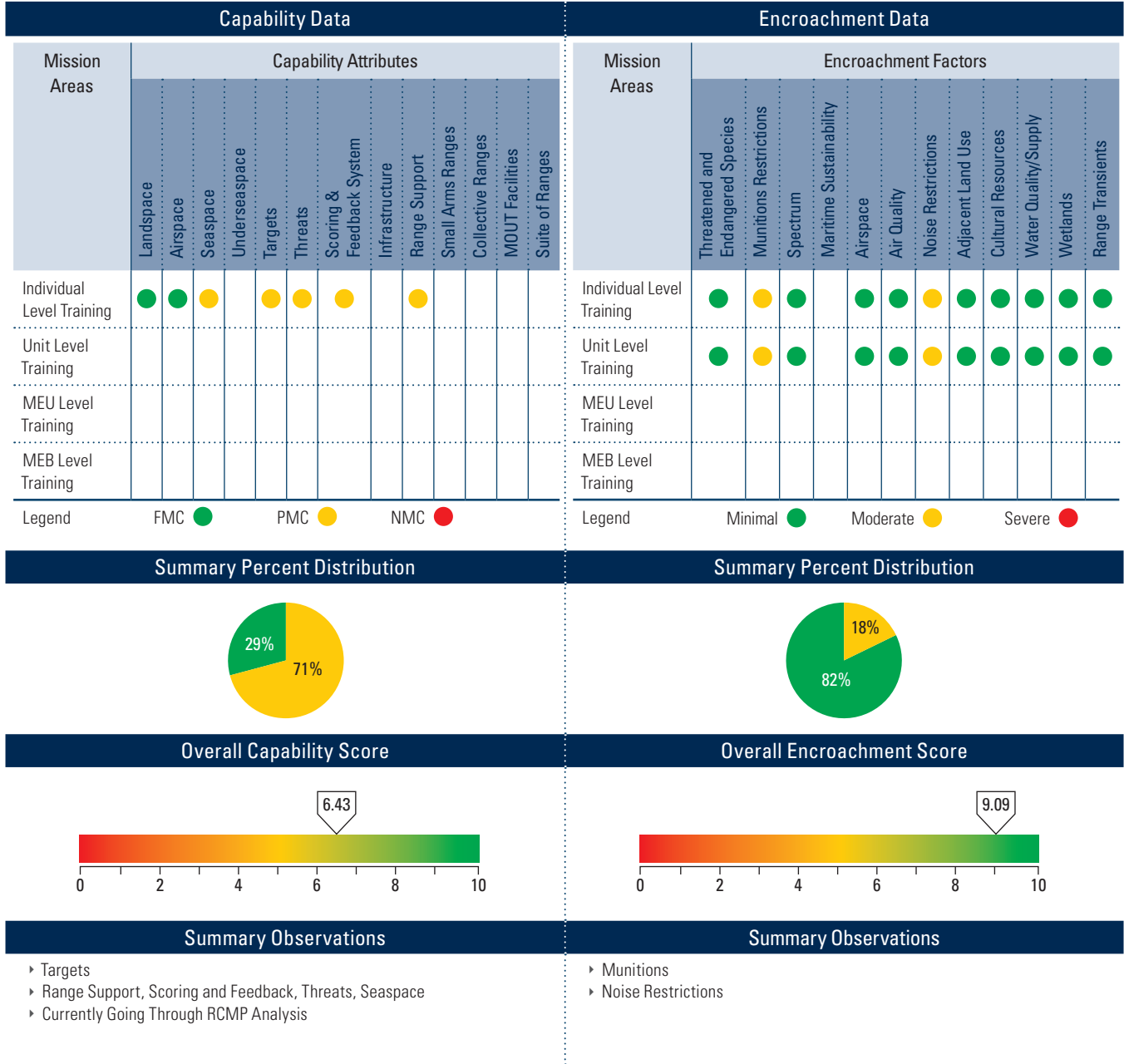


Figure 3-9 Marine Corps Capability and Encroachment Assessment Detail (Continued)

Marine Corps Range: Yuma

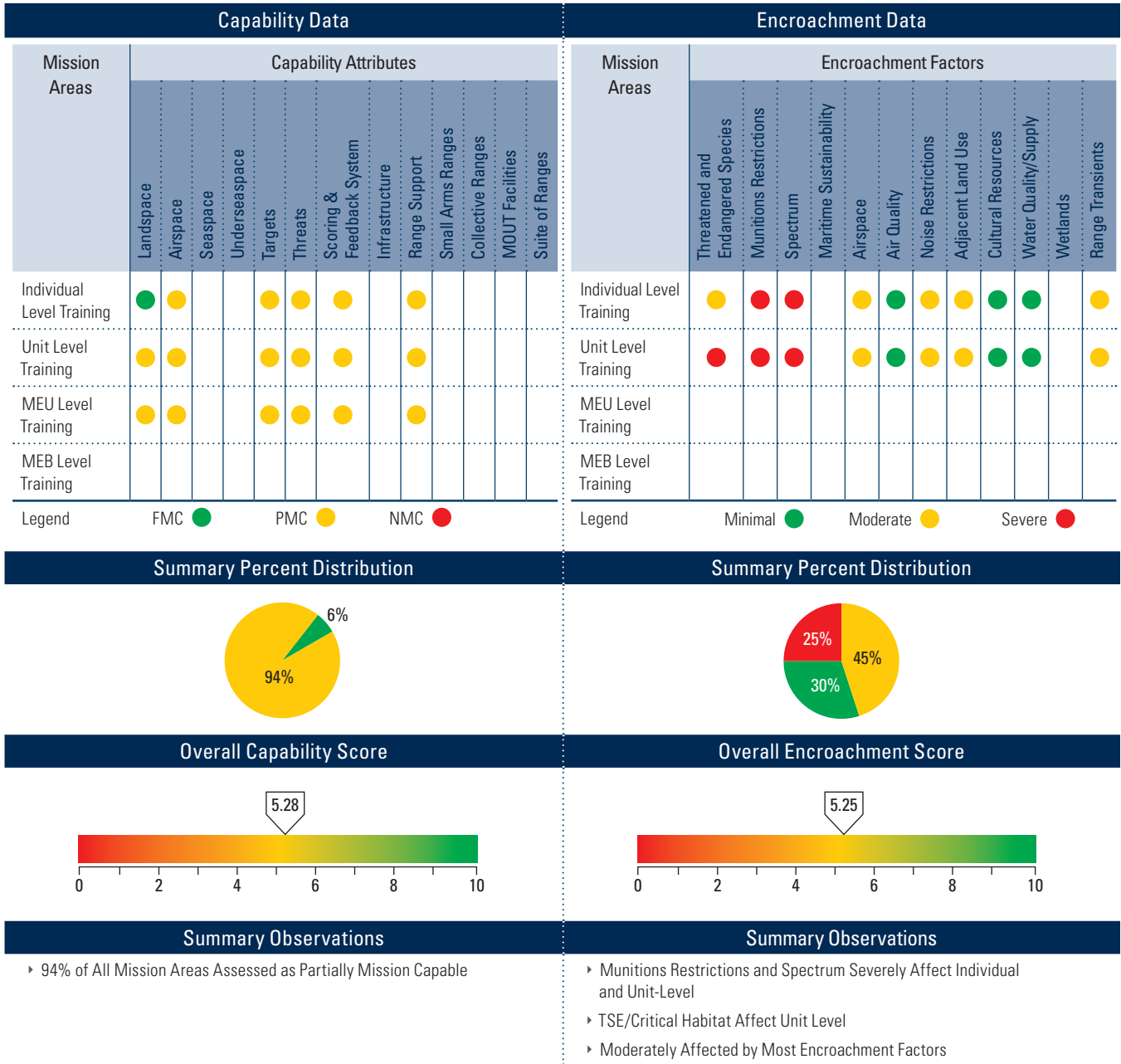


Table 3-9 Marine Corps Capability and Encroachment Assessment Comparison

Range Name	Capability Score	Encroachment Score
29 Palms	5.63	9
Beaufort-Townsend	8.33	10
Bridgeport	Not Assessed	8
Camp Lejeune	5.24	7.58
Cherry Point	7	7.73
Hawaii	4.47	7.27
Pendleton	4.52	6.67
Quantico	6.43	9.09
Yuma	5.28	5.25

3.2.3 Navy

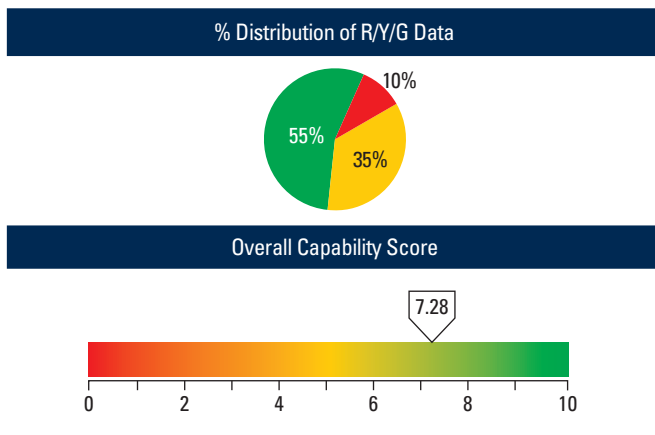
Navy Training Range Capability Assessment Results

The average results of the Navy’s range capabilities assessment are:

- ▶ Navy’s overall Capability Score = 7.28
- ▶ 10% of the Navy’s range missions areas are assessed as NMC
- ▶ 35% of the Navy’s range missions areas are assessed as PMC
- ▶ 55% of the Navy’s range missions areas are assessed as FMC

Range capability shortfalls are identified in the scoring and feedback systems, airspace, landspace, targets, and threats attributes. Ranges with capabilities assessed as NMC include: Navy Cherry Point, Fallon, Hawaii, Jacksonville, Japan, Mariana Islands, NOCAL, Okinawa, SOCAL, and VACAPES. In the Japan and Okinawa range complexes, the NMC assessments were based broadly across all warfare areas. The Mariana Islands complex NMC rating is primarily the result of forces relocating in theater to Guam without sufficient range capability to meet the expansion of training requirements and increase of training support demands. The Navy Cherry Point, Fallon, Hawaii, Jacksonville, NOCAL, SOCAL, and VACAPES complexes report NMC assessments in only one or two warfare areas principally due to the lack of shallow water instrumentation, minimal target inventory, legacy threat systems, and/or insufficient landspace. The details of each assessment are contained in Figure 3-12 and specific comments from the Navy’s range capability assessment are included in Appendix C.

Figure 3-10 Summary: Navy Range Capability Assessment



Navy Training Range Encroachment Assessment Results

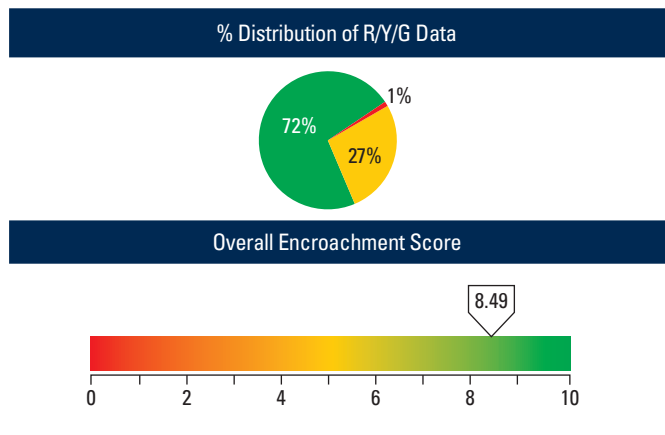
The Navy addresses threatened and endangered species together with maritime sustainment as a matter of practicality with the regulatory community. As such, the Navy incorporates the impacts of threatened and endangered species into the assessment of maritime sustainability encroachment, except where 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 results of the Navy’s overall range encroachment assessment are:

- ▶ Navy’s overall encroachment score = 8.49
- ▶ 1% of the Navy’s range missions areas are severely impacted (high risk)
- ▶ 27% of the Navy’s range missions areas are moderately impacted (medium risk)
- ▶ 72% of the Navy’s range missions areas are minimally impacted (minimal risk)

Threatened and endangered species, maritime sustainability, spectrum, airspace, cultural resources, and range transients are identified as encroachment factors on all Navy range complexes. Noise restrictions, adjacent land use, munitions restrictions, air quality, water quality/supply and wetlands are also encroachment factors on some, but not all, Navy range complexes. All mission areas were impacted to some degree, depending on whether an encroachment factor was present on a range complex. Spectrum encroachment had the most widespread impact (across all mission areas on all range

Figure 3-11 Summary: Navy Range Encroachment Assessment



complexes), followed by threatened and endangered species and maritime sustainability. Additional encroachment impacts in descending order are on strike warfare, anti-surface warfare, amphibious warfare, anti-air warfare, anti-submarine warfare, mine warfare and electronic warfare. Specific comments from the Navy's encroachment assessment are included in Appendix C.

Navy Special Interest Section

General Issues

The current assessment methodology used to evaluate the adequacy of range resources to support training missions masks critical capability shortfalls and encroachment impacts. To avoid losing significant NMC/severe ratings within an aggregate roll-up of range scores, the Navy further expands training range support limitations for the top three capability concerns and top three encroachment challenges. Also, broadening the SRR's discussion to include significant non-range training limitations enhances this comprehensive assessment by emphasizing litigation challenges that impact the Navy's ability to readily deploy combat ready forces. To highlight significant training challenges, the Navy breaks out training shortfalls into two categories — impacts associated to specific training range complexes and those beyond the scope of training range support.

Navy training range complexes differ in the type and complexity of support they provide to fleet users in the seven Navy mission areas assessed in SRR. The SOCAL and VACAPES range complexes represent locations where established range capabilities are of critical importance to the training integration of air, surface and subsurface warfare assets. Some range complexes have evolved into unique service providers, offering quality training support in specific mission areas key to one or several warfare communities. As an example, advanced scoring and feedback provided by the Fallon range complex provides a degree of qualitative strike warfare training integrated within a realistic electronic combat environment that is not reproduced at any other Navy range complex. Furthermore, no other Navy training range is capable of hosting a full compliment of carrier airwing assets and personnel to support large force exercises in a threat representative environment. Electronic combat training at Fallon supports the majority of naval aviation assets. However, the existing air defense system at Fallon is not fully threat representative and fails to replicate an integrated electronic combat environment observed in modern day enemy air defenses. These factors erode electronic combat readiness and result in NMC rating in this mission area.

Training challenges external to the requirements of this report include Navy efforts to establish a second east coast Outlying Landing Field (OLF) and mitigating operating procedures developed in cooperation with the National Marine Fisheries Service that preserve Navy's ability to train using active sonar. Improvements in these two areas will make possible a better projection of issues and situations that impinge on range training capabilities and broader training issues.

Critical Factors – Range Capability

In general, individual range capability attributes assessed as NMC have varying degrees of impact on training range support to the fleet. However, three range capabilities assessed as NMC are also identified as fleet priorities as guided by the by the Chief of Naval Operations' (CNO) Maritime Strategy. These range capability limitations adversely impacts training range support to the fleet and necessitate further expansion. For the period of this report, the top three capability limitations are: underwater scoring and feedback at Jacksonville and VACAPES, mine warfare scoring and feedback at SOCAL and VACAPES, and Electronic combat threat representations at Fallon. These training range shortfalls compete for limited resources in accordance with CNO priorities and guidance.

- ▶ **Jacksonville and VACAPES/ASW Scoring & Feedback (NMC)**—The absence of an Under Sea Warfare Training Range (USWTR) at either VACAPES or Jacksonville limits an effective anti-submarine warfare (ASW) scoring and feedback capability for Atlantic Fleet ships, aircraft, and submarines. This limitation reduces ASW realism, inhibits tactics development, prohibits multiple assets from training in shallow water, reduces live fire proficiency, and increases O&M costs. Development and acquisition of an underwater tracking range that allows for ASW event reconstruction and debrief remains a top funding priority for the Navy. Without this capability, the value of training in related warfare areas is degraded under the Navy's Composite Warfare Commander (CWC) war fighting concept.
- ▶ **SOCAL and VACAPES/Mine warfare Scoring and Feedback (NMC)**—An inventory deficiency in instrumented mine targets and the lack of a scoring and feedback capability for the Atlantic and Pacific Fleets negatively impacts Mine Warfare (MW) training, inhibits countermeasure tactics development, and reduces combat proficiency.
- ▶ **Fallon/Electronic Combat Threats (NMC)**—The current threat weapon system suite at Fallon fails to replicate modern-day advanced surface-to-air threats and is

insufficient in emulating a sophisticated integrated air defense system (IADS). The Navy seeks to invest in fully mobile threat systems, simulators with Time-Space-Position Information (TSPI) integration, and create a sophisticated IADS to ensure a realistic electronic threat environment.

Critical Factors – Encroachment Factors

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 bands sets aside by the FCC. Additionally, advances in military data link technology require expanded bandwidth support that exacerbates an already congested frequency band. 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 Point Mugu, SOCAL and VACAPES, 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.
- ▶ **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 ultimately reduced training realism, particularly regarding 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 Mariana Islands. Scrub jays, indigo snakes and gopher tortoises contribute to training restrictions at the Jacksonville range complex. Threatened and endangered species require significant mitigation efforts at San Nicolas Island (Point 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 Factors—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, ongoing efforts to establish an additional mid-Atlantic Outlying Landing Field (OLF) to conduct Field Carrier Landing Practice (FCLP) and mitigation measures implemented to fulfill Supreme Court rulings in favor of both public and Navy interests.

- ▶ **Mid-Atlantic Outlying Landing Field**—Naval Auxiliary Landing Field (NALF) Fentress is the primary FCLP facility for carrier-based fixed-wing aircraft stationed at NAS Oceana and NS Norfolk. The Navy requires an expanded OLF capacity in the mid-Atlantic region to support FCLP training requirements and operational flexibility in support of the Fleet Response Plan. NALF Fentress is limited operationally by urban encroachment that affects the value of FCLP training. In addition to providing a higher fidelity of training, the additional field will establish an additional FCLP flight pattern that reduces landing pattern congestion currently experienced at the existing fields. The Navy places equal importance on increased capacity as well as establishment of a high quality training environment that adequately trains carrier aviators. If adequate solutions to the OLF issue are not found, the Navy will continue to be challenged in the timely support of the Fleet Response Plan.
- ▶ **Maritime Mitigation Measures**—Threatened and endangered species and maritime sustainability have moderate to severe impacts on seventeen Navy ranges complexes, particularly on those incorporating the use of sonar into all appropriate mission areas. These impacts are not fully assessed by the methods developed for this report; the challenging regulatory processes and the litigation burdens on the training conducted on these range complexes are underestimated.

Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training.

The Navy has developed maritime protective and mitigation measures in consultation with the National Marine Fisheries Service (NMFS) based on best available science to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy has developed programmatic range complex documents to allow Navy to make the best possible decision on how to train effectively while protecting marine mammals. The Atlantic Fleet Active Sonar Training (AFAST), Hawaii Range Complex and Southern California (SOCAL) Range Complex Environmental Impact Statements (EIS) are complete. The remaining Tactical Training Theater Assessment and Planning (TAP) program including the East Coast Undersea Warfare Training Range (USWTR) programmatic documents are scheduled to be complete in CY09. Over the past two years, litigation has imposed or threatened to impose, training restrictions that severely threaten realistic training. Despite the Navy's success in concluding litigation, self-imposed training restrictions

developed in consultation with NMFS degrades training realism and effectiveness to some extent.

Some NGOs questioned the sufficiency of protective and mitigation measures and brought legal action against the Navy for maritime training exercises, especially training using mid-frequency active (MFA) sonar. Several lower federal court decisions imposed additional restrictions on MFA sonar training beyond the Navy's maritime protective and mitigation measures. In a strongly worded opinion, supported by seven Justices, the U.S. Supreme Court vacated the two restrictions the Navy challenged that had been imposed by a district court and affirmed by the Ninth Circuit Court of Appeals. Even though the Navy has been mostly successful in concluding litigation that imposed training restrictions which would severely impact realistic training scenarios, the very real threat of future litigation continues.

The Supreme Court decision does not eliminate the need to complete the programmatic range complex documents and to obtain required letters of authorization under the Marine

Table 3-10 Navy Range Capability Assessment Data Analysis

Navy Range Capability Assessment Detail						
Range	NMC	PMC	FMC	Total Weighted Scores	Total Assessment Points	Weighted Average
Atlantic City	0	3	11	125	14	8.93
Atlantic Test Range	0	17	24	325	41	7.93
AUTEC	0	1	35	355	36	9.86
Boston	0	2	12	130	14	9.29
China Lake	0	1	27	275	28	9.82
El Centro	0	13	5	115	18	6.39
Fallon	2	16	5	130	23	5.65
Gomex	0	4	25	270	29	9.31
Guantanamo	0	0	17	170	17	10.00
Hawaii	2	22	34	450	58	7.76
Jacksonville	1	19	24	335	44	7.61
Japan	9	22	13	240	44	5.45
Key West	0	7	7	105	14	7.50
Mariana Islands	37	11	11	165	59	2.80
Narragansett Bay	0	3	4	55	7	7.86
Navy Cherry Point	2	22	28	390	52	7.50
NOCAL	4	8	18	220	30	7.33
Northwest	0	22	30	410	52	7.88
Okinawa	10	30	10	250	50	5.0
Point Mugu Sea	0	6	38	410	44	9.32
SOCAL	5	29	26	405	60	6.75
VACAPES	2	18	24	330	44	7.50
Totals	74	276	428	5,660	778	7.28

Mammal Protection Act and biological opinions under the Endangered Species Act. These documents will set the mitigation measures to be observed in the future. Navy estimates that more than 60 regulatory documents will be needed from NMFS in CY09 under the Marine Mammal Protection Act and Endangered Species Act to support current and anticipated training on Navy ranges. Navy and NMFS are working cooperatively to ensure timely completion of these required documents, to ensure no adverse impacts or disruptions to the Fleet Readiness Training Plan. However, NMFS has limited available staff which must support other customers in addition to the Navy.

Detailed Navy Training Range Capability and Encroachment Assessment Results

The following tables and figures present detailed information on the Navy's Training Range Capability and

Encroachment Assessments. The first set of tables detail the methodology used for determining the weighted averages that make-up an individual range capability and encroachment score. This information is shown for all the Navy ranges assessed. The set of figures that follow provide assessment detail at the range level specific to mission areas and capability attributes and encroachment factors.

Navy Training Range Summary Capability and Encroachment Assessment Results

The results of the Navy's overall range capability and encroachment assessments, based on data received from 22 Ranges/Range Complexes, are presented side-by-side in Table 3-12.

Table 3-11 Navy Range Encroachment Assessment Data Analysis

Navy Range Encroachment Assessment Detail						
Range	Severe	Moderate	Minimal	Total Weighted Scores	Total Assessment Points	Weighted Average
Atlantic City	0	4	8	100	12	8.33
Atlantic Test Range	0	20	40	500	60	8.33
AUTEC	0	9	18	225	27	8.33
Boston	0	4	6	80	10	8.0
China Lake	0	12	28	340	40	8.50
El Centro	0	1	24	245	25	9.80
Fallon	0	10	33	380	43	8.84
Gomex	0	7	18	215	25	8.60
Guantanamo	1	8	32	360	41	8.78
Hawaii	1	17	43	515	61	8.44
Jacksonville	3	14	23	300	40	7.50
Japan	2	6	21	240	29	8.28
Key West	0	1	10	105	11	9.55
Mariana Islands	1	28	33	470	62	7.58
Narragansett Bay	0	2	3	40	5	8.0
Navy Cherry Point	2	8	26	300	36	8.33
NOCAL	0	2	22	230	24	9.58
Northwest	0	10	42	470	52	9.04
Okinawa	2	14	33	400	49	8.16
Point Mugu Sea	0	18	56	650	74	8.78
SOCAL	0	18	45	540	63	8.57
VACAPES	0	13	27	335	40	8.38
Totals	12	226	591	7,040	829	8.49

Figure 3-12 Navy Capability and Encroachment Assessment Detail

Navy Range: Atlantic City

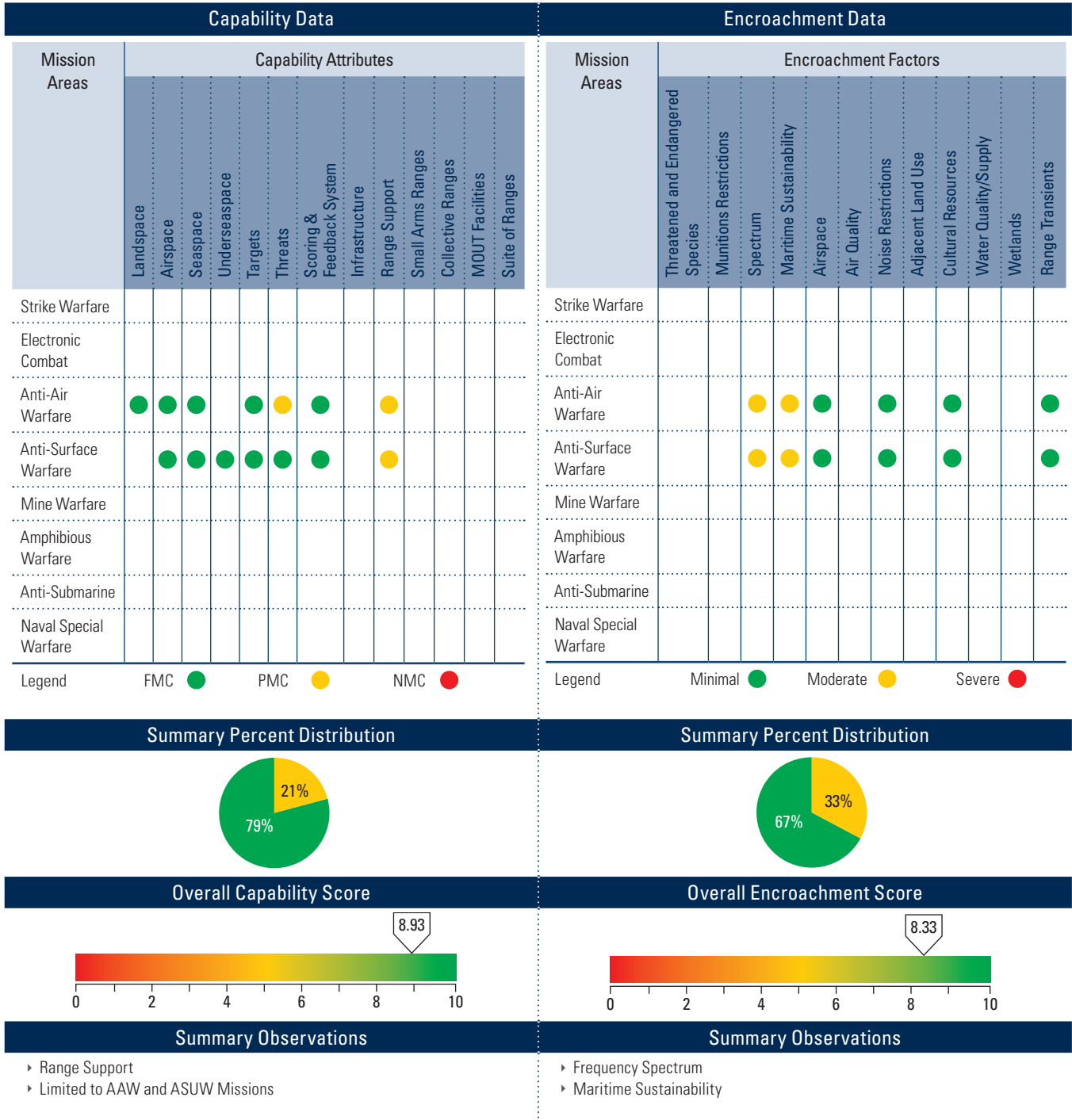


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: Atlantic Test Range

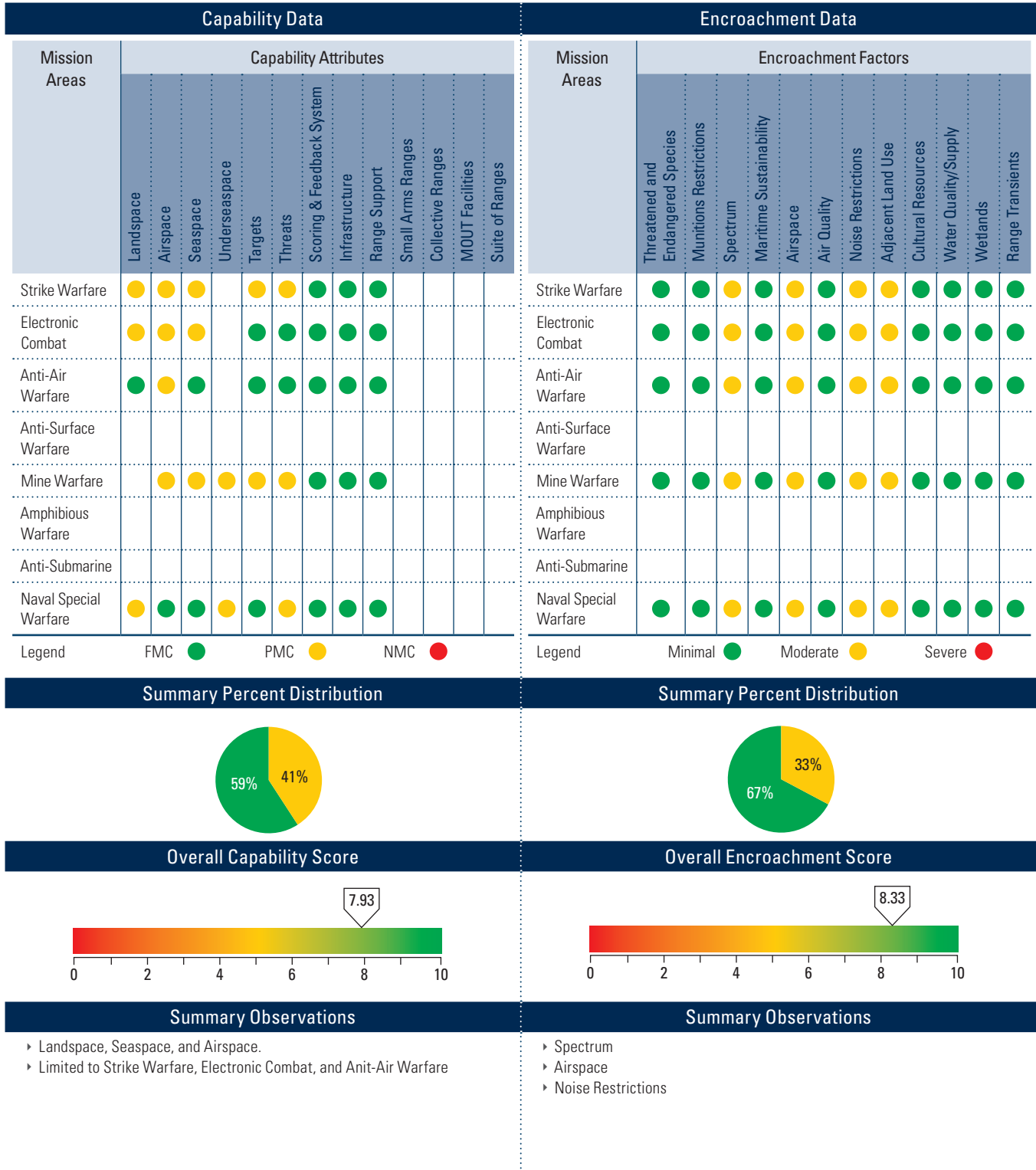


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: AUTEC

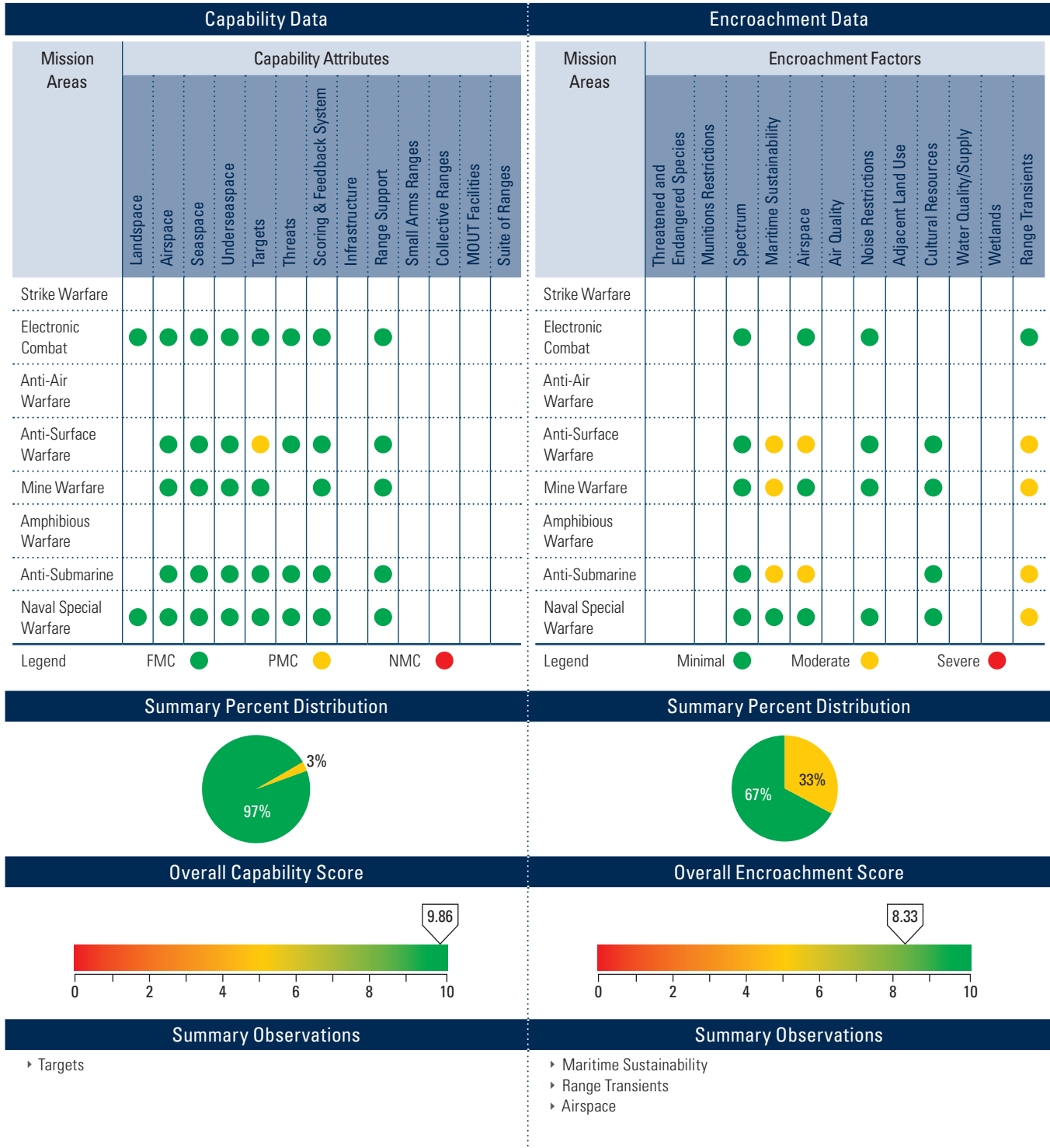


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: Boston

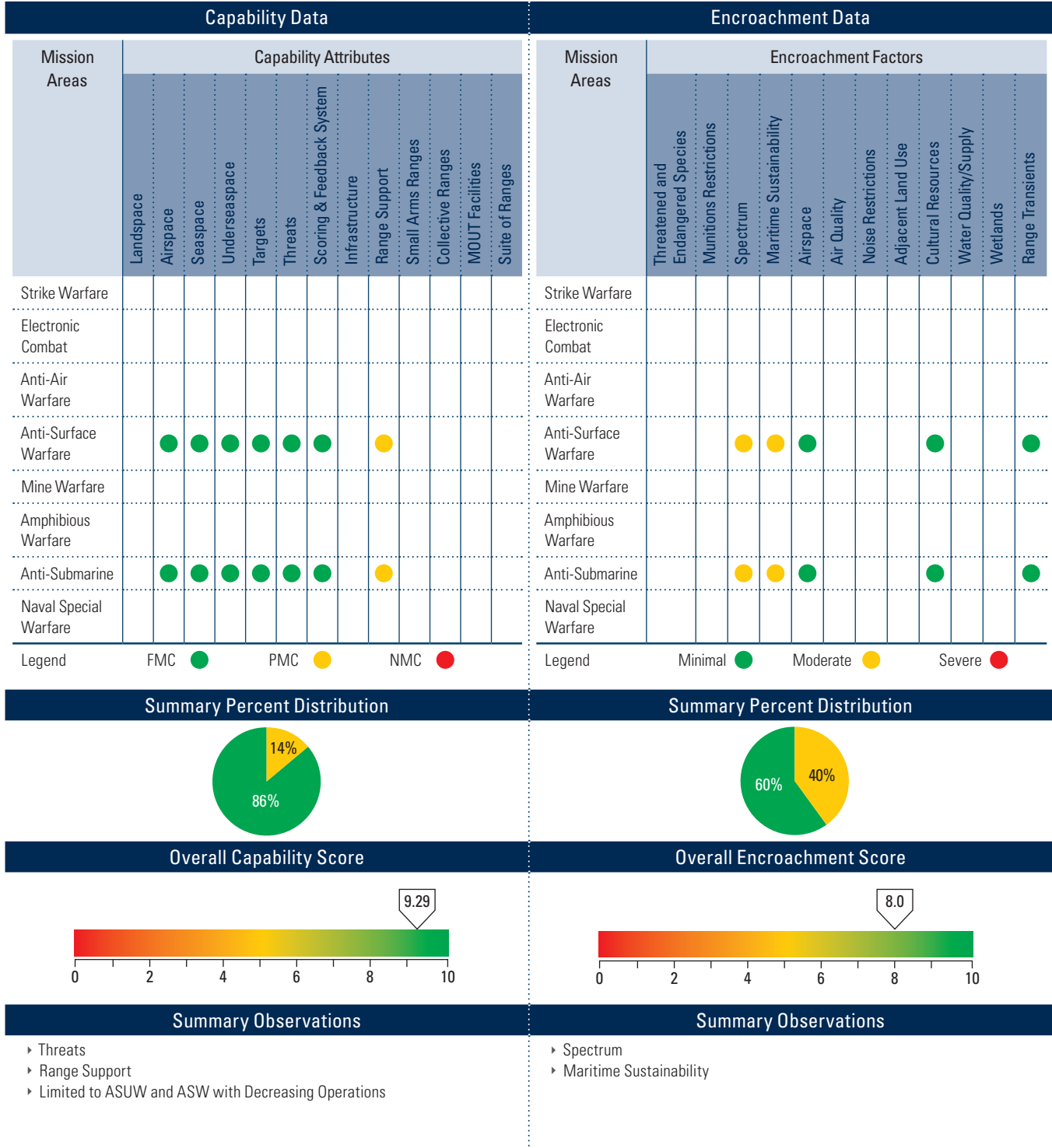


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: China Lake

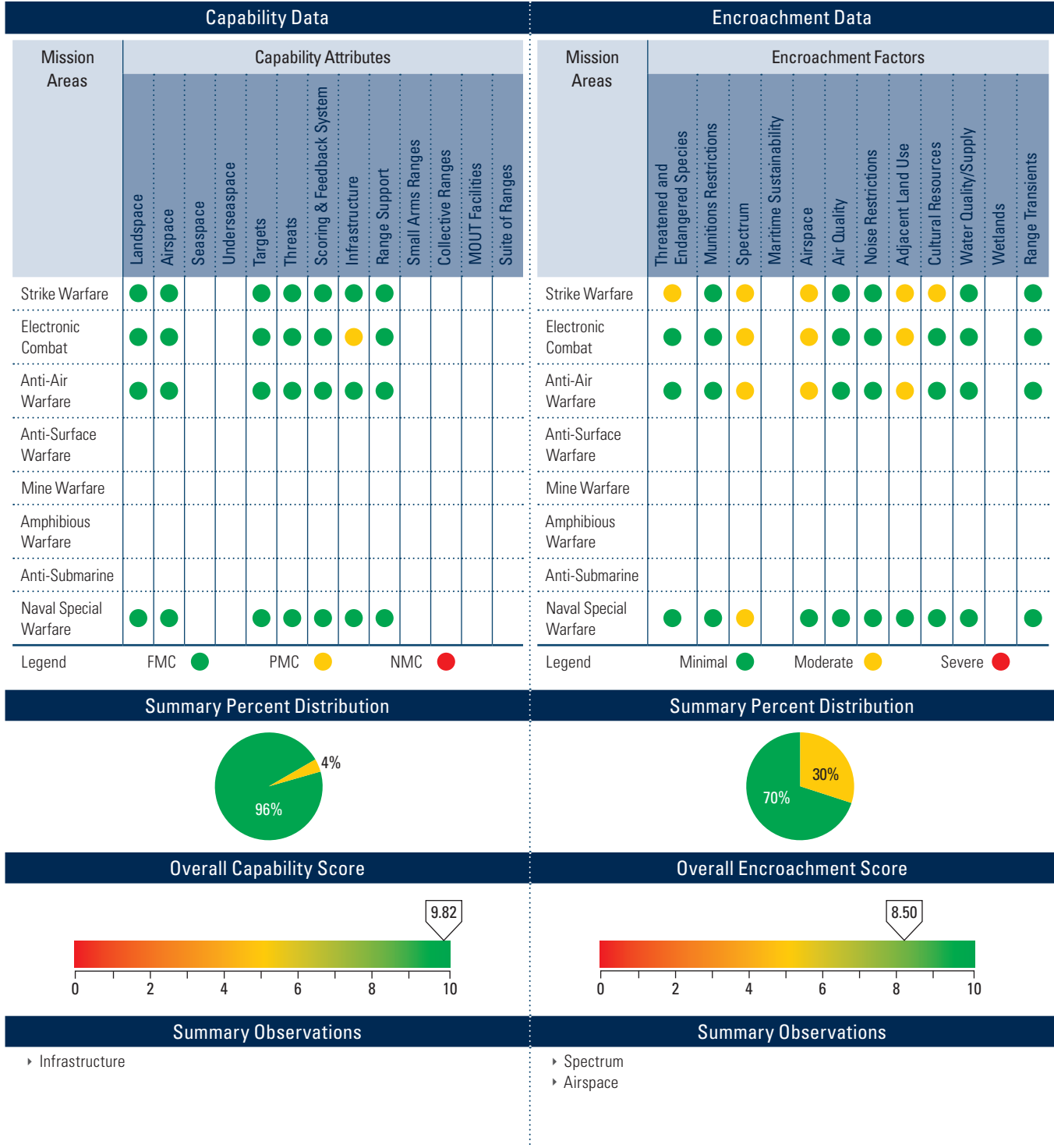


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: El Centro

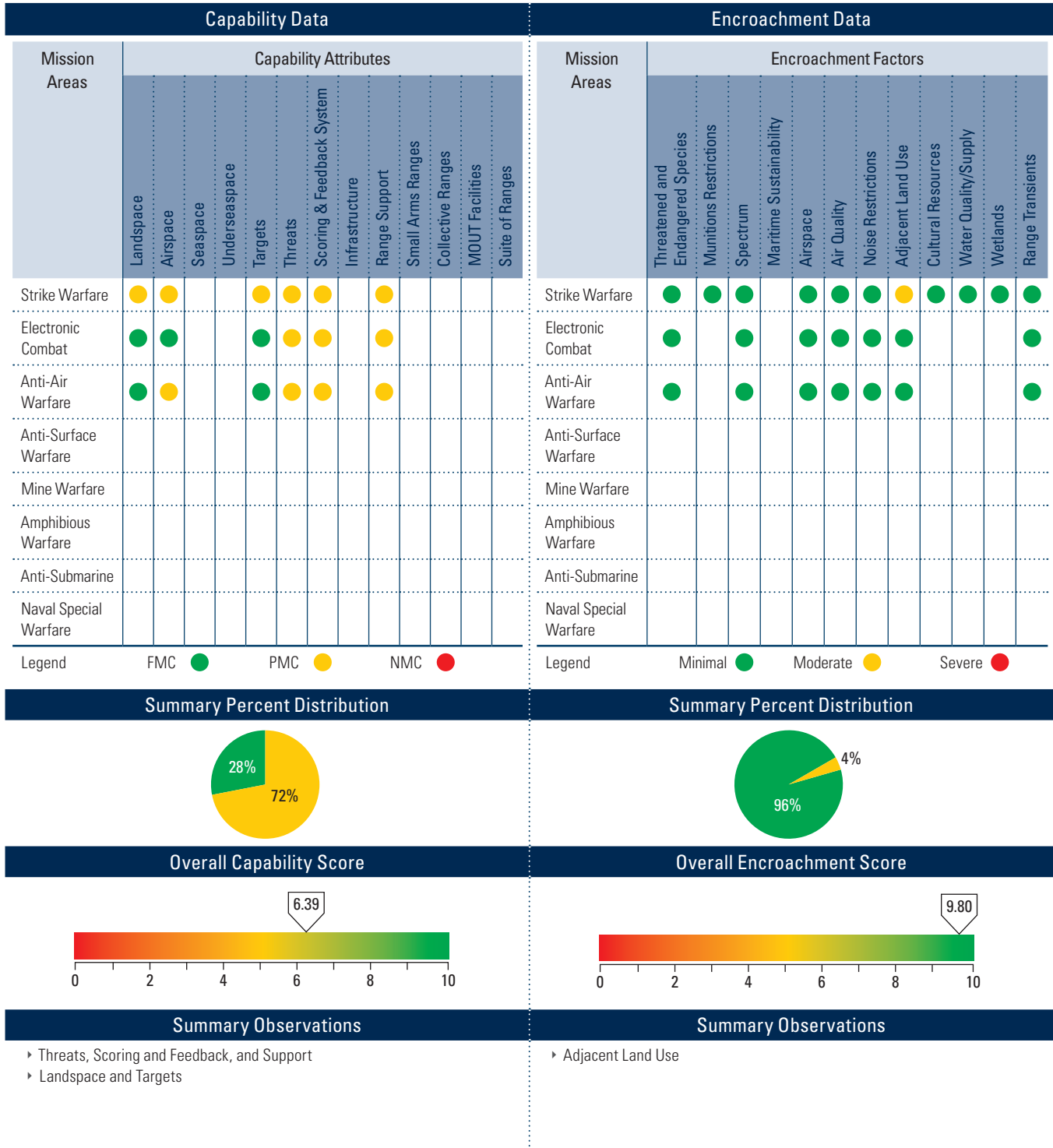


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: Fallon

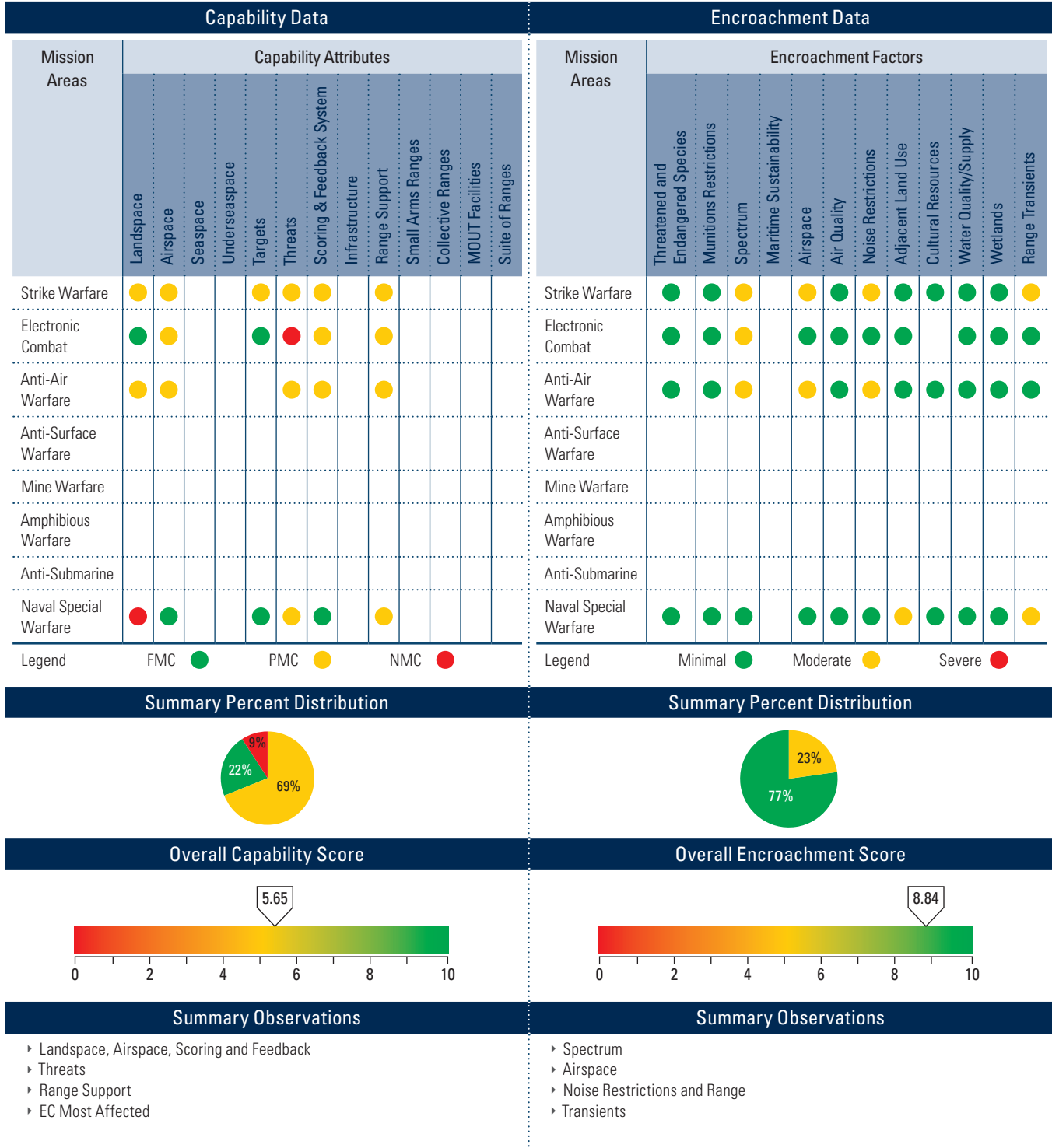


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: GomeX

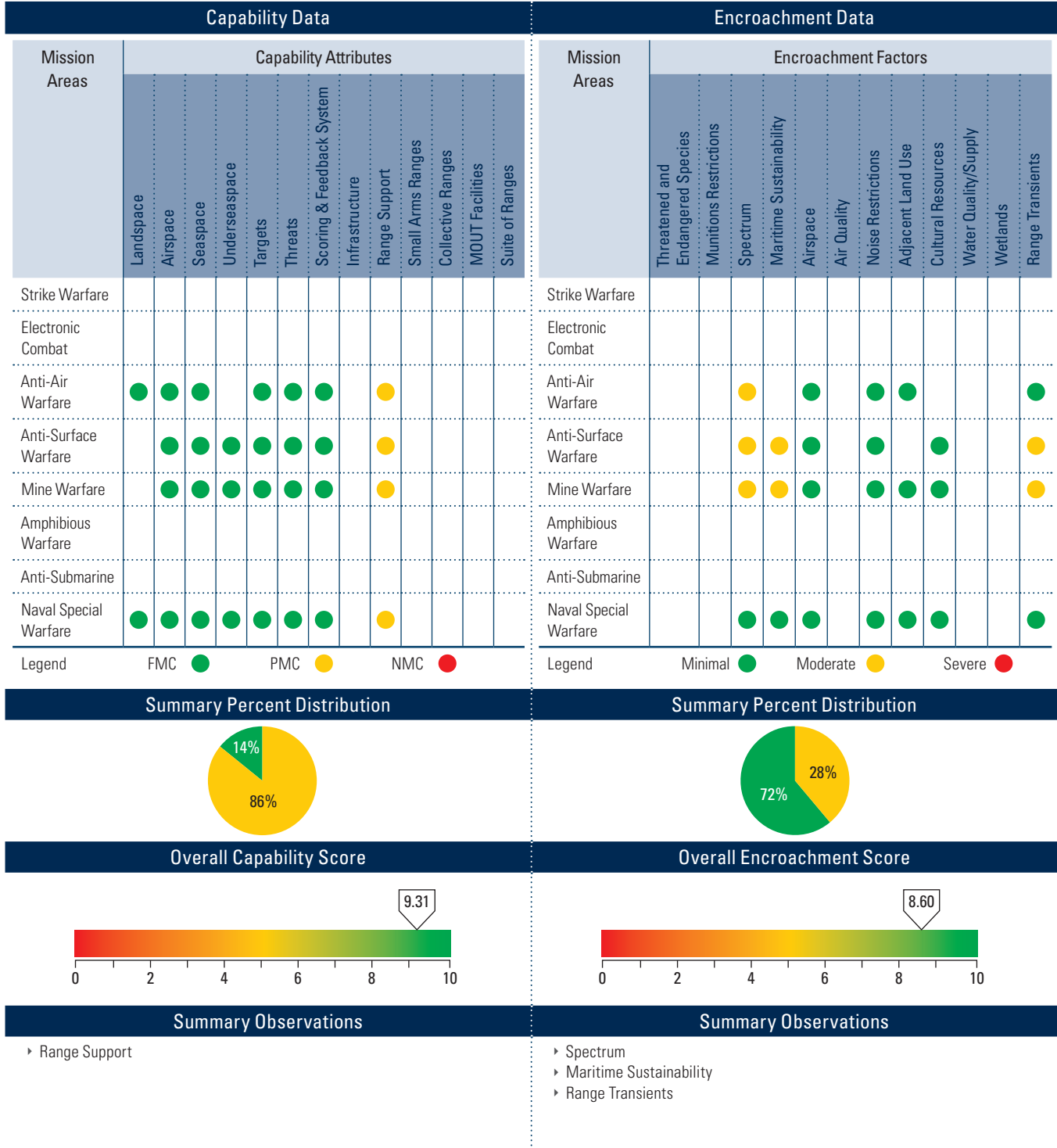


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: Guantanamo

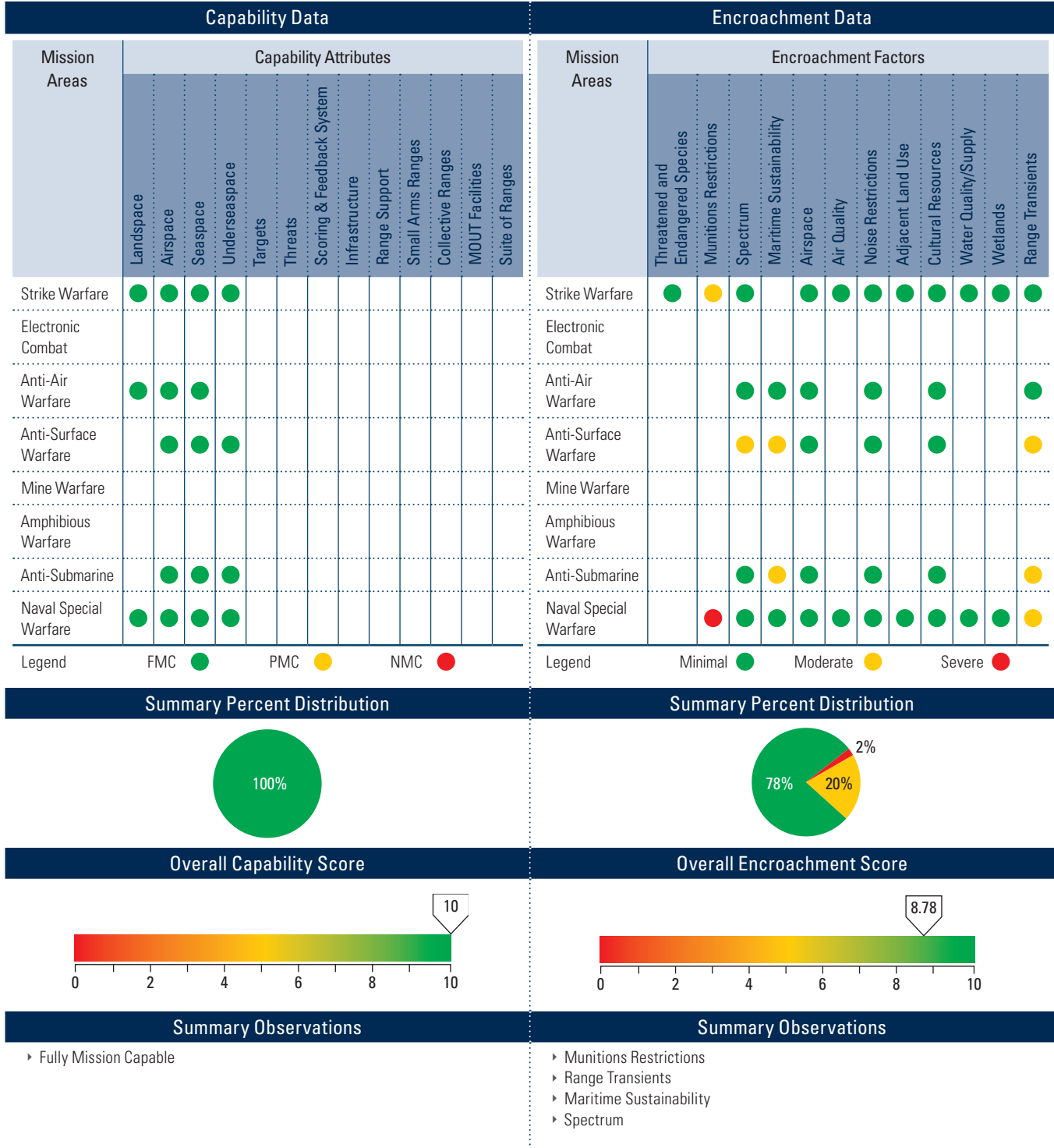


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: Hawaii

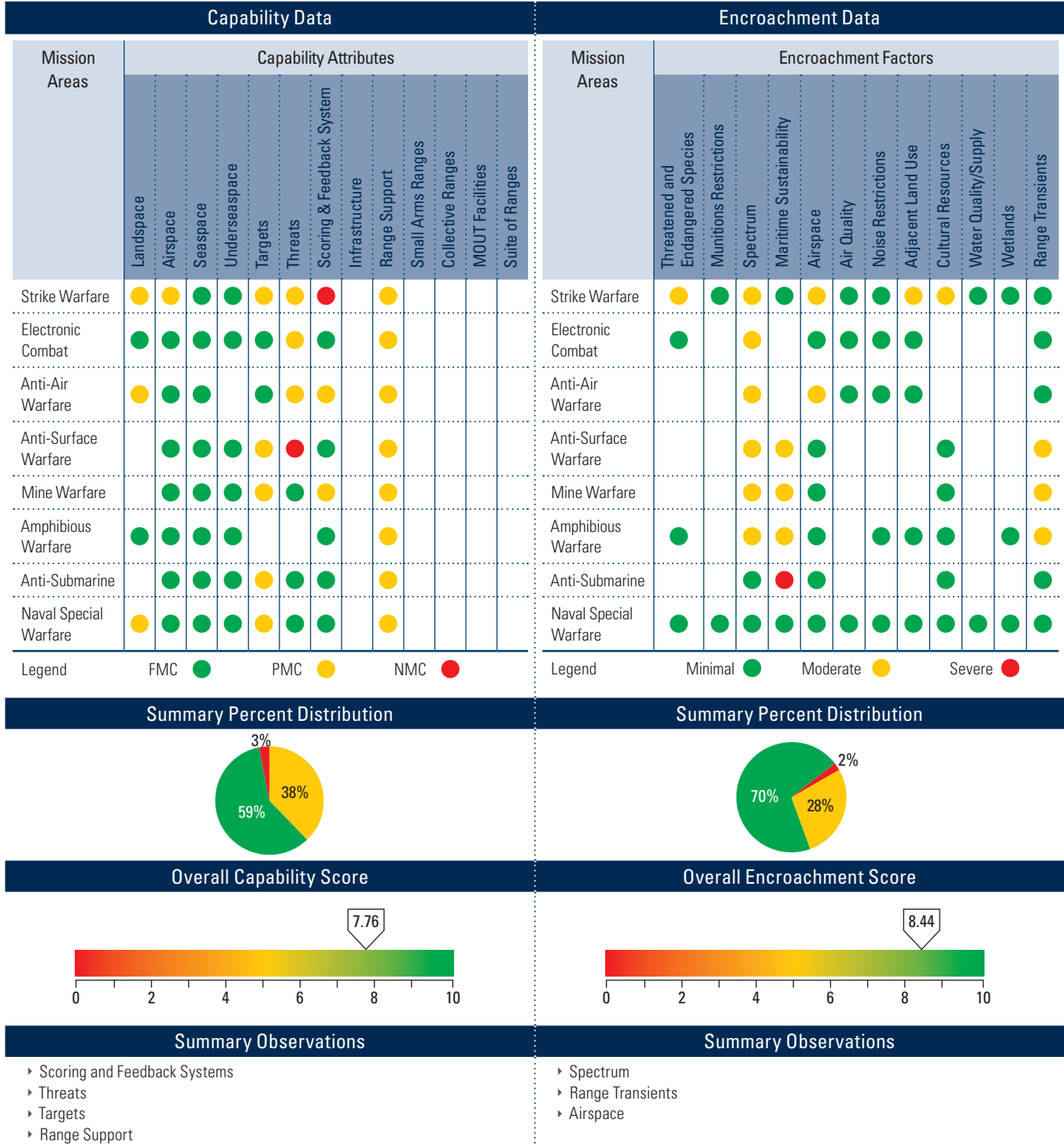


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: Jacksonville

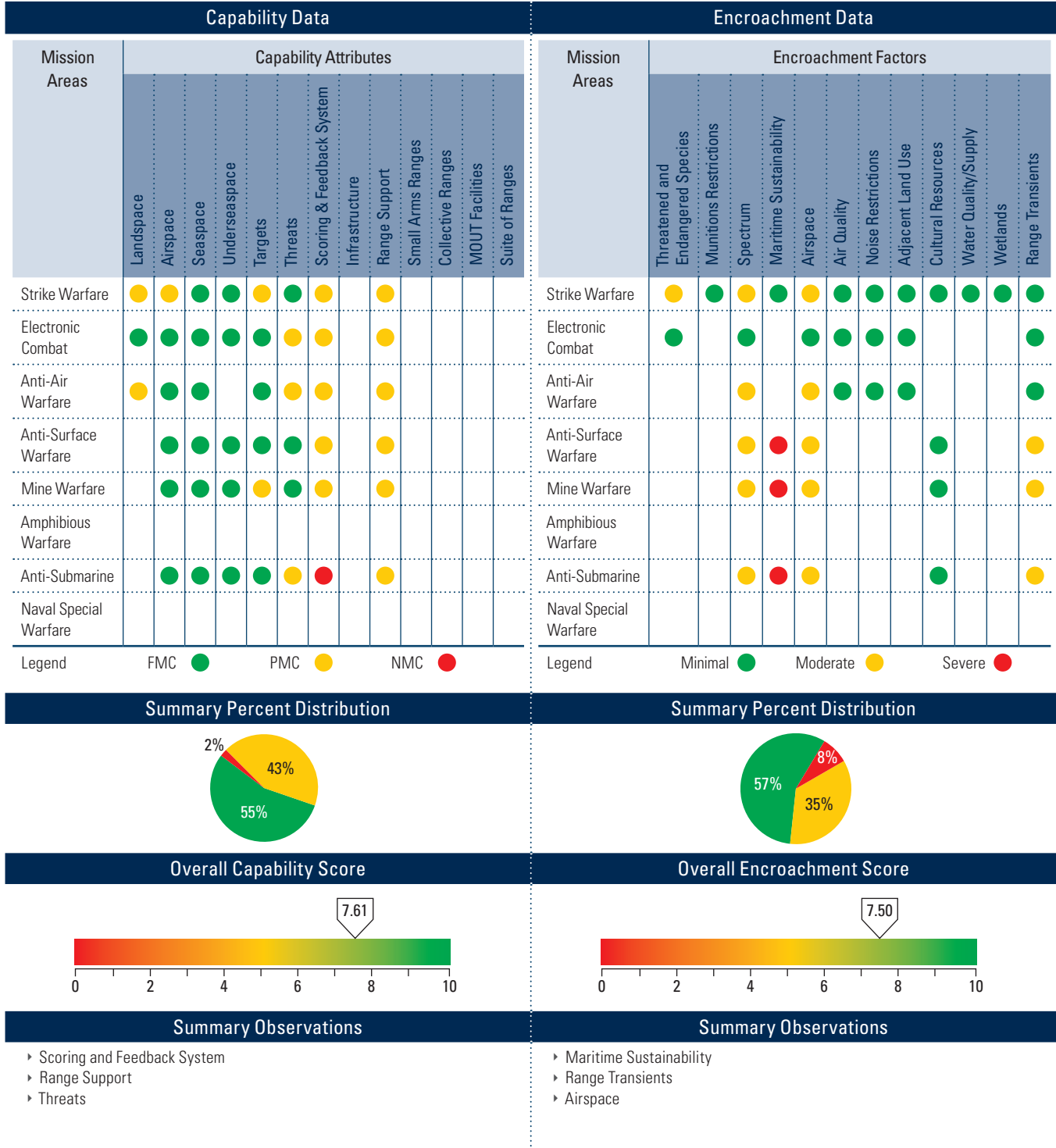


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: Japan

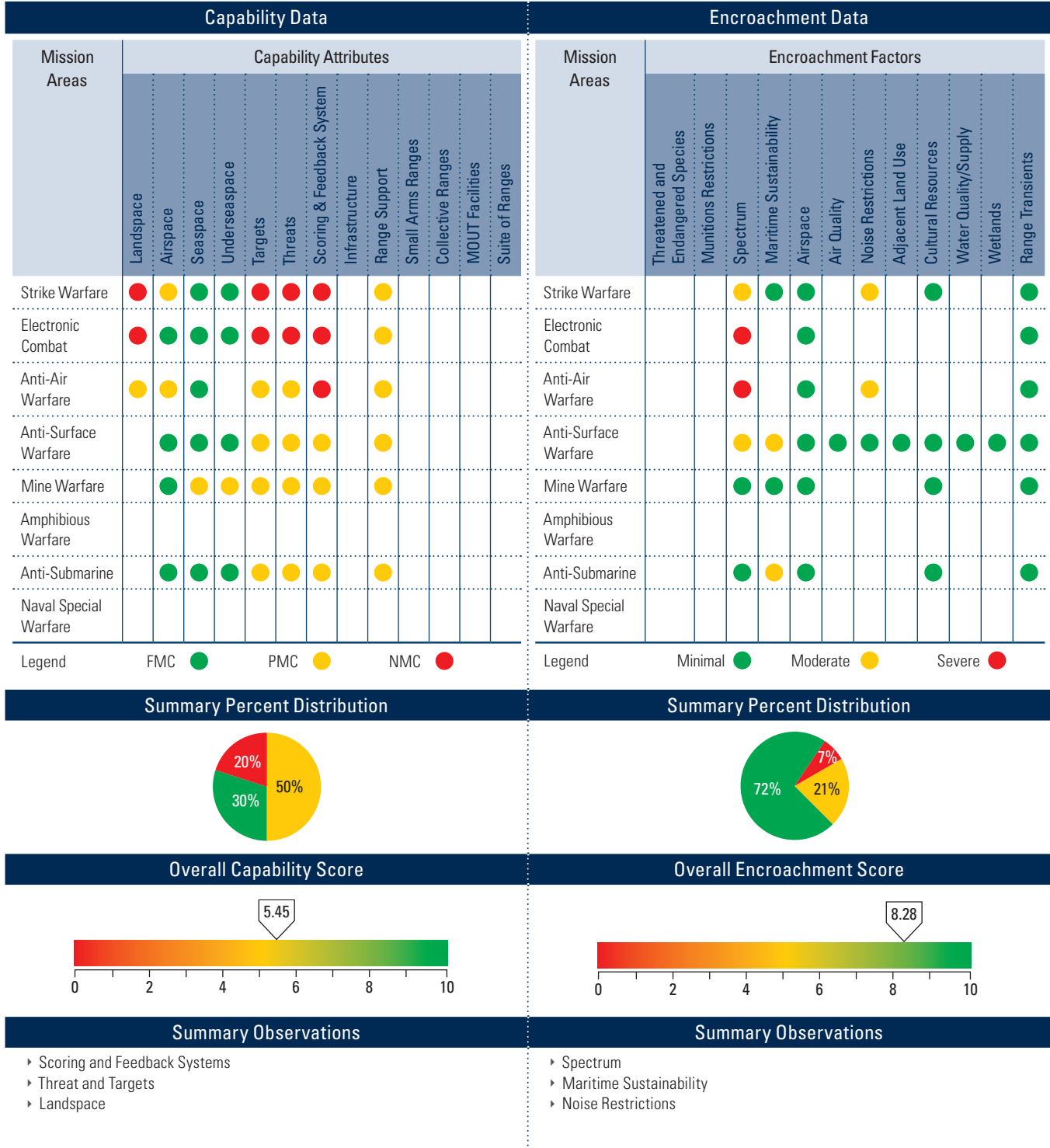


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: Key West

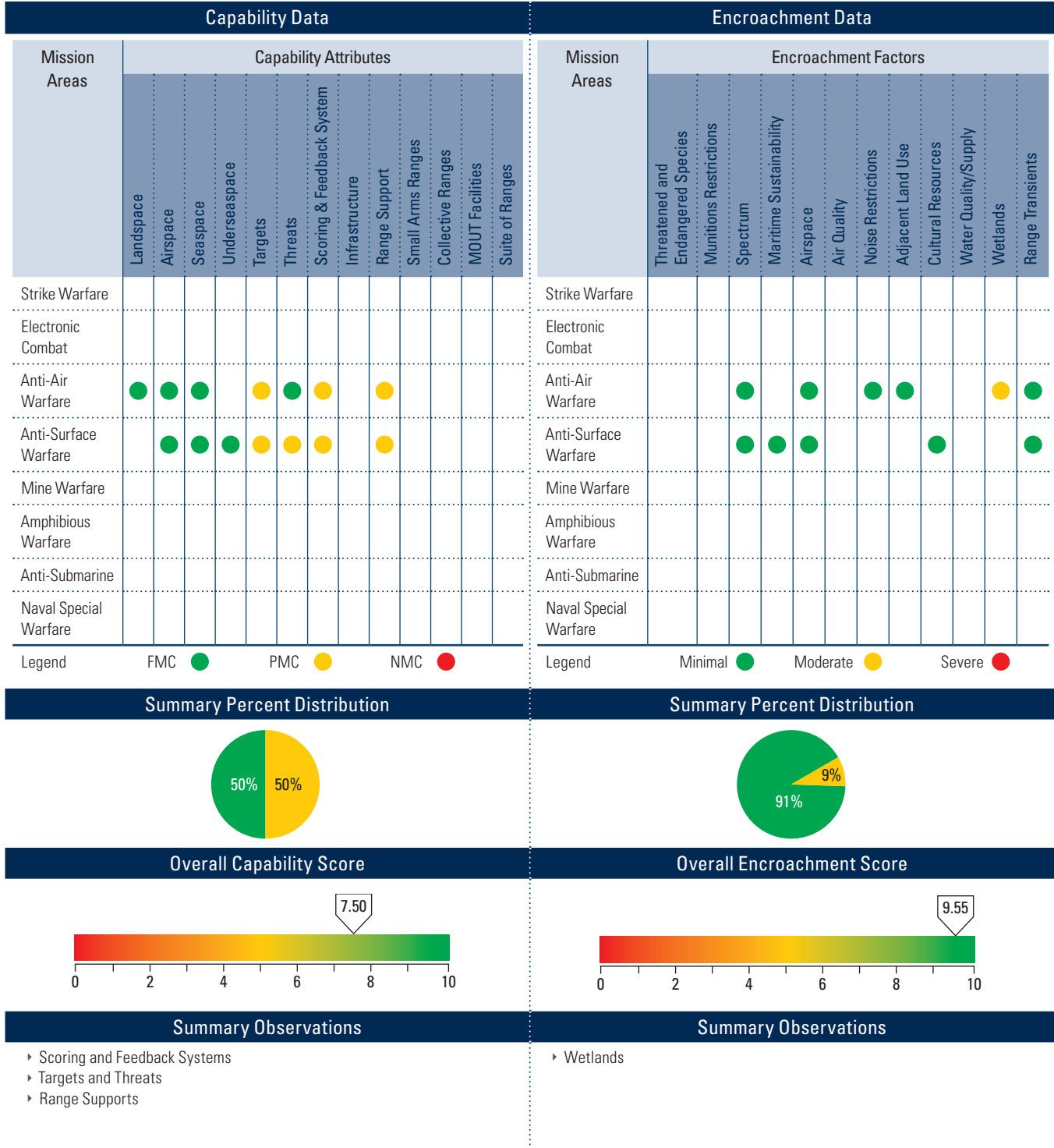


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: Mariana Islands

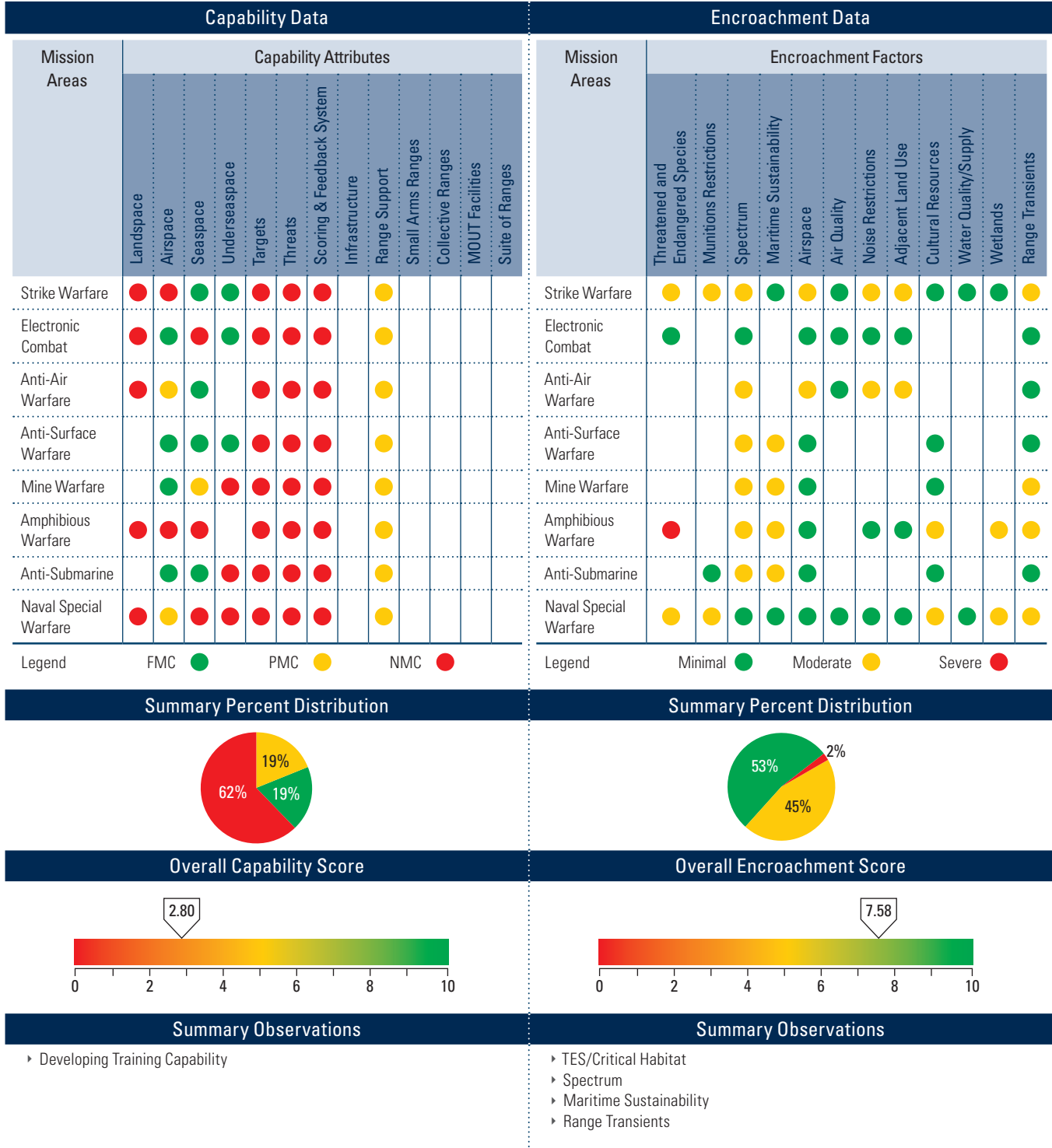


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: Narragansett Bay



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

Navy Range: NOCAL



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

Navy Range: Northwest

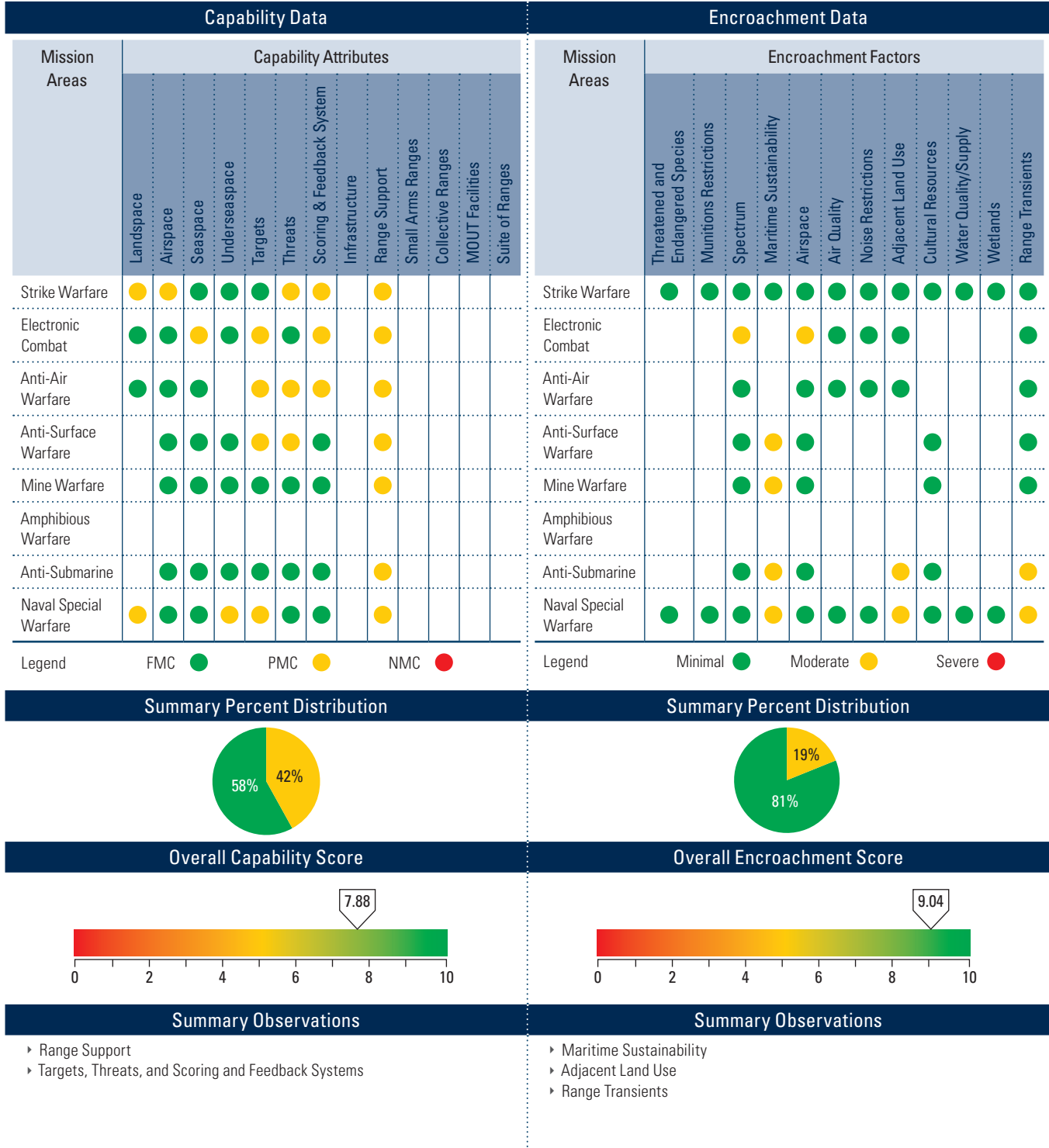


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: Okinawa

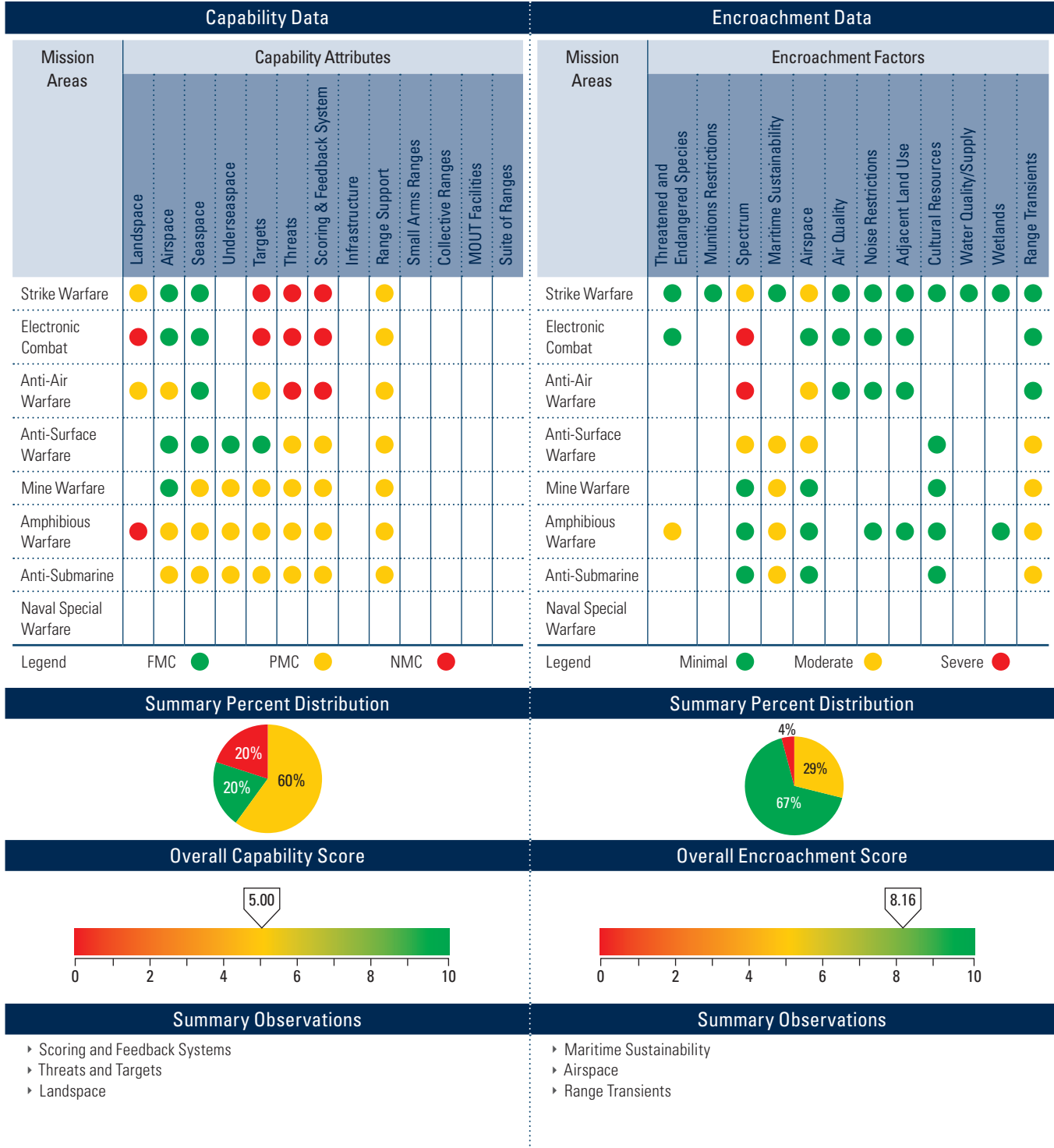


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: Point Mugu Sea

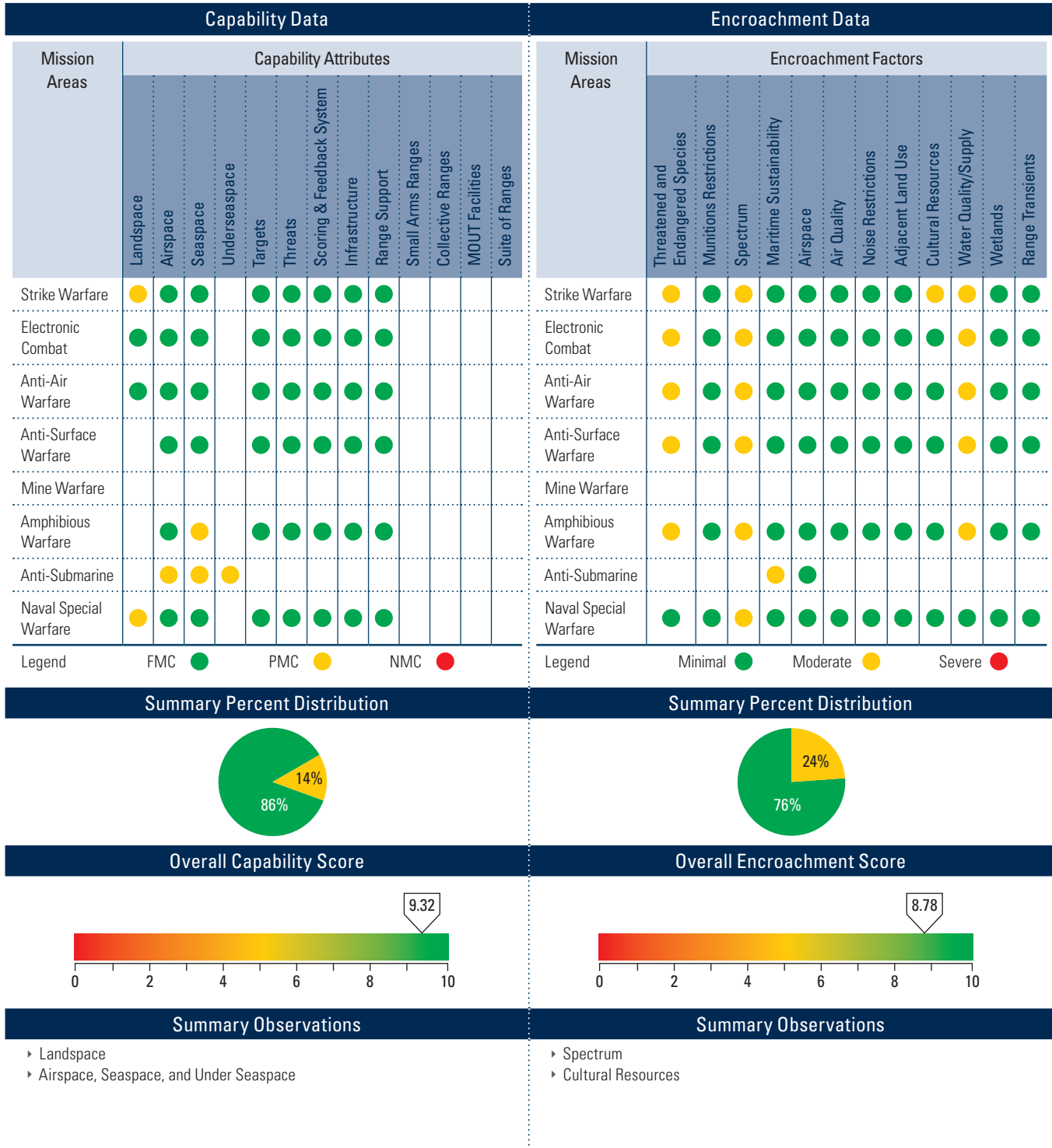


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: SOCAL

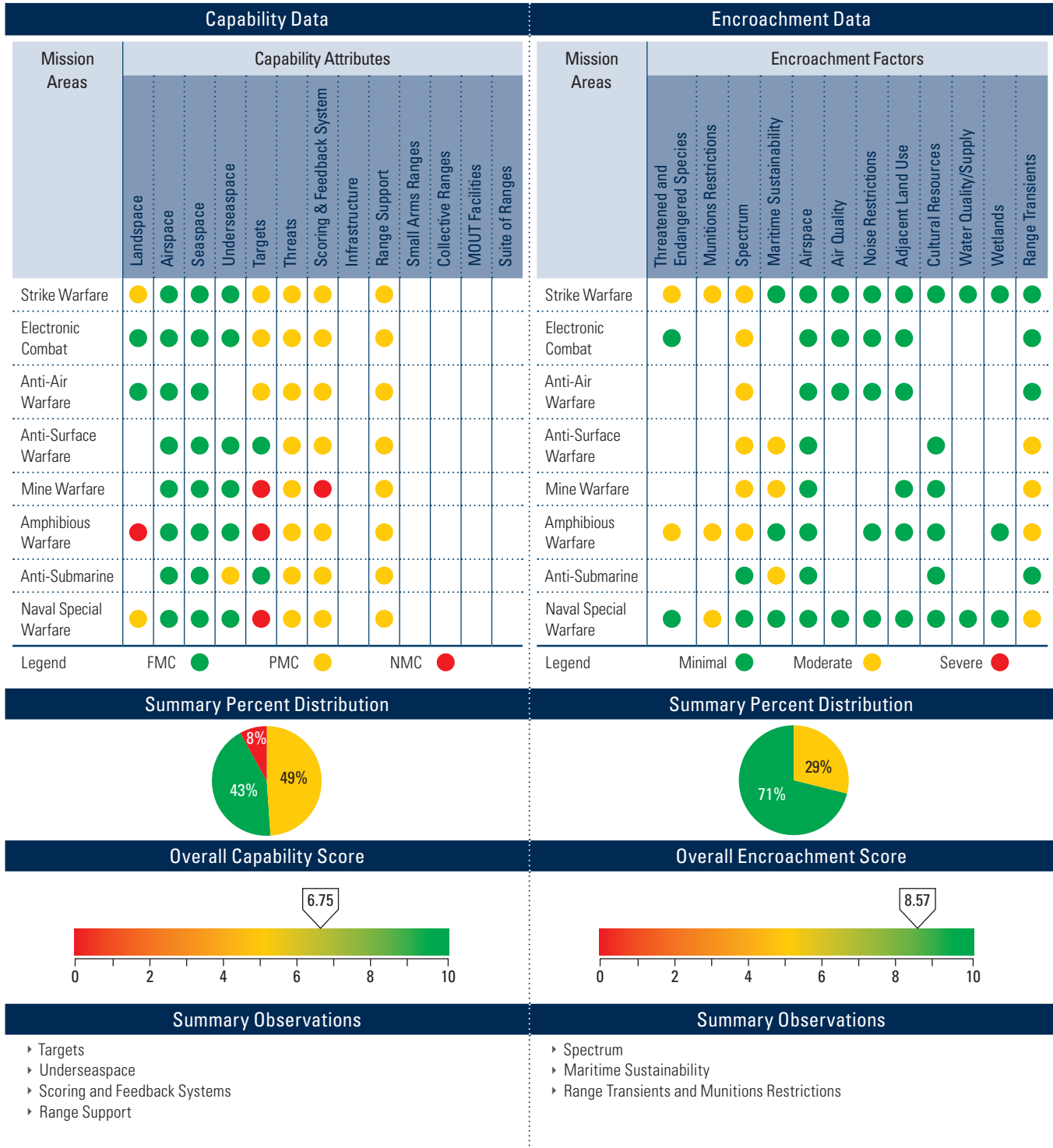


Figure 3-12 Navy Capability and Encroachment Assessment Detail (Continued)

Navy Range: VACAPES



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
China Lake	9.82	8.50
El Centro	6.39	9.80
Fallon	5.65	8.84
Gomex	9.31	8.60
Guantanamo	10	8.78

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

Range Name	Capability Score	Encroachment Score
Hawaii	7.76	8.44
Jacksonville	7.61	7.50
Japan	5.45	8.28
Key West	7.50	9.55
Mariana Island	2.80	7.58
Narragansett Bay	7.86	8.00
Navy Cherry Point	7.50	8.33
NOCAL	7.33	9.58
Northwest	7.88	9.04

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

Range Name	Capability Score	Encroachment Score
Okinawa	<p>A horizontal bar chart showing a score of 5.00 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score of 5.00.</p>	<p>A horizontal bar chart showing a score of 8.16 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score of 8.16.</p>
Pt Mugu Sea Range	<p>A horizontal bar chart showing a score of 9.32 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score of 9.32.</p>	<p>A horizontal bar chart showing a score of 8.78 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score of 8.78.</p>
SOCAL	<p>A horizontal bar chart showing a score of 6.75 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score of 6.75.</p>	<p>A horizontal bar chart showing a score of 8.57 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score of 8.57.</p>
VACAPES	<p>A horizontal bar chart showing a score of 7.50 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score of 7.50.</p>	<p>A horizontal bar chart showing a score of 8.38 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score of 8.38.</p>

3.2.4 Air Force

Air Force Training Range Capability Assessment Results

- ▶ The results of the Air Force’s overall range capability assessment are:
- ▶ Air Force overall Capability Score = 8.52
- ▶ 4% of the Air Force’s Range Mission Areas are assessed as NMC
- ▶ 22% of the Air Force’s Range Mission Areas are assessed as PMC
- ▶ 74% of the Air Force’s Range Mission Areas are assessed as FMC

Shortfalls were identified in the Threats, Small Arms Range, MOUT Facilities, Suite of Ranges, Targets, Infrastructure, and Range Support capability attributes. All 13 Air Force mission areas are impacted. Impacted ranges with a score lower than the Air Force’s overall score of 8.52 include: Tori Shima, Siegenburg, Polygone, Cannon, Claiborne, Falcon, Edwards (Test Range), Pilsung, Blair Lakes, Oklahoma, Adirondack, Shelby, Holloman, NTTR, Airburst, McMullen, and Eglin Range. Specific comments from the Air Force range capability assessment are included in Appendix C.

Air Force Training Range Encroachment Impact Assessment Results

The results of the Air Force’s overall range encroachment assessment are:

- ▶ Air Force’s overall Encroachment Score = 9.07
- ▶ 1% of the Air Force’s Range Mission Areas are severely impacted (High risk)

- ▶ 17% of the Air Force’s Range Mission Areas are moderately impacted (Medium risk)
- ▶ 82% of the Air Force’s Range Mission Areas are minimally impacted (Minimal risk)

Encroachment factors contributing constraints were identified as: Air Quality, Wetlands, Adjacent Land Use, T&E Species and Critical Habitat. All 13 Air Force mission areas are impacted. Impacted ranges with a score less than the overall Air Force score of 9.07 include: Polygone, Siegenburg, and Tori Shima. Specific comments from the Air Force Range encroachment assessment are included in Appendix C.

Air Force Service Special Interest Section

General Issues

Clean Air Act Conformity Challenges

The Air Force is working to meet challenges in the timeline for new and replacement military readiness activities to comply with Clean Air Act (CAA) § 176(c) General Conformity requirements.

Under CAA § 176(c), conformity with the state Implementation Plan (SIP) is required before any part of a federal action with affected emissions proceeds in a nonattainment area. Normally, for actions with emissions above de minimis levels, the military Services demonstrate conformity by relying on measures within, or related to, an EPA-approved SIP. Significant new or modified military readiness activities—BRAC realignments, new weapon system beddowns, new missions, major operating space changes, .etc—that need to occur in areas recently designated nonattainment by EPA could be adversely impacted by the prohibitions of CAA section 176(c) due to a SIP gap problem. The SIP gap refers to the period of years (at least two) between the time general conformity prohibitions apply, which by statute is one year

Figure 3-13 Summary: Air Force Range Capability Assessment

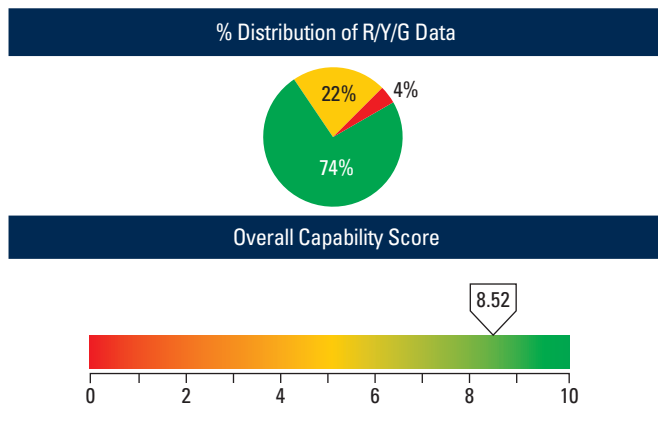
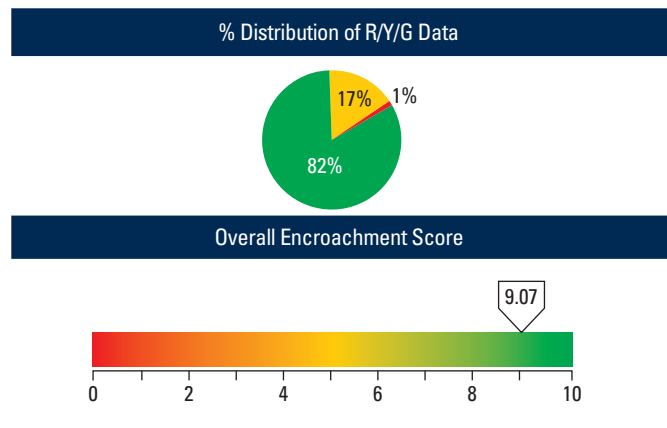


Figure 3-14 Summary: Air Force Range Encroachment Assessment



after an area's nonattainment designation, and the time that the SIP for such area must be submitted by the state to EPA (within 3 years of designation by statute), plus the time it takes EPA to issue approval (up to an additional eighteen months by statute).

For example, Clark County Nevada's nonattainment designation for the 1997 8-hour Ozone standard became effective on 15 June 2004; the general conformity requirements for actions with ozone precursors (nitrogen oxides [NOx] and volatile organic compounds [VOCs]) at Nellis AFB, NV, became effective on 15 June 2005. However, Clark County's Ozone SIP was not due to be submitted until 15 June 2007, and EPA was not required to issue its approval until 15 December 2008. Furthermore, due to successful litigation challenging EPA's implementation rule for the 1997 Ozone Standard, no firm deadline has been established for Clark County's SIP, yet. The SIP deadline will likely not be sooner than the Spring of 2010, meaning EPA's approval may not occur until mid- to late- 2011. This SIP gap problem in Nevada has already resulted in approximately six months of delay in the publication of the Final Environmental Impact Statement (FEIS) for the implementation of the beddown of the F-35 Force Development Evaluation and Weapons School (F-35 FDE & WS) at Nellis AFB. The action could be delayed another two years, or more, assuming an approved SIP remains the only viable method for demonstrating positive general conformity.

The Air Force anticipates a similar problem down the road for replacement of F-16s at Luke AFB located in Maricopa County Arizona. The General Conformity requirement for the new Ozone standard will take effect in Maricopa County about 2 months before the EIS/ROD needs to be signed for AF's follow-on CTOL PTC; the AF will not be able to demonstrate that emissions from 168 F-35's conform to a SIP for that new standard at that time.

Using data provided by the Air Force, the Maricopa Association of Governments (MAG) compared projected future emissions from 26 F-16s and 168 F-35s to emissions from the 208 F-16's in the County's 2005 emissions inventory,

and determined that Nitrogen Oxides (NOx) emissions would be 150% higher in 2025 compared to 2005. This means the Air Force will be required to make a general conformity determination to replace 194 F-16s with 168 F-35s.

The MAG is willing to help the Air Force meet its general conformity requirements by including these future emissions into both the budget for the maintenance plan for the existing Ozone standard⁸ as well as for the SIP required for the new standard⁹. Despite MAG's cooperation, the SIP gap timing problem is currently expected to interfere with the Air Force's ability to choose to sign a ROD for that size action at Luke AFB when it needs to in June 2011. The expected difficulty is that MAG's maintenance plan for the existing 8-hour Ozone standard may not be approved by EPA until August 2011. In addition, it is expected that general conformity requirements for the new 8-hour standard will be applicable, but the required SIP will still be under development and not required to be submitted to EPA for 2 more years. The MAG will not be legally required to submit a SIP for the new Ozone standard until March 2013—a gap of 2 full years after the General Conformity requirement's applicability to federal actions. In addition, it will take some additional time for EPA to determine whether to approve the SIP.

Detailed Air Force Training Range Capability and Encroachment Assessment Results

The following tables and figures present detailed information on the Air Force's Training Range Capability and Encroachment Assessments. The first set of tables detail the methodology used for determining the weighted averages that make-up an individual range capability and encroachment score. This information is shown for all the Air Force ranges assessed. The set of figures that follow provide assessment detail at the range level specific to mission areas and capability attributes and encroachment factors.

8 The draft maintenance plan for the 0.08 parts per million Ozone standard is projected to be released for public review in mid-December 2008, scheduled for a public hearing in mid-January 2009, and expected to be submitted to the MAG Regional Council for approval by the end of February 2009. EPA has estimated that it may take as long as eighteen months, from the date it receives the plan, for it to approve it.

9 The Federal Energy Regulatory Commission (FERC) faced a similar issue – project in Maricopa County, AZ caught in transition between an approved maintenance plan under the old 1-hour Ozone Standard to a nonattainment SIP under the existing 8-hour Ozone Standard – with Transwestern Pipeline Company's application to expand its natural gas transmission pipeline in Arizona and New Mexico. For that project, the maintenance plan under the 1-hour Standard had been previously approved, but revoked by the (then) new 8-hour standard. The SIP for the 8-hour standard included the emissions from the project and had been submitted to EPA, but it had not yet been approved when the project's construction needed to proceed. The situation facing the JSF beddown at Luke is projected to be a maintenance plan submitted to EPA but not yet approved (August 2011) for the current 8-hour standard, that may (or may not) be revoked anyway, and a SIP for the new, applicable 8-hour standard that will still be under development and not required to be submitted to EPA for 2 more years.

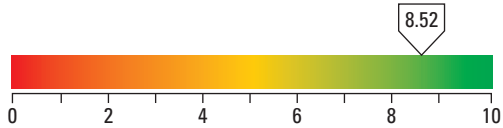
Air Force Training Range Summary Capability and Encroachment Assessment Results

The results of the Air Force's overall range capability and encroachment assessments, based on data received from 35 Ranges/Range Complex are presented side-by-side in Table 3-15.

The data collection for the following tables took place in April of 2008. Since that time, we have encountered CAA conformity challenges at Nevada Test and Training Range (NTTR). For that reason, the NTTR air quality scores have been updated, while the rest of the tables retain the original date. A complete discussion of this issue can be found in the Air Force Special Interest Section.

Table 3-13 Air Force Range Capability Assessment Data Analysis

Air Force Range Capability Assessment Detail



Range	NMC	PMC	FMC	Total Weighted Scores	Total Assessment Points	Weighted Average
Adirondack	6	21	41	575	74	7.77
Airburst	2	17	42	505	61	8.28
Atterbury	1	7	36	395	44	8.98
Avon Park	0	7	85	885	92	9.62
Blair Lakes	0	58	50	790	108	7.31
BMG East	1	11	41	465	53	8.77
Bollen	0	17	60	685	77	8.90
Cannon	9	38	11	300	58	5.17
Claiborne	4	3	9	105	16	6.56
Dare County	0	1	107	1,075	108	9.95
Edwards–Test	6	13	84	905	103	8.79
Edwards–Training	9	38	47	660	94	7.02
Eglin Ranges	0	35	82	995	117	8.50
Falcon	3	4	9	110	16	6.88
Grand Bay	0	8	88	920	96	9.58
Grayling	0	11	79	845	90	9.39
Hardwood	0	15	75	825	90	9.17
Holloman	4	1	18	185	23	8.04
Jefferson	0	21	63	735	84	8.75
McMullen	1	23	55	665	79	8.42
Melrose	4	3	51	525	58	9.05
Mountain Home	0	0	73	730	73	10.00
NTTR	8	15	64	715	87	8.22
Oklahoma	0	58	50	790	108	7.31
Pilsung	4	11	18	235	33	7.12
Poinsett	0	0	58	580	58	10.00
Polygone	8	47	1	245	56	4.38
Razorback	1	0	82	820	83	9.88
Shelby Gulfport	4	25	55	675	84	8.04
Siegenburg	8	21	2	125	31	4.03
Smokey Hill	1	0	65	650	66	9.85
Tori Shima	14	4	2	40	20	2.00
Townsend	0	3	96	975	99	9.85
UTTR	0	2	86	870	88	9.89
Yukon	0	18	90	990	108	9.17
Totals	98	556	1,881	21,590	2,535	8.52

Table 3-14 Air Force Range Encroachment Assessment Data Analysis

Air Force Range Encroachment Assessment Detail							
Range	Severe	Moderate	Minimal	Total Weighted Scores	Total Assessment Points	Weighted Average	
Adirondack	0	10	38	430	48	8.96	
Airburst	0	13	44	505	57	8.86	
Atterbury	0	11	20	255	31	8.23	
Avon Park	0	11	70	755	81	9.32	
Blair Lakes	0	24	108	1,200	132	9.09	
BMG East	0	8	38	420	46	9.13	
Bollen	0	10	78	830	88	9.43	
Cannon	0	16	68	760	84	9.05	
Claiborne	0	0	22	220	22	10.00	
Dare County	0	1	107	1,075	108	9.95	
Edwards	0	16	35	430	51	8.43	
Eglin Ranges	0	45	107	1,295	152	8.52	
Falcon	0	1	21	215	22	9.77	
Grand Bay	0	11	97	1,025	108	9.49	
Grayling	1	8	90	940	99	9.49	
Hardwood	0	20	79	890	99	8.99	
Holloman	2	2	15	160	19	8.42	
Jefferson	2	22	73	840	97	8.66	
McMullen	0	23	83	945	106	8.92	
Melrose	5	2	81	820	88	9.32	
Mountain Home	0	2	86	870	88	9.89	
NTTR	1	35	69	865	105	8.24	
Oklahoma	0	24	108	1,200	132	9.09	
Pilsung	0	7	46	495	53	9.34	
Poinsett	0	0	40	400	40	10.00	
Polygone	13	27	16	295	56	5.27	
Razorback	0	4	88	900	92	9.78	
Shelby Gulfport	0	24	85	970	109	8.90	
Siegenburg	4	18	7	160	29	5.52	
Smokey Hill	0	0	88	880	88	10.00	
Tori Shima	1	5	8	105	14	7.50	
Townsend	0	5	83	855	88	9.72	
UTTR	0	3	85	865	88	9.83	
Yukon	0	29	103	1,175	132	8.90	
Totals	29	437	2,186	24,085	2,652	9.07	

Figure 3-15 Air Force Capability and Encroachment Assessment Detail

Air Force Range: Adirondack

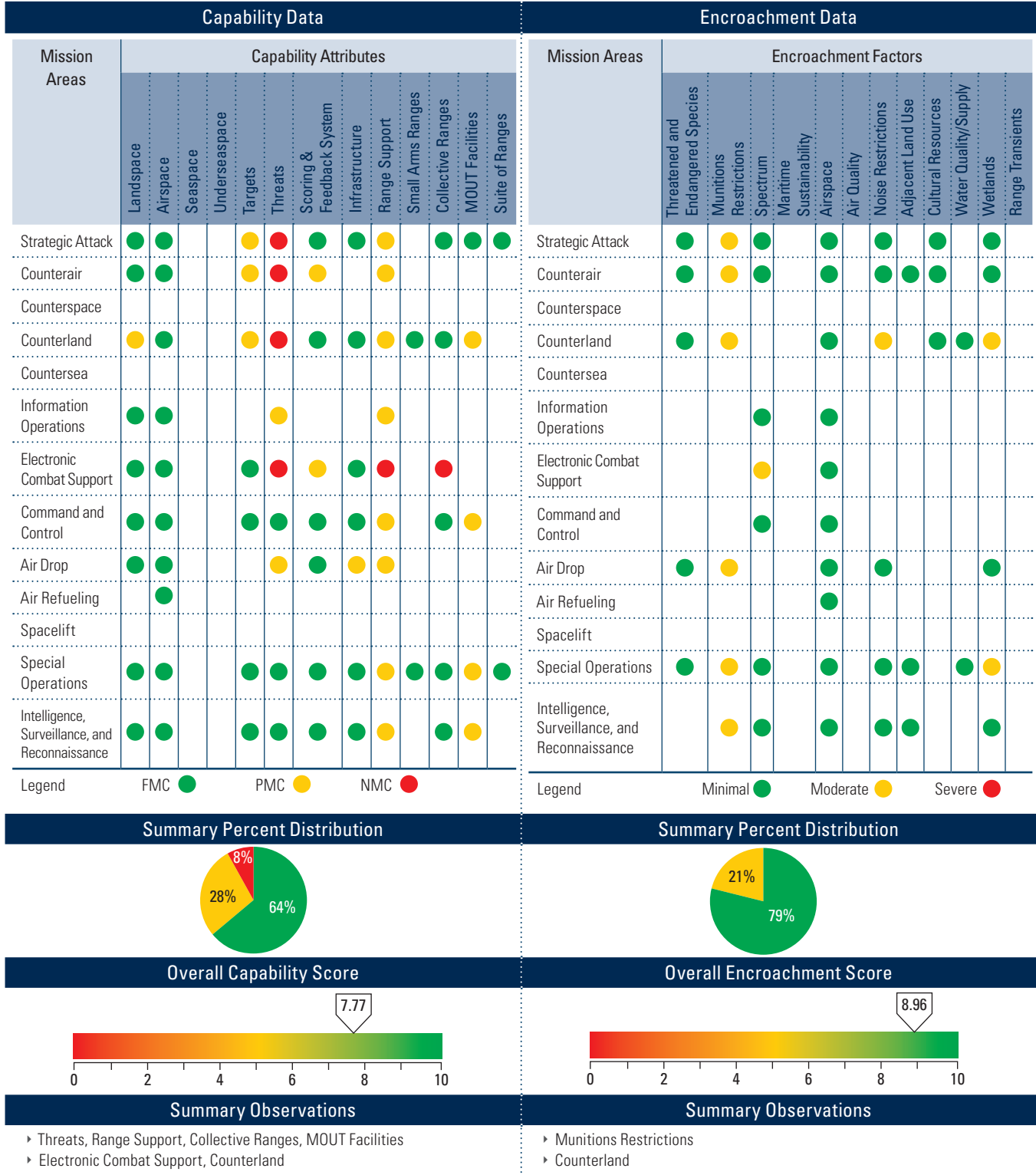


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Airburst



Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Atterbury

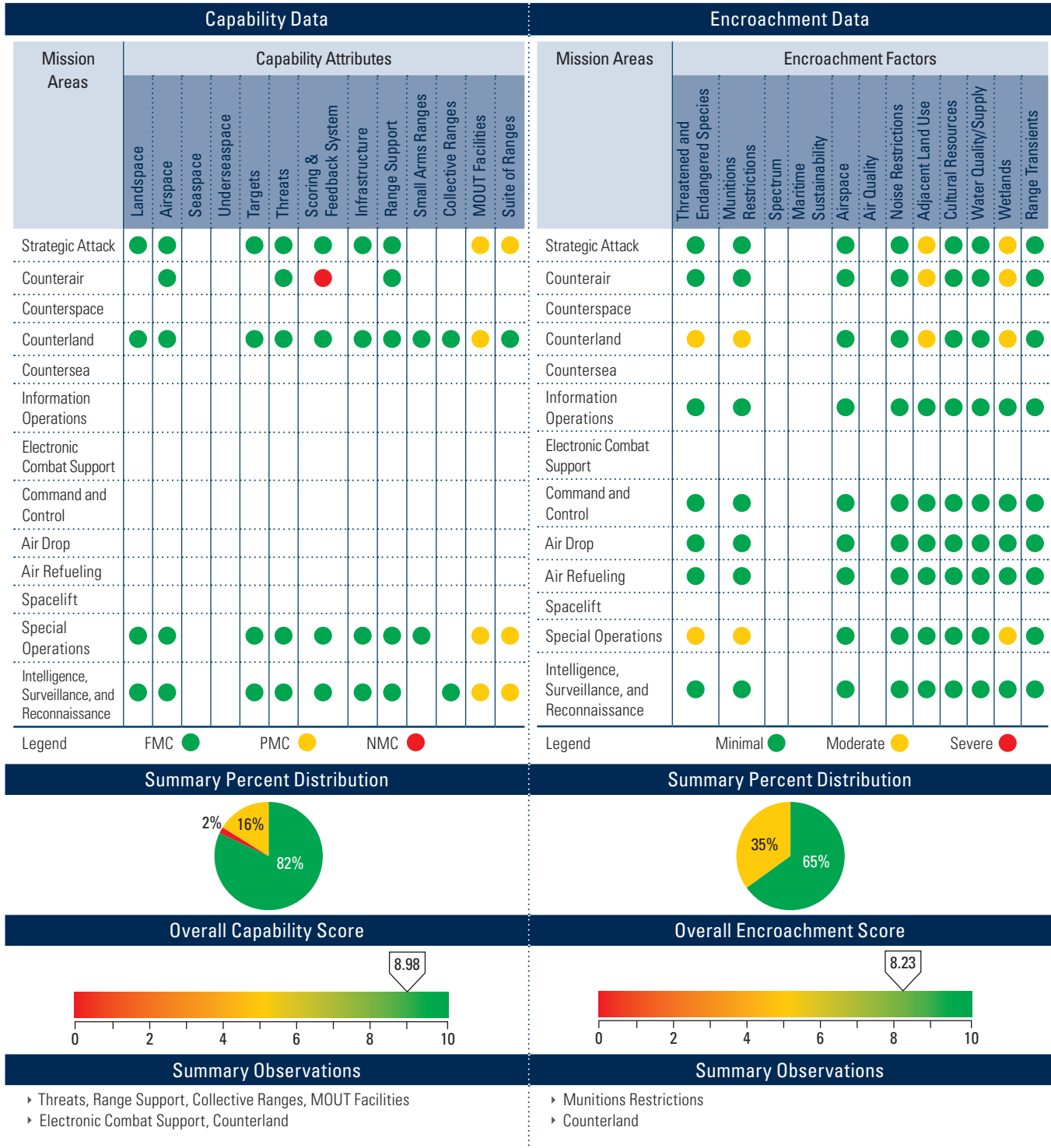


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Avon Park

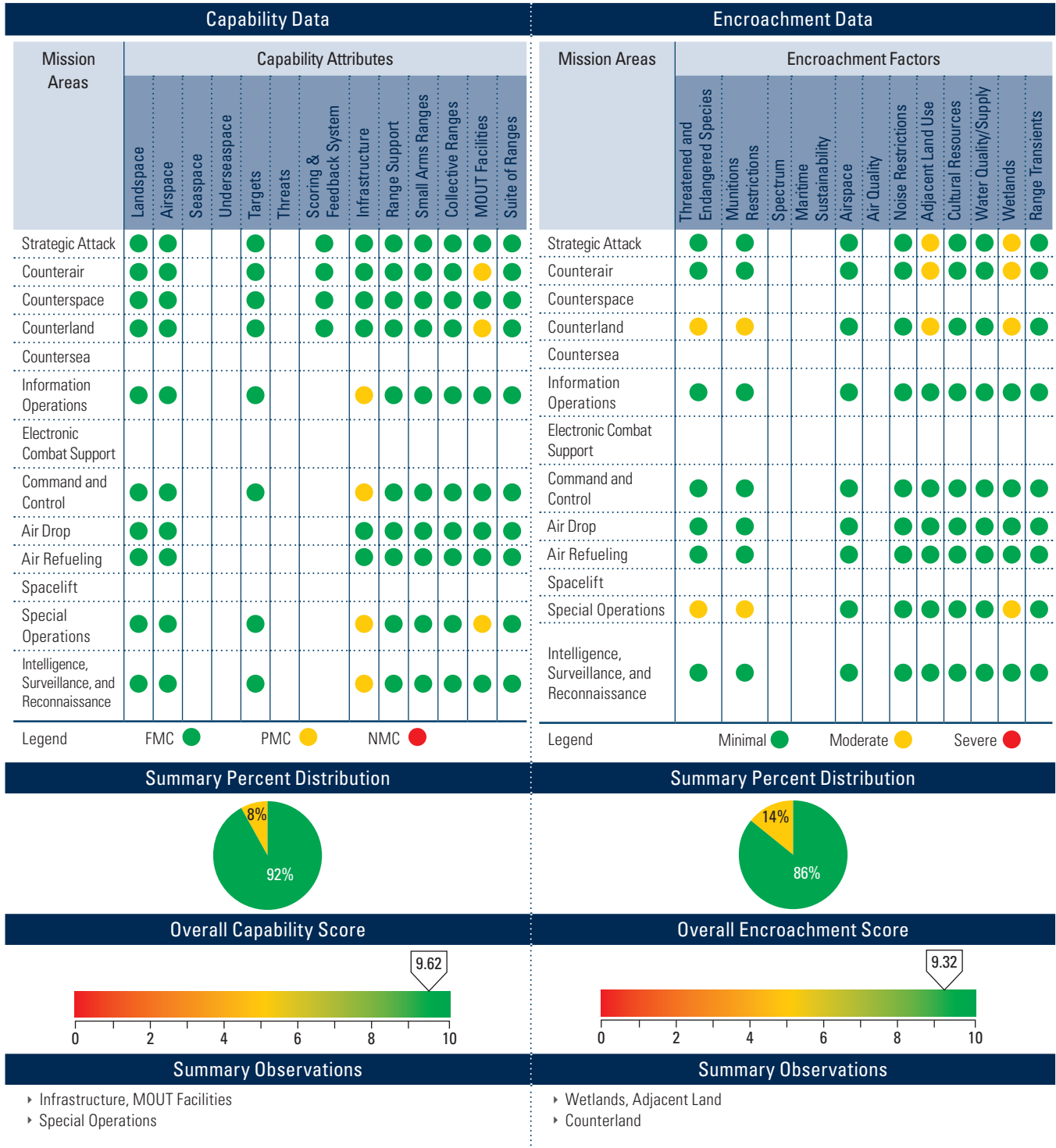


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Blair Lakes

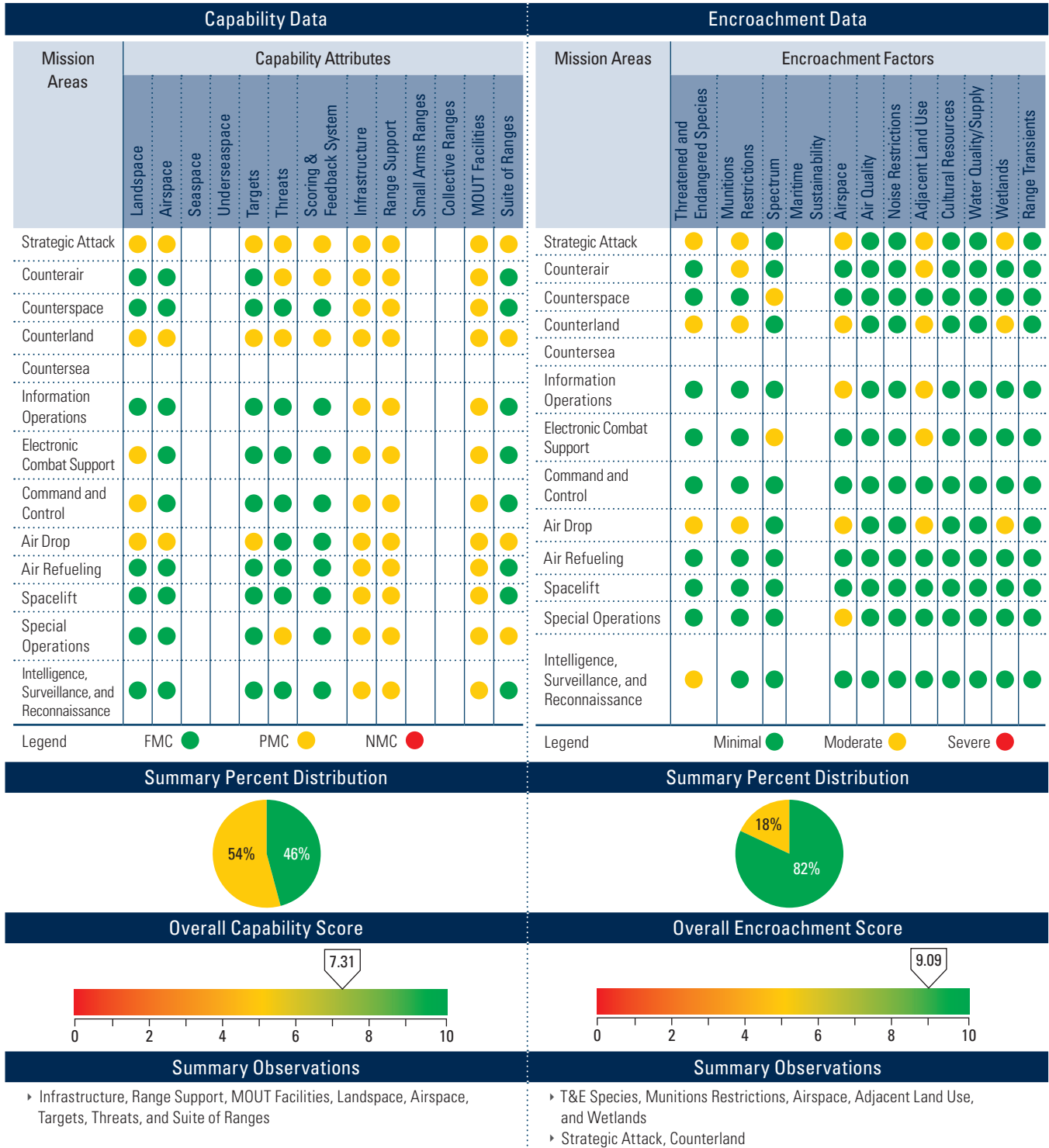


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Barry M. Goldwater Range-East Complex

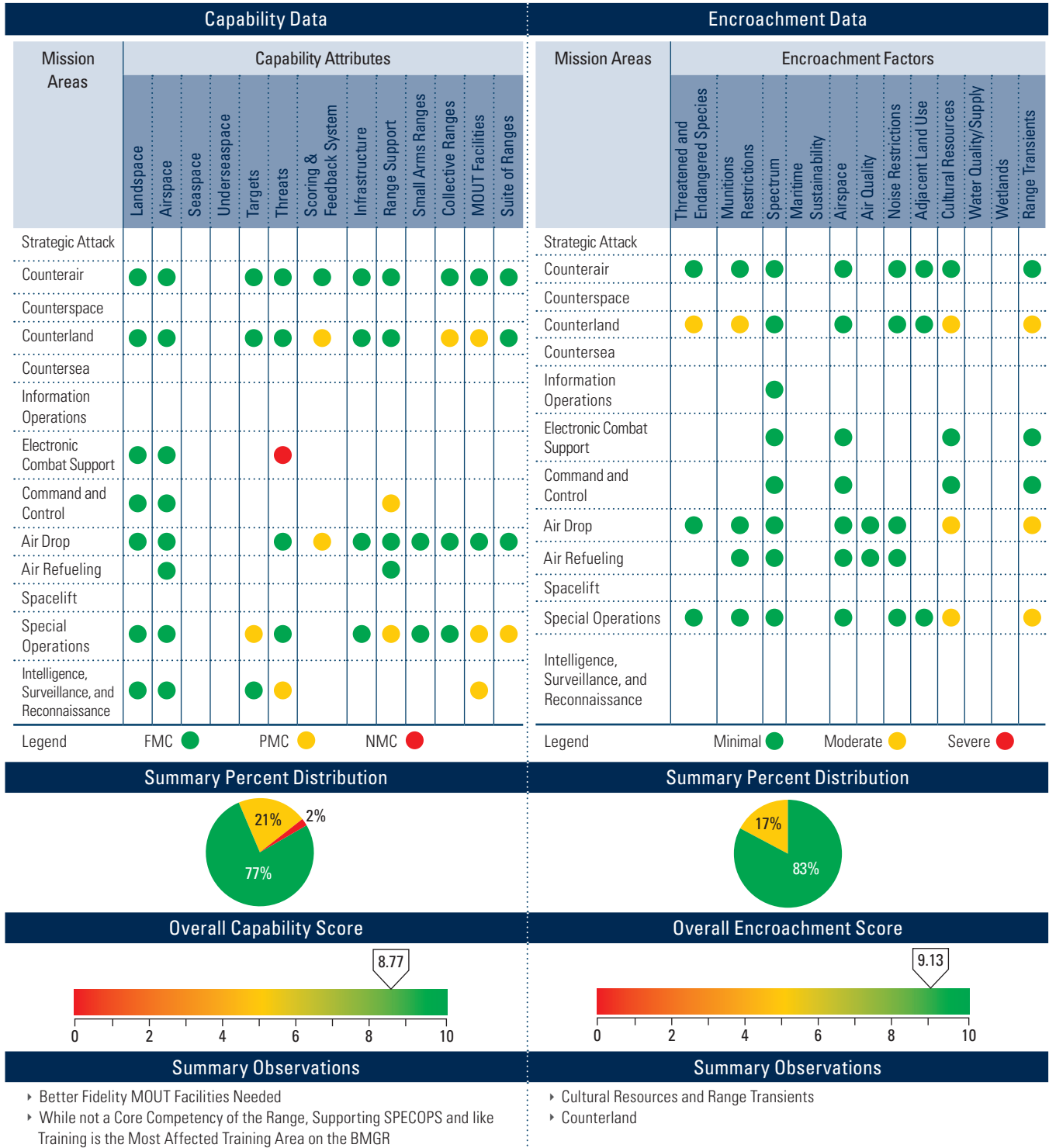


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Bollen

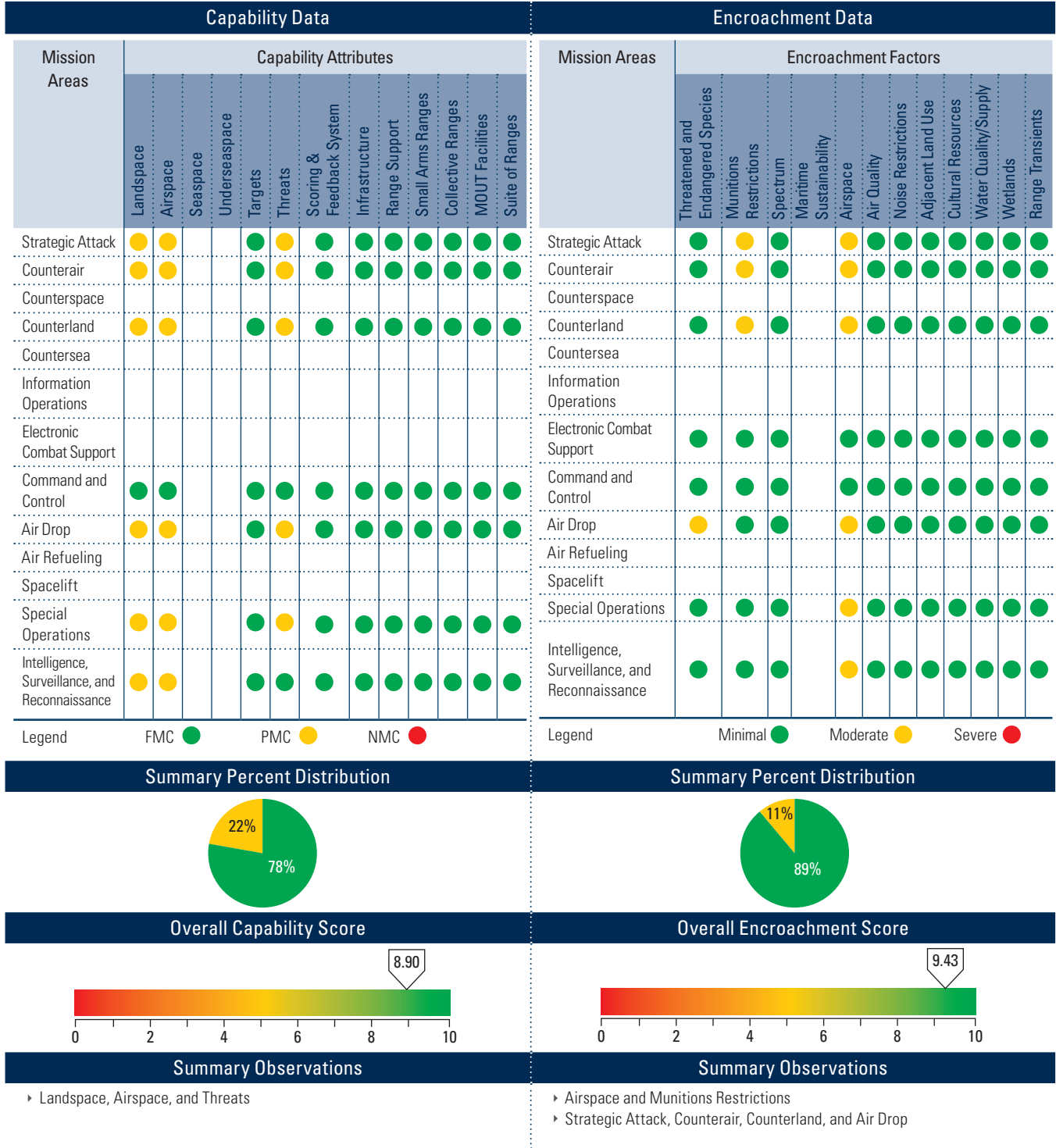


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Cannon

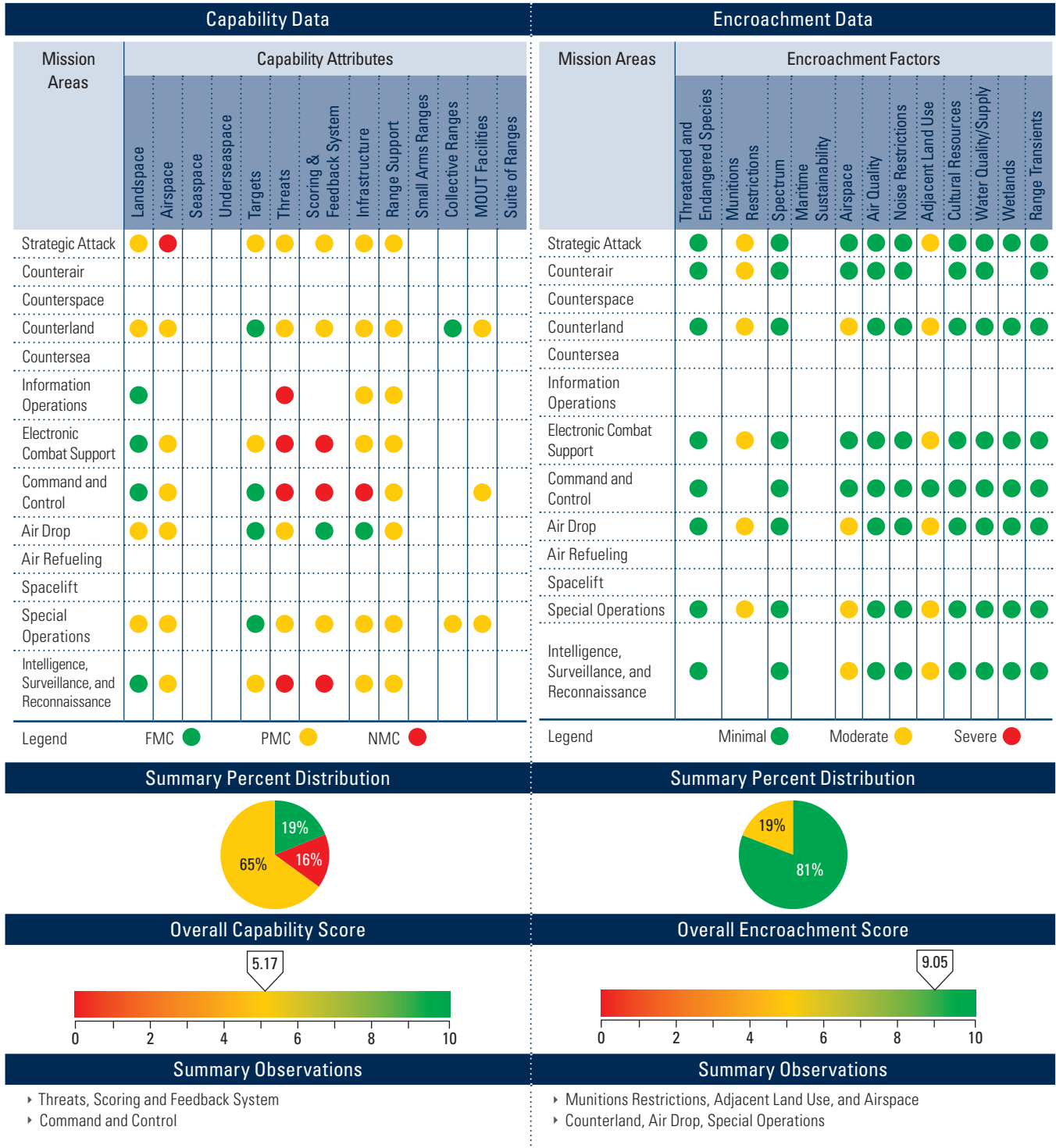


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Claiborne

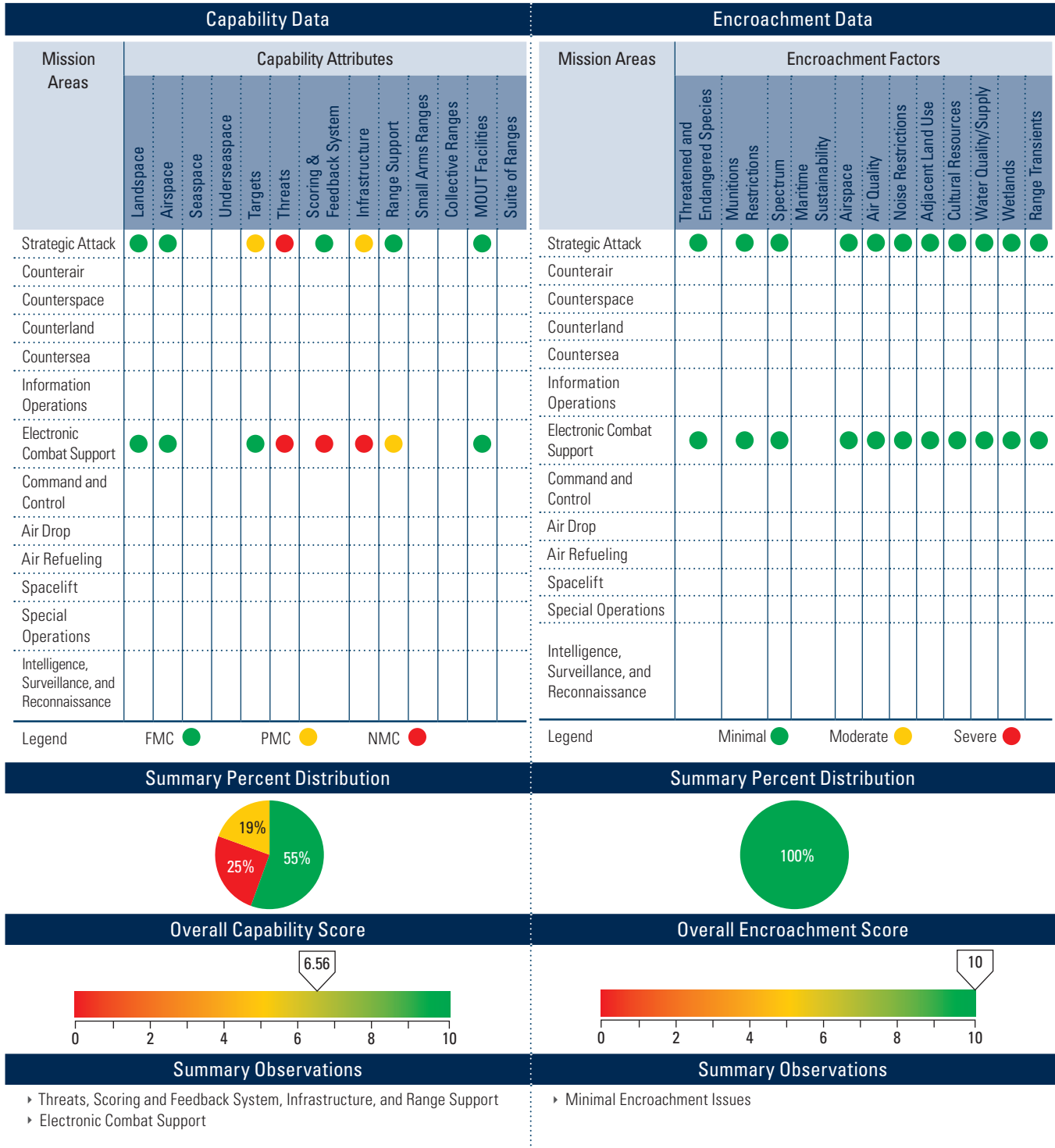


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Dare County

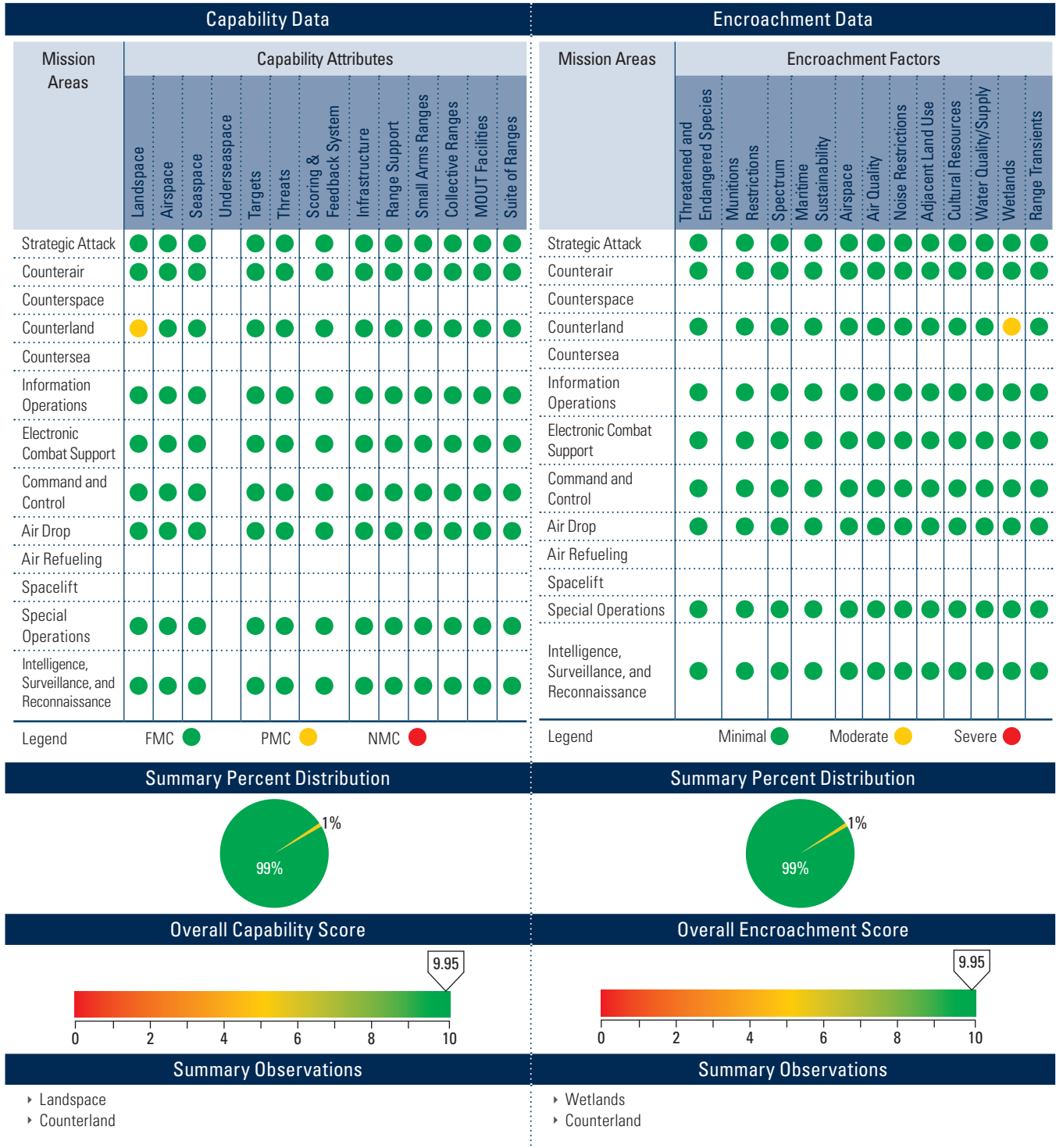


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Edwards Test Range

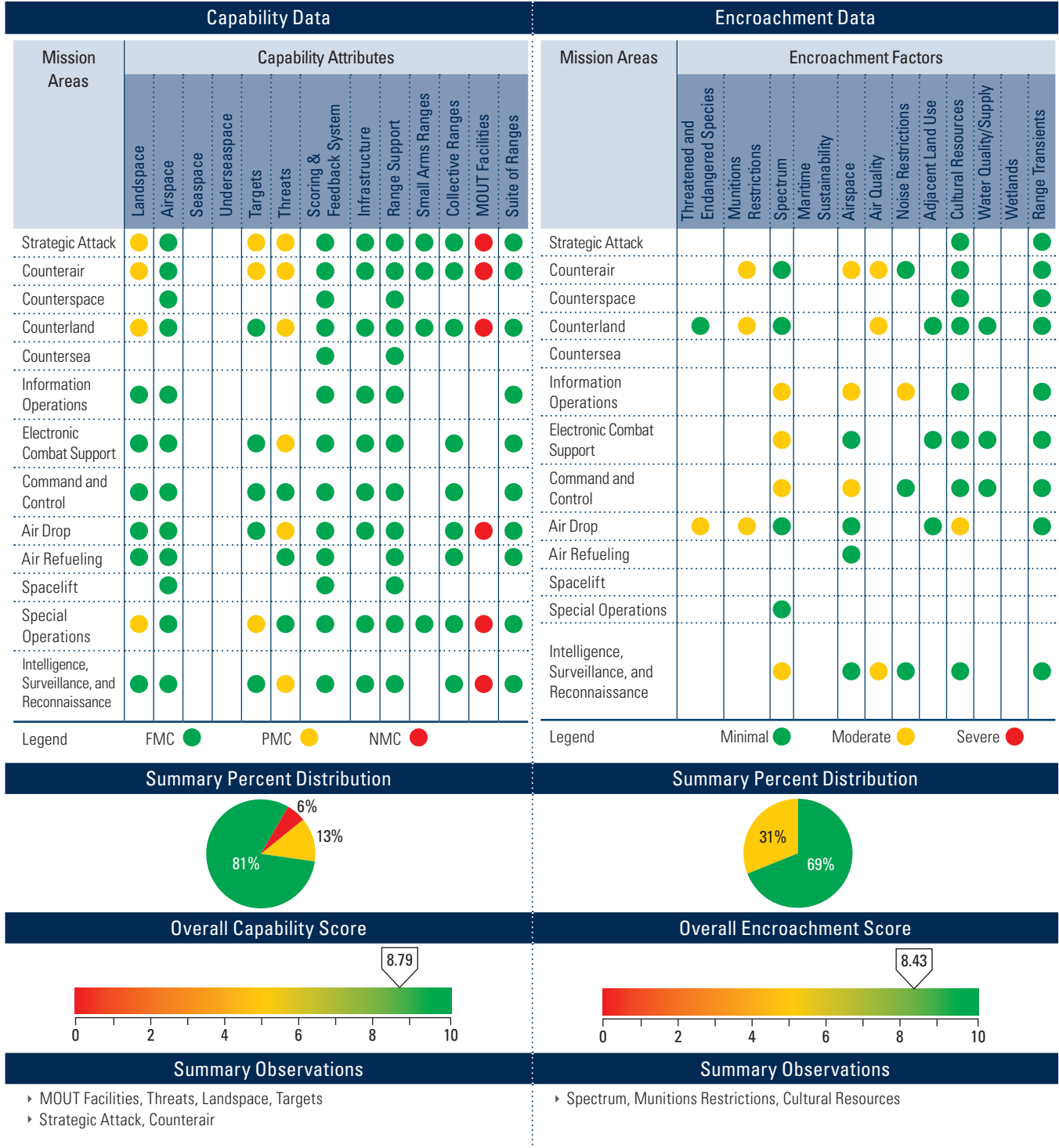


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Edwards Training Range

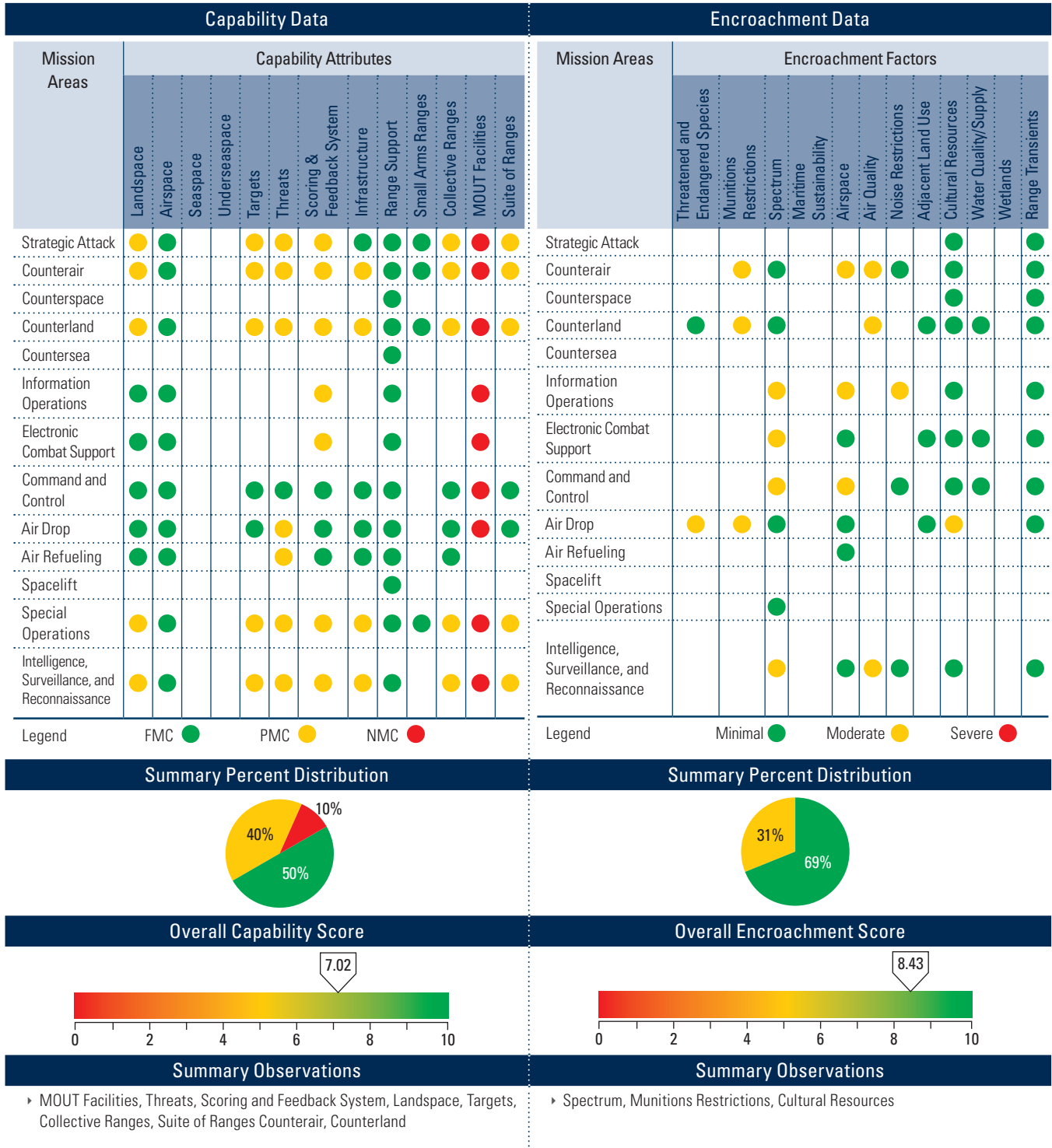


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Eglin

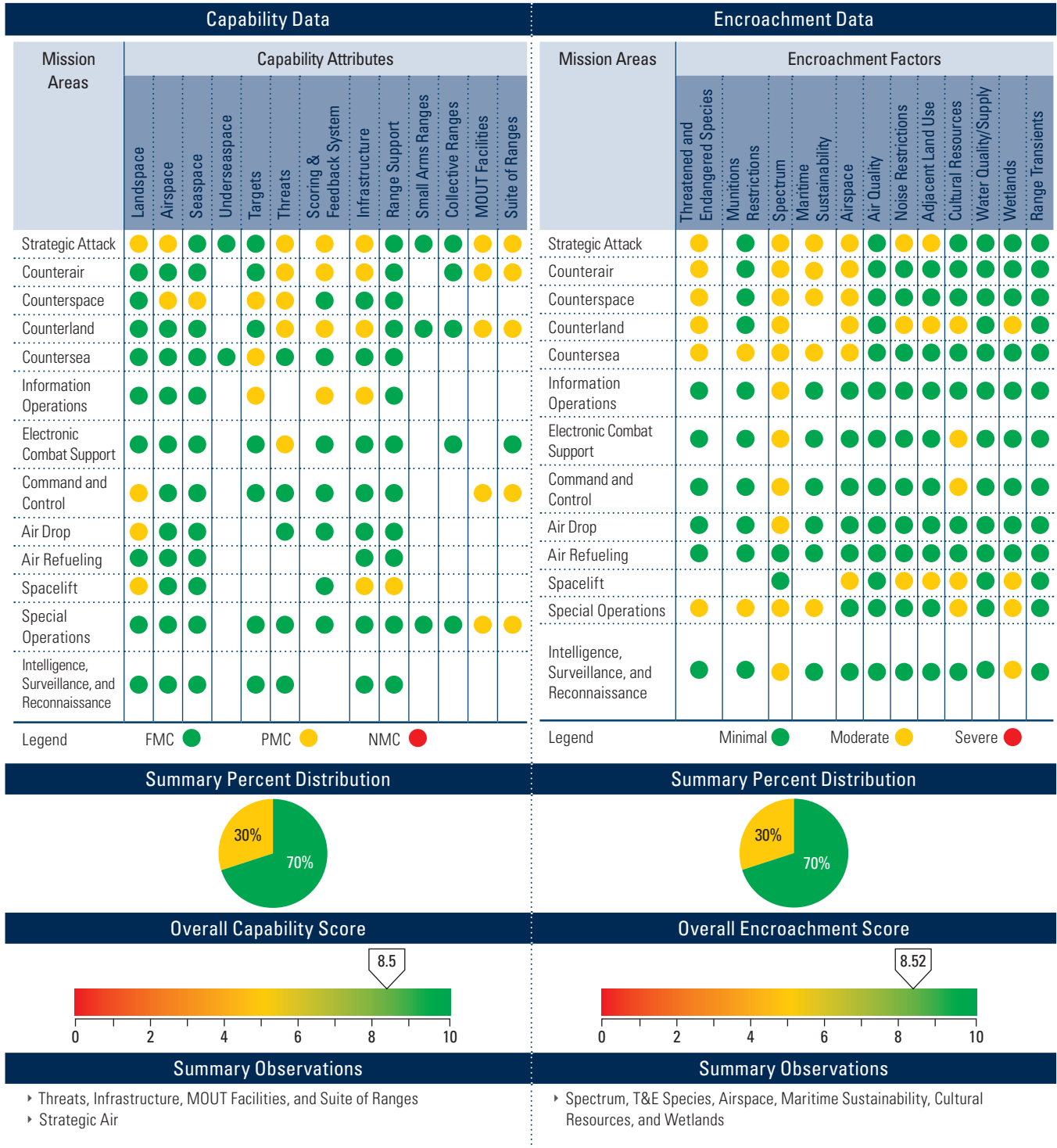


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Falcon



Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Grand Bay

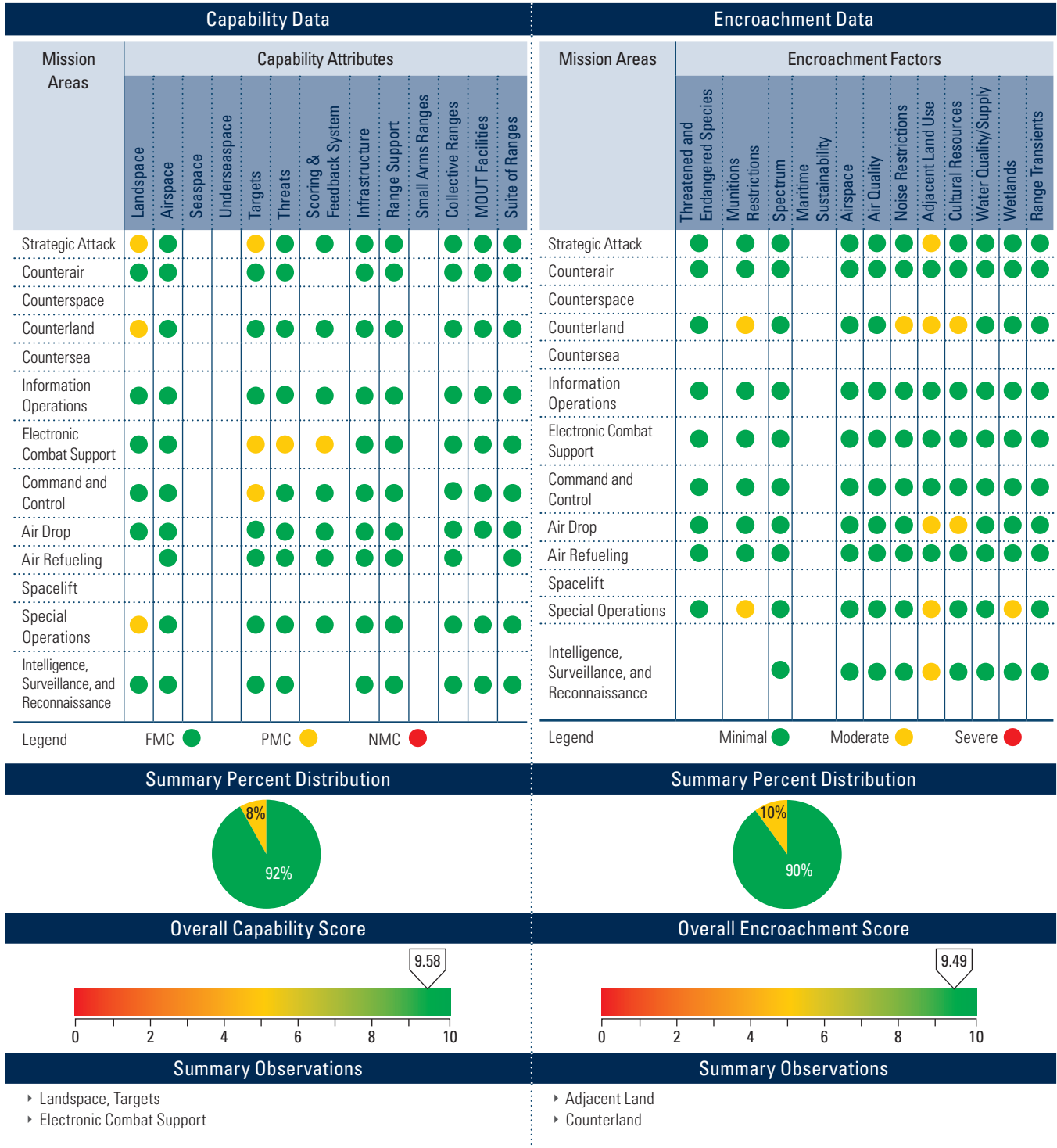


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Grayling

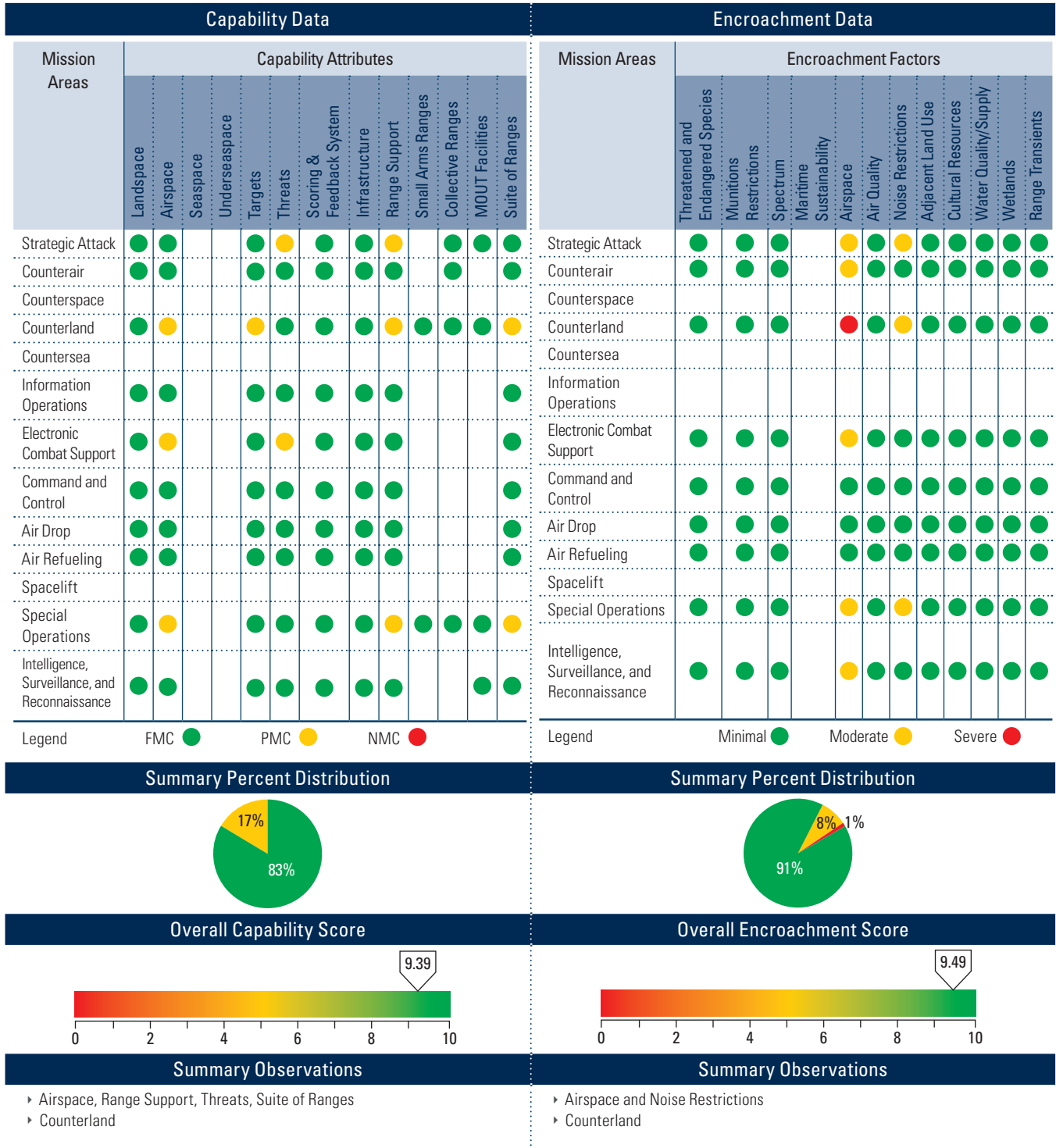


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Hardwood

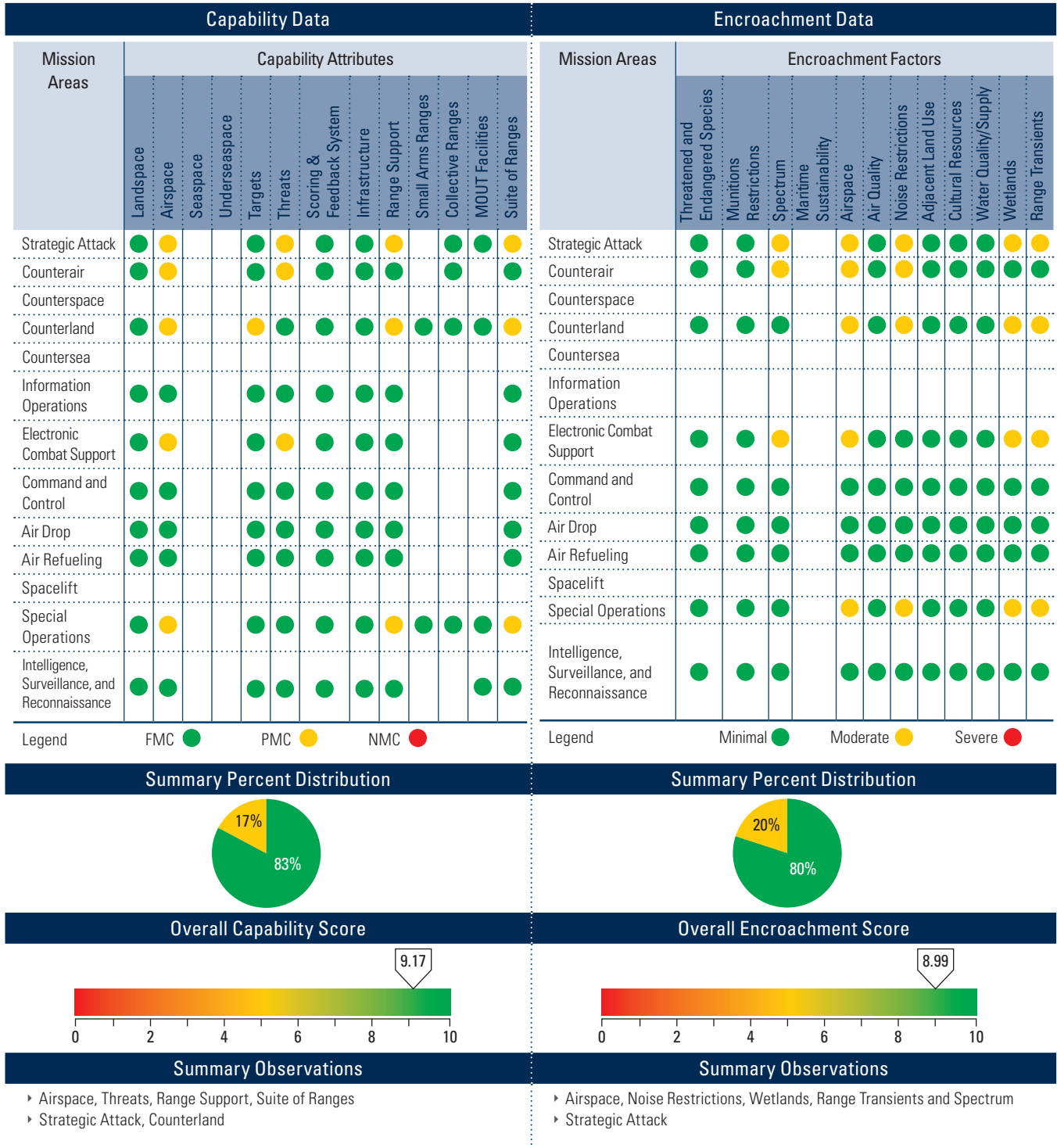


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Holloman

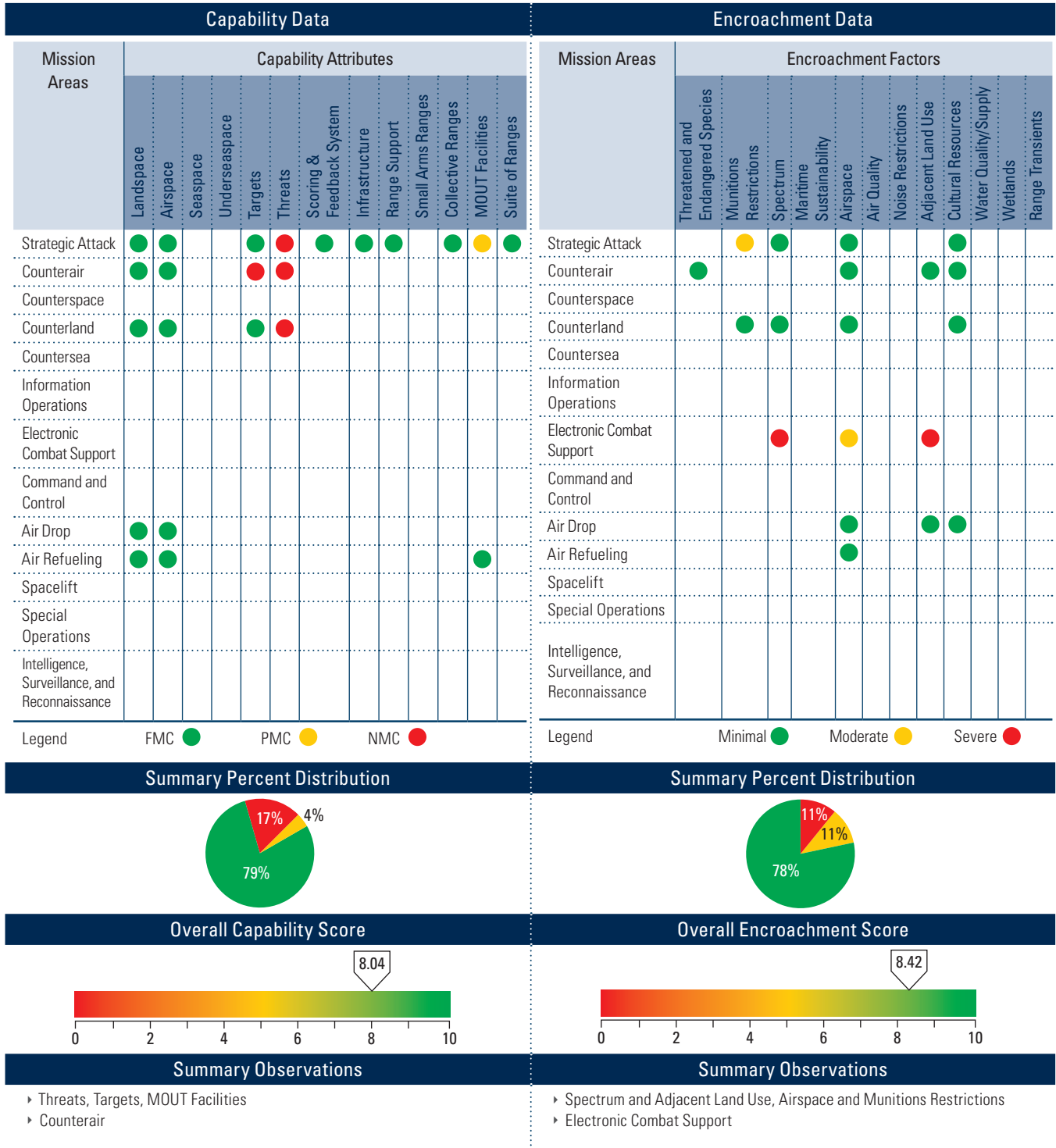


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Jefferson

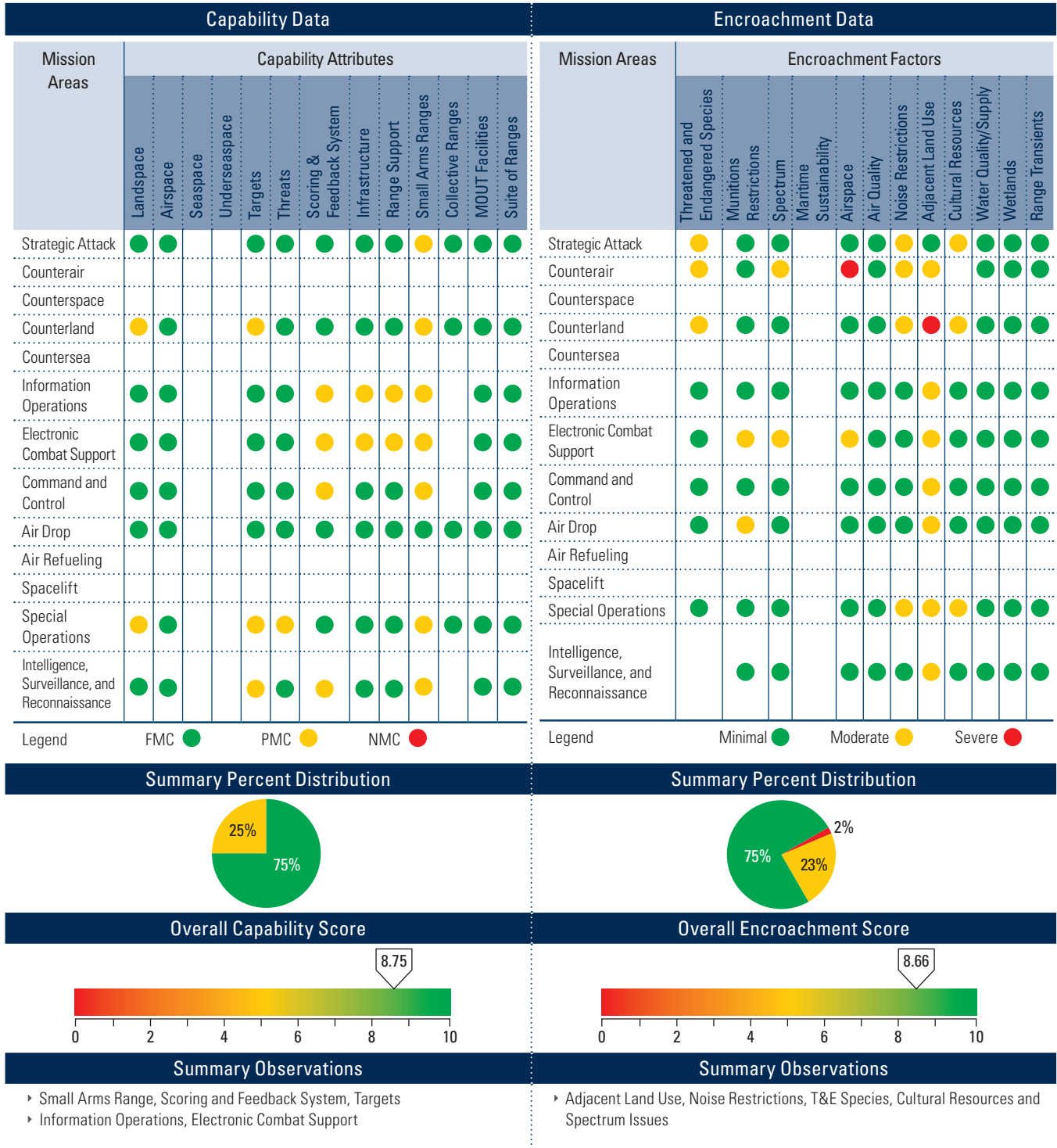


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: McMullen

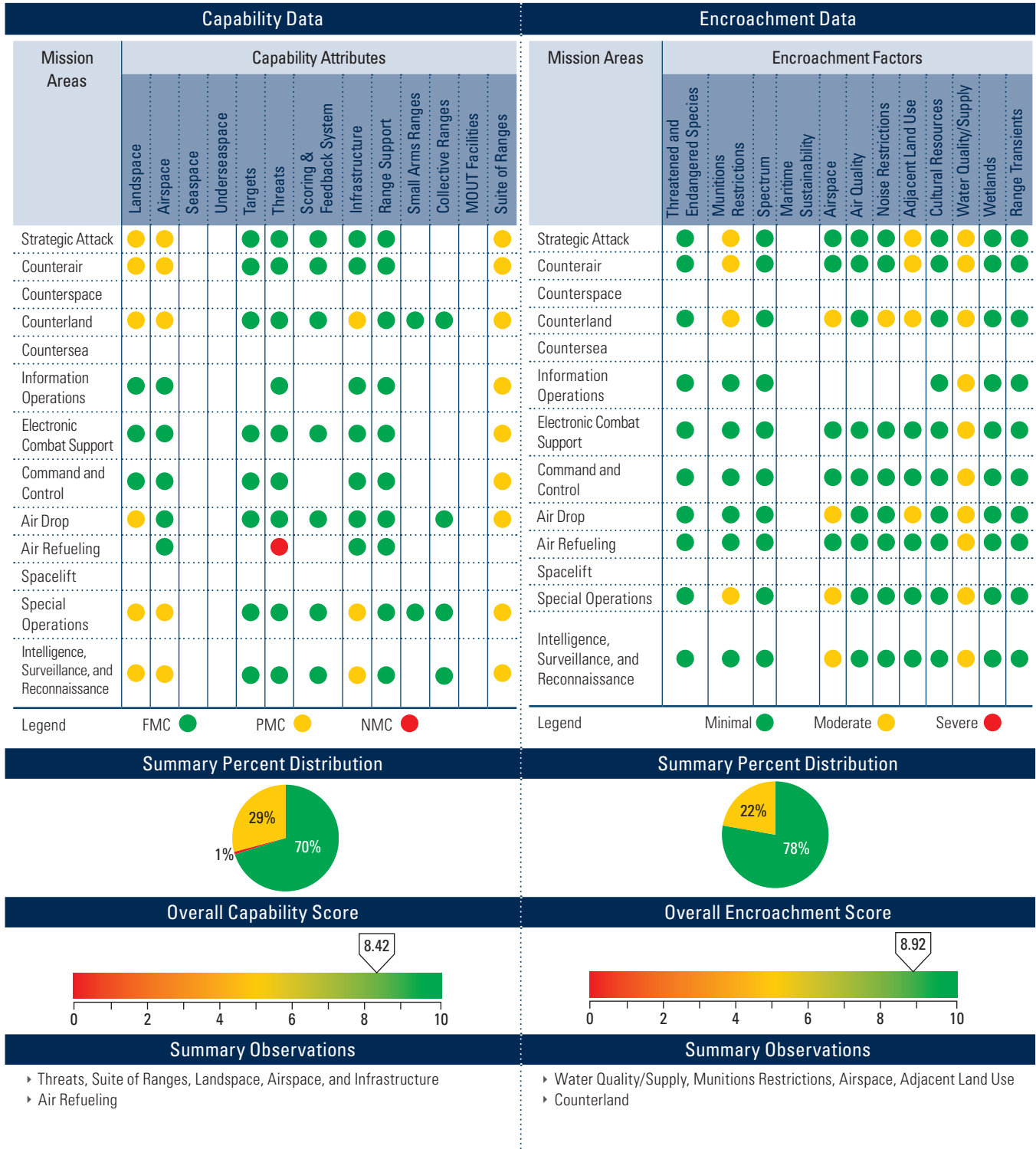


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Melrose

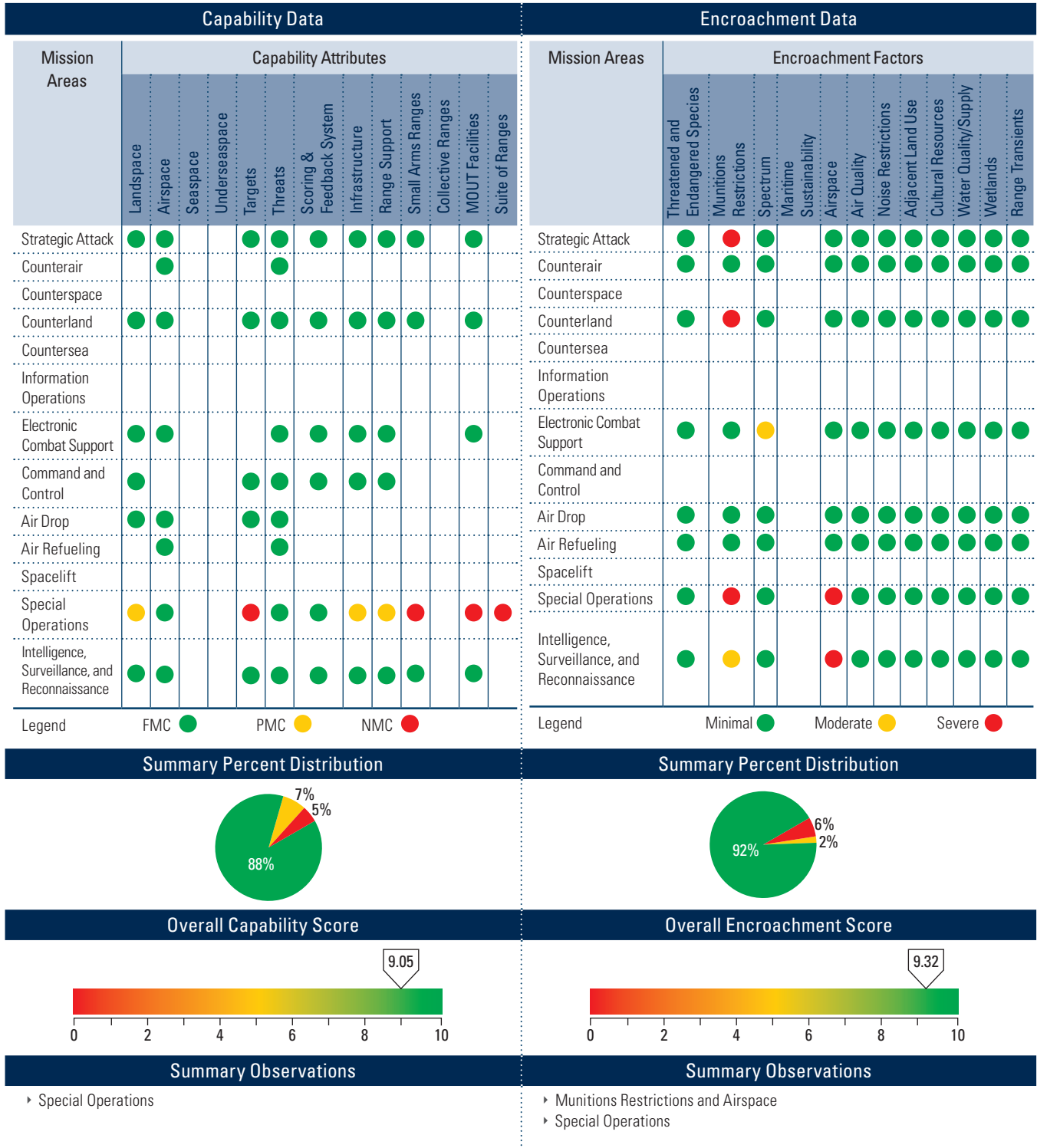


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Mountain Home

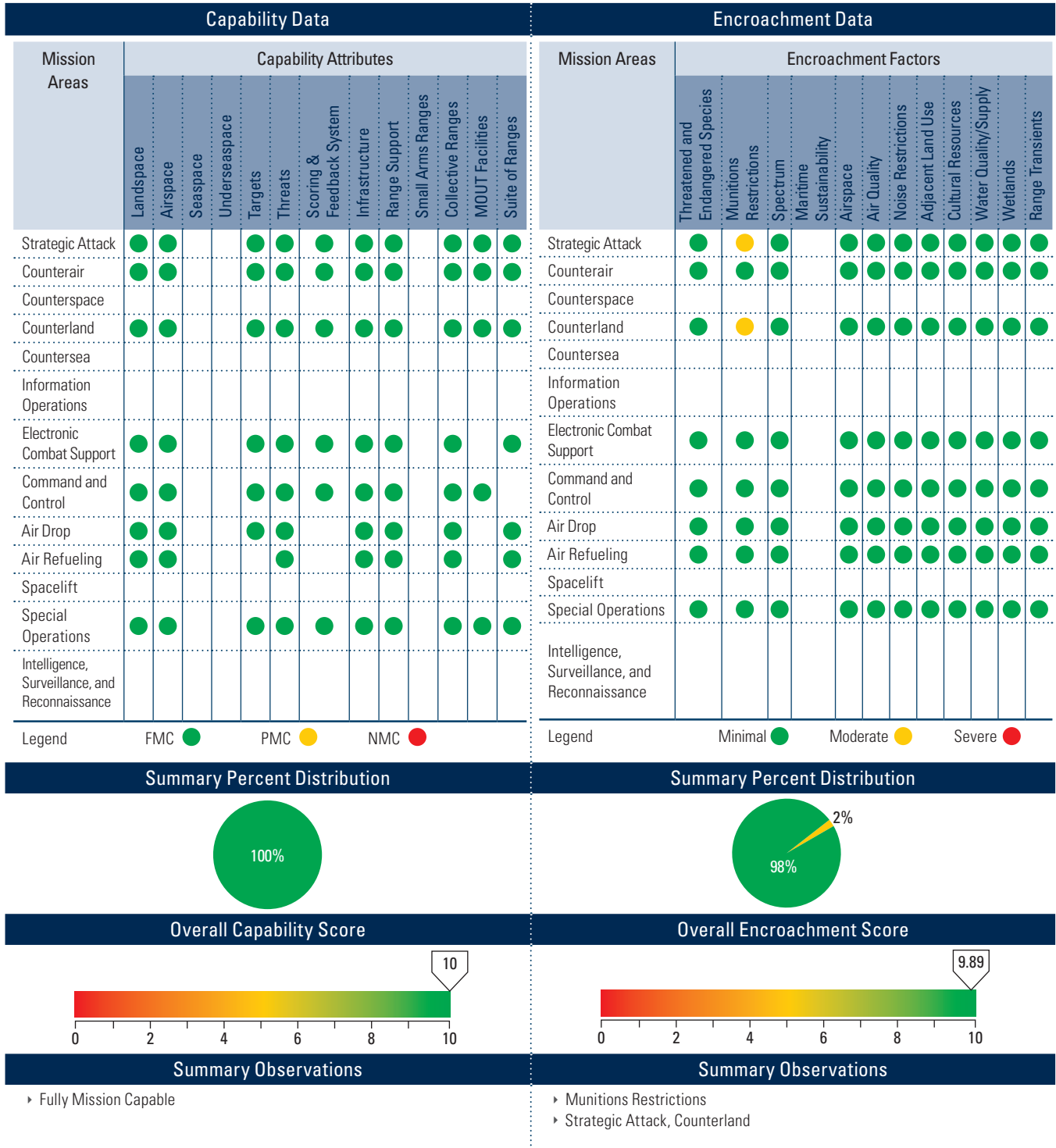


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Nevada Test and Training Range

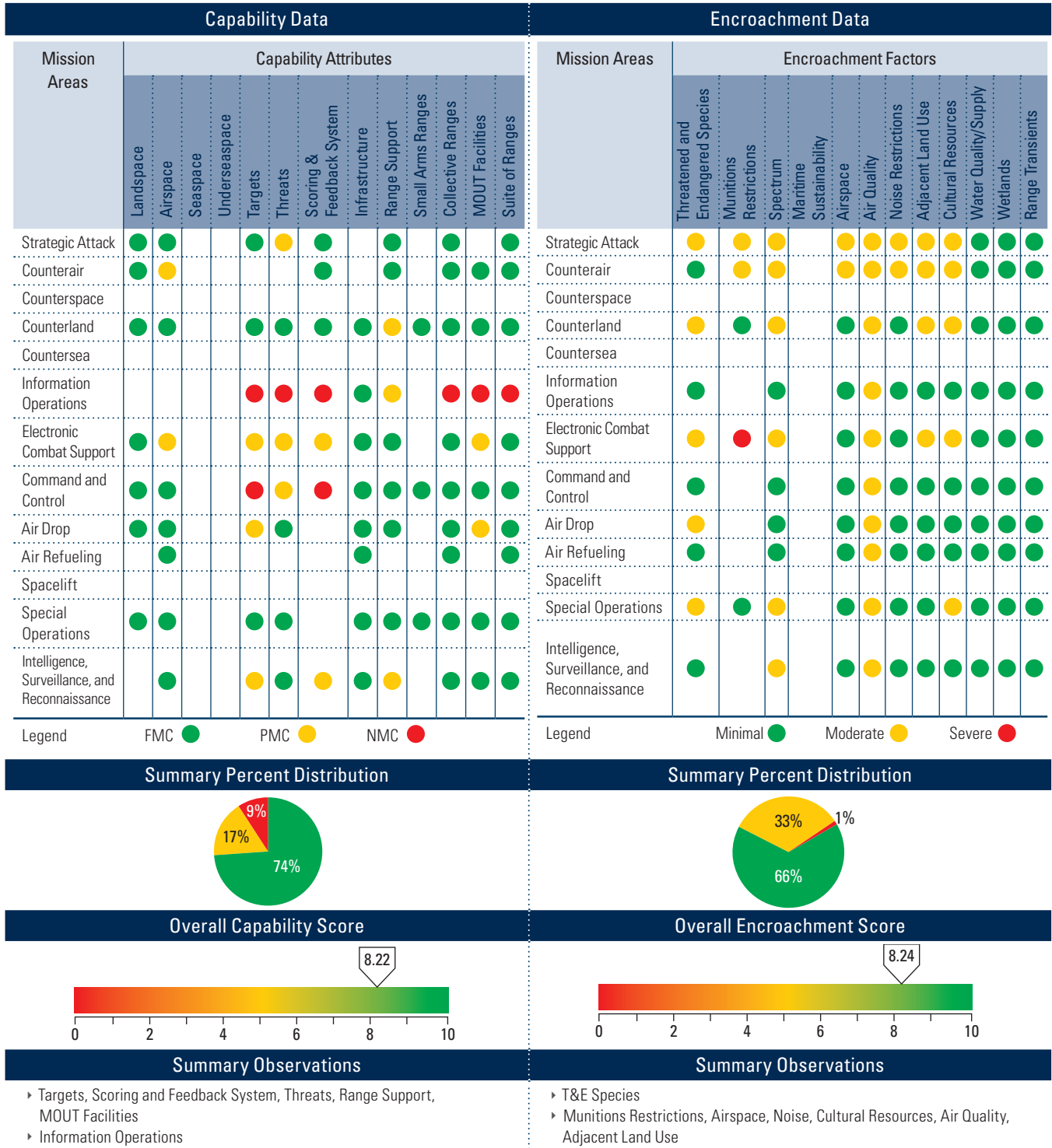


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Oklahoma

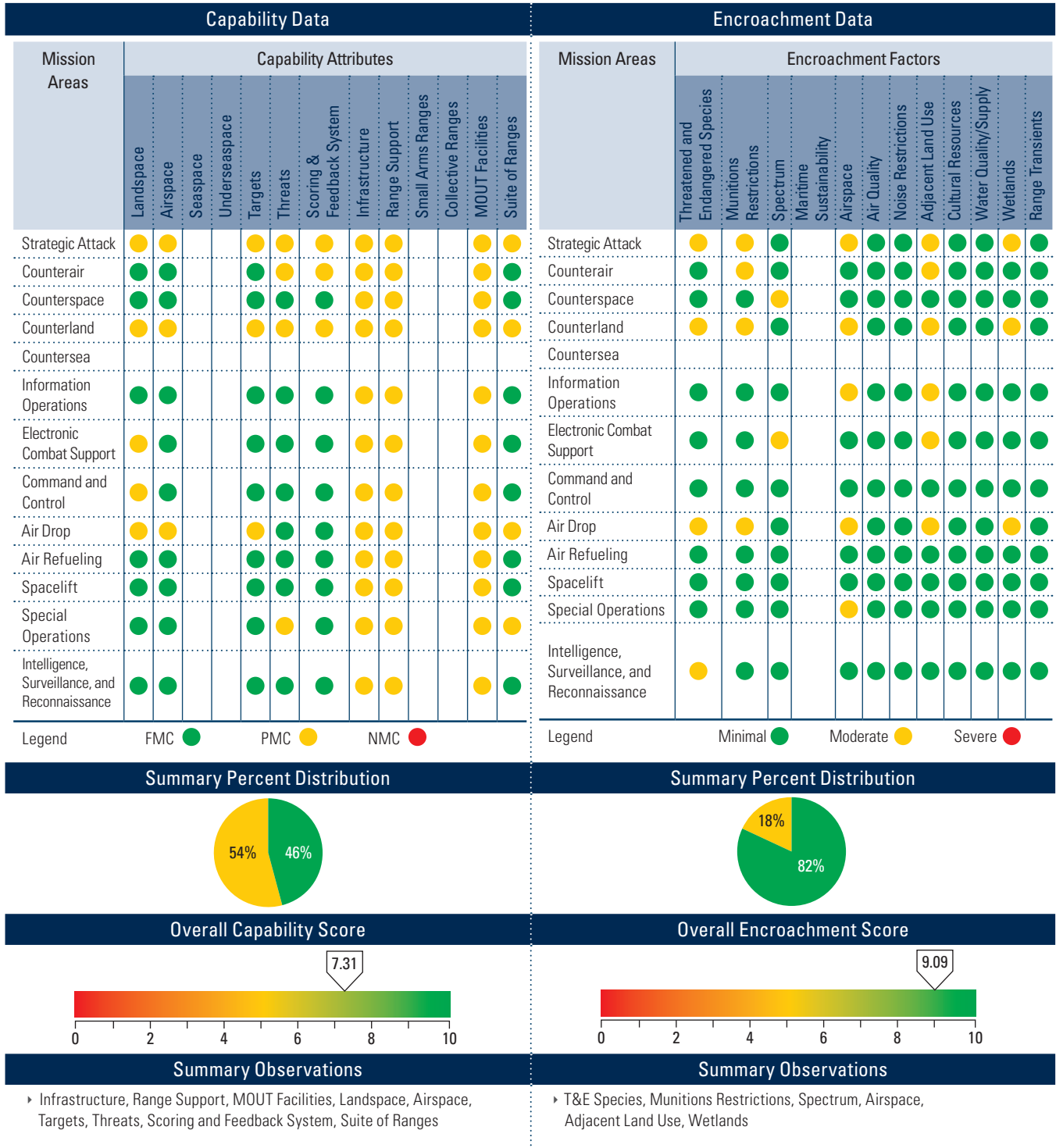


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Pilsung

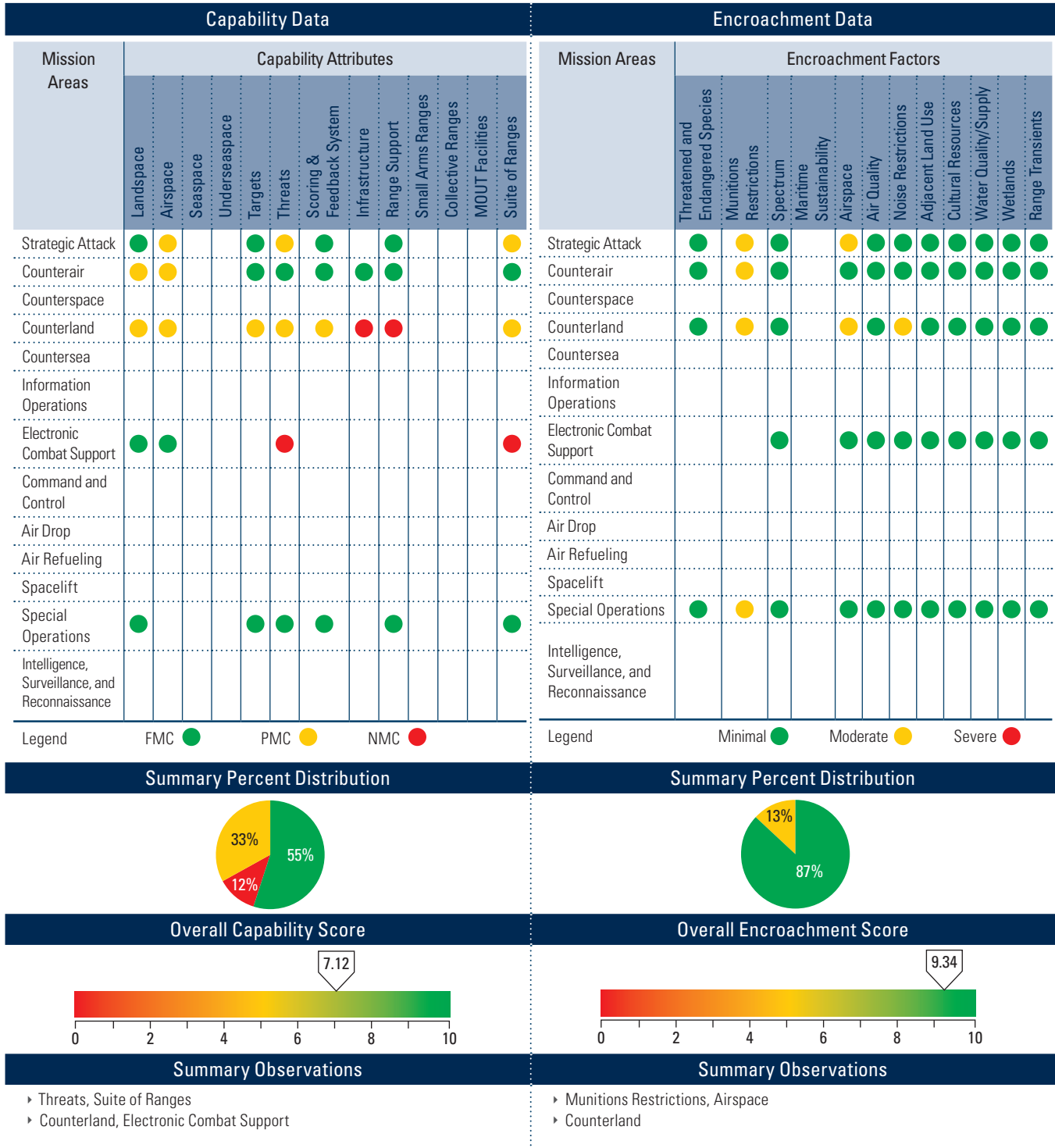


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Poinsett

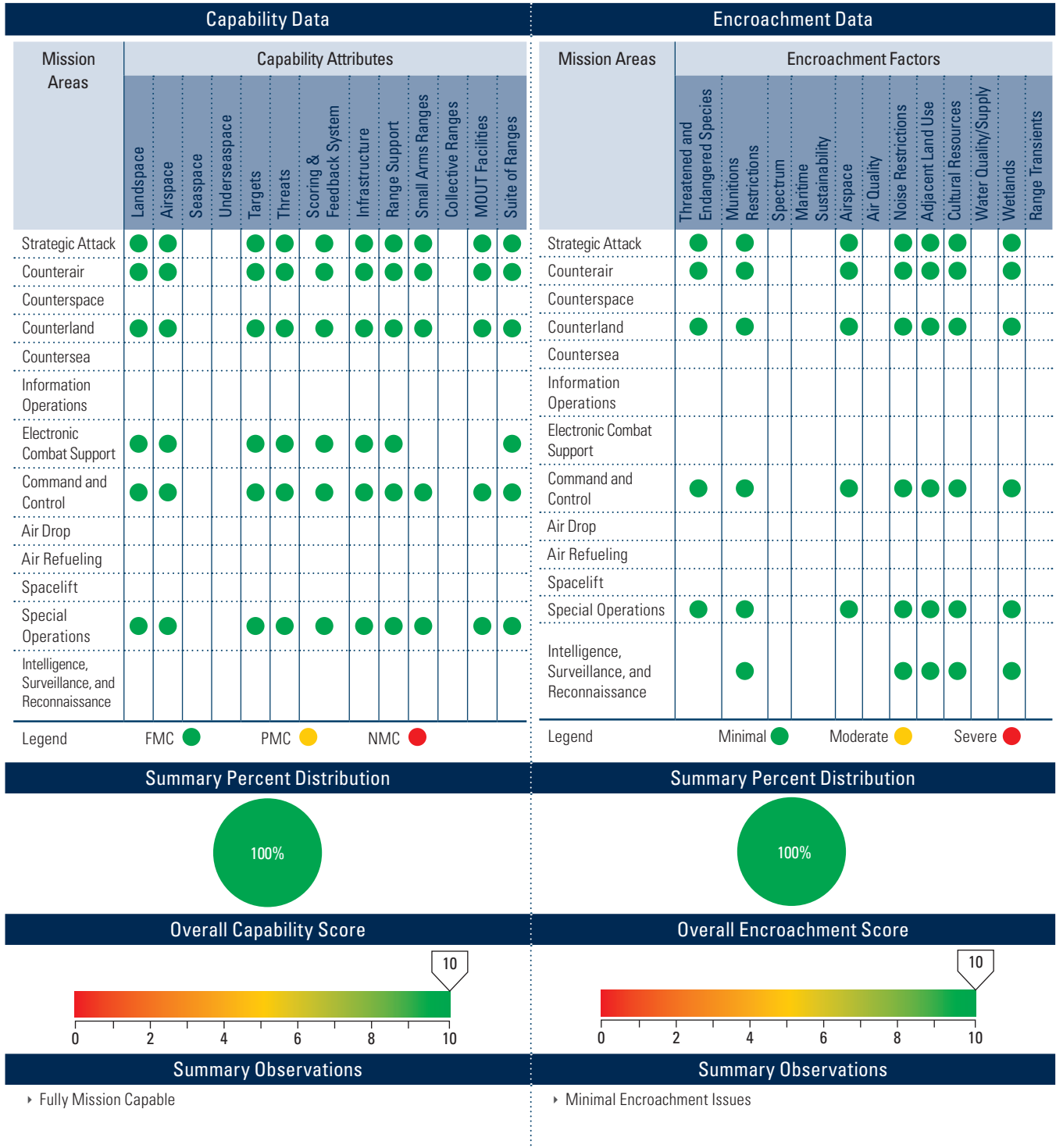


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Polygone

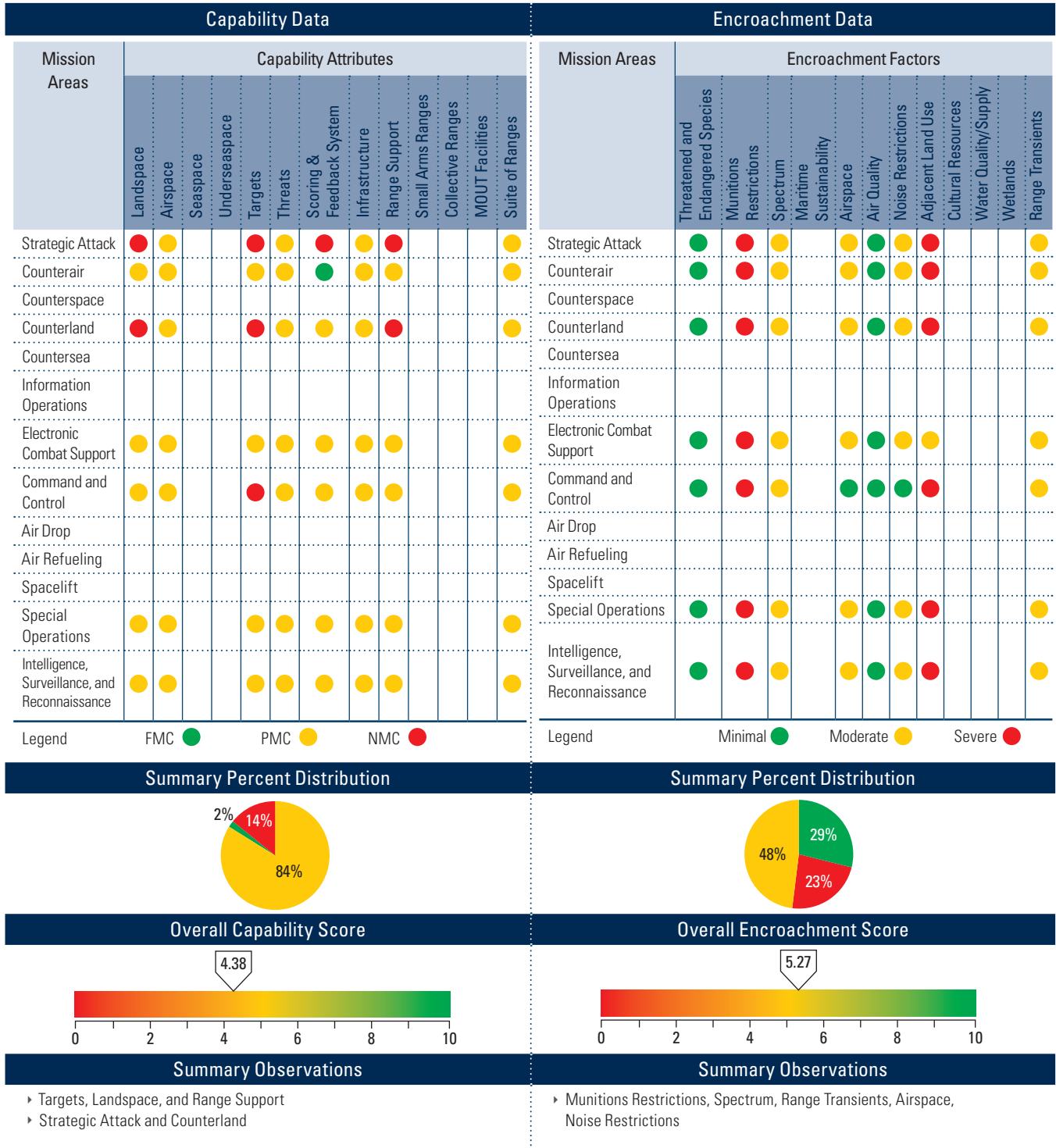


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Razorback

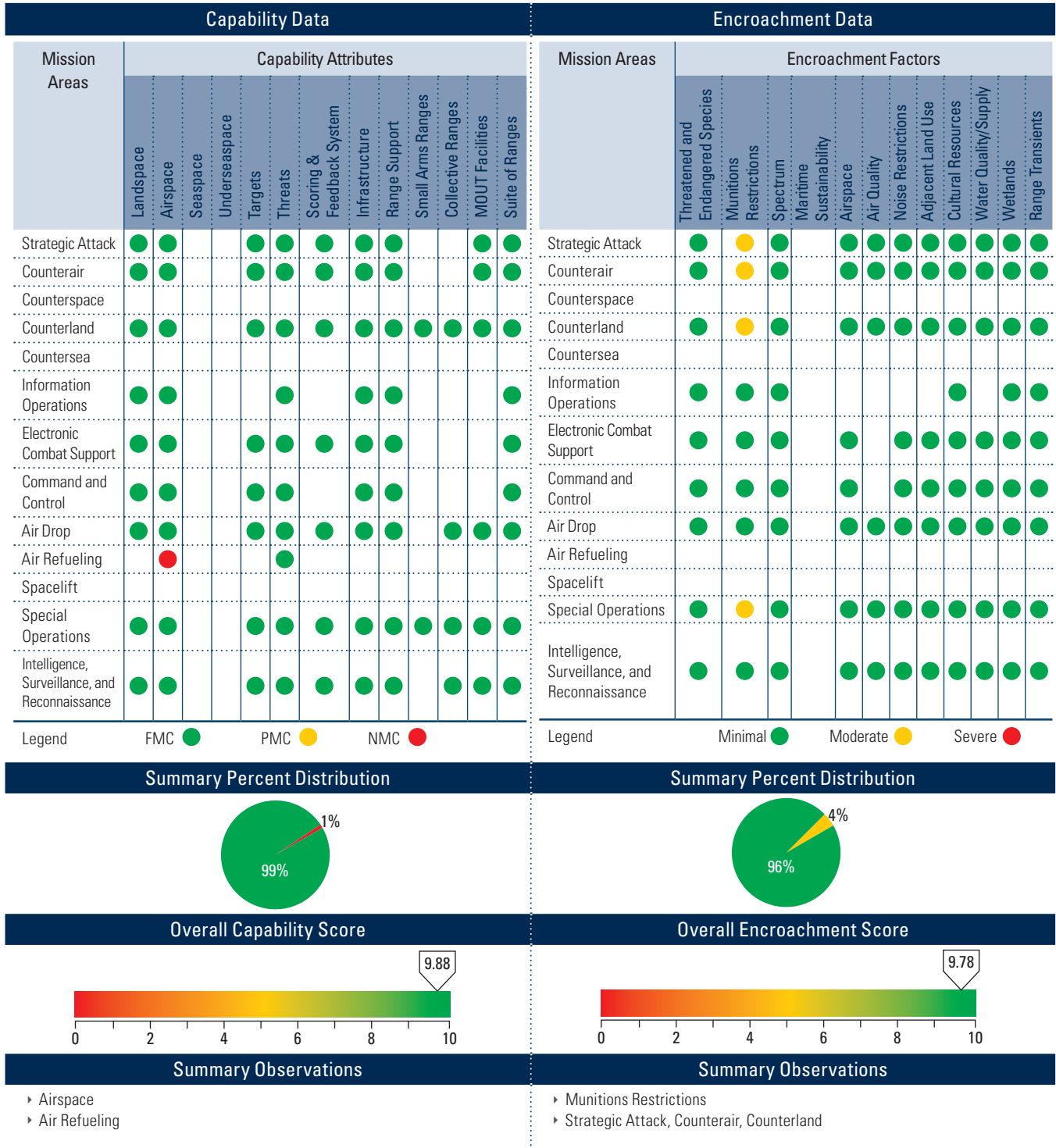


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Shelby Gulfport

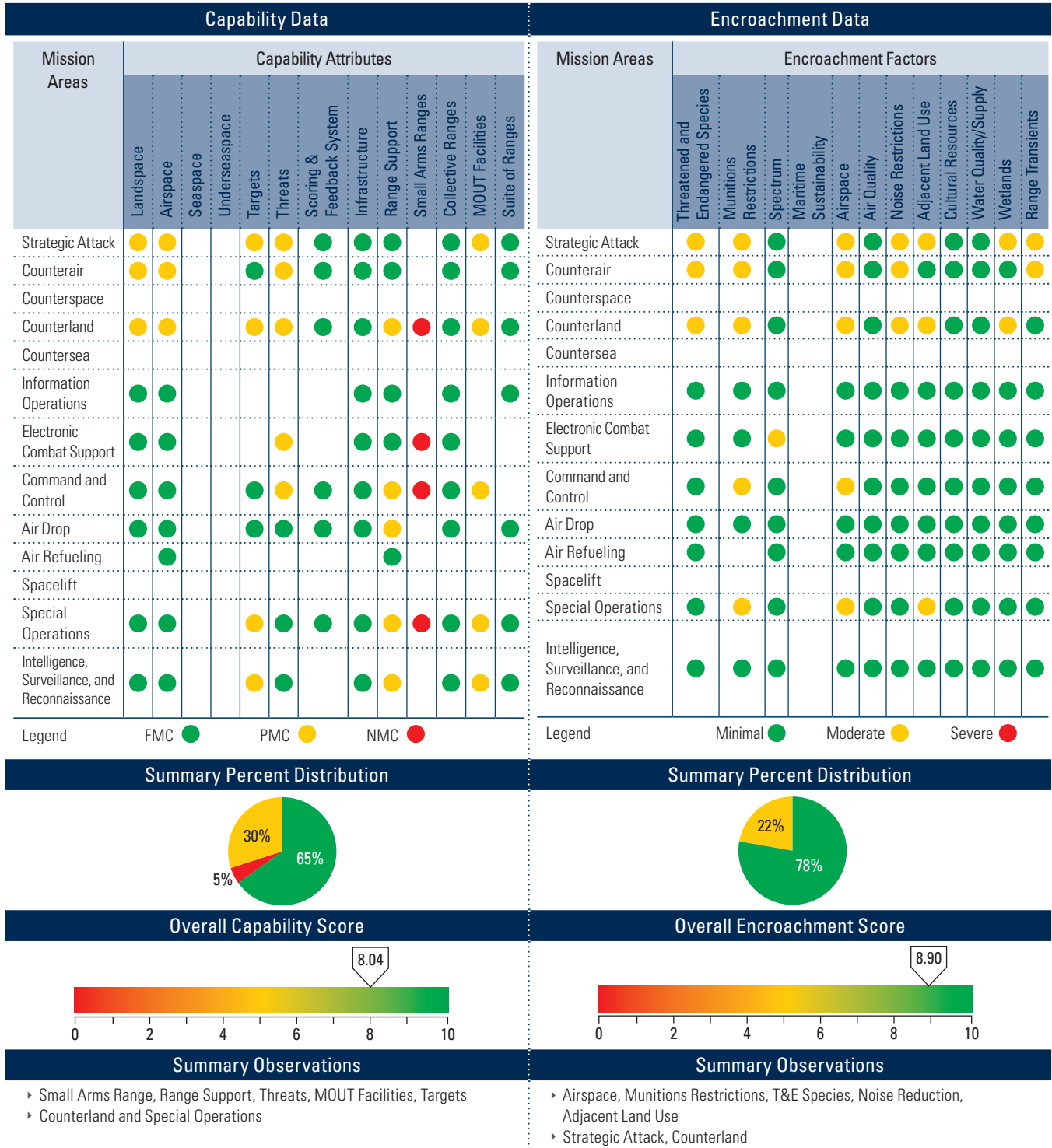


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Siegenburg

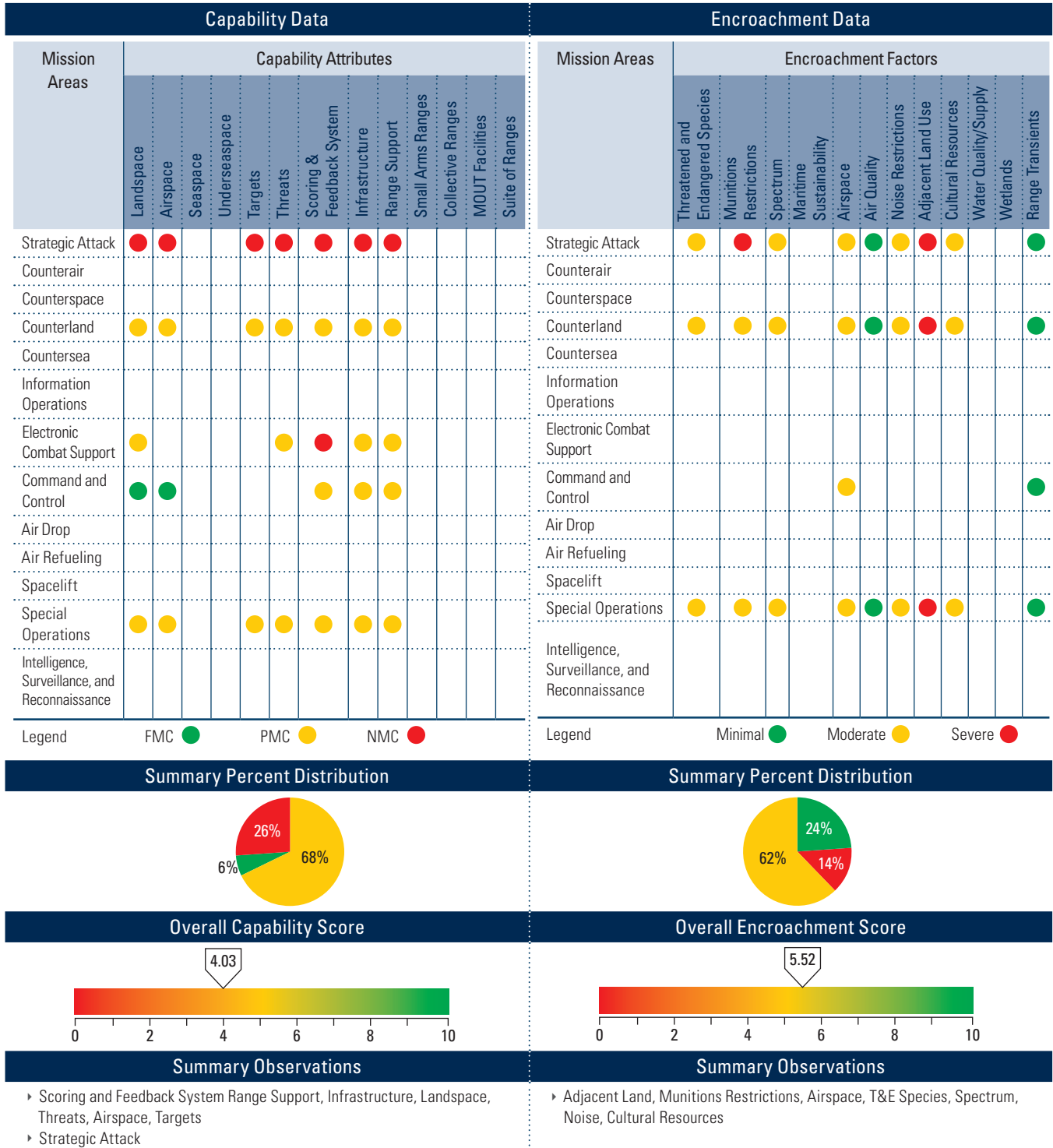


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Smokey Hill

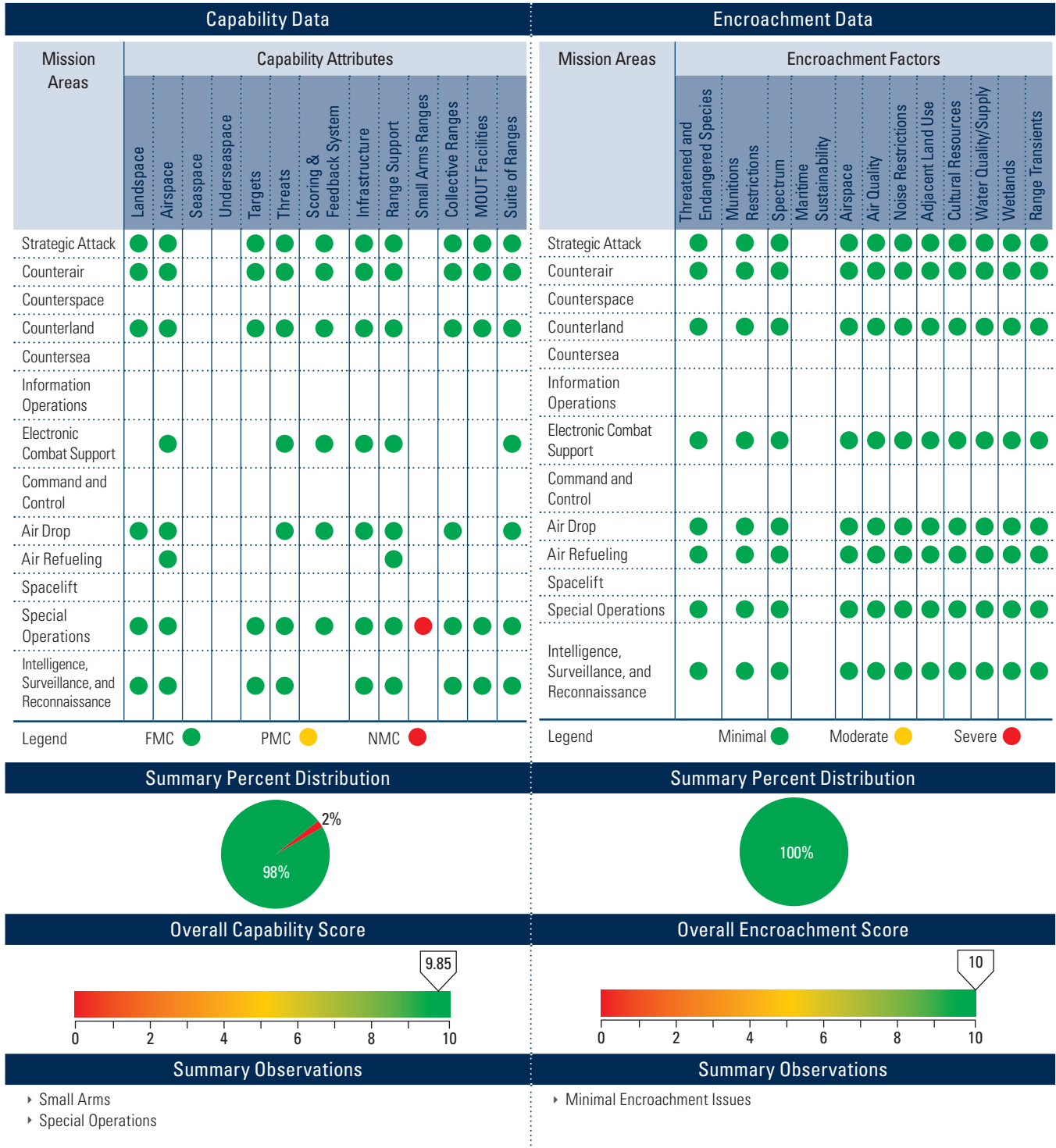


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Tori Shima



Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Townsend

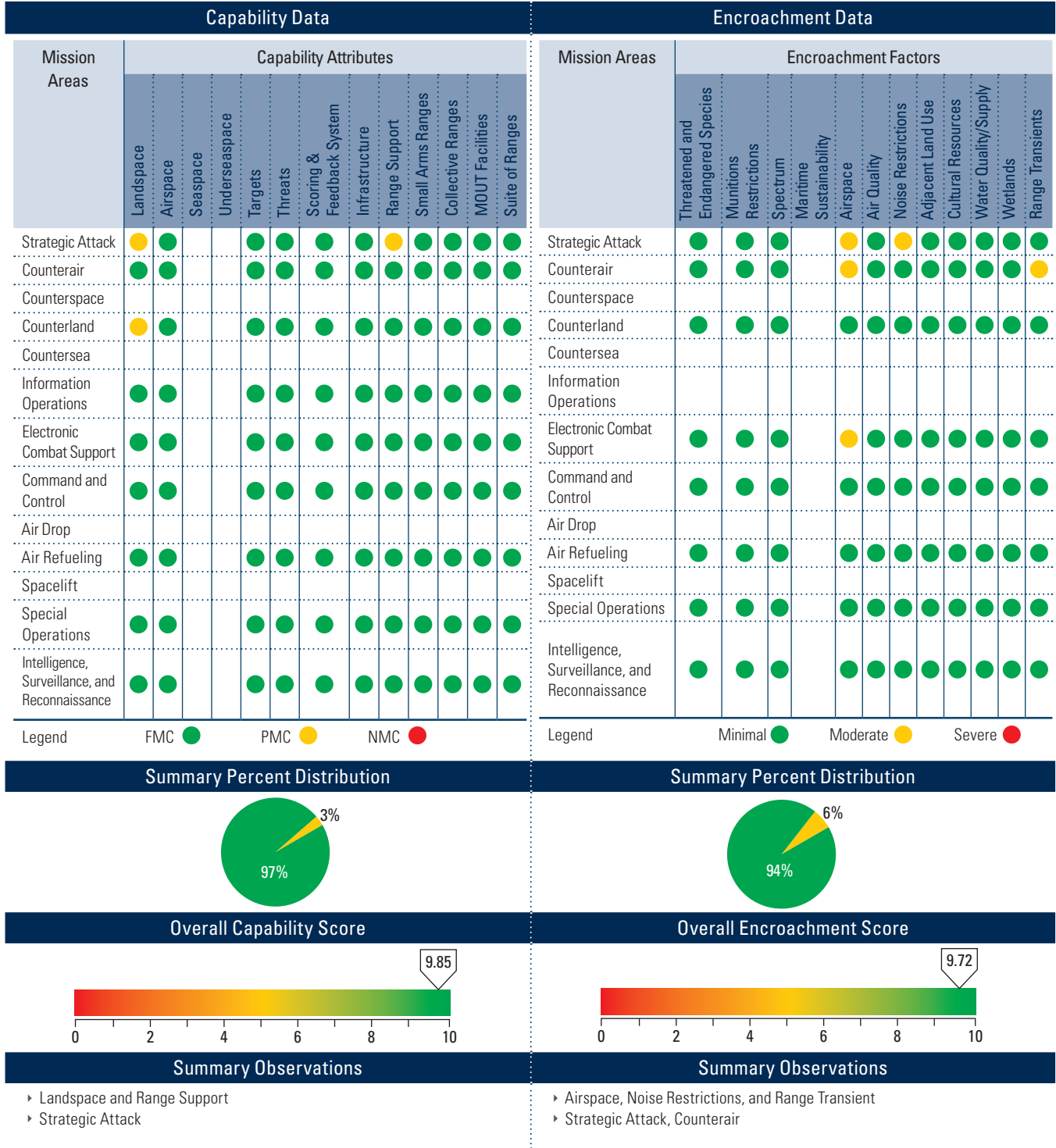


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Utah Test and Training Range

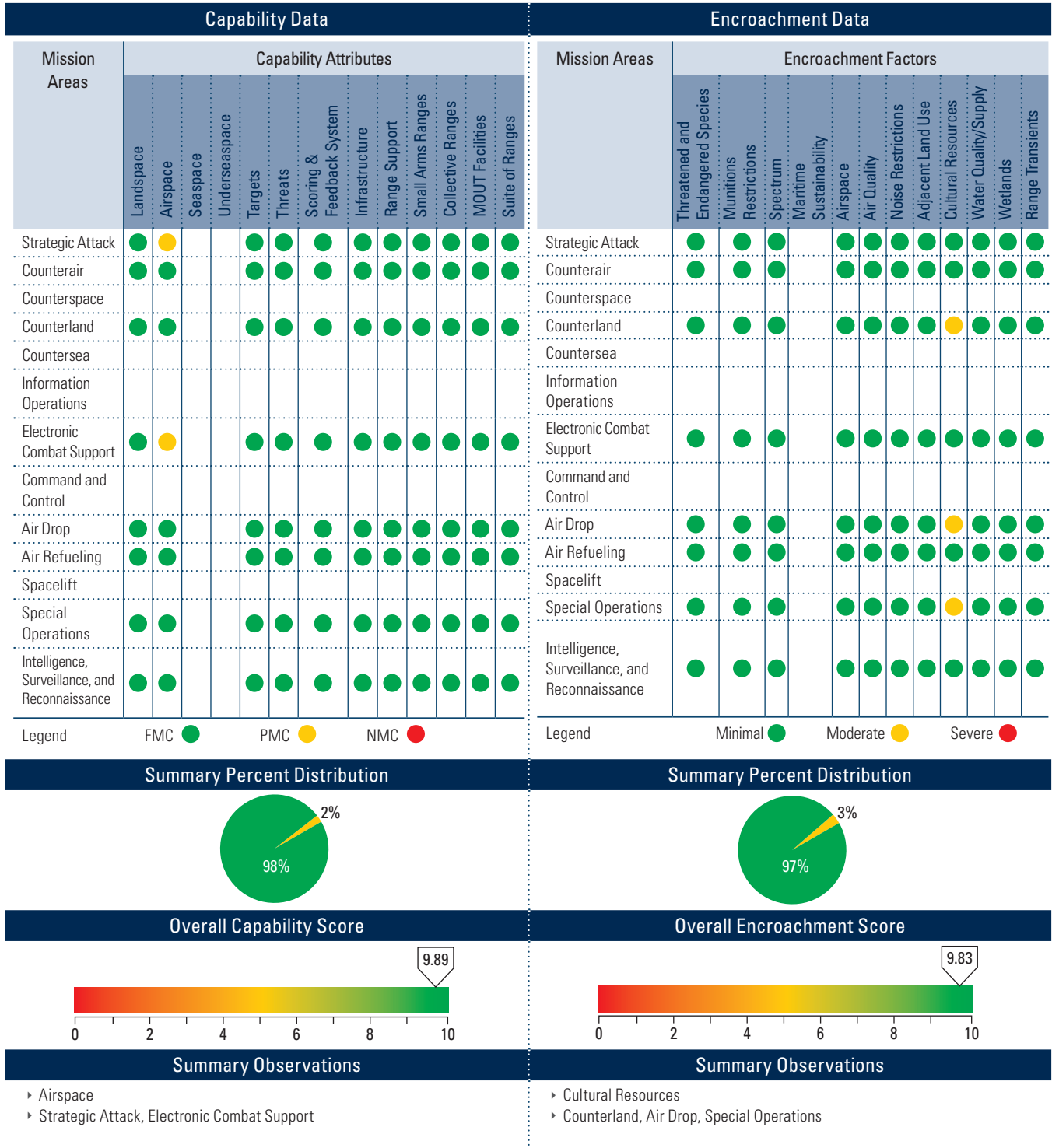


Figure 3-15 Air Force Capability and Encroachment Assessment Detail (Continued)

Air Force Range: Yukon

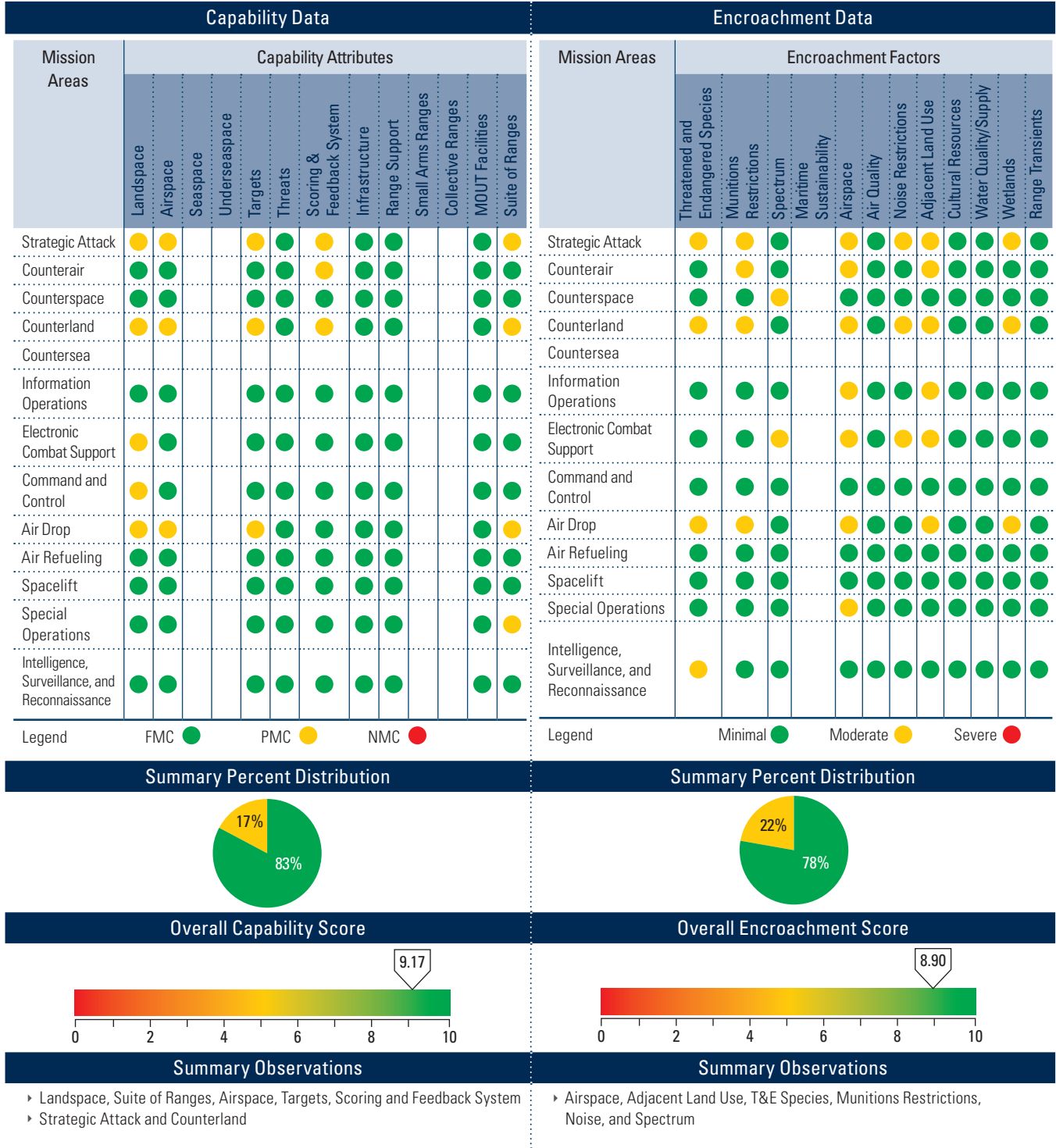


Table 3-15 Air Force Range Capability and Encroachment Assessment Comparison

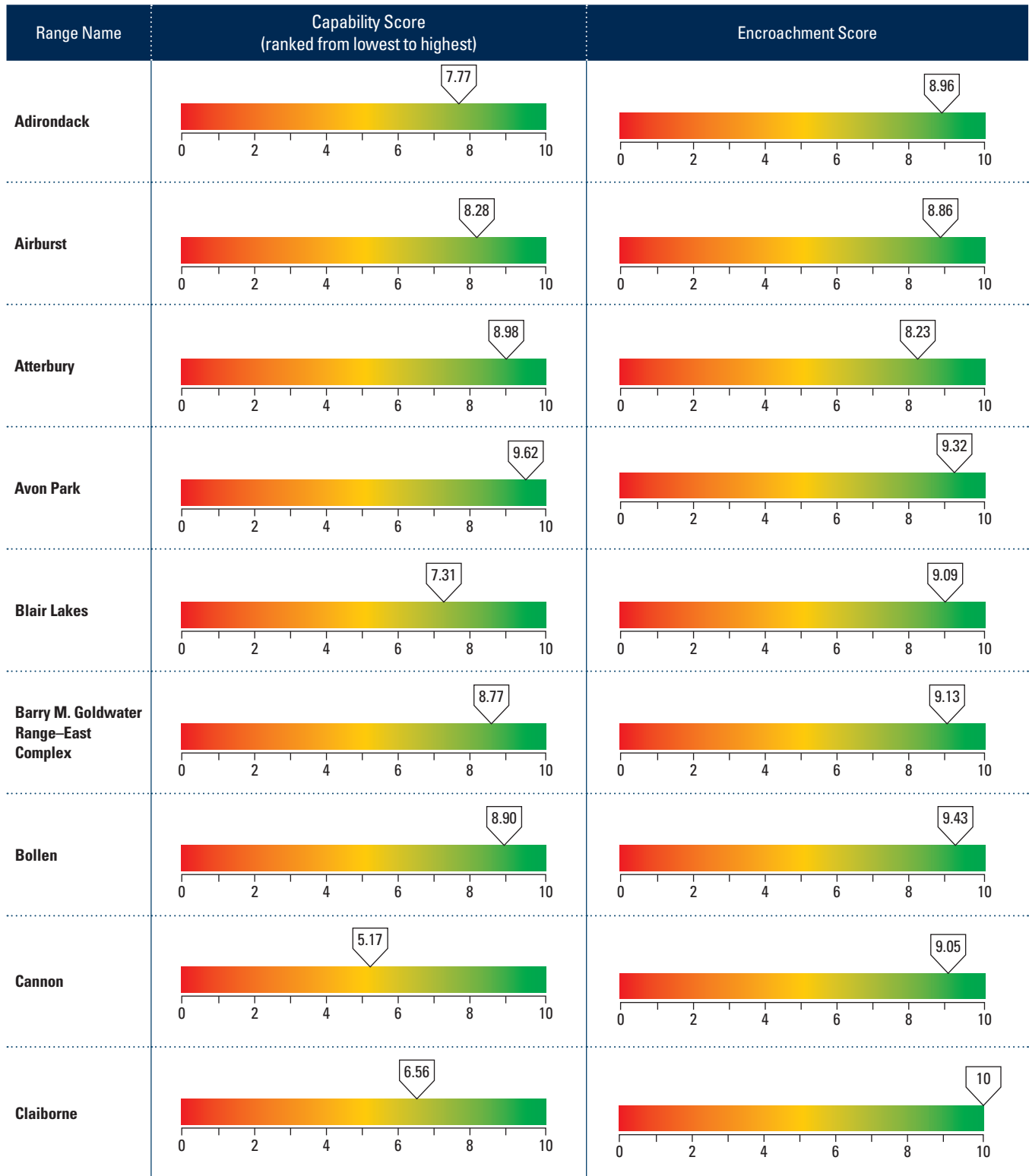


Table 3-15 Air Force Range Capability and Encroachment Assessment Comparison (Continued)

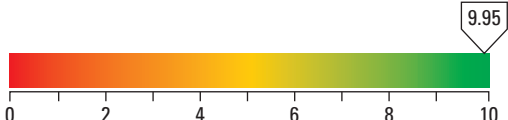
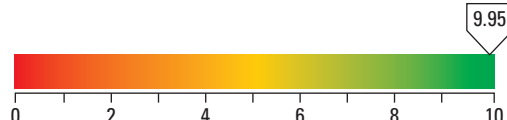
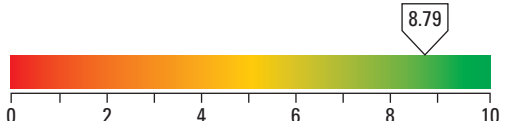
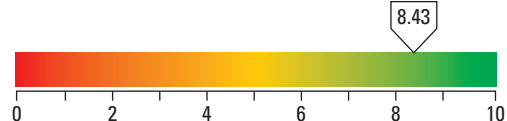
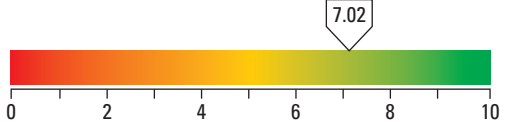
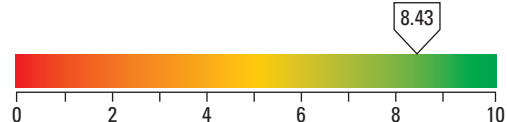
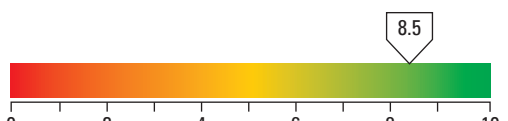
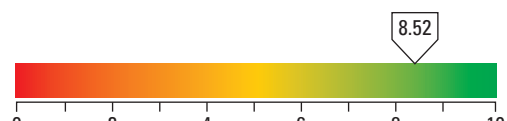
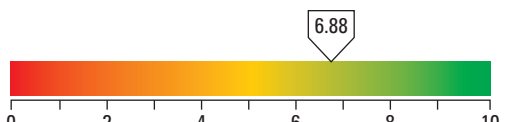
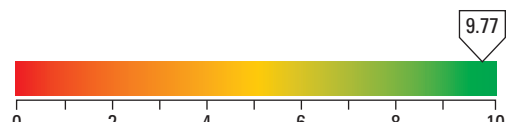
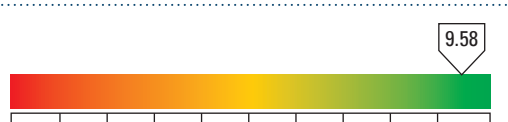
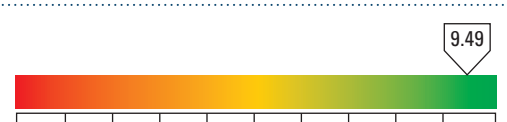
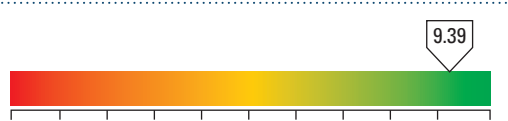
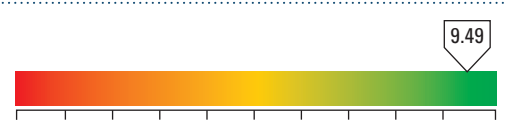
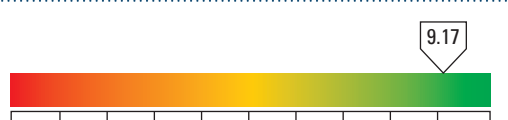
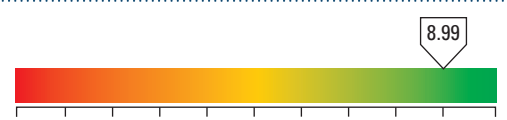
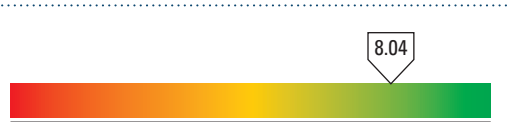
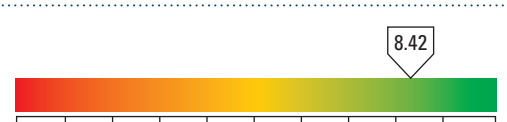
Range Name	Capability Score (ranked from lowest to highest)	Encroachment Score
Dare County		
Edwards (Test Range)		
Edwards (Training Range)		
Eglin		
Falcon		
Grand Bay		
Grayling		
Hardwood		
Holloman (Oscura, Red Rio and Centennial)		

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

Range Name	Capability Score (ranked from lowest to highest)	Encroachment Score
Jefferson	<p>A horizontal bar chart showing a score of 8.75 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 8.75.</p>	<p>A horizontal bar chart showing a score of 8.66 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 8.66.</p>
McMullen	<p>A horizontal bar chart showing a score of 8.42 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 8.42.</p>	<p>A horizontal bar chart showing a score of 8.92 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 8.92.</p>
Melrose	<p>A horizontal bar chart showing a score of 9.05 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 9.05.</p>	<p>A horizontal bar chart showing a score of 9.32 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 9.32.</p>
Mountain Home	<p>A horizontal bar chart showing a score of 10 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 10.</p>	<p>A horizontal bar chart showing a score of 9.89 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 9.89.</p>
Nevada Test and Training Range (NTTR)	<p>A horizontal bar chart showing a score of 8.22 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 8.22.</p>	<p>A horizontal bar chart showing a score of 8.24 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 8.24.</p>
Oklahoma	<p>A horizontal bar chart showing a score of 7.31 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 7.31.</p>	<p>A horizontal bar chart showing a score of 9.09 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 9.09.</p>
Pilsung	<p>A horizontal bar chart showing a score of 7.12 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 7.12.</p>	<p>A horizontal bar chart showing a score of 9.34 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 9.34.</p>
Poinsett	<p>A horizontal bar chart showing a score of 10 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 10.</p>	<p>A horizontal bar chart showing a score of 10 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 10.</p>
Polygone	<p>A horizontal bar chart showing a score of 4.38 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 4.38.</p>	<p>A horizontal bar chart showing a score of 5.27 on a scale from 0 to 10. The bar is colored with a gradient from red (0) to green (10). A callout box above the bar indicates the score 5.27.</p>

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

Range Name	Capability Score (ranked from lowest to highest)	Encroachment Score
Razorback	<p>9.88</p>	<p>9.78</p>
Shelby Gulfport	<p>8.04</p>	<p>8.90</p>
Siegenburg	<p>4.03</p>	<p>5.52</p>
Smokey Hill	<p>9.85</p>	<p>10</p>
Tori Shima	<p>2</p>	<p>7.5</p>
Townsend	<p>9.85</p>	<p>9.72</p>
Utah Test and Training Range	<p>9.89</p>	<p>9.83</p>
Yukon	<p>9.17</p>	<p>8.90</p>

3.3 Summary and Conclusion

With the establishment of this baseline data, it is expected that DoD and Services will be able 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 Service mission areas will allow the OSD and the 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 Sustainable Ranges Initiative (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. 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, and non-governmental organizations (NGOs). DoD also sought limited relief from Congress in a package of focused legislative and regulatory initiatives included in fiscal year defense authorization proposals.

The SRI provides a flexible and adaptive planning framework that guides continuing, cooperative and coordinated range sustainment efforts between DoD and the 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 the supporting ranges and installations. This broad-based framework supports:

- ▶ Individual and joint range requirements and needs of DoD and the Services
- ▶ Identification of 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
- ▶ Initiation of legislative, regulatory and outreach program activities as required.

This chapter of the FY09 Sustainable Ranges Report addresses FY03 NDAA Sections 366(a)(4)(c) and FY04 320(a) (2-3) requirements to report on such initiatives.

4.1 Management Structure

DoD and the Services have key roles to play in the implementing the SRI in order to create a comprehensive approach to training range sustainability. Those roles, framed in large part by the requirements of Title X, are described in Sections 4.1.1 and 4.1.2.

4.1.1 Department of Defense

The Office of the Under Secretary of Defense for Personnel and Readiness (OUSD [P&R]) has lead responsibility for developing and overseeing implementation of DoD's comprehensive training range sustainment plan. To ensure consideration of the full spectrum of readiness issues, OUSD(P&R) works with the 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.⁸

The Sustainable Ranges 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 WIPT, co-chaired by the Office of the Deputy Under Secretary of Defense for Readiness (DUSD[R]), the Office of the Deputy Under Secretary of Defense for Installations and Environment (DUSD [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 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 Services implement most SRI initiatives. Each Service has one or more headquarters-level offices responsible for overseeing the development and operational implementation of Service-specific range sustainment policies and programs. Table 4-5 Offices Responsible for Training Ranges within OSD and the Military Departments lists the responsible DoD and Service offices.

4.2 Goals, Actions, and Milestones

In 2005, the DoD Sustainable Ranges WIPT established an initial set of shared goals and milestones in four areas which guide preliminary range sustainability activities through FY2011. A common framework of goals and their related milestones enables DoD and the Services to make meaningful comparisons and measurements of past performance and progress towards achieving their training and range sustainability objectives. In developing the DoD-wide framework, programmatic guidance and DoD Directives (DoDD) (*e.g.*, DoDD 3200.15, Sustainment of Ranges and Operating Areas) were used to derive the goals and milestones for use across the Services.⁹ The four critical range sustainment areas are as follows:

- ▶ Modernization and Investment
- ▶ Operations and Maintenance

- ▶ Environment
- ▶ Encroachment.

DoD and the Services have identified a number of activities to be undertaken in the 2008–2011 timeframe in pursuit of the milestones aligned with the goals in each area. Programmatic goals and milestones are reviewed and updated as necessary to ensure the SRI continues to effectively address training requirements, as well as constrains or limitations on the use of ranges that may arise in the future. The structure of the areas, goals and milestones and the current status of supporting DoD and Service activities are shown in Tables 4-1 through 4-4.

⁸ Guidance for Fiscal Years 2006–2011 Sustainable Ranges Programs, memorandum from the Under Secretary of Defense for Personnel and Readiness, 26 June 2003.

⁹ Department of Defense Directive 5149.02, Senior Readiness Oversight Council, 23 July 2002.

4.2.1 Modernization and Investment

Table 4-1 Modernization and Investment Actions and Milestones

Goal—Modernize range facilities to sustain range operations in accordance with OSD and Service training transformation strategies by resourcing advanced instrumentation and other infrastructure.

Milestones	Actions Taken to Achieve the Milestone
<p>OSD and U.S. Joint Forces Command (JSFCOM) establish global JNTC infrastructure requirements</p> <p>As part of the JNTC concept, site and systems will be required to create a realistic joint environment for training/mission rehearsals of joint tasks. These sites and systems will require certification of their capability to support their joint training role. Certification of sites and systems will be event independent and ensure the technical infrastructure is capable of supporting the selected event with the evolving standards and architectures.</p>	<p>Army No actions cited in this area Update—No changes from last report.</p> <p>Marine Corps The Marine Air Warfare Training Squadron One at Marine Corps Air Station, Yuma, Arizona has been certified and accredited. Update—MAWTS-1/MCAS Yuma and MCAGCC Twentynine Palms have been accredited and certified. MCMWTC has been accredited; certification is pending.</p> <p>Navy Accreditation and certification goals have been achieved. Update—Status has changed from 2008 report.</p> <p>Air Force No actions cited in this area Update—No changes from last report.</p>
<p>OSD, USJFCOM and Services establish JNTC technical standards to ensure future interoperability between JNTC systems.</p> <p>Office of the Deputy Under Secretary of Defense (Readiness) has initiated an effort to develop a set of Open Net-Centric Interoperability Standards for Test and Training (ONISTT). This effort has laid the standards framework and is currently pursuing the air-to-air piece. In the meantime, a Test and Training Enabling Architecture is being pursued as a middleware solution to enable range interoperability for existing systems. A DoD Training Community of Interest has been chartered to, among other things, be the umbrella point of contact for Service Oriented Architecture efforts involving the training community.</p>	<p>Army No actions cited in this area Update—No changes from last report.</p> <p>Marine Corps Continued conducting JNTC-sponsored RDT&E on certain legacy range systems with the Test and Training Enabling Architecture, and will participate in the TCTS. Update—Continued conducting JNTC-sponsored RDT&E on certain legacy range systems to ensure compatibility with Test and Training Enabling Architecture, and will participate in TCTS.</p> <p>Navy Navy is supporting ONISTT goals and objectives to develop a net-centric approach to interoperability and standards through the funded Tactical Combat Training System (TCTS), which is interoperable with the U.S. Air Force (USAF) P5 Combat Training System. TCTS is the training instrumentation system used to establish the ONISTT use-case. Update—No changes from last report.</p> <p>Air Force No actions cited in this area Update—No changes from last report.</p>

Table 4-1 Modernization and Investment Actions and Milestones (continued)

Milestones	Actions Taken to Achieve the Milestone
<p>Services continue to develop and annually update Service Range Complex Plans Although at different stages of maturity, all the Services are actively working on development and implementation of standardized plans.</p>	<p>Army Army developed a standardized, automated RCMP tool. The first format test was completed in 2006. Update—Installations have started using the Range Complex Master Plan Tool to initiate an integrated decision making process for sustainable range planning. The Army is continuing to refine the RCMP Tool.</p> <p>Marine Corps Marine Corps previously reported it was working towards completion of its sixth RCMP with two additional RCMPs awaiting funding. Update—RCMPs for all Marine Corps operational range complexes have been completed or are in progress. A regional RCMP for the Southern California / Southwest Region has been funded and should be published in FY10.</p> <p>Navy Navy completed all 16 RCMPs in 2008. The first scheduled update is in 2009. Update—No changes from last report.</p> <p>Air Force No actions cited in this area Update—No changes from last report.</p>
<p>Services identify and document management processes for determining range requirements</p>	<p>Army AR 350-19 serves as the Army's formal policy guidance for range modernization. Update—No change from last report.</p> <p>Marine Corps Marine Corps previously reported the 2006 creation of the Marine Corps Training Ranges RCD. The RCD defines required capabilities that will allow Marine Corps training ranges to support the training for mission essential taskings over a 10-year planning horizon. Update—The Marine Corps Training Range Required Capabilities Document has been formalized as an official Marine Corps Reference Publication, and remains the Marine Corps' validated range, training area, and airspace requirements document.</p> <p>Navy Navy has established a Range Sustainment Program and made organizational changes to better assess and manage Navy ranges. Update—No changes from last report.</p> <p>Air Force No actions cited in this area Update—No changes from last report.</p>
<p>OSD and Services develop requirements for a web-based library of best practices</p>	<p>Army Army has developed the SRPWeb Portal, which is a single entry point for Army SRP information, tools, and capabilities related to SRP activities and management. The SRPWeb Portal is a tool for outreach, integrated management, and facilitates information exchange. Update—The Army is continuing to refine the Web portal to keep pace with the Sustainable Range Program user needs and requirements.</p> <p>Marine Corps No actions cited in this area Update—No changes from last report.</p> <p>Navy Navy maintains the Joint Services Pollution Prevention and Sustainability Technical Library which contains guidance documents and links to Navy, DoD, and other Service range management and sustainability information. Update—No changes from last report.</p> <p>Air Force No actions cited in this area Update—No changes from last report.</p>

4.2.2 Operations and Maintenance

Table 4-2 Operations and Maintenance Actions and Milestones

Goal—Resource for standardized land management structure and operations that mitigates encroachment and provides for range sustainment. Maximizes and sustains the availability of military range infrastructure and land assets.

Milestones	Actions Taken to Achieve the Milestone
OSD and Services conduct at least six WIPT meetings and report to SROC.	<p>Complete/Ongoing OSD and the Services representatives participate in regularly scheduled Sustainable Ranges WIPT meetings. Meeting results are reported to OIPT.</p>
Services ensure that plans for new ranges consider the entire life cycle.	<p>Complete/Ongoing Service range management programs ensure new range sustainability by implementation of life cycle management approaches.</p>
Services brief WIPT on range sustainment funding.	<p>Complete/Ongoing Range sustainment funding is a regular topic at WIPT meetings. Update—Service range sustainment funding data is provided in Section 4.4 of this Report to Congress.</p>
DoD begins to develop requirements for career program.	<p>OSD The DoD Defense Acquisition University has developed a set of courses within Acquisition Management specifically aimed at elements of the professional RDT&E range workforce. Update—No changes from last report.</p> <p>Army Army completed its eight-module Range Officer Professional Development Program to support the Range Officer career track. Update—5 of the 9 Range Officers Professional Development Course Phases have been completed. The phases are a structured approach to professional education that incorporates interactive distance-learning as well as resident learning.</p> <p>Marine Corps Marine Corps has taken steps to include standardizing manning and training towards career development of range professionals. Update—The Marine Corps has completed a Front End Analysis supporting a range career professional program, and has fielded two associated resident courses of instruction. Career progression modules are being developed.</p> <p>Air Force No actions cited in this area Update—No changes from last report.</p>
OSD and Services continue to develop range clearance policy.	<p>OSD Operational Range Clearance, DoDI 3200.16 developed and approved June 13, 2005 Update—No changes from last report.</p> <p>Army Developed policy to address clearance of operational ranges (AR 350-19). Range clearance is conducted to allow safe access to ranges and preclude accumulation of munitions and debris (Section 4-12, AR 350-19). Update—This action is complete.</p> <p>Marine Corps: Marine Corps has completed the study, U.S. Marine Corps Operational Range Clearance and Processing Plan, and is developing a Marine Corps range clearance order. Update—No changes from last report.</p> <p>Navy Accreditation and certification goals have been achieved. Update—No changes from last report.</p> <p>Air Force Air Force has a rigorous range clearance policy in place, as described in Air Force Instruction 13-212, Volume 1. This policy requires that Air Force Major Command (MAJCOM) Range Offices safely clear UXO from ranges consistent with the stated mission and for continuing range viability. Update—No changes from last report.</p>

4.2.3 Environmental

Table 4-3 Environmental Actions and Milestones

Goal—Focus the environment management systems to fully support sustained access to ranges.

Milestones	Actions Taken to Achieve the Milestone
<p>Services continue to assess off-range migration of munitions constituents.</p>	<p>OSD Established Range Assessment Policy (DoDI, 4715.14); monitoring Service range assessment progress and status. Update—No changes from last report.</p> <p>Army Army’s Operational Range Assessments will be conducted in two phases: Phase I (FY05– FY09) and, where required, Phase II, (starting FY2010). Phase I assessments use existing information and site visits to develop an understanding of the potential for munitions constituents to move off range and present an unacceptable risk to surrounding communities and the environment. Ranges placed in the “Inconclusive” category during the Phase I assessment will require a Phase II quantitative assessment. Update—One hundred and thirty-one installation reports, representing 3,052 ranges, have been or will be completed during FY2009. A total of 11,629 Army ranges will have been assessed by the end of FY2009.</p> <p>Marine Corps Conducted 8 site visits between FY2004 and FY2006, and has initiated associated analysis and modeling. Update—No changes from last report.</p> <p>Navy The Navy has completed all 19 range assessments under the Range Sustainability Environmental Program Assessment (RSEPA). Eleven assessments have been completed for training range complexes, four for Test and Evaluation (T&E) range complexes, and four for major range and test facility base (MRTFB) sites. Update—No changes from last report.</p> <p>Air Force In March 2006, Air Force signed-out guidance for the execution and implementation of munitions constituent migration assessments at operational test and training ranges. Update— Presently, all Tier I Operational Ranges owned and operated by Air Force have been assessed; Tier II and Tier III range assessments are going with completion timelines of FY2010 and FY2012 respectively.</p>
<p>Services conduct required remediation.</p>	<p>Army Army is currently conducting remediation activities at the Massachusetts Military Reservation. Update—No changes from last report.</p> <p>Marine Corps To date, Marine Corps range assessments do not show off-range migration of munitions constituents that pose an unacceptable risk to human health or the environment. All operational ranges will be reassessed at a minimum of every five years once the initial baseline assessment is complete. Update—No changes from last report.</p> <p>Navy Navy range assessments continue to show no off-range migration of munitions constituents that present an unacceptable risk to human health or to the environment. Update—No changes from last report.</p> <p>Air Force No actions cited in this area. Update—No changes from last report.</p>

Table 4-3 Environmental Actions and Milestones (continued)

Milestones	Actions Taken to Achieve the Milestone
<p>Services complete more than 80% of required reviews and updates of Integrated Natural Resource Management Plans (INRMP) and Integrated Cultural Resource Management Plans (ICRMP).</p>	<p>Army Army has completed 169 out of 172 required INRMPs. The total number of required Army INRMPs was reduced from 177 to 172 due to the consolidation of 5 Hawaiian training areas into 1 INRMP for reporting purposes. The Army has completed 133 out of 143 required ICRMPs. Update—No changes from last report.</p> <p>Marine Corps Marine Corps previously reported completion of 16 of 17 required INRMPs, and 12 ICRMPs. Update—No changes from last report.</p> <p>Navy Navy has completed 23 of 79 INRMPs and 23 of 74 ICRMPs. Navy conducts annual reviews to keep ICRMPs and INRMPs current and updates them as necessary. Navy also continuously evaluates the need for additional ICRMPs and INRMPs and updates requirements as necessary. Update—No changes from last report.</p> <p>Air Force Air Force has developed and implemented INRMPs on all installations (including ranges) that possess significant natural resources IAW the Sikes Act. Of those installations, 69 of 95 (73%) have current (in last 5 years) signature of tripartite members. Likewise, Air Force has current ICRMPs on 81 of 118 (69%) installations. Update—No changes from last report.</p>
<p>Services brief the WIPT on selected RDT&E projects.</p>	<p>Complete/Ongoing Discussion of range-related RDT&E projects regularly occurs at WIPT meetings.</p>
<p>Services brief the WIPT on SRI related RDT&E projects</p>	<ul style="list-style-type: none"> ▸ Discussion of range-related RDT&E projects regularly occurs at WIPT meetings. ▸ OSD and Service range sustainment requirements are actively addressed as part of ongoing SERDP and ESTCP programs, and progress updates are regularly provided to the WIPT

4.2.4 Encroachment

Table 4-4 Encroachment Actions and Milestones

Goal—Maximize the accessibility of DoD ranges by minimizing restrictions brought about by encroachment factors, implement sustainment outreach efforts that will improve public understanding of DoD requirements for training and testing, and support coalition-building and partnering on range sustainment issues important to DoD readiness.

Milestones	Actions Taken to Achieve the Milestone
<p>OSD and Services coordinate encroachment quantification efforts.</p> <p>OSD to report annually on encroachment quantification developments in Sustainable Ranges Report.</p>	<p>OSD 2008 Report delivered</p> <p>Army The Installation Status Report (ISR)-Infrastructure provides facility-level ratings for each range and its supporting infrastructure to include ratings from related encroachment criteria as well as improvement costs. The Encroachment Condition Module is an objective, centralized GIS database that quantifies encroachment on Army training lands and ranges. Data has been collected and finalized for 44 installations. ISR-Natural Infrastructure provides an analysis of the capability of natural infrastructure to support mission requirements at the base, region, and HQDA level. ISR-NI ties range capability to encroachment factors. Update—The Army is continuing its efforts to refine and enhance its assessment tools.</p> <p>Marine Corps Marine Corps previously reported its Training Range Encroachment Information System Tool (TREIS-T) was entering proof-of-concept phase. The TREIS-T is designed to automate range and training capability analyses, and interface with and provide capabilities assessment data to the Marine Corps' Range and Training Area Management System and the RCMPs. Update—No changes from last report.</p> <p>Navy Navy completed initial development of a encroachment database to include issues identified by installations, ranges, and regions identified in Encroachment Action Plans (EAPs), as well as Commander, Fleet Forces Command, and Commander, Pacific Fleet through the Tactical Training Theater Assessment and Planning (TAP) program. The database will serve as a regularly updated source of information used to identify encroachment and capability issues, validate program funding requests, and to prepare reports for senior leadership. Update—No changes from last report.</p> <p>Air Force The Air Force Natural Infrastructure Management concept continues to evolve. One portion of this effort is the Natural Infrastructure Assessment (NIA) Process to evaluate the availability or lack of availability of the Natural Infrastructure (NI) needed to support current and future mission requirements at our major installations and ranges. This assessment includes quantifying mission impacts caused by encroachment. This process will assist commanders in identifying and prioritizing initiatives to address mission inefficiencies and encroachment, and leverage excess capacities to extract military value. Update—No changes from last report.</p>

Table 4-4 Encroachment Actions and Milestones (continued)

Milestones	Actions Taken to Achieve the Milestone
<p>OSD and Services continue to identify candidate locations for buffer initiatives and execute agreements subject to funding limits to support range operations.</p>	<p>OSD OSD continues to update its REPI program guidance in coordination with the services. OSD also reports annually on the REPI program to Congress through a separate REPI Annual Report. Update—2009 REPI finalized.</p> <p>Army Army had 16 approved Army Compatible Use Buffers (ACUBs) in 2006. The Army had an additional 50% increase in the number of approved ACUBs in 2007. Update—The Army has 29 approved ACUBs, three are 100% complete and 26 are in progress.</p> <p>Marine Corps Published the Marine Corps Installation Commanders' Guide to Encroachment Partnering in 2006 to assist planning and execution per 10 USC 2684a, as amended, authority. Update—No changes from last report.</p> <p>Navy Navy previously reported issuing Chief of Naval Operations Instruction 11010.40, establishing the Navy's Encroachment Partnering Program. Update—No changes from last report.</p> <p>Air Force Air Force previously reported submitting projects to DUSD(I&E) for funding under REPI. Update—No changes from last report.</p>
<p>OSD to develop Service-wide range inventory and database using Geographic Information System (GIS).</p>	<p>OSD Currently, OSD maintains a Service-wide inventory of ranges and installations using GIS, which is provided in list and map format in the appendices of this report. DoD's Range Use Standardization Working Group's Range GIS Sub-Group provides guidance and recommendations to ensure Service-level GIS programs support sharing and access to range GIS data to facilitate cross-Service range use. Update—No changes from last report.</p> <p>Army Army is updating its operational range data layers (Operational Range Inventory Sustainment) and storing this GIS data on a central server/repository under the Office of the Assistant Chief of Staff for Installation Management (OACSIM). Update—No changes from last report.</p> <p>Marine Corps The Marine Corps maintains its inventory of ranges and installations using GIS, which is available on the Range and Training Area Management System (RTAMS). Update—No changes from last report.</p> <p>Navy The Navy utilizes geo-based systems to support the sustainability and operations all of its ranges: sea, land, and air. They vary in function from data warehousing and map publishing, to visualization and modeling, to geographic characteristics of the range itself, or the activities that feature in and around it. Update—No changes from last report.</p> <p>Air Force No actions cited in this area Update—No changes from last report.</p>
<p>OSD and Services participate in at least two national or regional meetings with key stakeholders on range sustainability issues.</p>	<p>Completed/Ongoing. OSD and the Services continue to participate in national and regional meetings with key sustainable ranges stakeholders. Update—OSD and Service personnel continue engaging stakeholders through multiple forums, including:</p> <ul style="list-style-type: none"> ▶ The biannual Range Sustainment conference, which invites DoD and non-DoD stakeholders from the range sustainment field, was last held in Orlando in July 2007; the next conference will be in Phoenix in August 2009. ▶ The Joint Services Environmental Management Conference ▶ The Environmental Council of the States ▶ The Southeast Regional Partnership for Planning and Sustainability (SERPPAS) ▶ The Western Regional Partnership (WRP)

Table 4-4 Encroachment Actions and Milestones (continued)

Milestones	Actions Taken to Achieve the Milestone
<p>Conduct periodic updates to Air Installations Compatible Use Zones (AICUZ) and Range Air Installations Compatible Use Zones (RAICUZ) studies.</p>	<p>Army Army does not use AICUZ or RAICUZ to manage noise. The Blast Noise Model is one tool used by the Army to support testing and training operations. Another tool used by the Army is the Small Arms Range Noise Assessment Model, a software program that provides the capability to calculate and display noise level contours for firing operations on small arms ranges. The noise module of the Range Manager’s Tool Kit, an automated tool developed by the Army and Marine Corps to quickly display the noise impacts associated with live fire training, enables range officers to assess noise impacts on a day-to-day basis. Operational Noise Management Plans are also used by many Army installations to manage noise and its impacts on testing and training. Update—The Army is continuing its efforts to assess noise at its installations and mitigate impacts to the training mission..</p> <p>Marine Corps Completed a Noise Management Program Review in 2006. Marine Corps installation AICUZ and RAICUZ studies planned and executed per OPNAVINST 11010.36 and 3550.1 respectively. AICUZ program studies at MCB Hawaii Kaneohe Bay were completed in FY2006. The RAICUZ program studies at MCB Quantico were completed in FY2006 and MCB Camp Pendleton in FY07. Update—No changes from last report.</p> <p>Navy Navy AICUZ and RAICUZ studies are planned and executed according to OPNAVINSTs 11010.36B and 3550.1A respectively. Navy has recently completed all RAICUZ studies for its range complexes. Navy is finalizing updated AICUZ’s at NAS North Island, Pensacola, Patuxent River, Corpus Christi, and NAF El Centro. All Navy air installations and outlying landing fields have a current AICUZ. Update—No changes from last report.</p> <p>Air Force Air Force previously identified the AICUZ program as the backbone of Air Force encroachment prevention efforts, and the initiation of development and implementation of RAICUZ program elements. Update—No changes from last report.</p>
<p>Issue Outreach Policy</p>	<p>Army Complete. The Army developed its Sustainable Range Program Outreach Policy and Communications Plan in 2003. The plan provides policy guidance and tools that assist installations in effectively communicating live training requirements and encroachment challenges. Its two main components are the “Core Messages” and Training Support Package. Update—The Army enhanced the Outreach Policy and Communications Plan in 2008, by developing a supplemental SRP Outreach Guidance document and Outreach training module for the installations. The guidance and training will be distributed to the installations and made available on the SRPWeb Portal in mid FY09..</p> <p>Marine Corps Published the Marine Corps Community Plans and Liaison Office (CPLO) Campaign Plan in 2005. It remains the source document for proactive engagement and outreach strategy. Marine Corps Installations East CPLO conducted a workshop in October 2006 to coordinate regional issues in promoting Marine Corps installations operational capabilities while balancing the concerns and needs of neighboring communities and governmental and non-governmental stakeholders. Update—No changes from last report.</p> <p>Navy Navy RCMPs incorporate an ongoing proactive engagement/outreach strategy conveying the Navy’s environmental stewardship initiatives in balance with the need to train at its ranges as part of the TAP program. Update—No changes from last report.</p> <p>Air Force No actions cited in this area Update—No changes from last report.</p>

Table 4-5 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)
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]/A30-AYR)
Army	Office of the Deputy Chief of Staff, G-3/5/7, Training Directorate Training Support Systems Division (DAMO-TRS)
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)
Marine Corps	Commanding General, Training, and Education Command Range and Training Area Management Division ¹⁰ Range Modernization & Investment Range Operations & Maintenance Deputy Commandant for Installations and Logistics Facilities and Services Division ¹¹ Environmental Encroachment

¹⁰ Executive Agent for Ranges

¹¹ Executive Agent for Installations

4.3 Funding Requirements

NDAA Section 366(a)(3)(C) requires DoD and the Services to report on funding requirements associated with implementing range sustainability initiatives. DoD has stated in previous reports that it faces several challenges in meeting this requirement.

One challenge is that the 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, etc.). While the details may differ to some degree among the Services based upon their particular command structure, mission, and financial processes, each 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 Services for consistently and accurately training reporting range sustainment funding, a Sustainable Ranges Funding Subgroup was formed under the WIPT. The subgroup examined funding strategies and categorizations used by the 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 4-6. Specific examples for each category are included in Table 4-7.

Table 4-6 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 an initial framework being explored by DoD and the Services to track, report, and project the need for future range sustainment fiscal resources. The ability to track the status of resources and juxtapose 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 second 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. Service-wide range sustainability funding levels for FY09 and FY2010 are provided in Table 4-8.

4.4 Partnering and Outreach Initiatives

To support DoD's national security mission, Congress has entrusted nearly 30 million acres of land—some 1.1% of the total land area of the United States—to DoD to use efficiently and to care for properly. Furthermore, DoD shares other land, air, and seaspace, as well as the nation's frequency spectrum to conduct its training mission and maintain force readiness. DoD is fully committed to environmental stewardship and the sustainable management of natural resources under its care, both today and in the future.

Table 4-7 Specific Examples for Funding Categories

Funding Category	Specific Examples
Modernization and Investment	<ul style="list-style-type: none"> ▶ 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	<ul style="list-style-type: none"> ▶ Clearance of unexploded ordnance prior to range construction ▶ CivPay for Range Operators at Army installations
Land Management and Repair	<ul style="list-style-type: none"> ▶ Erosion control measures associated with maneuver damage ▶ Repairing maneuver damage from tactical vehicles ▶ Creating, repairing, and maintaining maneuver corridor/training areas
Environmental	<ul style="list-style-type: none"> ▶ Conservation funding for INRMPs and ICRMPs ▶ Environmental mitigation costs associated with range modernization and range construction ▶ Conducting Range Assessments
Encroachment	<ul style="list-style-type: none"> ▶ Administration and support of the Army Compatible Use Buffer (ACUB) program ▶ Acquisition of ACUB lands

Table 4-8 Service Training Range Sustainment Funding (\$M)

Service	Fiscal Year
Army	
	FY09
Modernization	\$339,323
Operations & Maintenance	\$293,522
Environmental	\$84,534
Encroachment	\$137,290
Army Total	\$854,669
Marine Corps	
	FY09
Modernization	\$52,294
Operations & Maintenance	\$49,866**
Environmental	\$5,700
Encroachment	\$5,000
Marine Corps Total	\$112,860
Navy	
	FY09
Modernization	\$92,905
Operations & Maintenance	\$177,865
Environmental	\$8,948
Encroachment	\$11,000
Navy Total	\$290,718
Air Force	
	FY09
Modernization	\$61,987
Operations & Maintenance	\$205,688
Environmental	\$23,900
Encroachment	\$6,570*
Air Force Total	\$298,145
All Services	
	FY09
Service Total	\$1,556,392

* Estimated value¹²

** Funds for real property maintenance and funds provided via Base Operating Support are not included as these programs are centrally managed and breakouts to range-specific expenditures were not available. The Marine Corps, however, has initiated procedures to begin identifying Base Operating Support funds that are utilized for range sustainment.

DoD has long recognized the importance of close coordination with neighboring communities in terms of land-use decision making. The Joint Land Use Study program has a 30-year history of positive outcomes in support of DoD needs. Under SRI, DoD has added to and institutionalized a “tool box” of programs and efforts that enable and support even broader partnering and greater understanding of common needs and issues. Outreach and education events and programs, training for installations leaders and staff on how to effectively partner and advocate for DoD needs, publications to explain the wide variety of DoD missions and promote understanding of DoD’s excellent land stewardship and opportunities for partnering, and funding programs to implement on-the-ground projects to protect DoD’s mission and resources are all constantly evolving and growing the effectiveness of that tool box.

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, and is a critical component of DoD’s SRI.

REPI implements the authority authorized by Congress in 2002 under 10 U.S.C. § 2684a by providing DoD funding to the Services to enter into agreements with private conservation organizations and with state and local governments. Such agreements allow the Services to cost-share with these partners the acquisition of conservation/ restrictive-use easements and other interests in land from willing sellers.

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. This authority was almost entirely directed toward protection of resources within DoD installation boundaries and partnerships took the form of working relationships to protect and revitalize species through various installation habitat enhancement efforts.

The REPI program, however, has allowed DoD to work collaboratively with stakeholders outside the installations’ boundaries to help prevent encroachment on military land

12 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&R 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.

by preserving high-quality habitat and/or limiting incompatible development near ranges and installations.

A 2007 RAND Corporation study assessing the REPI program found that “Initial results suggest that REPI is having a positive effect.” The success of the program is evident by the increasing level of support provided by Congress as well as by the effectiveness of the buffer projects themselves being carried out and the new partnerships being leveraged.

In FY2005, the first year of program funding, Congress appropriated \$12.5 million to DUSD(I&E) to fund compatible land use projects at seven DoD installations. In FY2006, Congress increased REPI funding to \$37 million, which was applied toward projects at 19 installations. In FY07, \$40 million was appropriated and applied toward projects at 26 installations. In FY08, funding was further increased to \$46 million, which is going toward projects at 31 installations.

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 2008 Report to Congress on the Readiness and Environmental Protection Initiative, at <https://www.denix.osd.mil/portal/page/portal/denix/range/Compatible:REPICongress>.

4.4.2 DoD Joint Land Use Study Program

DoD's Office of Economic Adjustment (OEA) manages the Joint Land Use Study (JLUS) program. JLUS is a cooperative land use planning effort between affected local governments and military installations that seeks to anticipate, identify, and prevent growth conflicts by helping state and local governments better understand and incorporate technical data developed under Service AICUZ, RAICUZ, and Operational Noise Management Program studies into local planning programs. When a Service believes an installation may be experiencing incompatible development problems, or that there is the likelihood for incompatible development that could adversely affect the military mission, the Service may nominate the installations for a JLUS to the OEA. Each of the Services takes advantage of OEA's JLUS program, finding it an effective tool for bringing communities and the military together to mutually address development issues and needs.

4.4.3 Outreach and Education

Outreach and stakeholder involvement efforts provide the basis for a successful SRI. Internal and external education and coalition building/partnerships are methods used to engage stakeholders and advance the SRI mission. DoD also

supports facilitating information exchange to foster interest and understanding among stakeholders.

The DoD has developed numerous SRI tools to facilitate outreach, education, and training of DoD personnel on engagement with stakeholders and potential partners. DoD developed the public Sustainable Ranges website on the Defense Environmental Network Information eXchange (DENIX)—an information portal for environment, safety, and occupational health news—to inform communities of the SRI. This website provides users with information on recent initiatives, tools and training resources, SRI policies, partnership opportunities, and an informative compatible land use discussion page. DoD continues to update and expand the SRI website to keep the public and military communities informed of SRI progress and activities. (https://www.denix.osd.mil/sustainable_ranges)

To complement the SRI website, DoD has released a series of primers or 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 governments to facilitate communication and expand collaboration between communities, governments, and military installations. By using the primer series, military installation personnel can better understand local government management and legislative processes, and exercise best practices to facilitate encroachment 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 beyond the fence line. DoD distributes primers individually or as a series, upon requests from partners such as Service officials, other federal agency representatives, state and local officials, and conservation and land use groups. The series is also made available at conferences.

In 2007, DoD released two additional primers titled *Strengthening Military-Community Partnerships: Land Use, Clean Energy and Mission Change, and Supporting Defense Communities: State and Military Lessons Learned*. The first introduces the subject of defense community sustainability, and offers background and examples of possible policy options to address sustainability issues (e.g., model legislation for state governments, guidance on clean energy, and sustainable environmental practices). The second primer assesses lessons learned from implementation of relevant legislation, and offers case studies on how to strengthen military-community partnerships.

Another tool developed by DoD for use in supporting the SRI is the range tour. Since 2004, 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. 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 conserving, and when possible promoting the Nation's natural resources. Range tours also provide participants with a forum to interact with natural resource managers, Service personnel, and occasionally 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.

National Conference

From 30 July through 3 August 2007, DoD held the last Sustaining Military Readiness Conference, designed to bring together DoD personnel and partners from the operational, planning, and cultural and natural resources conservation communities. Approximately 900 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 testing and training ranges. Following the four-day 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 conference of this nature. The next Sustaining Military Readiness Conference will be held in Phoenix, AZ, in August 2009.

4.4.4 Partnerships and Collaboration

Effective partnerships and coalitions at the national, regional, and state and local levels are necessary to ensure the sustainability of military testing and training. DoD and military installations engage stakeholders and partners at each of these levels to promote cooperation and collaboration in support of military readiness and range sustainability.

SRI Outreach facilitates the partnership and collaboration process. The Outreach program works to leverage partnership opportunities at the National, Regional and state level and provide tools for local collaboration. Ultimately, the SRI's outreach and partnering activities create open lines of communication between military installations and local, state, and federal stakeholders.

National Level

The Outreach program coordinates with Congress, other federal agencies and offices and national environmental groups and other non-governmental organizations, the Department of Interior (DOI), the U.S. Department of Agriculture, and the Environmental Protection Agency (EPA); and fulfills a representative role on the Federal Lands Protection Program Work Group. These responsibilities support initiatives to improve the REPI program, as well as the SRI goals to coordinate and collaborate on a national level and ensure other agencies receive information pertaining to DoD range sustainability initiatives and joint projects.

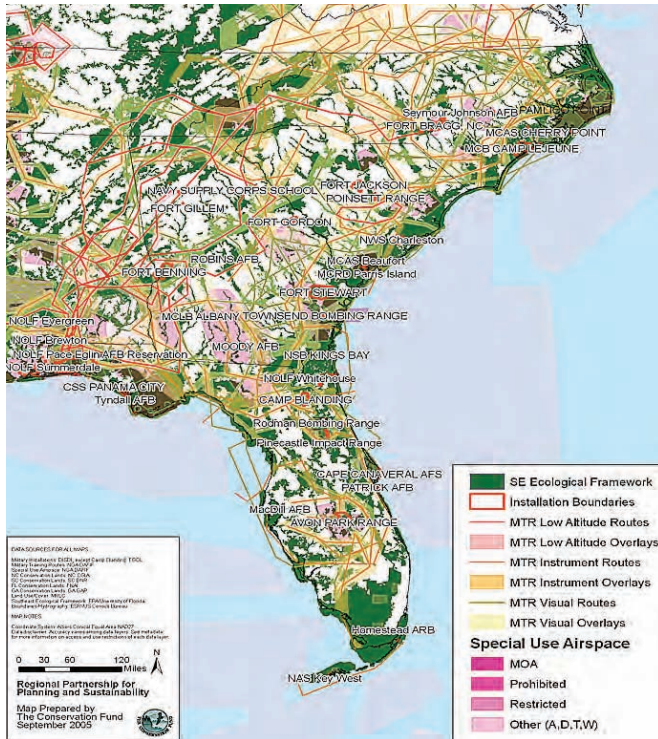
Regional Level

At the regional level, DoD has two partnerships that address sustainability issues: SERPPAS and the Western Regional Partnership (WRP). These two partnerships address sustainability and compatible land use issues relating to shared airspace and natural resources, urban sprawl, and installation boundaries and metropolitan areas that cross state lines.

SERPPAS: 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 4-1) includes the states of North Carolina, South Carolina, Georgia, Alabama, and Florida. Federal partners include DoD, US FWS, USDA Forest Service, EPA, and the National Oceanic and Atmospheric Administration.

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

Figure 4-1 Southeast Regional Partnership for Planning and Sustainability Focus Areas



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
- ▶ 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.

Western Regional Partnership

The DoD's second regional effort, the WRP (Figure 4-2), continues to build momentum after a successful initial meeting in the fall of 2007. Several key issues (e.g., wildlife corridors; coordinating and sharing GIS data; border, energy, and disaster management) were identified as starting points for potential projects under the WRP framework. A DoD executive team has been formed to coordinate and

communicate WRP-related activities to the Service principals, OSD leadership, and regional partners. Working groups for wildlife corridor issues and GIS coordination have been formed and have started work on various initiatives. DoD representatives involved in border issues, energy, and disaster management have formed working groups with interested stakeholders.

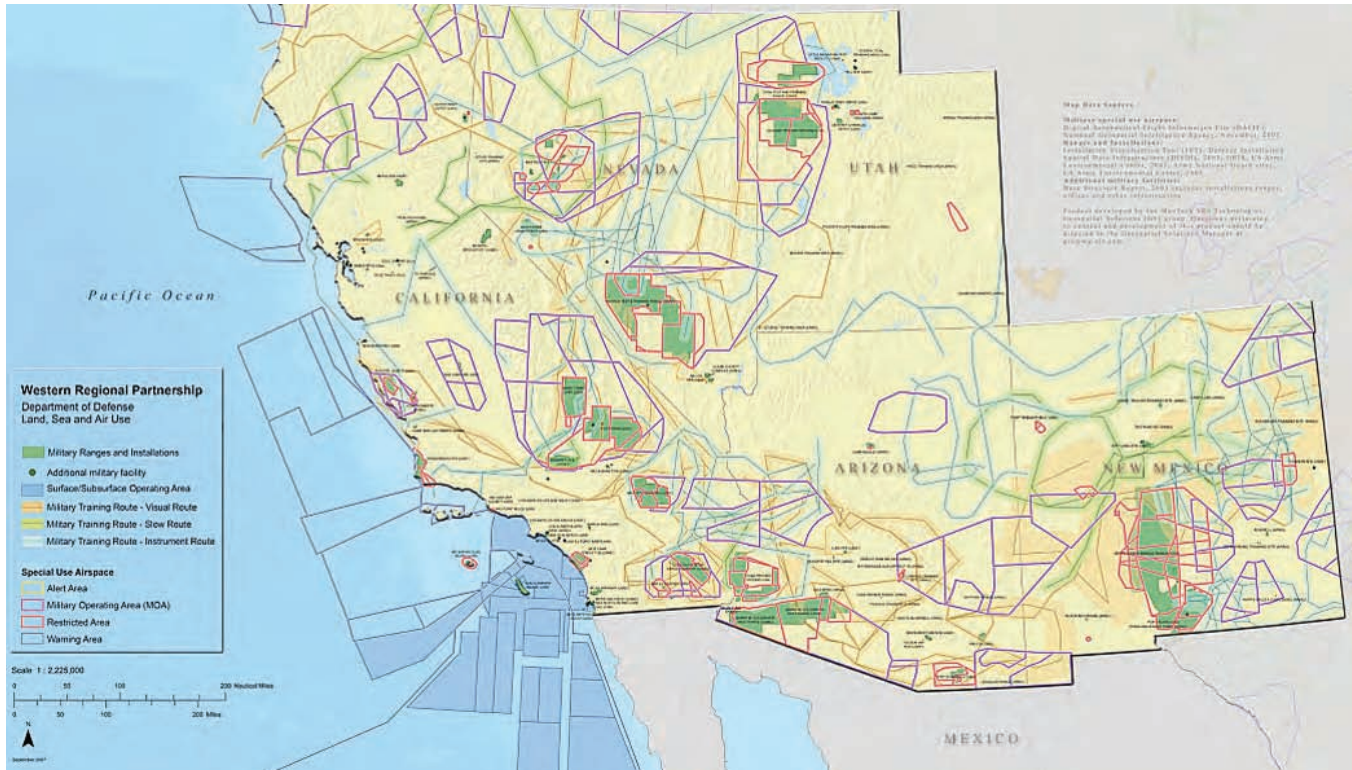
Participants in these subgroups and in the principals' forum include DoD personnel and Service members from the Southwest region; senior staff from federal agencies such as the BLM, DOI, and Department of Homeland Security (DHS); representatives from Arizona, California, Nevada, New Mexico and Utah; and other interested stakeholders. Part of the working group's tactical planning includes coordinating with parallel ongoing efforts led by the Western Governors' Association (WGA). The WGA is well-positioned within the west to provide guidance and issue-related support to the WRP. Participation in appropriate WGA endeavors provides a venue for effective articulation of DoD interests throughout the western U.S.

State and Local Levels

The SRI is engaging with NGOs as a means to provide education and information on military issues to their membership, and to explore overlapping interests. The SRI program has built a coalition of NGOs to work with the military on legislative issues, encroachment concerns, and other mission-related issues. These include the National Association of Counties (NACo), the National Conference of State Legislators (NCSL), the National Association of Regional Councils (NARC) and others. Examples of these efforts include the following:

- ▶ During NACo's 72nd Annual Conference and Expo, NACo conducted a 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. NACo has become a valuable partner in SRI outreach efforts by providing liaison support between counties and DoD.
- ▶ NCSL has formed a Military Affairs Working Group to address how state legislation can help to protect military installations and quality of life issues for military in states through effective legislation. This partnership has led to legislation in 32 states and model legislation produced to provide to state legislators.

Figure 4-2 Western Regional Partnership Focus Areas



4.4.5 Service Efforts

The Services are in varying phases of developing and implementing Service-specific outreach and communication programs to support range sustainment and compatible land use issues. The following are two examples of current 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 on-going 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 the Army and 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
- ▶ 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: Naval Air Station Whiting Field Community Planning Liaison

Naval Air Station Whiting Field, the Navy's primary base for fixed-wing training and home to all helicopter training for the Navy, Marine Corps, and Coast Guard, provides a notable illustration of successful military-community partnership. Whiting Field is located in Santa Rosa County,

Florida, one of the fastest growing counties in the nation. As such, there is tremendous residential and commercial development in the areas surrounding the installation. This development can encroach on flight training, thus threatening mission readiness.

In order to help reduce these pressures, Whiting Field has a formal community planning liaison officer who works with officials from area municipalities and Santa Rosa County, as well as the Governor's office. The responsibilities of this officer are to:

- ▶ Sit on planning and advisory boards
- ▶ Brief the community about the Navy's needs and scope of operations
- ▶ Interact with local officials on a daily basis.

According to state law, local officials are required to seek input from bases about land management plans. By establishing and maintaining productive relationships, Whiting Field has used this legal requirement to weigh in and influence development plans to the benefit of sustaining military operations.

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

4.5 Overview of Legislative and Regulatory Initiatives

As it became clear that the military's ability to "train as it fights and fight as its trained" was being constrained, DoD sought limited relief from Congress in a package of focused legislative and regulatory initiatives included in fiscal year defense authorization proposals. This section of the FY09 Sustainable Ranges Report addresses FY2003 NDAA Sections 366(a)(4)(c) and FY2004 320(a) (2-3) requirements to report on such initiatives.

4.5.1 The Readiness and Range Preservation Initiative

In 2002, as part of the FY2003 defense authorization proposal, DoD submitted to Congress an eight-provision legislative package known as the Readiness and Range Preservation Initiative (RRPI). The purpose of RRPI is to sustain DoD test and training resources, obtain clarification on the applicability of specific environmental statutes to military readiness activities, and provide DoD with

flexibility in selected aspects of environmental statutes to assist the Services in balancing both military needs and environmental protection. Under RRPI, DoD is, and will remain, subject to the same regulatory requirements as other federal agencies when performing the same types of regulated activities. Limited relief was sought only for issues that have no private-sector equivalent, such as military training, testing, and related readiness activities. The eight DoD RRPI provisions address the following areas:

- ▶ Land Conservation Partnerships
- ▶ Surplus Property Conveyance
- ▶ Migratory Bird Treaty Act (MBTA)
- ▶ Endangered Species Act (ESA)
- ▶ Marine Mammal Protection Act (MMPA)
- ▶ Clean Air Act (CAA)
- ▶ Resource Conservation and Recovery Act (RCRA)
- ▶ Comprehensive Environmental Response Compensation and Liability Act (CERCLA)
- ▶ Land Conservation Partnerships, Surplus Property Conveyance, and the Migratory Bird Treaty Act.

The 107th Congress enacted provisions related to Land Conservation Partnerships, Surplus Property Conveyance, and the MBTA.

- ▶ The Land Conservation Partnerships and Surplus Property Conveyance provisions have allowed DoD to cooperate with state and local governments, NGOs, and other private entities to more effectively plan for growth surrounding our ranges by allowing DoD to work toward preserving habitat for imperiled species, and assuring that development and land uses are compatible with the training and testing activities which occur on our installations. The implementation of programs under these two provisions have led to partnering efforts to purchase, lease, or otherwise protect/preserve lands around DoD properties with the outcome being mutually beneficial to the military and the local communities by simultaneously enhancing the ability to train and further conservation goals.
- ▶ The MBTA provision provided DoD with an interim regulatory exemption to address the incidental take of migratory birds that may occur as a result of military activities during the period when the Fish and Wildlife Service (FWS) drafted regulations to address the issue. The interim exemption expired on 30 March 2007, the

effective date of those regulations.¹³ Under the 2007 FWS regulations, the Armed Forces are allowed to take migratory birds during the course of military readiness activities. If the Services determine that a proposed or ongoing readiness activity may result in a significant adverse effect on a population of a migratory bird species, they must confer and cooperate with the FWS to develop appropriate and reasonable conservation measures to minimize or mitigate such efforts. The Secretary of Interior retains the power to withdraw or suspend the authorization allowing takes from such readiness activities in particular circumstances. The Services continue to be responsible for addressing activities other than those associated with military readiness in accordance with the memorandum of understanding (MOU) developed under Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds.

The 108th Congress passed two additional RRPI provisions pertaining to The Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA)

- ▶ The ESA provision authorizes the use of DoD INRMPs that benefit threatened and endangered species as a substitute for critical habitat designation under Section 4 of the ESA. DoD INRMPs require installations to plan and implement conservation and protection activities for listed and candidate species and for critical habitats that occur on the installation. The Services work cooperatively, from initial draft to final copy, with FWS and the states at each level of INRMP development. Mutual agreement on the adequacy and protectiveness of the plans is achieved when the INRMP is signed for approval by the installation commander, with written concurrence provided by the FWS, its Regional Director, and equivalent state officials. The effectiveness and validation of INRMP management actions are assessed during periodic reviews conducted by the installations, FWS, and the States. The DoD continues to be subject to all other requirements under the ESA.
- ▶ On the MMPA provision, DoD worked closely with the National Oceanic and Atmospheric Administration, the Department of the Interior, the Marine Mammal Commission, and other stakeholders to develop a revised definition of "harassment" of marine mammals as it applies to military readiness activities. The revised definition does not exempt DoD from complying with the MMPA, but requires greater scientific evidence of harm

and consideration of the impacts to military readiness in the issuance of permits for incidental takes. This provision also added a national defense exemption clause.

CAA, RCRA, and CERCLA provisions were submitted to the 107th, 108th, and 109th Congresses, but no action was taken by Congress on these provisions.

4.6 Measuring and Describing SRI's Success

4.6.1 Description of Readiness Benefits

To address Congressional reporting requirements, the Services were asked to discuss and give examples of how legislative provisions, regulatory initiatives, and related activities have, or are expected to, benefit military readiness and enhance or improve military range sustainment efforts. A summary of these discussions and example military benefits stemming from legislative and regulatory initiatives is provided in the following paragraphs.

Compatible Land Use and Encroachment Prevention

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 airports and airfields. The authority in 10 USC 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 used because the issue is not an appropriate use of existing local government power. The authority is less beneficial to those areas that are already heavily developed because of the difficulties bases face in finding cities, counties, or other partners who are willing to fund acquisition of development rights.

In the McChord AFB North Clear Zone project, the base is partnering with Pierce County, Washington, to acquire the development rights for undeveloped land in the North Clear Zone. The clear zone is the area immediately beyond the end of the runway that possesses a high potential for accidents. The acquisition of undeveloped land in the McChord AFB clear zone will prevent further development in an area of highest accident potential, and has contributed to enhanced readiness by increasing the safety of the airlift mission for Fort Lewis.

The State of Florida and local jurisdictions in northwest Florida have recognized the importance of maintaining the mission capability of Eglin AFB, and have enthusiastically engaged Air Force personnel in a number of conservation

¹³ See 72 Federal Register 8931.

and compatible land use initiatives. The Eglin AFB project will result in the acquisition of interest in land near Navy Outlying Landing Field (NOLF) Choctaw, a military airfield located on the greater Eglin Military Reservation, but managed and used by the Navy. NOLF Choctaw provides flight training for Navy, Marine Corps, Coast Guard, and Air Force pilots. This project proposal will prevent residential development in an area currently used by the Navy for touch-and-go carrier training, and by all the Services for primary flight training on existing T-34C aircraft and new Joint Primary Aircraft Training System T-6A aircraft. This project will limit local citizen exposure to increased aircraft noise levels if new F-35 Joint Strike Fighter training operations are conducted at the facility.

The Warren Grove Bombing Range, located in New Jersey, provides aerial bombing and gunner training for active duty Navy and Marine Corps units, as well as Air Force active duty, Guard, and Reserve units. The Warren Grove Bombing Range project will involve the acquisition, by the New Jersey Conservancy, of 851 acres of currently abandoned or unmanaged lands adjacent to the bombing range and the Pine Barrens's preserve. The Pine Barrens, also known as the Pinelands, 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. 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. Section 364 of the FY08 NDAA specifically requires the Air Force to report on efforts to implement safety measures and further study encroachment issues at the range.

In December 2007, the Air Force Real Property Agency completed the first property exchange at an active installation using special authorities granted by DoD and the Services under 10 USC 2869. Under 10 USC 2869, the Services are authorized to exchange excess non-BRAC or surplus BRAC property with any party who will provide needed construction projects, property, or housing needed by the Services, or enter into support agreements with the Services to limit encroachment. The transfer occurred at Charleston Air Force Base, South Carolina, where an excess tract of land was exchanged for property owned by South Carolina Electric and Gas located within the base's runway clear zone, preventing potential future development within the zone that could impact the base's flying operations.

Migratory Bird Protection Act

It is illegal to take, possess, buy, or sell migratory birds without a valid permit under the MBTA. While regulations implementing MBTA authorized permits for intentional take of migratory birds for activities such as scientific research, education, and depredation control, there has been no permit process to specifically address the incidental take of migratory birds under the MBTA. The development, review, submission, and approval of environmental permits is recognized by most stakeholders as a lengthy and time consuming process due to the individual responsibilities of the applicant, the regulatory agency, and input from the public. As noted in Section 4.5.3, during the period of time in which the Secretary of Interior was developing regulations to address incidental takes, DoD was exempt from this particular requirement of the MBTA. Now the regulations are in place, DoD readiness activities can continue without being subject to take concerns. This has had a beneficial effect on Service readiness by reducing the length of delays that would otherwise be attributable to the permitting process, and by allowing training and testing activities to be conducted in accordance with standards and completed in a timely manner. The exemption also diminished the potential for lawsuits enjoining the training and testing associated with the execution of military readiness activities.

Endangered Species Act

In addition to the requirement under ESA Section 7 regarding consultation for actions that may affect listed species, when an area on or near a military range is designated as critical habitat under the ESA, it triggers an additional requirement to consult with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service, as appropriate, for any action that may affect the designated critical habitat. This may require the preparation of a biological assessment or similar document to assess the impacts of range operations on critical habitat as well as listed species located on or near the range, which can delay scheduled activities. If the operations are determined to result in the destruction or adverse modification of critical habitat, or result in jeopardy of or take of listed species, range operations will likely be restricted and possibly stopped.

The RRPI provision allowing the use of approved INRMPs that benefit threatened and endangered species as a substitute for critical habitat designations under the ESA provides installations greater flexibility in managing their natural resources in a manner that benefits both military readiness and the environment. This reduces restrictions on training and testing and decreases the administrative burden associated with managing military ranges.

4.7 Readiness Reporting Improvements

As robust encroachment and capabilities assessments are conducted under the SRI, DoD is enhancing its Defense Readiness Reporting System (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.

4.7.1 The Defense Readiness Reporting System (DRRS)

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 Services by building upon existing processes and readiness assessment tools to establish a capabilities-based, adaptive, near real-time readiness reporting system. It is currently capable of reporting on the availability of resources needed to support a mission in six resource pillars: Personnel, Equipment, Services, Training, Ordinances, 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 a data-driven collaborative environment in which to evaluate, in near real-time, the readiness and capability of our 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 resource and the ability of an organization to execute its METs and METLs, and to support the Joint Force Commander's JMETLs to prescribed standards.

4.7.2 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 Services are in various stages of improvement in 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.

4.7.3 Range Readiness as a Component of DRRS

As robust encroachment and capabilities assessments are conducted under the SRI, DoD is establishing a Range Readiness Module (RRM) in DRRS to address range readiness issues based on capability and encroachment assessments. Based on existing DRRS capabilities and evolving range readiness reporting requirements, we are developing and validating functional and system requirements.

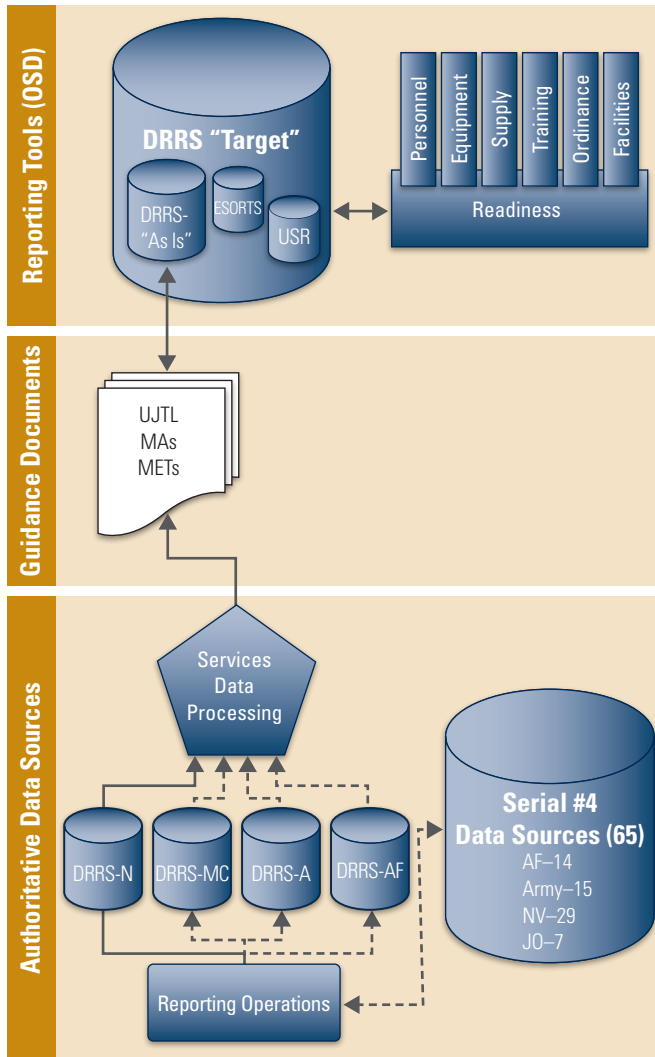
DoD began funding specific programming with the Phase I RRM development in DRRS beginning in October 2008. The system is intended to efficiently support range readiness reporting and provide assessment data for future SRRs. This prototype will allow the RRM to leverage existing DRRS user utilities, data, and reporting functions for storage, access, and reporting of range baseline data submitted for the 2008 SRR. The initial prototype system will allow approximately 100 users access to view, edit, approve and/or perform administrative functions for future year data calls.

Driven by feedback on the Phase I integrated prototype, DoD is planning to expand the functionality of user utilities for data entry, approval and reporting functions under Phase II. In Phase II, DoD will identify and validate business rules and linkages between Unit assigned Mission Essential Tasks and the supporting capabilities and encroachment impacts on the range(s) where their unit training is taking place. The goal of Phase II is to fully integrate RRM in DRRS so that it details Service assigned Mission Areas, unit assigned Mission Essential Tasks (METs) and/or Mission Essential Task Lists (METLs) mapped to specific ranges, command links to the reporting entities using ranges [to

include their METs] and command links from the ranges back to the units training on that range.

The conceptual relationships for reporting readiness is provided in Figure 4.3.

Figure 4-3 Conceptual Relationships for Reporting Readiness



4.8 Range 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 also is maturing. DoD continues to encourage Service development of distributed information system solutions that satisfy Service and range needs, and the ability to share summary data and support specific information requests from OSD and other users. Such needs include:

- ▶ Congressional reporting requirements
- ▶ Range inventories, capacity, and capabilities
- ▶ Range readiness reporting
- ▶ Investment planning
- ▶ Budget management
- ▶ Range sustainability initiatives
- ▶ Asset management.

Information management efforts conducted under the Range Information Enterprise will be based upon 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.

4.9 Range Inventory Summary

NDA Section 366(c) requires DoD and the Services to develop and maintain a training range inventory.

This section represents a summary of the 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 NDA Section 366(c), DoD has issued specific policy directives that require the 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 Service is provided in Appendix D, while a more detailed description of DoD and Service range sustainment policies are provided in Appendix F.

The Sustainable Ranges Report Inventory is organized into the following components:

- ▶ **Regional Range and Special Use Airspace (SUA) Maps**— These maps display the location of DoD training and testing ranges and SUA around the world using a GIS

database that integrates data from the Services and the National Geospatial Intelligence Agency (NGA). Each 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 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 Inventory**—The Military Training Route (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 Sustainable Ranges Report Inventory is built on Service inventories and information pulled from Service-supporting information management systems. When compiled, this inventory provides a comprehensive picture of DoD training and testing assets. In order to provide a Service-level perspective on range inventories, the following highlights some of the key components of the Service range inventories.

4.9.1 Army Range Inventory Description

Background

The requirement to establish and maintain an inventory of the Army's operational ranges is specifically detailed in Department of Defense Directive (DODD) 4715.11 and DODD 4715.12, Subject: Environmental and Explosives Safety Management on Department of Defense Operational Ranges Within the United States and Outside of the United States, respectively. DODD 3200.15, Subject: Sustainment of Ranges and Operating Areas (OPAREAs), requires each Service to develop and utilize sound GIS-based range inventories and scientific data as the basis for decision-making in support of training and testing mission activities. This directive further instructs that range inventories be completed and updated every five years and maintained in a GIS that is readily accessible by installation and range decision-makers.

The Army has complied with these requirements by providing a comprehensive GIS-based inventory of all operational ranges with the Army Operational Range Inventory. The Operational Range Inventory was begun in June 2004 and was completed in April 2008 after all installations and training sites having operational ranges were updated from the previous inventory, the Army Active/Inactive Range Inventory.

In 2008, to improve consistency and coordination of all geospatial data, the Assistant Chief of Staff for Installation Management issued guidance for proponentcy and development of all installation and environmental GIS spatial information as part of geospatial Common Installation Picture. 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 G3/5/7 's Sustainable Range Program will be accomplished by the Army SRP Program GIS professionals with oversight from the Army Training Support Center Training Capability Manager – Live. Installations that lack a GIS professional 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 detail what features a data layer should contain, the geometry that will be used to represent the feature, positional accuracy standards, topology rules and completeness guidelines, update frequency, and acceptable source data. They also identify the installation-level data steward. 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 AKO account.

4.9.2 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 land, air, sea, and underseaspace that comprise the Marine Corps range complexes. 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 Sustainable Ranges Report based on information available in the RTAMS. RTAMS is a web-enabled, institutional-level, centrally managed system. It provides Commanders, operating units, range managers, and all cross-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 2008 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.

4.9.3 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 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 TAP Program, which included the preparation of RCMPs. RCMPs catalogue range complex baseline assets and capabilities, and include a comprehensive inventory of ranges, OPAREAs, and SUA.

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 (FACSFAC) 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 main source of information for the updates is RCMP, which 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 systems 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.

4.9.4 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
- ▶ 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. MAJCOM 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.



5

The Way Ahead

As DoD's SRI has continued to mature over the last eight years, DoD and the 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. Of particular importance have been the effective utilization of Section 2864a authorities and both local and regional encroachment partnering activities, the progress made in further refining the comprehensive DoD-wide range inventory, and the 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 to ensure the long-term sustainability of military range resources.

5.1 Sustainable Range 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 specific and requires a specific approach in order to achieve mission success. SRI is designed to help range staff address encroachment concerns through training and education both inside and outside the fence, foster long-term partnerships to reduce the likelihood of future conflict and attract outside investment in mission protection. It helps provide tools to improve asset management on and encourage compatible land uses off the range.

5.2 Compatible Land Use and Encroachment Partnering Activities

The DoD will continue to work with Congress, other federal agencies, states, Native American tribes, 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 had conserved over 70,000 acres of land near and around DoD installations by the close of FY2007, and demand from the Services for funding of projects in FY09 is nearly 2.5 times greater than appropriated funding for the program. Regional partnering efforts are bearing fruit, with state partners in the SERPPAS investing in installation buffering and habitat management, academia participating in a variety of studies and pilot projects, and NGOs cooperating to develop range-wide planning efforts. The DoD and the Services have found outreach and partnering on such issues to be the most

effective way to address today's encroachment problems while minimizing future problems and ensuring the long-term sustainability of our range resources.

It is important to note that encroachment 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 2009 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 those challenges.

5.3 Use of Range Inventory and Encroachment and Capability Tools

The 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 Services. The tools developed to date will assist DoD and Service leadership with identifying at-risk ranges, recognizing emerging issues, and informing decisions about focusing new or additional range sustainment efforts. These actions will enhance the abilities of DoD and the 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 true value of the SRI comes when DoD can prevent encroachment and avoid mission degradation before it occurs. A new 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 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 ODUSD(P&R) in 2008 as a management tool. As part of this process, the previously established goals, actions, and milestones will be reviewed and assessed for their continued relevancy, and

revised or replaced to more accurately reflect current and future program conditions and range requirements.

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 be expanded to all regions of the country. This information will allow for better planning for future land uses in states and regions.

5.5 Overarching Data Management Strategy

Range data is currently stored in multiple formats across DoD and the Services. Given these characteristics, 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 Range Information Enterprise. Reporting range readiness up the Service chains 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 Sustainable Ranges Report established a baseline for future reports on the SRI. The 2008 format presented information in a more concise format, provides Congress a consistent report that highlights the continued evolution of DoD's SRI, and allows progress against Congressional reporting requirements and internal goals and milestones to be more readily determined. The format will continue to be refined as needed to achieve a desired level of consistency in the presentation of critical policy and guidance documents, as well as status and updates on existing and emerging implementation tools.

The capability and encroachment assessment methodology and the data collection tool will be reviewed and a small one to one and a half day expert workshop with the Services will be organized to review the current methodologies and discuss modifications to be more responsive to Service concerns and increase sensitivity and fidelity of the analysis.

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.

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

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.

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.

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 anti-air warfare, aerial minelaying, and air refueling in support of naval campaigns with the objective of gaining control of the medium and, to the extent possible, dominating operations either in conjunction with naval forces or independently.

Information Operations—Actions taken to influence, affect, or defend information, systems, and/or decision-making of an adversary's "observe-orient-decide-act" (OODA) loop while protecting our own.

Electronic Combat Support—Actions involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy across the electromagnetic battlespace. The operational elements of electronic warfare operations are electronic attack, electronic protection, and electronic warfare support.

Command and Control—The battlespace management process of planning, directing, coordinating, and controlling forces and operations. It involves the integration of a system of

procedures, organizational structures, personnel, equipment, facilities, information, and communications designed to enable a commander to exercise authority and direction across the range of military operations.

Air Drop—Air Drop is the delivery of personnel and materiel from an aircraft in flight to a drop zone (DZ). Most airdrop procedures use parachutes to deliver loads to the ground, such as heavy equipment, container delivery systems, and personnel. Another airdrop procedure is free fall delivery. This involves dropping relatively small items, such as packaged meals or unbreakable objects like hay bales without the use of a parachute. Airdrop allows commanders to project and sustain combat power into areas where a suitable ALZ or a ground transportation network may not be available.

Air Refueling—The in-flight transfer of fuel between tanker and receiver aircraft.

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

Specific Range Comments

Table C-1 Specific Range Comments

Army Installation: Fort Benning

Comments

Capabilities			
Observations			
1. 38% of the range/range complex mission areas are Fully Mission Capable (FMC). 2. Scoring & Feedback Systems is the capability attribute most severely impacting the overall Mission. 3. Movement and Maneuver is the mission area most severely impacted by various capability attributes.			
Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Movement and Maneuver	●	Doctrinal training land shortfall that causes units are due to minor workarounds.
	Fire Support	●	Doctrinal training land shortfall that causes units are due to minor workarounds.
	Intelligence	●	Doctrinal training land shortfall that causes units are due to minor workarounds.
	Sustainment	●	Doctrinal training land shortfall that causes units are due to minor workarounds.
	Command and Control	●	Doctrinal training land shortfall that causes units are due to minor workarounds.
	Protection	●	Doctrinal training land shortfall that causes units are due to minor workarounds.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command and Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Scoring & Feedback System	Movement and Maneuver	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Fire Support	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Intelligence	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Command and Control	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Protection	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
Small Arms Ranges	Movement and Maneuver	●	BRAC support ranges will create a capability gap.
	Sustainment	●	BRAC support ranges will create a capability gap.
	Protection	●	BRAC support ranges will create a capability gap.
Collective Ranges	Movement and Maneuver	●	BRAC support ranges will create a capability gap.
	Fire Support	●	BRAC support ranges will create a capability gap.
	Sustainment	●	BRAC support ranges will create a capability gap.
	Protection	●	BRAC support ranges will create a capability gap.
MOUT Facilities	Movement and Maneuver	●	BRAC support ranges will create a capability gap.
	Fire Support	●	BRAC support ranges will create a capability gap.
	Intelligence	●	BRAC support ranges will create a capability gap.
	Sustainment	●	BRAC support ranges will create a capability gap.
	Command and Control	●	BRAC support ranges will create a capability gap.
	Protection	●	BRAC support ranges will create a capability gap.

Encroachment

Observations

1. 35% of the range/range complex mission is MODERATELY impacted by Encroachment factors.
2. Noise Restrictions, Adjacent Land Use, and Wetlands are the three encroachment factors most impacting the training mission.
3. The mission areas of Movement and Maneuver, Fire Support, Intelligence, and Protection are most impacted by these encroachment factors.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Movement and Maneuver	●	New ranges/maneuver corridors to support the Armor School could result in mitigation requirements that could severely impact training.
	Fire Support	●	New ranges/maneuver corridors to support the Armor School could result in mitigation requirements that could severely impact training.
	Intelligence	●	New ranges/maneuver corridors to support the Armor School could result in mitigation requirements that could severely impact training.
	Sustainment	●	New ranges/maneuver corridors to support the Armor School could result in mitigation requirements that could severely impact training.
	Command and Control	●	New ranges/maneuver corridors to support the Armor School could result in mitigation requirements that could severely impact training.
	Protection	●	New ranges/maneuver corridors to support the Armor School could result in mitigation requirements that could severely impact training.
Noise Restrictions	Movement and Maneuver	●	Increased noise due to new ranges has acerbated current restrictions.
	Fire Support	●	Increased noise due to new ranges has acerbated current restrictions.
	Intelligence	●	Increased noise due to new ranges has acerbated current restrictions.
	Protection	●	Increased noise due to new ranges has acerbated current restrictions.
Adjacent Land Use	Movement and Maneuver	●	Urban sprawl has increased environmental pressures on the installation that result in training restrictions.
	Fire Support	●	Urban sprawl has increased environmental pressures on the installation that result in training restrictions.
	Intelligence	●	Urban sprawl has increased environmental pressures on the installation that result in training restrictions.
	Protection	●	Urban sprawl has increased environmental pressures on the installation that result in training restrictions.
Wetlands	Movement and Maneuver	●	Over 11% of training restrictions on the installation are due wetlands.
	Fire Support	●	Over 11% of training restrictions on the installation are due wetlands.
	Intelligence	●	Over 11% of training restrictions on the installation are due wetlands.
	Sustainment	●	Over 11% of training restrictions on the installation are due wetlands.
	Command and Control	●	Over 11% of training restrictions on the installation are due wetlands.
	Protection	●	Over 11% of training restrictions on the installation are due wetlands.

Army Installation: Fort Bliss:

Comments

Capabilities

Observations

1. 24% of the range/range complex mission areas are Fully Mission Capable (FMC).
2. MOUT Facilities is the capability attribute most severely impacting the overall Mission.
3. Movement and Maneuver is the mission area most severely impacted by various capability attributes.

Capability Attributes	Assigned Training Mission	Color	Comments
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Protection	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Scoring & Feedback System	Movement and Maneuver	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Fire Support	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Intelligence	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Command Control	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Protection	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
Infrastructure	Movement and Maneuver	●	Training roads and roads less traveled are deteriorating. Maintenance of frequented roads is needed to support mobility
	Fire Support	●	Training roads and roads less traveled are deteriorating. Maintenance of frequented roads is needed to support mobility
	Intelligence	●	Training roads and roads less traveled are deteriorating. Maintenance of frequented roads is needed to support mobility
	Sustainment	●	Training roads and roads less traveled are deteriorating. Maintenance of frequented roads is needed to support mobility
	Command Control	●	Training roads and roads less traveled are deteriorating. Maintenance of frequented roads is needed to support mobility
	Protection	●	Training roads and roads less traveled are deteriorating. Maintenance of frequented roads is needed to support mobility
Range Support	Movement and Maneuver	●	Installation has less than 60% of Operations funding to operate the range complex.
	Fire Support	●	Installation has less than 60% of Operations funding to operate the range complex.
	Intelligence	●	Installation has less than 60% of Operations funding to operate the range complex.
	Sustainment	●	Installation has less than 60% of Operations funding to operate the range complex.
	Command Control	●	Installation has less than 60% of Operations funding to operate the range complex.
	Protection	●	Installation has less than 60% of Operations funding to operate the range complex.

Capability Attributes	Assigned Training Mission	Color	Comments
Small Arms Ranges	Movement and Maneuver	●	BRAC construction challenges. GTA ranges are still not programmed.
	Sustainment	●	BRAC construction challenges. GTA ranges are still not programmed.
	Protection	●	BRAC construction challenges. GTA ranges are still not programmed.
Collective Ranges	Movement and Maneuver	●	BRAC construction challenges. GTA ranges are still not programmed.
	Fire Support	●	BRAC construction challenges. GTA ranges are still not programmed.
	Sustainment	●	BRAC construction challenges. GTA ranges are still not programmed.
	Protection	●	BRAC construction challenges. GTA ranges are still not programmed.
MOUT Facilities	Movement and Maneuver	●	BRAC construction challenges. GTA ranges are still not programmed.
	Fire Support	●	BRAC construction challenges. GTA ranges are still not programmed.
	Intelligence	●	BRAC construction challenges. GTA ranges are still not programmed.
	Sustainment	●	BRAC construction challenges. GTA ranges are still not programmed.
	Command Control	●	BRAC construction challenges. GTA ranges are still not programmed.
	Protection	●	BRAC construction challenges. GTA ranges are still not programmed.

Encroachment

Observations

1. 0% of the range/range complex mission is impacted by encroachment factors.

Encroachment Factors	Assigned Training Mission	Color	Comment
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No Comments

Army Installation: Fort Bragg

Comments

Capabilities

Observations

1. 31% of the range/range complex mission areas are Fully Mission Capable (FMC).
2. Infrastructure is the capability attribute most severely impacting the overall Mission.
3. Movement and Maneuver and Fire Support are the mission areas most severely impacted by various capability attributes.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Movement and Maneuver	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Fire Support	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Intelligence	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Sustainment	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Command Control	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Protection	●	Doctrinal training land shortfall that causes units to do minor workarounds.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Scoring & Feedback System	Movement and Maneuver	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Fire Support	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Intelligence	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Command Control	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Protection	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
Infrastructure	Movement and Maneuver	●	Roads and parking that support mobilization are in poor shape due inadequate funding. The installation is behind in SRM funding.
	Fire Support	●	Roads and parking that support mobilization are in poor shape due inadequate funding. The installation is behind in SRM funding.
	Intelligence	●	Roads and parking that support mobilization are in poor shape due inadequate funding. The installation is behind in SRM funding.
	Sustainment	●	Roads and parking that support mobilization are in poor shape due inadequate funding. The installation is behind in SRM funding.
	Command Control	●	Roads and parking that support mobilization are in poor shape due inadequate funding. The installation is behind in SRM funding.
	Protection	●	Roads and parking that support mobilization are in poor shape due inadequate funding. The installation is behind in SRM funding.

Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Movement and Maneuver	●	Installation has less than 60% of Operations funding to operate the range complex.
	Fire Support	●	Installation has less than 60% of Operations funding to operate the range complex.
	Intelligence	●	Installation has less than 60% of Operations funding to operate the range complex.
	Sustainment	●	Installation has less than 60% of Operations funding to operate the range complex.
	Command Control	●	Installation has less than 60% of Operations funding to operate the range complex.
	Protection	●	Installation has less than 60% of Operations funding to operate the range complex.
Collective Ranges	Movement and Maneuver	●	Collective aviation range capability gap.
	Fire Support	●	Collective aviation range capability gap.
	Sustainment	●	Collective aviation range capability gap.
	Protection	●	Collective aviation range capability gap.

Encroachment

Observations

1. 0% of the range/range complex mission is impacted by encroachment factors

Encroachment Factors	Assigned Training Mission	Color	Comment
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No Comments

**Army Installation: Fort Campbell
Comments**

Capabilities

Observations

1. 31% of the range/range complex mission areas are Fully Mission Capable (FMC).
2. Landspace and Infrastructure are the capability attributes most severely impacting the overall Mission.
3. Movement and Maneuver and Fire Support are the mission areas most severely impacted by various capability attributes.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Movement and Maneuver	●	Doctrinal training land shortfall that forces all units to do workarounds. Current requirement is 8 times the available training land.
	Fire Support	●	Doctrinal training land shortfall that forces all units to do workarounds. Current requirement is 8 times the available training land.
	Intelligence	●	Doctrinal training land shortfall that forces all units to do workarounds. Current requirement is 8 times the available training land.
	Sustainment	●	Doctrinal training land shortfall that forces all units to do workarounds. Current requirement is 8 times the available training land.
	Command Control	●	Doctrinal training land shortfall that forces all units to do workarounds. Current requirement is 8 times the available training land.
	Protection	●	Doctrinal training land shortfall that forces all units to do workarounds. Current requirement is 8 times the available training land.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Scoring & Feedback System	Movement and Maneuver	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Fire Support	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Intelligence	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Command Control	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Protection	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
Infrastructure	Movement and Maneuver	●	Major repair and maintenance backlog on surfaced training area roads.
	Fire Support	●	Major repair and maintenance backlog on surfaced training area roads.
	Intelligence	●	Major repair and maintenance backlog on surfaced training area roads.
	Sustainment	●	Major repair and maintenance backlog on surfaced training area roads.
	Command Control	●	Major repair and maintenance backlog on surfaced training area roads.
	Protection	●	Major repair and maintenance backlog on surfaced training area roads.

Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Movement and Maneuver	●	Installation has less than 60% of Operations funding to operate the range complex.
	Fire Support	●	Installation has less than 60% of Operations funding to operate the range complex.
	Intelligence	●	Installation has less than 60% of Operations funding to operate the range complex.
	Sustainment	●	Installation has less than 60% of Operations funding to operate the range complex.
	Command Control	●	Installation has less than 60% of Operations funding to operate the range complex.
	Protection	●	Installation has less than 60% of Operations funding to operate the range complex.
Collective Ranges	Movement and Maneuver	●	Collective aviation range capability gap.
	Fire Support	●	Collective aviation range capability gap.
	Sustainment	●	Collective aviation range capability gap.
	Protection	●	Collective aviation range capability gap.

Encroachment

Observations

1. 0% of the range/range complex mission is impacted by encroachment factors.

Encroachment Factors	Assigned Training Mission	Color	Comment
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No Comments

Army Installation: Fort Carson/Pinon Canyon Maneuver Site

Comments

Capabilities

Observations

1. 58% of the range/range complex mission areas are Fully Mission Capable (FMC).
2. Land-Space is the capability attribute most severely impacting the overall Mission.
3. Movement and Maneuver and Fire Support are the mission areas most severely impacted by various capability attributes.

Capability Attributes	Assigned Training Mission	Color	Comments
Land Space	Movement and Maneuver	●	Doctrinal training land shortfall requires units to do minor workarounds. Additional GTA requirements further enhance this shortfall.
	Fire Support	●	Doctrinal training land shortfall requires units to do minor workarounds. Additional GTA requirements further enhance this shortfall.
	Intelligence	●	Doctrinal training land shortfall requires units to do minor workarounds. Additional GTA requirements further enhance this shortfall.
	Sustainment	●	Doctrinal training land shortfall requires units to do minor workarounds. Additional GTA requirements further enhance this shortfall.
	Command Control	●	Doctrinal training land shortfall requires units to do minor workarounds. Additional GTA requirements further enhance this shortfall.
	Protection	●	Doctrinal training land shortfall requires units to do minor workarounds. Additional GTA requirements further enhance this shortfall.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Scoring & Feedback System	Movement and Maneuver	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Fire Support	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Intelligence	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Command Control	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Protection	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
Collective Ranges	Movement and Maneuver	●	Collective range capability not complete until 2014. GTA increases will stress facilities.
	Fire Support	●	Collective range capability not complete until 2014. GTA increases will stress facilities.
	Sustainment	●	Collective range capability not complete until 2014. GTA increases will stress facilities.
	Protection	●	Collective range capability not complete until 2014. GTA increases will stress facilities.

Encroachment

Observations

- 1. 15% of the range/range complex mission is MODERATELY impacted by encroachment factors.
- 2. Air Quality and Adjacent Land Use are the two encroachment factors most impacting the training mission.
- 3. The mission areas of Movement and Maneuver, Fire Support, and Protection are most impacted by these encroachment factors.

Encroachment Factors	Assigned Training Mission	Color	Comment
Air Quality	Movement and Maneuver	●	16% of the operational area is restricted for use of pyro/smoke.
	Fire Support	●	16% of the operational area is restricted for use of pyro/smoke.
	Protection	●	16% of the operational area is restricted for use of pyro/smoke.
Adjacent Land Use	Movement and Maneuver	●	Urban sprawl impacts noise and Air Quality issues.
	Fire Support	●	Urban sprawl impacts noise and Air Quality issues.

Army Installation: Fort Drum

Comments

Capabilities

Observations

1. 40% of the range/range complex mission areas are Fully Mission Capable (FMC).
2. Landspace and Infrastructure are the capability attributes most severely impacting the overall Mission.
3. Movement and Maneuver, Fire Support, Intelligence, and Command and Control are the mission areas most severely impacted by various capability attributes.

Capability Attributes	Assigned Training Mission	Color	Comments
Land Space	Movement and Maneuver	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Fire Support	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Intelligence	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Sustainment	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Command Control	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Protection	●	Doctrinal training land shortfall that forces all units to do workarounds.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Scoring & Feedback System	Movement and Maneuver	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Fire Support	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Intelligence	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Command Control	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Protection	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
Infrastructure	Movement and Maneuver	●	26 out of 40 training area bridges are in need of replacement or repair.
	Fire Support	●	26 out of 40 training area bridges are in need of replacement or repair.
	Intelligence	●	26 out of 40 training area bridges are in need of replacement or repair.
	Sustainment	●	26 out of 40 training area bridges are in need of replacement or repair.
	Command Control	●	26 out of 40 training area bridges are in need of replacement or repair.
	Protection	●	26 out of 40 training area bridges are in need of replacement or repair.
Range Support	Movement and Maneuver	●	Installation has less than 60% of Operations funding to operate the range complex.
	Fire Support	●	Installation has less than 60% of Operations funding to operate the range complex.
	Intelligence	●	Installation has less than 60% of Operations funding to operate the range complex.
	Sustainment	●	Installation has less than 60% of Operations funding to operate the range complex.
	Command Control	●	Installation has less than 60% of Operations funding to operate the range complex.
	Protection	●	Installation has less than 60% of Operations funding to operate the range complex.

Encroachment

Observations

- 1. 18% of the range/range complex mission is MODERATELY impacted by encroachment factors.
- 2. Noise Restrictions and Adjacent Land Use are the two encroachment factors most impacting the training mission.
- 3. The mission areas of Movement and Maneuver, Fire Support, Intelligence, and Protection are most impacted by these encroachment factors.

Encroachment Factors	Assigned Training Mission	Color	Comment
Noise Restrictions	Movement and Maneuver	●	No artillery fire within 1 KM of the boundary.
	Fire Support	●	No artillery fire within 1 KM of the boundary.
	Intelligence	●	No artillery fire within 1 KM of the boundary.
	Protection	●	No artillery fire within 1 KM of the boundary.
Adjacent Land Use	Movement and Maneuver	●	Urban land use restricts live fire.
	Fire Support	●	Urban land use restricts live fire.
	Intelligence	●	Urban land use restricts live fire.

Army Installation: Fort Hood

Comments

Capabilities

Observations

- 31% of the range/range complex mission areas are Fully Mission Capable (FMC).
- Landscape is the capability attribute most severely impacting the overall Mission.
- Movement and Maneuver and Fire Support are the mission areas most severely impacted by various capability attributes.

Capability Attributes	Assigned Training Mission	Color	Comments
Land Space	Movement and Maneuver	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Fire Support	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Intelligence	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Sustainment	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Command Control	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Protection	●	Doctrinal training land shortfall that forces all units to do workarounds.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Scoring & Feedback System	Movement and Maneuver	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Fire Support	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Intelligence	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Command Control	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Protection	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
Range Support	Movement and Maneuver	●	Installation has less than 60% of Operations funding to operate the range complex.
	Fire Support	●	Installation has less than 60% of Operations funding to operate the range complex.
	Intelligence	●	Installation has less than 60% of Operations funding to operate the range complex.
	Sustainment	●	Installation has less than 60% of Operations funding to operate the range complex.
	Command Control	●	Installation has less than 60% of Operations funding to operate the range complex.
	Protection	●	Installation has less than 60% of Operations funding to operate the range complex.
Collective Ranges	Movement and Maneuver	●	Modernization construction has to be spread out to maintain predeployment training capability.
	Fire Support	●	Modernization construction has to be spread out to maintain predeployment training capability.
	Sustainment	●	Modernization construction has to be spread out to maintain predeployment training capability.
	Protection	●	Modernization construction has to be spread out to maintain predeployment training capability.

Capability Attributes	Assigned Training Mission	Color	Comments
MOUT Facilities	Movement and Maneuver	●	Urban operations facilities gap (to be completed in 2012).
	Fire Support	●	Urban operations facilities gap (to be completed in 2012).
	Intelligence	●	Urban operations facilities gap (to be completed in 2012).
	Sustainment	●	Urban operations facilities gap (to be completed in 2012).
	Command Control	●	Urban operations facilities gap (to be completed in 2012).
	Protection	●	Urban operations facilities gap (to be completed in 2012).

Encroachment

Observations

- 5% of the range/range complex mission is SEVERELY impacted by encroachment factors and 32% of the range/range complex mission is MODERATELY impacted by encroachment factors.
- Threatened & Endangered Species/Critical Habitat, Air Quality, and Adjacent Land Use are the encroachment factors most impacting the training mission.
- The mission areas of Movement and Maneuver, Fire Support, and Protection are most impacted by these encroachment factors.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Movement and Maneuver	●	Restrictions on thinning habitat, impacts use by units. 12% of op area has digging restrictions.
	Fire Support	●	Restrictions on thinning habitat, impacts use by units. 12% of op area has digging restrictions.
	Intelligence	●	Restrictions on thinning habitat, impacts use by units. 12% of op area has digging restrictions.
	Sustainment	●	Restrictions on thinning habitat, impacts use by units. 12% of op area has digging restrictions.
	Command Control	●	Restrictions on thinning habitat, impacts use by units. 12% of op area has digging restrictions.
	Protection	●	Restrictions on thinning habitat, impacts use by units. 12% of op area has digging restrictions.
Airspace	Movement and Maneuver	●	Flight ceilings are restricted due to TES.
	Fire Support	●	Flight ceilings are restricted due to TES.
	Intelligence	●	Flight ceilings are restricted due to TES.
	Command Control	●	Flight ceilings are restricted due to TES.
Air Quality	Movement and Maneuver	●	32% of the operational area is restricted from using smoke for training.
	Fire Support	●	32% of the operational area is restricted from using smoke for training.
	Protection	●	32% of the operational area is restricted from using smoke for training.
Adjacent Land Use	Movement and Maneuver	●	Urban land use compounds other issues.
	Protection	●	Urban land use compounds other issues.

Army Installation: Fort Irwin

Comments

Capabilities

Observations

1. 61% of the range/range complex mission areas are Fully Mission Capable (FMC).
2. Infrastructure is the capability attribute most severely impacting the overall Mission.
3. Movement and Maneuver and Fire Support are the mission areas most severely impacted by various capability attributes.

Capability Attributes	Assigned Training Mission	Color	Comments
Land Space	Movement and Maneuver	●	Due to completion of 75% of land acquisition. Assumes final completion of land acquisition in FY09.
	Fire Support	●	Due to completion of 75% of land acquisition. Assumes final completion of land acquisition in FY09.
	Intelligence	●	Due to completion of 75% of land acquisition. Assumes final completion of land acquisition in FY09.
	Sustainment	●	Due to completion of 75% of land acquisition. Assumes final completion of land acquisition in FY09.
	Command Control	●	Due to completion of 75% of land acquisition. Assumes final completion of land acquisition in FY09.
	Protection	●	Due to completion of 75% of land acquisition. Assumes final completion of land acquisition in FY09.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Infrastructure	Movement and Maneuver	●	Installation's road network is in a failing condition with surface cracking, potholes, and improper drainage. There was significant damage in 2007 due to extensive late winter and early spring rain storms.
	Fire Support	●	Installation's road network is in a failing condition with surface cracking, potholes, and improper drainage. There was significant damage in 2007 due to extensive late winter and early spring rain storms.
	Intelligence	●	Installation's road network is in a failing condition with surface cracking, potholes, and improper drainage. There was significant damage in 2007 due to extensive late winter and early spring rain storms.
	Sustainment	●	Installation's road network is in a failing condition with surface cracking, potholes, and improper drainage. There was significant damage in 2007 due to extensive late winter and early spring rain storms.
	Command Control	●	Installation's road network is in a failing condition with surface cracking, potholes, and improper drainage. There was significant damage in 2007 due to extensive late winter and early spring rain storms.
	Protection	●	Installation's road network is in a failing condition with surface cracking, potholes, and improper drainage. There was significant damage in 2007 due to extensive late winter and early spring rain storms.
Collective Ranges	Movement and Maneuver	●	Live-fire capability requires recapitalization.
	Fire Support	●	Live-fire capability requires recapitalization.
	Sustainment	●	Live-fire capability requires recapitalization.
	Protection	●	Live-fire capability requires recapitalization.
MOUT Facilities	Movement and Maneuver	●	Urban operations facilities modernization is phased across the POM.
	Fire Support	●	Urban operations facilities modernization is phased across the POM.
	Intelligence	●	Urban operations facilities modernization is phased across the POM.
	Sustainment	●	Urban operations facilities modernization is phased across the POM.
	Command Control	●	Urban operations facilities modernization is phased across the POM.
	Protection	●	Urban operations facilities modernization is phased across the POM.

Encroachment

Observations

1. 5% of the range/range complex mission is MODERATELY impacted by encroachment factors.
2. Adjacent Land Use is the encroachment factor most impacting the training mission.
3. Movement and Maneuver and Fire Support are the most affected mission areas.

Encroachment Factors	Assigned Training Mission	Color	Comment
Adjacent Land Use	Movement and Maneuver	●	Recreational vehicle use and grazing have prevented the opening of area UTM-90 (27,000 acres) for training and it is not possible for two BCTs to maneuver concurrently. Current plan would remove restrictions by 2009.
	Intelligence	●	NASA complex causes some mission encroachment.

Army Installation: Fort Lewis

Comments

Capabilities

Observations

- 53% of the range/range complex mission areas are Fully Mission Capable (FMC).
- Landscape and Infrastructure are the capability attributes most severely impacting the overall Mission.
- Movement and Maneuver, Fire Support, Intelligence, and Command and Control are the mission areas most severely impacted by various capability attributes.

Capability Attributes	Assigned Training Mission	Color	Comments
Land Space	Movement and Maneuver	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Fire Support	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Intelligence	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Sustainment	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Command Control	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Protection	●	Doctrinal training land shortfall that causes units to do minor workarounds.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Scoring and Feedback	Movement and Maneuver	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Fire Support	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Intelligence	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Command Control	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Protection	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
Range Support	Movement and Maneuver	●	Installation has less than 60% of Operations funding to operate the range complex
	Fire Support	●	Installation has less than 60% of Operations funding to operate the range complex
	Intelligence	●	Installation has less than 60% of Operations funding to operate the range complex
	Sustainment	●	Installation has less than 60% of Operations funding to operate the range complex
	Command Control	●	Installation has less than 60% of Operations funding to operate the range complex
	Protection	●	Installation has less than 60% of Operations funding to operate the range complex

Encroachment

Observations

1. 29% of the range/range complex mission is MODERATELY impacted by encroachment factors
2. Threatened & Endangered Species/Critical Habitat and Adjacent Land Use are the two encroachment factors most impacting the training mission.
3. All mission areas are equally impacted by these encroachment factors.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Movement and Maneuver	●	Restricts training in 10% of the operational area.
	Fire Support	●	Restricts training in 10% of the operational area.
	Intelligence	●	Restricts training in 10% of the operational area.
	Sustainment	●	Restricts training in 10% of the operational area.
	Command Control	●	Restricts training in 10% of the operational area.
	Protection	●	Restricts training in 10% of the operational area.
Adjacent Land Use	Movement and Maneuver	●	Restricts training in 10% of the operational area. Urban sprawl around the installation makes the installation an island of biodiversity.
	Fire Support	●	Restricts training in 10% of the operational area. Urban sprawl around the installation makes the installation an island of biodiversity.
	Intelligence	●	Restricts training in 10% of the operational area. Urban sprawl around the installation makes the installation an island of biodiversity.
	Sustainment	●	Restricts training in 10% of the operational area. Urban sprawl around the installation makes the installation an island of biodiversity.
	Command Control	●	Restricts training in 10% of the operational area. Urban sprawl around the installation makes the installation an island of biodiversity.
	Protection	●	Restricts training in 10% of the operational area. Urban sprawl around the installation makes the installation an island of biodiversity.

Army Installation: Fort Polk

Comments

Capabilities

Observations

1. 75% of the range/range complex mission areas are Fully Mission Capable (FMC).
2. Landspace is the capability attribute most severely impacting the overall Mission.
3. Movement and Maneuver, Sustainment, and Protection are the mission areas most severely impacted by various capability attributes.

Capability Attributes	Assigned Training Mission	Color	Comments
Land Space	Movement and Maneuver	●	Training land shortfall causes conflict between JRTC and home-station requirements.
	Fire Support	●	Training land shortfall causes conflict between JRTC and home-station requirements.
	Intelligence	●	Training land shortfall causes conflict between JRTC and home-station requirements.
	Sustainment	●	Training land shortfall causes conflict between JRTC and home-station requirements.
	Command Control	●	Training land shortfall causes conflict between JRTC and home-station requirements.
	Protection	●	Training land shortfall causes conflict between JRTC and home-station requirements.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Small Arms Ranges	Movement and Maneuver	●	Small areas support mission is increasing.
	Sustainment	●	Small areas support mission is increasing.
	Protection	●	Small areas support mission is increasing.

Encroachment

Observations

1. 0% of the range/range complex mission is impacted by encroachment factors.

Encroachment Factors	Assigned Training Mission	Color	Comment
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No Comments

Army Installation: Fort Riley

Comments

Capabilities

Observations

1. 52% of the range/range complex mission areas are Fully Mission Capable (FMC).
2. Landspace is the capability attribute most severely impacting the overall Mission.
3. Movement and Maneuver is the mission area most severely impacted by various capability attributes.

Capability Attributes	Assigned Training Mission	Color	Comments
Land Space	Movement and Maneuver	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Fire Support	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Intelligence	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Sustainment	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Command Control	●	Doctrinal training land shortfall that forces all units to do workarounds.
	Protection	●	Doctrinal training land shortfall that forces all units to do workarounds.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Scoring and Feedback	Movement and Maneuver	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Fire Support	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Intelligence	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Command Control	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Protection	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
Small Arms Range	Movement and Maneuver	●	Range complex changing to support BRAC and GTA increases.
	Sustainment	●	Range complex changing to support BRAC and GTA increases.
	Protection	●	Range complex changing to support BRAC and GTA increases.
Collective Ranges	Movement and Maneuver	●	Large collective gunnery modernization is phased across POM.
	Fire Support	●	Large collective gunnery modernization is phased across POM.
	Sustainment	●	Large collective gunnery modernization is phased across POM.
	Protection	●	Large collective gunnery modernization is phased across POM.

Encroachment

Observations

1. 0% of the range/range complex mission is impacted by encroachment factors.

Encroachment Factors	Assigned Training Mission	Color	Comment
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No Comments

Army Installation: Fort Stewart

Comments

Capabilities

Observations

- 38% of the range/range complex mission areas are Fully Mission Capable (FMC).
- Scoring & Feedback Systems is the capability attribute most severely impacting the overall Mission.
- Movement and Maneuver is the mission area most severely impacted by various capability attributes

Capability Attributes	Assigned Training Mission	Color	Comments
Land Space	Movement and Maneuver	●	Doctrinal training land shortfall, however, conversion of a heavy unit to a light unit helps to offset the additional infantry brigade.
	Fire Support	●	Doctrinal training land shortfall, however, conversion of a heavy unit to a light unit helps to offset the additional infantry brigade.
	Intelligence	●	Doctrinal training land shortfall, however, conversion of a heavy unit to a light unit helps to offset the additional infantry brigade.
	Sustainment	●	Doctrinal training land shortfall, however, conversion of a heavy unit to a light unit helps to offset the additional infantry brigade.
	Command Control	●	Doctrinal training land shortfall, however, conversion of a heavy unit to a light unit helps to offset the additional infantry brigade.
	Protection	●	Doctrinal training land shortfall, however, conversion of a heavy unit to a light unit helps to offset the additional infantry brigade.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Scoring and Feedback	Movement and Maneuver	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Fire Support	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Intelligence	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Command Control	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
	Protection	●	No Instrumentation System capability. No ability to conduct instrumented Live Force-on-Force training exercise.
Range Support	Movement and Maneuver	●	Installation has less than 60% of Operations funding to operate the range complex.
	Fire Support	●	Installation has less than 60% of Operations funding to operate the range complex.
	Intelligence	●	Installation has less than 60% of Operations funding to operate the range complex.
	Sustainment	●	Installation has less than 60% of Operations funding to operate the range complex.
	Command Control	●	Installation has less than 60% of Operations funding to operate the range complex.
	Protection	●	Installation has less than 60% of Operations funding to operate the range complex.

Capability Attributes	Assigned Training Mission	Color	Comments
Small Arms Range	Movement and Maneuver	●	Range complex changing to support GTA increases.
	Sustainment	●	Range complex changing to support GTA increases.
	Protection	●	Range complex changing to support GTA increases.
Collective Ranges	Movement and Maneuver	●	Large collective gunnery modernization is phased across POM.
	Fire Support	●	Large collective gunnery modernization is phased across POM.
	Sustainment	●	Large collective gunnery modernization is phased across POM.
	Protection	●	Large collective gunnery modernization is phased across POM.

Encroachment

Observations

- 17% of the range/range complex mission is MODERATELY impacted by encroachment factors.
- Wetlands is the encroachment factor most impacting the training mission.
- All mission areas are equally impacted by this encroachment factor.

Encroachment Factors	Assigned Training Mission	Color	Comment
Wetlands	Movement and Maneuver	●	64% of the operational area is restricted due to wetlands.
	Fire Support	●	64% of the operational area is restricted due to wetlands.
	Intelligence	●	64% of the operational area is restricted due to wetlands.
	Sustainment	●	64% of the operational area is restricted due to wetlands.
	Command Control	●	64% of the operational area is restricted due to wetlands.
	Protection	●	64% of the operational area is restricted due to wetlands.

Army Installation: Fort Wainwright

Comments

Capabilities

Observations

1. 64% of the range/range complex mission areas are Fully Mission Capable (FMC).
2. Infrastructure and Range Support are the capability attributes most severely impacting the overall Mission.
3. Movement and Maneuver, Fire Support, Intelligence, and Command and Control are the mission areas most severely impacted by various capability attributes.

Capability Attributes	Assigned Training Mission	Color	Comments
Land Space	Movement and Maneuver	●	Seasonal availability of ranges and training land limits the Army from leveraging this training land further.
	Fire Support	●	Seasonal availability of ranges and training land limits the Army from leveraging this training land further.
	Intelligence	●	Seasonal availability of ranges and training land limits the Army from leveraging this training land further.
	Sustainment	●	Seasonal availability of ranges and training land limits the Army from leveraging this training land further.
	Command Control	●	Seasonal availability of ranges and training land limits the Army from leveraging this training land further.
	Protection	●	Seasonal availability of ranges and training land limits the Army from leveraging this training land further.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Infrastructure	Movement and Maneuver	●	Service roads and bridges are in poor condition and need repairs/replacement. Due to limited SRM funds, resurfacing of these roads has been deferred.
	Fire Support	●	Service roads and bridges are in poor condition and need repairs/replacement. Due to limited SRM funds, resurfacing of these roads has been deferred.
	Intelligence	●	Service roads and bridges are in poor condition and need repairs/replacement. Due to limited SRM funds, resurfacing of these roads has been deferred.
	Sustainment	●	Service roads and bridges are in poor condition and need repairs/replacement. Due to limited SRM funds, resurfacing of these roads has been deferred.
	Command Control	●	Service roads and bridges are in poor condition and need repairs/replacement. Due to limited SRM funds, resurfacing of these roads has been deferred.
	Protection	●	Service roads and bridges are in poor condition and need repairs/replacement. Due to limited SRM funds, resurfacing of these roads has been deferred.
Range Support	Movement and Maneuver	●	Lack of range staff/personnel.
	Fire Support	●	Lack of range staff/personnel.
	Intelligence	●	Lack of range staff/personnel.
	Sustainment	●	Lack of range staff/personnel.
	Command Control	●	Lack of range staff/personnel.
	Protection	●	Lack of range staff/personnel.

Encroachment

Observations

1. 15% of the range/range complex mission is SEVERELY impacted by encroachment factors.
2. Wetlands is the encroachment factor most impacting the training mission.
3. All mission areas are equally impacted by these encroachment factors.

Encroachment Factors	Assigned Training Mission	Color	Comment
Wetlands	Movement and Maneuver	●	Restricts digging on 76% of the installation and maneuver on 28% of the installation.
	Fire Support	●	Restricts digging on 76% of the installation and maneuver on 28% of the installation.
	Intelligence	●	Restricts digging on 76% of the installation and maneuver on 28% of the installation.
	Sustainment	●	Restricts digging on 76% of the installation and maneuver on 28% of the installation.
	Command Control	●	Restricts digging on 76% of the installation and maneuver on 28% of the installation.
	Protection	●	Restricts digging on 76% of the installation and maneuver on 28% of the installation.

Army Installation: Fort Yakima

Comments

Capabilities

Observations

- 38% of the range/range complex mission areas are Fully Mission Capable (FMC).
- Landscape and Range Support are the capability attributes most severely impacting the overall Mission.
- Movement and Maneuver is the mission area most severely impacted by various capability attributes.

Capability Attributes	Assigned Training Mission	Color	Comments
Land Space	Movement and Maneuver	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Fire Support	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Intelligence	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Sustainment	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Command Control	●	Doctrinal training land shortfall that causes units to do minor workarounds.
	Protection	●	Doctrinal training land shortfall that causes units to do minor workarounds.
Airspace	Movement and Maneuver	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Fire Support	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Intelligence	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
	Command Control	●	The situation is unknown in the future and the Army is likely to require more controlled airspace at more installations to support UAV training.
Scoring and Feedback System	Movement and Maneuver	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Fire Support	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Intelligence	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Command Control	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
	Protection	●	Interim Instrumentation System capability exists. There is limited capability to conduct instrumented Force-on-Force training exercises.
Range Support	Movement and Maneuver	●	Installation has less than 60% of Operations funding to operate the range complex
	Fire Support	●	Installation has less than 60% of Operations funding to operate the range complex
	Intelligence	●	Installation has less than 60% of Operations funding to operate the range complex
	Sustainment	●	Installation has less than 60% of Operations funding to operate the range complex
	Command Control	●	Installation has less than 60% of Operations funding to operate the range complex
	Protection	●	Installation has less than 60% of Operations funding to operate the range complex
Small Arms Ranges	Movement and Maneuver	●	Small arms capability to support SBCTs.
	Sustainment	●	Small arms capability to support SBCTs.
	Protection	●	Small arms capability to support SBCTs.

Capability Attributes	Assigned Training Mission	Color	Comments
Collective Ranges	Movement and Maneuver	●	Collective gunnery and aviation capability modernization is phased across the POM.
	Fire Support	●	Collective gunnery and aviation capability modernization is phased across the POM.
	Sustainment	●	Collective gunnery and aviation capability modernization is phased across the POM.
	Protection	●	Collective gunnery and aviation capability modernization is phased across the POM.

Encroachment

Observations

- 22% of the range/range complex mission is MODERATELY impacted by encroachment factors
- Threatened & Endangered Species/Critical Habitat is the encroachment factor most impacting the training mission.
- The mission areas of Movement and Maneuver, Fire Support, and Protection are most impacted by these encroachment factors.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Movement and Maneuver	●	More than 10% of the operating area is restricted for training.
	Fire Support	●	More than 10% of the operating area is restricted for training.
	Intelligence	●	More than 10% of the operating area is restricted for training.
	Sustainment	●	More than 10% of the operating area is restricted for training.
	Command Control	●	More than 10% of the operating area is restricted for training.
	Protection	●	More than 10% of the operating area is restricted for training.
Air Quality	Movement and Maneuver	●	More than 10% of the operating area is restricted for training.
	Fire Support	●	More than 10% of the operating area is restricted for training.
	Protection	●	More than 10% of the operating area is restricted for training.

Marine Corps Range: MGAGCC Twentynine Palms

Comments

Capabilities

Observations

1. The USMC Training Ranges Required Capabilities Document (RCD) and the Marine Corps Air Ground Combat Center (MCAGCC) (Twentynine Palms) Range Complex Management Plan (RCMP) are references for this assessment.
2. The MCAGCC RCMP has identified numerous capability shortfalls at the Marine Corps Air Ground Combat Center (MCAGCC).
3. Landspace is the most limiting capability to conduct large-scale MAGTF and Joint exercise training that include all MAGTF elements.
4. MEB-level training is the most impacted. MCAGCC is the only place where marines can exercise at the MAGTF MEB level.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	MEU Level Training	●	There is insufficient landspace to meet USMC Training Ranges Required Capabilities Document (RCD) requirements and to conduct large-scale MAGTF and Joint exercises that involve all elements of combined arms training. There is a land expansion project under consideration to address landspace limitations.
	MEB Level Training	●	There is insufficient landspace to meet USMC Training Ranges Required Capabilities Document (RCD) requirements and to conduct large-scale MAGTF and Joint exercises that involve all elements of combined arms training. There is a land expansion project under consideration to address landspace limitations.
Airspace	MEU Level Training	●	In conjunction with land expansion proposals, airspace expansion is necessary to accommodate larger combined arms training events.
	MEB Level Training	●	In conjunction with land expansion proposals, airspace expansion is necessary to accommodate larger combined arms training events.
Targets	Individual Level Training	●	Although there are some range and target shortfalls for individual training, MCAGCC currently supports required individual training.
	Unit Level Training	●	There are a number of required ranges and target areas that either don't exist or need modernization to meet the USMC Training Ranges Required Capabilities Document (RCD) requirements. These shortfalls span all levels of unit training. Shortfalls include infantry and mechanized automated ranges and targets, battle-course ranges and targets, assault/breaching/demolition ranges, and others. The MCAGCC RCMP identifies range and target shortfalls according to whether MCAGCC lacks a given range and target set or whether MCAGCC provides a given capability but lacks sufficient capacity on that type of range and target set. MCAGCC is studying these shortfalls and formulating mitigation strategies to identify, prioritize, and develop designs and DD 1391s for range and training area investments.
	MEU Level Training	●	As noted, land and airspace expansion proposals would support large-scale MAGTF training. Targetry and associated feedback systems are necessary to support live-fire training of MEUs. MCAGCC is studying range and target shortfalls and formulating mitigation strategies to identify, prioritize, and develop designs and DD 1391s for range and training area investments.
	MEB Level Training	●	As noted, land and airspace expansion proposals would support large-scale MAGTF training. Targetry and associated feedback systems are necessary to support live-fire training of large MAGTFs / MEBs. MCAGCC is studying range and target shortfalls and formulating mitigation strategies to identify, prioritize, and develop designs and DD 1391s for range and training area investments.
Threats	Unit Level Training	●	MCAGCC requires a comprehensive electronic training environment supporting basic through advanced training at the individual through large-scale Joint exercise levels. The capability must simulate neutral, hostile, and non-hostile ground, air defense, and airborne weapons systems; OPFOR command and control; neutral, hostile, and non-hostile cryptologic systems; and hostile jamming. There are efforts underway to study OPFOR capability alternatives and to develop shortfall strategies.
	MEU Level Training	●	MCAGCC requires a comprehensive electronic training environment supporting basic through advanced training at the individual through large-scale Joint exercise levels. The capability must simulate neutral, hostile, and non-hostile ground, air defense, and airborne weapons systems; OPFOR command and control; neutral, hostile, and non-hostile cryptologic systems; and hostile jamming. There are efforts underway to study OPFOR capability alternatives and to develop shortfall strategies.
	MEB Level Training	●	MCAGCC requires a comprehensive electronic training environment supporting basic through advanced training at the individual through large-scale Joint exercise levels. The capability must simulate neutral, hostile, and non-hostile ground, air defense, and airborne weapons systems; OPFOR command and control; neutral, hostile, and non-hostile cryptologic systems; and hostile jamming. There are efforts underway to study OPFOR capability alternatives and to develop shortfall strategies.

Capability Attributes	Assigned Training Mission	Color	Comments
Scoring & Feedback System	Individual Level Training	●	There are a number of required ranges and target areas that either don't exist or need modernization to meet the USMC Training Ranges Required Capabilities Document (RCD) requirements. These shortfalls span all levels of training. Shortfalls include infantry and mechanized automated ranges and targets, battle-course ranges and targets, assault/breaching/demolition ranges, and others. MCAGCC is studying these shortfalls and formulating mitigation strategies to identify, prioritize, and develop designs and DD 1391s for range and training area investments.
	Unit Level Training	●	Existing ranges generally lack scoring and feedback systems. MCAGCC is studying these shortfalls and formulating mitigation strategies to identify, prioritize, and develop designs for range instrumentation systems and infrastructure.
	MEU Level Training	●	MAGTF-level training requires enhanced instrumentation for training event reconstruction, debriefing, and replay. MCAGCC currently lacks such capabilities. MCAGCC is studying these shortfalls and formulating mitigation strategies to identify, prioritize, and develop designs for range instrumentation systems and infrastructure.
	MEB Level Training	●	MAGTF-level training requires enhanced instrumentation for training event reconstruction, debriefing, and replay. MCAGCC currently lacks such capabilities. MCAGCC is studying these shortfalls and formulating mitigation strategies to identify, prioritize, and develop designs for range instrumentation systems and infrastructure.
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	●	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.

Encroachment

Observations

- 19% of the range/range complex mission is MODERATELY impacted by encroachment factors.
- Spectrum and Airspace are the encroachment factors moderately impacting most of the training mission.
- Individual, Unit , MEU and MEB Level Training are the affected mission areas.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Individual Level Training	●	Congested frequency spectrum limits frequency availability/deconfliction. Frequency spectrum interference (CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	Congested frequency spectrum limits frequency availability/deconfliction. Frequency spectrum interference (CLUS App. D. Part II. 1 and 2)
	MEU Level Training	●	Congested frequency spectrum limits frequency availability/deconfliction. Frequency spectrum interference (CLUS App. D. Part II. 1 and 2)
	MEB Level Training	●	Congested frequency spectrum limits frequency availability/deconfliction. Frequency spectrum interference (CLUS App. D. Part II. 1 and 2)
Airspace	Individual Level Training	●	Congested complex airspace surrounding SUA impacts fixed wing ingress/ egress. (CLUS App. D. Part II. 1 and 3)
	Unit Level Training	●	Congested, complex airspace surrounding Special Use Airspace (SUA) supporting bombing ranges. Impacts fixed wing ingress/egress. Causes FAA pressure for access to SUA (CLUS App. D. Part II. 1 and 2)
	MEU Level Training	●	Congested, complex airspace surrounding Special Use Airspace (SUA) supporting bombing ranges. Impacts fixed wing ingress/egress. Causes FAA pressure for access to SUA (CLUS App. D. Part II. 1 and 2)
	MEB Level Training	●	Congested, complex airspace surrounding Special Use Airspace (SUA) supporting bombing ranges. Impacts fixed wing ingress/egress. Causes FAA pressure for access to SUA (CLUS App. D. Part II. 1 and 2)

Marine Corps Installation: MCAS Beaufort-Townsend

Comments

Capabilities

Observations

1. The USMC Training Ranges Required Capabilities Document (RCD) and the affiliated Range Complex Management Plan (RCMP) Range Complex Capabilities Assessment are the references for this assessment.
2. MEB level training not assessed. Capability attributes in "white" were not assessed at Townsend Range.
3. Landspace and targets are the most restrictive due to standoff weapons (e.g., JDAM) restrictions and no mobile targets.
4. All levels of training are affected by landspace and targets.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Individual Level Training	●	Landspace does not meet USMC Training Ranges Required Capabilities Document (RCD) size requirements. No standoff weapons capability due to footprint exceeding available landspace. Range expansion is being considered to accommodate standoff weapons air-to-ground deliveries.
	Unit Level Training	●	Landspace does not meet RCD size requirements. No standoff weapons capability due to footprint exceeding available landspace. Range expansion is being considered to accommodate standoff weapons air-to-ground deliveries.
	MEU Level Training	●	Landspace does not meet RCD size requirements. No standoff weapons capability due to footprint exceeding available landspace. Range expansion is being considered to accommodate standoff weapons air-to-ground deliveries.
Targets	Individual Level Training	●	No live ordnance allowed. No mobile targets.
	Unit Level Training	●	No live ordnance allowed. No mobile targets.
	MEU Level Training	●	No live ordnance allowed. No mobile targets.

Encroachment

Observations

1. 0% of the range/range complex mission is (level) impacted by encroachment factors.
2. (factors) are the encroachment factors moderately impacting most of the training mission.
3. (mission areas) are the affected mission areas.

Encroachment Factors	Assigned Training Mission	Color	Comment
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No Comments

Marine Corps Range: MCMWTC Bridgeport

Comments

Capabilities

Observations

1. Bridgeport has not been assessed. The Bridgeport Range Complex Management Plan (RCMP) is being scheduled for completion in 2009. Start date is May 2008
2. N/A
3. N/A

Capability Attributes	Assigned Training Mission	Color	Comments
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No Comments

Encroachment

Observations

1. 20% of the range/range complex mission is SEVERELY impacted by encroachment factors.
2. Noise Restrictions and Wetlands (Clean Water Act) are the encroachment factors severely impacting most of the training mission.
3. Individual and Unit Level Training are the affected mission areas.

Encroachment Factors	Assigned Training Mission	Color	Comment
Noise Restrictions	Individual Level Training	●	Forced to cancel high altitude aviation training due to severe restrictions on use of LZs and restrictions on number of aircraft and communications requirements Clean Water Act, wetlands restrictions, airborne noise impacts, cultural resources, endangered species, fire restrictions, community concerns.(CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	Forced to cancel high altitude aviation training due to severe restrictions on use of LZs and restrictions on number of aircraft and communications requirements Clean Water Act, wetlands restrictions, airborne noise impacts, cultural resources, endangered species, fire restrictions, community concerns.(CLUS App. D. Part II. 1 and 2)
Wetlands	Individual Level Training	●	Forced to cancel high altitude aviation training due to severe restrictions on use of LZs and restrictions on number of aircraft and communications requirements Clean Water Act, wetlands restrictions, airborne noise impacts, cultural resources, endangered species, fire restrictions, community concerns. (CLUS App. D. Part II. 1 and 2). Embedded Trainer Training (ETT) May 2007 - convoys restricted to existing roads. No way to train in off-road circumstances per Clean Water Act restrictions. (CLUS App. D. Part II. 1 and 3).
	Unit Level Training	●	Forced to cancel high altitude aviation training due to severe restrictions on use of LZs and restrictions on number of aircraft and communications requirements Clean Water Act, wetlands restrictions, airborne noise impacts, cultural resources, endangered species, fire restrictions, community concerns. (CLUS App. D. Part II. 1 and 2). Embedded Trainer Training (ETT) May 2007 - convoys restricted to existing roads. No way to train in off-road circumstances per Clean Water Act restrictions. (CLUS App. D. Part II. 1 and 3).

Marine Corps Range: MCB Camp Butler

Comments

Capabilities

Observations

1. Butler has not been assessed.
2. An Okinawa Range Complex Management Plan (RCMP) is on the planning horizon; funding and scheduling are pending.
3. N/A
4. N/A

Capability Attributes	Assigned Training Mission	Color	Comments
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No Comments

Encroachment

Observations

1. Not assessed.

Encroachment Factors	Assigned Training Mission	Color	Comment
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No Comments

Marine Corps Range: MCAS Cherry Point

Comments

Capabilities

Observations

1. The USMC Training Ranges Required Capabilities Document (RCD) and the affiliated Range Complex Management Plan (RCMP) Range Complex Capabilities Assessment are the references for this assessment.
2. MEB-level training was not assessed. Attribute areas in "white" were not assessed at MCAS CP.
3. Targets is the most significant capability attribute impacting the overall mission.
4. Capability shortfalls affect all levels of training equally.

Capability Attributes	Assigned Training Mission	Color	Comments
Airspace	Individual Level Training	●	ACE units at Cherry Point use MCB Camp Lejeune airspace and the Navy's W-122. Use of non-Cherry Point airspace requires strict coordination with Camp Lejeune and FACSFAC VACAPES.
	Unit Level Training	●	ACE units at Cherry Point use MCB Camp Lejeune airspace and the Navy's W-122. Use of non-Cherry Point airspace requires strict coordination with Camp Lejeune and FACSFAC VACAPES.
	MEU Level Training	●	ACE units at Cherry Point use MCB Camp Lejeune airspace and the Navy's W-122. Use of non-Cherry Point airspace requires strict coordination with Camp Lejeune and FACSFAC VACAPES.
Targets	Individual Level Training	●	Targets do not meet requirements per the USMC Training Ranges Required Capabilities Document (RCD). 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 available.
	Unit Level Training	●	Targets do not meet requirements per the USMC Training Ranges Required Capabilities Document (RCD). 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 available.
	MEU Level Training	●	Targets do not meet requirements per the USMC Training Ranges Required Capabilities Document (RCD). 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 available.
Scoring & Feedback System	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.
	Unit 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.
	MEU 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.

Encroachment

Observations

1. 45% of the range/range complex mission is MODERATELY impacted by encroachment factors.
2. Munition Restrictions, Airspace, 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.

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Individual Level Training	●	Restricted area R5306A contains two live ordnance ranges as outlined in 33 CFR 133, named BT-9 and BT-11. Lying at the mouth of the Neuse River and Pamlico Sound, the range areas are surrounded by NC Public Trust Waters as defined by the State of NC with the intra-coastal waterway splitting the two areas. The area is vital to the Fisheries of the state, as well as a preferred recreational area. In order to abide by 40 CFR 264, also known as the Military Munitions Rule (MMR), Range managers are forced to keep weapon foot prints (also known as Surface/Weapons Danger Zone (SDZ/WDZ)) within the boundaries of the land mass of BT-11 and the defined 33 CFR Restricted/Prohibited Areas for both BT-9 and BT-11. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	Explosive storage area negatively impacted by flight corridor overfly. Number of vehicle passengers crossing Slocum Road also limits ordnance storage capacity. Cherry Point is approaching the 10k number of passengers on road that then causes a real limitation in storage areas. (CLUS App. D. Part II. 1 and 2)
Airspace	Individual Level Training	●	Use of Night Vision Goggles (NVG) training becomes difficult caused by lights within Havelock off R/W 05. ALF Bogue is still fairly dark. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	ALF Bogue SOP now require only two aircraft in Field Carrier Landing Practice (FCLP) at any one time. If aircraft cannot stay feet wet, must climb to 1000' over Emerald isle instead of 600' over the water. No Harrier waterchecks over water. Training iterations take longer to accomplish. Not as many aircraft can accomplish training in same time. Training still accomplish but longer time frame to do with only two in the pattern. (CLUS App. E. Part II.4)
Noise-Restrictions	Individual Level Training	●	The installation operates a Class C Range for Explosive Ordnance Disposal. The range is capable of disposing of up to 150 pounds Net Explosive Weight (NEW); However, we have self imposed limitations of 50 pounds to ensure noise attenuation does not impact the installation nor the city of Havelock. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	The installation operates a Class C Range for Explosive Ordnance Disposal. The range is capable of disposing of up to 150 pounds Net Explosive Weight (NEW); However, we have self imposed limitations of 50 pounds to ensure noise attenuation does not impact the installation nor the city of Havelock. (CLUS App. D. Part II. 1 and 2)
Adjacent Land Use	Individual Level Training	●	Cellular towers constructed close to Cherry Point boundaries can negatively affect operations by raising the weather minimums required for aircraft conducting instrument approaches. Runway 05 over Havelock used only when winds dictate. ALF Bogue also has major urban encroachment.(CLUS App. D. Part II. 1 and 2).
	Unit Level Training	●	Continued encroachment by real estate developers within the R5306A causes run in headings to be altered for aircraft utilizing the BT targets as well as low altitude routes within and out of the restricted airspace. (CLUS App. D. Part II. 1 and 2)
Range Transients	Individual Level Training	●	As defined above, the BT-9 and BT-11 range areas are also used by water-borne craft in practicing shallow water target engagements. Due to the restrictions mentioned above, the firing of .50 caliber munitions from surface fired platforms is restricted at BT-11. The SDZ from .50 munitions extends outside of the defined Restricted/Prohibited areas. MCOLF Atlantic is a high value 1200 acre airfield facility used for numerous supporting arms (aviation) activities. The lack of a fence around the borders allows for unrestricted access to the facility. Local community members are allowed to access the facility for specific activities, but the airfield has been more recently identified as a preferred location for non-station supported all terrain vehicles. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	MCOLF Atlantic is a high value 1200 acre airfield facility used for numerous supporting arms (aviation) activities. The lack of a fence around the borders allows for unrestricted access to the facility. Local community members are allowed to access the facility for specific activities, but the airfield has been more recently identified as a preferred location for non-station supported all terrain vehicle (ATV) riding. With the potential incorporation of an Airfield Seizure Facility (AFSF) to the grounds the safety of non-DOD personnel accessing the site will need to be addressed. (CLUS App. D. Part II. 1 and 3)

Marine Corps Range: MCB Hawaii

Comments

Capabilities

Observations

1. The USMC Training Ranges Required Capabilities Document (RCD) and the affiliated Range Complex Management Plan (RCMP) Range Complex Capabilities Assessment are the references for this assessment.
2. MEB-level was not assessed. Attribute areas in "white" were not assessed.
3. Landspace and instrumentation (Scoring & Feedback System) are the two attributes with the most severe shortfalls.
4. Unit-level and MEU-level training are most severely impacted by land area and instrumentation capability shortfalls.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Individual Level Training	●	No beachfront contiguous to adequate maneuver land. Limited MOUT capability. No Naval surface fire support (NSFS) allowed.
	Unit Level Training	●	No beachfront contiguous to adequate maneuver land. Limited MOUT capability. No Naval surface fire support (NSFS) allowed.
	MEU Level Training	●	No beachfront contiguous to adequate maneuver land. Limited MOUT capability. No Naval surface fire support (NSFS) allowed.
Airspace	Unit Level Training	●	No overland airspace. No over land low level training available. No airspace beyond land borders of range. No airspace over USMC ranges.
Targets	Individual Level Training	●	Few 155mm targets at PTA. Artillery range impact area at SBMR too small. Too few firing positions at SBMR artillery range.
	Unit Level Training	●	Limited artillery training. Limited realism in MOUT training. No A-A targets. No A-G targets. OPFOR cannot meet EC threat level 2.
	MEU Level Training	●	Lack of complete combined arms training with artillery, NSFS and A-G. Limited realism in MOUT training.
Threats	Individual Level Training	●	No reactive targets on Hawaii ranges. OPFOR simulation limited.
	Unit Level Training	●	No reactive targets on Hawaii ranges. OPFOR simulation limited. No mechanized or armored OPFOR. No OPFOR capability for ACE.
	MEU Level Training	●	No reactive targets on Hawaii ranges. OPFOR simulation limited. No OPFOR capability for ACE. Amphibious training is segmented. No supporting NSFS with amphibious training. MOUT training is segmented or lacks realism.
Scoring & Feedback System	Individual Level Training	●	Limited instrumentation use. LOMAH scoring system in jeopardy. Labor intensive rifle training without LOMAH. Increased use of MILES 2000-type technology and renewal of the LOMAH maintenance contract will help to mitigate instrumentation shortfalls.
	Unit Level Training	●	Limited instrumentation use. LOMAH scoring system in jeopardy. Labor intensive rifle training without LOMAH. Increased use of MILES 2000-type technology and renewal of the LOMAH maintenance contract will help to mitigate instrumentation shortfalls.
	MEU Level Training	●	Limited instrumentation use. LOMAH scoring system in jeopardy. Labor intensive rifle training without LOMAH. No TSPI for participant aircraft and ships. No instrumentation for ACE. Increased use of MILES 2000-type technology and renewal of the LOMAH maintenance contract will help to mitigate instrumentation shortfalls.
Range Support	Individual Level Training	●	Difficult to schedule Army ranges. Range openings go unfilled, training not accomplished. No EC&C circuits at any USMC range.
	Unit Level Training	●	Difficult to schedule Army ranges. Range openings go unfilled, training not accomplished. No EC&C circuits at any USMC range.
	MEU Level Training	●	Difficult to schedule Army ranges. Range openings go unfilled, training not accomplished. No EC&C circuits at any USMC range.

Encroachment

Observations

1. 9% of the range/range complex mission is SEVERELY impacted by encroachment factors.
2. Adjacent Land Use is the encroachment factors moderately impacting most of the training mission.
3. Individual and Unit Level Training are the affected mission areas.

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Individual Level Training	●	Requirement to store ammunition on base restricts area in front of ammunition storage facilities for training use. Other on-island installations that could have stored ammunition have been closed as a result of BRAC. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	Requirement to store ammunition on base restricts area in front of ammunition storage facilities for training use. Other on-island installations that could have stored ammunition have been closed as a result of BRAC. (CLUS App. D. Part II. 1 and 2)
Noise Restrictions	Individual Level Training	●	Community consistently complains about aircraft noise. (CLUS App. D. Part II. 1 and 2). No close air support (CAS) training available to support beach landings during recent RIMPAC multi-national exercise per concern over predicted excessive amount of noise complaints from neighboring community.(CLUS App. D. Part II. 1 and 3). Airfield Hours of operation comply with noise concerns of community. Flight patterns and course rules in place to reduce impact on neighboring community. (CLUS App. E. Part II. 4).
	Unit Level Training	●	Community consistently complains about aircraft noise. (CLUS App. D. Part II. 1 and 2). No close air support (CAS) training available to support beach landings during recent RIMPAC multi-national exercise per concern over predicted excessive amount of noise complaints from neighboring community.(CLUS App. D. Part II. 1 and 3). Airfield Hours of operation comply with noise concerns of community. Flight patterns and course rules in place to reduce impact on neighboring community. (CLUS App. E. Part II. 4).
Adjacent Land Use	Individual Level Training	●	There is no night vision training available on base for CH-53D air crews due to light pollution from surrounding communities. (CLUS App. D. Part II. 1 and 2). No medium- to long-range convoy training available on island due to traffic congestion and limited roadways. (CLUS App. D. Part II. 1 and 3)
	Unit Level Training	●	There is no night vision training available on base for CH-53D air crews due to light pollution from surrounding communities. (CLUS App. D. Part II. 1 and 2). No medium- to long-range convoy training available on island due to traffic congestion and limited roadways. (CLUS App. D. Part II. 1 and 3)
Cultural Resources	Individual Level Training	●	Extremely limited ship-to-shore (STS) training areas available. Existing areas in some cases are considered to be archaeologically or environmentally sensitive and cannot be disturbed per cultural resources and native Hawaiian organizations (NHOs) constraints.(CLUS App. D. Part II. 1 and 2). Impact to cultural (archaeological) resources. (CLUS App. D. Part II. 1 and 3).
	Unit Level Training	●	Extremely limited ship-to-shore (STS) training areas available. Existing areas in some cases are considered to be archaeologically or environmentally sensitive and cannot be disturbed per cultural resources and native Hawaiian organizations (NHOs) constraints.(CLUS App. D. Part II. 1 and 2). Impact to cultural (archaeological) resources. (CLUS App. D. Part II. 1 and 3).
Range Transients	Individual Level Training	●	Live fire ranges required to cease operations when civilian recreational boats enter range SDZ behind impact area. (CLUS App. D. Part II. 1 and 2). Ground Fire Training workarounds require placed personnel on watch for boat traffic in impact area of range. Installed radios to communicate with boat traffic. Have directed military vessels to intercept civilian boats in SDZs. Updated notices to all mariners. Costs approximately 3000 mnhrs/yr for watch, \$500/yr to fuel military intercept vessels, and \$500 for radios. (CLUS App. E. Part II. 4).
	Unit Level Training	●	Live fire ranges required to cease operations when civilian recreational boats enter range SDZ behind impact area. (CLUS App. D. Part II. 1 and 2). Ground Fire Training workarounds require placed personnel on watch for boat traffic in impact area of range. Installed radios to communicate with boat traffic. Have directed military vessels to intercept civilian boats in SDZs. Updated notices to all mariners. Costs approximately 3000 mnhrs/yr for watch, \$500/yr to fuel military intercept vessels, and \$500 for radios. (CLUS App. E. Part II. 4).

Marine Corps Range: MCB Camp Lejeune

Comments

Capabilities

Observations

1. The USMC Training Ranges Required Capabilities Document (RCD) and the affiliated Range Complex Management Plan (RCMP) Range Complex Capabilities Assessment are the references for this assessment.
2. MEB-level training was not assessed. Attribute areas in "white" were not assessed.
3. MCBCL has considerable encroachment at all levels of training.
4. Landspace for Bn-level training is severely limited. There is only limited or non-existent in-house OPFOR capability.
5. MEU-level training is most severely constrained. MEU-level training requires more robust capabilities than individual- and unit-level training.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Unit Level Training	●	Does not meet RCD requirements. Only 29,000 acres available for unit level maneuver training; 10,000 acres dedicated to impact area; MOUT facility is 300m x 400m with 31 buildings and no outlying or live-fire training areas
	MEU Level Training	●	Does not meet RCD requirements. 48,000 acres dedicated to live-fire operations; 60,000 acres dedicated to maneuver operations; MOUT facility is 300m x 400m with 31 building and no outlying or live-fire area; Do not fulfill all required T&R training requirements. II MEF is restricted to using roughly 1.2 nm (2.2 km) out of 9 nm of beachhead for amphibious training.
Airspace	Individual Level Training	●	Airspace extends from surface to only 17,999 feet; does not extend 10NM beyond land area; supersonic flight is unauthorized; fixed-wing flight operations restricted
	Unit Level Training	●	Airspace extends from surface to only 17,999 feet; does not extend 10NM beyond land area; supersonic flight is unauthorized; fixed-wing flight operations restricted
	MEU Level Training	●	Airspace extends from surface to only 17,999 feet; does not extend 10NM beyond land area; supersonic flight is unauthorized; fixed-wing flight operations restricted
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
	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.
	MEU Level Training	●	NSFS targets restricted to per-NSFS qualified ships; 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 cluster munitions; no structural/urban targets.
Threats	Individual Level Training	●	Limited to MILES 2000 equipment during tactical operations
	Unit Level Training	●	OPFOR 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 to 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.
	Unit 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.
	MEU 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 Support	Individual Level Training	●	Scheduling has limited remote use/access, non-interactive with Operational Forces.
	Unit Level Training	●	Scheduling has limited remote use/access, non-interactive with Operational Forces.
	MEU Level Training	●	Scheduling has limited remote use/access, non-interactive with Operational Forces.

Encroachment

Observations

1. 48% of the range/range complex mission is MODERATELY impacted by encroachment factors.
2. Threatened & Endangered Species/Critical Habitat, Munition Restrictions, Airspace, Noise Restrictions and Adjacent Land Use are the encroachment factors moderately impacting most of the training mission.
3. Individual, Unit and MEU Level Training are the affected mission areas.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Individual Level Training	●	Consultations ongoing with F&W Service concerning impacts of vegetation clearing within the G-10 impact area regarding RCW sites surrounding impact area. Bombing operations are restricted to inert ordnance. Bombing with live ordnance shifted to other bases. (CLUS App. E. Part II. 4)
	Unit Level Training	●	Consultations ongoing with F&W Service concerning impacts of vegetation clearing within the G-10 impact area regarding RCW sites surrounding impact area. Bombing operations are restricted to inert ordnance. Bombing with live ordnance shifted to other bases. (CLUS App. E. Part II. 4)
	MEU Level Training	●	Use of much of the beach is restricted during turtle nesting season (May–Oct). Dunes are “out of bounds” and must be maneuvered around. (CLUS App. E. Part II. 4)
Munitions Restrictions	Individual Level Training	●	Bombing operations at Camp Lejeune are restricted to inert ordnance, due partially to concerns about the noise levels that explosive ordnance would produce in the growing Bear Creek community to the east of the impact area. The impact area itself is encroached by threatened and endangered species, both within the impact area and along the eastern edge. This significantly limits our efforts to increase visibility to the targets and make the impact area more capable. Noise concerns also limits all explosive firing into this impact area to the hours of 0600-2400. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	Tank operations at our SR-7 Range have been suspended since 1998 due to noise complaints from the nearby Verona community, even though noise levels were within acceptable DoD recognized noise levels. This \$7M range does not go unused, but our flexibility to absorb the requirements of future force structure and weapon increases may be hampered by the Verona community’s sensitivity to noise. Environmental, wetlands and Primary Nursing Areas (PNA) concerns have made range enhancements and the site selection for new ranges very difficult, and, in some instances, have forced us to choose much less desirable alternatives or significantly limit rang size/capability. (CLUS App. D. Part II. 1 and 2)
	MEU Level Training	●	The use of smoke at Camp Johnson has been restricted to those days when the wind blows to the south. This is to ensure the smoke does not drift over Highway 17, which, due to recent construction of the bypass, is now quite close to the training areas at Camp Johnson. (CLUS App. D. Part II. 1 and 2)
Airspace	Individual Level Training	●	More houses near the TERF routes and OLFs are creating a lot more light to deal with when conducting NVG training. Recent construction near OLF’s has restricted helo / V-22’s ability to conduct operations after 2300 due to noise complaints. Noise sensitive areas are cropping up on the outskirts of the R-5306C & R-5306D making it increasingly more difficult to conduct low altitude tactical training. (MCAS New River adjacent to MCB Camp Lejeune) (CLUS App. D. Part II. 1 and 3)
	Unit Level Training	●	No fixed wing operations are allowed in R5303 and R5304 and the ranges that the SUAs support cannot be active unless the area has aviation radar coverage. R5306D cannot be expanded due to civilian use of beach and Hwy 17 corridor. (CLUS App. E. Part II.5)
	MEU Level Training	●	Ship to shore movements often require aircraft to utilize 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 can participate in Ground Threat Reaction drills and refine section counter-tactics for ground based air defense systems. Due to civilian construction and environmentally sensitive areas, more and more noise complaints are being filed against aircraft flying at tactical profiles in the day and night environment. As the encroachment continues, airspace and operating hours will become more restrictive. (MCAS New River adjacent to MCB Camp Lejeune) (CLUS App. D. Part II. 1 and 3)

Encroachment Factors	Assigned Training Mission	Color	Comment
Noise Restrictions	Individual Level Training	●	Bombing operations at Camp Lejeune are restricted to inert ordnance, due partially to concerns about the noise levels that explosive ordnance would produce in the growing Bear Creek community to the east of the impact area. The impact area itself is encroached by threatened and endangered species, both within the impact area and along the eastern edge. This significantly limits our efforts to increase visibility to the targets and make the impact area more capable. Noise concerns also limits all explosive firing into this impact area to the hours of 0600-2400. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	Tank operations at our SR-7 Range have been suspended since 1998 due to noise complaints from the nearby Verona community, even though noise levels were within acceptable DoD recognized noise levels. This \$7M range does not go unused, but our flexibility to absorb the requirements of future force structure and weapon increases may be hampered by the Verona community’s sensitivity to noise. Environmental, wetlands and Primary Nursing Areas (PNA) concerns have made range enhancements and the site selection for new ranges very difficult, and, in some instances, have forced us to choose much less desirable alternatives or significantly limit rang size/capability. (CLUS App. D. Part II. 1 and 2)
	MEU Level Training	●	Encroachment from development of the Sneads Ferry community led to an increasing number of civilian exposures to noise from a long established engineer training area (in place approximately 50 years). This move created significant disruption of the Engineer School’s Program of Instruction (POI), significantly increased the school’s transportation requirements, and restricted the use of over 1000 acres of training area. Initial costs to move that range were nearly \$400,000; ultimate costs to complete it will be approximately \$9M. (CLUS App. D. Part II. 1 and 2)
Adjacent Land Use	Individual Level Training	●	The additional lighting from development in close proximity of the Camp Lejeune boundaries has created some problems for night vision training. The rotary community seems most effected. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	Aviation training degraded and less challenging. Night vision training workaround required in an attempt to avoid residential areas and business sites that limit night vision training. This approach becomes less viable as encroachment continues.(CLUS App. E. Part II. 4)
	MEU Level Training	●	Aviation training degraded and less challenging. Night vision training workaround required in an attempt to avoid residential areas and business sites that limit night vision training. This approach becomes less viable as encroachment continues.(CLUS App. E. Part II. 4)
Range Transients	MEU Level Training	●	Due to shifting of and building up of the sand in the IntraCoastal Waterway we have had several vessels get stuck in nearby inlets (Browns and New River). This has led to training disruptions; in some instances training was cancelled or cut short. (CLUS App. D. Part II. 1 and 2)

Marine Corps Range: MCB Camp Pendleton

Comments

Capabilities

Observations

1. The USMC Training Ranges Required Capabilities Document (RCD) and the affiliated Range Complex Management Plan (RCMP) Range Complex Capabilities Assessment are the references for this assessment.
2. MEB-level training was not assessed.
3. There is an insufficient number of automated target ranges to support individual, unit, and MEU training. There are insufficient contiguous land training areas to support realistic training; for example, when a unit comes ashore during an exercise, breaching operations may be necessary to progress inland; however, the breaching unit has to drive to a range adjacent to the impact area to fire its munitions; this situation causes the segmentation of training operations and reduces training realism.
4. There is no sufficient MEU-level MOUT facility to support a live fire assault or the integration of combined arms assets. MEU-level training is most affected by range capability shortfalls.

Capability Attributes	Assigned Training Mission	Color	Comments
Landscape	Unit Level Training	●	Insufficient space and non-contiguous training land area; Camp Pendleton will not get additional land area. MOUT facilities do not include a live fire capability for supporting arms, including artillery and aviation; they are not set up to support a live fire assault incorporating infantry weapons, close air support, or artillery. Insufficient usable beachhead (typically 1,500 meter beachfront available) to conduct amphibious landings.
	MEU Level Training	●	Insufficient space and non-contiguous training land area; Camp Pendleton will not get additional land area. MOUT facilities insufficient in size; do not include a live fire capability for supporting arms, including artillery and aviation; they are not set up to support a live fire assault incorporating infantry weapons, close air support, or artillery. Insufficient usable beachhead (typically 1,500 meter beachfront available) to conduct amphibious landings.
Airspace	Individual Level Training	●	Insufficient lateral airspace for combined arms training IAW USMC RCD.
	Unit Level Training	●	Insufficient lateral airspace for combined arms training IAW USMC RCD.
	MEU Level Training	●	Insufficient lateral airspace for combined arms training IAW USMC RCD.
Seaspace	MEU Level Training	●	Insufficient usable beachfront (typically 1,500 meter beachfront available) to support amphibious training.
Targets	Individual Level Training	●	Insufficient automated target systems for land and lack of scored range and mobile land targets for aviation. Plans are in place for new automated target systems.
	Unit Level Training	●	Insufficient automated target systems for land and lack of scored range and mobile land targets for aviation. Plans are in place for new automated target systems.
	MEU Level Training	●	No naval surface fires targets or capabilities; no land-based fortified targets; no structural and urban targets to support live fire, combined arms training.
Threats	Individual Level Training	●	The installation does not possess the delineated OPFOR assets, but units can use their own assets to generate this capability. The installation now has actors available to support some MOUT operations.
	Unit Level Training	●	The installation does not possess the delineated OPFOR assets, but units can use their own assets to generate this capability. The installation now has actors available to support some MOUT operations.
	MEU Level Training	●	The installation does not possess the delineated OPFOR assets; the MEUs must depend on I MEF to generate OPFOR capability.
Scoring & Feedback System	Individual Level Training	●	Limited automated feedback for ground ranges; no automated feedback for aviation. Limited capability for training event reconstruction, and no capability for training event replay.
	Unit Level Training	●	Limited automated feedback for ground ranges; no automated feedback for aviation. Limited capability for training event reconstruction, and no capability for training event replay.
	MEU Level Training	●	Limited automated feedback for ground ranges; no automated feedback for aviation. Limited capability for training event reconstruction, and no capability for training event replay.










Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Individual Level Training	●	Range radio communication system failures at times have caused the cessation of training. Not all of the ranges have telephone capability. The installation does not have exercise command and control circuits nor a secure comms capability.
	Unit Level Training	●	Range radio communication system failures at times have caused the cessation of training. Not all of the ranges have telephone capability. The installation does not have exercise command and control circuits nor a secure comms capability.
	MEU Level Training	●	Range radio communication system failures at times have caused the cessation of training. Not all of the ranges have telephone capability. The installation does not have exercise command and control circuits nor a secure comms capability.

Encroachment

Observations

- 30% of the range/range complex mission is SEVERELY impacted by encroachment factors.
- Threatened & Endangered Species/Critical Habitat, Cultural Resources, and Wetlands are the encroachment factors severely impacting most of the training mission.
- Individual, Unit and MEU Level Training are the affected mission areas.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Individual Level Training	●	Ability to conduct digging operations in the context of operational requirements and training scenario is inhibited by the ESA and cultural resource regulatory constraints (CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	Of the 17 miles of installation coastline, only 6,000 yards are available for use as landing beaches, but all available landing beaches are encumbered by one form of restriction or another, to include endangered species, cultural resource sites, wetland areas, seasonal breeding of T&E species, <i>etc.</i> Only approx 1,500 yards of Red Beach is currently available for non-restricted amphibious ops. The remainder of the Base's coastal area is encumbered by long-term leasing outgrants to the State of CA, a nuclear power plant facility, and agriculture field operations. (CLUS App. D. Part II. 1 and 2)
	MEU Level Training	●	Of the 17 miles of installation coastline, only 6,000 yards are available for use as landing beaches, but all available landing beaches are encumbered by one form of restriction or another, to include endangered species, cultural resource sites, wetland areas, seasonal breeding of T&E species, <i>etc.</i> Only approx 1,500 yards of Red Beach is currently available for non-restricted amphibious ops. The remainder of the Base's coastal area is encumbered by long-term leasing outgrants to the State of CA, a nuclear power plant facility, and agriculture field operations. (CLUS App. D. Part II. 1 and 2)
Airspace	Individual Level Training	●	More houses near the TERF routes and OLFs are creating a lot more light to deal with when conducting NVG training. Recent construction near OLF's has restricted helo / V-22's ability to conduct operations after 2300 due to noise complaints. Noise sensitive areas are cropping up on the outskirts of the R-5306C & R-5306D making it increasingly more difficult to conduct low altitude tactical training. (MCAS New River adjacent to MCB Camp Lejeune) (CLUS App. D. Part II. 1 and 3)
	Unit Level Training	●	No fixed wing operations are allowed in R5303 and R5304 and the ranges that the SUAs support cannot be active unless the area has aviation radar coverage. R5306D cannot be expanded due to civilian use of beach and Hwy 17 corridor. (CLUS App. E. Part II.5)
	MEU Level Training	●	Ship to shore movements often require aircraft to utilize 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 can participate in Ground Threat Reaction drills and refine section counter-tactics for ground based air defense systems. Due to civilian construction and environmentally sensitive areas, more and more noise complaints are being filed against aircraft flying at tactical profiles in the day and night environment. As the encroachment continues, airspace and operating hours will become more restrictive. (MCAS New River adjacent to MCB Camp Lejeune) (CLUS App. D. Part II. 1 and 3)

Encroachment Factors	Assigned Training Mission	Color	Comment
Adjacent Land Use	Individual Level Training		High density housing, businesses, and other urban infrastructure located contiguous to the installation inhibits realistic ability of ground and aviation training with NVGs. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training		High density housing, businesses, and other commercial urban development areas located within the southern CA regional area inhibits the realistic ability of military aviation organizations to conduct NVG training when transiting from MCB or MCAS Camp Pendleton to other training areas and military installations located off-base, but within the regional area.. (CLUS App. D. Part II. 1 and 3)
	MEU Level Training		High density housing, businesses, and other commercial urban development areas located within the southern CA regional area inhibits the realistic ability of military aviation organizations to conduct NVG training when transiting from MCB or MCAS Camp Pendleton to other training areas and military installations located off-base, but within the regional area.. (CLUS App. D. Part II. 1 and 3)
Cultural Resources	Individual Level Training		Of the 17 miles of installation coastline, only 6,000 yards are available for use as landing beaches, but all available landing beaches are encumbered by one form of restriction or another, to include endangered species, cultural resource sites, wetland areas, seasonal breeding of T&E species, <i>etc.</i> Only approx 1,500 yards of Red Beach is currently available for non-restricted amphibious ops. The remainder of the Base's coastal area is encumbered by long-term leasing outgrants to the State of CA, a nuclear power plant facility, and agriculture field operations. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training		Of the 17 miles of installation coastline, only 6,000 yards are available for use as landing beaches, but all available landing beaches are encumbered by one form of restriction or another, to include endangered species, cultural resource sites, wetland areas, seasonal breeding of T&E species, <i>etc.</i> Only approx 1,500 yards of Red Beach is currently available for non-restricted amphibious ops. The remainder of the Base's coastal area is encumbered by long-term leasing outgrants to the State of CA, a nuclear power plant facility, and agriculture field operations. (CLUS App. D. Part II. 1 and 2)
	MEU Level Training		Of the 17 miles of installation coastline, only 6,000 yards are available for use as landing beaches, but all available landing beaches are encumbered by one form of restriction or another, to include endangered species, cultural resource sites, wetland areas, seasonal breeding of T&E species, <i>etc.</i> Only approx 1,500 yards of Red Beach is currently available for non-restricted amphibious ops. The remainder of the Base's coastal area is encumbered by long-term leasing outgrants to the State of CA, a nuclear power plant facility, and agriculture field operations. (CLUS App. D. Part II. 1 and 2)
Wetlands	Individual Level Training		Of the 17 miles of installation coastline, only 6,000 yards are available for use as landing beaches, but all available landing beaches are encumbered by one form of restriction or another, to include endangered species, cultural resource sites, wetland areas, seasonal breeding of T&E species, <i>etc.</i> Only approx 1,500 yards of Red Beach is currently available for non-restricted amphibious ops. The remainder of the Base's coastal area is encumbered by long-term leasing outgrants to the State of CA, a nuclear power plant facility, and agriculture field operations. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training		Of the 17 miles of installation coastline, only 6,000 yards are available for use as landing beaches, but all available landing beaches are encumbered by one form of restriction or another, to include endangered species, cultural resource sites, wetland areas, seasonal breeding of T&E species, <i>etc.</i> Only approx 1,500 yards of Red Beach is currently available for non-restricted amphibious ops. The remainder of the Base's coastal area is encumbered by long-term leasing outgrants to the State of CA, a nuclear power plant facility, and agriculture field operations. (CLUS App. D. Part II. 1 and 2)
	MEU Level Training		Of the 17 miles of installation coastline, only 6,000 yards are available for use as landing beaches, but all available landing beaches are encumbered by one form of restriction or another, to include endangered species, cultural resource sites, wetland areas, seasonal breeding of T&E species, <i>etc.</i> Only approx 1,500 yards of Red Beach is currently available for non-restricted amphibious ops. The remainder of the Base's coastal area is encumbered by long-term leasing outgrants to the State of CA, a nuclear power plant facility, and agriculture field operations. (CLUS App. D. Part II. 1 and 2)

Marine Corps Range: MCB Quantico

Comments

Capabilities

Observations

1. The MCB Quantico is currently going through an RCMP analysis. Only Individual Level Training has preliminary capabilities observations. These preliminary observations are the basis for this assessment. Attribute areas in "white" were not assessed.
2. The USMC Training Ranges Required Capabilities Document (RCD) and the affiliated Range Complex Management Plan (RCMP) Range Complex Capabilities Assessment are the references for this assessment.
3. With the exception of targets, MCB Quantico ranges and training areas have the capabilities to support adequately The Basic School (TBS) courses.
4. The lack of hi-fidelity, automated, fixed, and mobile infantry targets is the capability that has the most negative impact on the overall TBS mission.

Capability Attributes	Assigned Training Mission	Color	Comments
Seaspace	Individual Level Training	●	Some individual training must be done at MCB Little Creek and MCB Camp Lejeune.
Targets	Individual Level Training	●	There is a lack of hi-fidelity, automated, fixed and mobile infantry targets. There are limited static and pop-up targets used for shoot/no-shoot training. Targets are not reconfigurable thus limiting specific threat presentations and scenarios. Target upgrades are part of range upgrade plans.
Threats	Individual Level Training	●	There are no OPFOR role players for The Basic School (TBS) courses. MCB Quantico ranges need fixed and moving target presentations on fire and maneuver ranges.
Scoring & Feedback System	Individual Level Training	●	There is limited near-real-time training feedback. Training debriefing is done after-the-fact in classrooms. There is no audio-visual feedback capability. WISS is available for scoring and debriefing in the impact area only. Exercise control uses organic voice communications. There is limited ground tracking for personnel and vehicles. There is limited surface-to-surface (s-s) simulation; no simulation for a-a, s-a, and a-g. Current projects include an audio-visual feedback system and additional tracking systems for personnel and vehicles.
Range Support	Individual Level Training	●	Limited command and control capability to support training. Limited range support staff for target deployment and exercise range support.

Encroachment

Observations

1. 18% of the range/range complex mission is MODERATELY impacted by encroachment factors.
2. Munition Restrictions and Noise Restrictions are the encroachment factors moderately impacting most of the training mission.
3. Individual and Unit Level Training are the affected mission areas.

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Individual Level Training	●	Considerable time and effort has been expended to safeguard current training capability on C-DEMO/EOD Training Range. Self Encroachment driven by BRAC. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	Considerable time and effort has been expended to safeguard current training capability on C-DEMO/EOD Training Range. Self Encroachment driven by BRAC. (CLUS App. D. Part II. 1 and 2)
Noise Restrictions	Individual Level Training	●	EOD Operations High Explosives training is currently prohibited after 2200. RMB continuously validates the training capability provided by EOD range and provides Base organizations with a better understanding of demolitions ops that take place on range. Operationally RMB must remain consistently engaged with all Base stake holders and remain aware of emerging threats to the range (CLUS App. E. Part II. 4)
	Unit Level Training	●	EOD Operations High Explosives training is currently prohibited after 2200. RMB continuously validates the training capability provided by EOD range and provides Base organizations with a better understanding of demolitions ops that take place on range. Operationally RMB must remain consistently engaged with all Base stake holders and remain aware of emerging threats to the range (CLUS App. E. Part II. 4)

Marine Corps Range: MCAS Yuma-Bob Strump Training Range Complex

Comments

Capabilities

Observations

1. The USMC Training Ranges Required Capabilities Document (RCD) and the affiliated Range Complex Management Plan (RCMP) Range Complex Capabilities Assessment are the references for this assessment.
2. MEB-level training was not assessed. Attribute areas in "white" were not assessed at BSTRC.
3. There is no single capability attribute that stands out beyond the rest.
4. Unit and MEU level training is most affected by capability shortfalls.

Capability Attributes	Assigned Training Mission	Color	Comments
Landscape	Unit Level Training	●	Land area is inadequate for tactical employment of JDAM. Aircraft release heading, altitude, and speed restricted by size of WDZs. Evaluate the standoff weapons requirements associated with WDZs and potential requirement for additional land area to support standoff weapons training. Funded: Complete and evaluate RAICUZ study.
	MEU Level Training	●	The land area is inadequate for the tactical employment of JDAM. Aircraft release heading, altitude, and speed restricted due to size of WDZs. Land area does not meet RCD requirements for maneuver, live-fire and maneuver, MOUT, and urban live-fire training. Evaluate the standoff weapons requirements associated with WDZs and potential requirement for additional land area to support standoff weapons training. Funded: Complete and evaluate RAICUZ study.
Airspace	Individual Level Training	●	Airspace requirements are fully met within the BSTRC with the exception of the objective requirement of 30 nm x 60 nm for EW ranges. Airspace availability during WTI and Desert Talon exercises, and unit dets to MCAS Yuma is limited. Improve airspace scheduling and management to optimize airspace availability and utilization. Evaluate potential of MOA with Luke AFB regarding use of R-2301E.
	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 BSTRC. The 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. Improve airspace scheduling and management to optimize airspace availability and utilization. Coordinate with FAA to provide enhanced airspace for larger training events. Evaluate potential of MOA with Luke AFB regarding use of R-2301E.
	MEU 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 BSTRC. The altitude blocks are not consistent causing the airspace to be to be fragmented. Airspace availability is limited to non participating units during WTI, Desert Talon, and unit dets to MCAS Yuma. Improve airspace scheduling and management to optimize airspace availability and utilization. Coordinate with FAA to provide enhanced airspace for larger training events. Evaluate potential of MOA with Luke AFB regarding use of R-2301E.
Targets	Individual Level Training	●	The fidelity and quality of tactical targets are limited. The USMC has submitted POM 08: Invest in welded and pop-up targets; construct buildings for convoy 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. Yodaville does not provide a realist urban training environment for helicopter gunnery operations. For aviation ground support units, there are no pop-up targets or buildings for convoy training or the EMP. The USMC has submitted POM 08: Invest in welded and pop-up targets; construct buildings for convoy and EMP training.
	MEU Level Training	●	Fidelity and quality of targets are limited; targets do not present discrimination challenges. The USMC has submitted POM 08: Invest in welded and pop-up targets; construct buildings for convoy and EMP training.

Capability Attributes	Assigned Training Mission	Color	Comments
Threats	Individual Level Training	●	There are no aircraft with A-A radar missile presentation and limited radar capability on F-5.
	Unit Level Training	●	No rotary-wing threat aircraft. No aircraft with A-A radar missile presentations. Radar capability is limited on the F-5. Units can provide own OPFOR. Joint training with USAF using F-15/16. Submitted POM 08: Invest in EC Threat Level 3 and 4 equipment. Increase coverage and capability of EW threat systems beyond R-2301W.
	MEU Level Training	●	No aircraft with A-A radar missile presentation. EC threat level 1-2. Units can provide own OPFOR. Joint training with USAF using F-15/16. Submitted POM 08: Invest in EC Threat Level 3 equipment. Modernize threat presentations; expand EW and OPFOR coverage outside R-2301W (e.g., visual AAA simulators, smokey SAMS, and controlled emitters).
Scoring & Feedback System	Individual Level Training	●	TACTS and EC&C coverage is limited to R-2301W. Range Operational Control Center (ROCC) is currently not functional; hardware is in place but there is no staff. S-A threat simulations are limited. Tactical targets are not scored. No scoring feedback in R-2507. Debrief capability is limited to MCAS Yuma, MCAS Miramar, and NAF EI Centro. Partially Funded & Submitted POM 08: Invest in JNTC compliant tracking and EC&C equipment to cover entire range complex. Provide staffing for ROCC. Upgrade S-A simulations. Provide scoring for tactical targets in R-2507N/S. Funded: Upgrade TACTS to TCTS. Partially Funded & Submitted POM 06: Provide staff for ROCC (Building for ROCC is Unfunded). Low altitude communication is limited. EC&C is limited to R-2301W. There are no secure EC&C circuits. Range Operational Control Center (ROCC) is not currently established because there is no staff. Partially Funded & Submitted POM 08: Upgrade communications capabilities to resolve low altitude shortfall. Invest in secure communication circuits. Expand EC&C coverage. Partially Funded & Submitted POM 06: Provide staff for ROCC (Building for ROCC is Unfunded).
	Unit Level Training	●	TACTS and EC&C coverage is limited to R-2301W. Range Operational Control Center (ROCC) is currently not functional; hardware is in place but there is no staff. S-A threat simulations are limited. Tactical targets are not scored. No scoring feedback in R-2507. Debrief capability is limited to MCAS Yuma, MCAS Miramar, and NAF EI Centro. Partially Funded & Submitted POM 08: Invest in JNTC compliant tracking and EC&C equipment to cover entire range complex. Provide staffing for ROCC. Upgrade S-A simulations. Provide scoring for tactical targets in R-2507N/S. Funded: Upgrade TACTS to TCTS. Partially Funded & Submitted POM 06: Provide staff for ROCC (Building for ROCC is Unfunded). Low altitude communication is limited. EC&C is limited to R-2301W. There are no secure EC&C circuits. Range Operational Control Center (ROCC) is not currently established because there is no staff. Partially Funded & Submitted POM 08: Upgrade communications capabilities to resolve low altitude shortfall. Invest in secure communication circuits. Expand EC&C coverage. Partially Funded & Submitted POM 06: Provide staff for ROCC (Building for ROCC is Unfunded).
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Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Individual Level Training	●	The scheduling system does not support pre-, post-, or real-time event modules. Invest in a scheduling system that will provide more scheduling flexibility and efficiency to optimize range utilization. System should also be automated to include pre-, real-time, and post-mission modules. There are no remote weather sensors on the range.
	Unit Level Training	●	The scheduling system does not support pre-, post-, or real-time event modules. Invest in a scheduling system that will provide more scheduling flexibility and efficiency to optimize range utilization. System should also be automated to include pre-, real-time, and post-mission modules. There are no remote weather sensors on the range.
	MEU Level Training	●	The scheduling system does not support pre-, post-, or real-time event modules. Invest in a scheduling system that will provide more scheduling flexibility and efficiency to optimize range utilization. System should also be automated to include pre-, real-time, and post-mission modules. There are no remote weather sensors on the range.

Encroachment

Observations

- 25% of the range/range complex mission is SEVERELY impacted by encroachment factors.
- Threatened & Endangered Species/Critical Habitat, Munition Restrictions, Spectrum, and Adjacent Land Use are the encroachment factors severely impacting most of the training mission.
- Individual and Unit Level Training are the affected mission areas.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Individual Level Training	●	Endangered species and critical habitat protection requirements. Due to environmental considerations, it is extremely difficult to get permission from MCAS Yuma Environmental to conduct any training involving earthwork or heavy equipment operations and horizontal or vertical construction. Training for EOD is available on Yuma Ranges. However, it is occasionally delayed due to environmental consideration, such as the requirement to physically inspect the ranges to ensure that no endangered wildlife species are occupying the area. (CLUS App. D. Part II. 1 and 2)
	Unit Level Training	●	Endangered species and critical habitat protection requirements. Convoy security elements are not authorized to depart existing roads or trails which limits the realism and ability of our marines to train appropriately on how to maneuver against hostile threat or enemy actions. (CLUS App. D. Part II. 1 and 3)
Munitions Restrictions	Individual Level Training	●	UXO presence. Convoy security elements are not authorized to depart existing roads or trails which limits the realism and ability of our marines to train appropriately on how to maneuver against hostile threat or enemy actions. (CLUS App. D. Part II. 1 and 3)
	Unit Level Training	●	UXO presence. Convoy security elements are not authorized to depart existing roads or trails which limits the realism and ability of our marines to train appropriately on how to maneuver against hostile threat or enemy actions. (CLUS App. D. Part II. 1 and 3)
Spectrum	Individual Level Training	●	Frequency spectrum interference. As a joint use airfield significant civilian aircraft operations often crowd tower and approach frequencies. Civilian and Military frequencies are separate, however, ATC's response is often delayed to military aircraft due to communications with civilian traffic. While encroachment listed above is currently only having a minimal impact on the Air Station's training and daily operations, the potential for continued growth is very real. The ability to use the full spectrum of L-Band (D-Band) for the AN/TPS-59 (V)3 radar system, to include secondary radar (Identification Friend or Foe, specifically Mode 4). To date, Mode 4 can't be used and removes one of our primary identification capabilities. (CLUS App. D. Part II. 1 and 2)
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Encroachment Factors	Assigned Training Mission	Color	Comment
Airspace	Individual Level Training	●	When LA center experiences significant enroute weather issues, requiring re-routing of commercial traffic around and sometimes through MCAS controlled restricted airspace. Typically, through Letter of Agreement (LOA) the use of MCAS airspace is granted by MCAS if not being utilized by scheduled military training, but emergent cases have led to LA Center assuming the airspace, affecting military training. (CLUS App. D. Part II. 1 and 3). Aircraft (a/c) ordnance takeoffs and recoveries are restricted to certain runways. As a shared use airfield, significant civilian a/c ops often delay mil a/c takeoffs and require mil a/c to extend traffic pattern for proper spacing to land. Quiet hours on a few occasions. Crop dusters operating w/in tower's airspace are mitigated by flying normal course rules into and out of airfield for helos and are distracting. Terrain Following (TERF) issues. Power lines planned around base underlying Class D airspace impact instrument approach procedures. New larger exclusion zone for Somerton Airport (uncontrolled). If traffic increase impacts to MCAS flight ops and cuts into MCAS airspace. Also impact of power lines. Yuma International Airport growth w/commerce mitigated. (CLUS App. D. Part II. 1 and 2)
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Noise Restrictions	Individual Level Training	●	Supersonic flight has been restricted to a corridor located in the R2301W. Supersonic flight is restricted to only one direction. Although there is some value in the supersonic corridor, the restriction inhibits realistic training. Main problem now stems from supersonic aircraft "speeding" prior to entering the supersonic corridor (R2301W/BMGR). Housing being built closer to the sonic boom corridor (east of Foothills, south of I-8 freeway, Wellton area) will lead to more noise complaints, sonic boom impacts (damage), and possible flight restrictions. Violations of proper corridor use that previously went unnoticed are becoming more notable and significant as housing areas move closer to the corridor. The current situation is best resolved by pilot compliance. (CLUS App. D. Part II. 1 and 3).
	Unit Level Training	●	Noise complaints stem from aircraft aligning to use targets in restricted areas that may be close to the borders of the area (R2301W/BMGR). Residential expansion towards the boundary of the range areas contribute to this. Low-level aircraft (helos) transiting to and from these areas result in noise complaint issues as housing grows in the area. (CLUS App. D. Part II. 1 and 3)
Adjacent Land Use	Individual Level Training	●	Incompatible Urban Growth around the airfield has added lighting diminishing the effectiveness of Night Vision Devices (NVD's). Many pilots complain they are unable to land while wearing NVDs due to excessive lighting around the airfield. (CLUS App. D. Part II. 1 and 2).
	Unit Level Training	●	As urban growth continues in areas like the Foothills, South Wellton, Coyote Wash, and the Highway 95 expansion areas, there will be more commercial communications and new high power lines. This growth in communications, like new towers just south of the border with Mexico, new towers for the SBINet, new cell phone towers to support all increase the noise floor levels and some of the systems even operate in the same frequency bands as the equipment used by MCAS Yuma and our 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). To date, Mode-4 can't be used. (CLUS App. D. Part II. 1 and 3).
Range Transients	Individual Level Training	●	Illegal aliens entrance into Restricted Training areas, and subsequent Border Patrol Operations shutdown training area. Scrapper entrance into Restricted training areas shutdown training areas. Heavy civilian commercial traffic restricts the premier training airspace in the Yuma area (R2507 airspace) to 23K and below. Scrapers also dismantle our targets or prevent us from using the range time due to their presence on the range. Prior to every WTI and DT course, Yuma range maintenance spends 1-2 weeks building wooden targets and welding and repairing metal targets, which is costly and time consuming. By the time the course begins, a good number of these targets are already dismantled by illegal scrapers. (CLUS App. D. Part II. 1 and 2)
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Navy: Atlantic City

Comments:

Capabilities

Observations

1. 79% of the range is Fully Mission Capable (FMC) supporting AAW and ASUW training.
2. Range Support is the capability most impacting mission: Scheduling; Comms; MET.
3. Both missions are equally impacted.





Capability Attributes	Assigned Training Mission	Color	Comments
Threats	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. Threat air helicopter and supersonic OPFOR not available. 2. Reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. 3. Invest in an increase in number and type of aircraft and augmentation for OPFOR through Commercial Air Services.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enable scheduling and data collection system should be developed.
Range Support	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enable scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enable scheduling and data collection system should be developed.

Encroachment

Observations

1. Atlantic City encroachment pertains to "At Sea" activities.
2. Spectrum and Maritime Sustainability have the most severe encroachment.
3. STW, EC, MW, AMW, AMW, ASW, ASW, and NSW are not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the Atlantic City Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Anti-Air Warfare (AAW)	●	Link 16 and IFF are restricted. Restrictions limit 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.
	Anti-Surface Warfare (ASUW)	●	Link 16 and IFF are restricted. Restrictions limit 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.

Encroachment Factors	Assigned Training Mission	Color	Comment
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.
	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
Range Transients	Anti-Air Warfare (AAW)		Transients (including private and commercial vessel and aircraft traffic) occasionally foul the range.
	Anti-Surface Warfare (ASUW)		Transients (including private and commercial vessel and aircraft traffic) occasionally foul the range.

Navy: Atlantic Test Range (Patuxent River)

Comments:

Capabilities

Observations

1. 56% of the range complex's mission areas are Fully Mission Capable.
2. 42% of the complex is partially mission capable.
3. Airspace and sea-space are the two capability attributes that limit most mission area capabilities.
4. Scoring, Infrastructure, and Range Support do not impact mission capabilities.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strike Warfare (STW)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. No longer able to use Bloodsworth Island for impact operations. We offer land-based targets but are limited to no-drop training.
	Electronic Combat (EC)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Naval Special Warfare (NSW)	●	The Pax River 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.
Airspace	Strike Warfare (STW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Electronic Combat (EC)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Anti-Air Warfare (AAW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements.
	Mine Warfare (MW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events.
Seaspace	Strike Warfare (STW)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. We offer sea-based targets but are limited to no-drop and or limited "blue bomb" training operations.
	Electronic Combat (EC)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. The Chesapeake Bay OPAREAS limit the size of operations.
	Mine Warfare (MW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events. The Chesapeake Bay also has water depth limitations.
Underseaspace	Mine Warfare (MW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events. The Chesapeake Bay also has water depth limitations.
	Naval Special Warfare (NSW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. The Chesapeake Bay can support littoral/brown water operations due to water depth limitations but no open ocean or blue water operations.

Capability Attributes	Assigned Training Mission	Color	Comments
Targets	Strike Warfare (STW)	●	The Pax River 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. We offer a variety of land, sea and aerial targets but are limited to no-drop and/or "blue bomb" training operations.
	Mine Warfare (MW)	●	The Pax River Complex and the associated SUA provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. Aerial Mining exercises (F/A-18, P-3, and B-52) have been supported and mine shapes have been provided to support mine detection events. The Chesapeake Bay water depth limitations would limit the full range of target requirements.
Threats	Strike Warfare (STW)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. 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 Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. 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.
	Naval Special Warfare (NSW)	●	The Pax River Complex provides the resources and capabilities to support a subset (typically limited to unit (basic) and intermediate level or phases of training) of the total Navy mission warfare requirements. ATR offers a variety of land, sea and aerial based targets/threats (full spectrum sensor stimulation) but are limited to small scale no-drop and/or "blue bomb" training operations.

Encroachment

Observations

1. About one-third of the Mission Areas that the Range Complex supports (all except NSW) are MODERATELY encroached and about two-thirds are not encroached.
2. Spectrum, Airspace, Noise Restrictions and Adjacent Land Use MODERATELY encroach all the Mission Areas that the Range supports.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Strike Warfare (STW)	●	Frequency spectrum becoming more scarce and our frequency needs continue to grow; sharing frequencies can have negative implications. Limited frequencies and frequency infringement by military and non-military sources creates workarounds; high demand for bandwidth Flight operations affected by electromagnetic interference (EMI). The existing frequency allowed by the Federal Communications Commission (FCC) is under pressure for NAS Patuxent River's use. The spectrum is suffering encroachment form community source of electronics which have been manufactured to use the Navy's spectrum. Increased demands from testing continue to pressure the availability of spectrum for use by both the community and Navy.
	Electronic Combat (EC)	●	Frequency spectrum becoming more scarce and our frequency needs continue to grow; sharing frequencies can have negative implications. Limited frequencies and frequency infringement by military and non-military sources creates workarounds; high demand for bandwidth Flight operations affected by electromagnetic interference (EMI). The existing frequency allowed by the Federal Communications Commission (FCC) is under pressure for NAS Patuxent River's use. The spectrum is suffering encroachment form community source of electronics which have been manufactured to use the Navy's spectrum. Increased demands from testing continue to pressure the availability of spectrum for use by both the community and Navy.
	Anti-Air Warfare (AAW)	●	Frequency spectrum becoming more scarce and our frequency needs continue to grow; sharing frequencies can have negative implications. Limited frequencies and frequency infringement by military and non-military sources creates workarounds; high demand for bandwidth Flight operations affected by electromagnetic interference (EMI). The existing frequency allowed by the Federal Communications Commission (FCC) is under pressure for NAS Patuxent River's use. The spectrum is suffering encroachment form community source of electronics which have been manufactured to use the Navy's spectrum. Increased demands from testing continue to pressure the availability of spectrum for use by both the community and Navy.
	Mine Warfare (MW)	●	Frequency spectrum becoming more scarce and our frequency needs continue to grow; sharing frequencies can have negative implications. Limited frequencies and frequency infringement by military and non-military sources creates workarounds; high demand for bandwidth Flight operations affected by electromagnetic interference (EMI). The existing frequency allowed by the Federal Communications Commission (FCC) is under pressure for NAS Patuxent River's use. The spectrum is suffering encroachment form community source of electronics which have been manufactured to use the Navy's spectrum. Increased demands from testing continue to pressure the availability of spectrum for use by both the community and Navy.
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Encroachment Factors	Assigned Training Mission	Color	Comment
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 Special Use Airspace (SUA) can limit/change flight operations. Proposed expansion of Washington Air Defense Identification Zone (ADIZ) would force workarounds or negative impacts to operations.
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	Mine Warfare (MW)	●	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 Special Use Airspace (SUA) can limit/change flight operations. Proposed expansion of Washington Air Defense Identification Zone (ADIZ) would force workarounds or negative impacts to operations.
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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.
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Encroachment Factors	Assigned Training Mission	Color	Comment
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. In vicinity of Great Mills Road.
	Electronic Combat (EC)	●	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. In vicinity of Great Mills Road.
	Anti-Air Warfare (AAW)	●	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. In vicinity of Great Mills Road.
	Mine Warfare (MW)	●	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.
	Naval Special Warfare (NSW)	●	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.

Navy: AUTEK

Comments:

Capabilities

Observations

- 1. 96% of this range is Fully Mission Capable.
- 2. Target limitations are moderately impacting the ASUW mission. Both missions are equally impacted.

Capability Attributes	Assigned Training Mission	Color	Comments
Threats	Anti-Surface Warfare (ASUW)	●	<ul style="list-style-type: none"> 1. Targets lack the required spectral threat signature and may not be engaged with live ordnance (Hellfire Missiles) due to N.E.W. limits. 2. Reduces realism; limits tactics 3. Invest in spectral augmentation; Investigate options to obtain inert Hellfire.

Encroachment

Observations

- 1. AUTEK encroachment pertains to both "At Sea" and "Land/Littoral" (MW) activities.
- 2. Spectrum, Maritime Sustainability, and Range Transients have the most severe encroachment.
- 3. STW, EC, AAW, AMW, and NSW are not assessed.
- 4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the AUTEK Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Electronic Combat (EC)	●	FAA can limit the frequency window for certain operations, particularly those involving GPS jamming.
	Anti-Surface Warfare (ASUW)	●	FAA can limit the frequency window for certain operations, particularly those involving GPS jamming.
	Mine Warfare (MW)	●	FAA can limit the frequency window for certain operations, particularly those involving GPS jamming.
	Anti-Submarine (ASW)	●	FAA can limit the frequency window for certain operations, particularly those involving GPS jamming.

Encroachment Factors	Assigned Training Mission	Color	Comment
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Mine Warfare (MW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Anti-Submarine (ASW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
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 help to ameliorate the airspace restrictions.
	Mine Warfare (MW)	●	Miami Center may decline NOTAMs and not release airspace in a timely manner over the Bahamas. Continuing dialogue with the FAA may help to ameliorate the airspace restrictions.
	Anti-Submarine (ASW)	●	Miami Center may decline NOTAMs and not release airspace in a timely manner over the Bahamas. Continuing dialogue with the FAA may help to ameliorate the airspace restrictions.
Range Transients	Anti-Surface Warfare (ASUW)	●	Transient boats interrupt operations. Better surveillance and public info sharing will help to reduce boat transients and to lessen the impacts of transients on AUTEK operations.
	Mine Warfare (MW)	●	Transient boats interrupt operations. Better surveillance and public info sharing will help to reduce boat transients and to lessen the impacts of transients on AUTEK operations.
	Anti-Submarine (ASW)	●	Transient boats interrupt operations. Better surveillance and public info sharing will help to reduce boat transients and to lessen the impacts of transients on AUTEK operations.
	Naval Special Warfare (NSW)	●	Transient boats interrupt operations. Better surveillance and public info sharing will help to reduce boat transients and to lessen the impacts of transients on AUTEK operations.

Navy: Boston

Comments:

Capabilities

Observations

1. 86% of this range is Fully Mission Capable (FMC).
2. Threats and Range Support are the attributes with the greatest impacts on the limited missions supported.





Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.

Encroachment

Observations

1. Boston encroachment pertains to "At Sea" activities.
2. Spectrum and Maritime Sustainability have the most severe encroachment.
3. STW, EC, AAW, AMW, and NSW are not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the Boston Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Anti-Surface Warfare (ASUW)	●	Link 16, SPY-1 Radar, and IFF are restricted. Restrictions limit 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.
	Anti-Submarine (ASW)	●	Link 16, SPY-1 Radar, and IFF are restricted. Restrictions limit 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.

Encroachment Factors	Assigned Training Mission	Color	Comment
Maritime Sustainability	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Anti-Submarine (ASW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
Range Transients	Anti-Surface Warfare (ASUW)		Transients (including private and commercial vessel and some aircraft traffic) occasionally foul the range.
	Anti-Submarine (ASW)		Transients (including private and commercial vessel and some aircraft traffic) occasionally foul the range.

Navy: China Lake

Comments:

Capabilities

Observations

1. 95% of the range complex’s mission areas are Fully Mission Capable.
2. 5% of the complex is partially mission capable.
3. Electronic Combat is MODERATELY impacted by the lack of improved sites (infrastructure) on the Electronic Combat Range.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strike Warfare (STW)	●	Weapons safety footprints for longer range weapons extend beyond the land under DoD control and limit training realism.
	Naval Special Warfare (NSW)	●	Navy Special Warfare has requested the use of China Lake land for training. Discussions are underway.
Airspace	Strike Warfare (STW)	●	Longer range weapons require stand-off distances that extent outside the available restricted airspace.
	Anti-Air Warfare (AAW)	●	Longer range weapons require stand-off distances that extent outside the available restricted airspace.
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.

Encroachment

Observations

1. About one-third of the Mission Areas that the Range Complex supports (STW, EC, AAW) are MODERATELY encroached and about two-thirds is not encroached.
2. Spectrum, Airspace, and Adjacent Land Use MODERATELY encroach all three Mission Areas the Range supports (STW, EC, AAW).

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	FAA can limit the frequency window for certain operations, particularly those involving GPS jamming.
Spectrum	Strike Warfare (STW)	●	Frequency spectrum – 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.
	Electronic Combat (EC)	●	Frequency spectrum – 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.
	Anti-Air Warfare (AAW)	●	Frequency spectrum – 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.
	Naval Special Warfare (NSW)	●	Frequency spectrum – 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.

Encroachment Factors	Assigned Training Mission	Color	Comment
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)	●	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.
	Anti-Air Warfare (AAW)	●	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.
Adjacent Land Use	Strike Warfare (STW)	●	Although China Lake is relatively isolated, urban growth is becoming a concern. In particular, growth in the Indian Wells Valley, if not managed correctly, has the potential to impact the range mission. Growth in other areas further removed from China Lake, but still within the R-2508 Complex also negatively impact our mission. Significant effort is required to monitor planned and proposed development.
	Electronic Combat (EC)	●	Although China Lake is relatively isolated, urban growth is becoming a concern. In particular, growth in the Indian Wells Valley, if not managed correctly, has the potential to impact the range mission. Growth in other areas further removed from China Lake, but still within the R-2508 Complex also negatively impact our mission. Significant effort is required to monitor planned and proposed development.
	Anti-Air Warfare (AAW)	●	Although China Lake is relatively isolated, urban growth is becoming a concern. In particular, growth in the Indian Wells Valley, if not managed correctly, has the potential to impact the range mission. Growth in other areas further removed from China Lake, but still within the R-2508 Complex also negatively impact our mission. Significant effort is required to monitor planned and proposed development.
Cultural Resources	Strike Warfare (STW)	●	The vast number of archeological sites and keen interest by local Native American tribes requires significant mitigation and outreach efforts.
Range Transients	Strike Warfare (STW)	●	China Lake comprises over 1 million acres and complete control of transients is not possible.
	Electronic Combat (EC)	●	China Lake comprises over 1 million acres and complete control of transients is not possible.
	Anti-Air Warfare (AAW)	●	China Lake comprises over 1 million acres and complete control of transients is not possible.

Navy: El Centro

Comments:

Capabilities

Observations

1. 28% of range is Fully Mission Capable.
2. Targets, Scoring and Feedback Systems and Range Support equally impact missions.
3. STW and AAW are the missions most affected.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strike Warfare (STW)	●	Insufficient land area to support helicopter .50 cal training. Options are being investigated for increasing range boundaries or limiting access to adjacent land.
	Strike Warfare (STW)	●	1. RCD size and altitude requirements not met. 2. Reduces realism; inhibits new tactics; increases O&M costs. 3. Alternative training locations are under consideration.
Airspace	Anti-Air Warfare (AAW)	●	1. RCD size and altitude requirements not met. 2. Reduces realism; inhibits new tactics; increases O&M costs. 3. Alternative training locations are under consideration.
	Strike Warfare (STW)	●	1. Quantity and variety of targets limited. Targets lack spectral fidelity. 2. Reduces realism; reduces live fire proficiency; prohibits certain events; limits application of new technologies; inhibits new tactics; increases O&M costs. 3. Invest in time critical and high fidelity targets.
Targets	Strike Warfare (STW)	●	1. EC threat level not available above level 2. F-5 threat aircraft have limited A-A radar capability. 2. Reduces realism; reduces live fire proficiency; prohibits certain events; limits application of new technologies; inhibits new tactics; increases O&M costs. 3. Invest in EC Threat Level 3 & 4 equipment.
	Electronic Combat (EC)	●	1. EC threat level not available above level 2. F-5 threat aircraft have limited A-A radar capability. 2. Reduces realism; reduces live fire proficiency; prohibits certain events; limits application of new technologies; inhibits new tactics; increases O&M costs. 3. Invest in EC Threat Level 3 & 4 equipment.
	Anti-Air Warfare (AAW)	●	1. EC threat level not available above level 2. F-5 threat aircraft have limited A-A radar capability. 2. Reduces realism; reduces live fire proficiency; prohibits certain events; limits application of new technologies; inhibits new tactics; increases O&M costs. 3. Invest in EC Threat Level 3 & 4 equipment.
Scoring & Feedback System	Strike Warfare (STW)	●	1. Real-time feed back is not available. 2. Reduces realism; reduces live fire proficiency; prohibits certain events; limits application of new technologies; inhibits new tactics; increases O&M costs. 3. Invest in high fidelity TSPI equipment and a wider range of EC&C equipment; M&S systems; scored targets; upgraded debrief capability.
	Electronic Combat (EC)	●	1. Real-time feed back is not available. 2. Reduces realism; reduces live fire proficiency; prohibits certain events; limits application of new technologies; inhibits new tactics; increases O&M costs. 3. Invest in high fidelity TSPI equipment and a wider range of EC&C equipment; M&S systems; scored targets; upgraded debrief capability.
	Anti-Air Warfare (AAW)	●	1. Real-time feed back is not available. 2. Reduces realism; reduces live fire proficiency; prohibits certain events; limits application of new technologies; inhibits new tactics; increases O&M costs. 3. Invest in high fidelity TSPI equipment and a wider range of EC&C equipment; M&S systems; scored targets; upgraded debrief capability.

Appendix C: Specific Range Comments

Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.

Encroachment

Observations

1. El Centro encroachment pertains to "Land" activities.
2. Adjacent Land Use regarding SDZ is the only encroachment with greater than minimal impact.
3. ASUW, MW, AMW, ASW, and NSW are not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the El Centro Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Munitions Restrictions	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Spectrum	Strike Warfare (STW)	●	FCC reduces DoD band width, forcing more investment in new technologies to use smaller band width.
	Electronic Combat (EC)	●	FCC reduces DoD band width, forcing more investment in new technologies to use smaller band width.
	Anti-Air Warfare (AAW)	●	FCC reduces DoD band width, forcing more investment in new technologies to use smaller band width.
Airspace	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Air Quality	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Noise Restrictions	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Adjacent Land Use	Strike Warfare (STW)	●	Limits on .50 cal training due to range safety zone overlap with range boundary. Land withdrawal proposed as solution.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Cultural Resources	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact

Appendix C: Specific Range Comments

Encroachment Factors	Assigned Training Mission	Color	Comment
Water Quality/ Supply	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)		No Impact
	Anti-Air Warfare (AAW)		No Impact
Wetlands	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)		No Impact
	Anti-Air Warfare (AAW)		No Impact
Range Transients	Strike Warfare (STW)	●	Unauthorized transients (UDAs, recreational vehicles, and scrappers) occasionally impact training.
	Electronic Combat (EC)	●	Unauthorized transients (UDAs, recreational vehicles, and scrappers) occasionally impact training.
	Anti-Air Warfare (AAW)	●	Unauthorized transients (UDAs, recreational vehicles, and scrappers) occasionally impact training.

Navy: Fallon

Comments:

Capabilities

Observations

- 1. 12 % of this range is Fully Mission Capable.
- 2. Landspace and Threats are impacting the overall missions to the greatest degree.
- 3. STW and AAW are the missions most impacted, with NSW having the most severe impact.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strike Warfare (STW)	●	<ul style="list-style-type: none"> 1. 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. 2. Reduces realism; inhibits new tactics development; reduces live fire proficiency. 3. No investment recommendation.
	Anti-Air Warfare (AAW)	●	<ul style="list-style-type: none"> 1. 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. 2. Reduces realism; inhibits new tactics development; reduces live fire proficiency. 3. No investment recommendation.
	Naval Special Warfare (NSW)	●	<ul style="list-style-type: none"> 1. 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. 2. Reduces realism; inhibits new tactics development; reduces live fire proficiency. 3. No investment recommendation.
Airspace	Strike Warfare (STW)	●	<ul style="list-style-type: none"> 1. Altitude restrictions limit tactics that may be employed. Limited supersonic employment, especially in target areas. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency. 3. No investment recommendation.
	Electronic Combat (EC)	●	<ul style="list-style-type: none"> 1. Moderate for helicopters due to restricted flare use. Minimal impact for fixed-winged. 2. Reduces realism; inhibits tactics development; reduces live fire proficiency. 3. No investment recommendation.
	Anti-Air Warfare (AAW)	●	<ul style="list-style-type: none"> 1. Altitude restrictions limit tactics that may be employed. Limited supersonic employment, especially in target areas. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency. 3. No investment recommendation.
Targets	Strike Warfare (STW)	●	<ul style="list-style-type: none"> 1. Limited number of tactically significant targets; no IR augmentation; no moving, structural, or urban targets. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency. 3. Invest in upgraded scoring options; TST program targets; Tactical targets; fixed and mobile EC sites; urban complex.

Capability Attributes	Assigned Training Mission	Color	Comments
Threats	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No live helicopter threat capability; quantity and variety of threat does not meet requirements; EC threat above level 2 is not available. 2. Reduces realism; inhibits new tactics development; limits application of new weapons technologies; reduces live fire proficiency. 3. Invest in fully mobile threat systems; simulators with TSPI integration; upgraded Integrated Air defense System; EC threat systems through level 4.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No live helicopter threat capability; quantity and variety of threat does not meet requirements; EC threat above level 2 is not available. 2. Reduces realism; inhibits new tactics development; limits application of new weapons technologies; reduces live fire proficiency. 3. Invest in fully mobile threat systems; simulators with TSPI integration; upgraded Integrated Air defense System; EC threat systems through level 4.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No live helicopter threat capability; quantity and variety of threat does not meet requirements; EC threat above level 2 is not available. 2. Reduces realism; inhibits new tactics development; limits application of new weapons technologies; reduces live fire proficiency. 3. Invest in fully mobile threat systems; simulators with TSPI integration; upgraded Integrated Air defense System; EC threat systems through level 4.
	Naval Special Warfare (NSW)	●	No Comments Provided
Scoring & Feedback System	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Capacity of system does not meet requirements; not JNTC or TENA compliant; no automatic RTKN. 2. Inhibits new tactics development; reduces live fire proficiency. 3. Invest in EC systems, range EC&C architecture, JNTC & TENA compatible systems.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. Capacity of system does not meet requirements; not JNTC or TENA compliant; no automatic RTKN. SAM simulation does not meet requirements; remote debrief is limited. 2. Inhibits new tactics development; reduces live fire proficiency. 3. Invest in EC systems, range EC&C architecture, JNTC & TENA compatible systems.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. Capacity of system does not meet requirements; not JNTC or TENA compliant; no automatic RTKN. 2. Inhibits new tactics development; reduces live fire proficiency. 3. Invest in EC systems, range EC&C architecture, JNTC & TENA compatible systems.
Range Support	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enable scheduling and data collection system should be developed.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enable scheduling and data collection system should be developed.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enable scheduling and data collection system should be developed.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. Difficult to assess capability shortfall as this is not a SOCOM range. 2. No investment recommendation.

Encroachment

Observations

1. El Centro encroachment pertains to "Land" activities.
2. Adjacent Land Use regarding SDZ is the only encroachment with greater than minimal impact.
3. ASUW, MW, AMW, ASW, and NSW are not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the El Centro Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Munitions Restrictions	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
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. Insoluble.
	Electronic Combat (EC)	●	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. Insoluble.
	Anti-Air Warfare (AAW)	●	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. Insoluble.
Airspace	Strike Warfare (STW)	●	FAA altitude caps; supersonic restrictions; VFR corridor interruptions; run-in headings restrictions, and helicopter restrictions affect training realism, tactics, and night/all-weather operations. Insoluble.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	FAA altitude caps; supersonic restrictions; and VFR corridor interruptions affect training realism, tactics, and night/all-weather operations. Insoluble.
Air Quality	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Noise Restrictions	Strike Warfare (STW)	●	Supersonic flight prohibition below 11,000 feet above MSL impacts tactical training. Insoluble.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	Supersonic flight prohibition below 11,000 feet above MSL impacts tactical training. Insoluble.
Adjacent Land Use	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Naval Special Warfare (NSW)	●	Power lines and telecommunications towers impact low altitude helicopter training and tactics. Not solvable.
Cultural Resources	Strike Warfare (STW)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact

Appendix C: Specific Range Comments

Encroachment Factors	Assigned Training Mission	Color	Comment
Water Quality/ Supply	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Wetlands	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Range Transients	Strike Warfare (STW)	●	Range management must provide range clearance for livestock. Insoluble.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Naval Special Warfare (NSW)	●	Range management must provide range clearance for livestock. Not solvable.

Navy: GOMEX

Comments:

Capabilities

Observations

1. 86% of the range is Fully Mission Capable.
2. Range Support is the capability with the most effect on Missions Areas.
3. All missions are equally effected by Range Support.

Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.

Encroachment

Observations

1. GOMEX encroachment pertains to both "At Sea" and "Littoral" activities.
2. Spectrum, Maritime Sustainability, and Range Transients have the most severe encroachment.
3. STW, EC, AMW, ASW, and NSW are not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the GOMEX Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Anti-Air Warfare (AAW)	●	Link 16, SPY-1 radar, SPS-49 radar, and IFF are restricted. Restrictions limit 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.
	Anti-Surface Warfare (ASUW)	●	Link 16, SPY-1 radar, SPS-49 radar, and IFF are restricted. Restrictions limit 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.
	Mine Warfare (MW)	●	Link 16, SPY-1 radar, SPS-49 radar, and IFF are restricted. Restrictions limit 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.

Encroachment Factors	Assigned Training Mission	Color	Comment
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Mine Warfare (MW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
Airspace	Anti-Air Warfare (AAW)	●	Meridian MOA—Loss of Airspace to FAA for Civilian Safety of Flight (Weather).
	Anti-Surface Warfare (ASUW)	●	Helicopter flights restricted out of Panama City.
	Mine Warfare (MW)	●	Helicopter flights restricted out of Panama City.
Noise Restrictions	Anti-Surface Warfare (ASUW)	●	Helicopter Noise causes flight restrictions. Civilian Aircraft increasing demand on Special Use Airspace
	Mine Warfare (MW)	●	Helicopter Noise causes flight restrictions.
Adjacent Land Use	Anti-Air Warfare (AAW)	●	Civilian towers/platforms interfere with areas on range.
	Mine Warfare (MW)	●	Civilian towers/platforms interfere with areas on range.
Cultural Resources	Anti-Surface Warfare (ASUW)	●	Existence of Ship Wrecks in OPAREAs restrict operations in their vicinity.
	Mine Warfare (MW)	●	Existence of Ship Wrecks in OPAREAs restrict operations in their vicinity.
Range Transients	Anti-Air Warfare (AAW)	●	Civilian Aircraft foul the range; Air Force Overlap in MOAs
	Anti-Surface Warfare (ASUW)	●	Range transients, involving commercial shipping vessels, commercial fishing and shrimping vessels, private pleasure craft, and commercial oil rig aircraft encroach on training, either by delaying events or forcing relocation to less than optimum locations.
	Mine Warfare (MW)	●	Range transients, involving commercial shipping vessels, commercial fishing and shrimping vessels, private pleasure craft, and commercial oil rig aircraft encroach on training, either by delaying events or forcing relocation to less than optimum locations.

Navy: Guantanamo

Comments:

Capabilities

Observations

1. 100% of range is Fully Mission Capable (FMC).
2. Assessment base on roles and missions not currently defined. Range might support training for: AAW; ASUW; ASW; STW; NSW.

Capability Attributes	Assigned Training Mission	Color	Comments
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Encroachment

Observations

1. Guantanamo encroachment pertains to both "At Sea" and "Land/Littoral" activities.
2. Munitions Restrictions, Spectrum, Maritime Sustainability, and Range Transients have Moderate encroachment.
3. EC, MW, AMW, and NSW are not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the Guantanamo Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	When a Cuban ground iguana is observed on the impact range, operations cease until the animal can be cleared from the range. For water areas bordering impact ranges, operations may be suspended until turtles and manatees have vacated the area.
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.
Spectrum	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	SPY-1 radar and SPS-49 radar are restricted per Annex Kilo to Commander, Fleet Forces Command (COMFLTFORCOM), Commander, Atlantic Fleet (COMLANTFLT) Operations Order (OPORD) 2000-03. Restrictions limit 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.
	Anti-Submarine (ASW)	●	No Impact

Encroachment Factors	Assigned Training Mission	Color	Comment
Maritime Sustainability	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Anti-Submarine (ASW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
Airspace	Strike Warfare (STW)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Air Quality	Strike Warfare (STW)	●	No Impact
Noise Restrictions	Strike Warfare (STW)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Adjacent Land Use	Strike Warfare (STW)	●	No Impact
Cultural Resources	Strike Warfare (STW)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact

Encroachment Factors	Assigned Training Mission	Color	Comment
Water Quality/ Supply	Strike Warfare (STW)	●	No Impact
Wetlands	Strike Warfare (STW)	●	No Impact
Range Transients	Strike Warfare (STW)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	Commercial and Cuban fishing vessels interrupt training at sea and near-shore areas. The impacts could be more severe should Naval activity increase in the range complex. Continued liaison between NS GTMO and the Cuban Government will improve notification times of impending vessel transits and may reduce the impact of the range transients on training.
	Anti-Submarine (ASW)	●	Commercial and Cuban fishing vessels interrupt training at sea and near-shore areas. The impacts could be more severe should Naval activity increase in the range complex. Continued liaison between NS GTMO and the Cuban Government will improve notification times of impending vessel transits and may reduce the impact of the range transients on training.

Navy: Hawaii

Comments:

		Capabilities	
		Observations	
Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Unable to conduct low-level ingress over land to an air-to-ground range area with a realistic strike package. 2. Reduces realism; inhibits tactics development. 3. No solution due to unavailability of land and airspace.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. There is no landspace beneath any AAW space. Airspace over land is required for ACM training. 2. Reduces realism by preventing detection and targeting of terrain following aircraft. 3. No landspace is available to solve this problem.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. Lacks maneuver space with a beachfront, live fire areas, MOUT. 2. Segments training, thereby reducing realism; inhibits tactics; reduces live fire proficiency. 3. Insoluble shortfall due to lack of available land.
Airspace	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Unable to conduct low-level ingress over land to an air-to-ground range area with a realistic strike package. 2. Reduces realism; inhibits tactics development. 3. No solution due to unavailability of land and airspace.
Targets	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No raked, strafe, structural, revetted, or moving targets. Does not meet requirements for live fire and realistic strike missions. No urban or moving targets. 2. Reduces realism; reduces live fire proficiency. 3. Upgrade targets to meet training requirements <p>Note: Does not include assessment of Army Pohakoloa Training Area Range.</p>
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. Basic level training target requirements are GREEN, but Intermediate and Sustainment level training target requirements are not available in sufficient quantity or variety. 2. Reduces realism. 3. Acquire additional surface targets.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. Existing mine training field does not realistically portray threat environment. 2. Reduces realism; inhibits tactics; limits application of new weapons technologies. Situation will get worse when OMCM systems are deployed if improvements are not made. 3. Anticipate deployment of new training mine fields at TBD future date.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. Target capabilities are downgraded by lack of target maintenance capabilities, thereby reducing the quantity of available required targets. 2. Reduces live fire proficiency; reduces realism. 3. Develop a capability perform maintenance on ASW targets.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. Range targets are not available. Units typically create their own targets without the benefit of realism. 2. Reduces realism; inhibits tactics development; reduces live fire proficiency. 3. Fund portable targets to meet NSW training requirements.

Capability Attributes	Assigned Training Mission	Color	Comments
Threats	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Adequate quantity and types of threat OPFOR are not available, including EC threat levels. 2. Reduces realism; inhibits tactics development. 3. Acquire EC systems that provide a high density, multi-threat axis capability through level 4.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. Adequate quantity and types of threat OPFOR are not available, including EC threat levels. 2. Reduces realism; inhibits tactics development. 3. Acquire EC systems that provide a high density, multi-threat axis capability through level 4.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No dedicated threat OPFOR. There is a shortage of the required number and variety of threat aircraft. 2. Reduces realism. 3. Investigate availability of Hawaii Air National Guard to serve in an OPFOR role.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. Basic level training threat requirements are GREEN, but Intermediate and Sustainment level training threat requirements are not available in sufficient quantity or variety. 2. Reduces realism. 3. Acquire additional threat OPFOR.
Scoring & Feedback System	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Instrumented scoring and debriefing capabilities are not available. 2. Performance, scoring, and evaluation of training is required for effective training. 3. Improve targets to include TSPI, EC&C, M&S, scoring and debrief capabilities.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. System lacks required capacity and needs upgrades to prevent obsolescence. 2. Lack of adequate instrumentation reduces the overall effectiveness of flights due to lower quality debrief information. 3. Invest in additional or new equipment to upgrade current systems.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. Instrumented mine field provides limited feedback and debrief capability. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies. Situation will get worse when OMCM systems are deployed. 3. Upgrade current mine range to correct deficiencies noted.






Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enable scheduling and data collection system should be developed.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enable scheduling and data collection system should be developed.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enable scheduling and data collection system should be developed.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enable scheduling and data collection system should be developed.

Encroachment

Observations

1. Hawaii encroachment pertains to both "At Sea" and "Land/Littoral" activities.
2. T&E Species and Maritime Sustainability have the most severe encroachment.
3. NSW is not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the Hawaii Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	Restrictions center around the protection of numerous migratory birds on Kaula Rock. Rather than implement costly mitigation measures, operations have been modified to minimize impacts to protected species. These restrictions have been self-imposed by the Navy and without any direction of the regulators. To comply with the MMPA and the ESA, the Record of Decision (ROD) concluded that the Navy "will limit Kaula Rock targeting for air to surface weapons delivery to the southeast tip of the island" and only seasonally when marine mammals are not present.
	Electronic Combat (EC)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
Munitions Restrictions	Strike Warfare (STW)	●	No Impact
Spectrum	Strike Warfare (STW)	●	Link 16 use is restricted. Restrictions limit 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.
	Electronic Combat (EC)	●	Link 16 use is restricted. Restrictions limit 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.
	Anti-Air Warfare (AAW)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.
	Anti-Surface Warfare (ASUW)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.
	Mine Warfare (MW)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.
	Amphibious Warfare (AMW)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.
	Anti-Submarine (ASW)	●	FAA altitude caps; supersonic restrictions; and VFR corridor interruptions affect training realism, tactics, and night/all-weather operations. Insoluble.

Encroachment Factors	Assigned Training Mission	Color	Comment
Maritime Sustainability	Strike Warfare (STW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Mine Warfare (MW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Amphibious Warfare (AMW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Anti-Submarine (ASW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.

Encroachment Factors	Assigned Training Mission	Color	Comment
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. In general, commercial and private aviation conflicts with Naval operations throughout the range complex.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	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. In general, commercial and private aviation conflicts with Naval operations throughout the range complex.
	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Air Quality	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Noise Restrictions	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
Adjacent Land Use	Strike Warfare (STW)	●	STW range is insufficient in size to support all requirements. Land withdrawal/procurement is problematic due to development/other factors.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
Cultural Resources	Strike Warfare (STW)	●	Some Hawaiians have requested access to Kaula Rock due to their assertions that the island has cultural significance. This represents a potential future encroachment impact which could adversely impact DOD's continued use of the island for training.
	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact

Encroachment Factors	Assigned Training Mission	Color	Comment
Water Quality/Supply	Strike Warfare (STW)	●	No Impact
Wetlands	Strike Warfare (STW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
Range Transients	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	Commercial and private fishing boats, surfers, and dive boats move in and out of the training areas. This transient traffic has a considerable impact on military operations. Naval activity is interrupted or canceled when the range transients impinge on the training activities. The Navy informs the public of military training activity through NOTAMs, NOTMARs, and exercise announcements.
	Mine Warfare (MW)	●	Commercial and private fishing boats, surfers, and dive boats move in and out of the training areas. This transient traffic has a considerable impact on military operations. Naval activity is interrupted or canceled when the range transients impinge on the training activities. The Navy informs the public of military training activity through NOTAMs, NOTMARs, and exercise announcements.
	Amphibious Warfare (AMW)	●	Commercial and private fishing boats, surfers, and dive boats move in and out of the training areas. This transient traffic has a considerable impact on military operations. Naval activity is interrupted or canceled when the range transients impinge on the training activities. The Navy informs the public of military training activity through NOTAMs, NOTMARs, and exercise announcements.
	Anti-Submarine (ASW)	●	Commercial and private fishing boats, surfers, and dive boats move in and out of the training areas. This transient traffic has a considerable impact on military operations. Naval activity is interrupted or canceled when the range transients impinge on the training activities. The Navy informs the public of military training activity through NOTAMs, NOTMARs, and exercise announcements.

Navy: Jacksonville

Comments:

Capabilities

Observations

1. 55% of the range is Fully Mission Capable (FMC).
2. Scoring and Feedback systems, followed by Range Support have the greatest impact across all mission areas.
3. ASW is the most severely impacted for lack of underwater instrumentation.

Capability Attributes	Assigned Training Mission	Color	Comments
Landscape	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Landscape does not fully support size or topography requirements for placement of required number of targets. Use of live ordnance is not supported. Use of flares is restricted. No land area supports NSFS training or CSAR training, nor standoff PGM delivery. 2. Prohibits certain training events; reduces realism; increases personnel optempo. 3. Identify east coast land areas of sufficient size to support standoff weapons training.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. Landscape does not fully support size or topography requirements, or support surface combatant detection of aircraft over land. Use of flares is restricted. 2. Prohibits certain training events; reduces realism; increases personnel optempo. 3. Overland ACM training is conducted at Fallon Range Training Complex. No additional land options available.
Airspace	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Land area and associated SUA adjacent to JAX at-sea. 2. 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. 3. There are no local options for increasing land availability, but coordination and investment in new MOAs and/or restricted airspace could reduce the impact on flight operations by increasing airspace area and altitudes.
Targets	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Urban area is too small, no LACM or NSFS land area targets, no moving targets, targets lack infrared signatures. 2. Prohibits certain training events; reduces realism; limits application of new weapon technologies; inhibits tactics development; reduces live fire proficiency, increases personnel optempo; increases O&M costs. 3. Invest in required targets.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No recoverable inert floating mine shapes. 2. Provides no means to determine effectiveness of planning tactics; reduces realism; inhibits tactics. 3. Develop and procure recoverable inert floating mine shapes to support deep water MIW training.
Threats	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. EC threat representation does not fully support EC threat levels 3 or 4 for required mission areas. 2. Existing instrumentation systems are becoming obsolete and unsupported through the FYDP. 3. Maintain current upgrade schedule to preclude severe degradation of system capability.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No helicopter or supersonic threat OPFOR. 2. Reduces realism; Increases personnel optempo; increases O&M costs. 3. Increase the number and type of commercial air services.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. Limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. 2. Prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. 3. Invest in additional threat OPFOR. Increase availability of submarines through the DESI and aircraft through CAS.

Capability Attributes	Assigned Training Mission	Color	Comments
Scoring and Feedback	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Incomplete TSPI & EC&C OPAREA coverage; needs scoring, RTKN and M&S systems. 2. Increases personnel optempo; increases O&M costs. 3. Expand and improve 2-D & 3-D coverage of the oparea; invest in JNTC compliant M&S equipment; improve debrief capabilities.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. Incomplete TSPI & EC&C OPAREA coverage; needs scoring, RTKN and M&S systems. 2. Increases personnel optempo; increases O&M costs. 3. Expand and improve 2-D & 3-D coverage of the oparea; invest in JNTC compliant M&S equipment; improve debrief capabilities.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. OPAREA coverage is not complete; Modeling & Simulation is inadequate; no RTKN. Existing instrumentation systems are not supportable through the FYDP. 2. Reduces realism; inhibits tactics; increases personnel optempo, increases O&M costs. 3. 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)	●	<ol style="list-style-type: none"> 1. Incomplete TSPI & EC&C OPAREA coverage; needs scoring, RTKN and M&S systems. 2. Increases personnel optempo; increases O&M costs. 3. Expand and improve 2-D & 3-D coverage of the oparea; invest in JNTC compliant M&S equipment; improve debrief capabilities.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No designated mine training area with target mine shapes and instrumentation. 2. Prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; increases personnel optempo; increases O&M costs; provides no feedback as to effectiveness of planning tactics. 3. Establish a mine training area suitable for temporary deployment of recoverable inert floating mine shapes to support major exercise deep water MIW events.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No underwater tracking range, scoring capability, M&S, or post mission feedback. 2. Prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. 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.

Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. Link-16 not available at range to monitor training. 2. 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. Lack of Link-16 prevents monitoring of OPAREA events. 3. A standard web-enabled scheduling and data collection system should be developed. Range needs to be updated with Link-16 capability.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. Link-16 not available at range to monitor training. 2. 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. Lack of Link-16 prevents monitoring of OPAREA events. 3. A standard web-enabled scheduling and data collection system should be developed. Range needs to be updated with Link-16 capability.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. Link-16 not available at range to monitor training. 2. 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. Lack of Link-16 prevents monitoring of OPAREA events. 3. A standard web-enabled scheduling and data collection system should be developed. Range needs to be updated with Link-16 capability.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. Link-16 not available at range to monitor training. 2. 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. Lack of Link-16 prevents monitoring of OPAREA events. 3. A standard web-enabled scheduling and data collection system should be developed. Range needs to be updated with Link-16 capability.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. Link-16 not available at range to monitor training. 2. 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. Lack of Link-16 prevents monitoring of OPAREA events. 3. A standard web-enabled scheduling and data collection system should be developed. Range needs to be updated with Link-16 capability.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. Link-16 not available at range to monitor training. 2. 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. Lack of Link-16 prevents monitoring of OPAREA events. 3. A standard web-enabled scheduling and data collection system should be developed. Range needs to be updated with Link-16 capability.

Encroachment

Observations

1. Jacksonville encroachment pertains to both “At Sea” and “Land/Littoral” activities.
2. Spectrum, Maritime Sustainability, and Airspace have the most severe encroachment.
3. NSW is not assessed.
4. Encroachment Factors and Mission Areas in “white” do not apply to Navy activities in the Jacksonville Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	Scrub jays, indigo snakes, and gopher tortoises at Pinycastle 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. There is consideration of moving the Flatwoods Salamander off the Townsend Range. Avon Park mitigation recommendations are unknown.
Spectrum	Strike Warfare (STW)	●	Link 16 use is restricted. 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)	●	Link 16 use is restricted. 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)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.
	Mine Warfare (MW)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.
	Anti-Submarine (ASW)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.

Encroachment Factors	Assigned Training Mission	Color	Comment
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Mine Warfare (MW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Anti-Submarine (ASW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.

Encroachment Factors	Assigned Training Mission	Color	Comment
Airspace	Strike Warfare (STW)	●	During space launches at Cape Canaveral, the FAA closes southern portions of the Jacksonville OPAREA and associated airspace, depending on launch parameters. Closing portions of the SUA and OPAREA impacts several warfare areas that use the SUA and OPAREAs. The Navy will continue to coordinate with the FAA to minimize space launch impacts on training activities.
	Anti-Air Warfare (AAW)	●	During space launches at Cape Canaveral, the FAA closes southern portions of the Jacksonville OPAREA and associated airspace, depending on launch parameters. Closing portions of the SUA and OPAREA impacts several warfare areas that use the SUA and OPAREAs. The Navy will continue to coordinate with the FAA to minimize space launch impacts on training activities.
	Anti-Surface Warfare (ASUW)	●	During space launches at Cape Canaveral, the FAA closes southern portions of the Jacksonville OPAREA and associated airspace, depending on launch parameters. Closing portions of the SUA and OPAREA impacts several warfare areas that use the SUA and OPAREAs. The Navy will continue to coordinate with the FAA to minimize space launch impacts on training activities.
	Mine Warfare (MW)	●	During space launches at Cape Canaveral, the FAA closes southern portions of the Jacksonville OPAREA and associated airspace, depending on launch parameters. Closing portions of the SUA and OPAREA impacts several warfare areas that use the SUA and OPAREAs. The Navy will continue to coordinate with the FAA to minimize space launch impacts on training activities.
	Anti-Submarine (ASW)	●	During space launches at Cape Canaveral, the FAA closes southern portions of the Jacksonville OPAREA and associated airspace, depending on launch parameters. Closing portions of the SUA and OPAREA impacts several warfare areas that use the SUA and OPAREAs. The Navy will continue to coordinate with the FAA to minimize space launch impacts on training activities.
Range Transients	Anti-Surface Warfare (ASUW)	●	Commercial vessel and recreational vessel traffic encroaches on maritime activity. When a transient fouls the range area the training activity may have to be relocated to a different area or it must be rescheduled in an effort to conduct the training activity when the range is fouled by a transient. The Navy continues to promote procedures that inform industry and the public regarding the impact of range transient encroachment on Navy readiness.
	Mine Warfare (MW)	●	Commercial vessel and recreational vessel traffic encroaches on maritime activity. When a transient fouls the range area the training activity may have to be relocated to a different area or it must be rescheduled in an effort to conduct the training activity when the range is fouled by a transient. The Navy continues to promote procedures that inform industry and the public regarding the impact of range transient encroachment on Navy readiness.
	Anti-Submarine (ASW)	●	Commercial vessel and recreational vessel traffic encroaches on maritime activity. When a transient fouls the range area the training activity may have to be relocated to a different area or it must be rescheduled in an effort to conduct the training activity when the range is fouled by a transient. The Navy continues to promote procedures that inform industry and the public regarding the impact of range transient encroachment on Navy readiness.

Navy: Japan

Comments:

Capabilities

Observations

1. 30% of this range is Fully Mission Capable (FMC).
2. Scoring and Feedback Systems, Threat and Targets, and Landspace have the greatest effect on missions.
3. STW, EC, and AAW are the missions most greatly affected.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No Navy controlled range available. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other services, countries, and in-theater ranges.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No Navy controlled range available. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other services, countries, and in-theater ranges.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No Navy controlled range available. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other services, countries, and in-theater ranges.
Airspace	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No Navy controlled range available, but there is some airspace and ground targets available. Projected airwing move will downgrade training due to limited airspace at the new area. 2. Prohibits certain training events; limits application of new technologies; inhibits new tactics development; increases personnel optempo, increases O&M costs. 3. Pursue access to airspace that will support this training.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No overland airspace supports AAW training. Projected airwing move will downgrade training due to limited airspace at the new area. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other services, countries, and in-theater ranges.
Seaspace	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. Deep water depths and lack of geographic references limit MIW training. 2. Prohibits certain training; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel optempo; increases O&M costs. 3. Evaluate feasibility of creating an oparea adjacent to land to support shallow water and geographic reference points.
Underseaspace	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No dedicated underseaspace for Shock Wave Action Generator (SWAG) or mine avoidance training. Sea bottom type does not have required variance; insufficient shallow water; no permanent UTR. 2. Prohibits certain training; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. 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 oparea with shallow water.

Capability Attributes	Assigned Training Mission	Color	Comments
Targets	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No Navy controlled range available. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel optempo; increases O&M costs. 3. Provide A-G targets and establish supporting SUA.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No targets exist. Limited land area. Political and frequency spectrum constraints. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits tactics development; increases personnel optempo; increases O&M costs. 3. Pursue TSV EC Capability.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No supersonic targets available. No dedicated targets available. 2. Reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Increase availability of commercial air services. Pursue a training support vessel with target capabilities.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. Quantity and types of targets are limited. 2. Prohibits certain training events; reduces realism; reduces live fire proficiency. 3. Increase availability of targets. Pursue Training Support Vessel capability.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No dedicated or instrumented targets available. Units will typically provide their own targets where feasible. 2. Prohibits certain training events; reduces realism; limits application of new technologies; reduces live fire proficiency; increases O&M costs. 3. Evaluate feasibility of installing a mine range with instrumented shapes, false targets, bottom mines and mines approved for SWAG training.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. Live and virtual targets are not available. Expendable targets provided by the unit conducting the training are usually used. 2. Reduces realism; limits application of new technologies; inhibits tactics development; reduces live fire proficiency; increases O&M costs. 3. Establish an ASW targets unit.
Threats	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No dedicated, but limited OPFOR is available. 2. Reduces realism; limits application of new technologies; inhibits tactics development. 3. Improve availability of CAS and EC augmentation. Pursue TSV with EC capabilities. New CAS contract expected to improve OPFOR support.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No dedicated, but limited OPFOR is available. 2. Reduces realism; limits application of new technologies; inhibits tactics development. 3. Pursue development of joint EC systems. Improve availability of CAS and EC augmentation. Pursue TSV with EC capabilities.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No dedicated, but limited OPFOR is available. 2. Reduces realism; limits application of new technologies; inhibits tactics development. 3. Improve availability of CAS and EC augmentation. Pursue TSV with EC capabilities.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No dedicated, but limited OPFOR is available. 2. Reduces realism; limits application of new technologies; inhibits tactics development. 3. Improve availability of CAS and EC augmentation. Pursue TSV with EC capabilities.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No dedicated, but limited OPFOR is available. 2. Reduces realism; limits application of new technologies; inhibits tactics development. 3. Improve availability of CAS and EC augmentation. Pursue TSV with EC capabilities.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No dedicated OPFOR threat is available. 2. Reduces realism; limits application of new technologies; inhibits tactics development. 3. Improve availability of CAS and EC augmentation. Pursue TSV with EC capabilities.

Capability Attributes	Assigned Training Mission	Color	Comments
Scoring & Feedback System	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. 3. Evaluate Training Support Vessel and TCTS potential to support training. 4. TCTS was delivered in late FY08, and although it is an AAW system, it is expected to marginally improve STW.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. 3. Continue planned development of TCTS and evaluate potential to improve training.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. 3. TCTS was delivered in late FY08, and is expected to improve AAW feedback.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. 3. Evaluate potential of TCTS to support ASUW. 4. Evaluate Training Support Vessel potential to support training.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. 3. Evaluate feasibility of installing a mine range with instrumented shapes, false targets, bottom mines and mines approved for SWAG training. 4. Evaluate Training Support Vessel potential to support training.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; inhibits new tactics; complicates night and all weather training. 3. Evaluate potential of TCTS to support ASW. 4. Evaluate Training Support Vessel and Portable Underwater Training Range potential to support training. 5. Improved target support is forecast for FY09.

Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.

Encroachment

Observations

1. Japan encroachment pertains to “At Sea” activities. T&E Species and Maritime Sustainability have the most severe encroachment.
2. Spectrum has the most severe encroachment.
3. AMW and NSW are not assessed.
4. Encroachment Factors and Mission Areas in “white” do not apply to Navy activities in the Japan Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
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.
	Anti-Air Warfare (AAW)	●	Restrictions on RF emissions limit the use of the Tactical Combat Training System (TCTS).
	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.
	Mine Warfare (MW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Maritime Sustainability	Strike Warfare (STW)	●	In the absence of host country regulations to protect marine mammals, 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-Surface Warfare (ASUW)	●	LFA SONAR activity is restricted in the waters off Japan. In the absence of host country regulations to protect marine mammals, 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.
	Mine Warfare (MW)	●	No Impact
	Anti-Submarine (ASW)	●	LFA SONAR activity is restricted in the waters off Japan. In the absence of host country regulations to protect marine mammals, 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.
Airspace	Strike Warfare (STW)	●	With the move of CVW-5 from Atsugi to Iwakuni, airspace will become more problematic.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	With the move of CVW-5 from Atsugi to Iwakuni, airspace will become more problematic.
	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact

Appendix C: Specific Range Comments

Encroachment Factors	Assigned Training Mission	Color	Comment
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.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	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.
	Amphibious Warfare (AMW)	●	No Impact
Cultural Resources	Strike Warfare (STW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Range Transients	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact

Navy: Key West

Comments:

Capabilities

Observations

1. 50% of this range is FMC.
2. Scoring and Feedback systems, Targets, Threats, and Range Support systems are all equally affecting AAW and ASUW.

Capability Attributes	Assigned Training Mission	Color	Comments
Targets	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. Minimal target support. Air targets are not available unless scheduled in advance (long lead time). 2. Increases personnel optempo; increases O&M costs. 3. With sufficient lead time to schedule targets and if the required targets are available, targets may be arranged.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No organic range capability. Surface targets are not available for live fire unless scheduled in advance (long lead time). 2. Prohibits certain training events' reduces realism; limits application of weapon technologies; inhibits tactics development; increases personnel optempo; increases O&M costs. 3. With sufficient lead time to schedule targets and if the required targets are available, targets may be arranged.
Threats	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No dedicated surface threat. 2. Prohibits certain training events; reduces realism; limits application of new weapon technologies; inhibits tactics development; increases personnel optempo; increases O&M costs. 3. With sufficient lead time to schedule targets and if the required targets are available, targets may be arranged.
Scoring and Feedback System	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. Exercise Coordination & Control not available over the entire OPAREA, especially for surface ships; Modeling & Simulation not available; RTKN is available by voice only. 2. Prohibits certain training events; reduces realism; increases personnel optempo; increases O&M costs. 3. Invest in systems to support EC&C, M&S and scoring, and debriefing.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. Exercise Coordination & Control not available over the entire OPAREA; Modeling & Simulation not available; RTKN is available by voice only. 2. Prohibits certain training events; reduces realism; limits application of new weapon technologies; inhibits tactics development; increases personnel optempo; increases O&M costs. 3. Invest in systems to support EC&C, M&S and scoring, and debriefing.
Range Support	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.

Encroachment

Observations

1. Key West encroachment pertains to both "At Sea" and "Land/Littoral" activities.
2. Wetlands ("Land") is the most severe encroachment.
3. STW, EC, MW, AMW, ASW, and NSW are not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the Key West Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	No Impact
Airspace	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
Noise Restrictions	Anti-Air Warfare (AAW)	●	No Impact
Adjacent Land Use	Anti-Air Warfare (AAW)	●	No Impact
Cultural Resources	Anti-Surface Warfare (ASUW)	●	No Impact
Wetlands	Anti-Air Warfare (AAW)	●	This wetlands 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.
Range Transients	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact

Navy: Mariana Islands

Comments:

Capabilities

Observations

1. 22% of this range is Fully Mission Capable.

2. All the basic capabilities are severely impacting all mission areas as this is a developing capability.

NOTE: Navy Training Ranges do not have a responsibility to support Naval Special Warfare training; however, Navy SEALs do train on this Range Complex and NSW readiness objectives can be accomplished

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Land area is too small, all required ordnance is not cleared for use. 2. Size of land area detracts from all levels of training. 3. Conduct feasibility study for establishing a high-fidelity, inert, A-G range and training area with an associated Warning Area.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. Land area does not meet requirements for EC training. 2. Prevents conduct of EC training. 3. Acquire appropriate land area to support EC assets.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No suitable land area is available under the training airspace. 2. Prevents realistic overland detection and tracking scenarios. 3. Establish a Warning Area over suitable land area.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. Minimal land area available for AMW training. Live fire not permitted; maneuver is restricted to use if roads; helicopters must land on designated airfields. 2. Prevents conduct of AMW training. 3. Integrate Navy AMW airspace requirements into Marine Corps amphibious feasibility study.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. Insufficient maneuver area that supports live fire training; MOUT is too small; laser designators are not allowed. 2. Limits NSW realistic training. 3. Conduct study to locate land area that will support NSW training.
Airspace	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Size and altitudes of airspace too small. 2. Cannot accommodate multiple strike packages. 3. Convert ATCAAs to Warning Areas, make airspace boundaries contiguous, establish Warning Areas over suitable land areas.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No suitable land area is available under the training airspace. 2. Prevents realistic overland detection and tracking scenarios. 3. Negotiate with FAA to convert ATCAAs to Warning Areas and establish Warning Area over suitable land area.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. Minimal airspace exists over beaches that support AMW training. 2. Prevents air support training for AMW. 3. Integrate Navy AMW airspace requirements into Marine Corps amphibious feasibility study.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. No special use airspace adjacent to land that supports HALO or HAHO parachute training. 2. Prevents complete range of required parachute training. 3. Establish SUA in required area.

Capability Attributes	Assigned Training Mission	Color	Comments
Seaspace	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No OPAREA exists to support EC. 2. Prevents EC Training. 3. Establish an OPAREA to support EC training.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. Insufficient geographic references for aerial mine laying; no designated OPAREA for mine laying. 2. Prevent proper procedures for aerial mining. 3. Designate geographic reference point and OPAREA for aerial mining.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. No suitable seaspace supported by required beach front available. 2. Prevents conduct of AMW training. 3. Integrate Navy AMW seaspace requirements into Marine Corps amphibious feasibility study.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. Insufficient beachfront contiguous with sea area; coral heads prevent access to beaches from sea. 2. NSW training limited. 3. Conduct study to locate area to support required training.
Underseaspace	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No dedicated area for SWAG or mine avoidance training. The extreme water depth and lack of variance in sea bottom is problematic. 2. Limits mine countermeasures training. 3. Study feasibility of installing a mine training range with instrumented shapes, false targets, and mines for SWAG training.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No UTR; lack of shallow water. 2. Prevents tracking torpedos shots to determine hit/miss. Lack of shallow water prevents Littoral training. 3. Conduct feasibility study to install UTR.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. Insufficient beachfront contiguous with sea area; coral heads prevent access to beaches from sea. 2. NSW training limited. 3. Conduct study to locate area to support required training.
Target	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. There are no raked, strafe, structural, revetted, or moving targets; no urban terrain; do not support 2000 lb ordnance or cluster munitions. Do not support multiple strike packages; do not have spectral signatures. 2. Limits live fire and realistic training. 3. Conduct feasibility study to establish high fidelity, inert, A-G range and training area with associated Warning Area.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No targets are available at the Mariana Islands Range. 2. Full range of EC training that requires target support is not available. 3. Study feasibility of establishing target unit at the range complex.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No targets are available at the Mariana Islands Range. 2. Full range of AAW training that requires target support is not available. 3. Study feasibility of establishing target unit at the range complex.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No targets are available at the Mariana Islands Range. 2. Full range of ASUW training that requires target support is not available. 3. Study feasibility of establishing target unit at the range complex.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No targets available from range; users sometimes supply their own targets. 2. Will degrade training capability for OMCM units. 3. Study feasibility of installing a mine range with instrumented mines, false targets, and mines for SWAG training.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. No targets exist for AMW training. No live fire is permitted. 2. Prevents live fire training associated with AMW. 3. Integrate Navy AMW target requirements into Marine Corps amphibious feasibility study.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No targets exist for ASW training, unless an expendable target is provided by the unit being trained. 2. Prevents torpedo firing training associated with ASW. 3. Study feasibility of establishing a targets division at range complex.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. No targets exist for NSW training. MOUT facility is limited. 2. Reduces live fire proficiency; inhibits new tactics. 3. Study feasibility of establishing a targets division at range complex.

Capability Attributes	Assigned Training Mission	Color	Comments
Threats	Strike Warfare (STW)	●	1. No OPFOR is available at the range. 2. Full range of STW training that requires OPFOR support is not available. 3. Study feasibility of establishing OPFOR resources at the range complex.
	Electronic Combat (EC)	●	1. No OPFOR is available at the range. 2. Full range of STW training that requires OPFOR support is not available. 3. Study feasibility of establishing OPFOR resources at the range complex.
	Anti-Air Warfare (AAW)	●	1. No OPFOR is available at the range. 2. Full range of STW training that requires OPFOR support is not available. 3. Study feasibility of establishing OPFOR resources at the range complex.
	Anti-Surface Warfare (ASUW)	●	1. No OPFOR is available at the range. 2. Full range of STW training that requires OPFOR support is not available. 3. Study feasibility of establishing OPFOR resources at the range complex.
	Mine Warfare (MW)	●	1. No OPFOR is available at the range. 2. Full range of STW training that requires OPFOR support is not available. 3. Study feasibility of establishing OPFOR resources at the range complex.
	Amphibious Warfare (AMW)	●	1. No OPFOR is available at the range. 2. Full range of STW training that requires OPFOR support is not available. 3. Study feasibility of establishing OPFOR resources at the range complex.
	Anti-Submarine (ASW)	●	1. No OPFOR is available at the range. 2. Full range of STW training that requires OPFOR support is not available. 3. Study feasibility of establishing OPFOR resources at the range complex.
	Naval Special Warfare (NSW)	●	1. No OPFOR is available at the range. 2. Full range of STW training that requires OPFOR support is not available. 3. Study feasibility of establishing OPFOR resources at the range complex.
Scoring & Feedback	Strike Warfare (STW)	●	1. No instrumentation exists at the range. 2. Full range of STW training that requires instrumentation is not available. 3. Study feasibility of providing instrumentation to the range complex.
	Electronic Combat (EC)	●	1. No instrumentation exists at the range. 2. Full range of STW training that requires instrumentation is not available. 3. Study feasibility of providing instrumentation to the range complex.
	Anti-Air Warfare (AAW)	●	1. No instrumentation exists at the range. 2. Full range of STW training that requires instrumentation is not available. 3. Study feasibility of providing instrumentation to the range complex.
	Anti-Surface Warfare (ASUW)	●	1. No instrumentation exists at the range. 2. Full range of STW training that requires instrumentation is not available. 3. Study feasibility of providing instrumentation to the range complex.
	Mine Warfare (MW)	●	1. No instrumentation exists at the range. 2. Full range of STW training that requires instrumentation is not available. 3. Study feasibility of providing instrumentation to the range complex.
	Amphibious Warfare (AMW)	●	1. No instrumentation exists at the range. 2. Full range of STW training that requires instrumentation is not available. 3. Study feasibility of providing instrumentation to the range complex.
	Anti-Submarine (ASW)	●	1. No instrumentation exists at the range. 2. Full range of STW training that requires instrumentation is not available. 3. Study feasibility of providing instrumentation to the range complex.
	Naval Special Warfare (NSW)	●	1. No instrumentation exists at the range. 2. Full range of STW training that requires instrumentation is not available. 3. Study feasibility of providing instrumentation to the range complex.








Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enable scheduling and data collection system should be developed.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enable scheduling and data collection system should be developed.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enable scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enable scheduling and data collection system should be developed.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enable scheduling and data collection system should be developed.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enable scheduling and data collection system should be developed.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enable scheduling and data collection system should be developed.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enable scheduling and data collection system should be developed.

Encroachment

Observations

1. Mariana Islands encroachment pertains to both "At Sea" and "Land/Littoral" activities.
2. T&E Species, Spectrum, and Maritime Sustainability have the most severe encroachment.
3. NSW is not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the Mariana Islands Range Complex.









Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	Threatened species and migratory bird habitat restricts area available for training on FDM.
	Amphibious Warfare (AMW)	●	Marine Mammal Protection Act, Endangered Species Act, the EIS for Military Training in the Marianas, and the USDA BTS protocol place restrictions on military training throughout the Marianas. Regulatory controls have resulted in INRMPs that place restrictions on military operations. Coral and essential fish habitat (EFH) conservation, marine mammal protection, munitions in the water, turtle nesting, and BTS protocols are some of the encroachment issues that influence training activities. LCAC and AAV landings on the beaches in the Marianas are problematic. Amphibious landings will require compensatory coral reef mitigation efforts. All Military Services are subject to and conform to training restrictions.
	Naval Special Warfare (NSW)	●	Marine Mammal Protection Act, Endangered Species Act, the EIS for Military Training in the Marianas, and the USDA BTS protocol place restrictions on military training throughout the Marianas. Regulatory controls have resulted in INRMPs that place restrictions on military operations. Coral and essential fish habitat (EFH) conservation, marine mammal protection, munitions in the water, turtle nesting, and BTS protocols are some of the encroachment issues that influence training activities. All Military Services are subject to and conform to training restrictions.
Munitions Restrictions	Strike Warfare (STW)	●	Devegetation and erosion on FDM caused by explosive munitions has restricted and prohibited certain munitions expenditures. FDM users are continually reminded to use only authorized munitions and to keep munitions on island.
	Anti-Submarine (ASW)	●	No Impact
	Naval Special Warfare (NSW)	●	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. The Navy is pursuing a RCRA designation for the EOD pit in the Ordnance Annex. Tinian users are continually reminded of UXO on Tinian. On Guam, EOD training on the EOD pit in the Ordnance Annex is problematic due to Clean Water Act (CWA) and Resource Conservation and Recovery Act (RCRA) controls on EOD activities.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Strike Warfare (STW)		Link 16 use is restricted. Restrictions limit 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.
	Electronic Combat (EC)		No Impact
	Anti-Air Warfare (AAW)		Link 16 use is restricted. Restrictions limit 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.
	Anti-Surface Warfare (ASUW)		Link 16, SPY-1 radar, SPS-49 radar, and IFF are restricted. Restrictions limit 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.
	Mine Warfare (MW)		Link 16, SPY-1 radar, SPS-49 radar, and IFF are restricted. Restrictions limit 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.
	Amphibious Warfare (AMW)		Link 16, SPY-1 radar, SPS-49 radar, and IFF are restricted. Restrictions limit 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.
	Anti-Submarine (ASW)		Link 16, SPY-1 radar, SPS-49 radar, and IFF are restricted. Restrictions limit 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.

Encroachment Factors	Assigned Training Mission	Color	Comment
Maritime Sustainability	Strike Warfare (STW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Mine Warfare (MW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Amphibious Warfare (AMW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Anti-Submarine (ASW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.

Encroachment Factors	Assigned Training Mission	Color	Comment
Airspace	Strike Warfare (STW)	●	Marianas airspace is adequate when the ATCAAs are available; however, scheduling can be problematic as FAA is not always flexible to short notice requests. FAA in Marianas has tremendous pressure from the airlines. 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. Warfare areas participating in combined arms training are impacted by the current lack of SUA over land areas in the Marianas.
	Anti-Air Warfare (AAW)	●	Marianas airspace is adequate when the ATCAAs are available; however, scheduling can be problematic as FAA is not always flexible to short notice requests. FAA in Marianas has tremendous pressure from the airlines. The Navy is considering establishing Warning Areas to replace the ATCAAs.
	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Air Quality	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Noise Restrictions	Strike Warfare (STW)	●	There is a continuing concern with noise at Andersen Northwest Field due to residential areas adjoining the property. Nighttime flying activities are restricted and flight tracks are routed to avoid populated areas. Only mission essential aircraft arrivals and departures are scheduled between 2200 and 0600 hours. The Air Force continues close coordination with local stakeholders to ensure military operations can proceed normally.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	There is a continuing concern with noise at Andersen Northwest Field due to residential areas adjoining the property. Nighttime flying activities are restricted and flight tracks are routed to avoid populated areas. Only mission essential aircraft arrivals and departures are scheduled between 2200 and 0600 hours. The Air Force continues close coordination with local stakeholders to ensure military operations can proceed normally.
	Amphibious Warfare (AMW)	●	No Impact
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. Private owners are a source for noise complaints.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	Privately owned land near the runway at Andersen Air Field Northwest falls within the clear zones for aircraft operations. Private owners are a source for noise complaints.
	Amphibious Warfare (AMW)	●	No Impact

Encroachment Factors	Assigned Training Mission	Color	Comment
Cultural Resources	Strike Warfare (STW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	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. Insoluble.
	Anti-Submarine (ASW)	●	No Impact
	Naval Special Warfare (NSW)	●	The pervasiveness of cultural resources in the Marianas limits locations for NSW ranges and training areas where special operations forces would logically train.
Water Quality/Supply	Strike Warfare (STW)	●	No Impact
Wetlands	Strike Warfare (STW)	●	No Impact
	Amphibious Warfare (AMW)	●	There are sensitive wetlands areas in the vicinity of the Reserve Craft Beach (RCB). GovGuam has declared area a conservation area, over the Navy's objections. The Navy owns the RCB, but GovGuam has restricted its use. The Navy may try to negotiate this issue during the EIS process.
	Naval Special Warfare (NSW)	●	There are sensitive wetlands areas in the vicinity of the Reserve Craft Beach (RCB). GovGuam has declared area a conservation area, over the Navy's objections. The Navy owns the RCB, but GovGuam has restricted its use. The Navy may try to negotiate this issue during the EIS process.

Encroachment Factors	Assigned Training Mission	Color	Comment
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. Navy pursues outreach to local mayors, fishermen, and tour operators to ensure better understanding of military training. The Navy should pursue an exclusion zone around FDM for safety reasons.
	Electronic Combat (EC)		No Impact
	Anti-Air Warfare (AAW)		No Impact
	Anti-Surface Warfare (ASUW)		No Impact
	Mine Warfare (MW)		Commercial and private fishing boats and dive boats frequent near-shore areas throughout the Marianas. There are no enforced surface danger zones (SDZs) over the water. Transient boat traffic interrupts or stops military training activity. Active patrolling of near-shore areas may need to be implemented to avoid civilian encroachment onto "hot" ranges and training areas. Navy pursues outreach to local mayors, fishermen, and tour operators to ensure better understanding of military training. The Navy should pursue an exclusion zone around FDM for safety reasons.
	Amphibious Warfare (AMW)		Commercial and private fishing boats and dive boats frequent near-shore areas throughout the Marianas. There are no enforced surface danger zones (SDZs) over the water. Transient boat traffic interrupts or stops military training activity. Active patrolling of near-shore areas may need to be implemented to avoid civilian encroachment onto "hot" ranges and training areas. Navy pursues outreach to local mayors, fishermen, and tour operators to ensure better understanding of military training. The Navy should pursue an exclusion zone around FDM for safety reasons.
	Anti-Submarine (ASW)		No Impact
	Naval Special Warfare (NSW)		Commercial and private fishing boats and dive boats frequent near-shore areas throughout the Marianas. There are no enforced surface danger zones (SDZs) over the water. Transient boat traffic interrupts or stops military training activity. Active patrolling of near-shore areas may need to be implemented to avoid civilian encroachment onto "hot" ranges and training areas. Navy pursues outreach to local mayors, fishermen, and tour operators to ensure better understanding of military training. The Navy should pursue an exclusion zone around FDM for safety reasons.

Navy: Narragansett Bay

Comments:

Capabilities

Observations

1. 57% of this range is Fully Mission Capable (FMC).
2. The lack of Scoring and Feedback Systems severely impacts the only supported mission of ASW.

Capability Attributes	Assigned Training Mission	Color	Comments
Threats	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.
Scoring & Feedback Systems	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.
Range Support	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.

Encroachment

Observations

1. Narragansett Bay encroachment pertains to “At Sea” ASW activities only.
2. Spectrum and Maritime Sustainability have the most severe encroachment.
3. STW, EC, AAW, ASUW, MW, AMW, and NSW are not assessed.
4. Encroachment Factors and Mission Areas in “white” do not apply to Navy activities in the Narragansett Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Anti-Submarine (ASW)	●	Link 16, SPY-1 Radar, and IFF are restricted. Restrictions limit 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.
Maritime Sustainability	Anti-Submarine (ASW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts’ rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
Range Transients	Anti-Submarine (ASW)	●	Transients (including private and commercial vessel and some aircraft traffic) occasionally foul the range.

**Navy Range: Cherry Point
Comments**

**Capabilities
Observations**

1. 54% is Fully Mission Capable (FMC)
2. Scoring and feedback systems have the greatest impact.
3. STW, AMW, and ASW have the most severe impacts.

Capability Attributes	Assigned Training Mission	Color	Comments
Landscape	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. There is no land in the Navy Cherry Point range. Land area in contiguous Marine Corps ranges provide some landscape and contains two targets, but the land size does not meet minimum requirements. Additional landscape is only available at Dare County Bombing Range. The land area does not fully support size or topography requirements for placement of required number of targets. Use of live ordnance is not supported. Area too small to support standoff PGM weapons. 2. Prohibits certain training events; reduces realism; reduces live fire proficiency. 3. There are no local options for increasing land availability.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. Landscape is only available at adjacent Marine Corps ranges and at the Dare County Bombing Range, which does not fully support size or topography requirements, or support surface combatant detection of aircraft over land. Use of flares is restricted. 2. Prohibits certain training events; reduces realism; increases personnel optempo. 3. Overland ACM training is conducted at Fallon Range Training Complex. No additional land options are available.
Airspace	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. There is no land in the Navy Cherry Point range. Land area in contiguous Marine Corps ranges provide some landscape, but the airspace configuration lacks characteristics for realistic tactical approaches and does not support the area size to meet minimum training requirements. Altitudes are limited to 17,999 ft; area is not cleared for supersonic operations. 2. Reduces realism; inhibits new tactics development; reduces live fire proficiency. 3. There are no local options for increasing land availability, but coordination and investment in new MOAs could reduce the impact on flight operations by increasing airspace area and altitudes.
Targets	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No targets are available in the range, but two targets are moderately supported by contiguous USMC ranges, but do not allow live ordnance. 2. Reduces realism; prohibits certain events; increases personnel optempo; increases O&M costs. 3. Improvements are expected due to recent investment planning for targets, but additional investment in moving and urban targets located in a land area that will support STW is required.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. 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. 2. Prohibits certain training events; reduces realism. 3. Invest in upgrades to MAEWR to cover range of required threats and targets.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. Insufficient training mines to support increased MIW training requirements from MH-60 and MH-53 helicopter squadrons. 2. Prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. 3. 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)	●	<ol style="list-style-type: none"> 1. Portable beach obstacles are available, but are not cleared for engagement. 2. Reduces realism for assault training. 3. Prohibits certain training events, such as obstacle clearance.

Capability Attributes	Assigned Training Mission	Color	Comments
Threats	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Additional amount of live or virtual fixed winged or helicopter OPFOR required for realistic threat representation. 2. Reduces realism; prohibits certain events. 3. Invest in additional Commercial Air Services to serve as OPFOR.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. EC threat representation does not fully support EC threat levels 3 or 4 for required mission areas. 2. Existing instrumentation systems are becoming obsolete and unsupported through the FYDP. 3. Maintain current upgrade schedule to preclude severe degradation of system capability.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. Helicopter and supersonic threat OPFOR and required quantity of threat OPFOR is not available. 2. Reduces realism, inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Invest in additional Commercial Air Services to serve as OPFOR.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. 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. 2. Reduces realism; inhibits new tactics development. 3. Provide funding to develop a dedicated threat of live, virtual, and constructive OPFOR.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. Limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. 2. Prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. 3. Invest in additional threat OPFOR. Increase availability of submarines through the DESI and aircraft through CAS.
Scoring & Feedback System	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. OPAREA lacks full TSPI and EC&C coverage; no M&S capabilities; lacks real-time kill notification. 2. Reduces realism; prohibits certain events; increases personnel optempo; increases O&M costs. 3. 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)	●	<ol style="list-style-type: none"> 1. OPAREA coverage is not complete; Modeling & Simulation is inadequate; no RTKN. Existing instrumentation systems are not supportable through the FYDP. 2. Reduces realism; inhibits tactics; increases personnel optempo, increases O&M costs. 3. 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)	●	<ol style="list-style-type: none"> 1. Lacks full TSPI coverage; no M&S capabilities; lacks automatic scoring.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No designated mine training area with target mine shapes and instrumentation. 2. Prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; increases personnel optempo; increases O&M costs; provides no feedback as to effectiveness of planning tactics. 3. 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)	●	<ol style="list-style-type: none"> 1. No underwater tracking range, scoring capability, M&S, or post mission feedback. 2. Prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. 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.

Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.

Encroachment

Observations

1. Cherry Point OPAREA encroachment pertains to "At Sea" activities.
2. Spectrum, Maritime Sustainability, and Range Transients have the most severe encroachment.
3. NSW is not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the Cherry Point OPAREA.

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Strike Warfare (STW)	●	No Impact

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Strike Warfare (STW)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.
	Anti-Surface Warfare (ASUW)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.
	Mine Warfare (MW)	●	No Impact
	Amphibious Warfare (AMW)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.
	Anti-Submarine (ASW)	●	No Impact
Maritime Sustainability	Strike Warfare (STW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Amphibious Warfare (AMW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.

Appendix C: Specific Range Comments

Encroachment Factors	Assigned Training Mission	Color	Comment
Airspace	Strike Warfare (STW)	●	FACSFAC and FAA communications and flight procedures in controlled airspace between W-122 and R-5306A/C/D/E (the Navy Cherry Point Range Complex to BT-9, BT-11 and G-10 impact areas) interrupt the flow of tactical flight operations from W-122 to the R-5306 airspace. 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.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Noise Restrictions	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Cultural Resources	Strike Warfare (STW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Range Transients	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	The continued growth of the commercial fishing industry and the growth of recreational fishing and boating among the civilian populace are having a moderately significant impact on training in the Navy Cherry Point Range Complex. The Navy seeks to inform the public about the affects of range transient on Naval operations.
	Mine Warfare (MW)	●	No Impact
	Amphibious Warfare (AMW)	●	The continued growth of the commercial fishing industry and the growth of recreational fishing and boating among the civilian populace are having a moderately significant impact on training in the Navy Cherry Point Range Complex. The Navy seeks to inform the public about the affects of range transient on Naval operations.
	Anti-Submarine (ASW)	●	The continued growth of the commercial fishing industry and the growth of recreational fishing and boating among the civilian populace are having a moderately significant impact on training in the Navy Cherry Point Range Complex. The Navy seeks to inform the public about the affects of range transient on Naval operations.

Navy Range: Northern California (NOCAL)
Comments

Capabilities
Observations

1. 50% of this range is Fully Mission Capable (FMC).
2. Landspace, Airspace, Targets, and Scoring and Feedback systems severely impact the STW mission.
3. The STW mission is largely limited due to space constraints with no scoring or feedback systems available in Military Operating Areas (MOA's).

NOTE: Navy Training Ranges do not have a responsibility to support Naval Special Warfare training; however, Navy SEALs do train on this Range Complex and NSW readiness objectives can be accomplished.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Airspace and land requirements are sufficient to support training on a limited basis for helicopters, but is not adequate for jets. Public resistance to airborne noise restricts airspace use. 2. Prohibits training events; reduces realism; limits tactics; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Investigate other feasible range areas.
	Airspace	●	<ol style="list-style-type: none"> 1. Airspace and land requirements are sufficient to support training on a limited basis for helicopters, but is not adequate for jets. Public resistance to airborne noise restricts airspace use. 2. Prohibits training events; reduces realism; limits tactics; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Investigate other feasible range areas.
Airspace	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. Distance too far from Lemoore, ocean water temperature too cold (safety issue), supersonic flight restricted to greater than 30nm from land and above 30K Ft. 2. Increases travel time to the training area; inhibits employment of tactics; decreases realism. 3. Work with FAA to reduce limitations on SUA.
	Targets	●	<ol style="list-style-type: none"> 1. Only one target site exists; no DMPIs or raked targets. 2. Prohibits certain training; reduces realism; limits application of new technologies; inhibits some tactics; reduces live fire proficiency; increases personnel optempo; increases O7M costs. 3. Investigate other feasible range areas.
Threats	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Helicopter OPFOR not available; Commercial OPFOR extremely limited; no supersonic OPFOR; EC OPFOR extremely limited. 2. Reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. 3. Increase funding for commercial OPFOR; provide for additional target vessel services to support air and EC OPFOR.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. Helicopter OPFOR not available; Commercial OPFOR extremely limited; no supersonic OPFOR; EC OPFOR extremely limited. 2. Reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. 3. Increase funding for commercial OPFOR; provide for additional target vessel services to support air and EC OPFOR.
Scoring and Feedback System	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No TSPI coverage of NOCAL MOAs; no M&S capability; no scoring system; no debriefing capability. 2. Increases O&M costs, personnel optempo; reduces realism, inhibits tactics. 3. Fielding of TCTS will provide needed upgrade. Need to invest in JNTC compliant M&S. 3. Investigate other feasible range areas; be proactive with public stakeholders to regain use of training areas.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No TSPI coverage of NOCAL MOAs; no M&S capability; no RTKN; no debriefing capability. 2. Increases O&M costs, personnel optempo; reduces realism, inhibits tactics. 3. Fielding of TCTS will provide significant upgrade. Need to invest in JNTC compliant M&S.
Range Support	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.

Encroachment Observations

1. NOCAL encroachment pertains to "At Sea" activities in Navy NOCAL OPAREAs.
2. Range Transients has the most severe encroachment.
3. MW, AMW, ASW, and NSW are not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the NOCAL Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
Maritime Sustainability	Strike Warfare (STW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
Airspace	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
Air Quality	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Noise Restrictions	Strike Warfare (STW)	●	"At Sea" STW activity is not encumbered by noise restrictions as is STW "Land" activity out of NAS Lemoore into Hunter Liggett and Camp Roberts.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Cultural Resources	Strike Warfare (STW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
Range Transients	Strike Warfare (STW)	●	Civil aircraft fly through the Hunter, Roberts, and Foothills MOAs when the MOAs are activated. Military aircrews must be vigilant to see and avoid small civil aircraft. This encroachment requires aircrews to direct their attention away from the mission at-hand to avoid collisions or near misses with civil aircraft. 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)	●	Civil aircraft fly through the Hunter, Roberts, and Foothills MOAs when the MOAs are activated. Military aircrews must be vigilant to see and avoid small civil aircraft. This encroachment requires aircrews to direct their attention away from the mission at-hand to avoid collisions or near misses with civil aircraft. 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-Surface Warfare (ASUW)	●	No Impact

Navy Range: Northwest
Comments

Capabilities
Observations

1. 59% of the Range Complex is Fully Mission Capable (FMC)
2. Range Support: Scheduling; specifically communications affects all the Mission Areas. Scoring and Feedback Systems, Threats, Landspace and Airspace all affect STW.
3. STW, EC and AAW are most affected.

NOTE: Navy Training Ranges do not have a responsibility to support Naval Special Warfare training; however, Navy SEALs do train on this Range Complex and NSW readiness objectives can be accomplished.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Size does not meet requirements; live ordnance not allowed, however use of live ordnance at Basic and Intermediate level is limited. 2. Inhibits tactics development; limits application of new weapon technologies; increases personnel optempo; increases O&M costs. 3. Redevelop bombing range area; establish second target complex per range required capabilities document.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. Limited maneuver area; no live fire area. No MOUT. 2. Inhibits tactics development; limits application of new weapon technologies; increases personnel optempo; increases O&M costs. 3. Pursue development of live fire small arms training capabilities near Puget Sound.
Airspace	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Size and altitudes do not meet requirements; supersonic operations are not allowed over land. 2. Inhibits tactics development; limits application of new weapon technologies; increases personnel optempo; increases O&M costs. 3. Coordinate larger areas higher altitudes to meet requirements.
Seaspace	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. Land area where EC emitter is located can not support seaspace EC. 2. Inhibits tactics development; limits application of new weapon technologies; increases personnel optempo; increases O&M costs. 3. Navy already owns potential land area along coast where EC emitters may be located. Need to acquire EC emitters.
Underseaspace	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. Net Explosive Weight (NEW) is limited by local policy to no more than 2.5 lbs NEW due to potential Marine Mammal Protection Act & Endangered Species Act concerns while the range is sited for 20 lbs NEW.. 2. Inhibits tactics development; limits application of new weapon technologies; increases personnel optempo; increases O&M costs. 3. Environmental studies to determine impact of explosive operations in Crescent Harbor are under way.
Targets	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. Threat representative fixed and mobile targets not available. 2. Inhibits tactics development; limits application of new weapon technologies; increases personnel optempo; increases O&M costs. 3. 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)	●	<ol style="list-style-type: none"> 1. No towed target or subscale target capability in range complex. 2. Reduces live fire proficiency; limits application of new weapon technologies; increases personnel optempo; increases O&M costs. 3. Invest in commercial air services with target towing and other target capabilities.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No targets available; targets provided by range users. 2. Reduces realism; inhibits tactics; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in required self propelled, towed, programmed or remote controlled targets.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. No local live firing area with realistic targets. 2. Inhibits tactics development; limits application of new weapon technologies; increases personnel optempo; increases O&M costs. 3. Pursue development of live fire capabilities near Puget Sound.

Capability Attributes	Assigned Training Mission	Color	Comments
Threats	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Required EC threat level does not exist at bombing range. 2. No live or virtual rotary or fixed wing threat exists at the bombing range. 3. Acquisition of relocatable EC threat simulators has been initiated. 4. Coordinate with other range users (USAF, Oregon Air or Army Guard) to provide threat support or use Contract Air Service.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No dedicated OPFOR. 2. Reduces realism; inhibits tactics development; increases personnel optempo; increases O&M costs. 3. Invest in commercial air services equipped with required threat augmentation.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No dedicated OPFOR. 2. Reduces realism; inhibits tactics development; increases personnel optempo; increases O&M costs. 3. Investigate potential to use range craft for OPFOR presentation
Scoring & Feedback System	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Lacks instrumentation; no real-time or debrief capability. 2. Increases personnel optempo; reduces realism; increases O&M costs; inhibits tactics development. 3. Invest in instrumentation that will meet requirements for an instrumented range.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. Lacks instrumentation; no real-time or debrief capability. 2. Increases personnel optempo; reduces realism; increases O&M costs; inhibits tactics development. 3. Invest in instrumentation that will meet requirements for an instrumented range.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. Lacks instrumentation; no real-time or debrief capability. 2. Increases personnel optempo; reduces realism; increases O&M costs; inhibits tactics development. 3. Invest in instrumentation that will meet requirements for an instrumented range.
Range Support	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.

Encroachment

Observations

1. Northwest OPAREA encroachment pertains to both "At Sea" and "Land/Littoral" activities.
2. Spectrum, Maritime Sustainability, Adjacent Land Use, and Range Transients have the most severe encroachment.
3. AMW and NSW are not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the Northwest Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Electronic Combat (EC)	●	Jamming is severely restricted east of the Cascade Mountains due to satellite communications stations, etc. Jamming is restricted off-shore in that aircraft must face out to sea, not shoreward, due to Seattle urbanized area and interference with FAA Radars. Additional jamming target sets have developed in current combat theaters that can not be jammed for training in inhabited areas. 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 with minimal impact.
Maritime Sustainability	Anti-Surface Warfare (ASUW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Mine Warfare (MW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Anti-Submarine (ASW)	●	Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Naval Special Warfare (NSW)	●	Listing of several species of Salmon and Orca as endangered species imposes restrictions and work-arounds necessary to complete EOD under water detonation training in Puget Sound. Presence of seals/sea lions hauled-out on nearby rocks creates avoidance areas and disruption of planned underwater detonation training events. Local tribes apply political pressure to CNRNW to stop EODMU-11 from conducting underwater detonations due to perceived impact to Salmon and crab.

Appendix C: Specific Range Comments

Encroachment Factors	Assigned Training Mission	Color	Comment
Airspace	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	VQ Aircrews based at NAS Whidbey Island train in Electronic Reconnaissance in Darrington OpArea.They routinely experience difficulty getting clearance from Seattle ARTCC (FAA) to climb above FL 250.The aircraft are routinely vectored around by Seattle ARTCC causing delays, wasting airborne training time.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.Because of the measuring instruments, U.S. Navy submarine crews are directed to remain clear of this area.The exact size and location of this area is classified. Insoluble.
	Naval Special Warfare (NSW)	●	EOD training in Crescent Harbor and Indian Island areas suffer occasional presence of recreational and small commercial fishing boats and SCUBA diving as the underwater detonation training areas are not restricted areas.NAS Whidbey Island is actively pursuing establishing a restricted area within Crescent Harbor to restrict access to the underwater detonation range during training operations.Establishing and enforcing restricted surface areas around the underwater detonation training ranges should improve this situation.
Range Transients	Anti-Submarine (ASW)	●	Commercial and private shrimp fishing boats congregate in Dabob Bay for several weeks in late April to mid June.Additionally, Native Americans fishing for clams & shrimp traverse across NUWC RDT&E ranges without contacting NUWC Operations, thereby interfering with ongoing events. The Navy continues to work with law enforcement agencies to enforce the Dabob Bay Restricted area during submarine testing and evaluations and occasional NSW training activities.
	Naval Special Warfare (NSW)	●	Commercial and private shrimp fishing boats congregate in Dabob Bay for several weeks in late April to mid June.Additionally, Native Americans fishing for clams & shrimp traverse across NUWC RDT&E ranges without contacting NUWC Operations, thereby 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 occasionally 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.

Service: Navy Range: Okinawa
Comments

Capabilities
Observations

1. (1) 20 % of the Range Complex is Fully Mission Capable (FMC).
2. (2) Scoring and Feedback, Threats, Targets, and severely impacting STW, EC, and AAW.
3. (3) STW, EC, AAW, AMW, and ASW are severely affected Mission Areas with capability degradation across all Mission Areas.

Capability Attributes	Assigned Training Mission	Color	Comments
Landscape	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Land area is too small. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; reduces live fire proficiency; increases personnel optempo; increases O&M costs 3. Pursue opportunities with other services.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No land area supports EC training. Political and frequency spectrum constraints. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Conduct feasibility study for EC assets to be incorporated into a high fidelity, inert, A-G training range. Pursue Training Support Vessel (TSV) with EC assets.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No overland airspace supports AAW training. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other services.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. Not contiguous with required size of beachfront area. Beach area is very limited; area does not support NSFS 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other services.
Airspace	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No overland airspace supports AAW training. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other services.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. No airspace over beaches that meet training requirements. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other services.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. Sufficient airspace, but it is not supported by an Underwater Training Range. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Pursue TSV with portable Underwater Training Range (UTR).
Seaspace	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. Insufficient geographic references; water is too deep. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other services.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. Not contiguous with required size of beachfront area. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other services.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. Sufficient seaspace, but it is not supported by an Underwater Training Range. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Pursue TSV with portable UTR.

Capability Attributes	Assigned Training Mission	Color	Comments
Underseaspace	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. Sufficient space exists, but bottom type does not have required characteristics; water depth is too deep; no underwater training range; no dedicated Shock Wave Action Generator (SWAG) training area; no mine avoidance area. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. 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)	●	<ol style="list-style-type: none"> 1. Not contiguous with required size of beachfront area. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other services.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. Underseaspace does not have significant areas with water less than 600 ft deep and it is not supported by an Underwater Training Range. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Pursue TSV with portable UTR.
Targets	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No dedicated targets available. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other Services. Procure high fidelity targets.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No dedicated targets available. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Conduct feasibility study for EC assets to be incorporated into a high fidelity, inert, A-G training range. 4. Pursue TSV with EC assets.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No supersonic targets available. No dedicated targets available. 2. Reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Increase availability of CAS. 4. Pursue TSV options.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. While limited targets are available, there are no dedicated targets that meet full training requirements. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. 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)	●	<ol style="list-style-type: none"> 1. No targets available to support AMW. 2. Prohibits certain training events; reduces realism; limits application of new technologies; inhibits new tactics development; increases personnel optempo; increases O&M costs. 3. Pursue opportunities with other services.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No dedicated targets available. Units typically supply their own expendable targets. 2. Reduces realism; limits application of new technologies; inhibits new tactics development; reduces live fire proficiency; increases O&M costs. 3. Increase availability of ASW targets by pursuing TSV support.

Capability Attributes	Assigned Training Mission	Color	Comments
Threats	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No dedicated OPFOR available. 2. Reduces realism; limits application of new technologies; inhibits new tactics development. 3. Improve availability of CAS, number and variety of threats. 4. Pursue TSV with EC capability.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No dedicated OPFOR available. 2. Reduces realism; limits application of new technologies; inhibits new tactics development. 3. Improve availability of CAS, number and variety of threats. 4. Pursue TSV with EC capability.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No dedicated OPFOR available. 2. Reduces realism; limits application of new technologies; inhibits new tactics development. 3. Improve availability of CAS, number and variety of threats. 4. Pursue TSV with EC capability.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No dedicated OPFOR available. 2. Reduces realism; limits application of new technologies; inhibits new tactics development. 3. Improve availability of CAS, number and variety of threats. 4. Pursue TSV with EC capability.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No dedicated OPFOR available. 2. Reduces realism; limits application of new technologies; inhibits new tactics development. 3. Improve availability of CAS, number and variety of threats. 4. Pursue TSV with EC capability.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. No dedicated OPFOR available. 2. Reduces realism; limits application of new technologies; inhibits new tactics development. 3. Improve availability of CAS, number and variety of threats. 4. Pursue TSV with EC capability.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No dedicated OPFOR available. 2. Reduces realism; limits application of new technologies; inhibits new tactics development. 3. Improve availability of CAS, number and variety of threats. 4. Pursue TSV with EC capability.
Scoring and Feedback System	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; complicates night and all weather training. 3. Continue planned deployment of TCTS. Evaluate potential to accelerate its deployment.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; complicates night and all weather training. 3. Continue planned deployment of TCTS. Evaluate potential to accelerate its deployment.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; complicates night and all weather training. 3. Continue planned deployment of TCTS. Evaluate potential to accelerate its deployment.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; complicates night and all weather training. 3. Continue planned deployment of TCTS. Evaluate potential to accelerate its deployment.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; complicates night and all weather training. 3. Continue planned deployment of TCTS. Evaluate potential to accelerate its deployment.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; complicates night and all weather training. 3. Continue planned deployment of TCTS. Evaluate potential to accelerate its deployment.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No permanent instrumentation exists. 2. Reduces realism; limits application of new technologies; complicates night and all weather training. 3. Increase deployment of Portable Underwater Tracking Range.

Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. Lack of the required scheduling system prevent most efficient use of range, does not completely document range training usage or ordnance expended in range areas. 3. A standard web-enabled scheduling and data collection system should be developed.

**Encroachment
Observations**

1. Okinawa encroachment pertains to both “At Sea” and “Land/Littoral” activities.
2. T&E Species, Spectrum, Maritime Sustainability, Airspace have the most severe encroachment.
3. NSW is not assessed.
4. Encroachment Factors and Mission Areas in “white” do not apply to Navy activities in the Okinawa Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Amphibious Warfare (AMW)	●	When the native dugong is spotted, the marines change tactics to avoid interacting with the dugong. Dugong live in the near-shore waters; thus, their presence can interrupt amphibious operations. Both the Navy and Marine Corps seek to avoid operating in the near vicinity of the dugong.
Munitions Restrictions	Strike Warfare (STW)	●	No Impact
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.
	Anti-Air Warfare (AAW)	●	Restrictions on RF emissions limit the use of the Tactical Combat Training System (TCTS).
	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.
	Mine Warfare (MW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Maritime Sustainability	Strike Warfare (STW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	LFA SONAR activity is restricted in the waters off Okinawa. In the absence of host country regulations to protect marine mammals, 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.
	Mine Warfare (MW)	●	LFA SONAR activity is restricted in the waters off Okinawa. In the absence of host country regulations to protect marine mammals, 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.
	Amphibious Warfare (AMW)	●	LFA SONAR activity is restricted in the waters off Okinawa. In the absence of host country regulations to protect marine mammals, 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)	●	LFA SONAR activity is restricted in the waters off Okinawa. In the absence of host country regulations to protect marine mammals, 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.
Airspace	Strike Warfare (STW)	●	When civil or commercial air traffic is routed through or strays into SUA, the SUA is partially or fully shut down. Operations must cease or be delayed until the range is cleared, surface to unlimited. Close 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.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	When civil or commercial air traffic is routed through or strays into SUA, the SUA is partially or fully shut down. Operations must cease or be delayed until the range is cleared, surface to unlimited. Close coordination with Okinawa aviation controllers helps to ameliorate the impacts of SUA incursion by non-military aircraft.
	Anti-Surface Warfare (ASUW)	●	When civil or commercial air traffic is routed through or strays into SUA, the SUA is partially or fully shut down. Operations must cease or be delayed until the range is cleared, surface to unlimited. Close 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.
	Mine Warfare (MW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact

Appendix C: Specific Range Comments

Encroachment Factors	Assigned Training Mission	Color	Comment
Air Quality	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Noise Restrictions	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
Adjacent Land Use	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
Cultural Resources	Strike Warfare (STW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Water Quality/Supply	Strike Warfare (STW)	●	No Impact
Wetlands	Strike Warfare (STW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
Range Transients	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	Okinawan families may claim that scheduled U.S. military training prohibits their use of their historical fishing grounds. Illegal fishing and seaweed harvesting in exclusive use areas can interrupt range operations causing delays in operations until the range is clear.
	Mine Warfare (MW)	●	Okinawan families may claim that scheduled U.S. military training prohibits their use of their historical fishing grounds. Illegal fishing and seaweed harvesting in exclusive use areas can interrupt range operations causing delays in operations until the range is clear.
	Amphibious Warfare (AMW)	●	Okinawan families may claim that scheduled U.S. military training prohibits their use of their historical fishing grounds. Illegal fishing and seaweed harvesting in exclusive use areas can interrupt range operations causing delays in operations until the range is clear.
	Anti-Submarine (ASW)	●	Okinawan families may claim that scheduled U.S. military training prohibits their use of their historical fishing grounds. Illegal fishing and seaweed harvesting in exclusive use areas can interrupt range operations causing delays in operations until the range is clear.

Navy: Point Mugu Sea Range

Comments:

Capabilities

Observations

1. 87% of the range complex’s mission areas are Fully Mission Capable.
2. 13% of the range complex’s mission areas partially mission capable.
3. The range complex is partially mission capable to support ASW operations.

Capability Attributes	Assigned Training Mission	Color	Comments
Landscape	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.
	Naval Special Warfare (NSW)	●	Limited NSW operations are conducted on San Nicolas Island and Point Mugu.
Airspace	Anti-Submarine (ASW)	●	The Sea Range supports some ASW activities. For example, JTFEX.
Seaspace	Mine Warfare (MW)		Mine warfare training has been conducted in the past off Santa Rosa Island. If mine warfare training was resumed, additional analysis would be required.
	Anti-Amphibious Warfare	●	No Comment Provided
	Anti-Submarine (ASW)	●	The Sea Range supports some ASW activities. For example, JTFEX.
Underseaspace	Anti-Submarine (ASW)	●	The Sea Range supports some ASW activities. For example, JTFEX.

Encroachment

Observations

1. 29% of the Mission Areas that the Range Complex supports are MODERATELY encroached and 71% are not encroached.
2. T&E specieses/Critical Habitat, Spectrum, and Water Quality MODERATELY encroach seven of the Mission Areas that the Range supports.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	The presence of T&E species and critical habitat at Point Mugu and San Nicolas Island requires significant mitigation effort to support training activities.
	Electronic Combat (EC)	●	The presence of T&E species and critical habitat at Point Mugu and San Nicolas Island requires significant mitigation effort to support training activities.
	Anti-Air Warfare (AAW)	●	The presence of T&E species and critical habitat at Point Mugu and San Nicolas Island requires significant mitigation effort to support training activities.
	Anti-Surface Warfare (ASUW)	●	The presence of T&E species and critical habitat at Point Mugu and San Nicolas Island requires significant mitigation effort to support training activities.
	Amphibious Warfare (AMW)	●	The presence of T&E species and critical habitat at Point Mugu and San Nicolas Island requires significant mitigation effort to support training activities.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Strike Warfare (STW)	●	Frequency spectrum – 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.
	Electronic Combat (EC)	●	Frequency spectrum – 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.
	Anti-Air Warfare (AAW)	●	Frequency spectrum – 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.
	Anti-Surface Warfare (ASUW)	●	Frequency spectrum – 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.
	Amphibious Warfare (AMW)	●	Frequency spectrum – the reduction of available spectrum coupled with the increase in spectrum requirements limits our ability to conduct certain types of tests.
	Naval Special Warfare (NSW)	●	Frequency spectrum – 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.
Maritime Sustainability	Strike Warfare (STW)	●	Potential restrictions on new activities in the Channel Islands National Marine Sanctuary, designation of new state marine protected areas around San Nicolas Island, proposed liquefied natural gas operations on the Sea Range, and pressure to move shipping traffic through the Sea Range would restrict operations.
	Anti-Air Warfare (AAW)	●	Potential restrictions on new activities in the Channel Islands National Marine Sanctuary, designation of new state marine protected areas around San Nicolas Island, proposed liquefied natural gas operations on the Sea Range, and pressure to move shipping traffic through the Sea Range would restrict operations.
	Anti-Surface Warfare (ASUW)	●	Potential restrictions on new activities in the Channel Islands National Marine Sanctuary, designation of new state marine protected areas around San Nicolas Island, proposed liquefied natural gas operations on the Sea Range, and pressure to move shipping traffic through the Sea Range would restrict operations. Significant mitigation effort required to support training activities because of the presence of significant numbers of pinnipeds on the island.
	Anti-Submarine (ASW)	●	Marine mammals are present on the SR.
Cultural Resources	Strike Warfare (STW)	●	There are hundreds of archeological sites on San Nicolas Island. They do not significantly impact our mission, but do require substantial management effort and financial support, primarily for surveys. Any expansion of existing target areas requires a detailed survey to identify, evaluate and treat cultural resources.
Water Quality/Supply	Strike Warfare (STW)	●	There are restrictions on discharge from the reverse osmosis water purification system that provides potable water to San Nicolas Island.
	Electronic Combat (EC)	●	There are restrictions on discharge from the reverse osmosis water purification system that provides potable water to San Nicolas Island.
	Anti-Air Warfare (AAW)	●	There are restrictions on discharge from the reverse osmosis water purification system that provides potable water to San Nicolas Island.
	Anti-Surface Warfare (ASUW)	●	There are restrictions on discharge from the reverse osmosis water purification system that provides potable water to San Nicolas Island.
	Amphibious Warfare (AMW)	●	There are restrictions on discharge from the reverse osmosis water purification system that provides potable water to San Nicolas Island.

Navy Range: Southern California (SOCAL)
Comments

Capabilities
Observations

- 1. 44% of the this range is Fully Mission Capable (FMC)
- 2. Targets, Underseaspace, Scoring and Feedback Systems, and Land Space severely effect MW, AMW, and ASW.
- 3. MW and AMW are the most affected
- 4. The SOCAL Range Complex consists of:
 - 4.1 SOCAL Operating Areas
 - 4.2 San Clemente Island Range Complex;
 - 4.3 Silver Strand Training Complex;
 - 4.4 Camp Pendleton OPAREAS;
 - 4.5 Mountain Warfare Training Facility, Campo, CA;
 - 4.6 Remote Training Site, Warner Springs, CA - This area principally supports SERE training.

NOTE: Navy Training Ranges do not have a responsibility to support Naval Special Warfare training, however Navy SEALs do train on this Range Complex and NSW readiness objectives can be accomplished.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strike Warfare (STW)	●	1. Cannot support two separate concurrent strikes; live ordnance is not allowed. Use of live ordnance is limited to specific areas of the range complex. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. No solution except to use other ranges.
	Amphibious Warfare (AMW)	●	1. Required beach, terrain, and land area sizes not available. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. No solution except to use other ranges.
	Naval Special Warfare (NSW)	●	1. Limited maneuver area; limited beach front areas. supports basic level training, but additional land is required for more advanced training. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in MOUT; road infrastructure; firing range areas.
Underseaspace	Anti-Submarine (ASW)	●	1. Water depths and bottom topography do not provide for adequate training in shallow water and littoral; does not support EER or LFA operations. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Develop UTR.

Capability Attributes	Assigned Training Mission	Color	Comments
Targets	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No moving targets; limited number of structural targets; no urban terrain targets; inadequate Designated Mean Point of Impact at each site. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in smart targets and upgrades to current targets.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No visually significant targets; live ordnance not allowed. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in smart targets and EC threat levels through level 4.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No supersonic targets or targets with a jamming capability. Altitude restrictions. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in supersonic targets and additional drones with active jamming capabilities.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No instrumented mine shapes, false targets or bottom mine targets. Additional quantity of targets are required. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in instrumented mines, false targets, bottom mines.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. Required target types are not available, including beach obstacles, beach defenses, NSFS areas, mines. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Install exposed and submerged targets and beach obstacles that may be engaged with live ordnance.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. No range targets meet requirements. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in a wide range of NSW required targets.

Capability Attributes	Assigned Training Mission	Color	Comments
Threats	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No dedicated threat aircraft; not available in required quantity. EC threats not available above level 2. No capability for virtual threat aircraft. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in enhanced EC threat capabilities.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. Realistic OPFOR responses not available; EC threats not available above level 2. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in enhanced EC threat capabilities.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No dedicated threat aircraft; not available in required quantity. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in contract air threat OPFOR with EC augmentation.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. 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. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in enhanced EC threat capabilities.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No dedicated threat aircraft or submarines. EC threats not available above level 2. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in enhanced EC threat capabilities.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. No live, virtual, constructive threat ground force; EC threats not available above level 2. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in enhanced EC threat capabilities.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. 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. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in enhanced EC threat capabilities.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. No live, virtual, constructive threat ground force. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in enhanced EC threat capabilities.

Capability Attributes	Assigned Training Mission	Color	Comments
Scoring & Feedback System	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No Modeling & Simulation capability; no scoring capabilities. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in M&S systems.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No Modeling & Simulation capability; no scoring capabilities. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in M&S systems.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No Modeling & Simulation capability; no scoring capabilities. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in M&S systems; JNTC compatibility.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No Modeling & Simulation capability; no scoring capabilities. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in M&S systems.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No modeling & simulation capability; no scoring capabilities; no instrumented mines. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in instrumented mines; M&S systems.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. No Modeling & Simulation capability; little scoring capabilities. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in M&S systems.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No Modeling & Simulation capability. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in M&S systems and shallow water hydrophones.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. No Modeling & Simulation capability; no scoring capabilities. 2. Reduces realism; inhibits new tactics development; limits application of new weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Invest in M&S systems.






Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Amphibious Warfare (AMW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Naval Special Warfare (NSW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.

Encroachment

Observations

1. SOCAL encroachment pertains to both "At Sea" and "Land/Littoral" activities.
2. T&E Species, Munitions Restrictions, Spectrum, Maritime Sustainability, and Range Transients have the most severe encroachment.
3. NSW is not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the SOCAL Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	Fire restrictions and species protection affect activities at the SCIRC.
	Electronic Combat (EC)	●	No Impact
	Amphibious Warfare (AMW)	●	Fire restrictions and species protection affect activities at the SCIRC. Loggerhead Shrike and the San Clemente Sage Sparrow limits training opportunities on San Clemente Island. California Least Tern and Western Snowy Plover presence on the beaches of Silver Strand Training Complex have created avoidance areas within the training range, which detract from training realism, and increase perstempo.
Munitions Restrictions	Strike Warfare (STW)	●	There are munitions restrictions on SHOBA that affect related training activity. SHOBA users must restrict munitions use to approved types, amounts, and expenditure locations.
	Amphibious Warfare (AMW)	●	There are munitions restrictions on SHOBA that affect related training activity. SHOBA users must restrict munitions use to approved types, amounts, and expenditure locations.
	Naval Special Warfare		No Comment Received.
Spectrum	Strike Warfare (STW)	●	Link 16 use is restricted. Restrictions limit 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.
	Anti-Air Warfare (AAW)	●	Link 16 use is restricted. Restrictions limit 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.
	Anti-Surface Warfare (ASUW)	●	Link 16, SPY-1 radar, SPS-49 radar, and IFF are restricted. Restrictions limit 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.
	Mine Warfare (MW)	●	Link 16, SPY-1 radar, SPS-49 radar, and IFF are restricted. Restrictions limit 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.
	Amphibious Warfare (AMW)	●	Link 16, SPY-1 radar, SPS-49 radar, and IFF are restricted. Restrictions limit 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.
	Anti-Submarine (ASW)	●	No Impact

Encroachment Factors	Assigned Training Mission	Color	Comment
Maritime Sustainability	Strike Warfare (STW)		No Impact
	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Mine Warfare (MW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Amphibious Warfare (AMW)		Minimal Impact. Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Anti-Submarine (ASW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.

Appendix C: Specific Range Comments

Encroachment Factors	Assigned Training Mission	Color	Comment
Airspace	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Air Quality	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Noise Restrictions	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
Cultural Resources	Strike Warfare (STW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Water Quality/Supply	Strike Warfare (STW)	●	No Impact
Wetlands	Strike Warfare (STW)	●	No Impact
	Amphibious Warfare (AMW)	●	No Impact
Range Transients	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	Maritime operations are conducted in waters where commercial and private fishing boats, surfers, and dive boats also operate. Transient boat traffic can interrupt or cancel training activity. The Navy continuously coordinates with commercial and recreation stakeholders to promote understanding of how transient interruptions of military training can affect military readiness.
	Mine Warfare (MW)	●	Maritime operations are conducted in waters where commercial and private fishing boats, surfers, and dive boats also operate. Transient boat traffic can interrupt or cancel training activity. The Navy continuously coordinates with commercial and recreation stakeholders to promote understanding of how transient interruptions of military training can affect military readiness.
	Amphibious Warfare (AMW)	●	Maritime operations are conducted in waters where commercial and private fishing boats, surfers, and dive boats also operate. Transient boat traffic can interrupt or cancel training activity. The Navy continuously coordinates with commercial and recreation stakeholders to promote understanding of how transient interruptions of military training can affect military readiness.
	Anti-Submarine (ASW)	●	No Impact

Navy Range: VACAPES

Comments

Capabilities

Observations

1. 54% of this range is Fully Mission Capable (FMC).
2. Scoring and Feedback Systems severely affects MW and ASW.
3. MW and ASW are severely affected with moderate capability impacts across all mission areas.

Capability Attributes	Assigned Training Mission	Color	Comments
Landscape	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Landscape is only available at Dare County Bombing Range, which does not fully support size or topography requirements for placement of required number of targets. Use of live ordnance is not supported. Use of flares is restricted. No land area supports NSFS training or CSAR training. 2. Prohibits certain training events; reduces realism; increases personnel optempo. 3. Identify east coast land areas of sufficient size to support standoff weapons and CSAR training.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. Landscape is only available at Dare County Bombing Range, which does not fully support size or topography requirements. Use of flares is restricted. 2. Minimal impact to threat presentation for Basic training which is the focus of EC training at Dare County .
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. Landscape is only available at Dare County Bombing Range, which does not fully support size or topography requirements, or support surface combatant detection of aircraft over land. Use of flares is restricted. 2. Prohibits certain training events; reduces realism; increases personnel optempo. 3. Overland ACM training is conducted at Fallon Range Training Complex. No additional land options available within VACAPES.
Targets	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. Live ordnance not allowed; Urban area too small; NSFS not supported ashore; required targets do not provide both visual and infrared signatures. 2. Prohibits certain training events; reduces realism; limits application of weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. Increase number and variety of targets with more realistic signatures. Install no drop ordnance instrumentation where applicable.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. Additional targets required to achieve required density and more representative threat. 2. Prohibits certain training events; reduces realism; limits application of weapon technologies; reduces live fire proficiency; increases personnel optempo; increases O&M costs 3. Increase number and variety of EC threats. Install portable systems where applicable.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. 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. 2. Prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. 3. 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)	●	<ol style="list-style-type: none"> 1. EC threat representation does not fully support EC threat levels 3 or 4 for required mission areas. 2. Existing instrumentation systems are becoming obsolete and unsupported through the FYDP. 3. Maintain current upgrade schedule to preclude severe degradation of system capability.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. Helicopter threat OPFOR is not available; required number of air threat OPFOR is not available; no dedicated supersonic threat OPFOR is available. 2. Reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. 3. Increase number and types of air threat OPFOR.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. Limited dedicated live submarines, surface ships, or aircraft to serve in the OPFOR role. 2. Prohibits certain training events; reduces realism; inhibits tactics; increases personnel optempo; increases O&M costs. 3. Invest in additional threat OPFOR. Increase availability of submarines through the DESI and aircraft through CAS.





Capability Attributes	Assigned Training Mission	Color	Comments
Scoring & Feedback System	Strike Warfare (STW)	●	<ol style="list-style-type: none"> 1. OPAREA coverage is not complete; Modeling & Simulation is inadequate; no RTKN. 2. Reduces realism; inhibits tactics; increases personnel optempo, increases O&M costs. 3. Expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. OPAREA coverage is not complete; Modeling & Simulation is inadequate; no RTKN. 2. Reduces realism; inhibits tactics; increases personnel optempo, increases O&M costs. 3. Expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. OPAREA coverage is not complete; Modeling & Simulation is inadequate; no RTKN. Existing instrumentation systems are not supportable through the FYDP. 2. Reduces realism; inhibits tactics; increases personnel optempo, increases O&M costs. 3. 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)	●	<ol style="list-style-type: none"> 1. OPAREA coverage is not complete; Modeling & Simulation is inadequate; no RTKN. 2. Reduces realism; inhibits tactics; increases personnel optempo, increases O&M costs. 3. Expand and improve 2-D & 3-D coverage of the OPAREA; invest in JNTC compliant M&S; improve debrief capabilities.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No designated mine training area with target mine shapes and instrumentation. 2. Prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; increases personnel optempo; increases O&M costs; provides no feedback as to effectiveness of planning tactics. 3. 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)	●	<ol style="list-style-type: none"> 1. No underwater tracking range, scoring capability, M&S, or post mission feedback. 2. Prohibits certain training events; reduces realism; limits weapon technologies; inhibits tactics; reduces live fire proficiency; increases personnel optempo; increases O&M costs. 3. 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)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Electronic Combat (EC)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Air Warfare (AAW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Surface Warfare (ASUW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Mine Warfare (MW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.
	Anti-Submarine (ASW)	●	<ol style="list-style-type: none"> 1. No web-based scheduling system with pre-event, real-time, and post-event module. 2. 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. 3. A standard web-enabled scheduling and data collection system should be developed.

Encroachment

Observations

1. VACAPES encroachment pertains to both "At Sea" and "Land/Littoral" activities.
2. Spectrum, Maritime Sustainability, and Range Transients have the most severe encroachment.
3. AMW and NSW are not assessed.
4. Encroachment Factors and Mission Areas in "white" do not apply to Navy activities in the VACAPES Range Complex.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
Munitions Restrictions	Strike Warfare (STW)	●	No Impact
Spectrum	Strike Warfare (STW)	●	Link 16 use is restricted. 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)	●	No Impact
	Anti-Air Warfare (AAW)	●	Link 16 use is restricted. 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)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.
	Mine Warfare (MW)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.
	Anti-Submarine (ASW)	●	Link 16, SPY-1 radar, SPS 49 radar and IFF are restricted. Restrictions limit 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.

Encroachment Factors	Assigned Training Mission	Color	Comment
Maritime Sustainability	Strike Warfare (STW)		No Impact
	Anti-Surface Warfare (ASUW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Mine Warfare (MW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
	Anti-Submarine (ASW)		Maritime protective and mitigation measures, regulatory requirements, and court-directed training restrictions all contribute to reduced training flexibility and opportunities, segmented training, and ultimately reduced training realism, particularly regarding integrated warfare training. While all at-sea training is impacted to some degree, impacts are most significant to those training activities using mid- and low-frequency active SONAR. The Navy has developed science based maritime protective and mitigation measures to ensure the protection of marine species while balancing maritime training with national security requirements. In addition, the Navy is developing programmatic range complex documents to ensure military training is in compliance with applicable laws and regulations. Some NGOs have questioned the sufficiency of protective and mitigation measures and have brought legal action against the Navy for some maritime training exercises, especially Naval training that produces sound in the water. In general, the courts have decided in favor of the NGOs. The courts' rulings have further restricted some maritime training beyond the mitigations afforded by the protective and mitigation measures.
Airspace	Strike Warfare (STW)		FACSFAC and FAA have developed procedures and airspace control to ensure smooth flow of jet aircraft from W-72 into R-5314/NDCBR.
	Electronic Combat (EC)		No Impact
	Anti-Air Warfare (AAW)		No Impact
	Anti-Surface Warfare (ASUW)		No Impact
	Mine Warfare (MW)		No Impact
	Anti-Submarine (ASW)		No Impact

Encroachment Factors	Assigned Training Mission	Color	Comment
Air Quality	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Noise Restrictions	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
Adjacent Land Use	Strike Warfare (STW)	●	No Impact
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Strike Warfare (STW)	●	No Impact
Cultural Resources	Anti-Surface Warfare (ASUW)	●	No Impact
	Mine Warfare (MW)	●	No Impact
	Anti-Submarine (ASW)	●	No Impact
Water Quality/Supply	Strike Warfare (STW)	●	No Impact
Wetlands	Strike Warfare (STW)	●	Self-imposed Clean Water Act/Dare County wetlands and land use plans limit target configuration, placement, and maintenance due to many DCBR impact areas having been situated in designated wetlands. This Navy-induced encroachment affects STW by limiting targetry opportunities at DCBR.
Range Transients	Strike Warfare (STW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations.
	Electronic Combat (EC)	●	No Impact
	Anti-Air Warfare (AAW)	●	No Impact
	Anti-Surface Warfare (ASUW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations.
	Mine Warfare (MW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations.
	Anti-Submarine (ASW)	●	Range transients, involving commercial shipping, commercial fishing, and private pleasure boating encroach on training, either by delaying events or forcing relocation to less than optimum locations.

Air Force Range: Adirondack Joint ANG Range

Comments

Capabilities

Observations

1. The 31% Yellow is due to the fact that the Joint Range has tremendous realistic training potential that remains untapped due to limited manning, O&M funds, Professional Engineering Support (to draw plans acceptable to acquire environmental approvals for target area development), and EOD support (to certify old impact area to be used for target development/maneuver ground).
2. While equipped with a versatile 2 million dollar threat emitter, the range has never been given the proper personnel and mx budget to provide valid Electronic Combat Support training resulting in the 21% RED areas.

Capability Attributes	Assigned Training Mission	Color	Comments
Landscape	Counterland	●	Not enough land to contain JDAM weapon danger zone
Target	Strategic Attack	●	Requires more target area development---a few \$100k of EOD support on request would move to green
	Counterair	●	Requires more target area development---a few \$100k of EOD support on request would move to green
	Counterland	●	Requires more target area development---a few \$100k of EOD support on request would move to green
Threat	Strategic Attack	●	Threat Emitter has limited range and cueing capability. Range has no trained (AFSC) personnel and no Maintenance budget for the 2 million dollar emitter.
	Counterair	●	Threat Emitter has limited range and cueing capability. Range has no trained (AFSC) personnel and no Maintenance budget for the 2 million dollar emitter.
	Counterland	●	Threat Emitter has limited range and cueing capability. Range has no trained (AFSC) personnel and no Maintenance budget for the 2 million dollar emitter.
	Information Operations	●	Limited by manpower and tech infrastructure--can host, but very limited ability to contribute to the training
	Electronic Combat Support	●	Threat Emitter has limited range and cueing capability. Range has no trained (AFSC) personnel and no Maintenance budget for the 2 million dollar emitter.
	Air Drop	●	Range has no stimulator for IR self protection systems
Scoring and Feedback System	Counterair	●	No ACMI type system available
	Electronic Combat Support	●	Transmitter only, visual/verbal feedback only
Infrastructure	Air Drop	●	Need to build Landing Zones and clear/improve/re-certify drop zones
Range Support	Strategic Attack	●	Limited manpower and O&M budget restricts range availability/threats/target development/maintenance
	Counterair	●	Limited manpower and O&M budget restricts range availability/threats/target development/maintenance
	Counterland	●	Limited manpower and O&M budget restricts range availability/threats/target development/maintenance
	Information Operations	●	Limited manpower and O&M budget restricts range availability/participation
	Electronic Combat Support	●	Limited manpower and O&M budget restricts range availability/threats/maintenance - No ECS AFSCs assigned and NO maintenance support (budget/personnel) for our \$2 million emitter
	Command and Control	●	Limited by manpower and C2 infrastructure (no Singars Radio, Secure Comm account, etc)
	Air Drop	●	Limited by manpower (no one currently Air Drop Control certified)
	Special Operations	●	Limited by manpower
	Intelligence, Surveillance and Reconnaissance	●	Limited by manpower

Capability Attributes	Assigned Training Mission	Color	Comments
Collective Ranges	Electronic Combat Support	●	Limited manpower and O&M budget restricts range availability/threats/maintenance - No ECS AFSCs assigned and NO maintenance support (budget/personnel) for our \$2 million emitter
MOUT Facilities	Counterland	●	Awaiting funding for UXO clearance for Urban construction
	Command and Control	●	Limited availability for Urban C&C due to limited Urban targets
	Special Operations	●	Limited availability for Urban training until UXO area is certified for construction use
	Intelligence, Surveillance and Reconnaissance	●	Limited Urban surveillance until more can be built

Encroachment

Observations

1. Adirondack Range is primarily on constricted by its location in un-reclaimed UXO lands. 1 to 2 million dollars to reclaim up to a 1,000 readily available acres for joint training land would make us 95% Green!
2. Adirondack Range has lots of Wetlands, but they are primarily only a problem because of the lack of engineering support to provide the documentation required for the environmental permit process. Along with the EOD Surface Clearance, 20-50k for Profession Engineers to provide target area improvement plans to environmental would make us a 98% green Range!
3. Adirondack Range has very little cultural encroachment

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Strategic Attack	●	Most land down range required to have an EOD certification to allow target construction for Strategic Attack---will go green rapidly with a few \$100K
	Counterair	●	Most land down range required to have an EOD certification to allow target construction for Counterair---will go green rapidly with a few \$100K
	Counterland	●	Most land down range required to have an EOD certification to allow target construction for Counterland---will go green rapidly with a few \$100K
	Air Drop	●	Most land down range required to have an EOD certification to allow Drop Zone and Landing Zone Construction as well as package retrieval---will go green rapidly with a few \$100K
	Special Operations	●	Most land down range required to have an EOD certification to allow Drop Zone and Landing Zone Construction as well as package retrieval---will go green rapidly with a few \$100K
	Intelligence, Surveillance and Reconnaissance	●	Most land down range required to have an EOD certification to allow challenging target array and maneuver land for find, fix, finish operations---will go green rapidly with a few \$100K
Spectrum	Electronic Combat Support	●	Extremely slow process to get freq clearances for many threats
Noise Restrictions	Counterland	●	Limit numbers of high explosive bombs per pass due to noise and seismic effects
Spectrum	Counterland	●	Limits realistic target array and joint maneuver construction due to environmental approval process---we have no staff Professional Engineer to submit drawing every time we want to improve our target areas which are all near wetlands.
	Special Operations	●	Limits ground maneuvering options for tactical ground parties

Air Force Range: AFFTC Edwards Test Range Comments

Capabilities Observations

This assessment addresses the capabilities of the EFTR and the 412 Range Squadron, Edwards AFB CA to support the T&E mission. For the purpose of this assessment the EFTR is defined as the airspace within the R-2508 Restricted Area Complex the 301,000 acres of withdrawn land making up the Edwards AFB Reservation and the range instrumentation array. While the 412th RANS is the Range Operating Agency (ROA) as defined in AFI 13-212 the entire EFTR is a compilation of capabilities of multiple organizations within the 412 Test Wing, 95 Air Base Wing, and the USAF Flight Test Center. 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), China Lake NAS, Nellis Test and Training Range, Utah Test and Training Range, White Sands Missile Range and Vandenberg AFB. As such the complementary capabilities of these ranges allow the EFTR to operate at the fully mission capable level over all T&E mission areas.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	The existing range area can support most types of gravity and precision guided munitions. The land-space is not adequate for the employment of large footprint weapons such as JSOW, SDB, etc. However in conjunction with our DoD Southwest Range partners the EFTR has the necessary infrastructure to support all aspects of the Strategic Attack test mission.
	Counterair	●	The existing range area can support of most types of counter air testing. The range space is not adequate for 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 test mission.
	Counterland	●	The existing range area can support testing of some Counter Land systems. The land-space is not adequate for the employment of large footprint weapons or testing of some platforms such as the AC-130 using live munitions. However in conjunction with our DoD Southwest Range partners the EFTR has the necessary infrastructure to support all aspects of the Counterland test mission.
	Countersea	●	The 412 RANS does not directly manage and control Sea-Space ranges however these assets are available to our test programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the Ventura County Naval Base (Pt. Mugu).
	Special Operations	●	The existing range area can support testing of most types of Special Operations Systems. The land-space is not adequate for the employment of large force activities or live fire testing of 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 all aspects of the Special Operations test mission
Airspace	Countersea		The 412 RANS does not directly manage and control Sea-Space ranges however these assets are available to our test programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the Ventura County Naval Base (Pt. Mugu).
Seaspace	Strategic Attack		The 412 RANS does not directly manage and control Sea-Space ranges however these assets are available to our test programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the Ventura County Naval Base (Pt. Mugu).
Underseaspace	Strategic Attack		The 412 RANS does not directly manage and control Under Sea-Space ranges however these assets are available to our test programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the Ventura County Naval Base (Pt. Mugu).

Capability Attributes	Assigned Training Mission	Color	Comments
Targets	Strategic Attack	●	The 412th RANS has numerous target arrays which can support most aspects of the Strategic Attack mission area. In addition the range's Command and Control System/facility has the ability to generate airborne and ground threat scenarios and targets for distribution to participants via Link-16 and SADL. Specific target requirements such as hardened bunkers and MOUT facilities are not available but can be built with customer funding. However in conjunction with our DoD Southwest Range partners the EFTR has the necessary target infrastructure to support all aspects of the Strategic Attack test mission.
	Counterair	●	The EFTR can support of most types of counterair test 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 test mission. In addition the 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.
	Counterland		The 412 RANS does not directly manage and control Sea-Space ranges however these assets are available to our test programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the Ventura County Naval Base (Pt. Mugu).
	Special Operations	●	The 412th RANS has numerous target arrays which can support aspects of the Special Operations mission area. Specific target requirements such as urban environments and related facilities are not available but can be built with customer funding. However in conjunction with our DoD Southwest Range partners the EFTR has the necessary target systems to support all aspects of the Special Operations test mission.
	Intelligence, Surveillance, Reconnaissance	●	The 412th RANS has the capability to present both IR and visual target presentations for the purpose of testing like systems. These test arrays in some cases are mission/platform specific and may not be suitable for all platforms. Additional targets can be built with customer funding or are available through our DoD Southwest Range partners.
Threats	Strategic Attack	●	The EFTR as described in the Administrative Info tab of this section has the ability to present threat scenarios using ground moving targets such as armor and static airfield configurations with AAA sites. In addition the 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. The EFTR does not include active threat system such as radars, Smokey SAMS, IR simulators, etc.; however 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. It is also possible for users to bring mission specific threat systems on range as necessary to meet their test requirements.
	Command and Control	●	The EFTR Command and Control System/Facility has the ability to generate airborne and ground threat scenarios for distribution to participants via Link-16 and SADL. However no capability beyond denial of service currently exists to generate threats against the C2 system itself.
	Air Drop	●	The EFTR as described in the Administrative Info tab of this section has the ability to present limited threat scenarios using ground moving targets such as armor and static airfield configurations with AAA sites. In addition the 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. The EFTR does not include active threat system such as radars, Smokey SAMS, IR simulators, etc.; however 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. It is also possible for users to bring mission specific threat systems on range as necessary to meet their test requirements.

Capability Attributes	Assigned Training Mission	Color	Comments
Scoring and Feedback System	Strategic Attack	●	The 412th RANS has the capability to provide real-time scoring and feedback for the purpose of evaluating the performance of systems under test. This capability is limited however to single weapons and may not be suitable for sub-munitions testing.
	Counterair	●	The 412th RANS has the capability to provide some aspects of real-time and post mission scoring and feedback for air to air and ground to air engagements to include the processing and display of Time Space Position Information for single and multi-target operations. The systems however are not optimized to evaluate weapon engagements with fly-out models and sensor performance.
	Counterland	●	The 412th RANS has the capability to provide real-time scoring and feedback for the purpose of evaluating the performance of systems under test. This capability is limited however to single weapons and may not be suitable for sub-munitions testing.
	Countersea	●	The 412 RANS does not directly manage and control Sea-Space ranges however these assets are available to our test programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the Ventura County Naval Base (Pt. Mugu).
	Special Operations	●	The 412th RANS has the capability to provide real-time scoring and feedback for the purpose of evaluating the performance of Special Operations systems under test. This capability is limited however to single weapons and may not be suitable for sub-munitions testing.
	Intelligence, Surveillance, Reconnaissance	●	The 412th RANS has the capability to provide time space position information on C4ISR platforms relative to ground and airborne targets which can be used to evaluate scoring/targeting. The capability to provide real-time feedback on sensor pointing and resolution is limited.
Infrastructure	Strategic Attack	●	The existing range area can support of most types of gravity and precision guided munitions. The land-space is not adequate for the employment of large footprint weapons such as JSOW and SDB.
	Counterair	●	The 412th RANS has the necessary infrastructure to support the test and evaluation of systems within the Airframe Powerplant and Avionics mission area.
	Counterland	●	The 412th RANS has the necessary infrastructure to support the test and evaluation of systems within the Airframe Powerplant and Avionics mission area.
	Countersea	●	The 412 RANS does not directly manage and control Sea-Space ranges however these assets are available to our test programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the Ventura County Naval Base (Pt. Mugu).
	Command and Control	●	The 412th RANS has the necessary infrastructure to support the test and evaluation of systems within the Airframe Powerplant and Avionics mission area.
	Special Operations	●	The 412th RANS has the necessary infrastructure to support the test and evaluation of systems within the Airframe Powerplant and Avionics mission area. Unique Special Operations requirements not currently supported can be made available with customer funds.
	Intelligence, Surveillance, Reconnaissance	●	The 412th RANS has the necessary infrastructure to support the test and evaluation of systems within the Airframe Powerplant and Avionics mission area. Unique requirements not currently supported can be made available with customer funds.
Range Support	Countersea	●	The 412 RANS does not directly manage and control Sea-Space ranges however these assets are available to our test programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the Ventura County Naval Base (Pt. Mugu).
	Information Operations	●	The availability of RF Spectrum due to transfer of DoD frequency allocations to the private sector along with impacts to the local noise floor by 802.11 devices may impact the Ranges ability to support the testing of Information Operations related systems in a realistic environment.
	Electronic Combat Support	●	The 412 RANS does not directly manage and control threat ranges however these assets are available to our test programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the electronic Combat Range China Lake. However the availability of RF Spectrum due to transfer of DoD frequency allocations to the private sector along with impacts to the local noise floor by 802.11 devices may impact the Ranges ability to support the open air testing of EW related systems in a realistic environment.
	Command and Control	●	The availability of RF Spectrum due to transfer of DoD frequency allocations to the private sector along with impacts to the local noise floor by 802.11 devices may impact the Ranges ability to support the testing of Command and Control related systems in a realistic environment.
	Intelligence, Surveillance, Reconnaissance	●	The availability of RF Spectrum due to transfer of DoD frequency allocations to the private sector along with impacts to the local noise floor by 802.11 devices may impact the Ranges ability to support the testing of Intel related systems in a realistic environment.

Capability Attributes	Assigned Training Mission	Color	Comments
Collective Ranges	Strategic Attack	●	The existing range area can support most types of gravity and precision guided munitions and airborne systems. The land-space is not adequate for the employment of large footprint weapons such as JSOW and SDB.
	Counterair	●	The existing range area can support of most types of gravity and precision guided munitions. The land-space is not adequate for the employment of large footprint air to air/ground to air weapons such as AIM-9 and AIM-120.
	Countersea		The 412 RANS does not directly manage and control Sea-Space ranges however these assets are available to our test programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the Ventura County Naval Base (Pt. Mugu).
	Electronic Combat Support	●	The 412 RANS does not directly manage and control threat ranges however these assets are available to our test programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the electronic Combat Range China Lake.
	Special Operations	●	The existing range area can support testing of most types of Special Operations Systems. The land-space is not adequate for the employment of large force activities and may not be adequate for live fire testing of some Spec Ops platforms such as the AC-130.
	Intelligence, Surveillance, Reconnaissance	●	The 412th RANS has the capability to present both IR and visual target presentations for the purpose of testing these systems. These test arrays in some cases are mission/platform specific and may not be suitable for all platforms. However additional targets can be built with customer funding or are available from our DoD Southwest Range partners.
MOUT Facilities	Strategic Attack	●	MOUT capability does not currently exist on the EFTR but is available through our Alliance partnerships with the other Southwest Ranges (Nellis & China Lake). The EFTR is evaluating a future I&M effort to build a MOUT capability to satisfy unique test requirements.
Suite of Ranges	Strategic Attack	●	The 412th RANS in conjunction with our DoD Southwest Range partners have the necessary infrastructure to support all aspects of the test and evaluation of systems within the Airframe Powerplant and Avionics mission area. Unique or program specific requirements not currently supported can be made available with customer funds. Or with sufficient time through the I&M process.

Encroachment

Observations

- 72.00 % of the range/range complex mission areas are fully capable and are not impacted by encroachment factors
- 28.00 % of the range/range complex missions areas are moderately impacted by encroachment factors, but are being worked because of mitigation measures
- Because of the EPMC, no range/range complex mission areas are severely impacted by encroachment. With large wind and solar development being mandated from the state and federal governments the future is uncertain

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Air Drop	●	Desert tortoise presurveys may be required prior to ground disturbing activities
Munitions Restrictions	Counterair	●	Using the Readiness and Environmental Protection Initiative (REPI) The base would like to establish a weapons test safety footprint that could extend beyond the Precision Impact Range Area. This area is a concern and the base would like to prevent encroachment by developers.
	Counterland	●	Using the Readiness and Environmental Protection Initiative (REPI) The base would like to establish a weapons test safety footprint that could extend beyond the Precision Impact Range Area. This area is a concern and the base would like to prevent encroachment by developers.
	Air Drop	●	Using the Readiness and Environmental Protection Initiative (REPI) The base would like to establish a weapons test safety footprint that could extend beyond the Precision Impact Range Area. This area is a concern and the base would like to prevent encroachment by developers.

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Information Operations	●	The AFFTC has Spectrum Encroachment impacts. These impacts require that test and training take the following actions: create avoidance areas, reduces usages days, reduce range access, increases personnel tempo, and increase cost and risk
	Electronic Combat Command	●	The AFFTC has Spectrum Encroachment impacts. These impacts require that test and training take the following actions: create avoidance areas, reduces usages days, reduce range access, increases personnel tempo, and increase cost and risk
	Command and Control	●	The AFFTC has Spectrum Encroachment impacts. These impacts require that test and training take the following actions: create avoidance areas, reduces usages days, reduce range access, increases personnel tempo, and increase cost and risk
	Intelligence, Surveillance, and Reconnaissance	●	The AFFTC has Spectrum Encroachment impacts. These impacts require that test and training take the following actions: create avoidance areas, reduces usages days, reduce range access, increases personnel tempo, and increase cost and risk
Airspace	Counterair	●	The AFFTC has airspace encroachment impacts that require: avoidance areas, restricts flight altitudes, range access, increase cost and risk.
	Information Operations	●	The AFFTC has airspace encroachment impacts that require: avoidance areas, restricts flight altitudes, range access, increase cost and risk.
	Command and Control	●	The AFFTC has airspace encroachment impacts that require: avoidance areas, restricts flight altitudes, range access, increase cost and risk.
	Intelligence, Surveillance, and Reconnaissance	●	The AFFTC has airspace encroachment impacts that require: avoidance areas, restricts flight altitudes, range access, increase cost and risk. This impact mostly affects UAS operations.
Air Quality	Counterair	●	The air quality is suitable for flight testing and training. The future outlook is expected to change if the California population models are correct
	Counterland	●	The air quality is suitable for flight testing and training. The future outlook is expected to change if the California population models are correct
	Intelligence, Surveillance, and Reconnaissance	●	The air quality is suitable for flight testing and training. The future outlook is expected to change if the California population models are correct
Noise Restrictions	Counterair	●	The AFFTC has Noise Encroachment impacts that require: avoidance areas, reduces usages days, restricts flight altitudes, and increase cost and risk.
	Information Operations	●	The AFFTC has Noise Encroachment impacts that require: avoidance areas, reduces usages days, restricts flight altitudes, and increase cost and risk. large wind farms produce a low-frequency audible that may cause spectrum interference in a quite test environment
	Command and Control	●	The AFFTC has Noise Encroachment impacts that require: avoidance areas, reduces usages days, restricts flight altitudes and increase cost and risk. large wind farms produce a low-frequency audible that may cause spectrum interference in a quite test environment
	Intelligence, Surveillance, and Reconnaissance	●	The AFFTC has Noise Encroachment impacts that require: avoidance areas, restricts flight altitudes, and increase cost and risk. large wind farms produce a low-frequency audible that may cause spectrum interference in a quite test environment
Cultural Resources	Air Drop	●	Cultural resource surveys may be required prior to ground disturbing activities

Air Force Range: AFFTC Edwards Training Range

Comments

Capabilities

Observations

This assessment addresses the capabilities of the Edwards Flight Test Range (EFTR), 412 Range Squadron, and Edwards AFB CA to support training activities as described in the training mission area definitions. For the purpose of this assessment the EFTR is defined as the airspace within the R-2508 Restricted Area Complex and the 301,000 acres of withdrawn land making up the Edwards AFB Reservation and the range instrumentation array. The EFTR’s primary focus 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), China Lake NAS, Nellis Test and Training Range, Utah Test and Training Range, White Sands Missile Range and Vandenberg AFB.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	The existing range area can support of most types of gravity and precision guided munitions. The land-space is not adequate for the employment of large footprint weapons such as JSOW and SDB. However in conjunction with our DoD Southwest Range partners the EFTR has the necessary infrastructure to support all aspects of the Strategic Attack training mission.
	Counterair	●	The existing Edwards AFB range area 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.
	Counterland	●	The existing range area can support limited Counter Land training exercises. The land-space is not adequate for the employment of large footprint weapons or live fire ttraining 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.
	Electronic Combat Support	●	Open air EC capability does not currently exist on the EFTR but is available through our Alliance partnerships with the other Southwest Ranges (Nellis & China Lake). The EFTR has the ability to obtain EC assets to satisfy unique test requirements.
	Special Operations	●	The existing range area can support limited training of Special Operations 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 Special Operations 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.
Airspace	Countersea		The EFTR does not directly manage and control Sea-Space ranges however these assets are available on a scheduled basis through the AFFTC/NAWCWPNS alliance at the Ventura County Naval Base (Pt. Mugu).
Seospace	Strategic Attack		The 412 RANS does not directly manage and control Sea-Space ranges however these assets are available to our programs on a scheduled basis through the AFFTC/NAWCWPNS alliance at the Ventura County Naval Base (Pt. Mugu).
Underseospace	Strategic Attack		The 412 RANS does not directly manage and control Under Sea-Space ranges however these assets are available to our customers on a scheduled basis through the AFFTC/NAWCWPNS alliance at the Ventura County Naval Base (Pt. Mugu).

Capability Attributes	Assigned Training Mission	Color	Comments
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
	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.
	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 .
	Special Operations	●	The 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.
Threats	Strategic Attack	●	The EFTR as described in the Administrative Info tab of this section has the ability to present limited threat scenarios using ground moving targets such as armor and static airfield configurations with AAA sites. In addition the 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. The EFTR does not include active threat system such as radars, Smokie SAMS, etc., however 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. It is also possible for users to bring threat systems on range as necessary to meet their mission requirements.
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.
Infrastructure	Counterair	●	The 412th RANS has the necessary infrastructure to support the test and evaluation of systems within the Airframe Powerplant and Avionics mission area. This capability may have some utility as training aid though probably not ideal from a war fighter perspective.
	Counterland	●	The 412th RANS has the necessary infrastructure to support the test and evaluation of systems within the Airframe Powerplant and Avionics mission area. This capability may have some utility as training aid though probably not ideal from a war fighter perspective.
	Special Operations	●	The 412th RANS has the necessary infrastructure to support the test and evaluation of systems within the Airframe Powerplant and Avionics mission area. This capability may have some utility as training aid though probably not ideal from a war fighter perspective.
	Intelligence, Surveillance and Reconnaissance	●	The 412th RANS has the necessary infrastructure to support the test and evaluation of systems within the Airframe Powerplant and Avionics mission area. This capability may have some utility as training aid though probably not ideal from a war fighter perspective.
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. Our collective range lay down is based on supporting T&E data gathering activities verses specific training scenarios. However many of the assets not available at the EFTR are available through our alliance with the other DoD Southwest Ranges.
MOUT Facilities	Strategic Attack	●	MOUT capability does not currently exist on the EFTR but is available through our Alliance partnerships with the other Southwest Ranges (Nellis & China Lake). The EFTR is evaluating a future I&M effort to build a MOUT capability to satisfy unique test requirements.
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. The range lay down is based on supporting T&E data gathering activities verses specific training scenarios. However many of the assets not available at the EFTR are available through our alliance with the other DoD Southwest Ranges .

Encroachment

Observations

1. 72.00 % of the range/range complex mission areas are fully capable and are not impacted by encroachment factors
2. 28.00 % of the range/range complex missions areas are moderately impacted by encroachment factors, but are being worked because of mitigation measures
3. Because of the EPMC, no range/range complex mission areas are severely impacted by encroachment. With large wind and solar development being mandated from the state and federal governments the future is uncertain

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Air Drop	●	Desert tortoise presurveys may be required prior to ground disturbing activities
Munitions Restrictions	Counterair	●	Using the Readiness and Environmental Protection Initiative (REPI) The base would like to establish a weapons test safety footprint that could extend beyond the Precision Impact Range Area. This area is a concern and the base would like to prevent encroachment by developers.
	Counterland	●	Using the Readiness and Environmental Protection Initiative (REPI) The base would like to establish a weapons test safety footprint that could extend beyond the Precision Impact Range Area. This area is a concern and the base would like to prevent encroachment by developers.
	Air Drop	●	Using the Readiness and Environmental Protection Initiative (REPI) The base would like to establish a weapons test safety footprint that could extend beyond the Precision Impact Range Area. This area is a concern and the base would like to prevent encroachment by developers.
Spectrum	Information Operations	●	The AFFTC has Spectrum Encroachment impacts. These impacts require that test and training take the following actions: create avoidance areas, reduces usages days, reduce range access, increases personnel tempo, and increase cost and risk
	Electronic Combat Command	●	The AFFTC has Spectrum Encroachment impacts. These impacts require that test and training take the following actions: create avoidance areas, reduces usages days, reduce range access, increases personnel tempo, and increase cost and risk
	Command and Control	●	The AFFTC has Spectrum Encroachment impacts. These impacts require that test and training take the following actions: create avoidance areas, reduces usages days, reduce range access, increases personnel tempo, and increase cost and risk
	Intelligence, Surveillance, and Reconnaissance	●	The AFFTC has Spectrum Encroachment impacts. These impacts require that test and training take the following actions: create avoidance areas, reduces usages days, reduce range access, increases personnel tempo, and increase cost and risk
Airspace	Counterair	●	The AFFTC has airspace encroachment impacts that require: avoidance areas, restricts flight altitudes, range access, increase cost and risk.
	Information Operations	●	The AFFTC has airspace encroachment impacts that require: avoidance areas, restricts flight altitudes, range access, increase cost and risk.
	Command and Control	●	The AFFTC has airspace encroachment impacts that require: avoidance areas, restricts flight altitudes, range access, increase cost and risk.
	Intelligence, Surveillance, and Reconnaissance	●	The AFFTC has airspace encroachment impacts that require: avoidance areas, restricts flight altitudes, range access, increase cost and risk. This impact mostly affects UAS operations.
Air Quality	Counterair	●	The air quality is suitable for flight testing and training. The future outlook is expected to change if the California population models are correct
	Counterland	●	The air quality is suitable for flight testing and training. The future outlook is expected to change if the California population models are correct
	Intelligence, Surveillance, and Reconnaissance	●	The air quality is suitable for flight testing and training. The future outlook is expected to change if the California population models are correct

Appendix C: Specific Range Comments

Encroachment Factors	Assigned Training Mission	Color	Comment
Noise Restrictions	Counterair	●	The AFFTC has Noise Encroachment impacts that require: avoidance areas, reduces usages days, restricts flight altitudes, and increase cost and risk.
	Information Operations	●	The AFFTC has Noise Encroachment impacts that require: avoidance areas, reduces usages days, restricts flight altitudes, and increase cost and risk. large wind farms produce a low-frequency audible that may cause spectrum interference in a quite test environment
	Command and Control	●	The AFFTC has Noise Encroachment impacts that require: avoidance areas, reduces usages days, restricts flight altitudes and increase cost and risk. large wind farms produce a low-frequency audible that may cause spectrum interference in a quite test environment
	Intelligence, Surveillance, and Reconnaissance	●	The AFFTC has Noise Encroachment impacts that require: avoidance areas, restricts flight altitudes, and increase cost and risk. large wind farms produce a low-frequency audible that may cause spectrum interference in a quite test environment
Cultural Resources	Air Drop	●	Cultural resource surveys may be required prior to ground disturbing activities

Air Force Range: Airburst

Comments

Capabilities

Observations

1. 60 % of Airburst range/range complex mission areas are Fully Mission Capable (FMC)
2. The MOUT facility or Urban Target Complex for aircrew is the only capability attribute severely impacting the overall mission (2 red responses)
3. Threat systems, radar threat capabilities in particular, is a capability that has marginal effectiveness (5 yellow responses)

Capability Attributes	Assigned Training Mission	Color	Comments
Airspace	Strategic Attack	●	Small airspace limits flexibility for strategic attack effectiveness
	Counterair	●	Small airspace denies ability to conduct Counterair missions
	Counterland	●	Small airspace limits flexibility for Counterland effectiveness
	Electronic Combat Support	●	Small airspace limits placement of threat simulators which, in turn, affects flexibility of defensive maneuvers and reduces elements of surprise
	Intelligence, Surveillance and Reconnaissance	●	Limited airspace may reduce effectiveness of ISR missions
Threats	Strategic Attack	●	Limited radar threat capability reduces SA training effectiveness
	Counterair	●	Limited radar threat capability reduces Counterair training effectiveness
	Counterland	●	Limited radar threat capability somewhat reduces Counterland training effectiveness
	Electronic Combat Support	●	Limited radar threats available and inability to realistically control threats based on aircraft defensive maneuvers
	Air Drop	●	Limited radar threats available and inability to realistically control threats based on aircraft defensive maneuvers
Scoring & Feedback System	Electronic Combat Support	●	Unable to receive feedback from threat systems to provide better aircrew training in defensive maneuvering
Infrastructure	Counterair	●	In the process of obtaining RADS system to be able to monitor flights in airspace and possibly provide basic GCI control
Range Support	Counterair	●	In the process of obtaining RADS system to be able to monitor flights in airspace and possibly provide basic GCI control
	Electronic Combat Support	●	Limited capability to provide EA and evaluate
Small Arms Range	Special Operations	●	Unable to allow .50 caliber training
Collective Ranges	Strategic Attack	●	Due to small airspace, LFEs and gorilla packages are very limited
MOUT Facilities	Counterair	●	In the process of building urban target complex
	Special Operations	●	In the process of building urban target complex
	Intelligence, Surveillance and Reconnaissance	●	In the process of building urban target complex

Encroachment

Observations

1. 0% of the Airburst range/range complex mission is SEVERELY impacted by encroachment factors
2. Airspace is the single most encroachment factor affecting most of the training mission (4 yellow responses)
3. Strategic Attack and Counterland are the most affected mission areas (3 yellow responses each)

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Strategic Attack	●	Airburst has very restrictive employment options for heavyweight kinetic ordnance due to weapon safety footprints and small overall range size; especially with respect to Laser Guided Inert weapons, JDAM, and WCMD
	Counterland	●	Same as above; limits JTAC flexibility
	Special Operations	●	Unable to provide 50 caliber training (crew served and sniper)
Airspace	Strategic Attack	●	With limited available airspace, Airburst cannot provide users with flexibility to conduct Strategic Attack from multiple axis
	Counterair	●	Limited airspace makes Airburst Range and MOAs ineffective for air to air training
	Counterland	●	Limited airspace and range location (southern edge of Fort Carson training range) hinders user's ability to employ CAS in some instances. Fighters typically must "burn" the target area; if not, then they really only have one run-in option (west to east) for final attack heading with standoff weapons.
	Intelligence, Surveillance and Reconnaissance	●	Limited airspace and small restricted airspace may hinder high performance UAV training capability.
Adjacent Land Use	Strategic Attack	●	If adjacent army training areas are in use, then strategic attack options become limited.
	Counterair	●	Limited airspace due to adjacent army training areas makes counterair missions nearly impossible.
	Air Drop	●	Run-ins restricted due to adjacent army training areas
Range Transients	Counterland	●	Range transients sometimes occur unannounced which can be a safety issue
	Command and Control	●	Range transients sometimes occur unannounced which can be a safety issue
	Air Drop	●	Range transients sometimes occur unannounced which can be a safety issue

Air Force Range: Atterbury Range

Comments

Capabilities

Observations

1. 28 % of the AF's range/range complex mission areas are Fully Mission
2. Collective Range is the single most capability attribute severely impacting
3. Air Refueling is the single most mission area severely impacted by various capability attributes (7 red responses)

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Counterspace		Operations for this area not available
	Countersea		Operations for this area not available
	Air Drop		Operations for this area not available
	Air Refueling		Operations for this area not available
	Spacelift		Operations for this area not available
	Special Operations	●	Operations for this area not available
Airspace	Counterspace		Operations for this area not available
	Countersea		Operations for this area not available
	Electronic Combat Support		Capable but diminishing
Scoring & Feedback System	Counterair	●	No Air to Air shot scoring capability
Small Arm Ranges	Intelligence, Surveillance and Reconnaissance		Operations for this area not available
MOUT Facilities	Strategic Attack	●	Under construction
	Counterland	●	Under construction
	Special Operations	●	Under construction
	Intelligence, Surveillance and Reconnaissance	●	Under construction
Suite of Ranges	Strategic Attack	●	Various types of ranges available on post through Army
	Special Operations	●	Various types of ranges available on post through Army
	Intelligence, Surveillance and Reconnaissance	●	Various types of ranges available on post through Army

Encroachment

Observations

1. 47% of the range/range complex mission is SEVERELY impacted by encroachment factors
2. Adjacent Land Use is the single most encroachment factor severely affecting most of the training mission (7 red responses)
3. Counterair is the most affected mission area (6 red responses)

Encroachment Factors	Assigned Training Mission	Color	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	●	Cannot over fly Princes Lakes to the West due to noise complaints
	Counterland	●	Cannot over fly Princes Lakes to the West due to noise complaints
Adjacent Land Use	Strategic Attack	●	Cannot over fly Princes Lakes to the West due to noise complaints
	Counterair	●	Cannot over fly Princes Lakes to the West due to noise complaints
	Counterland	●	Cannot over fly Princes Lakes to the West due to noise complaints
Range Transients	Counterair	●	Occasional civilian aircraft entering airspace

Air Force Range: Avon Park Air Force Range
Comments

Capabilities
Observations

- 1. 28 % of the AF's range/range complex mission areas are Fully Mission Capable (FMC)
- 2. Collective Range is the single most capability attribute severely impacting the overall mission (7 red responses)
- 3. Air Refueling is the single most mission area severely impacted by various capability attributes (7 red responses)

Capability Attributes	Assigned Training Mission	Color	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	●	The lack of SIPRNet reduces capability. Range is in the process of correctly. Funding is required to resolve.
	Special Operations	●	The lack of SIPRNet reduces capability. Range is in the process of correctly. Funding is required to resolve.
	Intelligence, Surveillance and Reconnaissance	●	The lack of SIPRNet reduces capability. Range is in the process of correctly. Funding is required to resolve.
MOUT Facilities	Counterair	●	Warfighters have requested a more robust MOUT site to reflect a realistic battle space commonly found in southwest Asia. Efforts are underway to expand the north MOUT site.
	Counterland	●	Warfighters have requested a more robust MOUT site to reflect a realistic battle space commonly found in southwest Asia. Efforts are underway to expand the north MOUT site.
	Special Operations	●	Warfighters have requested a more robust MOUT site to reflect a realistic battle space commonly found in southwest Asia. Efforts are underway to expand the north MOUT site.

Encroachment

Observations

1. 47% of the range/range complex mission is SEVERELY impacted by encroachment factors
2. Adjacent Land Use is the single most encroachment factor severely affecting most of the training mission (7 red responses)
3. Counterair is the most affected mission area (6 red responses)

Encroachment Factors	Assigned Training Mission	Color	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	●	Range has five T&E listed species. This condition will continued to be monitored IOT minimize risk and continue OPS.
Munitions Restrictions	Counterland	●	Range has five T&E listed species. This condition will continued to be monitored IOT minimize risk and continue OPS.
	Special Operations	●	Range has five T&E listed species. This condition will continued to be monitored IOT minimize risk and continue OPS.
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	●	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.
	Counterland	●	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.
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	●	Range issues will always exist involving range wetlands. An effort to produce a range wide FONPA is being considered to minimize impact.
	Counterland	●	Range issues will always exist involving range wetlands. An effort to produce a range wide FONPA is being considered to minimize impact.
	Special Operations	●	Range issues will always exist involving range wetlands. An effort to produce a range wide FONPA is being considered to minimize impact.

Air Force Range: Barry M. Goldwater Range-East Complex

Comments

Capabilities

Observations

1. Did not rate training areas currently not conducted on the BMGR-E. In some cases we could support but limited capability exist, i.e. ISR and electronic combat
2. Better fidelity MOUT facilities is the single most attribute effecting the training mission
3. While not a core competency of the range, supporting SPECOPS and like training is most effected training area on the BMGR.

Capability Attributes	Assigned Training Mission	Color	Comments
Seaspace	Strategic Attack		BMGR-E is a land-locked primary air-to-ground training range ergo not assess against this training mission area
Underseaspace	Strategic Attack		BMGR-E is a land-locked primary air-to-ground training range ergo not assess against this training mission area
Targets	Special Operations	●	Limited targets designed for special ops (people/pop ups, etc)
Threats	Electronic Combat Support	●	No interactive threats; limited threat generation and no electronic means for real time feedback capability to ECM or maneuver
	Intelligence, Surveillance, Reconnaissance	●	Limited threat generation down range limits ISR techniques
Scoring and Feedback System	Counterland	●	Manned range scoring only--no scoring on tactical ranges
	Air Drop	●	Manned range scoring only--no scoring on tactical ranges
Range Support	Command and Control	●	No infrastructure exists to support C2 if desired
	Special Operations	●	Limited maneuver areas, no instrumented MOUT facilities
Collective Ranges	Counterland	●	Range is primarily air maneuver centric, limited opportunity to integrate full spectrum air with ground maneuver such as convoy escort
MOUT Facilities	Counterland	●	MOUT targets are small/not center of gravity-type areas
	Information Operations		MOUT facilities not instrumented anti IED/cellular network, <i>etc.</i>
	Electronic Combat Support		MOUT facilities not instrumented for ECS feedback
	Command and Control		MOUT facilities not instrumented anti IED/cellular network, <i>etc.</i>
	Special Operations	●	MOUT areas are relatively rudimentary and limited in complexity
	Intelligence, Surveillance, Reconnaissance	●	MOUT areas are relatively rudimentary and limited in complexity
Suite of Ranges	Counterland	●	Battlefield ground ops limited
	Electronic Combat Support		No open air range.
	Special Operations	●	Battlefield ground ops limited

Encroachment

Observations

1. 47% of the range/range complex mission is SEVERELY impacted by encroachment factors
2. Adjacent Land Use is the single most encroachment factor severely affecting most of the training mission (7 red responses)
3. Counterair is the most affected mission area (6 red responses)

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Counterland	●	Sonoran Pronghorn antelope require unique on-going assessment and avoidance measures; missions are restricted based on fawning season
	Air Drop	●	Sonoran Pronghorn antelope require unique on-going assessment and avoidance measures; missions are restricted based on fawning season. Desert tortoise presurveys may be required prior to ground disturbing activities
Munitions Restrictions	Counterair	●	Using the Readiness and Environmental Protection Initiative (REPI) The base would like to establish a weapons test safety footprint that could extend beyond the Precision Impact Range Area. This area is a concern and the base would like to prevent encroachment by developers.
	Counterland	●	Using the Readiness and Environmental Protection Initiative (REPI) The base would like to establish a weapons test safety footprint that could extend beyond the Precision Impact Range Area. This area is a concern and the base would like to prevent encroachment by developers.
	Air Drop	●	Using the Readiness and Environmental Protection Initiative (REPI) The base would like to establish a weapons test safety footprint that could extend beyond the Precision Impact Range Area. This area is a concern and the base would like to prevent encroachment by developers.
Spectrum	Information Operations	●	The AFFTC has Spectrum Encroachment impacts. These impacts require that test and training take the following actions: create avoidance areas, reduces usages days, reduce range access, increases personnel tempo, and increase cost and risk
	Electronic Combat Support	●	The AFFTC has Spectrum Encroachment impacts. These impacts require that test and training take the following actions: create avoidance areas, reduces usages days, reduce range access, increases personnel tempo, and increase cost and risk
	Command and Control	●	The AFFTC has Spectrum Encroachment impacts. These impacts require that test and training take the following actions: create avoidance areas, reduces usages days, reduce range access, increases personnel tempo, and increase cost and risk
	Intelligence, Surveillance, Reconnaissance	●	The AFFTC has Spectrum Encroachment impacts. These impacts require that test and training take the following actions: create avoidance areas, reduces usages days, reduce range access, increases personnel tempo, and increase cost and risk
Airspace	Counterair	●	The AFFTC has airspace encroachment impacts that require: avoidance areas, restricts flight altitudes, range access, increase cost and risk.
	Information Operations	●	The AFFTC has airspace encroachment impacts that require: avoidance areas, restricts flight altitudes, range access, increase cost and risk.
	Command and Control	●	The AFFTC has airspace encroachment impacts that require: avoidance areas, restricts flight altitudes, range access, increase cost and risk.
	Intelligence, Surveillance, Reconnaissance	●	The AFFTC has airspace encroachment impacts that require: avoidance areas, restricts flight altitudes, range access, increase cost and risk.
Air Quality	Counterair	●	The air quality is suitable for flight testing and training. The future outlook is expected to change if the California population models are correct
	Counterland	●	The air quality is suitable for flight testing and training. The future outlook is expected to change if the California population models are correct
	Intelligence, Surveillance, Reconnaissance	●	The air quality is suitable for flight testing and training. The future outlook is expected to change if the California population models are correct

Encroachment

Observations

1. 47% of the range/range complex mission is SEVERELY impacted by encroachment factors
2. Adjacent Land Use is the single most encroachment factor severely affecting most of the training mission (7 red responses)
3. Counterair is the most affected mission area (6 red responses)

Encroachment Factors	Assigned Training Mission	Color	Comment
Noise Restrictions	Counterair	●	The AFFTC has Noise Encroachment impacts that require: avoidance areas, reduces usages days, restricts flight altitudes, and increase cost and risk.
	Information Operations		The AFFTC has Noise Encroachment impacts that require: avoidance areas, reduces usages days, restricts flight altitudes, and increase cost and risk. Large wind farms produce a low-frequency audible that may cause spectrum interference in a quite test environment
	Command and Control		The AFFTC has Noise Encroachment impacts that require: avoidance areas, reduces usages days, restricts flight altitudes and increase cost and risk. Large wind farms produce a low-frequency audible that may cause spectrum interference in a quite test environment
	Intelligence, Surveillance, Reconnaissance		The AFFTC has Noise Encroachment impacts that require: avoidance areas, restricts flight altitudes, and increase cost and risk. Large wind farms produce a low-frequency audible that may cause spectrum interference in a quite test environment
Cultural Resources	Counterland	●	Cultural resource surveys may be required prior to ground disturbing activities; finding(s) may impact maneuver, desired training; weapons employment
	Air Drop	●	Cultural resource surveys may be required prior to ground disturbing activities; finding(s) may impact maneuver, desired training
	Special Operations	●	Cultural resource surveys may be required prior to ground disturbing activities; finding(s) may impact maneuver, desired training; weapons employment
Range Transients	Counterland	●	Illegal traffic and resulting law enforcement cause concern; currently no electronic detection exists downrange; if discovered, unscheduled transients cause impacts to training
	Air Drop	●	Illegal traffic and resulting law enforcement cause concern; currently no electronic detection exists downrange; if discovered, unscheduled transients cause impacts to training
	Special Operations	●	Illegal traffic and resulting law enforcement cause concern; currently no electronic detection exists downrange; if discovered, unscheduled transients cause impacts to training

Air Force Range: Blair Lakes

Comments

Capabilities

Observations

1. Lack of road access makes it extremely challenging and expensive to build and maintain robust target complexes.
2. Range Control Officer and CE crews are transported to range via helicopter. Therefore, adverse weather can impact ability to control/maintain range.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Electronic Combat Support	●	Lack of road access limits ability to position/operate equipment
	Command and Control	●	Lack of road access limits ability to position/operate equipment
	Air Drop	●	Lack of road access limits ability to position/operate equipment
Airspace	Strategic Attack	●	Small restricted ranges/impact areas for large force exercises
	Counterland	●	Small restricted ranges/impact areas for large force exercises
	Air Drop	●	Small restricted ranges/impact areas for large force exercises
Targets	Strategic Attack	●	Lack of road access limits size/type targets and frequency of range maintenance/build
	Counterland	●	Lack of road access limits size/type targets and frequency of range maintenance/build
	Air Drop	●	Lack of road access limits size/type targets and frequency of range maintenance/build
Threats	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterair	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Special Operations	●	Lack of road access limits ability to position/operate equipment
Scoring and Feedback System	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterair	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
Infrastructure	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterair	●	Lack of road access limits ability to position/operate equipment
	Counterspace	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Information Operations	●	Lack of road access limits ability to position/operate equipment
	Electronic Combat Support	●	Lack of road access limits ability to position/operate equipment
	Command and Control	●	Lack of road access limits ability to position/operate equipment
	Air Drop	●	Lack of road access limits ability to position/operate equipment
	Air Refueling	●	Lack of road access limits ability to position/operate equipment
	Space Lift	●	Lack of road access limits ability to position/operate equipment
	Special Operations	●	Lack of road access limits ability to position/operate equipment
	Intelligence, Surveillance, Reconnaissance	●	Lack of road access limits ability to position/operate equipment

Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterair	●	Lack of road access limits ability to position/operate equipment
	Counterspace	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Information Operations	●	Lack of road access limits ability to position/operate equipment
	Electronic Combat Support	●	Lack of road access limits ability to position/operate equipment
	Command and Control	●	Lack of road access limits ability to position/operate equipment
	Air Drop	●	Lack of road access limits ability to position/operate equipment
	Air Refueling	●	Lack of road access limits ability to position/operate equipment
	Space Lift	●	Lack of road access limits ability to position/operate equipment
	Special Operations	●	Lack of road access limits ability to position/operate equipment
	Intelligence, Surveillance, Reconnaissance	●	Lack of road access limits ability to position/operate equipment
MOUT Facilities	Strategic Attack	●	Lack of road access limits ability to build urban target areas
	Counterair	●	Lack of road access limits ability to build urban target areas
	Counterspace	●	Lack of road access limits ability to build urban target areas
	Counterland	●	Lack of road access limits ability to build urban target areas
	Information Operations	●	Lack of road access limits ability to build urban target areas
	Electronic Combat Support	●	Lack of road access limits ability to build urban target areas
	Command and Control	●	Lack of road access limits ability to build urban target areas
	Air Drop	●	Lack of road access limits ability to build urban target areas
	Air Refueling	●	Lack of road access limits ability to build urban target areas
	Space Lift	●	Lack of road access limits ability to build urban target areas
	Special Operations	●	Lack of road access limits ability to build urban target areas
	Intelligence, Surveillance, Reconnaissance	●	Lack of road access limits ability to build urban target areas
Suite of Ranges	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Air Drop	●	Lack of road access limits ability to position/operate equipment
	Special Operations	●	Lack of road access limits ability to position/operate equipment

Encroachment

Observations

1. Encroachment has overall minor impact on Blair Lakes due to lack of road access

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strategic Attack	●	Prime Moose/Wildlife habitat, Tundra
	Counterland	●	Prime Moose/Wildlife habitat, Tundra
	Air Drop	●	Prime Moose/Wildlife habitat, Tundra
	Intelligence, Surveillance and Reconnaissance	●	Prime Moose/Wildlife habitat, Tundra
Munitions Restrictions	Strategic Attack	●	Small size limits live weapons due to footprints extending outside impact areas
	Counterair	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Air Drop	●	Lack of road access limits ability to position/operate equipment
Spectrum	Counterspace	●	Some restrictions due to real-world air/space operations
	Electronic Combat Support	●	Some restrictions due to real-world air/space operations
Airspace	Strategic Attack	●	Small restricted ranges/impact areas for large force exercises
	Counterland	●	Small restricted ranges/impact areas for large force exercises
	Information Operations	●	Small restricted ranges/impact areas for large force exercises
	Air Drop	●	No airdrop targets due to lack of road access
	Special Operations	●	No road access
Adjacent Land Use	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterair	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Information Operations	●	Lack of road access limits ability to position/operate equipment
	Electronic Combat Support	●	Lack of road access limits ability to position/operate equipment
	Air Drop	●	Lack of road access limits ability to position/operate equipment
Wetlands	Strategic Attack	●	Prime Moose/Wildlife habitat, Tundra
	Counterland	●	Prime Moose/Wildlife habitat, Tundra
	Air Drop	●	Prime Moose/Wildlife habitat, Tundra

Air Force Range: Bollen

Comments

Capabilities

Observations

1. Collocated Army small arms ranges also limit AF Training - creates "max ord" floors restricting aircrafts minimum altitudes
2. Currently conduct numerous non-cooperative, concurrent operations. Working to better integrate all forces to develop realistic training using ground forces, fixed and rotary wing air forces, UAS platforms, threat systems, and command and control into concurrent, cooperative training.
3. Range has a single type of Threat Emitter which is low power. Based on distance from aircraft, it is difficult to effectively create an electronic threat environment with this single system.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	Small Landspace limits tactics.
	Counterair	●	Small Landspace limits tactics.
	Counterland	●	Small Landspace limits tactics.
	Air Drop	●	Small Landspace limits tactics.
	Special Operations	●	Small Landspace limits tactics.
	Intelligence, Surveillance and Reconnaissance	●	Small Landspace limits tactics.
Airspace	Strategic Attack	●	Small Landspace limits tactics.
	Counterair	●	Small Landspace limits tactics.
	Counterland	●	Small Landspace limits tactics.
	Air Drop	●	Small Landspace limits tactics.
	Special Operations	●	Small Landspace limits tactics.
	Intelligence, Surveillance and Reconnaissance	●	Small Landspace limits tactics.
Targets	Strategic Attack	●	Continually developing and updating target arrays.
	Counterair	●	Continually developing and updating target arrays.
	Counterland	●	Continually developing and updating target arrays.
	Air Drop	●	Continually developing and updating target arrays.
	Special Operations	●	Continually developing and updating target arrays.
Threats	Strategic Attack	●	Range has very limited threat emitter capability.
	Counterair	●	Range has very limited threat emitter capability.
	Counterland	●	Range has very limited threat emitter capability.
	Air Drop	●	Range has very limited threat emitter capability.
	Special Operations	●	Range has very limited threat emitter capability.
Small Arms Ranges	Strategic Attack	●	Numerous small arms ranges adjacent to Air-to-Ground impact area often limit AF Missions.
	Counterland	●	Numerous small arms ranges adjacent to Air-to-Ground impact area often limit AF Missions.

Encroachment

Observations

1. The small size of the airspace and impact area directly affects the majority of the mission areas.
2. Many munitions are restricted due to the small size of the impact area.
3. Counterair is a fallback mission within the range airspace.

Encroachment Factors	Assigned Training Mission	Color	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	●	Cannot drop live ordnance. Very limited LGB capability. Most newer precision ordnance are not allowed due to small impact area size.
	Counterair	●	Cannot drop live ordnance. Very limited LGB capability. Most newer precision ordnance are not allowed due to small impact area size.
	Counterland	●	Cannot drop live ordnance. Very limited LGB capability. Most newer precision ordnance are not allowed due to small impact area size.
Airspace	Strategic Attack	●	Small size of Restricted Airspace limits tactics.
	Counterair	●	Small size of Restricted Airspace limits tactics.
	Counterspace	●	Small size of Restricted Airspace limits tactics.
	Counterland	●	Small size of Restricted Airspace limits tactics.
	Air Drop	●	Small size of Restricted Airspace limits tactics.
	Special Operations	●	Small size of Restricted Airspace limits tactics.
	Intelligence, Surveillance and Reconnaissance	●	Small size of Restricted Airspace limits tactics.

Air Force Range: Cannon

Comments

Capabilities

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, to Cannon Range’s capabilities, in each mission area.
2. Range support, particularly resource allocation (personnel and O&M \$) is driving factor behind many of areas rated “Yellow”.
3. 62% of rated areas are fully or partially mission capable.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	Adjoining land uses and infrastructure effectively limit or preclude certain ordnance deliveries.
	Counterland	●	Adjoining land uses and infrastructure effectively limit or preclude certain ordnance deliveries. Terrain limits feasible observation positions for Type 1 CAS controls.
	Air Drop	●	Unable to conduct static line airdrop due to vegetation, terrain, and adjacent HE impact area.
	Special Operations	●	Adjoining land uses and infrastructure effectively limit or preclude certain ordnance deliveries. Terrain limits feasible observation positions for Type 1 CAS controls.
	Intelligence, Surveillance and Reconnaissance	●	Limited acreage (4,000) for discrete ground-based ISR “targets”
Airspace	Strategic Attack	●	Insufficient volume and attributes of airspace to conduct large force exercises or for bomber aircraft to maneuver. Marginal for fighter aircraft conducting strategic attack training.
	Counterland	●	Volume and attributes of airspace limits tactics and ordnance.
	Electronic Combat Support	●	Volume of airspace limits types of EC aircraft which can utilize range airspace. Other nearby airspace can accommodate Iron Triad. Volume and attributes (chaff/flare restrictions) of airspace limits some types of defensive reactions.
	Command and Control	●	Volume of airspace limits types of C2 aircraft which can utilize range airspace. Other nearby airspace can accommodate Iron Triad. (Lindbergh MOA/ATCAA)
	Air Drop	●	Volume and attributes of airspace limits tactics.
	Special Operations	●	Volume and attributes of airspace limits tactics and ordnance.
	Intelligence, Surveillance and Reconnaissance	●	Volume of airspace limits types of ISR aircraft which can utilize range airspace. Other nearby airspace can accommodate manned ISR. Range accommodates space-based ISR. Restricted airspace suitable for small and micro-UAS, marginal for medium UAS.
Targets	Strategic Attack	●	Range target suite provides some but not all target types possible for strategic attack.
	Counterland	●	Reconfigurable, dynamic, modular, relevant target array for interdiction and CAS.
	Electronic Combat Support	●	Limited capability to provide targets in the electro-magnetic spectrum.
	Command and Control	●	Target array provides challenging C2 training environment for both air and ground based C2 elements from AOC to platoon.
	Air Drop	●	Target array enhances realism of air drop training.
	Special Operations	●	Considered by some SOF members to be best all-around target array for non-high explosive ordnance training.
	Intelligence, Surveillance and Reconnaissance	●	Thermal characteristics of target array are low-fidelity. Good CCD capabilities, terrain, vegetation, and dynamic, movable targets provide high quality training for Find, Fix, Track portion of kill chain.

Capability Attributes	Assigned Training Mission	Color	Comments
Threats	Strategic Attack	●	Limited capability to replicate a few tactical surface-to-air threats -- RWR Lite x2, Smokey SAM launchers x 2.
	Counterland	●	Limited capability to replicate a few tactical surface-to-air threats -- RWR Lite x2, Smokey SAM launchers x 2. Limited untrained, highly motivated, ground force (personnel) act as aggressors / Red Force against JTACS.
	Information Operations	●	Only IO threat capability is spoofing or denial of service in UHF/VHF spectrum.
	Electronic Combat Support	●	Limited capability to replicate a few surface-to-air tactical threats -- RWR Lite x 2, Smokey SAM launchers x 2.
	Command and Control	●	No capability to provide threats effecting C2 at a level higher than JTAC/AFAC/Fit Lead.
	Air Drop	●	Limited capability to replicate a few tactical surface-to-air threats -- RWR Lite x2, Smokey SAM launchers x 2.
	Special Operations	●	Limited capability to replicate a few tactical surface-to-air threats -- RWR Lite x2, Smokey SAM launchers x 2. Limited untrained, highly motivated, ground force (personnel) act as aggressors / Red Force against SOF.
	Intelligence, Surveillance and Reconnaissance	●	Limited capability to replicate a few tactical surface-to-air threats -- RWR Lite x2, Smokey SAM launchers x 2.
Scoring & Feedback System	Strategic Attack	●	Portion of target array is unscorable; 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 by FY09 with phase 2 and 3 of JAWSS installation.
	Counterland	●	Portion of target array is unscorable; aircraft and ground personnel TSPI not collected or stored; SADL equipped, no JTIDS capability, no method to monitor C4I network information flow. Some hardware on site for implementation of LVC network; scoreable target array will increase by FY09 with phase 2 and 3 of JAWSS installation.
	Electronic Combat Support	●	No method to assess or provide feed back for ECM/ECCM. SADL equipped, no JTIDS capability, no method to monitor C4I network information flow.
	Command and Control	●	Aircraft and ground personnel TSPI not collected or stored; SADL equipped, no JTIDS capability, no method to monitor C4I network information flow. Some hardware on site for implementation of LVC network.
	Special Operations	●	Portion of target array is unscorable; aircraft and ground personnel TSPI not collected or stored; SADL equipped, no JTIDS capability, no method to monitor C4I network information flow. Some hardware on site for implementation of LVC network; scoreable target array will increase by FY09 with phase 2 and 3 of JAWSS installation.
	Intelligence, Surveillance and Reconnaissance	●	No substantial capability to provide feedback for ISR training. Portion of target array is unscorable; 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 by FY09 with phase 2 and 3 of JAWSS installation.
Infrastructure	Strategic Attack	●	Volume of indoor storage space inadequate to store and maintain certain strategic attack targets, including next generation threats. No classified vault.
	Counterland	●	Bridge failure in FY05 cut-off access to host US Army post, nearly eliminating joint ground force access, increasing time for JTACs to reach Cannon Range and certain OPS.
	Information Operations	●	Limited volume of space to improve / add hardware.
	Electronic Combat Support	●	Limited volume of space to improve / add hardware.
	Command and Control	●	Insufficient volume of space for a C2 unit to mobilize and operate out of existing buildings.
	Special Operations	●	Bridge failure in FY05 cut-off access to host US Army post, nearly eliminating joint ground force access, increasing time for JTACs to reach Cannon Range and certain OPS.
	Intelligence, Surveillance and Reconnaissance	●	No small paved runway available for small ISR platforms requiring a prepared or hard surface.

Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Strategic Attack	●	Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day.
	Counterland	●	Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day. UHF/VHF systems at 100% capacity, additional hardware required for mission growth.
	Information Operations	●	Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day. SIPRNET consistently unavailable. Limited NIPRNET bandwidth.
	Electronic Combat Support	●	Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day.
	Command and Control	●	Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day.
	Air Drop	●	Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day. Limited personnel and equipment to handle CDS or HE airdrops.
	Special Operations	●	Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day. Range personnel generally unavailable to assist with.
	Intelligence, Surveillance and Reconnaissance	●	Insufficient number of personnel, full-time, or part-time, to maintain target array, conduct support functions, or provide 2-shift manning. Operational hours limited to 8 hours per day.
Collective Ranges	Counterland	●	Excellent training environment for certain units, company size and smaller, particularly TACP, combat engineer, infantry, and SOF.
	Special Operations	●	Need to add trained aggressors / Red Force to improve
MOUT Facilities	Counterland	●	5 total complexes, Low-fidelity thermal / IR signature
	Command and Control	●	5 total complexes, Low-fidelity thermal / IR signature
	Special Operations	●	5 total complexes, Low-fidelity thermal / IR signature. Need to add sim-round capable shoot complex; required to integrate total mission from infiltration through exfiltration with air-to-ground platforms.
Suite of Ranges	Strategic Attack		Fort Leonard Wood (US Army) operates a suite of ranges; Cannon Range, as an ANG tenant, is one.

Encroachment

Observations

1. 23% 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).

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Strategic Attack	●	No live ordnance permitted; theoretically limited capability to employ IAM; 170 acres of inactive US Army artillery range can not be cleared for range residue. Flares not permitted below 1,000' AGL.
	Counterair	●	Chaff (except RR-112) not permitted above 3,000' AGL
	Counterland	●	No live ordnance permitted; White Phosphorous not permitted; theoretically limited capability to employ IAM; 170 acres of inactive US Army artillery range can not be cleared for range residue; Chaff (except RR-112) not permitted above 3,000' AGL. Flares not permitted below 1,000' AGL. Illumination flares not permitted.
	Electronic Combat Support	●	Chaff (except RR-112) not permitted above 3,000' AGL. Flares not permitted below 1,000' AGL.
	Air Drop	●	Chaff (except RR-112) not permitted above 3,000' AGL. Flares not permitted below 1,000' AGL.
	Special Operations	●	No live ordnance permitted; White Phosphorous not permitted; theoretically limited capability to employ IAM; 170 acres of inactive US Army artillery range can not be cleared for range residue; Chaff (except RR-112) not permitted above 3,000' AGL. Flares not permitted below 1,000' AGL.
Airspace	Counterland	●	Surface Danger Zones from US Army small arms ranges and demolitions ranges limits minimum altitudes over certain areas adjacent to impact area 10% of time.
	Air Drop	●	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.
	Special Operations	●	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.
	Intelligence, Surveillance and Reconnaissance	●	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 - primarily impacts UAS w/in ISR realm
Adjacent Land Use	Strategic Attack	●	New (Jan 08) adjoining US Army Multi-Purpose Machine Gun Range (.50 cal) closes Cannon Range to all use, including maintenance, approx. 30 hours/month, but not all of these hours are scheduled for by Cannon Range for use or maintenance. Adjacent land uses limit or eliminate employing inert IAMs, some PWII, and other ordnance.
	Counterland	●	New (Jan 08) adjoining US Army Multi-Purpose Machine Gun Range (.50 cal) closes Cannon Range to all use, including maintenance, approx. 30 hours/month, but not all of these hours are scheduled for by Cannon Range for use or maintenance. Adjoining Live Fire Convoy course limits minimum altitudes over a portion of the range and ground personnel locations (Range and JTAC) 20% of time. Adjacent land uses limit or eliminate employing inert IAMs, some PWII, and other ordnance.
	Electronic Combat Support	●	New (Jan 08) adjoining US Army Multi-Purpose Machine Gun Range (.50 cal) closes Cannon Range to all use, including maintenance, approx. 30 hours/month, but not all of these hours are scheduled by Cannon Range for use or maintenance.
	Air Drop	●	Adjoining US Army Multi-Purpose Machine Gun Range (.50 cal) closes Cannon Range to all use, including maintenance, approx. 30 hours/month, but not all of these hours are scheduled by Cannon Range for use or maintenance. Adjoining Live Fire Convoy course limits minimum altitudes over a portion of the range and ground personnel locations, including a portion of Slingshot DZ, 20% of time.
	Special Operations	●	New (Jan 08) adjoining US Army Multi-Purpose Machine Gun Range (.50 cal) closes Cannon Range to all use, including maintenance, approx. 30 hours/month, but not all of these hours are scheduled by Cannon Range for use or maintenance. Adjoining Live Fire Convoy course limits minimum altitudes over a portion of the range and ground personnel locations (Range and SOF) 20% of time. Adjacent land uses limit or eliminate employing some ordnance types.
	Intelligence, Surveillance and Reconnaissance	●	New (Jan 08) adjoining US Army Multi-Purpose Machine Gun Range (.50 cal) closes Cannon Range to all use, including maintenance, approx. 30 hours/month, but not all of these hours are scheduled by Cannon Range for use or maintenance

Air Force Range: Claiborne Range

Comments

Capabilities

Observations

1. 28 % of the AF's range/range complex mission areas are Fully Mission Capable (FMC)
2. Collective Range is the single most capability attribute severely impacting the overall mission (7 red responses)
3. Air Refueling is the single most mission area severely impacted by various capability attributes (7 red responses)

Capability Attributes	Assigned Training Mission	Color	Comments
Airspace	Strategic Attack	●	Working on more airspace
Targets	Strategic Attack	●	Limited airspace for high altitude attack
Threats	Strategic Attack	●	RWR LITEs are the only source of ECM
	Electronic Combat Support	●	RWR LITEs are the only source of ECM
	Intelligence, Surveillance and Reconnaissance		RWR LITEs are the only source of ECM
Scoring and Feedback System	Electronic Combat Support	●	RWR LITEs do not provide feedback or scores
Infrastructure	Electronic Combat Support	●	RWR LITEs are the only source of ECM
Range Support	Electronic Combat Support	●	RWR LITEs are the only source of ECM

Encroachment

Observations

4. 47% of the range/range complex mission is SEVERELY impacted by encroachment factors
5. Adjacent Land Use is the single most encroachment factor severely affecting most of the training mission (7 red responses)
6. Counterair is the most affected mission area (6 red responses)

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Intelligence, Surveillance and Reconnaissance	●	Prime Moose/Wildlife habitat, Tundra
Spectrum	Strategic Attack	●	Minimal ECM training available (RWR LITE only)

Air Force Range: Dare County Bombing Range

Comments

Capabilities

Observations

1. Range capabilities are being developed to include joint training opportunities for all services.
2. The single largest capability limitation is not being able to drop IAM class weapons which would require the purchase of additional land.
3. Counterland is most significantly affected by IAM limitations.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Counterland	●	No IAM class weapons can be dropped due to the current size of government owned land. Aircrew are still able to accomplish training through simulated IAM ordnance deliveries.
Seaspace	Counterland	●	Navy riverine units are evaluating the range canals for training opportunities.
Small Arms Ranges	Special Operations	●	Investigating options for special forces and other ground units to use range targets for surface warfare training.
MOUT Facilities	Electronic Combat Support	●	Integrated threat training allows for more realistic CAS scenarios.
	Counterland	●	Addition of MOUT Facilities provides realistic targets for current world-wide training.

Encroachment

Observations

4. Encroachment factors do not pose a significant problem at the Dare County Bombing Range. Aircrew are able to accomplish required training.
5. Wetlands are the encroachment factor with the most significant impact. They limit the ability to construct new targets or expand current target complexes.
6. Counterland is most significantly affected by IAM limitations.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Counterland	●	Red-Cockaded Woodpeckers are present, but have no affect on training.
Munitions Restrictions	Counterland	●	No live weapons can be dropped on the DCBR. This has limited to no impact on aircrew training.
Wetlands	Counterland	●	No current impact, but wetlands limit the available range surface area for future target area expansions.

Air Force Range: Eglin AFB

Comments

Capabilities

Observations

1. 28 % of the AF's range/range complex mission areas are Fully Mission Capable (FMC)
2. Collective Range is the single most capability attribute severely impacting the overall mission (7 red responses)
3. Air Refueling is the single most mission area severely impacted by various capability attributes (7 red responses)

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	Some large footprint weapons require flight termination systems or must be released over Eglin's water ranges.
	Command and Control	●	Premier C and C training Site (D-84) has been "closed" by cultural resource office and SHPO after re-evaluation of former data recovery efforts at the site.
	Air Drop	●	Development of high altitude resupply options with GPS guided chutes may exceed range safety limits when coupled with 7SFG range operations
	Spacelift	●	Launch locations are limited by resources required, <i>e.g.,</i> , serviceable roads, utilities, and size of ground area required
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 will stress available airspace.
	Counterspace	●	Airspace over Gulf adequate for many, but not all, such operations
Seaspace	Counterspace	●	Seaspace of Gulf ranges are adequate for many, but not all, such operations
Targets	Counterspace	●	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.
	Countersea	●	Land and sea targets available, but no undersea targets.
	Information Operations	●	Lack of suitable/diverse targets
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
	Counterair	●	SRI has numerous EC emitters, but few are representative of those faced by our forces; also range lacks OPFOR capability; battlefield effects simulators
	Counterspace	●	SRI has numerous EC emitters, but few are representative of those faced by our forces; also range lacks OPFOR capability; battlefield effects simulators
	Counterland	●	SRI has numerous EC emitters, but few are representative of those faced by our forces; also range lacks OPFOR capability; battlefield effects simulators
	Electronic Combat Support	●	SRI has numerous EC emitters, but few are representative of those faced by our forces; also range lacks OPFOR capability; battlefield effects simulators
Scoring and Feedback System	Strategic Attack	●	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
	Counterair	●	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
	Counterland	●	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
	Information Operations	●	Lack of facilities to demonstrate effects for training audience; lack of targets

Capability Attributes	Assigned Training Mission	Color	Comments
Infrastructure	Strategic Attack	●	Inadequate facilities to support deployed assets; need exercise support facility
	Counterair	●	Inadequate facilities to support deployed assets; need exercise support facility
	Counterland	●	Inadequate facilities to support deployed assets; need exercise support facility
	Information Operations	●	Inadequate facilities to demonstrate effects for training audience; lack of targets
	Spacelift	●	SRI sites have been used for endoatmospheric probe launches, D-3 was selected as a Space Port Florida site
Range Support	Spacelift	●	SRI sites have been used for endoatmospheric probe launches, D-3 was selected as a Space Port Florida site
MOUT Facilities	Strategic Attack	●	A small number of MOUT-like facilities exist across the range. Need joint, consolidated plan to install a dedicated MOUT facility to meet joint training needs
	Counterair	●	A small number of MOUT-like facilities exist across the range. Need joint, consolidated plan to install a dedicated MOUT facility to meet joint training needs
	Counterland	●	A small number of MOUT-like facilities exist across the range. Need joint, consolidated plan to install a dedicated MOUT facility to meet joint training needs
	Command and Control	●	A small number of MOUT-like facilities exist across the range. Need joint, consolidated plan to install a dedicated MOUT facility to meet joint training needs
	Special Operations	●	A small number of MOUT-like facilities exist across the range. Need joint, consolidated plan to install a dedicated MOUT facility to meet joint training needs
Suite of Ranges	Strategic Attack	●	A joint MOUT facility with adjacent ground maneuver areas is required. The 7th SFG will place utilization strain on existing maneuver areas and cause additional conflicts with test missions. No joint certification of range capabilities
	Counterair	●	A joint MOUT facility with adjacent ground maneuver areas is required. The 7th SFG will place utilization strain on existing maneuver areas and cause additional conflicts with test missions. No joint certification of range capabilities
	Counterland	●	A joint MOUT facility with adjacent ground maneuver areas is required. The 7th SFG will place utilization strain on existing maneuver areas and cause additional conflicts with test missions.
	Command and Control	●	A joint MOUT facility with adjacent ground maneuver areas is required. The 7th SFG will place utilization strain on existing maneuver areas and cause additional conflicts with test missions.
	Special Operations	●	A joint MOUT facility with adjacent ground maneuver areas is required. The 7th SFG will place utilization strain on existing maneuver areas and cause additional conflicts with test missions.

Encroachment

Observations

Encroachment Factors	Assigned Training Mission	Color	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.
	Counterair	●	A proposal to establish Marine Protected Areas (MPAs) or Monuments in the northern Gulf of Mexico has the potential to significantly impact Eglin's munitions test and training mission.
	Counterspace	●	A proposal to establish Marine Protected Areas (MPAs) or Monuments in the northern Gulf of Mexico has the potential to significantly impact Eglin's munitions test and training mission.
	Counterland	●	A proposal to establish Marine Protected Areas (MPAs) or Monuments in the northern Gulf of Mexico has the Some restrictions on land use affects a/c, munitions, and targets; as well as land maneuvers
	Countersea	●	Limitations on SOF ammo used in the Gulf due to MMPA, Gulf Sturgeon critical habitat along coast, in Bay, and in adjacent rivers. 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.
	Special Operations	●	Marine Mammal and Sea Turtle restrictions on Gulf operations.
Munitions Restrictions	Countersea	●	Limitations on use of live explosives in Gulf
	Special Operations	●	Restrictions on use of high explosives in Gulf
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	●	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.
	Counterspace	●	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.
	Counterland	●	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.
	Countersea	●	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.
	Information Operations	●	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.
	Electronic Combat Support	●	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.
	Command and Control	●	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.
	Air Drop	●	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.
	Special Operations	●	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.
	Intelligence, Surveillance, Reconnaissance	●	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.
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.
	Counterair	●	Encroachment from oil drilling operations in Gulf
	Counterspace	●	Encroachment from oil drilling operations in Gulf
	Countersea	●	Limitations on use of live explosives in Gulf, and encroachment from oil drilling operations in Gulf
	Special Operations	●	Restrictions on use of high explosives in Gulf

Encroachment Factors	Assigned Training Mission	Color	Comment
Airspace	Strategic Attack	●	Increasing pressures for off-shore oil and gas exploration and production. Growing civilian air transportation activities in the area, increased UAV ops from 7th SFG, and increased traffic/mission ops from JSF training.
	Counterair	●	Increasing pressures for off-shore oil and gas exploration and production. Increased use of over-land and over-water space to facilitate JSF training. Increased airspace use from 7th SFG UAV ops.
	Counterspace	●	Increasing pressures for off-shore oil and gas exploration and production.
	Counterland	●	Increased general aviation traffic in N-S corridor, restricting capability for cross range shots and simultaneous use of east and west range areas for live weapons activity.
	Countersea	●	Increasing pressures for off-shore oil and gas exploration and production, and increased volume of civilian boating activities in potential danger areas.
	Spacelift	●	Insufficient land space to conduct vertical launch for delivery into space; however, spaceplane launch/recovery could be a viable option from within the Eglin reservation.
Noise Restrictions	Strategic Attack	●	Land use conversion can create noise-sensitive areas near low level routes and airfield approaches. Future JSF training will exacerbate this problem. The proximity of the 7th SFG live-fire ranges to populated areas may cause public noise complaints.
	Counterland	●	Low level routes and overwater approaches to the land range result in occasional noise complaints. This problem will increase when JSF training operations begin.
	Spacelift	●	Noise could be a significant factor in any space launch
Adjacent Land Use	Strategic Attack	●	Limited water-to-land flight access
	Counterland	●	Urban sprawl, land use conversion from agriculture to residential, and transportation corridors (on and off Eglin).
	Spacelift	●	Noise could be a significant factor in any space launch
Cultural Resources	Counterland	●	Suspected cultural resource sites impede full access to coastal and interstitial areas.
	Electronic Combat Support	●	Loss of premier Test and Training site (D-84) used for EC operations, due to local cultural resource and SHPO "re-evaluation" of initial data recovery efforts at the site.
	Command and Control	●	Loss of premier Test and Training site (D-84) used by 728 TCS for Command and Control training prior to war-zone deployment, due to local cultural resource and SHPO "re-evaluation" of initial data recovery efforts at the site.
	Spacelift	●	Launch location could be impacted by suspected cultural resource sites, especially on SRI
	Special Operations	●	Numerous restrictions on Santa Rosa Island, bay and stream shorelines, and interstitial area activities due to known and suspected cultural resource sites.
Wetlands	Counterland	●	Some restrictions on land use affects a/c, munitions, and targets; as well as land maneuvers
	Spacelift	●	Wetland locations would restrict/limit potential launch sites
	Special Operations	●	Some restrictions on land use affects a/c profiles, munitions, and targets; as well as land maneuvers
	Intelligence, Surveillance, Reconnaissance	●	Some restrictions on land use affects land maneuvers

Air Force Range: Falcon Range

Comments

Capabilities

Observations

1. 28 % of the AF's range/range complex mission areas are Fully Mission Capable (FMC)
2. Collective Range is the single most capability attribute severely impacting the overall mission (7 red responses)
3. Air Refueling is the single most mission area severely impacted by various capability attributes (7 red responses)

Capability Attributes	Assigned Training Mission	Color	Comments
Airspace	Strategic Attack	●	Working on more airspace
Targets	Strategic Attack	●	Limited airspace for high altitude attack
Threats	Strategic Attack	●	RWR LITEs are the only source of electronic attack training
	Electronic Combat Support	●	RWR LITEs are the only source of electronic attack training
	Special Operations		RWR LITEs are the only source of electronic attack training
Scoring and Feedback System	Electronic Combat Support	●	RWR LITEs do not provide feedback or scores
Infrastructure	Strategic Attack	●	Buildings in need of repair/replacement
	Electronic Combat Support	●	RWR LITEs are the only source of electronic attack training
Range Support	Electronic Combat Support	●	RWR LITEs are the only source of electronic attack training

Encroachment

Observations

1. 47% of the range/range complex mission is SEVERELY impacted by encroachment factors
2. Adjacent Land Use is the single most encroachment factor severely affecting most of the training mission (7 red responses)
3. Counterair is the most affected mission area (6 red responses)

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Intelligence, Surveillance and Reconnaissance		No user requirement
Spectrum	Strategic Attack	●	Minimal ECM training available (RWR LITE only)
Maritime Sustainability	Strategic Attack		No restrictions
	Counterland		No restrictions
Airspace	Strategic Attack	●	Working on expansion of airspace to accommodate training

Air Force Range: Grand Bay Gunnery and Bombing Range, Moody AFB GA

Comments

Capabilities

Observations

1. 90 % of the AF's range/range complex mission areas are Fully Mission Capable (FMC)
2. Most areas identified as "yellow" are associated with lack of range space.
3. Only basic visual and electronics threats are available on Grand Bay range.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	Can be accomplished but lack of landspace limits target selection, ground training, and joint training with ground forces.
	Counterland	●	Not enough landspace for joint or large force training exercises. Some air to ground munitions deliveries in conjunction with the training area are limited due weapons danger zones requirements and lack of range landspace.
	Special Operations	●	Not enough landspace for joint or large force training exercises.
Targets	Strategic Attack	●	Limited target selection due to range size and weapons danger zone footprints -- but most aircrew qualification events are locally met.
	Electronic Combat Support	●	Only basic, threat generation equipment available for use on Grand Bay Range.
	Command and Control	●	No realistic Command and Control targets on range.
Threats	Electronic Combat Support	●	Basic threat generations equipment only—no up to date threat systems.
Scoring and Feedback System	Electronic Combat Support	●	No capability for electronic warfare engagement feedback.

Encroachment

Observations

1. 47% of the range/range complex mission is SEVERELY impacted by encroachment factors
2. Adjacent Land Use is the single most encroachment factor severely affecting most of the training mission (7 red responses)
3. Counterair is the most affected mission area (6 red responses)

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Counterland	●	Weapons Danger Zones restrict some air-to-ground munitions deliveries due to lack of landspace
	Special Operations	●	Noise concerns associated with AC-130 munitions expenditures and use of the range.
Noise Restrictions	Counterland	●	Not enough landspace for large force or joint training exercises. Future encroachment and noise restriction concerns could negatively impact the current level/ability to tactically work with ground forces by further limiting axis of attack.
Adjacent Land Use	Strategic Attack	●	Future concerns with encroachment, restrictions on munitions deliveries
	Counterland	●	Not enough landspace for adequate joint training in this area. Local area growth and future encroachment could further impact the ability to work with ground forces on range. The Wildlife Refuge area to the north of Grand Bay limits tactical approach by attack/fighter aircraft for munitions deliver.
	Air Drop	●	Lack of landspace for more airdrop flexibility, encroachment concerns, future noise restrictions. The Wildlife Refuge area to the north of Grand Bay Range within R-3008 limits tactical approach by HC-130 aircraft for airdrop activities.
	Special Operations	●	Lack of landspace, future encroachment, noise restrictions if growth is not managed so as not to affect Moody AFB operations.
	Intelligence, Surveillance, Reconnaissance	●	Lack of landspace, future encroachment, noise restrictions if growth is not managed so as not to affect Moody AFB operations.
Cultural Resources	Counterland	●	The Wildlife Refuge area to the north restricts aircraft overflight to 1500 AGL and limits tactical approach to the target area by A-10 or other attacking aircraft.
	Air Drop	●	The Wildlife Refuge area to the north restricts aircraft overflight to 1500 AGL and limits tactical approach to the drop zone area by HC-130 aircraft.
Wetlands	Special Operations	●	A substantial portion of Grand Bay Range is classified as wetlands. Not all portions of the range is available for ground force training use.

Air Force Range: Grayling

Comments

Capabilities			
Observations			
1. 70 % of the AF's range/range complex mission areas are Fully Mission Capable (FMC). 2. Counterland mission most impacted by limited airspace.			
Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	Next generation weapons systems require more land space to accommodate weapon footprints etc.
	Counterland	●	Next generation weapons systems require more land space to accommodate weapon footprints etc.
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.
	Counterair	●	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.
	Electronic Combat Support	●	Next generation weapons systems require more up to date threat simulators and the landspace to properly place them within the airspace. JTE deployment (FY 08) 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

1. 14% of the range/range complex mission is impacted by encroachment factors.
2. Airspace Use is the single most encroachment factor severely affecting most of the training mission .
3. Counterland is the most affected mission area.

Encroachment Factors	Assigned Training Mission	Color	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.
Adjacent Land Use	Strategic Attack	●	This is not a problem currently. We have been working several different programs to stay ahead of any potential problems. Left untouched this could become an issue in the future.

Air Force Range: Hardwood

Comments

			Capabilities Observations
Capability Attributes	Assigned Training Mission	Color	Comments
Landscape	Strategic Attack	●	Next generation weapons systems require more land space to accommodate weapon footprints etc.
	Counterland	●	Next generation weapons systems require more land space to accommodate weapon footprints etc.
	Electronic Combat Support	●	Next generation weapons systems require more land space to accommodate weapon footprints etc.
Airspace	Strategic Attack	●	Airspace is limited by lateral and vertical limits. Airspace is adequate to accomplish most of the training required, but does restrict a small portion of the training required. Supersonic flight is not authorized within the current airspace.
	Counterair	●	Airspace is limited by lateral and vertical limits. Airspace is adequate to accomplish most of the training required, but does restrict a small portion of the training required. Supersonic flight is not authorized within the current airspace.
	Counterland	●	Airspace is limited by lateral and vertical limits. Airspace is adequate to accomplish most of the training required, but does restrict a small portion of the training required. Supersonic flight is not authorized within the current airspace.
	Electronic Combat Support	●	Airspace is limited by lateral and vertical limits. Airspace is adequate to accomplish most of the training required, but does restrict a small portion of the training required. Supersonic flight is not authorized within the current airspace.
	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. Supersonic flight is not authorized within the current airspace.
Targets	Counterland	●	Currently the need for a moving strafe target is needed. 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 landscape 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	●	Next generation weapons systems require more up to date threat simulators and the landscape to properly place them within the airspace. Currently working to acquire more threats and developing agreements to place the threats within the current airspace.
	Electronic Combat Support	●	Next generation weapons systems require more up to date threat simulators and the landscape to properly place them within the airspace. Currently working to acquire more threats and developing agreements to place the threats within the current airspace.
Range Support	Strategic Attack	●	Hardwood range is one of the least manned ranges throughout the NGB. Current mission types and requirements for Fire support etc. has placed a need for creative scheduling. Range manning is based on one shift. Current training requires approx. 40% to be at night, which has driven the range to cover more time with fewer bodies.
	Counterland	●	Hardwood range is one of the least manned ranges throughout the NGB. Current mission types and requirements for Fire support etc. has placed a need for creative scheduling. Range manning is based on one shift. Current training requires approx. 40% to be at night, which has driven the range to cover more time with fewer bodies.
	Special Operations	●	Hardwood range is one of the least manned ranges throughout the NGB. Current mission types and requirements for Fire support etc. has placed a need for creative scheduling. Range manning is based on one shift. Current training requires approx. 40% to be at night, which has driven the range to cover more time with fewer bodies.

Capability Attributes	Assigned Training Mission	Color	Comments
Suite of Ranges	Strategic Attack	●	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 size and all other variables of wetland, encroachment etc.
	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 size and all other variables of wetland, encroachment etc.
	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 size and all other variables of wetland, encroachment etc.

Encroachment

Observations

Encroachment Factors	Assigned Training Mission	Color	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	●	Based on our location between two busy civilian airports severe restrictions are placed on chaff and ECM use. Frequencies are tougher to get based on everything moving to data links and civilian population becoming more electronic centric.
	Electronic Combat Support	●	Based on our location between two busy civilian airports severe restrictions are placed on chaff and ECM use. Frequencies are tougher to get based on everything moving to data links and civilian population becoming more electronic centric.
Airspace	Strategic Attack	●	Airspace is limited in size based on older aircraft and their capabilities. Airspace expansion is difficult based on the location between two large civilian airports and their associated arrival and departure routes. Current 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. Airspace expansion is difficult based on the location between two large civilian airports and their associated arrival and departure routes. Current 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. Airspace expansion is difficult based on the location between two large civilian airports and their associated arrival and departure routes. Current 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. Airspace expansion is difficult based on the location between two large civilian airports and their associated arrival and departure routes. Current 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. Airspace expansion is difficult based on the location between two large civilian airports and their associated arrival and departure routes. Current working an airspace review to re-work the airspace to meet the needs of current and future aircraft.
Noise Restrictions	Strategic Attack	●	Mission types have driven the type of training needed to more populated areas. (Urban CAS) This effects the altitude training can be accomplished. Training for future aircraft requires the needed for supercruise airspace. Current airspace is subsonic only. This will be addressed in the airspace re-work.
	Counterair	●	Mission types have driven the type of training needed to more populated areas. (Urban CAS) This effects the altitude training can be accomplished. Training for future aircraft requires the needed for supercruise airspace. Current airspace is subsonic only. This will be addressed in the airspace re-work.
	Counterland	●	Mission types have driven the type of training needed to more populated areas. (Urban CAS) This effects the altitude training can be accomplished. Training for future aircraft requires the needed for supercruise airspace. Current airspace is subsonic only. This will be addressed in the airspace re-work.
	Special Operations	●	Mission types have driven the type of training needed to more populated areas. (Urban CAS) This effects the altitude training can be accomplished. Training for future aircraft requires the needed for supercruise airspace. Current airspace is subsonic only. This will be addressed in the airspace re-work.
Adjacent Land Use	Strategic Attack	●	This is not a problem currently. We have been working several different programs to stay ahead of any potential problems. Left untouched this could become an issue in the future.

Encroachment Factors	Assigned Training Mission	Color	Comment
Wetlands	Strategic Attack	●	The range is located in an area of large quantities of wetlands. Wetland restrictions have restricted our ability to construct complete firebreaks, the placement of new targets, etc. Working with the natural resource advisory, we plan new target development around wetlands on the range.
	Counterland	●	The range is located in an area of large quantities of wetlands. Wetland restrictions have restricted our ability to construct complete firebreaks, the placement of new targets, etc. Working with the natural resource advisory, we plan new target development around wetlands on the range.
	Electronic Combat Support	●	The range is located in an area of large quantities of wetlands. Wetland restrictions have restricted our ability to construct complete firebreaks, the placement of new targets, etc. Working with the natural resource advisory, we plan new target development around wetlands on the range.
	Special Operations	●	The range is located in an area of large quantities of wetlands. Wetland restrictions have restricted our ability to construct complete firebreaks, the placement of new targets, etc. Working with the natural resource advisory, we plan new target development around wetlands on the range.
Range Transients	Strategic Attack	●	The range boundaries are open, but marked appropriately for the activities taking place. Based on more ATV type vehicles, this increases the number of transients across the range. An effort to fence the entire range is underway. We continually advise the public of the activities taking place trough ATV clubs etc. Public awareness is critical.
	Counterland	●	The range boundaries are open, but marked appropriately for the activities taking place. Based on more ATV type vehicles, this increases the number of transients across the range. An effort to fence the entire range is underway. We continually advise the public of the activities taking place trough ATV clubs etc. Public awareness is critical.
	Electronic Combat Support	●	The range boundaries are open, but marked appropriately for the activities taking place. Based on more ATV type vehicles, this increases the number of transients across the range. An effort to fence the entire range is underway. We continually advise the public of the activities taking place trough ATV clubs etc. Public awareness is critical.
	Special Operations	●	The range boundaries are open, but marked appropriately for the activities taking place. Based on more ATV type vehicles, this increases the number of transients across the range. An effort to fence the entire range is underway. We continually advise the public of the activities taking place trough ATV clubs etc. Public awareness is critical.

Air Force Range: Holloman AFB Ranges (Oscura, Red Rio, Centennial)

Comments

Capabilities

Observations

- Recent assignment of the F-22 mission to HAFB has created shortfalls in need for electronic threats, super sonic high altitude JDAM drops and air-air shoot box required to accomplish the training mission.

Capability Attributes	Assigned Training Mission	Color	Comments
Targets	Counterair	●	Need to define F-22 shoot box requirements POC 49 FW F-22 SATAF Office, ECD 1 Sep 08
Threats	Strategic Attack	●	Need threats for the F-22 mission POC A3A, ECD UNK
	Counterair	●	Need threats for the F-22 mission POC A3A, ECD UNK
	Counterland	●	Need threats for the F-22 mission POC A3A, ECD UNK
MOUT Facilities	Strategic Attack	●	Need additional structures to complete MOUT layout POC 49OSS/OSOR ECD 1 Aug 08

Encroachment

Observations

- Recent assignment of the F-22 mission to HAFB has created shortfalls in need for electronic threats, super sonic high altitude JDAM drops and air-air shoot box required to accomplish the training mission.

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Strategic Attack	●	Need to drop supersonic JDAM; no footprints POC ACC/A3AR, ECD 1 Aug 08
Spectrum	Electronic Combat Support	●	Need threats in support of F-22 operations POC A3A, ECD UNK
Airspace	Electronic Combat Support	●	Need threats in support of F-22 operations POC A3A, ECD UNK
Adjacent Land Use	Electronic Combat Support	●	Possible F-22 threat simulator frequency conflicts with WSMR test projects

Air Force Range: Jefferson

Comments

Capabilities

Observations

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Counterland	●	Under current permit and MOU, we have approx 1,100 acres for development of target arrays.
	Special Operations	●	Under current permit and MOU, we have approx 1,100 acres for development of target arrays.
Targets	Counterland	●	We are in an Army impact field with a high degree of UXOs. Cost for EOD outside of scrapes and access roads with current budget preclude expansions and development.
	Special Operations	●	We are in an Army impact field with a high degree of UXOs. Cost for EOD outside of scrapes and access roads with current budget preclude expansions and development.
	Intelligence, Surveillance and Reconnaissance	●	We are in an Army impact field with a high degree of UXOs. Cost for EOD outside of scrapes and access roads with current budget preclude expansions and development.
Threats	Special Operations	●	We are in an Army impact field with a high degree of UXOs. Cost for EOD outside of scrapes and access roads with current budget preclude expansions and development.
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 and Reconnaissance	●	Current scoring system does not provide AAR for ISR
Infrastructure	Information Operations	●	Infrastructure does not support IO
	Electronic Combat Support	●	Infrastructure does not support ECS
Range Support	Information Operations	●	Range expertise is not centric on IO
	Electronic Combat Support	●	Range expertise is not centric on ECS
Small Arms Range	Strategic Attack	●	We are pursuing implementation of a small arms range however; does not yet exist.
	Counterland	●	We are pursuing implementation of a small arms range however; does not yet exist.
	Information Operations	●	We are pursuing implementation of a small arms range however; does not yet exist.
	Electronic Combat Support	●	We are pursuing implementation of a small arms range however; does not yet exist.
	Command and Control	●	We are pursuing implementation of a small arms range however; does not yet exist.
	Special Operations	●	We are pursuing implementation of a small arms range however; does not yet exist.
	Intelligence, Surveillance and Reconnaissance	●	We are pursuing implementation of a small arms range however; does not yet exist.

Capability Attributes	Assigned Training Mission	Color	Comments
MOUT Facilities	Strategic Attack	●	**We are joint venture with MUTC (Muscatatuck Urban Training Center located 3 miles outside of fence and under the Jefferson Range MOAs
	Counterland	●	**
	Information Operations	●	**
	Electronic Combat Support	●	**
	Command and Control	●	**
	Air Drop	●	**
	Special Operations	●	**
	Intelligence, Surveillance and Reconnaissance	●	**

**Encroachment
Observations**

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strategic Attack	●	We have several protected species surrounding the impact area and under the MOAs.
	Counterair	●	We have several protected species surrounding the impact area and under the MOAs.
	Counterland	●	We have several protected species surrounding the impact area and under the MOAs.
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	●	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
Noise Restrictions	Strategic Attack	●	EA assessment is limited in noise study and needs to be expanded for future weapon systems.
	Counterair	●	EA assessment is limited in noise study and needs to be expanded for future weapon systems.
	Counterland	●	EA assessment is limited in noise study and needs to be expanded for future weapon systems.
	Special Operations	●	EA assessment is limited in noise study and needs to be expanded for future weapon systems.
Adjacent Land Use	Counterland	●	**Adjacent land is Army owned and managed by FWS. FWS has permit for approx. 49000 acres to our approx 1100 acres. Our footprints are authorized outside of our permitted area however, that is all. Also, much of the land is no access due to the UXO hazards.
	Information Operations	●	**
	Electronic Combat Support	●	EA ** is limited in noise study and needs to be expanded for future weapon systems.
	Command and Control	●	**
	Air Drop	●	**
	Special Operations	●	**
	Intelligence, Surveillance and Reconnaissance	●	**
Cultural Resources	Strategic Attack	●	**Jefferson Range has oversight by BRAC 1988. Conducting operations outside of the MOU established as a result of BRAC would require congressional authorization.
	Counterland	●	**
	Special Operations	●	**

Air Force Range: Melrose Range

Comments

Capabilities

Observations

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Special Operations	●	Current surface configuration of Air Force owned property not configured to accommodate all EIS approved scenarios. I.E. Simultaneous AC-130 orbits with MC-130 airdrops at the same time. LZ/HLZ's not available or in the planning stage. Requires more than c
Targets	Special Operations	●	AC-130 Target Sites incomplete-Anticipate green prior to AC-130 bed-down
Infrastructure	Special Operations	●	Numerous fences/power lines impede ground movement. No facilities for troops in the field. Range compound/vehicle storage areas in middle of range. Potable water is an issue.
Range Support	Special Operations	●	Datalink capabilities do not exist. Bandwidth is limited. No SIPR available.
Small Arms Range	Special Operations	●	Range not currently configured for all approved weapons on EIS. May require more than current exclusive use area.
MOUT Facilities	Special Operations	●	MOUT sites incomplete/not built
Suite of Ranges	Special Operations	●	NSA LZ not built. DZ's need to be moved outside of target areas. CV-22 LZ's are limited. MC-130/ Predator/C-17 LZs require land in the leased areas of the range.

Encroachment

Observations

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Strategic Attack	●	Can not employ all weapons approved
	Counterland	●	Can not employ all weapons approved
	Special Operations	●	Structured Tgts/Ranges/LZs need to be built. Requires land in the leased area of the range
Spectrum	Intelligence, Surveillance and Reconnaissance	●	Forces must work around obstacles, fences & livestock due to peacetime/training constraints and leased land.
	Electronic Combat Support	●	2 frequencies are not available stateside
Airspace	Special Operations	●	UAV COAs not established between Cannon, Melrose, published MOA's, and WSMR
	Intelligence, Surveillance and Reconnaissance	●	UAV COAs not established between Cannon, Melrose, published MOA's, and WSMR

Air Force Range: McMullen Range (Yankee)

Comments

Capabilities

Observations

1. 28 % of the AF's range/range complex mission areas are Fully Mission Capable (FMC)
2. Air Refueling is the single most mission area severely impacted by various capability attributes (7 red responses)
3. Air Refueling is the single most mission area severely impacted by various capability attributes (7 red responses)

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	Small range with numerous restrictions (heading, etc.)
	Counterland	●	Small range with numerous restrictions (heading, etc.)
	Counterland	●	Small range with numerous restrictions (heading, etc.)
	Air Drop	●	Small range with numerous restrictions (heading, etc.)
	Special Operations	●	Small range with numerous restrictions (heading, etc.)
	Intelligence, Surveillance, Reconnaissance	●	Small range with numerous restrictions (heading, etc.)
Airspace	Strategic Attack	●	Restricted Area very small
	Counterair	●	Restricted Area very small
	Counterland	●	Restricted Area very small
	Special Operations	●	Restricted Area very small
	Intelligence, Surveillance, Reconnaissance	●	Restricted Area very small
Targets	Air Refueling	●	McMullen has no threat system that would reach those altitudes
Infrastructure	Counterland	●	No pavement. Inclement weather prohibits access to range personnel
	Special Operations	●	No pavement. Inclement weather prohibits access to range personnel
	Intelligence, Surveillance, Reconnaissance	●	No pavement. Inclement weather prohibits access to range personnel
Suite of Ranges	Strategic Attack	●	No MOUT facilities or live-fire. Very limited maneuver areas.
	Counterair	●	No MOUT facilities or live-fire. Very limited maneuver areas.
	Counterland	●	No MOUT facilities or live-fire. Very limited maneuver areas.
	Information Operations	●	No MOUT facilities or live-fire. Very limited maneuver areas.
	Electronic Combat Support	●	No MOUT facilities or live-fire. Very limited maneuver areas.
	Command and Control	●	No MOUT facilities or live-fire. Very limited maneuver areas.
	Air Drop	●	No MOUT facilities or live-fire. Very limited maneuver areas.
	Special Operations	●	No MOUT facilities or live-fire. Very limited maneuver areas.
	Intelligence, Surveillance, Reconnaissance	●	Some restrictions due to real-world air/space operations

**Encroachment
Observations**

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Strategic Attack	●	Live ordnance prohibited
	Counterair	●	Live ordnance prohibited
	Counterland	●	Live ordnance prohibited
	Special Operations	●	Live ordnance prohibited
Airspace	Counterland	●	Restricted Area too small
	Air Drop	●	Restricted Area too small
	Special Operations	●	Restricted Area too small
	Intelligence, Surveillance, Reconnaissance	●	Restricted Area too small
Noise Restrictions	Counterland	●	Some noise restrictions related to the MTRs associated with the range
Adjacent Land Use	Strategic Attack	●	Small range (3000 acres). Adjoining land owners unwilling to sale.
	Counterair	●	Small range (3000 acres). Adjoining land owners unwilling to sale.
	Counterland	●	Small range (3000 acres). Adjoining land owners unwilling to sale.
	Air Drop	●	Small range (3000 acres). Adjoining land owners unwilling to sale.
Water Quality/ Supply	Strategic Attack	●	All water must be trucked in to range facilities
	Counterair	●	All water must be trucked in to range facilities
	Counterland	●	All water must be trucked in to range facilities
	Information Operations	●	All water must be trucked in to range facilities
	Electronic Combat Support	●	All water must be trucked in to range facilities
	Command and Control	●	All water must be trucked in to range facilities
	Air Drop	●	All water must be trucked in to range facilities
	Air Refueling	●	All water must be trucked in to range facilities
	Special Operations	●	All water must be trucked in to range facilities
	Intelligence, Surveillance, Reconnaissance	●	All water must be trucked in to range facilities

Air Force Range: Mountain Home Range Complex, Mountain Home AFB

Comments

Capabilities

Observations

- 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.
- MHRC does not support counterspace, countersea, information, operations, spacelift, and ISR missions on a normal basis.

Capability Attributes	Assigned Training Mission	Color	Comments
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No Comments

Encroachment

Observations

- 93.9 % of the AF's range/range complex mission areas that are applicable to the HRC are fully Mission Capable.
- 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.

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Strategic Attack	●	No realistic Laser Guided Bomb deliveries for F-15E. Weapon footprint too large for the ranges.
	Counterland	●	No realistic Laser Guided Bomb deliveries for F-15E. Weapon footprint too large for the ranges.

Air Force Range: Nevada Test and Training Range

Comments

Capabilities

Observations

1. 64% of the AF's range/range complex mission areas are Fully Mission Capable (FMC)
2. Information Operations is the single most mission area severely impacted by various capability attributes (6 red/1 yellow responses)
3. Targets/Feedback & Scoring Systems Capability Attributes are in a tie with various mission areas (2 red/2 yellow responses)

Capability Attributes	Assigned Training Mission	Color	Comments
Airspace	Counterair	●	(1) Supersonic footprint over the top of civilian communities in the MOAs. (2) Current FAA CHAFF restrictions deny employment over the NTTR. (3) Avoidance Areas - Nellis has established noise sensitive area around communities under the MOA.
	Electronic Combat Support	●	(1) Limited Capability to do full-spectrum jamming. (2) Current FAA CHAFF restrictions deny employment over the NTTR. (3) Avoidance Areas - Nellis has established noise sensitive area around communities under the MOA.
Targets	Information Operations	●	No Information Operations Targets on the NTTR
	Electronic Combat Support	●	Extremely limited IED Target Capability
	Command and Control	●	No Red C2 Targetable Nodes exist on the NTTR
	Air Drop	●	No Drop Zones are currently located on the Southern Ranges
	Intelligence, Surveillance and Reconnaissance	●	NTTR Requires High-Fidelity ISR Targets on the Range
Threats	Strategic Attack	●	No Advanced SAM capabilities; Lack AAA Density on the Range
	Information Operations	●	No Information Operations Capabilities on the NTTR
	Electronic Combat Support	●	Lacking EC density and jammable systems
	Command and Control	●	Limited Capability to deny/degrade Blue C2 systems
Scoring and Feedback Systems	Information Operations	●	No Scoring and Feedback Systems available for Information Operations on the NTTR
	Electronic Combat Support	●	Feedback available on jamming effectiveness
	Command and Control	●	No Scoring and Feedback Systems for Blue Force Tracker
	Intelligence, Surveillance and Reconnaissance	●	No ISR Feedback to determine effectiveness of weapon system.
Range Support	Counterland	●	Limited Blue Force Track Capability & Convoy Support
	Information Operations	●	Minimal Information Operations Range Support; Joint IO Range infrastructure is housed in Bldg 200; however, no IO Range support on the range due to lack of IO Target/Threat systems on the range.
	Intelligence, Surveillance and Reconnaissance	●	No infrastructure to support ISR targeting
Collective Ranges	Information Operations	●	No Information Operations targets/threats exist on the NTTR
MOUT Facilities	Information Operations	●	No Information Operations exist at our MOUT facility; tremendous requirement from the Information Operations community.
	Electronic Combat Support	●	Deploying jammable infrastructure at the Urban Operations Center
	Air Drop	●	Currently there are no Drop Zones on the Southern Range near the UOC. This is an AMC requirements that is on the books and the 98 RANW staff has worked closely with AMC to define the requirement.
Suite of Ranges	Information Operations	●	No Information Operations Capabilities exist on the NTTR

Encroachment

Observations

1. Several key encroachment areas: Urban sprawl (noise and flight restrictions), RF propagation due to wind turbines (flight/EC impacts/Chaff restrictions).

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strategic Attack	●	Endangered Species Act (Increase costs or Risks) – The NTTR southern ranges contain habitat for the Desert Tortoise, an Endangered Species. We operate under a Biological Opinion (BO) issued by the US Fish and Wildlife Services. In accordance with the BO, we pay a one-time fee per acre of \$723 for each acre of “suitable habitat” we disturb. Wilderness - 572,000 acres of the southern ranges is proposed wilderness. This designation places this land “out of use” for ground activities. This Wilderness Areas precludes target placement in the mountainous areas of the southern ranges.
	Counterland	●	Endangered Species Act (Increase costs or Risks) – The NTTR southern ranges contain habitat for the Desert Tortoise, an Endangered Species. We operate under a Biological Opinion (BO) issued by the US Fish and Wildlife Services. In accordance with the BO, we pay a one-time fee per acre of \$723 for each acre of “suitable habitat” we disturb. Wilderness - 572,000 acres of the southern ranges is proposed wilderness. This designation places this land “out of use” for ground activities. This Wilderness Areas precludes target placement in the mountainous areas of the southern ranges.
	Electronic Combat Support	●	Endangered Species Act (Increase costs or Risks) – The NTTR southern ranges contain habitat for the Desert Tortoise, an Endangered Species. We operate under a Biological Opinion (BO) issued by the US Fish and Wildlife Services. In accordance with the BO, we pay a one-time fee per acre of \$723 for each acre of “suitable habitat” we disturb. Wilderness - 572,000 acres of the southern ranges is proposed wilderness. This designation places this land “out of use” for ground activities. This Wilderness Areas precludes threat/communications placement in the mountainous areas of the southern ranges.
	Air Drop	●	Endangered Species Act (Increase costs or Risks) – The NTTR southern ranges contain habitat for the Desert Tortoise, an Endangered Species. We operate under a Biological Opinion (BO) issued by the US Fish and Wildlife Services. In accordance with the BO, we pay a one-time fee per acre of \$723 for each acre of “suitable habitat” we disturb. Wilderness - 572,000 acres of the southern ranges is proposed wilderness. This designation places this land “out of use” for ground activities. This Wilderness Areas precludes use of the mountainous areas of the southern ranges.
	Special Operations	●	Endangered Species Act (Increase costs or Risks) – The NTTR southern ranges contain habitat for the Desert Tortoise, an Endangered Species. We operate under a Biological Opinion (BO) issued by the US Fish and Wildlife Services. In accordance with the BO, we pay a one-time fee per acre of \$723 for each acre of “suitable habitat” we disturb. Wilderness - 572,000 acres of the southern ranges is proposed wilderness. This designation places this land “out of use” for ground activities. This Wilderness Areas prevent Special Operations Forces access to higher elevations.
Munitions Restrictions	Strategic Attack	●	All weapons footprints are kept within the withdrawn lands. The Small Diameter Bomb weapons safety footprints exceed our withdrawn lands. JDAM employment is restricted to keep weapons footprints within the withdrawn lands.
	Counterair	●	All weapons footprints are kept within the withdrawn lands. The Small Diameter Bomb weapons safety footprints exceed our withdrawn lands. JDAM employment is restricted to keep weapons footprints within the withdrawn lands.
	Electronic Combat Support	●	FAA CMD restrictions
Spectrum	Strategic Attack	●	Limited Capability to use Combat ECM modes
	Counterair	●	Limited Capability to use Combat ECM modes
	Counterland	●	Limited Communications Capabilities (We don't get the full spectrum on the range)
	Electronic Combat Support	●	Limited Capability to use Combat ECM modes
	Special Operations	●	Limited Communications Capabilities (SATCOM, GSM Cell, Etc)
	Intelligence, Surveillance and Reconnaissance	●	Limited Communications Capabilities (SATCOM, GSM Cell, Etc)

Encroachment Factors	Assigned Training Mission	Color	Comment
Airspace	Strategic Attack	●	[1] Insufficient Airspace volume - The F-22/F-35 Systems transit airspace in a matter of minutes; we routinely require the MOAs and the extended MOA altitudes to routinely accomplish desired learning objectives on the NTTR. We must retain all airspace we currently have and routinely access the MOAs for integrated training. [2] Avoidance Areas - Airspace constraint (creates avoidance areas) -- NTTR shares approximately 847,050 acres with the US Fish and Wildlife Services (USFWS). USFWS has established 25 Big Horn Sheep watering points in the mountain ranges. In accordance with the Nellis AFB and USFWS MOU, each watering location has a 1-mile buffer zone (avoidance area). [3] Avoidance Areas - Nellis has established noise sensitive area around communities under the MOA.
	Counterair	●	[1] Insufficient Airspace volume - The F-22/F-35 Systems transit airspace in a matter of minutes; we routinely require the MOAs and the extended MOA altitudes to routinely accomplish desired learning objectives on the NTTR. We must retain all airspace we currently have and routinely access the MOAs for integrated training. [2] Avoidance Areas - Airspace constraint (creates avoidance areas)—NTTR shares approximately 847,050 acres with the US Fish and Wildlife Services (USFWS). USFWS has established 25 Big Horn Sheep watering points in the mountain ranges. In accordance with the Nellis AFB and USFWS MOU, each watering location has a 1-mile buffer zone (avoidance area). [3] Avoidance Areas - Nellis has established noise sensitive area around communities under the MOA.
	Strategic Attack	●	The data collection for the following tables took place in April of 2008. Since that time, we have encountered Clean Air Act conformity challenges at Nevada Test and Training Range. For that reason, the NTTR air quality scores have been updated, while the rest of the tables retain the original date. A complete discussion of this issue can be found in the Air Force Special Interest Section.
	Counterair	●	The data collection for the following tables took place in April of 2008. Since that time, we have encountered Clean Air Act conformity challenges at Nevada Test and Training Range. For that reason, the NTTR air quality scores have been updated, while the rest of the tables retain the original date. A complete discussion of this issue can be found in the Air Force Special Interest Section.
	Counterspace	●	The data collection for the following tables took place in April of 2008. Since that time, we have encountered Clean Air Act conformity challenges at Nevada Test and Training Range. For that reason, the NTTR air quality scores have been updated, while the rest of the tables retain the original date. A complete discussion of this issue can be found in the Air Force Special Interest Section.
	Electronic Combat Support	●	Generators associated with the EC threats on the range must comply with new EPA new sources performance standards. This is costly, any generator that we have must be brought up to current emission standards.
	Command and Control	●	The data collection for the following tables took place in April of 2008. Since that time, we have encountered Clean Air Act conformity challenges at Nevada Test and Training Range. For that reason, the NTTR air quality scores have been updated, while the rest of the tables retain the original date. A complete discussion of this issue can be found in the Air Force Special Interest Section.
	Air Drop	●	The data collection for the following tables took place in April of 2008. Since that time, we have encountered Clean Air Act conformity challenges at Nevada Test and Training Range. For that reason, the NTTR air quality scores have been updated, while the rest of the tables retain the original date. A complete discussion of this issue can be found in the Air Force Special Interest Section.
	Air Refueling	●	The data collection for the following tables took place in April of 2008. Since that time, we have encountered Clean Air Act conformity challenges at Nevada Test and Training Range. For that reason, the NTTR air quality scores have been updated, while the rest of the tables retain the original date. A complete discussion of this issue can be found in the Air Force Special Interest Section.
	Special Operations	●	The data collection for the following tables took place in April of 2008. Since that time, we have encountered Clean Air Act conformity challenges at Nevada Test and Training Range. For that reason, the NTTR air quality scores have been updated, while the rest of the tables retain the original date. A complete discussion of this issue can be found in the Air Force Special Interest Section.
	Intelligence, Surveillance and Reconnaissance	●	The data collection for the following tables took place in April of 2008. Since that time, we have encountered Clean Air Act conformity challenges at Nevada Test and Training Range. For that reason, the NTTR air quality scores have been updated, while the rest of the tables retain the original date. A complete discussion of this issue can be found in the Air Force Special Interest Section.

Encroachment Factors	Assigned Training Mission	Color	Comment
Noise Restrictions	Strategic Attack	●	Avoidance Areas - Nellis has established noise sensitive area around communities under the MOA. Restrictions for Supersonic Footprint & Noise Complaints (F-22A, F-35, F-15, F-16)
	Counterair	●	Avoidance Areas - Nellis has established noise sensitive area around communities under the MOA. Restrictions for Supersonic Footprint & Noise Complaints (F-22A, F-35, F-15, F-16)
Adjacent Land Use	Strategic Attack	●	The NTTR is surrounded primarily by rural federal managed lands. However the small towns under the NTTR MOAs are growing. With growth comes increased noise complaints that will drive further flying restrictions. Nellis has a Outreach Program to inform the rural populace of the NTTR mission. The federal managed lands are very attractive for Renewable Energy Projects. There are numerous Wind turbine proposals that intrude into the restricted NTTR MOAs.
	Counterair	●	The NTTR is surrounded primarily by rural federal managed lands. However the small towns under the NTTR MOAs are growing. With growth comes increased noise complaints that will drive further flying restrictions. Nellis has a Outreach Program to inform the rural populace of the NTTR mission. The federal managed lands are very attractive for Renewable Energy Projects. There are numerous Wind turbine proposals that intrude into the restricted NTTR MOAs.
	Counterland	●	The NTTR is surrounded primarily by rural federal managed lands. However the small towns under the NTTR MOAs are growing. With growth comes increased noise complaints that will drive further flying restrictions. Nellis has a Outreach Program to inform the rural populace of the NTTR mission. The federal managed lands are very attractive for Renewable Energy Projects. There are numerous Wind turbine proposals that intrude into the restricted NTTR MOAs.
	Electronic Combat Support	●	The NTTR is surrounded primarily by rural federal managed lands. The federal managed lands are very attractive for Renewable Energy Projects. There are numerous Wind turbine proposals that intrude into the restricted NTTR MOAs. The windfarms have the potential to introduce Radio Frequency propagation into the NTTR battle space.
Cultural Resources	Strategic Attack	●	Avoidance areas, increased costs - Cultural resources affect target placement on the NTTR
	Counterair	●	Avoidance areas, increased costs - Cultural resources affect target placement on the NTTR
	Counterland	●	Avoidance areas, increased costs - Cultural resources affect target placement on the NTTR
	Electronic Combat Support	●	Avoidance areas, increased costs - Cultural resources affect target placement on the NTTR
	Special Operations	●	Avoidance areas, increased costs - Cultural resources affect land use on the NTTR. Cultural resources restrict the rapid placement of SOF exercise locations. Must conduct cultural assessments prior to exercise.
Wetlands	Counterland	●	Avoidance area - NTTR has over 64 seeps and springs which we avoid.

Air Force Range: Oklahoma Range

Comments

Capabilities

Observations

1. Lack of road access makes it extremely challenging and expensive to build and maintain robust target complexes.
2. Ability to clear ranges for actual weapons releases during adverse weather is extremely limited due to lack of access to target areas.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Electronic Combat Support	●	Lack of road access limits ability to position/operate equipment
	Command and Control	●	Lack of road access limits ability to position/operate equipment
	Air Drop	●	Lack of road access limits ability to position/operate equipment
Airspace	Strategic Attack	●	Small restricted ranges/impact areas for large force exercises
	Counterland	●	Small restricted ranges/impact areas for large force exercises
	Air Drop	●	Small restricted ranges/impact areas for large force exercises
Targets	Strategic Attack	●	Lack of road access limits size/type targets and frequency of range maintenance/build
	Counterland	●	Lack of road access limits size/type targets and frequency of range maintenance/build
	Air Drop	●	Lack of road access limits size/type targets and frequency of range maintenance/build
Threats	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterair	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Special Operations	●	Lack of road access limits ability to position/operate equipment
Scoring & Feedback System	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterair	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment

Capability Attributes	Assigned Training Mission	Color	Comments
Infrastructure	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterair	●	Lack of road access limits ability to position/operate equipment
	Counterspace	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Information Operations	●	Lack of road access limits ability to position/operate equipment
	Electronic Combat Support	●	Lack of road access limits ability to position/operate equipment
	Command and Control	●	Lack of road access limits ability to position/operate equipment
	Air Drop	●	Lack of road access limits ability to position/operate equipment
	Air Refueling	●	Lack of road access limits ability to position/operate equipment
	Spacelift	●	Lack of road access limits ability to position/operate equipment
	Special Operations	●	Lack of road access limits ability to position/operate equipment
	Intelligence, Surveillance and Reconnaissance	●	Lack of road access limits ability to position/operate equipment
Range Support	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterair	●	Lack of road access limits ability to position/operate equipment
	Counterspace	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Information Operations	●	Lack of road access limits ability to position/operate equipment
	Electronic Combat Support	●	Lack of road access limits ability to position/operate equipment
	Command and Control	●	Lack of road access limits ability to position/operate equipment
	Air Drop	●	Lack of road access limits ability to position/operate equipment
	Air Refueling	●	Lack of road access limits ability to position/operate equipment
	Spacelift	●	Lack of road access limits ability to position/operate equipment
	Special Operations	●	Lack of road access limits ability to position/operate equipment
	Intelligence, Surveillance and Reconnaissance	●	Lack of road access limits ability to position/operate equipment

Appendix C: Specific Range Comments

Capability Attributes	Assigned Training Mission	Color	Comments
MOUT Facilities	Strategic Attack	●	Lack of road access limits ability to build urban target areas
	Counterair	●	Lack of road access limits ability to build urban target areas
	Counterspace	●	Lack of road access limits ability to build urban target areas
	Counterland	●	Lack of road access limits ability to build urban target areas
	Information Operations	●	Lack of road access limits ability to build urban target areas
	Electronic Combat Support	●	Lack of road access limits ability to build urban target areas
	Command and Control	●	Lack of road access limits ability to build urban target areas
	Air Drop	●	Lack of road access limits ability to build urban target areas
	Air Refueling	●	Lack of road access limits ability to build urban target areas
	Spacelift	●	Lack of road access limits ability to build urban target areas
	Special Operations	●	Lack of road access limits ability to build urban target areas
	Intelligence, Surveillance and Reconnaissance	●	Lack of road access limits ability to build urban target areas
Suite of Ranges	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Air Drop	●	Lack of road access limits ability to position/operate equipment
	Special Operations	●	Lack of road access limits ability to position/operate equipment

Encroachment

Observations

1. Encroachment has overall minor impact on Blair Lakes due to lack of road access.
2. Most of the impact is successful use is due to Delta Corridor Airspace. A plan has been successfully established for RED FLAG-Alaska exercises to make use of this airspace by military aircraft resulting in minor impact during these large utilization.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strategic Attack	●	Prime Moose/Wildlife habitat, Tundra
	Counterland	●	Prime Moose/Wildlife habitat, Tundra
	Air Drop	●	Prime Moose/Wildlife habitat, Tundra
	Special Operations	●	Prime Moose/Wildlife habitat, Tundra
Munitions Restrictions	Strategic Attack	●	Small size limits live weapons due to footprints extending outside impact areas
	Counterair	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Air Drop	●	Lack of road access limits ability to position/operate equipment
Spectrum	Counterspace	●	Some restrictions due to real-world air/space operations
	Electronic Combat Support	●	Some restrictions due to real-world air/space operations
Airspace	Strategic Attack	●	Small restricted ranges/impact areas for large force exercises
	Counterland	●	Small restricted ranges/impact areas for large force exercises
	Information Operations	●	Small restricted ranges/impact areas for large force exercises
	Air Drop	●	No airdrop targets due to lack of road access
	Special Operations	●	No road access
Adjacent Land Use	Strategic Attack	●	Lack of road access limits ability to position/operate equipment
	Counterair	●	Lack of road access limits ability to position/operate equipment
	Counterland	●	Lack of road access limits ability to position/operate equipment
	Information Operations	●	Lack of road access limits ability to position/operate equipment
	Electronic Combat Support	●	Lack of road access limits ability to position/operate equipment
	Air Drop	●	Lack of road access limits ability to position/operate equipment
Wetlands	Strategic Attack	●	Prime Moose/Wildlife habitat, Tundra
	Counterland	●	Prime Moose/Wildlife habitat, Tundra
	Air Drop	●	Prime Moose/Wildlife habitat, Tundra

Air Force Range: Pilsung Range

Comments

Capabilities

Observations

1. 28 % of the AF's range/range complex mission areas are Fully Mission Capable (FMC)
2. Collective Range is the single most capability attribute severely impacting the overall mission (7 red responses)
3. Air Refueling is the single most mission area severely impacted by various Capability attributes (7 red responses)

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Counterair	●	Valley limits low level maneuvering and vegetation on range drives fire codes to be high
	Counterland	●	Valley limits low level maneuvering and vegetation on range drives fire codes to be high
Airspace	Strategic Attack	●	Airspace is small for B-52s - require attaining several adjoining MOAs
	Counterair	●	Adjoining MOAs are required to operate Opposed SAT
	Counterland	●	Restricted Area is surrounded by MOAs requiring aircraft to enter low or "fly the line" dividing MOAs
Targets	Strategic Attack	●	There is a SCUD launcher for TST targets
	Counterland	●	There is not a target in the live ordnance area and there is no moving target for moving target strafe
Threats	Strategic Attack	●	No EW emitter
	Counterland	●	Smokey SAMs are often limited by fire code
	Electronic Combat Support	●	EW emitters were removed and ROKAF will not replace until 2011
Scoring and Feedback System	Counterland	●	Lack of fire response at night leads to "cold-spot" BDUs only. There is no IR camera installed to score "cold-spot" BDUs so there is no night scoring
Infrastructure	Counterland	●	There is no fire break around the live ordnance area
Range Support	Counterland	●	Range management of brush near targets drive fire codes higher, there is no fire response after 1600L (winter), 1700L (summer)
Suite of Ranges	Strategic Attack	●	Small area for B-52s
	Counterland	●	Fire codes lead to drop restrictions
	Electronic Combat Support	●	There is no on-pen EW threat emitter

Encroachment

Observations

1. 47% of the range/range complex mission is SEVERELY impacted by encroachment factors

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Strategic Attack	●	Small range space limits live weapons, JDAM, Hellfire, and Maverick
	Counterair	●	Small range space limits live weapons, JDAM, Hellfire, and Maverick
	Counterland	●	Small range space limits live weapons, JDAM, Hellfire, and Maverick
	Special Operations	●	Small range space limits live weapons, JDAM, Hellfire, and Maverick
Airspace	Strategic Attack	●	Surrounding MOAs limit use by B-52
	Counterland	●	Terrain limits low level usage
Noise Restrictions	Counterland	●	Noise complaints restrict night strafing and strafing on ROK holidays

Air Force Range: Poinsett

Comments

Capabilities

Observations

1. Airspace constraints limit SEAD/DEAD training against emitters on Poinsett Range; new initiative to create Poinsett Transition Area (PTA) airspace to allow transition between MOA and R-6002 was successfully tested and implemented permanently in Oct 07.

Capability Attributes	Assigned Training Mission	Color	Comments
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Encroachment

Observations

1. Increased civilian home construction around range property may increase Noise complaints

Encroachment Factors	Assigned Training Mission	Color	Comment
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Air Force Range: Polygone Multinational Aircrew Electronic Warfare Training Facility

Comments

Capabilities

Observations

1. 4% of AF capabilities can be obtained on this range.
2. Total lack of capability in 32% of mission categories severely impacts the overall mission. 15 red responses)
3. Some mission areas not executed on this range: Air Refueling, Air Drop, Spacelift, Counter Sea, Counter Space.

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	Land is limited and is public. No weapons allowed.
	Counterair	●	Land is limited and is public. No weapons allowed.
	Counterland	●	No land for ground attack.
	Electronic Combat Support	●	This is an electronic warfare range with limited assets.
	Command and Control	●	Limited C2, no AWACS.
	Special Operations	●	No land for ground attack.
	Intelligence, Surveillance, Reconnaissance	●	Limited airspace, over public land.
Airspace	Strategic Attack	●	No low airspace. Restricted airspace horizontally and vertically.
	Counterair	●	No low airspace. Restricted airspace horizontally and vertically.
	Counterland	●	No low airspace. Restricted airspace horizontally and vertically.
	Electronic Combat Support	●	No low airspace. Restricted airspace horizontally and vertically.
	Command and Control	●	No low airspace. Restricted airspace horizontally and vertically.
	Special Operations	●	No low airspace. Restricted airspace horizontally and vertically.
	Intelligence, Surveillance, Reconnaissance	●	No low airspace. Restricted airspace horizontally and vertically.
Targets	Strategic Attack	●	No actual targets for weapons employment.
	Counterair	●	Limited numbers of aircraft permitted in airspace.
	Counterland	●	No actual targets for weapons employment.
	Electronic Combat Support	●	HARMs cannot be fired. Limited EW assets to target.
	Command and Control	●	No C2 integration on target engagement.
	Special Operations	●	No actual targets for weapons employment.
	Intelligence, Surveillance, Reconnaissance	●	Not set up for this type of training.
Threats	Strategic Attack	●	Limited numbers and types of EW threats.
	Counterair	●	Limited numbers of aircraft permitted in airspace.
	Counterland	●	Limited numbers and types of EW threats.
	Electronic Combat Support	●	Limited numbers and types of EW threats.
	Command and Control	●	Limited numbers and types of EW threats.
	Special Operations	●	Limited numbers and types of EW threats.
	Intelligence, Surveillance, Reconnaissance	●	Limited numbers and types of EW threats.

Capability Attributes	Assigned Training Mission	Color	Comments
Scoring and Feedback System	Strategic Attack	●	None exits on range.
	Counterland	●	Limited EW feedback capability.
	Electronic Combat Support	●	Limited EW feedback capability.
	Command and Control	●	None exits on range.
	Special Operations	●	Limited EW feedback capability.
	Intelligence, Surveillance, Reconnaissance	●	Limited EW feedback capability.
Infrastructure	Strategic Attack	●	Limited to EW capability.
	Counterair	●	Limited to EW capability.
	Counterland	●	Limited to EW capability.
	Electronic Combat Support	●	Limited to EW capability.
	Command and Control	●	No AWACS.
	Special Operations	●	Limited to EW capability.
Intelligence, Surveillance, Reconnaissance	●	None specific to this mission.	
Range Support	Strategic Attack	●	None
	Counterair	●	EW threats can be integrated with limitations.
	Counterland	●	None
	Electronic Combat Support	●	Need more assets and triple digit threats.
	Command and Control	●	Need AWACS integration.
	Special Operations	●	EW threats can be integrated with limitations.
Intelligence, Surveillance, Reconnaissance	●	EW threats can be integrated with limitations.	
Suite of Ranges	Strategic Attack	●	Restricted airspace, no live ground attack
	Counterair	●	Restricted airspace
	Counterland	●	Restricted airspace, no live ground attack
	Electronic Combat Support	●	Restricted airspace, no live ground attack
	Command and Control	●	Restricted airspace, no live ground attack
	Special Operations	●	Restricted airspace, no live ground attack
Intelligence, Surveillance, Reconnaissance	●	Restricted airspace	

Encroachment

Observations

1. 35% of the range complex mission is SEVERELY impacted by encroachment factors
2. Lack of an integrated air-to-ground range is major limitation Occasional civil traffic intrudes into airspace

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Strategic Attack	●	No munitions expenditures permitted.
	Counterair	●	No munitions expenditures permitted.
	Counterland	●	No munitions expenditures permitted.
	Electronic Combat Support	●	No munitions expenditures permitted.
	Command and Control	●	No munitions expenditures permitted.
	Special Operations	●	No munitions expenditures permitted.
	Intelligence, Surveillance, Reconnaissance	●	No munitions expenditures permitted.
Spectrum	Strategic Attack	●	Limited EW threats.
	Counterair	●	Limited EW threats.
	Counterland	●	Limited EW threats.
	Electronic Combat Support	●	Limited EW threats.
	Command and Control	●	Limited EW threats.
	Special Operations	●	Limited EW threats.
	Intelligence, Surveillance, Reconnaissance	●	Limited EW threats.
Airspace	Strategic Attack	●	Restricted vertically and horizontally
	Counterair	●	Restricted vertically and horizontally
	Counterland	●	Restricted vertically and horizontally
	Electronic Combat Support	●	Restricted vertically and horizontally
	Special Operations	●	Restricted vertically and horizontally
	Intelligence, Surveillance, Reconnaissance	●	Restricted vertically and horizontally
Noise Restrictions	Strategic Attack	●	No supersonic, no low altitude.
	Counterair	●	No supersonic, no low altitude.
	Counterland	●	No supersonic, no low altitude.
	Electronic Combat Support	●	No supersonic, no low altitude.
	Special Operations	●	No supersonic, no low altitude.
	Intelligence, Surveillance, Reconnaissance	●	No supersonic, no low altitude.
Adjacent Land Us	Strategic Attack	●	Not permitted.
	Counterair	●	Not permitted.
	Counterland	●	Not permitted.
	Electronic Combat Support	●	Limited
	Command and Control	●	Not permitted.
	Special Operations	●	Not permitted.
	Intelligence, Surveillance, Reconnaissance	●	Not permitted.

Air Force Range: Razorback

Comments

Capabilities

Observations

Capability Attributes	Assigned Training Mission	Color	Comments
Airspace	Air Refueling	●	Airspace too small for air refueling operations, however adjoining MOA is used for air refueling

Encroachment

Observations

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Strategic Attack	●	Live munitions now allowed
	Counterair	●	Live munitions now allowed
	Counterland	●	Live munitions now allowed
	Special Operations	●	Live munitions now allowed

Air Force Range: Shelby Gulfport
Comments

Capabilities
Observations

1. 46% of the Shelby East/West and Gulfport ACTS range complex mission areas are Fully Mission Capable (FMC).
2. Small Arms Range is the single most capability attribute severely impacting the overall mission (4 red responses).
3. Most deficient mission areas are showing an upward trend based on future plans/development.

Capability Attributes	Assigned Training Mission	Color	Comments
Landscape	Strategic Attack	●	East A/G Target area is approx 120 acres. Current plan to expand by 60 acres will enhance landscape, allowing more events. West A/G utilization limited by army operations.
	Counterair	●	East A/G Target area is approx 120 acres. Current plan to expand by 60 acres will enhance landscape, allowing more events. West A/G utilization limited by army operations.
	Counterland	●	East A/G Target area is approx 120 acres. Current plan to expand by 60 acres will enhance landscape, allowing more events. West A/G utilization limited by army operations.
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	●	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. Gulfport ACTS limited airspace restricts A/C BVR setups. Currently working with Houston ATC and FASFAC Pensacola to transfer scheduling of EAGLE 3/4 airspace at Gulfport.
	Counterland	●	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.
Targets	Strategic Attack	●	East A/G target area expansion will allow for a more varied target array. Will allow more options for mobile targets.
	Counterland	●	One no-drop temporary MOU facility currently available. Construction of one small scale "Hot" facility underway. Limited land area precludes construction of realistic target at this time.
	Special Operations	●	AC-130 targets are located on Shelby west, Army live artillery impact area. Targets are not visible from OP, due to heavy forest cover. Entry to maintain and upgrade targets is prohibited. Sarserange methodology research is being conducted on the possibility of utilizing targets in the middle of the impact area. Army concurrence required prior to implementation.
	Intelligence, Surveillance and Reconnaissance	●	New mission. Waiting for input from local Recon/Survey user as to what types of "targets" will enhance training.
Threats	Strategic Attack	●	RWR Lite with 2 threats capability and 5 miles range of operation. A more substantial emitter such as JTE would allow a more robust and realistic threat scenario.
	Counterair	●	RWR Lite with 2 threats capability and 5 miles range of operation. A more substantial emitter such as JTE would allow a more robust and realistic threat scenario.
	Counterland	●	RWR Lite with 2 threats capability and 5 miles range of operation. A more substantial emitter such as JTE would allow a more robust and realistic threat scenario.
	Electronic Combat Support	●	RWR Lite with 2 threats capability and 5 miles range of operation. A more substantial emitter such as JTE would allow a more robust and realistic threat scenario.
	Command and Control	●	RWR Lite with 2 threats capability and 5 miles range of operation. A more substantial emitter such as JTE would allow a more robust and realistic threat scenario.

Capability Attributes	Assigned Training Mission	Color	Comments
Range Support	Counterland	●	Heavy Equipment used in range support has an average age of 21.75 yrs. More time is spent in the shop, and less in the dirt. LG states that the equipment has been placed on a priority buy list. Although it is understood that budget constraints exist, every effort must be made to replace aging maintenance fleet. Also, dump trucks are hard to borrow from parent unit due to training schedule. An additional authorization for a truck at the range would be extremely helpful.
	Command and Control	●	Operations and services offered to the user at times must be limited due to lack of personnel to operate systems, such as threats, movers, and role players. Funding of unfunded manpower positions would alleviate most of these concerns.
	Air Drop	●	Concurrent operations not possible at times, due to lack of personnel. Using units provide operations personnel at times.
	Special Operations	●	Concurrent operations not possible at times, due to lack of personnel. Using units provide operations personnel at times.
	Intelligence, Surveillance and Reconnaissance	●	As this mission develops. Concurrent, or large scale operations may be limited by manpower shortages. Use of multiple role players and movers are envisioned to provide a complex, realistic training scenario.
Small Arms Range	Counterland	●	Small arms range currently down from Katrina Damage. New facility due to be online in FY09.
	Electronic Combat Support	●	IED simulator should be online end of FY08.
	Command and Control	●	New EST 2000 Individual Combat Simulator and convoy trainer should be online end of FY08.
	Special Operations	●	New EST 2000 Individual Combat Simulator and convoy trainer should be online end of FY08.
MOUT Facilities	Strategic Attack	●	One no-drop temporary MOUT facility currently available. Construction of one small scale "Hot" facility underway. Limited land area precludes construction of realistic target at this time.
	Counterland	●	One no-drop temporary MOUT facility currently available. Construction of one small scale facility "Hot" underway. Limited land area precludes construction of realistic target at this time.
	Command and Control	●	Hardwood range is one of the least manned ranges throughout the NGB. Current mission types and requirements for Fire support etc. has placed a need for creative scheduling. Range manning is based on one shift. Current training requires approx. 40% to be at night, which has driven the range to cover more time with fewer bodies.
	Special Operations	●	One no-drop temporary MOUT facility currently available. Construction of one small scale "Hot" facility underway. Limited land area precludes construction of realistic target at this time.
	Intelligence, Surveillance and Reconnaissance	●	One no-drop, temporary MOUT facility currently available. Construction of one small scale, "Hot" facility underway. Limited land area precludes construction of realistic target at this time.

Encroachment

Observations

1. 0% of the range/range complex mission is SEVERELY impacted by encroachment factors
2. Munitions Restrictions and Airspace encroachment factors moderately affect the training mission (5 yellow responses each)
3. Strategic Attack is the most affected mission area (7 yellow responses)

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strategic Attack	●	Several PETS species located at Shelby East A/G Range. Limits placement of target arrays, and maintenance procedures. Range management procedures have been tailored to allow range maintenance and habitat maintenance to be performed concurrently.
	Counterair	●	Several PETS species located at Shelby East A/G Range. Limits placement of target arrays, and maintenance procedures. Range management procedures have been tailored to allow range maintenance and habitat maintenance to be performed concurrently.
	Counterland	●	Several PETS species located at Shelby East A/G Range. Limits placement of target arrays, and maintenance procedures. Range management procedures have been tailored to allow range maintenance and habitat maintenance to be performed concurrently.
Munitions Restrictions	Strategic Attack	●	Airspace and landspace limitations preclude use of Precision Guided Munitions, Limited PGM operations are possible on Shelby West A/G. Live Mk 82 use is limited to West Range.
	Counterair	●	Airspace and landspace limitations preclude use of Precision Guided Munitions, Limited PGM operations are possible on Shelby West A/G. Live Mk 82 use is limited to West Range.
	Counterland	●	Airspace and landspace limitations preclude use of Precision Guided Munitions, Limited PGM operations are possible on Shelby West A/G. Live Mk 82 use is limited to West Range.
	Command and Control	●	Airspace and landspace limitations preclude use of Precision Guided Munitions, Limited PGM operations are possible on Shelby West A/G. Live Mk 82 use is limited to West Range.
	Special Operations	●	AC-130 does not fire inert training ordnance exclusively. Use limited to Shelby West.
Spectrum	Electronic Combat Support	●	Obtaining required Frequency Authorizations for ground based threat emitters is a lengthy, arduous task. Aircraft are not authorized to operate ECM at Shelby.
Airspace	Strategic Attack	●	Limited ceiling on MOA's prevents some high altitude training events. Environmental Assessment on current airspace proposal has been completed. Airspace portion and charting is expected to be complete later this year.
	Counterair	●	Limited ceiling on MOA's prevents some high altitude training events. Environmental Assessment on current airspace proposal has been completed. Airspace portion and charting is expected to be complete later this year. Gulfport ACTS limited airspace restricts A/C BVR setups. Currently working with Houston ATC and FASFAC Pensacola to transfer scheduling of EAGLE 3/4 airspace at Gulfport.
	Counterland	●	Limited ceiling on MOA's prevents some high altitude training events. Environmental Assessment on current airspace proposal has been completed. Airspace portion and charting is expected to be complete later this year.
	Command and Control	●	Limited ceiling on MOA's prevents some high altitude training events. Environmental Assessment on current airspace proposal has been completed. Airspace portion and charting is expected to be complete later this year.
	Special Operations	●	AC-130 Gunships are often required to operate at or above 10,000 AGL over the west range depending on the type of ordnance being fired into the impact area below them.
Noise Restrictions	Strategic Attack	●	Several "No Fly" or restricted altitude areas exist underneath the MOA's, due to being populated areas. These areas are published in the local supplement. Due to the fact we are collocated with an artillery range, noise complaints are almost non-existent.
	Counterair	●	Several "No Fly" or restricted altitude areas exist underneath the MOA's, due to being populated areas. These areas are published in the local supplement. Due to the fact we are collocated with an artillery range, noise complaints are almost non-existent.
	Counterland	●	Several "No Fly" or restricted altitude areas exist underneath the MOA's, due to being populated areas. These areas are published in the local supplement. Due to the fact we are collocated with an artillery range, noise complaints are almost non-existent.

Encroachment Factors	Assigned Training Mission	Color	Comment
Adjacent Land Use	Strategic Attack	●	At times, Air to Ground training may be limited by Army training taking place. Times and altitudes at which the West Range can be utilized is totally dependant on what types of training are being conducted on nearby ranges.
	Counterland	●	One no-drop temporary MOUT facility currently available. Construction of one small scale "Hot" facility underway. Limited land area precludes construction of realistic target at this time.
	Special Operations	●	AC-130 Gunships are often required to operate at or above 10,000 AGL over the west range depending on the type of ordnance being fired into the impact area below them. Altitude restrictions are "turned on and off" real-time with the ground party controlling the flight.
Wetlands	Strategic Attack	●	The Presence of wet lands limit the placement of targets on the East A/G Range. Also, line of sight maintenance is limited to the use of specialized equipment, and handwork in 2 bottoms located between the control towers and target area.
	Counterland	●	The Presence of wet lands limit the placement of targets on the East A/G Range. Also, line of sight maintenance is limited to the use of specialized equipment, and handwork in 2 bottoms located between the control towers and target area.
Range Transients	Strategic Attack	●	Range closed approximately 6 weeks annually for safety reasons during deer season. Allows downtime for range personnel to upgrade and maintain target array, and perform scheduled range clearance with EOD personnel.
	Counterair	●	Occasional civilian transient aircraft restrict ceilings on Gulfport ACTS.

Air Force Range: Siegenburg Range

Comments

Capabilities			
Observations			
1. Very small range. One conventional target. One attack heading. Altitude limited. 2. Weapons safety footprint limited. Munitions limited to BDU-33 and rockets. 3. Some mission areas not executed on this range: Air Refueling, Air Drop, Counter Air, Counter Sea, Counter Space, Spacelift, Strategic Attack, ISR			
Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	Land is limited and adjacent land is public.
	Counterland	●	Land is limited and adjacent land is public.
	Electronic Combat Support	●	Limited assets usable, RWR-LITE.
	Special Operations	●	Land is limited and adjacent land is public.
Airspace	Strategic Attack	●	No low airspace. Restricted airspace horizontally and vertically.
	Counterland	●	No low airspace. Restricted airspace horizontally and vertically.
	Special Operations	●	No low airspace. Restricted airspace horizontally and vertically.
Targets	Strategic Attack	●	No strategic targets for weapons employment.
	Counterland	●	No strategic targets for weapons employment.
	Special Operations	●	No strategic targets for weapons employment.
Threats	Strategic Attack	●	Limited numbers and types of EW threats.
	Counterair		Limited numbers of aircraft permitted in airspace.
	Counterland	●	Limited numbers and types of EW threats.
	Electronic Combat Support	●	Limited numbers and types of EW threats.
	Special Operations	●	Limited numbers and types of EW threats.
Scoring and Feedback System	Strategic Attack	●	None exits on range.
	Counterland	●	Visual Triangulation
	Electronic Combat Support	●	No EW feedback capability.
	Command and Control	●	None exits on range.
	Special Operations	●	Visual Triangulation
Infrastructure	Strategic Attack	●	Not supported.
	Counterland	●	Conventional target only.
	Electronic Combat Support	●	Limited to hand held EW capability.
	Command and Control	●	UHF/VHF only.
	Special Operations	●	Conventional target only.
Range Support	Strategic Attack	●	None
	Counterland	●	Visual Triangulation
	Electronic Combat Support	●	Assets deployed from Polygone.
	Command and Control	●	No tracking capability.
	Special Operations	●	Visual Triangulation

Encroachment

Observations

1. The range complex mission is SEVERELY impacted by encroachment factors of adjacent land use (range is very small), noise complaints, closure for funerals, etc.
2. Airspace is very restrictive.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strategic Attack	●	Forrest cannot be cut to improve range
	Counterland	●	Forrest cannot be cut to improve range
	Special Operations	●	Forrest cannot be cut to improve range
Munitions Restrictions	Strategic Attack	●	Munitions expenditures limited to rockets and BDU-33 practice bombs.
	Counterland	●	Munitions expenditures limited to rockets and BDU-33 practice bombs.
	Special Operations	●	Munitions expenditures limited to rockets and BDU-33 practice bombs.
Spectrum	Strategic Attack	●	Limited EW threats.
	Counterland	●	Limited EW threats.
	Special Operations	●	Limited EW threats.
Airspace	Strategic Attack	●	Restricted vertically and horizontally
	Counterland	●	Restricted vertically and horizontally
	Command and Control	●	Restricted vertically and horizontally
	Special Operations	●	Restricted vertically and horizontally
Noise Restrictions	Strategic Attack	●	No supersonic, no low altitude.
	Counterland	●	No supersonic, no low altitude.
	Special Operations	●	No supersonic, no low altitude.
Adjacent Land Use	Strategic Attack	●	Not permitted.
	Counterland	●	Not permitted.
	Special Operations	●	Not permitted.
Cultural Resources	Strategic Attack	●	Range closed for funerals in nearby villages
	Counterland	●	Range closed for funerals in nearby villages
	Special Operations	●	Range closed for funerals in nearby villages

Air Force Range: Smokey Hill Range

Comments

Capabilities

Observations

Capability Attributes	Assigned Training Mission	Color	Comments
Small Arms Range	Special Operations	●	An ARNG small arms range is located adjacent to Smoky but has caliber limitations/inert only

Encroachment

Observations

Encroachment Factors	Assigned Training Mission	Color	Comment
Spectrum	Electronic Combat Support	●	Restrictions due to standard nationwide limitations such as cell phones, radar, etc.

Air Force Range: Tori Shima

Comments

Capabilities

Observations

1. 10 % of the range/range complex mission areas are Fully Mission Capable (FMC)
2. Landspace and Airspace are the capability attributes severely impacting the overall mission (2 red responses)
3. Strategic Attack and Counterland are mission areas that are most severely impacted by various capability attributes (8 red responses each)

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	Not enough acreage to place any tgts or equipment on
	Counterland	●	Not enough acreage to place any tgts or equipment on
Airspace	Strategic Attack	●	Altitude constraint does not fit with current tactics
	Counterland	●	Does not support interdiction, altitude constraint does not fit with current tactics (CAS)
Targets	Strategic Attack	●	No targets on range, Not enough land
	Counterland	●	No targets on range, Not enough land
Threats	Strategic Attack	●	No threats or threat emitters, not enough land nor altitude to react
	Counterland	●	No threats or threat emitters, not enough land nor altitude to react
Scoring and Feedback Systems	Strategic Attack	●	No scoring system, not enough land
	Counterland	●	No scoring system, not enough land
Infrastructure	Strategic Attack	●	No range infrastructures, not enough landspace
	Counterland	●	No range infrastructures, not enough landspace
Range Support	Strategic Attack	●	EOD and ROO support range clearance, no other personnel, hardware, or software
	Counterland	●	EOD and ROO support range clearance, no other personnel, hardware, or software
MOUT Facilities	Strategic Attack	●	No MOUT facilities, not enough landspace
	Counterland	●	No MOUT facilities, not enough landspace
Suit of Ranges	Strategic Attack	●	Range not attached to A/A size range for support
	Counterland	●	Range not attached to A/A size range for support

Encroachment

Observations

1. 36% of the range/range complex mission is MODERATELY impacted by encroachment factors while 7% is SEVERELY impacted
2. Airspace constraint by the host nation is the single most encroachment factor affecting most of the training mission (1 red response)
3. Counterland is the most affected mission area (1 red response)

Encroachment Factors	Assigned Training Mission	Color	Comment
Munitions Restrictions	Strategic Attack	●	Newer weapons cannot be employed due to restrictions on containment
	Counterland	●	Min safe distance per AFI11-214 eliminates CAS employment on range
Airspace	Strategic Attack	●	Unable to expend modern munitions due to airspace limits
	Counterland	●	Airspace does not support interdiction role
Cultural Resources	Strategic Attack	●	Fishing community primary obstacle to expansion of surface range area
	Counterland	●	Fishing community primary obstacle to expansion of surface range area

Air Force Range: Townsend

Comments

Capabilities

Observations

1. 91% of the AF's range/range complex mission areas are Fully Mission Capable (FMC)
2. Landspace is the single most capability attribute moderately impacting the overall mission (2 yellow responses)
3. Strategic attack is the single most mission area moderately impacted by various capability attributes (2 yellow responses)

Capability Attributes	Assigned Training Mission	Color	Comments
Land Space	Strategic Attack	●	Lack of land hinders the delivery of precision guided missions
	Counterland	●	Lack of land hinders the delivery of precision guided missions
Range Support	Strategic Attack	●	Due to the ops tempo and demands of new units in addition to the users we already support, manpower issues are magnified

Encroachment

Observations

Encroachment Factors	Assigned Training Mission	Color	Comment
Airspace	Strategic Attack	●	Due to local Letter of Agreement with controlling Agencies we have constraints with local airports
	Counterair	●	Due to local Letter of Agreement with controlling Agencies we have constraints with local airports
	Electronic Combat Support	●	Due to local Letter of Agreement with controlling Agencies we have constraints with local airports
Noise Reduction	Strategic Attack	●	Due several no fly zones, noise sensitive hours
Range Transients	Counterair	●	Due to local Letter of Agreement with controlling Agencies we have constraints with local airports

Air Force Range: Utah Test and Training Range
Comments

Capabilities

Observations

- 1. 97 % 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

Capability Attributes	Assigned Training Mission	Color	Comments
Airspace	Strategic Attack	●	Can be limited during cruise missile, WSEP testing forcing 388th to use White Elk ATCAA which does not support threat capability.
	Electronic Combat Support	●	Can be limited during cruise missile, WSEP testing forcing 388th to use White Elk ATCAA which does not support threat capability.

Encroachment

Observations

- 1. R97.3% 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.

Encroachment Factors	Assigned Training Mission	Color	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	●	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.
	Special Operations	●	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 Force Range: Yukon

Comments

Capabilities

Observations

Capability Attributes	Assigned Training Mission	Color	Comments
Landspace	Strategic Attack	●	Prime Moose Habitat and Tundra areas
	Counterland	●	Prime Moose Habitat and Tundra areas
	Electronic Combat Support	●	Prime Moose Habitat and Tundra areas
	Command and Control	●	Prime Moose Habitat and Tundra areas
	Air Drop	●	Prime Moose Habitat and Tundra areas
Airspace	Strategic Attack	●	Chaff limited by restrictions as noted in observations
	Counterland	●	Chaff limited by restrictions as noted in observations
	Air Drop	●	Chaff limited by restrictions as noted in observations
Targets	Strategic Attack	●	Limited good condition road access limits type of targets/materials
	Counterland	●	Limited good condition road access limits type of targets/materials
	Air Drop	●	Limited good condition road access limits type of targets/materials
Scoring and Feedback Systems	Strategic Attack	●	Limited access certain times of year due to weather
	Counterair	●	Limited access certain times of year due to weather
	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
	Counterair	●	Overall limitation on size of areas available for current weapon types
	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

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.

Encroachment Factors	Assigned Training Mission	Color	Comment
Threatened & Endangered Species/Critical Habitat	Strategic Attack	●	Prime Moose Habitat and Tundra areas
	Counterland	●	Prime Moose Habitat and Tundra areas
	Air Drop	●	Prime Moose Habitat and Tundra areas
	Intelligence, Surveillance and Reconnaissance	●	Prime Moose Habitat and Tundra areas
Munitions Restrictions	Strategic Attack	●	Chaff limited by restrictions as noted in observations
	Counterair	●	Chaff limited by restrictions as noted in observations
	Counterland	●	Chaff limited by restrictions as noted in observations
	Air Drop	●	Chaff limited by restrictions as noted in observations
Spectrum	Counterspace	●	Some restrictions due to real-world air/space operations
	Electronic Combat Support	●	Some restrictions due to real-world air/space operations
Airspace	Strategic Attack	●	Relatively small restricted area for large scale exercises with multiple platforms/weapons
	Counterair	●	Relatively small restricted area for large scale exercises with multiple platforms/weapons
	Counterland	●	Relatively small restricted area for large scale exercises with multiple platforms/weapons
	Information Operations	●	No Comment Received.
	Electronic Combat Support	●	No Comment Received.
	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	Strategic Attack	●	Fairbanks population near western border of area.
	Counterland	●	Fairbanks population near western border of area.
	Electronic Combat Support	●	Fairbanks population near western border of area.
Adjacent Land Use	Strategic Attack	●	Fairbanks area, MOA edge and airways border western and southern edges.
	Counterair	●	Fairbanks area, MOA edge and airways border western and southern edges.
	Counterland	●	Fairbanks area, MOA edge and airways border western and southern edges.
	Information Operations	●	Fairbanks area, MOA edge and airways border western and southern edges.
	Electronic Combat Support	●	Fairbanks area, MOA edge and airways border western and southern edges.
	Air Drop	●	Fairbanks area, MOA edge and airways border western and southern edges.
Wetlands	Strategic Attack	●	Sensitive Tundra areas in and around range.
	Counterland	●	Sensitive Tundra areas in and around range.
	Air Drop	●	Sensitive Tundra areas in and around range.



D

Maps and Inventory of Ranges, Range Complexes, and Special Use Areas

Figure D-1 DoD Regional Range Complexes: Northeast

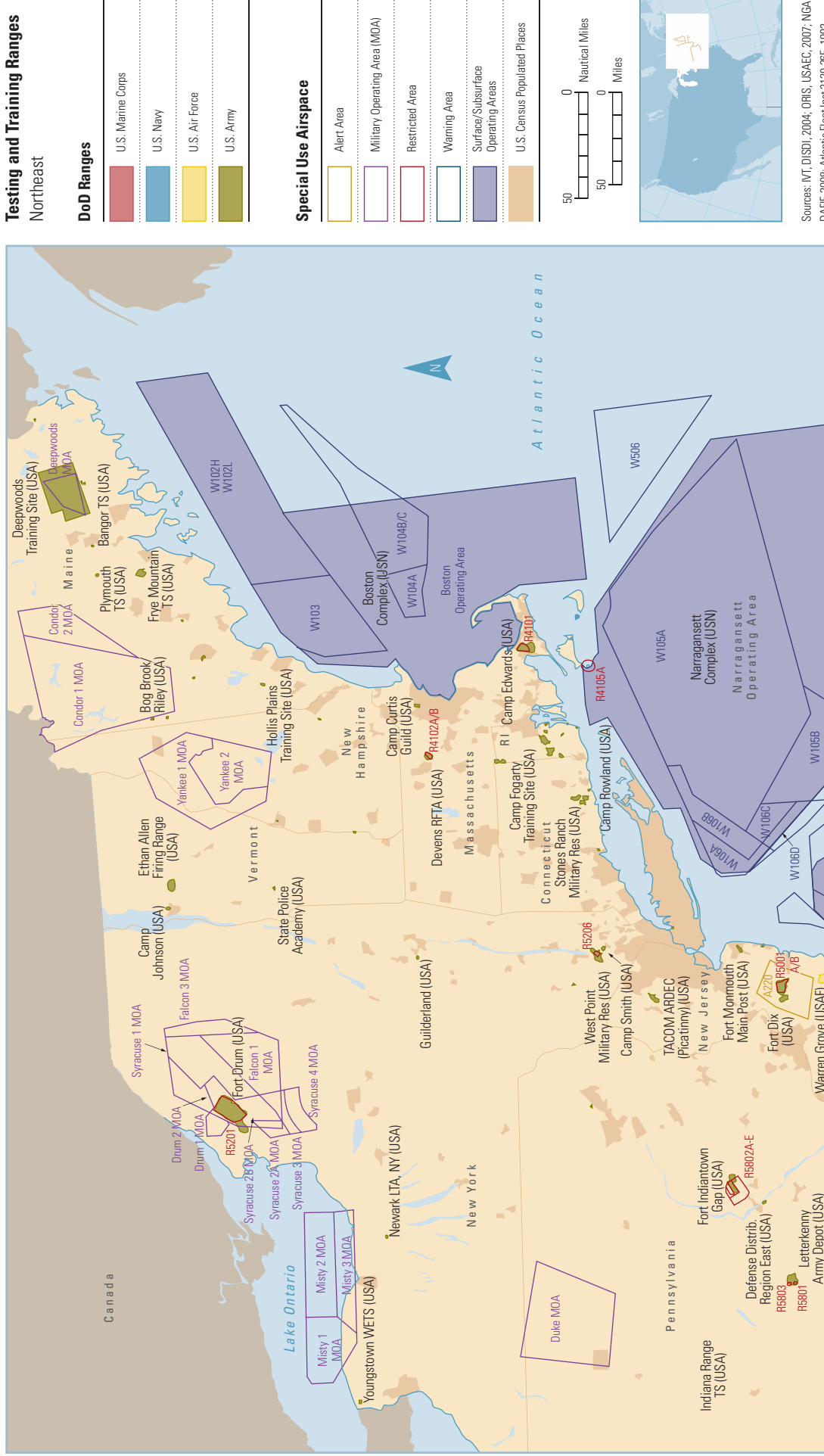
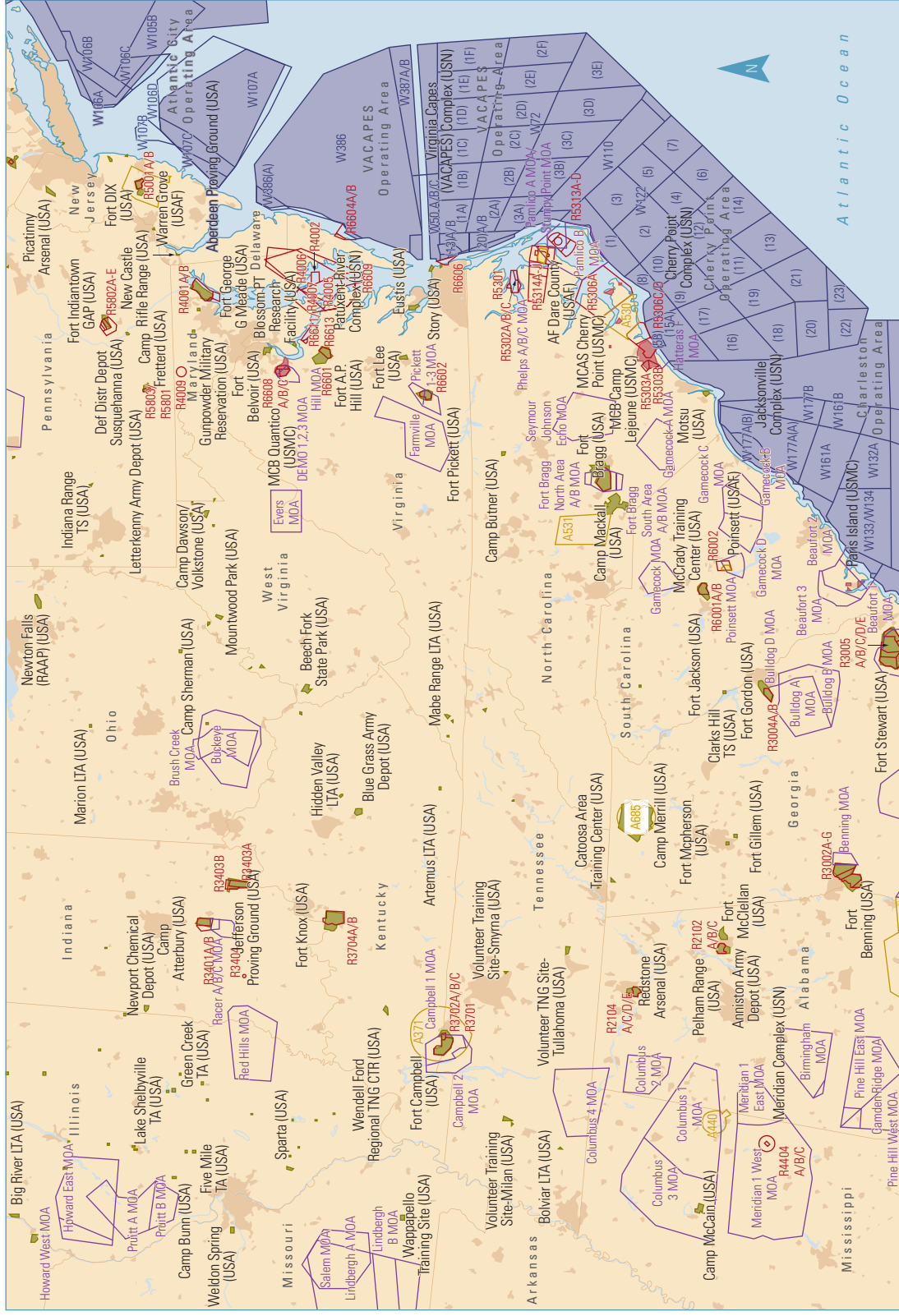


Figure D-2 DoD Regional Range Complexes: Mid-Atlantic



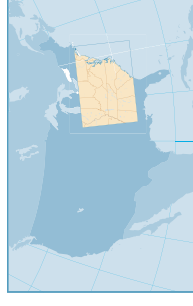
Testing and Training Ranges
Mid-Atlantic

DoD Ranges

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

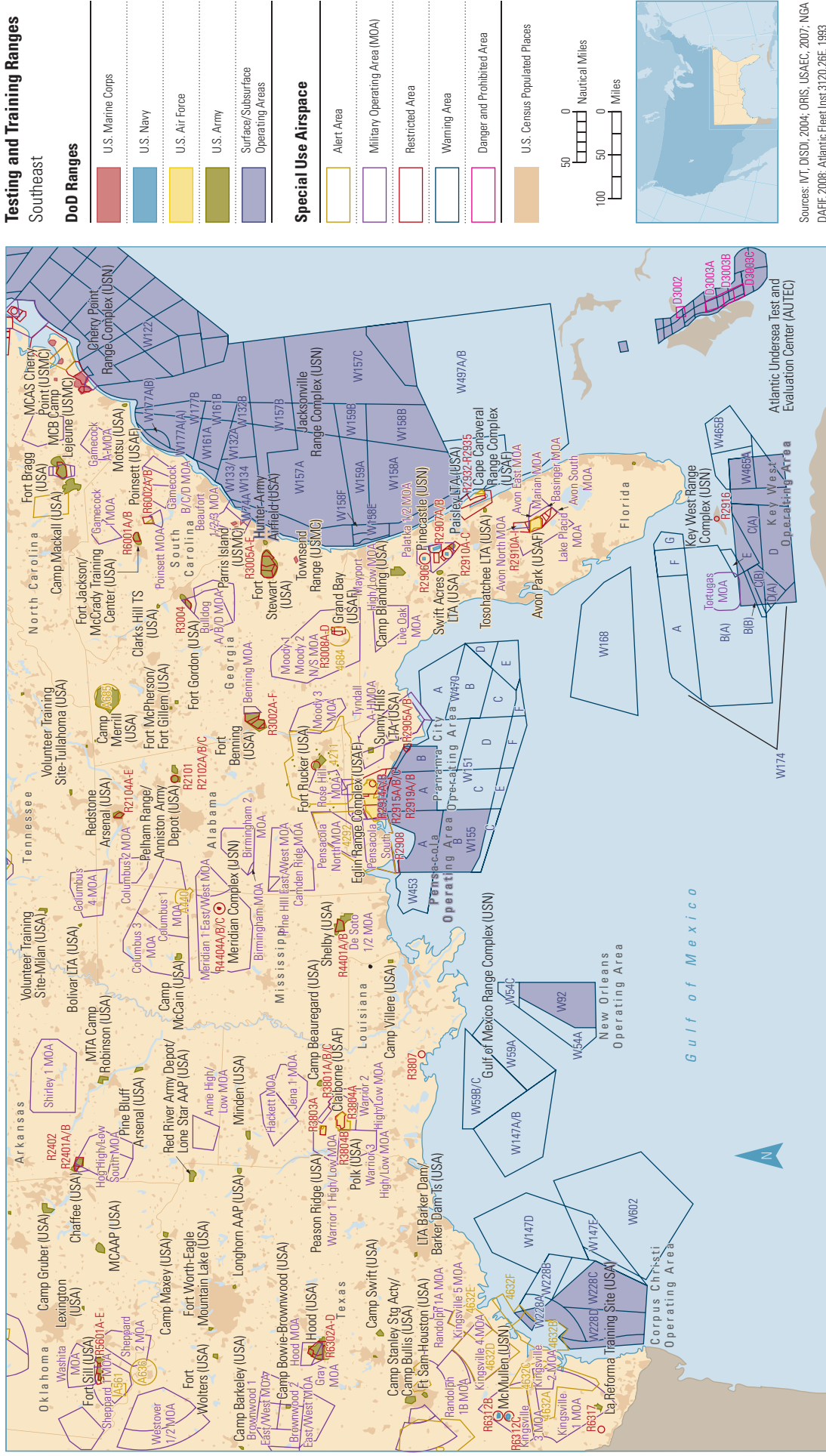
Special Use Airspace

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



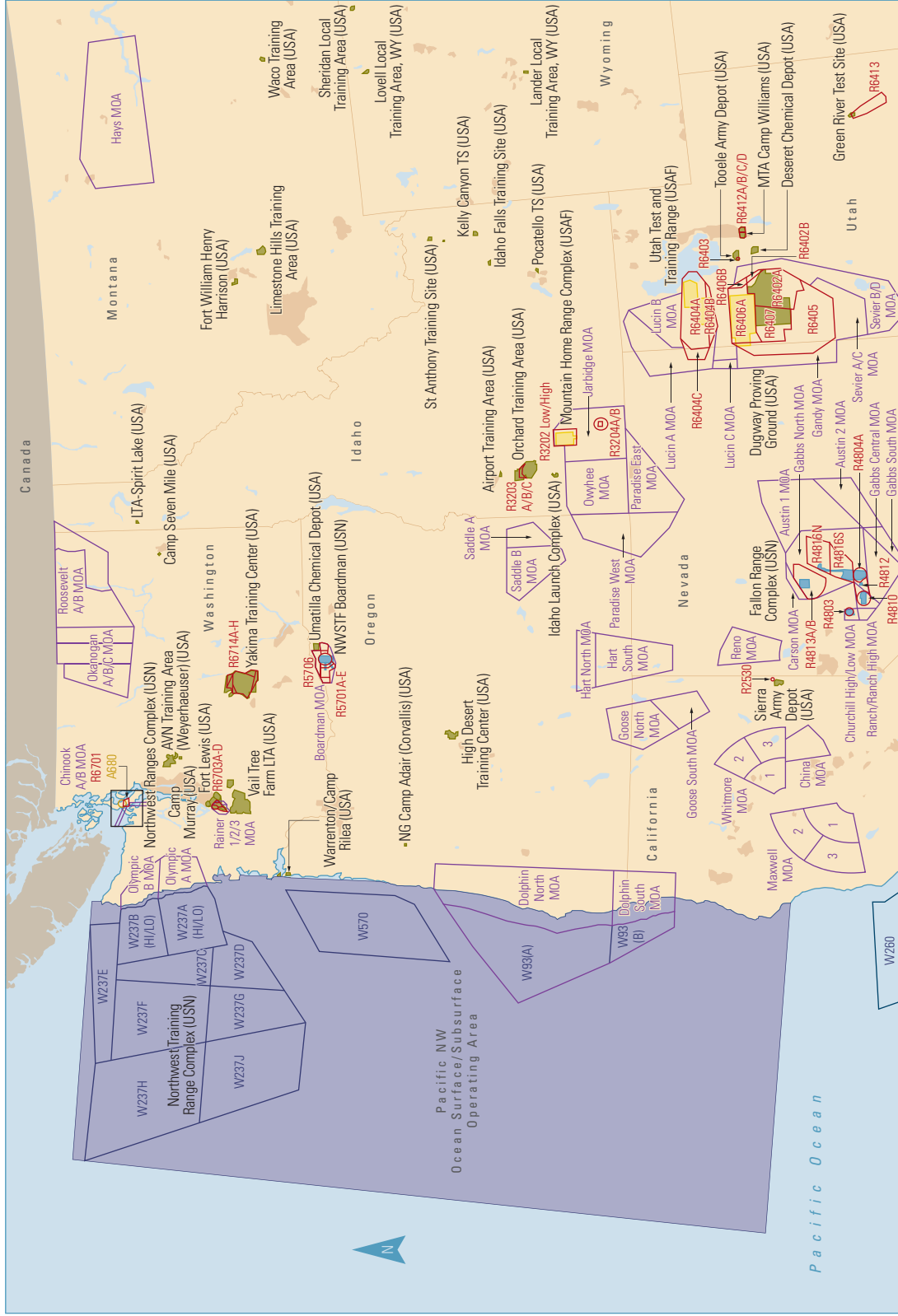
Sources: WT DISD1, 2004; ORS, USAEC, 2007; NGA DAFI, 2008; Atlantic Fleet Inst 3120.28E, 1993.

Figure D-3 DoD Regional Range Complexes: Southeast



Sources: VT, DSDI, 2004; ORS, USAEC, 2007; NGA DAFH, 2008; Atlantic Fleet Inst 3120.26E, 1993

Figure D-4 DoD Regional Range Complexes: Northwest



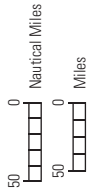
Testing and Training Ranges
Northwest

DoD Ranges

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

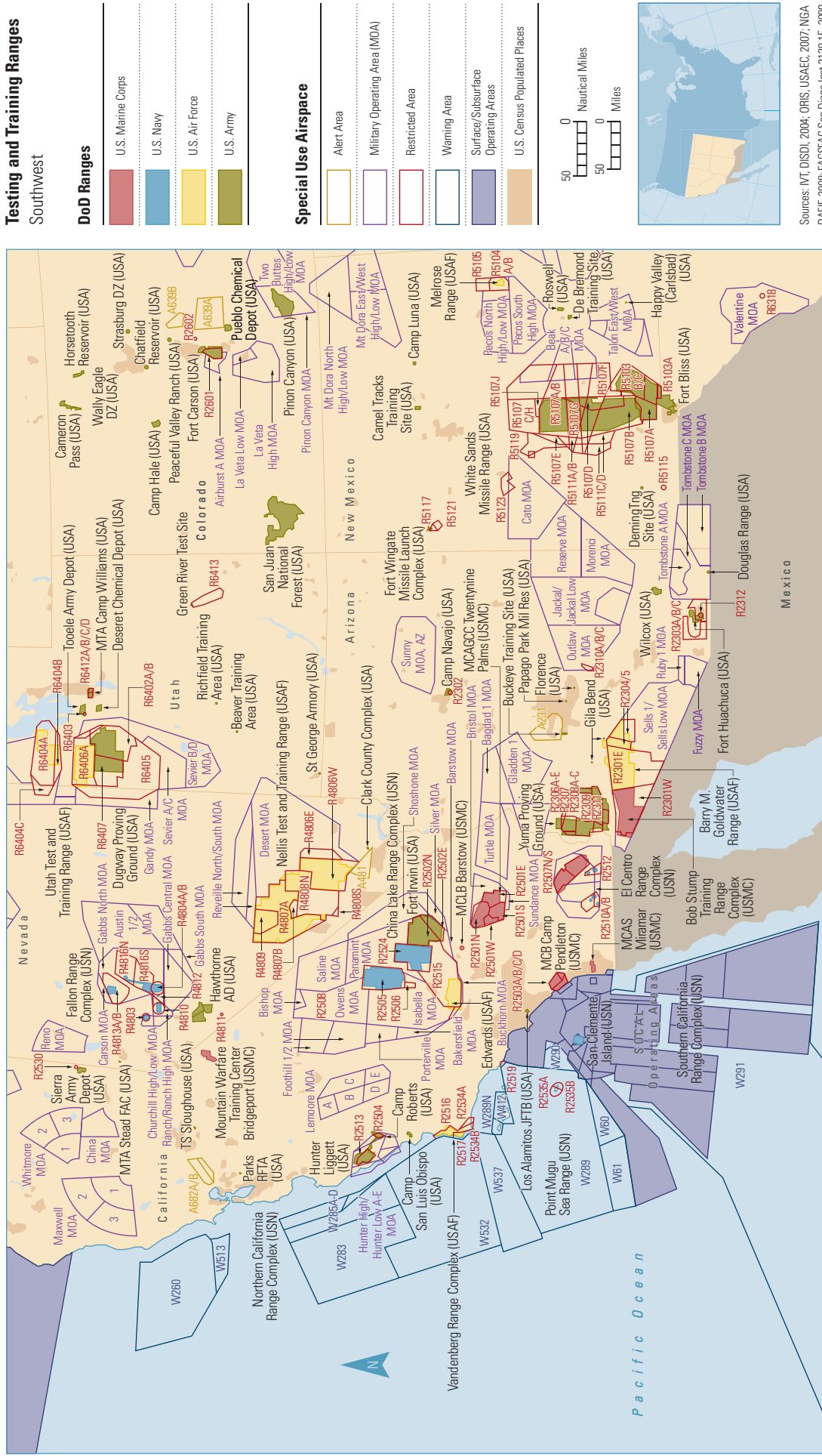
Special Use Airspace

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



Sources: WT DSDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; FACS/FAC San Diego Inst 3120.1E, 2000

Figure D-5 DoD Regional Range Complexes: Southwest



Sources: VT, DISDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; FACS/FAC San Diego Inst 3120.1E, 2000

Figure D-6 DoD Regional Range Complexes: Midwest



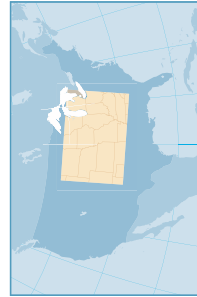
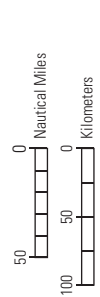
Testing and Training Ranges
Midwest

DoD Ranges

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

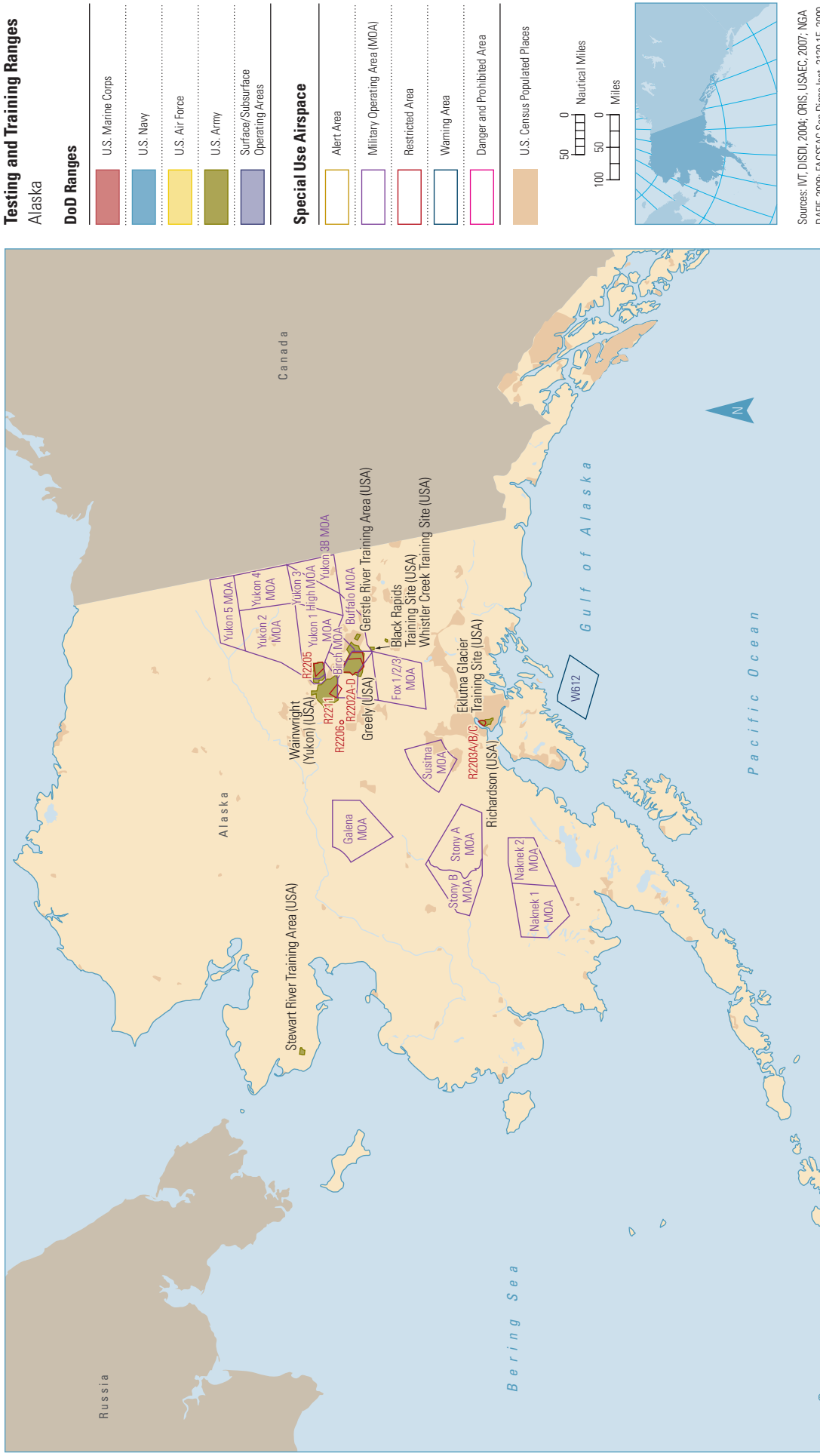
Special Use Airspace

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



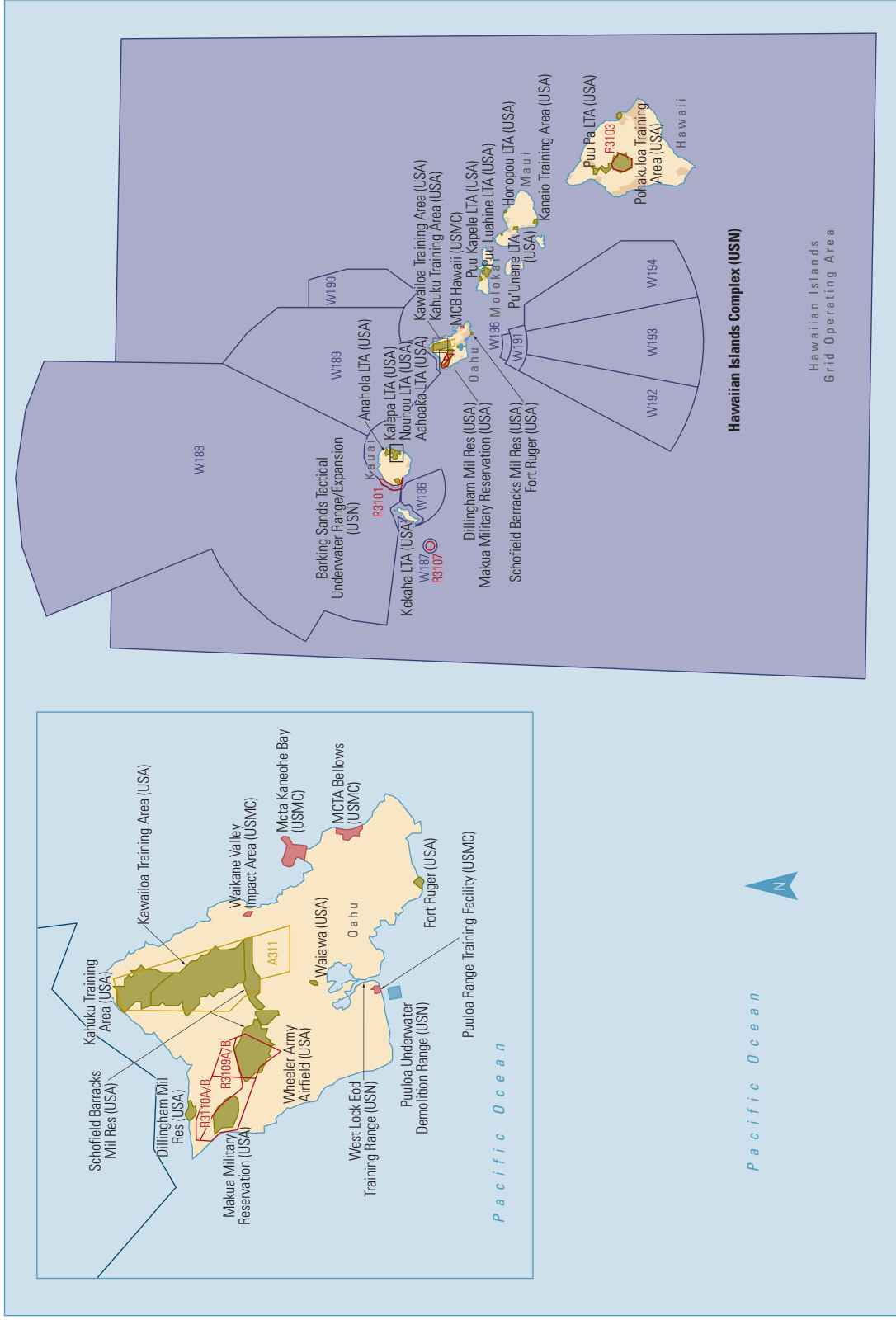
Sources: IVT, DISDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; Atlantic Fleet Inst 3120.29E, 1983

Figure D-7 DoD Regional Range Complexes: Alaska



Sources: IVT, DISD, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; FACS/FAC San Diego Inst. 3120.1E, 2000.

Figure D-8 DoD Regional Range Complexes: Hawaii



Sources: IVT DSDI, 2004; ORIS, USAEC, 2007; NGA DAFIF, 2008; FAGSFAC San Diego Inst. 3120-1E, 2000.

Figure D-9 DoD Regional Range Complexes: Europe

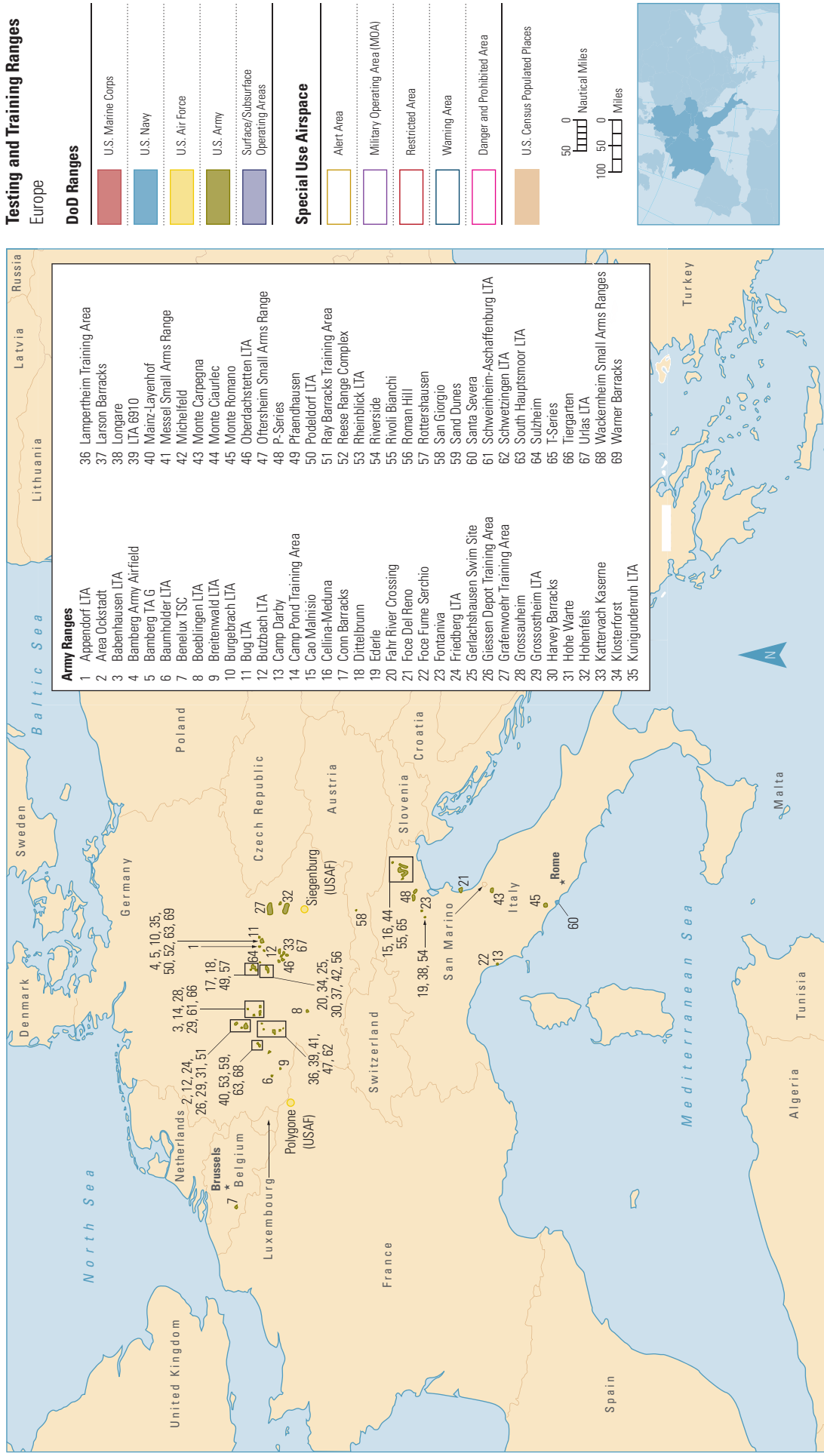


Figure D-10 DoD Regional Range Complexes: West Pacific and Indian Ocean

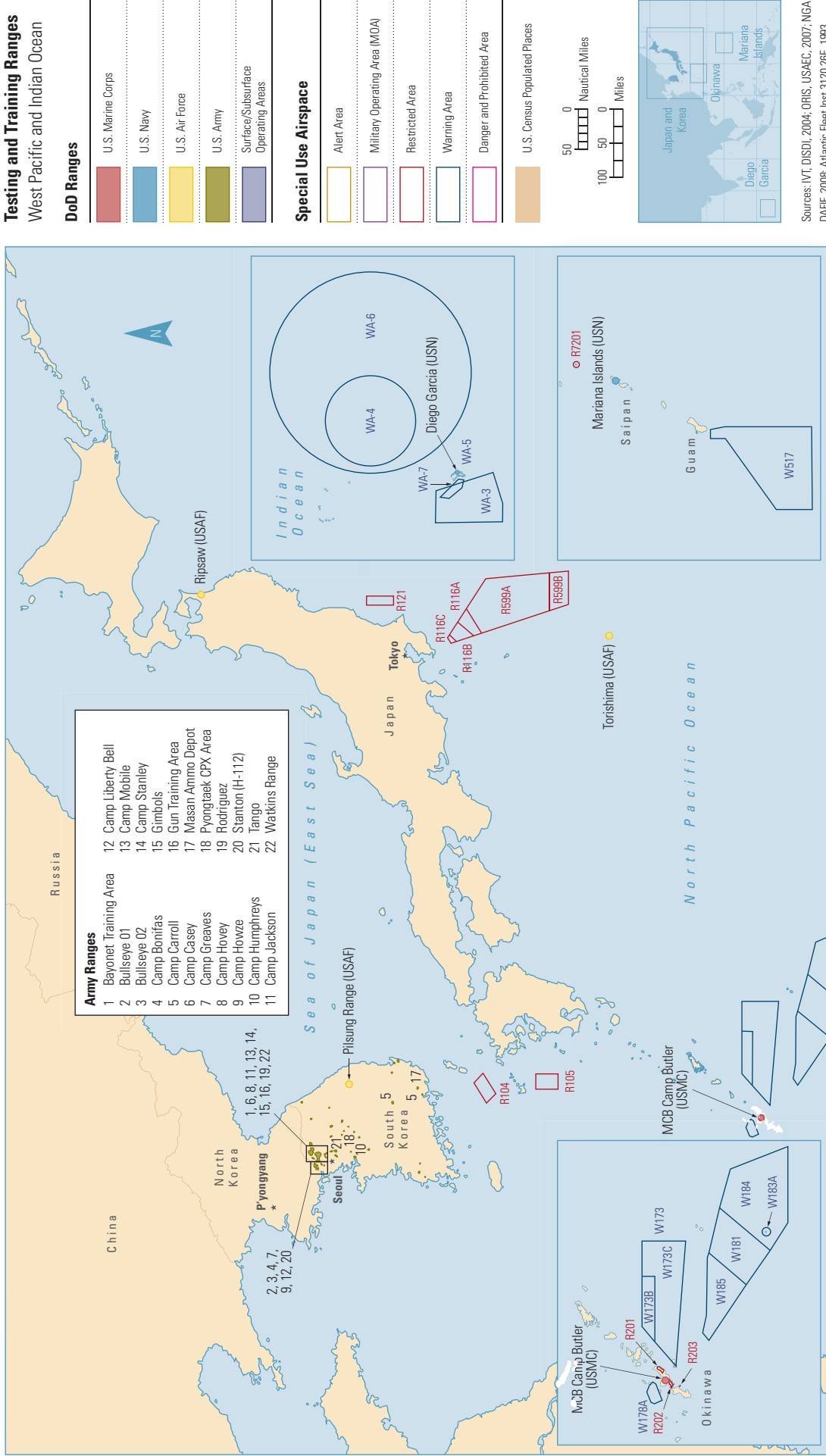


Table D-1 Range Complex Inventory

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
Army	Fort Richardson	US	AK	USARPAC	54,541	163	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Fort Wainwright	US	AK	USARPAC	922,589	0	0	0	N	N	N	Y	Y	N	Y	N	N	Y
	Fort Benning	US	GA	TRADOC	168,119	422	0	0	N	N	Y	Y	Y	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	Y
	Fort Bragg	US	NC	FORSCOM	142,985	1,718	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Fort Carson/Pinon Canyon	US	CO	FORSCOM	358,504	1,153	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Fort Drum	US	NY	FORSCOM	98,524	299	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Dillingham MIL RES	US	HI	USARPAC	600	0	0	0	N	N	Y	Y	N	N	N	N	N	Y
	Kahuka Training Area	US	HI	USARPAC	8,833	0	0	0	N	N	Y	Y	N	N	N	N	N	Y
	Kawailoa Training Area	US	HI	USARPAC	23,455	0	0	0	N	N	Y	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	Y
	Pohakuloa Training Area	US	HI	USARPAC	109,950	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Schofield Barracks MIL RES	US	HI	USARPAC	11,442	0	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Fort Hood	US	TX	FORSCOM	199,758	500	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Fort Irwin	US	CA	FORSCOM	585,638	560	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Fort Knox	US	KY	TRADOC	101,220	113	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Orchard (Gowen Field) Training Area	US	ID	ARNG	138,847	0	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Fort Pickett	US	VA	ARNG	38,699	161	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Fort Polk	US	LA	FORSCOM	138,126	5,471	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Camp Ripley	US	MN	ARNG	50,929	0	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Camp Shelby	US	MS	ARNG	133,193	0	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Fort Sill	US	OK	TRADOC	85,002	153	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Fort Stewart	US	GA	FORSCOM	274,291	556	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	White Sands Missile Range	US	NM	ATEC	3,531,715	7,321	0	0	N	N	N	Y	Y	N	Y	N	N	Y
	Yakima Training Center	US	WA	FORSCOM	324,313	0	0	0	N	N	Y	Y	Y	N	Y	N	N	Y
	Yuma Proving Ground	US	AZ	ATEC	1,033,361	1,500	0	0	N	N	Y	Y	N	Y	Y	N	N	Y
Aberdeen Proving Ground	US	MD	AMC	64,250	133	0	0	N	N	Y	Y	N	Y	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
	Fort A.P. Hill	US	VA	MDW	74,263	928	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp Atterbury	US	IN	ARNG	31,889	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp Blanding	US	FL	ARNG	68,543	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Fort Campbell	US	KY, TN	FORSCOM	94,121	931	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Fort Dix	US	NJ	USARC	28,002	104	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Dugway Proving Ground	US	UT	AIEC	763,093	0	0	0	N	N	Y	Y	Y	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	Y
	Camp Gruber	US	OK	ARNG	46,887	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Fort Indiantown Gap	US	PA	ARNG	14,869	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Fort Jackson	US	SC	TRADOC	29,532	0	0	0	N	N	Y	Y	Y	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	Y
	Fort Lewis	US	WA	FORSCOM	77,577	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Fort McClellan	US	AL	ARNG	40	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Fort McCoy	US	WI	USARC	135,601	0	0	0	N	N	Y	Y	Y	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	Y
	Fort Riley	US	KS	FORSCOM	92,209	107	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp Roberts	US	CA	ARNG	41,051	64	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Fort Rucker	US	AL	TRADOC	58,204	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp Beauregard	US	LA	ARNG	12,558	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Bog Brook/Riley Deepwoods Training Site	US	ME	ARNG	341,015	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp Bowie	US	TX	ARNG	8,697	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Blak Training Center	US	OR	ARNG	27,801	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp Crowder	US	MO	ARNG	4,098	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Fort Custer Training Center	US	MI	ARNG	7,487	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp Dawson	US	WV	ARNG	4,363	0	0	0	N	N	Y	Y	Y	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	Y
	Camp Edwards	US	MA	ARNG	13,285	13	0	0	N	N	Y	Y	Y	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	Y

Army

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
Army	Fort Gordon	US	GA	TRADOC	49,149	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp Grafton	US	ND	TRADOC	11,380	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp Guernsey	US	WY	ARNG	35,062	46	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Hunter-Liggett	US	CA	USARC	153,872	113	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Keaukaha MIL RES	US	HI	ARNG	434	0	0	0	N	N	Y	Y	Y	N	N	N	N	N
	Fort Lee	US	VA	TRADOC	3,097	69	0	0	N	N	Y	Y	Y	Y	N	N	N	Y
	Limestone Hills Training Area	US	MT	ARNG	19,120	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp McCain	US	MS	ARNG	12,741	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	McCrary Training Center	US	SC	ARNG	14,506	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp Minden	US	LA	ARNG	13,637	0	0	0	N	N	Y	Y	Y	N	N	N	N	N
	Navajo	US	AZ	ARNG	28,349	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Parks RFTA	US	CA	USARC	1,985	0	0	0	N	N	Y	Y	Y	Y	N	N	N	Y
	Redstone Arsenal	US	AL	AMC	25,505	25	0	0	N	N	Y	Y	Y	N	N	N	N	N
	Camp Perry	US	OH	ARNG	343	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp Rilea	US	OR	ARNG	4,188	0	0	0	N	N	Y	Y	Y	N	N	N	N	Y
	Camp Robinson	US	AR	ARNG	30,837	0	0	0	N	N	Y	Y	Y	Y	N	N	N	Y
	Fort Sam Houston/Camp Bullis	US	TX	MEDCOM	27,600	0	0	0	N	N	Y	Y	Y	Y	N	N	N	Y
	Camp Santiago	US	PR	ARNG	12,044	0	0	0	N	N	Y	Y	Y	Y	N	N	N	Y
	Wendell H. Ford Regional Training Center	US	KY	ARNG	7,174	0	0	0	N	N	Y	Y	Y	Y	N	N	N	Y
	West Point MIL RES	US	NY	USMA	14,101	4	0	0	N	N	Y	Y	Y	Y	N	N	N	Y
	Camp Williams	US	UT	ARNG	25,000	0	0	0	N	N	Y	Y	Y	Y	N	N	N	Y
	Stewart River	US	AK	ARNG	25,519	0	0	0	N	N	Y	Y	Y	N	N	N	N	N
	Camp Butner	US	NC	ARNG	4,550	0	0	0	N	N	Y	Y	Y	Y	N	N	N	Y
	TS Caswell	US	ME	ARNG	1,094	0	0	0	N	N	Y	Y	Y	N	N	N	N	N
	Catoosa	US	TN	ARNG	1,515	0	0	0	N	N	Y	Y	Y	Y	N	N	N	Y
	Camp Clark	US	MO	ARNG	997	0	0	0	N	N	Y	Y	Y	Y	N	N	N	Y
	Fort Devens	US	MA	USARC	4,588	0	0	0	N	N	Y	Y	Y	Y	N	N	N	Y
MTA Camp Dodge	US	IA	ARNG	4,025	0	0	0	N	N	Y	Y	Y	Y	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
Army	Buhl Training Site	US	ID	ARNG	162	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Camp Adair	US	OR	ARNG	523	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Camp Curtis Guild	US	MA	ARNG	623	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Camp Davis	US	ND	ARNG	82	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Camp Fogarty Training Site	US	RI	ARNG	17,755	0	0	0	N	N	Y	Y	N	N	N	N	N	N
	Camp Fretterd	US	MD	ARNG	424	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Camp Hartell	US	CT	ARNG	31	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Camp Johnson	US	VT	ARNG	591	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Camp Mackall	US	NC	FORSCOM	8,403	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Camp Merrill	US	GA	TRADOC	340,358	0	0	0	N	N	Y	N	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
	Camp Rowland	US	CT	ARNG	38	0	0	0	N	N	N	N	N	N	N	N	N	N
	Camp Sherman	US	NC	ARNG	430	0	0	0	N	N	Y	Y	N	N	N	N	N	N
	Camp Stanley Storage Activity	US	TX	AMC	82	0	0	0	N	N	N	N	N	N	N	N	N	N
	Camp Swift	US	TX	ARNG	11,663	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Camp Varnum	US	RI	ARNG	18	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Camp Withycombe	US	OR	ARNG	165	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Casper Armory	US	WY	ARNG	27	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Chaffee	US	AR	ARNG	63,519	81	0	0	N	N	Y	Y	N	N	N	N	N	N
	Clinton Training Site	US	PA	USARC	154	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Colorado Springs Training Site	US	CO	ARNG	309	1	0	0	N	N	N	N	N	N	N	N	N	N
	Cpt. Euripides Rubio Jr. Center	US	PR	USARC	51	0	0	0	N	N	N	N	N	N	N	N	N	N
	De Bremond Training Center	US	NM	ARNG	1,343	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Defense Distribution Depot Susquehanna	US	PA	AMC	0	0	0	0	N	N	N	N	N	N	N	N	N	N
	Deseret Chemical Depot	US	UT	AMC	549	0	0	0	N	N	N	N	N	N	N	N	N	N
	Dona Ana Range Camp	US	NM	ARNG	64	0	0	0	N	N	Y	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	

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	Ike Skelton Training Site	US	MO	ARNG	24	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y	
	Indiana Range Wet Site	US	PA	ARNG	165	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N
	Iowa AAP	US	IA	AMC	1,338	0	0	0	N	N	Y	N	N	N	N	N	N	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	N	N	N	N
	John Sevier Range	US	TN	ARNG	6	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Joliet Training Center	US	IL	USARC	3,446	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	Y
	Kanaloa Training Center	US	HI	ARNG	4,612	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N
	Kansas AAP	US	KS	AMC	157	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N
	Kekaha	US	HI	ARNG	61	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N
	Keystone Rifle Range	US	CA	ARNG	189	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N
	Keystone Training Site	US	PA	USARC	452	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	Y
	La Reforma Training Site	US	TX	ARNG	4,264	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N
	Lake City AAP	US	MO	AMC	696	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	Y
	Lander Local Training Area	US	WY	ARNG	1,353	0	0	0	N	N	Y	N	N	N	N	N	N	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	N	N	N	N
	Letterkenny Army Depot	US	PA	AMC	9	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Lone Star AAP	US	TX	AMC	232	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Los Alamitos JFTB	US	CA	ARNG	397	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y
	Lovell Local Training Area	US	WY	ARNG	3,606	0	0	0	N	N	Y	N	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	N	N	N	N	N	N	N	N	N	N	Y
	Mead Training Site	US	NE	ARNG	1,185	0	0	0	N	N	Y	N	N	N	N	N	N	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	N	N	N	N	Y
	MOTSU	US	NC	MTMC	7	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N
	MTA SMR CP Pendleton	US	VA	ARNG	89	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	Y
	New Castle Rifle Range	US	DE	ARNG	93	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	Y
Newton Falls (RAAP)	US	OH	ARNG	2,879	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	Y	
NGTC at Sea Girt	US	NJ	ARNG	120	0	0	0	N	N	Y	Y	N	N	N	N	N	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	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	Onate Training Site	US	NM	ARNG	158	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N												
	Papago Park MIL RES	US	AZ	ARNG	103	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N											
	Pearson Ridge NC	US	LA	FORSCOM	33,456	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N										
	Picatinny Arsenal	US	NJ	AMC	4,545	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N										
	Pine Bluff Arsenal	US	AR	AMC	99	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N									
	Plymouth Training Site	US	ME	ARNG	306	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N								
	Pocatello Training Site	US	ID	ARNG	718	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N							
	Pueblo Chemical Depot	US	CO	AMC	94	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	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	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N					
	Racine County Line Range	US	WI	ARNG	15	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N				
	Red River Army Depot	US	TX	AMC	165	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N			
	Redfield Training Area	US	SD	ARNG	174	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N			
	Ridgeway	US	PA	ARNG	7	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N			
	Rio Rancho	US	NM	ARNG	96	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N			
	Scranton (Leach Range)	US	PA	AMC	101	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
	Seagoville LTA	US	TX	USARC	198	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
	Sheridan Local TA	US	WY	ARNG	3,980	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
	Sierra Army Depot	US	CA	AMC	4,722	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
	Sioux Falls Airport Training Area	US	SD	ARNG	15	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
	Springfield Training Site	US	IL	ARNG	98	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
	St. Anthony Training Site	US	ID	ARNG	3,336	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	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	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Sunflower Army Ammunition Plant	US	KS	AMC	493	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Tooele Army Depot	US	UT	AMC	1,450	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	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	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	TS NAS Fallon RG B19	US	NV	ARNG	132	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Tucumcari Training Site	US	NM	ARNG	63	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Twin Falls Training Site	US	ID	ARNG	312	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	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
Army	Ukumehame Firing Range	US	HI	ARNG	39	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Umatilla Chemical Depot	US	OR	AMC	9	0	0	0	N	N	N	N	N	N	N	N	N	N	N
	Vail Tree Farm LTA	US	WA	USARC	166,332	0	0	0	N	N	N	N	N	N	N	N	N	N	N
	Van Vleck Ranch	US	CA	ARNG	2,685	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Smyrna Volunteer Training Site	US	TN	ARNG	557	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Waco Training Area	US	MT	ARNG	4,763	0	0	0	N	N	Y	N	N	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	N
	Weldon Spring	US	MO	ARNG	1,659	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	West Camp Rapid	US	SD	ARNG	566	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	West Silver Spring Complex	US	WI	USARC	9	0	0	0	N	N	N	N	N	N	N	N	N	N	N
	Westminster	US	VT	ARNG	38	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Wildcat Hills State Rec. Area TA	US	NE	ARNG	853	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Williston Wets	US	ND	ARNG	345	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	WV DNR Ek River WMA TA	US	WV	ARNG	277	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	WV DNR McClintic WMA TA	US	WV	ARNG	54	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Youngstown Wets	US	NY	ARNG	848	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Grafenwoehr	OS	Germany	USAREUR	52,281	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N
	Hofenfels	OS	Germany	USAREUR	38,981	0	0	0	N	N	Y	N	N	N	N	N	N	N	N
	Area I (North)	OS	Korea	EUSA	41,495	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N
	Area II (Northwest)	OS	Korea	EUSA	115	0	0	0	N	N	N	N	N	N	N	N	N	N	N
	Area III (Central)	OS	Korea	EUSA	113	0	0	0	N	N	N	N	N	N	N	N	N	N	N
	Area IV (South)	OS	Korea	EUSA	722	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N
	Friedberg LTA	OS	Germany	USAREUR	8,519	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N
	Schweinfurt	OS	Germany	USAREUR	6,326	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N
	Wuerzburg	OS	Germany	USAREUR	3,308	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N
	Ansbach LTA	OS	Germany	USAREUR	899	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N
	A-schaffenbu RG LTA	OS	Germany	USAREUR	1,337	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N
	Baumholder	OS	Germany	USAREUR	188	0	0	0	N	N	Y	Y	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 m)	Sea Surface Area (sq m)	Underwater Tracking Area (sq m)	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	Boeblingen	OS	Germany	USAREUR	1,125	0	0	0	0	N	N	Y	N	N	N	N	N	N	Y	N	N	N	N	N	N	N													
	Breitenwald	OS	Germany	USAREUR	205	0	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N												
	Camp Darby	OS	Italy	USAREUR	135	0	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N											
	Campo Pond TA	OS	Germany	USAREUR	366	0	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N											
	Cao Malnisio	OS	Italy	USAREUR	4,098	0	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N										
	Cellina-Meduna	OS	Italy	USAREUR	11,558	0	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N									
	Conn Barracks	OS	Germany	USAREUR	127	0	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N									
	Ederle	OS	Italy	USAREUR	11	0	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N								
	Foce del Reno	OS	Italy	USAREUR	8,941	0	0	0	0	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N							
	Foce Fume Serchio	OS	Italy	USAREUR	163	0	0	0	0	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N						
	Lamperthem Training Area	OS	Germany	USAREUR	3,942	0	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N					
	Longare	OS	Italy	USAREUR	15	0	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N				
	Messell Small Arms Range	OS	Germany	USAREUR	25	0	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N			
	Monte Carpegna	OS	Italy	USAREUR	6,488	0	0	0	0	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N			
	Monte Ciariac	OS	Italy	USAREUR	7,925	0	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
	Monte Romano	OS	Italy	USAREUR	10,207	0	0	0	0	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
	Offersheim Small Arms Range	OS	Germany	USAREUR	3	0	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
	Podeldorf LTA	OS	Germany	USAREUR	1,105	0	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
	P-Series	OS	Italy	USAREUR	5,291	0	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Ray Barracks Training Area	OS	Germany	USAREUR	21	0	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Reese Range Complex	OS	Germany	USAREUR	18	0	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Rheinblick LTA	OS	Germany	USAREUR	44	0	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Rivoli Bianchi	OS	Italy	USAREUR	235	0	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Santa Severa	OS	Italy	USAREUR	100	0	0	0	0	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
	Schwetzingen LTA	OS	Germany	USAREUR	249	0	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Tiergarten	OS	Germany	USAREUR	234	0	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
T-Series	OS	Italy	USAREUR	7,222	0	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Wackernheim Small Arms Ranges	OS	Germany	USAREUR	32	0	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	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
	South Hauptsmoor LTA	OS	Germany	USAREUR	268	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Warner Barracks	OS	Germany	USAREUR	2	0	0	0	N	N	N	N	N	N	N	N	N	N
	Black Rapids Training Site	US	AK	USARPAC	4,213	0	0	0	N	N	Y	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
	Gerstle River Training Area	US	AK	USARPAC	20,589	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Whistler Creek TS	US	AK	USARPAC	543	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Keamuku LTA	US	HI	USARPAC	22,640	0	0	0	N	N	Y	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
	BG Thomas Baker Training Site	US	MD	ARNG	871	0	0	0	N	N	Y	N	N	N	N	N	N	N
	MTA Stead FAC	US	NV	ARNG	196	0	0	0	N	N	Y	N	N	N	N	N	N	N
	89TH RSC Mead WET Site	US	NE	USARC	956	0	0	0	N	N	Y	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
	Aahooka LTA	US	HI	ARNG	3,126	0	0	0	N	N	Y	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
	American Samoa LTA	US	AS	USARC	79	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Anahola LTA	US	HI	ARNG	3,312	0	0	0	N	N	Y	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
	AVN Training Area (Weyerhaeuser)	US	WA	USARC	20,443	0	0	0	N	N	N	N	N	N	N	N	N	Y
	Barada LTA	US	NE	ARNG	85	0	0	0	N	N	Y	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	Y
	Beaver Training Area	US	UT	ARNG	657	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Beckley City Police Range	US	WV	ARNG	2	0	0	0	N	N	N	N	N	Y	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
	Bidwell Hill	US	CO	ARNG	40	0	0	0	N	N	N	N	N	N	N	N	N	Y
	Blanding Armory	US	UT	ARNG	28	0	0	0	N	N	Y	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
	Book Cliffs Rifle Range	US	CO	ARNG	345	0	0	0	N	N	N	N	N	Y	N	N	N	N
	Box Butte Reservoir LTA	US	NE	ARNG	13	0	0	0	N	N	N	N	N	N	N	N	N	Y

Individual Army Ranges

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
	Brettons Wood Biathlon Range	US	NH	ARNG	1	0	0	0	N	N	N	N	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
	Bullseye 02	OS	Korea	EUSA	1,395	0	0	0	N	N	Y	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
	Camp Howze	OS	Korea	EUSA	0	0	0	0	N	N	N	N	Y	N	N	N	N	N
	Gimbols	OS	Korea	EUSA	3,019	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Watkins Range	OS	Korea	EUSA	44	0	0	0	N	N	N	N	N	N	N	N	N	Y
	Camp Humphreys	OS	Korea	EUSA	1	0	0	0	N	N	N	N	Y	N	N	N	N	N
	Rottershausen	OS	Germany	USAREUR	142	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Fahr River Crossing	OS	Germany	USAREUR	3	0	0	0	N	N	N	N	N	N	N	N	N	Y
	Gerlachshausen Swim Site	OS	Germany	USAREUR	0	0	0	0	N	N	N	N	N	N	N	N	N	N
	Michelfeld	OS	Germany	USAREUR	92	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Katterbach Kaseme	OS	Germany	USAREUR	49	0	0	0	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
	Appendorf LTA	OS	Germany	USAREUR	328	0	0	0	N	N	Y	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
	Babenhausen LTA	OS	Germany	USAREUR	190	0	0	0	N	N	Y	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	Y
	Benelux TSC	OS	Belgium	USAREUR	70	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Bug LTA	OS	Germany	USAREUR	111	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Burgebrach LTA	OS	Germany	USAREUR	249	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Fontanna	OS	Italy	USAREUR	155	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Griessen Depot Training Area	OS	Germany	USAREUR	137	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Grossauheim	OS	Germany	USAREUR	46	0	0	0	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
	Hohe Warte	OS	Germany	USAREUR	160	0	0	0	N	N	Y	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
	LTA 6910	OS	Germany	USAREUR	104	0	0	0	N	N	Y	N	N	N	N	N	N	N

Individual Army Ranges

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				
	Mainz-Layenhof	OS	Germany	USAREUR	249	0	0	0	N	N	N	N	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	N	N		
	San Giorgio	OS	Italy	USAREUR	68	0	0	0	N	N	N	N	N	N	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	N	N	N	N
	Buckley ANG Base, CO	US	CO	ARNG	10	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y
	Bullville Usarc	US	NY	USARC	154	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y
	Cameron Pass	US	CO	ARNG	45,193	0	0	0	N	N	Y	N	N	N	N	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	N	N	N	N
	Camp Fowler	US	IN	ARNG	98	0	0	0	N	N	Y	N	N	N	N	N	N	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	N	N	N	N
	Camp Keyes TS	US	ME	ARNG	1	0	0	0	N	N	N	N	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	N	N	N	N
	Camp Mabry	US	TX	ARNG	178	0	0	0	N	N	Y	N	N	N	N	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	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	N	N	N	N
	Chatfield Reservoir	US	CO	ARNG	2,271	0	0	0	N	N	N	N	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	N	N	N	N
	Cornhusker AAP	US	NE	USACE	6	0	0	0	N	N	N	N	N	N	Y	N	N	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	N	N	N	N
	DZ Babich	US	MD	ARNG	113	0	0	0	N	N	N	N	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	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	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	N	N	N	N
	Edgeweade TS Mtn Home	US	ID	ARNG	123	0	0	0	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N
	Ernie Pyle Usarc/Amsa #12 (G)	US	NY	USARC	2	0	0	0	N	N	N	N	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	N	N	N	N	Y
	Felicity	US	OH	ARNG	1	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y
	Fort Mirflin	US	PA	ARNG	26	0	0	0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y

Individual Army Ranges

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
	Maluhia LTA	US	HI	ARNG	70	0	0	0	N	N	Y	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
	Marion LTA	US	OH	USARC	122	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Mitchell Training Area	US	SD	ARNG	1	0	0	0	N	N	N	N	Y	N	N	N	N	N
	Moosehorn	US	ME	ARNG	0	0	0	0	N	N	N	N	Y	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
	New River Valley Training Site	US	VA	USARC	88	0	0	0	N	N	N	N	N	N	N	N	Y	N
	Newark LTA, NY	US	NY	ARNG	100	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Newfane WET Site	US	NY	USARC	3	0	0	0	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
	Nounou LTA	US	HI	ARNG	1,720	0	0	0	N	N	Y	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	Y
	Ogden Local Training Area	US	UT	USARC	132	0	0	0	N	N	N	N	N	N	N	N	N	Y
	Oxford	US	ME	ARNG	58	0	0	0	N	N	Y	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
	Pau'Uilo LTA	US	HI	ARNG	45	0	0	0	N	N	Y	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
	Peterborough Readiness Center	US	NH	ARNG	0	0	0	0	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	Y
	Pickens TS	US	SC	ARNG	9	0	0	0	N	N	Y	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
	Platte Training Area	US	SD	ARNG	40	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Pocatello Airport Local Training Area	US	ID	USARC	9	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Poverty Flats Training Area	US	UT	ARNG	448	0	0	0	N	N	Y	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	Y
	Puu Kapele LTA	US	HI	ARNG	1,109	0	0	0	N	N	Y	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
	Pu'Unene LTA	US	HI	ARNG	1,610	0	0	0	N	N	Y	N	N	N	N	N	N	N

Individual Army Ranges

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	CZW/EW	Ocean Operating Area	MOUT	Underwater Tracking Range	Amphibious Area
	Raleigh County Firing Range	US	WV	ARNG	1	0	0	0	N	N	N	N	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	Y
	Raytown Training Site	US	MO	ARNG	51	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Rittenhouse Training Site	US	AZ	ARNG	198	0	0	0	N	N	Y	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
	San Juan National Forest	US	CO	ARNG	629,816	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Snake Creek Training Site	US	FL	ARNG	295	0	0	0	N	N	Y	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
	Stanton LTA	US	NE	ARNG	633	0	0	0	N	N	Y	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
	Strasburg DZ	US	CO	ARNG	943	0	0	0	N	N	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
	Swift Acres LTA	US	FL	ARNG	4,154	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Tarleton LTA	US	OH	ARNG	118	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Toledo Usarc	US	OH	USARC	28	0	0	0	N	N	Y	N	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	Y
	TS-Hawk McConnelville, OH	US	OH	ARNG	395	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Vernal Training Area	US	UT	ARNG	159	0	0	0	N	N	N	N	N	N	N	N	N	Y
	Waiawa	US	HI	ARNG	15	0	0	0	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	Y
	Wally Eagle DZ	US	CO	ARNG	837	0	0	0	N	N	N	N	N	N	N	N	N	Y
	Washington County Memorial Usarc	US	OH	USARC	16	0	0	0	N	N	Y	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
	Wells Gulch	US	CO	ARNG	57	0	0	0	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	Y
	Wheeler Army Airfield	US	HI	USARPAC	568	0	0	0	N	N	N	N	N	N	N	N	N	Y
	Whitaker Education Training Center	US	OK	ARNG	593	0	0	0	N	N	Y	N	N	N	N	N	N	N
	Whitehorse Range	US	WV	ARNG	1	0	0	0	N	N	N	N	Y	N	N	N	N	N

Individual Army Ranges

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
Army Individual Ranges	Wilcox	US	AZ	TRADOC	28,814	0	0	0	N	N	N	N	N	N	N	N	N	N
	WV State Police Academy Range	US	WV	ARNG	12	0	0	0	N	N	N	N	N	N	N	N	N	N
	Wvdnr Bluestone Wma Range	US	WV	ARNG	1	0	0	0	N	N	N	N	N	N	N	N	N	N
	Wvdnr Plum Orchard Wma Range	US	WV	ARNG	3	0	0	0	N	N	N	N	N	N	N	N	N	N
Air Force	Adirondack	US	NY	ANG	75,000	200	0	0	N	Y	N	N	N	N	Y	N	N	N
	Airburst	US	CO	ANG	4,257	26	0	0	N	Y	N	N	N	N	Y	N	N	N
	Atterbury	US	IN	ANG	18,500	103	0	0	N	Y	N	N	N	N	Y	N	N	N
	Avon Park	US	FL	ACC	106,073	1,400	0	0	Y	Y	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	N	Y	N	N	N
	Belle Fourche ESS	US	SD	ACC	183	0	0	0	N	Y	N	N	N	N	Y	N	N	N
	Blair Lake	US	AK	PACAF	2,560	22,000	0	0	N	Y	N	N	N	N	N	N	N	N
	Bollen	US	PA	ANG	10,657	42	0	0	N	Y	N	N	N	N	Y	N	N	N
	Cannon	US	MO	ANG	4,600	339	0	0	N	Y	N	N	N	N	Y	N	N	N
	Claiborne	US	LA	AFRC	7,800	135	0	0	N	Y	N	N	N	N	Y	N	N	N
	Dare County Ranges	US	SC	ACC	46,621	1,184	0	0	Y	Y	N	N	N	N	Y	N	N	N
	Edwards Ranges	US	CA	AFMC	50,080	20,000	0	0	Y	Y	N	N	N	N	Y	N	N	N
	Eglin Ranges	US	FL	AFMC	463,360	133,979	0	0	Y	Y	N	N	N	N	Y	N	N	N
	Falcon	US	OK	AFRC	5,200	1,845	0	0	N	Y	N	N	N	N	Y	N	N	N
	Grand Bay	US	GA	ACC	6,000	17,290	0	0	N	Y	N	N	N	N	N	N	N	N
	Grayling	US	MI	ANG	145,025	63	0	0	Y	Y	N	N	N	N	Y	N	N	N
	Hardwood	US	WI	ANG	7,263	84	0	0	N	Y	N	N	N	N	Y	N	N	N
	Holloman	US	NM	ACC	207,800	2,256	0	0	Y	Y	N	N	N	N	Y	N	N	N
	Jefferson	US	IN	ANG	50,000	160	0	0	Y	Y	N	N	N	N	Y	N	N	N
	Koon-Ni	OS	Korea	PACAF	0	0	0	0	N	Y	N	N	N	N	Y	N	N	N
Lone Star ESS	US	TX	ACC	90	0	0	0	N	Y	N	N	N	N	Y	N	N	N	
McMullen	US	TX	ANG	2,800	63	0	0	N	Y	N	N	N	N	Y	N	N	N	
Melrose	US	NM	ACC	66,033	22,000	0	0	Y	Y	N	N	N	N	Y	N	N	N	
Mountain Home Ranges	US	ID	ACC	120,844	18,526	0	0	Y	Y	N	N	N	N	Y	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
Air Force	Nevada Testing and Training Range	US	NV	ACC	2,919,890	12,000	0	0	Y	Y	N	N	N	N	N	N	N	N
	Oklahoma	US	AK	PACAF	25,600	22,000	0	0	N	Y	N	N	N	N	N	N	N	N
	Pilsung	OS	Korea	PACAF	0	0	0	0	N	Y	N	N	N	N	N	N	N	N
	Poinsett	US	SC	ACC	12,521	1,500	0	0	N	Y	N	N	N	N	N	N	N	N
	Polygone	OS	France/Germany	USAFE	0	0	0	0	N	Y	N	N	N	N	N	N	N	N
	Razorback	US	AR	ANG	5760	128	0	0	N	Y	N	N	N	N	N	N	N	N
	Ripsaw	OS	Japan	PACAF	0	0	0	0	N	Y	N	N	N	N	N	N	N	N
	Shelby Ranges	US	MS	ANG	26,676	0	0	0	N	Y	N	N	N	N	N	N	N	N
	Shoal Creek	US	TX	AFRC	17,540	5,200	0	0	N	Y	N	N	N	N	N	N	N	N
	Siegenberg	OS	Germany	USAFE	0	0	0	0	N	Y	N	N	N	N	N	N	N	N
	Smoky Hill	US	KS	ANG	33,875	53	0	0	N	Y	N	N	N	N	N	N	N	N
	Snyder ESS	US	TX	ACC	90	0	0	0	N	Y	N	N	N	N	N	N	N	N
	Torishima	OS	Japan	PACAF	0	0	0	0	N	Y	N	N	N	N	N	N	N	N
	Townsend	US	GA	ANG	5,183	288	0	0	N	Y	N	N	N	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	N	N	N	N	N
	Warren Grove	US	NJ	ANG	9,416	30	0	0	N	Y	N	N	N	N	N	N	N	N
	Yukon	US	AK	PACAF	25,600	22,000	0	0	N	Y	N	N	N	N	N	N	N	N
Marine Corps	MCB Camp Butler	OS	Japan	MARFORPAC	47,000	333	0	0	N		Y	Y	Y	Y	Y	Y	Y	Y
	MCB Camp Lejeune	US	NC	MARFORLANT	157,440	151	0	0		Y	Y	Y	Y	Y	Y	Y	Y	Y
	MCB Camp Pendleton	US	CA	MARFORPAC	125,704	180	0	0			Y	Y	Y	Y	Y	Y	Y	Y
	MCAS Cherry Point	US	NC	MCFEAST	29,139	1,082	0	0		Y	Y	Y	Y	Y	Y	Y	Y	Y
	MCAGCC 29 Palms	US	CA	TECOM	601,151	1,268	0	0		Y	Y	Y	Y	Y	Y	Y	Y	Y
	MCAS Beaufort/Townsend	US	SC	MCFEAST	5,182	1,130	0	0	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
	MCAS Miramar	US	CA	MCIWEST	4,700	0	0	0	N	N	Y	N	Y	Y	Y	Y	Y	Y
	MCAS Yuma/Bob Stump Training Range Complex	US	AZ	MCIWEST	1,216,000	7,085	0	0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	MCB Hawaii	US	HI	MARFORPAC	4,706	0	0	0	N		Y	Y	Y	Y	Y	Y	Y	Y

Training and Testing Range Complex Inventory

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Marine Corps	MCB Quantico	US	VA	MCCDC	64,000	278	0	0	N	Y	Y	Y	Y	Y	Y	Y	N	N	Y
	MCLB Albany	US	GA	MATCOM	4	0	0	0	N	N	N	N	N	N	N	N	N	N	N
	MCLB Barstow	US	CA	MATCOM	2,438	0	0	0	N	N	N	N	N	N	N	N	N	N	N
	MCMWTC Bridgeport	US	CA	TECOM	18,888	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	N	N	N	N	N	N	N
	Atlantic City	US	NJ	CFFC	0	5,585	4,413	4,413	Y	N	N	N	N	N	N	N	N	N	N
Navy	Atlantic Test Range (Patuxent River)	US	MD, VA	NAVAIR	5,700	3,401	330	0	Y	Y	N	Y	N	N	N	N	N	N	N
	Atlantic Undersea Test and Evaluation Center (AUTECC)	OS	Bahamas	NAVSEA	0	870	1,320	195	Y	N	N	N	N	N	N	N	N	N	N
	Boston	US	MA	CFFC	12,446	10,099	13,494	13,494	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Cherry Point	US	NC	CFFC	0	18,718	18,718	18,718	Y	N	N	N	N	N	N	N	N	N	N
	China Lake	US	CA	NAVAIR	1,141,200	13,661	0	0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	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	N
	Fallon	US	NV	CFFC	232,481	14,182	0	0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Guantanamo	OS	Cuba	CFFC	8	13,175	13,118	13,118	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Gulf of Mexico	US	FL, MS, TX	CFFC	10,057	38,393	17,469	17,469	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
	Hawaiian Islands	US	HI	CPF	303	58,545	214,638	214,638	Y	N	N	N	Y	N	N	N	N	N	N
	Jacksonville	US	FL, GA	CFFC	17,728	37,443	50,098	50,098	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
	Japan	OS	Japan	CPF	0	11,615	0	0	Y	N	YN	N	N	N	N	N	N	N	N
	Key West	US	FL	CFFC	1	24,812	8,282	8,282	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y
	Mariana Islands	OS	CNMI, Guam	CPF	24,894	8,726	8,698	8,698	Y	N	Y	N	N	Y	Y	Y	Y	Y	Y
	Narragansett	US	RI	CFFC	0	13,005	27,208	27,208	Y	N	N	N	N	N	N	N	N	N	N
Northern California (NOCAL)	US	CA	CFFC	0	19,622	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	Y	Y	Y	Y	
Okinawa	OS	Japan	CPF	0	29,050	0	0	Y	Y	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		
Navy	Point Mugu Sea Range	US	CA	NAVAIR	15,000	27,712	27,278	0	Y	Y	N	N	N	Y	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	Y	Y
	VACAPES	US	NC, VA	CFFC	1,543	30,451	28,916	28,916	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table D-2 Special Use Airspace (SUA) 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	452
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	FACSFAC JAX, PO Box 40, NAS Jacksonville, FL 32212-0040 DSN 942-2004/2005 C904-54	Same as Originating Activity	By NOTAM	55
IR027	FACSFAC JAX, 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, NAWAS, Point	Same as Originating Activity	Daylight hours only, daily	260
IR031	Commander Naval Air Warfare Center, Weapons Division, Code 52911GE, NAWAS, Point	Same as Originating Activity	Daylight hours only, daily	260
IR032	Commander Naval Air Warfare Center, Weapons Division, Code 52911GE, NAWAS, 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, NAWAS, 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

* 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 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 February 13, 2008).

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	417
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	437
IR062	COMSTRIKIGHTWING/LANT, 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	508
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	FACSFAC, 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	299
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

* 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 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 February 13, 2008).

Appendix D: Maps and Inventory of Ranges, Range Complexes, and Special Use Areas

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, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	Daylight hours by NOTAM	521
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	58 OSS/DOO, Kirtland AFB, NM 87117-5861 DSN 263-5979/5888, C505-853-5979/5888/57	Same as Originating Activity	Continuous	590
IR113	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. Req for use sh	Continuous	1067
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

* 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 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 February 13, 2008]).

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, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	0700–2300 local	316
IR134	49 OSS/OSOA, 700 Delaware Ave., Holloman AFB, NM 88440-8014 DSN 572-3244, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	Sunrise–0600Z++	236
IR135	COMDRAWING 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	COMDRAWING 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, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	Daylight hours by NOTAM	521
IR142	49 OSS/OSOA, 700 Delaware Ave., Ste. 131, Holloman AFB, NM 88330-8014 DSN 572-32	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	Sunrise–0600Z++	207
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	192
IR147	COMDRAWING 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	COMDRAWING 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	COMDRAWING 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	COMDRAWING 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	COMDRAWING 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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** Length calculations were performed using an 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 February 13, 2008).

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	547
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	563
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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** 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 February 13, 2008]).

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, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	Sunrise-0600Z++	533
IR193	97 OSS/DOA, 400 N Sixth St., Altus AFB, OK 73521 DSN 866-6098, C505-5	97 OSS/DOA, 400 N Sixth St., Ste 12, Altus AFB, OK 73521 DSN 866-7110, C505-5	0630-0230 local Mon-Fri	142
IR194	49 OSS/OSOA, 700 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3244, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	Sunrise-0600Z++	648
IR195	49 OSS/OSOA, 700 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3244, C505-5	49 OSS/OSOS, 744 Delaware Ave., Holloman AFB, NM 88330-8014 DSN 572-3536, C505-5	Sunrise-0600Z++	224
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, NAWWS, Pt. Mugu	Commander Naval Air Warfare Center, Weapons Division, Code P3506, NAWWS, Pt. Mugu	Daylight hours by NOTAM	120
IR207	Commander Strike Fighter Wing, US Pacific Fleet, 001 (K) Street, Room 121, NAS	Same as Originating Activity	Daylight hours, OT by NOTAM	450
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	137
IR213	G-3, 3D MAW, MCAS Miramar, San Diego, CA 92145 DSN 267-9462, C858-577-9462, Non-	Same as Originating Activity	Continuous	270
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	284
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	165
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	165
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
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

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** Length calculations were performed using an 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 February 13, 2008]).

Military Training Route Inventory

Military Training Route	Originating Agency	Scheduling Agency	Effective Times	Length (NM)**
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	380
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	49
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	284
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	386
IR293	388 RANS/RST, 6606 Cedar Ln. bldg 1274, Hill AFB, UT 84056-5812 DSN 777-4401 C80	Same as Originating Activity.	By NOTAM	312
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	391
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	453
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	422
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/D00, Kirtland AFB, NM 87117-5861 DSN 263-5979/5888, C505-853-5979/5888/57	Same as Originating Activity	Continuous	219
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, 305 Pitsenberger Blvd., McCord AFB, WA 98438 DSN 382-4057, C253-982-	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925, Dut	Continuous	174
IR325	62 OSS/OSK, 305 Pitsenberger Blvd., McCord AFB, WA 98438 DSN 382-4057, C253-982-	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925, Dut	Continuous	162
IR326	62 OSS/OSK, 305 Pitsenberger Blvd., McCord AFB, WA 98438 DSN 382-4057, C253-982-	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925, Dut	Continuous	185
IR327	62 OSS/OSK, 305 Pitsenberger Blvd., McCord AFB, WA 98438 DSN 382-4057, C253-982-	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925, Dut	Continuous	168
IR328	62 OSS/OSK, 305 Pitsenberger Blvd., McCord AFB, WA 98438 DSN 382-4057, C253-982-	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925, Dut	Continuous	156
IR329	62 OSS/OSKA, 1172 Levitow Blvd., McCord 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	156
IR330	62 OSS/OSK, 305 Pitsenberger Blvd., McCord AFB, WA 98438 DSN 382-4057, C253-982-	62 OSS/OSO, 100 Main St., McChord AFB, WA 98438 DSN 382-9925, C253-982-9925, Dut	Continuous	113
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	330
IR343	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave., Oak H	Same as Originating Activity. Scheduling hours 0700-1600 local, Mon-Fri only, Sa	Continuous	472
IR344	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave., Oak H	Same as Originating Activity. Scheduling hours 0700-1600 local, Mon-Fri only, Sa	Continuous	322

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: January 18, 2008 through February 13, 2008).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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	577
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	583
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 461-3666, 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 461-3666, 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	544
IR505	114 FW (ANG), Joe Foss Field, Sioux Falls, SD 57104-0264 DSN 798-7754/46, C605-9	Same as Originating Activity	Daylight hours, Mon-Sat, OT By NOTAM	139

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** Length calculations were performed using an 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 February 13, 2008]).

Military Training Route Inventory

Military Training Route	Originating Agency	Scheduling Agency	Effective Times	Length (NM)**
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	184BW, DET 1, (SHANGR), 8429 W. Farrelly Rd., Smoky Hill ANG Range, Salina, KS 6	184BW (KANG), McConnell AFB, KS 67221-9010 DSN 743-7710 C316-687-7710	Continuous	342
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	184BW, DET 1, (SHANGR), 8429 W. Farrelly Rd., Smoky Hill ANG Range, Salina, KS 6	184BW (KANG), McConnell AFB, KS 67221-9010 DSN 743-7710 C316-687-7710	Continuous	409
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	796
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	689
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	1036
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	941
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	525

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** Length calculations were performed using an 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 February 13, 2008]).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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	336
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	398
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	494
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	425
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	895
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	543
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	385
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	1218
IR805	5 OSS/OSTC, 300 Summit Dr., Minot AFB, ND 58705-5044 DSN 453-2967, C701-723-2967	23 BS/DOS, 300 Summit Dr., Minot AFB, ND 58705 DSN 453-2002/3527, C701-723-2002/	Continuous	587
IR850	Commander, Naval Air Warfare Center Weapons Division, Code 52E000E, NAWS, Pt. Mu	Commander, Naval Air Warfare Center Weapons Division, Code 52911GE, NAWS, Pt. Mu	Sunrise-Sunset by NOTAM	295
IR851	Commander, Naval Air Warfare Center Weapons Division, Code 52E000E, NAWS, Pt. Mu	Commander, Naval Air Warfare Center Weapons Division, Code 52911GE, NAWS, Pt. Mu	Daily Sunrise-Sunset	391
IR852	Commander, Naval Air Warfare Center Weapons Division, Code 52E000E, NAWS, Pt. Mu	Commander, Naval Air Warfare Center Weapons Division, Code 52911GE, NAWS, Pt. Mu	Sunrise-Sunset	199
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
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

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** Length calculations were performed using an 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 February 13, 2008]).

Appendix D: Maps and Inventory of Ranges, Range Complexes, and Special Use Areas

Military Training Route Inventory

Military Training Route	Originating Agency	Scheduling Agency	Effective Times	Length (NM)**
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 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	469
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 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	176
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
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

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** Length calculations were performed using an 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 February 13, 2008).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NIM)**
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	102
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	567
SR038	Base Operations, Lawson AAF, Fort Benning, Ga. DSN 835-3524/2857 C706-545-3524.	Same as Originating Activity	Continuous	159
SR039	Base Operations, Lawson AAF, Fort Benning, Ga. DSN 835-3524/2857 C706-545-3524.	Same as Originating Activity	Continuous	95
SR040	94/OSS Dobbins AFB, GA 30069-5009 DSN 625-3498, C678-655-3498.	Same as Originating Activity	1200–0300Z ++	107
SR059	118 AW, 240 Knapp Blvd, Nashville, TN 37217, DSN 778-6362/6342, C615-399-5662/56	Same as Originating Activity	Continuous	178
SR060	118 AW, 240 Knapp Blvd, Nashville, TN 37217, DSN 778-6362/6342, C615-399-5662/56	Same as Originating Activity	Continuous	173
SR061	118 AW, 240 Knapp Blvd, Nashville, TN 37217, DSN 778-6362/6342, C615-399-5662/56	Same as Originating Activity	Continuous	125

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, [effective: January 18, 2008 through February 13, 2008]).

Military Training Route Inventory

Military Training Route	Originating Agency	Scheduling Agency	Effective Times	Length (NM)**
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/D00, 430 W Maxwell Blvd, Bldg 1050, Maxwell AFB, AL 36112-6591 DSN 493-7	Same as Originating Activity	1400-0400Z++	124
SR070	908 OSF/D00, 430 W Maxwell Blvd, Bldg 1050, Maxwell AFB, AL 36112-6591 DSN 493-7	Same as Originating Activity	1400-0400Z++	155
SR071	908 OSF/D00, 430 W Maxwell Blvd, Bldg 1050, Maxwell AFB, AL 36112-6591 DSN 493-7	Same as Originating Activity	1300-0500Z++	150
SR072	908 OSF/D00, 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/DOH, 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/DOH, 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/DOH, 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/DOH, 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/DOH, 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/DOH, 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/DOH, 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/DOH, 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/DOH, DSN 317-552-3457, C907-552-3457.	Continuous	182
SR101	16 OSS/D00, 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/DOH, DSN 317-552-3457, C907-552-3457.	Continuous	147
SR102	16 OSS/D00, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Same as Originating Activity	Continuous	291
SR103	16 OSS/D00, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812	Same as Originating Activity	Continuous	433
SR104	16 OSS/D00, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Same as Originating Activity	Continuous	823
SR105	16 OSS/D00, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Same as Originating Activity	Continuous	227
SR106	16 OSS/D00, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Same as Originating Activity	Continuous	426
SR119	16 OSS/D00, Hurlburt Field, FL 32544 DSN 579-6877/7812, C850-884-6877/7812.	Same as Originating Activity	Continuous	801
SR137	14 OSS/OSOP, Columbus AFB, MS 39710-5000 DSN 742-7660/7633, C662-434-7660/7633.	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 742-7660/7633, C662-434-7660/7633.	37/41 FTS, Columbus AFB, MS 39710 DSN 742-7666/7667, C662-434-7666/7667.	SR-SS, Daily	143
SR166	437 OSS/OSTA, Charleston AFB, SC 29404-5054 DSN 673-5613, C843-963-5613	20 OSS/OSOS, Shaw AFB, SC 29152-5000 DSN 965-1118/1119, C803-895-1118/1119, FAX	Continuous	153
SR200	58 OSS/D00, Kirtland AFB, NM 87117-5861 DSN 263-5979/5888/5701, C505-853-5979/58	Same as Originating Activity	Continuous	242

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: January 18, 2008 through February 13, 2008).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NMI)**
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 87117-5861 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 Williams Drive, 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	138
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, MAS 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	204
SR234	7 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	126

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** Length calculations were performed using an 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 February 13, 2008).

Military Training Route Inventory

Military Training Route	Originating Agency	Scheduling Agency	Effective Times	Length (NM)**
SR235	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850 C580-213-7850.	8 FTS/D00, 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/D00, 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/D00, 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.	8 FTS/D00, 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	86
SR258	317 WG, Dyess AFB, TX 79607 DSN 461-2318.	Same as Originating Activity	Continuous	172
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.	32 FTS/D00T, Vance AFB, OK 73705-5202 DSN 448-6251, C580-213-6251.	Sunrise-Sunset Daily	169
SR275	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	32 FTS/D00T, Vance AFB, OK 73705-5202 DSN 448-6251, C580-213-6251.	Sunrise-Sunset Daily	169
SR276	47 OSS/OSOR, 570 2nd St., Ste 6, Laughlin AFB, TX 78843-5222 DSN 732-5864, C830-	86 FTS/DOS, 80 Rio Lobo Ln, Laughlin AFB, TX 78843 DSN 732-5584, C830-298-5584	Sunrise-Sunset daily	185

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** Length calculations were performed using an 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 February 13, 2008).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NM)**
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	Sunrise-Sunset Daily	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	118
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	109
SR294	71 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850 C580-213-7850	8 FTS/D00, 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/D00, 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/D00, 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 ROW/DOW, PO Box 103, Stop 14, Moffett Federal Afd, CA 94035-5000 DSN 359-93	Same as Originating Activity	Continuous	145
SR353	129 ROW/DOW, PO Box 103, Stop 14, Moffett Federal Afd, CA 94035-5000 DSN 359-93	Same as Originating Activity	Continuous	110
SR359	129 ROW/DOW, PO Box 103, Stop 14, Moffett Federal Afd, CA 94035-5000 DSN 359-93	Same as Originating Activity	Continuous	145
SR381	129 ROW/DOW, PO Box 103, Stop 14, Moffett Federal Afd, 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 ROW/DOW, PO Box 103, Stop 14, Moffett Federal Afd, CA 94035-5000 DSN 359-93	Same as Originating Activity	Continuous	43
SR488	62 OSS/OSO, McChord AFB, WA 98438-1109 DSN 382-9925, C253-982-9925. During non-d	Same as Originating Activity	Continuous	30
SR489	62 OSS/OSO, McChord AFB, WA 98438-1109 DSN 382-9925, C253-982-9925. During non-d	Same as Originating Activity	Continuous	23
SR616	139 Airlift Wg., 705 Memorial Drive, St. Joseph, MO 64503-9307 DSN 356-3225/3470	Same as Originating Activity	1300-0500Z++ daily	148

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** Length calculations were performed using an 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 February 13, 2008]).

Military Training Route Inventory

Military Training Route	Originating Agency	Scheduling Agency	Effective Times	Length (NM)**
SR617	139 Airlift Wg., 705 Memorial Drive, St. Joseph, MO 64503-9307 DSN 356-3225/3470	Same as Originating Activity	1300–0500Z++ daily	147
SR618	139 Airlift Wg., 705 Memorial Drive, St. Joseph, MO 64503-9307 DSN 356-3225/3470	Same as Originating Activity	1300–0500Z++ daily	129
SR619	139 Airlift Wg., 705 Memorial Drive, St. Joseph, MO 64503-9307 DSN 356-3225/3470	Same as Originating Activity	1300–0500Z++ daily	137
SR701	191 AG, Selfridge ANGB, MI 48045 DSN 273-4498/4441, C810-463-3664.	Same as Originating Activity	1600–0400Z++ Tue–Sat, 1600–2200Z++ Sun	177
SR702	191 AG, Selfridge ANGB, MI 48045 DSN 273-4498/4441, C810-463-3664.	Same as Originating Activity	1600–0400Z++ Tue–Sat, 1600–2200Z++ Sun	166
SR703	191 AG, Selfridge ANGB, MI 48045 DSN 273-4498/4441, C810-463-3664.	Same as Originating Activity	1600–0400Z++ Tue–Sat, 1600–2200Z++ Sun	75
SR707	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165.	Same as Originating Activity	0700–2300 local daily	142
SR708	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165	Same as Originating Activity	0700–2300 local daily	164
SR709	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165.	Same as Originating Activity	0700–2300 local daily	105
SR710	179 AW, Mansfield Lahm Airport, OH 44903-0179 DSN 696-6165.	Same as Originating Activity	0700–2300 local daily	111
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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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: January 18, 2008 through February 13, 2008).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NIM)**
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/D00, 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/D00, 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 CRTIC/OTM (ANG), 5884 A Street, Alpena MI 49707-8125 DSN 741-3509/3226.	Same as Originating Activity	0700–2300 local daily	119
SR782	Alpena CRTIC/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/D00, 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	126
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	154

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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: January 18, 2008 through February 13, 2008).

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	112
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	157
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	504
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	370
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-082 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

* 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 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 February 13, 2008).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NIM)**
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-088 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	570
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 742-7660/7633, 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

* 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 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 February 13, 2008).

Appendix D: Maps and Inventory of Ranges, Range Complexes, and Special Use Areas

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	342
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	323
VR1039	FACSFAC JAX, 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	421
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	384
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	456
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 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 February 13, 2008]).

Military Training Route Inventory

Military Training Route	Originating Agency*	Scheduling Agency*	Effective Times	Length (NMI)**
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	288
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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** Length calculations were performed using an 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 February 13, 2008).

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)	110
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	244
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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** Length calculations were performed using an 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 February 13, 2008]).

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	231
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	231
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 FTW/OSOP, Vance AFB, OK 73705-5202 DSN 448-7850, C580-213-7850.	32 FTS/D00T, 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	244
VR1196	ANG CRTG-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	1300–0630Z	276

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** Length calculations were performed using an 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 February 13, 2008).

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	356
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	444
VR1254	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	247
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	387
VR1262	Commander, Strike Fighter Wing, U.S. Pacific Fleet, 001 K Street, NAS Lemoore, C	Same as Originating Activity	Daylight hours, OT by NOTAM	340
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	372

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** Length calculations were performed using an 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 February 13, 2008]).

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	453
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	453
VR1350	Commanding Officer (N38), NAS Whidbey Island, 3730 N. Charles Porter Ave, Oak Ha	Same as Originating Activity	Continuous	262
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	130
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: January 18, 2008 through February 13, 2008).

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	184 ARW (Kansas ANG), McConnell AFB, KS 67221-9010 (1330-2215Z wkd, sked rqr 2 hr	Same as Originating Activity	0600–2200 local	191
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	211
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 CRTG, 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	191
VR162	80th Flying Training Wing, 1911 J. Ave. STE 6, Sheppard AFB, TX 76311-2056 DSN 73	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	168
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	227
VR1628	127th OG/CC, Selfridge ANGB, MI 48045-5029 DSN 273-5055.	Same as Originating Activity	Sunrise–Sunset	284
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	196
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: January 18, 2008 through February 13, 2008).

Military Training Route Inventory

Military Training Route	Originating Agency	Scheduling Agency	Effective Times	Length (NIM)**
VR1635	183 FW/OSF, Capital Airport, Springfield, IL 62707 DSN 892-8202.	Same as Originating Activity	Sunrise–Sunset only	135
VR1636	Alpena CRTG/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	168
VR1647	127TH OG/CC, Selfridge ANGB, MI 48045-5029 DSN 273-5055.	Same as Originating Activity	Sunrise–Sunset	227
VR1648	127TH OG/CC, Selfridge ANGB, MI 48045-5029 DSN 273-5055.	Same as Originating Activity	Sunrise–Sunset	284
VR1650	ANG CRTG, 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 CRTG/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++	191
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 TWC, NAS Kingsville, TX 78363 DSN 876-6518, C361-516-6518.	Same as Originating Activity. Scheduling hrs—0800–1600 local Mon–Fri ONLY (exclu	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	168
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	195
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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Source: Department of Defense based on data from the National Geospatial-Intelligence Agency (Digital Aeronautical Flight Information File, (effective: January 18, 2008 through February 13, 2008).

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	363
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 CRTIC-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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** Length calculations were performed using an 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 February 13, 2008).

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	102
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 78943-5222 DSN 732-5864, C830-	86 FTS/DOS, 80 Rio Lobo Ln, Laughlin AFB, TX 78943 DSN 732-5584, C830-298-5584.	Sunrise–Sunset Daily	189
VR197	47 OSS/OSOR, 570 2nd St., Ste 6, Laughlin AFB, TX 78943-5222 DSN 732-5864, C830-	86 FTS/DOS, 80 Rio Lobo Ln, Laughlin AFB, TX 78943 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 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 February 13, 2008).

Appendix D: Maps and Inventory of Ranges, Range Complexes, and Special Use Areas

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	594
VR222	57 OSS/OSM, Nellis AFB, NV 89191-6067 DSN 682-7891, C702-652-7891	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	218
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	270
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: January 18, 2008 through February 13, 2008).

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, Wknd/hol when sked with Goldwater Ring/Sell MDA 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 85706-6086 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 Fid, CA 92518 DSN 447-3846, C909-655-3846	452 OSS/DOT, March Fid, 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 382-9825, 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, wk, 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, wk, sked rqr 2 hr	Same as Originating Activity	0700–1700 local daily	329

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** Length calculations were performed using an 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 February 13, 2008).

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	184 ARW (Kansas ANG), McConnell AFB, KS 67221-9010 (1330-2215Z wkd, sked rqr 2 hr	Same as Originating Activity	Sunrise–Sunset Daily	191
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	168
VR619	181 TFG (ANG), Hulman Regional 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 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 February 13, 2008).

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 Agency	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 Agency	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 Agency	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 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	230
VR936	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	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	210
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

* 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 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 February 13, 2008]).

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

* 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: January 18, 2008 through February 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: January 18, 2008 through February 13, 2008).

Table D-3 Military Training Route (MTR) Inventory

Special Use Airspace Inventory

2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (mm 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

Special Use Airspace Inventory

2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (mm ²)*
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 MDA, NC	FAA, FAYETTEVILLE TWR	Fort Bragg	006000AMSL	00500AGL	USA	42
FORT BRAGG NORTH AREA B MDA, NC	FAA, FAYETTEVILLE TWR	Fort Bragg	006000AMSL	04000AMSL	USA	30
FORT BRAGG SOUTH AREA A MDA, NC	FAA, FAYETTEVILLE TWR	Fort Bragg	006000AMSL	00500AGL	USA	53
FORT BRAGG SOUTH AREA B MDA, 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 MDA, KY	FAA, MEMPHIS ARTCC	Fort Campbell	010000AMSL	00500AGL	USA	396
CAMPBELL 2 MDA, 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 MDA, 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 MDA, NY	USA, WHEELER SACK APP	Fort Drum	005000AMSL	00500AGL	USA	95
DRUM 2 MDA, NY	USA, WHEELER SACK APP	Fort Drum	005999AMSL	00100AGL	USA	84
R5201	FAA, BOSTON ARTCC	Fort Drum	023000AMSL	SURFACE	USA	110

Special Use Airspace Inventory

2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (mm ²)**
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, STANDFORD TWR, LOUISVILLE	Fort Knox	010000AMSL	SURFACE	USA	113
R3704B	FAA, STANDFORD 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

Special Use Airspace Inventory

2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (mm ²)*
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

Special Use Airspace Inventory

2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (mm ²)**
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 MDA, KS	CO, 24 Infantry Div	Fort Riley	FL180	07000AMSL	USA	325
AZ11	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 MDA, AR	FAA, MEMPHIS ARTCC	Fort Smith	018000AMSL	06000AMSL	USA	685
HOG HIGH SOUTH MDA, AR	FAA, MEMPHIS ARTCC	Fort Smith	018000AMSL	06000AMSL	USA	1,295
HOG JRTC MDA, AR	FAA, MEMPHIS ARTCC	Fort Smith	018000AMSL	00100AGL	USA	25
HOG LOW NORTH MDA, AR	FAA, MEMPHIS ARTCC	Fort Smith	005999AMSL	00100AGL	USA	685
HOG LOW SOUTH MDA, AR	FAA, MEMPHIS ARTCC	Fort Smith	005999AMSL	00100AGL	USA	817
SHIRLEY 1 MDA, AR	FAA, MEMPHIS ARTCC	Fort Smith	018000AMSL	10000AMSL	USA	3,069
FORT STEWART B1 MDA, GA	FAA, JACKSONVILLE ARTCC	Fort Stewart	004999AMSL	00500AGL	USA	146
FORT STEWART B2 MDA, GA	FAA, JACKSONVILLE ARTCC	Fort Stewart	010000AMSL	05000AMSL	USA	146
FORT STEWART C1 MDA, GA	FAA, JACKSONVILLE ARTCC	Fort Stewart	002999AMSL	00500AGL	USA	31
FORT STEWART C2 MDA, 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

Special Use Airspace Inventory

2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (mm ²)*
R3403B	FAA, INDIANAPOLIS ARTCC	Indianapolis	FL180	01200AGL	USA	27
R5801	FAA, WASHINGTON, DC ARTCC	Letterkenny Ordnance Depot	0040000AMSL	SURFACE	USA	2
R5803	FAA, WASHINGTON, DC ARTCC	Letterkenny Ordnance Depot	0040000AMSL	SURFACE	USA	3
R2302	FAA, ALBUQUERQUE ARTCC	Navajo Ordnance Depot	0100000AMSL	SURFACE	USA	4
R3103	FAA, HONOLULU CERAP	Pohakuloa Training Area	0300000AMSL	SURFACE	USA	124
R2104A	FAA, MEMPHIS ARTCC	Redstone Arsenal	0120000AMSL	SURFACE	USA	17
R2104B	FAA, MEMPHIS ARTCC	Redstone Arsenal	0024000AMSL	SURFACE	USA	4
R2104C	FAA, MEMPHIS ARTCC	Redstone Arsenal	0120000AMSL	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, Kawaihoa	0005000AGL	SURFACE	USA	71
R3109A	FAA, HONOLULU TWR	Schofield-Makua	0089999AMSL	SURFACE	USA	9
R3109B	FAA, HONOLULU TWR	Schofield-Makua	0189999AMSL	090000AMSL	USA	15
R3109C	FAA, HONOLULU TWR	Schofield-Makua	0089999AMSL	SURFACE	USA	6
R3110A	FAA, HONOLULU TWR	Schofield-Makua	0089999AMSL	SURFACE	USA	11
R3110B	FAA, HONOLULU TWR	Schofield-Makua	0189999AMSL	090000AMSL	USA	21
R3110C	FAA, HONOLULU TWR	Schofield-Makua	0089999AMSL	SURFACE	USA	10
R2530	FAA, OAKLAND ARTCC	Sierra Army Depot	0086000AMSL	SURFACE	USA	4
LAKE ANDIES MOA, SD	FAA, MINNEAPOLIS ARTCC	Sioux Falls	0180000AMSL	060000AMSL	USA	3,498
HOWARD EAST MOA, IL	FAA, KANSAS CITY ARTCC	Springfield	0180000AMSL	090000AMSL	USA	1,853
HOWARD WEST MOA, IL	FAA, KANSAS CITY ARTCC	Springfield	0180000AMSL	100000AMSL	USA	322
PRUITT A MOA, IL	FAA, KANSAS CITY ARTCC	Springfield	0060000AMSL	005000AGL	USA	980
PRUITT B MOA, IL	FAA, KANSAS CITY ARTCC	Springfield	0030000AMSL	005000AGL	USA	426
R6403	FAA, SALT LAKE CITY ARTCC	Tooele Army Depot	0090000AMSL	SURFACE	USA	2
R5206	FAA, NEW YORK APP	West Point	0050000AMSL	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	090000AMSL	USA	892
R5107D	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	0220000AMSL	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	0090000AMSL	SURFACE	USA	814
R5107J	FAA, ALBUQUERQUE ARTCC	White Sands Missile Range	0090000AMSL	SURFACE	USA	77

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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 M0A, IN	HQ IN ANG Det 1	Camp Atterbury	004000AMSL	00500AGL	USA(ARNG)	130
RACER B M0A, IN	HQ IN ANG, Det 1, CAMP ATTERBURY, IN	Camp Atterbury	008000AMSL	04000AMSL	USA(ARNG)	130
RACER C M0A, 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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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	005000AMSL	USAF	28
R2901E	FAA, MIAMI ARTCC	Avon Park	004000AMSL	010000AMSL	USAF	90
R2901F	FAA, MIAMI ARTCC	Avon Park	005000AMSL	040000AMSL	USAF	15
R2901G	FAA, MIAMI ARTCC	Avon Park	005000AMSL	SURFACE	USAF	27
R2901H	FAA, MIAMI ARTCC	Avon Park	004000AMSL	010000AMSL	USAF	32
R2901I	FAA, MIAMI ARTCC	Avon Park	004000AMSL	015000AMSL	USAF	31
ANNE HIGH MOA, AR	FAA, FORT WORTH ARTCC	Barksdale AFB	018000AMSL	070000AMSL	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	070000AMSL	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	1739
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 ANGELES 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 ANGELES 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	0300TAGL	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 M0A, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	00100AGL	USAF	720
FOX 1 M0A, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	05000AGL	USAF	1,132
FOX 2 M0A, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	07000AMSL	USAF	94
FOX 3 M0A, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	05000AMSL	USAF	3,705
RZ211	FAA, ANCHORAGE ARTCC	Eielson AFB	FL310	SURFACE	USAF	134
VIPER A M0A, AK	FAA, FAIRBANKS TWR	Eielson AFB	010000AMSL	00500AGL	USAF	105
VIPER B M0A, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	10000AMSL	USAF	105
YUKON 1 M0A, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	00100AGL	USAF	3,747
YUKON 2 M0A, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	00100AGL	USAF	4,929
YUKON 3 HIGH M0A, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	10000AMSL	USAF	2,267
YUKON 3A LOW M0A, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	009999AMSL	00100AGL	USAF	2,267
YUKON 3B M0A, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	02000AGL	USAF	1,523
YUKON 4 M0A, AK	FAA, ANCHORAGE ARTCC	Eielson AFB	018000AMSL	00100AGL	USAF	3,355
YUKON 5 M0A, 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 M0A, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	01000AMSL	USAF	3,910
NAKNEK 1 M0A, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	03000AGL	USAF	3,894
NAKNEK 2 M0A, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	03000AGL	USAF	2,758
STONY A M0A, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	00100AGL	USAF	4,068
STONY B M0A, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	02000AGL	USAF	2,393
SUSITNA M0A, AK	FAA, ANCHORAGE ARTCC	Elmendorf AFB	018000AMSL	10000AMSL	USAF	2,474
W612	FAA, ANCHORAGE ARTCC	Elmendorf AFB	FL290	SURFACE	USAF	2,556
GANDY M0A, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	018000AMSL	00100AGL	USAF	832
LUCIN A M0A, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	009000AMSL	00100AGL	USAF	1,532
LUCIN B M0A, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	007500AMSL	00100AGL	USAF	992
LUCIN C M0A, 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	0145000AMSL	00100AGL	USAF	1,011
SEVIER B MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	0095000AMSL	00100AGL	USAF	2,200
SEVIER C MOA, NV	FAA, SALT LAKE CITY ARTCC	Hill AFB	0180000AMSL	14500AMSL	USAF	1,011
SEVIER D MOA, UT	FAA, SALT LAKE CITY ARTCC	Hill AFB	0180000AMSL	09500AMSL	USAF	2,200
BEAK A MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	0180000AMSL	12500AMSL	USAF	690
BEAK B MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	0180000AMSL	12500AMSL	USAF	606
BEAK C MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	0180000AMSL	12500AMSL	USAF	636
TALON EAST HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	0180000AMSL	12500AMSL	USAF	661
TALON LOW MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	0124999AMSL	00300AGL	USAF	1,027
TALON WEST HIGH MOA, NM	FAA, ALBUQUERQUE ARTCC	Holloman AFB	0180000AMSL	12500AMSL	USAF	972
VALENTINE MOA, TX	FAA, ALBUQUERQUE ARTCC	Holloman AFB	0180000AMSL	15000AMSL	USAF	2,462
CATO MOA, NM	FAA, ALBUQUERQUE ARTCC	Kirtland AFB	0180000AMSL	13500AMSL	USAF	2,655
EVERS MOA, WV	FAA, WASHINGTON, DC ARTCC	Langley AFB	0180000AMSL	01000AGL	USAF	479
FARMVILLE MOA, VA	FAA, WASHINGTON, DC ARTCC	Langley AFB	0050000AMSL	00300AGL	USAF	1,188
A633A	USAF, LAUGHLIN AFB	Laughlin AFB	0070000AMSL	SURFACE	USAF	548
A633B	USAF, LAUGHLIN AFB	Laughlin AFB	0040000AMSL	SURFACE	USAF	153
CRYSTAL MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	0180000AMSL	06000AMSL	USAF	1,377
CRYSTAL NORTH MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	0180000AMSL	06000AMSL	USAF	410
LAUGHLIN 1 MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	0180000AMSL	09000AMSL	USAF	4,972
LAUGHLIN 2 MOA, TX	FAA, HOUSTON ARTCC	Laughlin AFB	0180000AMSL	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	0149999AMSL	07000AMSL	USAF	420
AZ31	FAA, ALBUQUERQUE ARTCC	Luke AFB	0065000AMSL	00500AGL	USAF	516
BAGDAD 1 MOA, AZ	FAA, ALBUQUERQUE ARTCC	Luke AFB	0180000AMSL	07000AMSL	USAF	1,067
GLADDEN 1 MOA, AZ	FAA, ALBUQUERQUE ARTCC	Luke AFB	0180000AMSL	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	0180000AMSL	10000AMSL	USAF	3,665

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service*	Area (mm ²)**
SELLS LOW MOA, AZ	FAA, ALBUQUERQUE ARTCC	Luke AFB	00999AMS	03000AGL	USAF	3,133
SUNNY MOA, AZ	FAA, DENVER ARTCC	Luke AFB	018000AMS	12000AMS	USAF	2,330
AVON EAST MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	013999AMS	00500AGL	USAF	38
AVON NORTH MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	018000AMS	05000AMS	USAF	94
AVON SOUTH MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	018000AMS	05000AMS	USAF	116
BASINGER MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	005000AMS	00500AGL	USAF	42
LAKE PLACID MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	018000AMS	07000AMS	USAF	1,085
MARIAN MOA, FL	FAA, MIAMI ARTCC	MacDill AFB	005000AMS	00500AGL	USAF	204
W168	FAA, MIAMI ARTCC	MacDill AFB	UNLTD	SURFACE	USAF	7,264
DEVILS LAKE EAST MOA, ND	FAA, MINNEAPOLIS ARTCC	McChord AFB	018000AMS	03500AMS	USAF	1,773
DEVILS LAKE WEST MOA, ND	FAA, MINNEAPOLIS ARTCC	McChord AFB	018000AMS	04000AMS	USAF	1,739
R2312	LIBBY AAF TWR	McChord AFB	014999AMS	SURFACE	USAF	9
R5115	FAA, ALBUQUERQUE ARTCC	McChord AFB	015000AMS	SURFACE	USAF	10
R6316	FAA, HOUSTON ARTCC	McChord AFB	015000AMS	SURFACE	USAF	21
R6317	FAA, HOUSTON ARTCC	McChord AFB	015000AMS	SURFACE	USAF	21
R6318	FAA, ALBUQUERQUE ARTCC	McChord AFB	014000AMS	SURFACE	USAF	9
TIGER NORTH MOA, ND	FAA, MINNEAPOLIS ARTCC	McChord AFB	018000AMS	00300AGL	USAF	2,225
TIGER SOUTH MOA, ND	FAA, MINNEAPOLIS ARTCC	McChord AFB	018000AMS	06000AMS	USAF	1,715
W931(A)	FAA, SEATTLE ARTCC	McChord AFB	FL500	SURFACE	USAF	4,987
W931(B)	FAA, SEATTLE ARTCC	McChord AFB	FL500	SURFACE	USAF	978
AZ20	USAF, MCGUIRE AFB RAPCON	McGuire AFB	004500AMS	SURFACE	USAF	457
POWERS MOA, ND	FAA, MINNEAPOLIS ARTCC	Minot AFB	018000AMS	12000AMS	USAF	589
A684	FAA, JACKSONVILLE ARTCC	Moody AFB	004000AGL	SURFACE	USAF	313
LIVE OAK MOA, FL	FAA, JACKSONVILLE ARTCC	Moody AFB	018000AMS	08000AMS	USAF	1,208
MOODY 1 MOA, GA	FAA, JACKSONVILLE ARTCC	Moody AFB	018000AMS	08000AMS	USAF	4,714
MOODY 2 NORTH MOA, GA	FAA, JACKSONVILLE ARTCC	Moody AFB	007999AMS	00500AGL	USAF	318
MOODY 2 SOUTH MOA, GA	FAA, JACKSONVILLE ARTCC	Moody AFB	007999AMS	00100AGL	USAF	405
MOODY 3 MOA, GA	FAA, JACKSONVILLE ARTCC	Moody AFB	018000AMS	08000AMS	USAF	1,258
R3008A	USAF, VALDOSTA APP	Moody AFB	010000AMS	SURFACE	USAF	6
R3008B	USAF, VALDOSTA APP	Moody AFB	010000AMS	00100AGL	USAF	20
R3008C	USAF, VALDOSTA APP	Moody AFB	010000AMS	00500AGL	USAF	67
R3008C(A)	USAF, VALDOSTA APP	Moody AFB	001500AGL	SURFACE	USAF	3
R3008D	USAF, VALDOSTA APP	Moody AFB	022999AMS	10000AMS	USAF	93
R3202(H)	FAA, SALT LAKE CITY ARTCC	Mountain Home AFB	FL290	FL180	USAF	226

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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/D00S, 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
REVELLE NORTH MOA, NV	FAA, SALT LAKE CITY ARTCC	Nellis AFB	018000AMSL	00100AGL	USAF	1,245
REVELLE 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
(R0)W173	USAF, CFAO, KADENA AB	Okinawa Range Complex	UNLTD	SURFACE	USAF	6,077
(R0)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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PHELPS B MDA, NC	FAA, WASHINGTON, DC ARTCC	Seymour-Johnson AFB	018000AMSL	10000AMSL	USAF	77
PHELPS C MDA, NC	FAA, WASHINGTON, DC ARTCC	Seymour-Johnson AFB	018000AMSL	15000AMSL	USAF	44
SEYMOUR-JOHNSON ECHO MDA, NC	FAA, WASHINGTON, DC ARTCC	Seymour-Johnson AFB	018000AMSL	07000AMSL	USAF	1,036
BULLDOG A MDA, GA	FAA, ATLANTA ARTCC	Shaw AFB	009999AMSL	00500AGL	USAF	1,052
BULLDOG B MDA, GA	FAA, ATLANTA ARTCC	Shaw AFB	018000AMSL	10000AMSL	USAF	1,677
BULLDOG D MDA, GA	FAA, ATLANTA ARTCC	Shaw AFB	017000AMSL	00500AGL	USAF	79
GAMECOCK B MDA, SC	FAA, JACKSONVILLE ARTCC	Shaw AFB	018000AMSL	10000AMSL	USAF	248
GAMECOCK C MDA, SC	FAA, JACKSONVILLE ARTCC	Shaw AFB	010000AMSL	00100AGL	USAF	623
GAMECOCK D MDA, SC	FAA, JACKSONVILLE ARTCC	Shaw AFB	018000AMSL	10000AMSL	USAF	839
GAMECOCK I MDA, SC	FAA, JACKSONVILLE ARTCC	Shaw AFB	006000AMSL	00100AGL	USAF	405
POINSETT MDA, 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 MDA, 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 MDA, OK	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	11000AMSL	USAF	1204
SHEPPARD 1 MDA, TX	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	08000AMSL	USAF	1033
SHEPPARD 2 MDA, TX	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	08000AMSL	USAF	1264
WASHITA MDA, OK	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	08000AMSL	USAF	966
WESTOVER 1 MDA, TX	FAA, FORT WORTH ARTCC	Sheppard AFB	018000AMSL	09000AMSL	USAF	1,986
WESTOVER 2 MDA, 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 TASE, 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 CRTG 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/D00S, NY ANG	018000AMSL	07000AMSL	USAF(ANG)	2,424
CONDOR 2 MOA, ME	FAA, BOSTON ARTCC	NE ADS/D00S, NY ANG	018000AMSL	07000AMSL	USAF(ANG)	614
FALCON 1 MOA, NY	FAA, BOSTON ARTCC	NE ADS/D00S, NY ANG	018000AMSL	06000AMSL	USAF(ANG)	2,040
FALCON 3 MOA, NY	FAA, BOSTON ARTCC	NE ADS/D00S, NY ANG	018000AMSL	06000AMSL	USAF(ANG)	242
R4207	FAA, MINNEAPOLIS ARTCC	Pheips-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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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (mm ²)
R2503C	FAA, LOS ANGELES ARTCC	Camp Pendleton Range Complex	FL270	15000AMSL	USMC	85
R2503D	FAA, SOCIAL 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	0130000AMSL	030000AMSL	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	070000AMSL	USMC	25
R5303C	FAA, WASHINGTON, DC ARTCC	Cherry Point/Camp Lejeune Range Complex	0180000AMSL	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	070000AMSL	USMC	24
R5304C	FAA, WASHINGTON, DC ARTCC	Cherry Point/Camp Lejeune Range Complex	0180000AMSL	10000AMSL	USMC	24
R5306A	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	0180000AMSL	SURFACE	USMC	816
R5306C	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	0180000AMSL	012000AMSL	USMC	164
R5306D	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	0180000AMSL	SURFACE	USMC	98
R5306E	USMC, CHERRY POINT APP	Cherry Point/Camp Lejeune Range Complex	0180000AMSL	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	0070000AMSL	00100AGL	USMC	417
BEAUFORT 3 MOA, SC	FAA, JACKSONVILLE ARTCC	MCAS Beaufort/Townsend Range Complex	0020000AMSL	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	030000AMSL	USMC	9
(R0)R177	USMC, CAMP SMEDLEY D. BUTLER	Okinawa Range Complex	0030000AMSL	SURFACE	USMC	12
(R0)R201	USMC, COMDR MCB JA, OPS AND TRNG	Okinawa Range Complex	0020000AMSL	SURFACE	USMC	18
(R0)R202	USMC, COMDR MCB JA, OPS AND TRNG	Okinawa Range Complex	0010000AMSL	SURFACE	USMC	17
(R0)R203	USMC, COMDR MCB JA, OPS AND TRNG	Okinawa Range Complex	0010000AMSL	SURFACE	USMC	1
(R0)W178A	USMC, CAMP SMEDLEY D. BUTLER	Okinawa Range Complex	0130000AMSL	SURFACE	USMC	287
DEMO 1 MOA, VA	FAA, WASHINGTON, DC ARTCC	Quantico Range Complex	0050000AMSL	005000AMSL	USMC	84
DEMO 2 MOA, VA	FAA, WASHINGTON, DC ARTCC	Quantico Range Complex	0150000AMSL	10000AMSL	USMC	55
DEMO 3 MOA, VA	FAA, WASHINGTON, DC ARTCC	Quantico Range Complex	0150000AMSL	050000AMSL	USMC	84
R6608A	FAA, DULLES INTL TWR	Quantico Range Complex	010000AMSL	SURFACE	USMC	11
R6608B	FAA, DULLES INTL TWR	Quantico Range Complex	010000AMSL	SURFACE	USMC	27
R6608C	FAA, DULLES INTL TWR	Quantico Range Complex	010000AMSL	SURFACE	USMC	17
BRISTOL MOA, CA	FAA, LOS ANGELES ARTCC	Twentynine Palms Range Complex	0180000AMSL	050000AMSL	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 (mm ²)**
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	005000AGL	USMC	50
ABEL BRAVO MOA, CA	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	070000AMSL	USMC	89
ABEL EAST MOA, CA	FAA, LOS ANGELES ARTCC	Yuma Range Complex	012999AMSL	050000AMSL	USMC	309
ABEL NORTH MOA, CA	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	070000AMSL	USMC	664
ABEL SOUTH MOA, CA	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	070000AMSL	USMC	258
DOMO MOA, AZ	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	060000AMSL	USMC	193
KANE EAST MOA, CA	FAA, LOS ANGELES ARTCC	Yuma Range Complex	018000AMSL	10000AMSL	USMC	469
KANE SOUTH MOA, CA	FAA, LOS ANGELES 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	005000AMSL	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 (mm ²)**
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(13A)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	001999AMSL	SURFACE	USN	318
W72(13B)	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(20A)	FAA, WASHINGTON, DC ARTCC	Cherry Point Range Complex	001999AMSL	SURFACE	USN	313
W72(20B)	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 (mm ²)
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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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	GOMEX Range Complex	018000AMSL	08000AMSL	USN	3,324
KINGSVILLE 2 MOA, TX	FAA, HOUSTON ARTCC	GOMEX Range Complex	018000AMSL	13000AMSL	USN	383
KINGSVILLE 3 MOA, TX	FAA, HOUSTON ARTCC	GOMEX Range Complex	018000AMSL	08000AMSL	USN	1,840
KINGSVILLE 4 MOA, TX	FAA, HOUSTON ARTCC	GOMEX Range Complex	018000AMSL	09000AMSL	USN	2,067
PENSACOLA NORTH MOA, FL	FAA, JACKSONVILLE ARTCC	GOMEX Range Complex	018000AMSL	10000AMSL	USN	1,213
PENSACOLA SOUTH MOA, FL	FAA, PENSACOLA TOWER	GOMEX Range Complex	018000AMSL	10000AMSL	USN	1,408
R6312(A)	FAA, HOUSTON ARTCC	GOMEX Range Complex	023000AMSL	01000AGL	USN	7
R6312(B)	FAA, HOUSTON ARTCC	GOMEX Range Complex	023000AMSL	SURFACE	USN	67
R6312(C)	FAA, HOUSTON ARTCC	GOMEX Range Complex	023000AMSL	SURFACE	USN	79
W155A	FAA, JACKSONVILLE ARTCC	GOMEX Range Complex	FL600	SURFACE	USN	2,241
W155B	FAA, JACKSONVILLE ARTCC	GOMEX Range Complex	FL600	SURFACE	USN	2,674
W155C	FAA, JACKSONVILLE ARTCC	GOMEX Range Complex	FL600	SURFACE	USN	525
W228A	FAA, HOUSTON ARTCC	GOMEX Range Complex	FL450	SURFACE	USN	1,319
W228B	FAA, HOUSTON ARTCC	GOMEX Range Complex	FL450	SURFACE	USN	1,124
W228C	FAA, HOUSTON ARTCC	GOMEX Range Complex	FL450	SURFACE	USN	3,604
W228D	FAA, HOUSTON ARTCC	GOMEX Range Complex	FL450	SURFACE	USN	1,937
W92	FAA, HOUSTON ARTCC	GOMEX 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
(R)JR104	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	020000AMSL	SURFACE	USN	606
(R)JR105	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	UNLTD	SURFACE	USN	671
(R)JR116A	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	UNLTD	SURFACE	USN	558
(R)JR116B	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	012000AMSL	SURFACE	USN	464
(R)JR116C	USN, COMAFLOATRAGRUWESTPAC	Japan Range Complex	009000AMSL	SURFACE	USN	59

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2007 SUA Name	Controlling Agency	Range Complex/ Installation Name	Upper Altitude	Lower Altitude	Military Service	Area (mm ²)
(RJR121)	USN, COMAFLOATRAGRUEWESTPAC	Japan Range Complex	035000AMSL	SURFACE	USN	516
(RJR599A)	USN, COMAFLOATRAGRUEWESTPAC	Japan Range Complex	UNLTD	SURFACE	USN	6,995
(RJR599B)	USN, COMAFLOATRAGRUEWESTPAC	Japan Range Complex	UNLTD	SURFACE	USN	1,449
TORTUGAS MDA, 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 (mm ²)*
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 (mm ²)
R4005	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	024999AMSL	SURFACE	USN	316
R4006	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	024999AMSL	035000AMSL	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	050000AMSL	USN	28
R6609	FAA, WASHINGTON, DC ARTCC	Patuxent River Complex	FL200	SURFACE	USN	125
R2519	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	21
R2535A	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	100000AMSL	SURFACE	USN	63
R2535B	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	100000AMSL	SURFACE	USN	37
W289	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	11,787
W289N	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	FL240	SURFACE	USN	108
W290	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	FL800	SURFACE	USN	474
W412	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	003000AMSL	SURFACE	USN	376
W532	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	9,506
W537	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	3,079
W60	FAA, LOS ANGELES ARTCC	Pt. Mugu Range Complex	UNLTD	SURFACE	USN	788
W602	FAA, HOUSTON ARTCC	Pt. Mugu Range Complex	FL250	SURFACE	USN	10,451
W61	FAA, LOS ANGELES ARTCC	Pt. Mugu 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	080000AMSL	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 MDA, NC	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	018000AMSL	080000AMSL	USN	227
PAMLICO B MDA, NC	FAA, WASHINGTON, DC ARTCC	VACAPES Range Complex	018000AMSL	080000AMSL	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 (mm ²)*
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 (mm ²)
R5701(E)	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	006000AMSL	SURFACE	USN	64
R5706	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	010000AMSL	035000AMSL	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 MDA, CA	FAA, OAKLAND ARTCC	Whidbey Island Range Complex	014999AMSL	005000AGL	USN	87
ROOSEVELT A MDA, WA	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	018000AMSL	090000AMSL	USN	3,149
ROOSEVELT B MDA, WA	FAA, SEATTLE ARTCC	Whidbey Island Range Complex	008999AMSL	003000AGL	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

E

Acronym List

AAW	Anti-Air Warfare	C2W	Command and Control Warfare
ACC	Air Combat Command	CAA	Clean Air Act
ACE	Aviation Combat Element	CAF	Combat Air Force
ACP	Army Campaign Plan	CAS	Close Air Support
ACUB	Army Compatible Use Buffer	CE	Command Element
AFB	Air Force Base	CERCLA	Comprehensive Environmental Response Compensation and Liability Act
AFI	Air Force Instruction	CNIC	Commander, Naval Installations Command
AICUZ	Air Installations Compatible Use Zones	CPLO	Community Plans and Liaison Office
AMW	Amphibious Warfare	DAFIF	Digital Aeronautical Flight Information File
ANG	Air National Guard	DAGIR	Digital Air Ground Integration Range
AO	Administrative Order	DAMO-TRS	Office of the Deputy Chief of Staff, G-3/5/7, Training Directorate, Training Support Systems Division
APOE	Aerial Port of Embarkation	DCA	Defensive Counterair
AR	Army Regulation	DENIX	Defense Environmental Network Information eXchange
ARFORGEN	Army Force Generation	DHRA	Defense Human Resources Activity
ASUW	Anti-Surface Warfare	DMPRC	Digital Multipurpose Range Complex
ASW	Anit-Submarine	DMPTR	Digital Multipurpose Training Range
ATR	Atlantic Test Range	DoD	Department of Defense
BAX	Battle Area Complex	DoDD	Department of Defense Directive
BCS	Battle Command System	DoDI	Department of Defense Instruction
BCT	Brigade Combat Team	DOT&E	Director, Operational Test and Evaluation
BLM	Bureau of Land Management		
BRAC	Base Realignment and Closure		
BSATC	Border State Aviation Training Center		
C²	Command and Control		

DRRS	Defense Readiness Reporting System	ICRMP	Integrated Cultural Resource Management Plan
DUSD(I&E)	Office of the Deputy Under Secretary of Defense (Installations & Environment)	IMAE-TS	United States Army Environmental Command, Training Support Division
DZ	Drop Zone	INRMP	Integrated Natural Resource Management Plan
EAP	Encroachment Action Plan	IOC	Initial Operational Capability
EC	Electronic Combat	IPA	Intergovernmental Personnel Act
ECP	Encroachment Control Plan	IPT	Integrated Product Team
EIMS	Environmental Information Management System	ISR	Installation Status Report
ENMP	Environmental Noise Management Plan	IWG	Integrated Working Group
EO	Executive Order	JAEC	Joint Assessment and Enabling Capability
EPA	Environmental Protection Agency	JLUS	Joint Land Use Study
ESA	Endangered Species Act	JMETL	Joint Mission Essential Task List
EW	Electronic Warfare	JNTC	Joint National Training Capability
FMC	Fully Mission Capable	JTT	Joint Tactical Task
FRTPT	Fleet Response Training Plan	LCE	Logistics Command Element
FRP	Fleet Response Program	LFTIS	Live Fire Training Investment Strategy
FWAATS	Fixed Wing Army National Guard Aviation Training Site	LVC	Live, Virtual, and Constructive
FWS	Fish and Wildlife Service	MAGTF	Marine Air-Ground Task Force
FY	Fiscal Year	MAGTFTC	Marine Air-Ground Task Force Training Center
GAO	Government Accountability Office	MAJCOM	Major Command
GCE	Ground Combat Element	MBTA	Migratory Bird Treaty Act
GDPR	Global Defense Posture Realignment	MCAGCC	Marine Corps Air Ground Combat Center
GIS	Geographic Information System	MCAS	Marine Corps Air Station
HQ	Headquarters	MCB	Marine Corps Base
HQDA	Headquarters Department of Army	MCM	Mine Counter Measures
HQ USAF	Headquarters United States Air Force	MCO	Marine Corps Order
HQ USAF/A7CA	Headquarters U.S. Air Force, Office of the Civil Engineer, Asset Management and Operations Division	MCT	Marine Corps Task
		MDS	Mission Design Series
		MEB	Marine Expeditionary Brigade
		MET	Mission Essential Task
		METL	Mission Essential Task List
		MEU	Marine Expeditionary Unit

MMPA	Marine Mammal Protection Act	ORAP	Operational Range Assessment Plan
MOU	Memorandum of Understanding	ORC	Operational Range Clearance
MOUT	Military Operations in Urban Terrain	ORIS	Operational Range Inventory Sustainment
MR	Management Review	OSD	Office of the Secretary of Defense
MRTFB	Major Range and Test Facility Base	OUUSD(P&R)	Office of the Under Secretary of Defense(Personnel and Readiness)
MTR	Military Training Route	PCMS	Project by Contract Management System
MW	Mine Warfare	PMC	Partially Mission Capable
NACo	National Association of Counties	POM	Program Objective Memorandum
NAS	National Airspace System	PPBE	Planning, Programming, Budgeting, and Execution
NDAA	National Defense Authorization Act	QA/QC	Quality Assurance/Quality Control
NGA	National Geospatial-Intelligence Agency	RAICUZ	Range Air Installations Compatible Use Zones
NGO	Non-Governmental Organization	RAND	Research and Development
NI	Natural Infrastructure	RC	Reserve Component
NIA	Natural Infrastructure Assessment	RCD	Required Capabilities Document
NM	Nanometer	RCMP	Range Complex Master Plan
NMC	Not Mission Capable	RCRA	Resource Conservation and Recovery Act
NMET	Navy Mission Essential Task	RDT&E	Research, Development, and Testing and Evaluation
NOLF	Navy Outlying Landing Field	REPI	Readiness and Environmental Protection Initiative
NSO	Northern Spotted Owl	RIE	Range Information Enterprise
NSW	Naval Special Warfare	RRPB	Requirements Review Prioritization Board
OACSIM	Office of the Assistant Chief of Staff for Installation Management	RRPI	Readiness and Range Preservation Initiative
OCA	Offensive Counterair	RSEPA	Range Sustainability Environmental Program Assessment
OCO	Overseas Contingency Operations	RTAM	Range and Training Area Management
ODUSD(R)	Office of the Deputy Under Secretary of Defense (Readiness)	RTAMS	Range and Training Area Management System
OEA	Office of Economic Adjustment	RTLS	Range and Training Land Strategy
OIPT	Overarching Integrated Product Team	RTTP	Readiness, Training, Policy & Programs
OMFTS	Operational Maneuver from the Sea	SBCT	Stryker Brigade Combat Team
ONISTT	Open Net-Centric Interoperability Standards for Test and Training	SDZ	Surface Danger Zone
OODA	Observe-Orient-Decide-Act		
OPAREA	Operating Area		
OPNAV	Office of the Chief of Naval Operations		
OpOrd	Marine Corps Range Operations Order		

SEAD	Suppression of Energy Air Defenses	UXO	Unexploded Ordnance
SERPPAS	Southeast Regional Partnership for Planning and Sustainability	VACAPES	Virginia Capes
SIP	State Implementation Plan	WGA	Western Governors' Association
SOA	Service Oriented Architecture	WIPT	Working Integrated Product Team
SOCAL	Southern California Range Complex	WRP	Western Regional Partnership
SPOE	Seaport of Embarkation		
SRI	Sustainable Ranges Initiative		
SROC	Senior Readiness Oversight Council		
SRP	Sustainable Range Program		
STW	Strike Warfare		
SUA	Special Use Airspace		
T&E	Test & Evaluation		
T&R	Training and Readiness		
TAP	Tactical Training Theater Assessment Planning		
TAPR	Tactical Training Theater Assessment Planning Repository		
TC	Training Circular		
TCTS	Tactical Combat Training System		
TECOM	Training and Education Command		
TREIS-T	Training Range Encroachment Information System Tool		
TSPI	Time and Space Position Information		
TRAMS	Testing Ranges Repository and Management System		
TAPR	TAP Repository		
TYCOM	Type Commander		
U.S.	United States		
UJTL	Universal Joint Task List		
USAF	United States Air Force		
USFF	United States Fleet Forces		
USC	United States Code		
USJFCOM	United States Joint Forces Command		
USMC	United States Marine Corps		
UTL	Unit Level Training		

F

DoD and Service Sustainable Ranges Policy and Guidance

The following tables identify and describe overarching Departmental and Service range sustainment policy and guidance.

Table F-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.

Table F-1 Overarching DoD Range Sustainment Policy and Guidance (continued)

DoD Range Sustainment Policy and Guidance	Description
<p>DoD Directive 4715.13, Department of Defense Noise Program</p>	<p>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.</p>
<p>DoD Instruction 4715.14, Operational Range Assessments</p>	<p>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.</p>
<p>DoD Instruction 3030.3, Joint Land Use Study (JLUS) Program</p>	<p>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.</p>

Table F-2 Air Force Range Sustainment Policy and Guidance

Air Force Range Sustainment Policy and Guidance	Description
<p>Transforming the Air Force—The Relevant Range...Enabling Air Force Operations</p>	<p>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.</p>
<p>Air Force Policy Directive 13-2, Air Traffic Control, Airspace, Airfield, and Range Management</p>	<p>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.</p>
<p>Air Force Instruction (AFI) 13-201, Air Force Airspace Management</p>	<p>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.</p>
<p>AFI 13-212, Range Planning and Operations</p>	<p>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.</p>
<p>Operational Range Assessment Plan (ORAP)</p>	<p>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.</p>

Table F-2 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 <small>* See Update</small>	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.

Table F-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.

Table F-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 F-5 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.

