

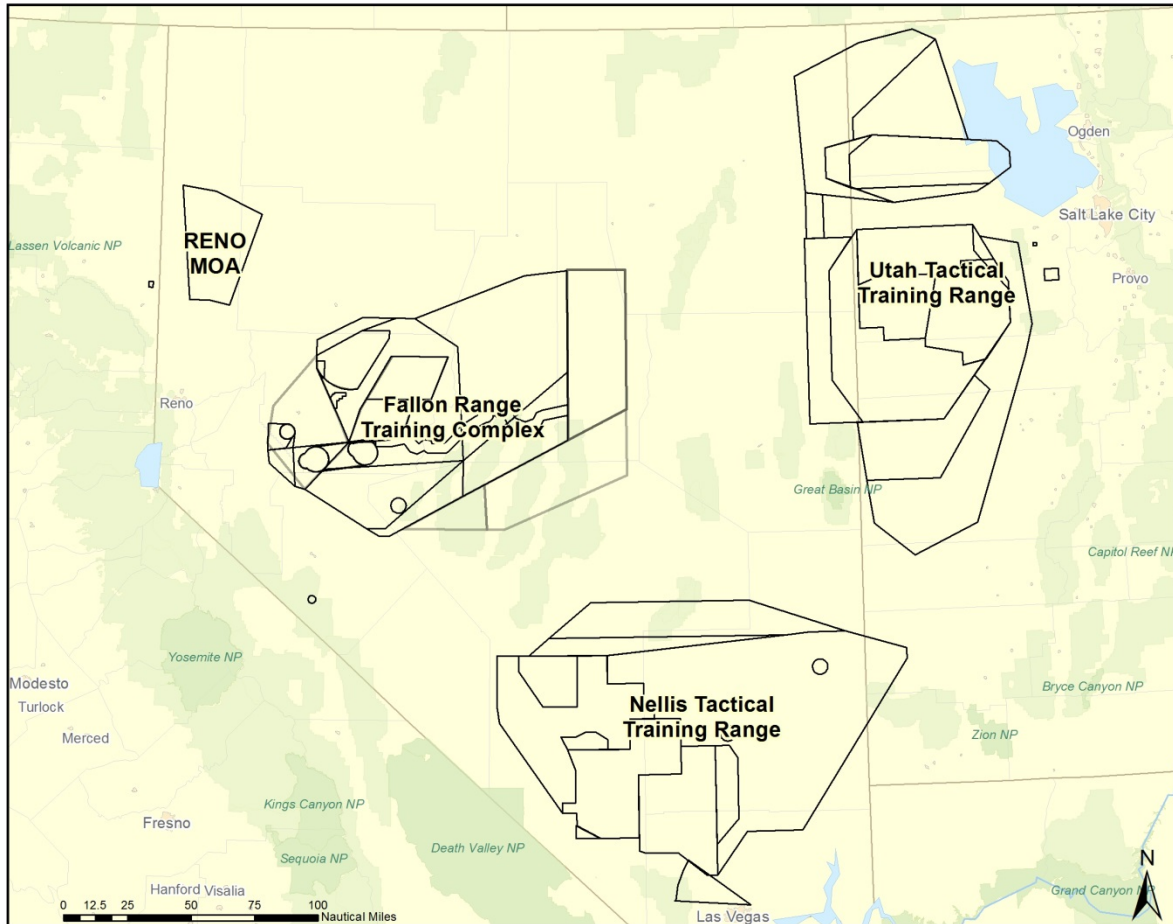
“Ninety Days to Combat”

Required Training Capabilities for the Fallon Range Training Complex 2015-2035



“Fly, Fight, Lead -- Win”

Naval Aviation Warfighting Development Center
Fallon, Nevada
June 2015



Nevada and Utah DOD Training Ranges

Naval Aviation Warfighting Development Center (NAWDC)

Precedent for Pre-deployment Tactical Training

1 Background on the Precedent for Tactical Training

- 1.1 History has demonstrated that the victor enjoyed some level (or levels) of financial, tactical or technological advantage over his foe. The technology landscape is in constant change as countries vie for tactical advantage. Maintaining a technological status quos creates a risk to national security. Designing defense strategies for success requires an understanding of the enemy’s capabilities and review of combat lessons learned for concepts that may improve warfighting capability and doctrine for the future.
- 1.2 Review of previous conflicts have yielded quantum improvements in warfighting capability. The Vietnam era “Ault Report” led to the establishment of the TOPGUN fighter school in 1972, and similar analysis resulted in the establishment of Strike University in 1984. Future success is dependent upon many variables, but is primarily accomplished by knowing the enemies capabilities and designing a strategy for success based upon their capabilities measured against ours. This doctrinal analysis is accomplished by the nation’s military tacticians or Subject Matter Experts (SMEs). The SMEs continuously evaluate threat capabilities and update warfighting doctrine in the form of Tactics, Techniques and Procedures (TTP). For Naval Aviation, the SME and TTP development are accomplished at the Naval Aviation Warfighting Development Center (NAWDC), located in Fallon, Nevada.
- 1.3 Technology and expertise are but two critical elements; there remains one more critical step towards combat success. The TTPs and the Naval Aviation units that will employ them in combat must train in a realistic threat environment. The Navy mantra is: “Train like you fight.” A Marine Corps version is: “the more we sweat in peace, the less we bleed in war.” These maxims are great reminders of the nature of our profession, as they are literally written in blood. It is for this reason that every Carrier Air Wing (CVW), comprised of both USN and USMC Naval Aviation, execute advanced tactical training at Fallon prior to deployment. The mantra for the Fallon training experience is: “Ninety Days to Combat.”

2 Precedent for the Armed Services

Title 10 of the United States Code authorizes the President and Congress to man, train and equip the U.S. Armed Forces.

2.1 **Title 10 United States Code.** Enacted by law 10 August, 1956, Title 10 provides the legal basis for the roles, missions and organization of each of the services as well as the Department of Defense. Title 10 has five subtitles for the separate components of the armed services:

- A Uniform Code of Military Justice
- B Army
- C Navy and Marine Corps
- D Air Force
- E Reserves

2.2 Title 10 also provides the legal framework for the leadership and organization of the U.S. Armed Forces:

- Leadership
 - President (Commander-in-Chief), Secretary of Defense, Joint Chiefs of Staff, the United State Congress; House and Senate Armed Service committees.
- Organization
 - Service Departments (Department of Defense and Service Secretaries)
 - Branches (Army, Navy, Marine Corps, Air Force, Coast Guard)
- Legislation
 - **National Security Act of 1947.** A major restructuring of the U.S. Military, creating a Secretary of Defense and service branches (formerly the Department of War) and created the Air Force.
 - **Goldwater-Nichols Act of 1986.** Increased the powers of the Joint Chiefs of Staff (JCS) and streamlined the military chain of command directly from the President through the Secretary of Defense directly to Combatant Commanders (bypassing the service chiefs). Service chiefs were assigned an advisory role to the President and Secretary of Defense. Outlined the requirement for a National Security Strategy. Also tasked the Chairman of the Joint Chiefs of Staff to address unnecessary duplication of effort among the services.

3 U.S. Department of Defense Strategy for the Armed Forces

Several programs exist within the Department of Defense (DoD) that are used to shape and prepare the U.S. Armed Forces for combat.

3.1 **National Security Strategy (NSS).** A document prepared periodically by the Executive branch for use by Congress which outlines the major national security concerns of the United States. The NSS includes the National Security Strategy Report.

3.2 **National Military Strategy (NMS).** The NMS is issued by the Chairman of the Joint Chiefs of Staff (CJCS) as a deliverable to the Secretary of Defense, which outlines the strategic aims of the armed services. The chief source of guidance is the National Security Strategy. The NMS includes the National Military Strategy Report.

3.3 **Quadrennial Defense Review (QDR).** The QDR is a legislatively-mandated review of Department of Defense strategy and priorities. The QDR sets a long term course for the DoD as it assesses the threats and challenges that the nation faces and re-balances DoD's strategies, capabilities and forces to address today's conflicts and tomorrow's threats.

3.4 **Joint Vision.** Joint Vision is a DoD strategy issued by the Chairman of the Joint Chiefs of Staff (CJCS) in an effort to improve the warfighting capabilities of the services and coalition assets through better integration and to reduce redundancy between the services in accordance with the Goldwater-Nichols Act.

3.4.1 Themes from Joint Vision 2010:

- The requirement for high quality, realistic and stressful training as the primary means of achieving high levels of readiness in preparation for combat.

- Emphasis on the integration of joint capabilities that develop skills that increase individual and organizational effectiveness.
- Enhanced modeling and simulation of the battle space in order to test innovative concepts and new strategies.

3.4.2 Themes from Joint Vision 2020:

- Build and maintain the momentum established with Joint Vision 2010.
- Emphasis on "full-spectrum dominance."
- Describes strategic concepts for decisive force, power projection, overseas presence, and strategic agility required to meet the challenges of the future.
- Recognizes the importance of technology and technical innovation to the US military and its operations.

4 U.S. Department of Defense Directives Pertaining to Training

4.1 Within the DoD, **Directives and Instructions** are drafted in response to the statutory commands issued by Congress in the National Defense Authorization Act and from the guidance provided by the National Security Strategy (NSS); the National Military Strategy (NMS), and other sources.

- **Directives** establish law and policy and delegate authority to DoD components.
- **Instructions** implement the policy set forth in Directives.
- DoDD 1322.18
 - A directive that establishes policy and responsibilities for the training of military individuals, units, and staffs, DOD civilian employees and, when authorized, contractors.
 - Directs that military training programs shall be available to Active and Reserve component personnel.
 - Directs that military training generate and sustain capabilities required by the Combatant Commanders (COCOM) and Chairman of the Joint Chiefs of Staff (CJCS) for all phases of joint campaigns for the full range of integrated operations.
 - Directs that members of the DoD shall receive, to the maximum extent possible, timely and effective individual, collective, and staff training, conducted in a safe manner, to enable performance to standard during operations.
 - Directs the DoD to maintain a comprehensive and effective joint training management capability to develop, execute, and assess military training throughout the Department of Defense.

4.2 DoD Training Range Strategy

4.2.1 The Department of Defense understands the important role that training ranges provide to pre-deployment training of the services and have established programs, Directives and Instructions that provide policy and guidance for the sustainment of the nation's ranges.

Joint Vision 2020: *“In 2020, the nation will face a wide range of interests, opportunities, and challenges and will require a military that can both win wars and contribute to peace. The strategic concepts of decisive force, power projection, overseas presence, and strategic agility will continue to govern our efforts to fulfill those responsibilities and meet the challenges of the future.”*

4.2.2 DoD Directives and Instructions Related to Training Ranges

The DoD has several Directives (DoDD) and Instructions (DoDI) that pertain to the management and sustainment of the nation’s military training ranges:

- DoDD 3200.11 Major Range and Test facility Base.
- DoDD 3200.15 Sustaining Access to the Live training Domain.
- DoDD 3222.04 Electronic Warfare Policy
- DoDD 5410.12 Economic Adj. Assistance to Defense-Impacted Communities
- DoDI 3030.3 Joint Land Use Study Program.
- DoDI 3200.16 Operational Range Clearance.
- DoDI 4650.01 Electromagnetic Spectrum.
- DoDI 4715.6 Environmental Compliance
- DoDI 4715.3 DOD Noise program
- DoDI 4715.14 Operational Range Assessments
- DoDI 4715.16 Cultural Resources Management
- DoDI 4715.17 Environmental Management Systems
- DoDI 5129.47 Center for Countermeasures
- DoDI 6055.15 DOD LASER Protection Program
- DoDI 6055.16 Explosive Safety Management program

4.3 DoD Sustainable Ranges Report

The Sustainable Range Report (SRR) is a product of the 2003 National Defense Act which requires DoD to develop and submit to Congress a comprehensive plan to address training constraints imposed by limitations on the use of available military lands and airspace in the United States and overseas. The SRR also details how DoD actions shall provide for the long-term sustainability of its training ranges.

4.3.1 Focus areas of SRR 2012:

The primary focus area of the 2012 Sustainable Ranges Report was on training. The 2012 SRR discussed the importance of a Sustainable Range Initiative (SRI) and on sustainable range issues:

- The Sustainable Range Initiative (SRI) reflects DoD’s recognition that access to military installations, ranges, OPAREAs, and other lands, sea space, airspace, and frequency spectrum is essential. Having access to these areas provides Soldiers, Sailors, Airmen, and Marines, and their associated equipment, with the realistic training and testing environments needed to prepare them for the diverse peacetime and wartime missions they support around the globe.
- DoD installation and range assets serve as the foundation of the nation’s security because they are critical to maintaining Military Service readiness and mission effectiveness. These assets must be available and adequately resourced when and where needed, and have the capabilities to support current and future military requirements.
- There were seven focus areas in the SRR 2012:
 - Mitigating pressures on training and test activities from competing land and sea space uses.

- Addressing frequency spectrum competition.
- Meeting military airspace challenges.
- Managing increasing military demand for range lands.
- Addressing impacts from new energy infrastructure and renewable energy initiatives.
- Anticipating climate change initiatives.
- Managing current and emerging environmental issues.

4.3.2 Focus areas of SRR 2013:

The focus of the 2013 Sustainable Range Report (SRR) re-emphasized the training range issues addressed in SRR 2012 and added the following concern areas:

- Renewable and alternative energy development
 - Mitigating energy development that potentially degrade training quality or limit tactical maneuver.
- National Broadband Plan and Frequency Spectrum Encroachment
 - FCC initiatives to re-allocate military frequency spectrum bands for civilian and commercial use has adverse effects to Navy training systems:
 - Tactical Combat Training System
 - Electronic Warfare systems (numerous)
 - Unmanned Aerial Systems (UAS)
 - Live Virtual Constructive network implementation
 - Red and Blue tactical training systems

4.3.3 Focus areas of SRR 2014:

The 2014 SRR provided Congress with an update to the DoD 2013 SRR and included the following:

- Revalidated the 2012 SRR current and future range requirements.
- Revalidated the 2012 SRR individual range capability and encroachment assessments.
- Addressed critical range and training issues identified by the Military Services.
- Updated Congress on DoD's comprehensive training range sustainment plan.
- Documents the challenges that the services face in mitigating sustainable range initiatives and encroachment issues due to service budget cuts as a result of the Budget Control Act of 2011, which required DoD and the Military Services to reduce discretionary spending across the Future Years Defense Program (FYDP).

4.4 DoD Readiness and Environmental Protection Integration (REPI)

- REPI is a report that DoD prepares for Congress, required separately under Section 2822 of the Fiscal Year (FY) 2006 National Defense and Authorization Act.
- The REPI report:
 - Describes funding, partnerships and actions that protect habitat and ensure compatible land use around installations.
 - Provides substantive information on how DoD has effectively employed the Congressional authority granted under Section 2684a of the FY2003 NDAA to enter into agreements with private organizations and state or local governments to limit incompatible development, and to preserve diminishing open space around military ranges and installations.

- Compliments the Sustainable Range Reports by addressing actions taken by DoD to mitigate encroachment on military installations and ranges that require, or may reasonably require, safety or operational buffer areas.

4.5 Joint National Training Center Capability

The Joint National Training Center (JNTC) program was born out of the Goldwater-Nichols act and established by the DoD in 2003 in order to promote better joint integration training between the services. The JNTC program is managed by Joint and Coalition Warfighting branch (J7) of the Joint Chiefs of Staff. The JNTC program has a training accreditation and certification process for service programs that qualify.

4.5.1 There are four requirements associated with the JNTC program:

- Credible and adaptive opposing forces.
- Instrumentation that provides a common ground truth among the participants.
- Effective data sharing.
- High quality feedback to improve the assessment of joint training events.

5 Department of the Navy (DoN) Training Strategy

As an outcome of U.S. strategic guidance provided by higher authority, the Navy develops plans and programs that provide guidance for fleet commanders and supporting organizations that prepare deploying Naval forces in a combat ready status in order to serve national interests.

SRR 2013: *“The Navy’s priority is to build and sustain combat skills and readiness. The Navy’s objective via training range capabilities is to sustain realistic training environments and space for freedom of tactical maneuver. When either of those objectives is threatened, the Navy will work to achieve a mitigated solution that preserves security of operations and training capabilities, but will not compromise the ability to survive and prevail in combat.”*

5.1 Naval Transformation Roadmap

The Naval Transformation Roadmap is a naval strategy to support joint transformation by delivering new military capabilities and dramatically enhancing current capabilities to protect and advance America’s worldwide interests by assuring access and projecting power from the sea.

- Joint Transformation Trends
 - Increased Speed
 - Routine Precision
 - Networked Awareness
 - Distributed Sensors
 - Greater Persistence
 - Yielding Integrated Deployment, Employment, & Sustainment

5.2 Optimized Fleet Response Plan

The Optimized Fleet Response Plan (OFRP) is the Navy’s overarching strategy to address pre-deployment training requirements in response to national objectives. The OFRP:

- Reinforces the Chief of Naval Operations (CNO) tenets of “Warfighting First - Operate Forward - Be Ready” by better aligning manning distribution with operational requirements.
- Placing an emphasis on readiness through training.

- Aligns the Fleet's maintenance, training and deployment cycles.
- Ensures the right capabilities, trained to a single, high-end standard and equipped to meet strategic readiness objectives.

5.3 Naval Aviation Vision (2014-2025)

A long term strategic vision for Naval Aviation to ensure the transformation and sustainment of the force in order to meet the nation's defense needs in an unpredictable world.

- Focus on integrated warfighting capabilities.
- System-of-system interoperability.
- Increasing the technological edge.

5.4 Department of the Navy Training Requirements

The Navy must be prepared to support the tasking of the President of the United States and the Secretary of Defense. Strategic guidance comes from many areas: National Security Strategy; National Military Strategy; guidance for development and employment of the force and guidance from the Chairman of the Joint Chiefs of Staff.

SRR 2012: Assessing Current and Future Requirements

“Each Military Service generates training requirements specific to its own mission and command structure, and these requirements are used to develop, document, and execute training objectives and requirements.”

5.4.1 The Navy supports national tasking in specific mission areas, referred to as Primary Mission Areas (PRMARs):

- Anti-Air Warfare (AAW)
- Amphibious Warfare (AMW)
- Anti-Surface Warfare (ASUW)
- Anti-submarine Warfare (ASW)
- Mine Warfare (MIW)
- Strike Warfare (STW)
- Expeditionary Warfare (EXW)
- Electronic Warfare (EW)
- Naval Special Warfare (NSW)

5.4.2 The Navy also supports warfighting objectives developed by the Secretary of Defense from the Unified Joint Task List (UJTL) and the Joint Tactical Tasks (JTTL) list. The Navy uses the UJTL and JTTL to further develop Navy Tactical Tasks (NTA):

- NTA 1.0 – Deploy/Conduct Maneuvers
 - Includes movement of combat and support forces.
 - Maneuver is a dynamic element of combat related to the achievement of a combat advantage.
 - NTA 1.0 activities include: air superiority, strike and power projection, amphibious operations and Naval Special Warfare (NSW) operations.
- NTA 2.0 – Develop Intelligence
 - The development of intelligence required for planning and conducting tactical operations.
 - Includes analyzing the enemy's capabilities, intentions, vulnerabilities and the environment.
 - NTA 2.0 activities include: the development of counterintelligence information and tactical reconnaissance and surveillance.
- NTA 3.0 – Employ Firepower

- Employ firepower against air, ground and sea targets.
- Includes lethal and nonlethal means.
- NTA 3.0 activities include: artillery, mortar, naval gun fire, close air support, counter air, strike interdiction and electronic attack.
- NTA 4.0 – Perform Logistics and Combat Service Support
 - Sustaining the forces in combat by arming, fueling and supplying.
- NTA 5.0 – Exercise Command and Control
 - Exercise authority and direction over assigned forces in order to accomplishment the mission.
 - NTA 5.0 activities include: maintaining and distributing information and synchronizing tactical operations with integrated fire and maneuver.
- NTA 6.0 – Protect the Force
 - Protecting the fighting ability of the force.
 - NTA 6.0 activities include: evacuation of non-combatants, Search and Rescue, Tactical Recovery of Aircraft and Personnel, Force Protection and Anti-Terrorism.

5.4.3 Navy NTAs are further refined into Navy Mission Essential Tasks (NMET) which provide the building blocks used to determine Fleet training requirements. The following is a short list of NMETs:

Deploy & Conduct Maneuver

NTA 1.1.2.1 Establish Protection of Shipping
NTA 1.1.2.4 Conduct Tactical Insert & Extract
NTA 1.2.8 Conduct Tactical Recon. & Surveillance
NTA 1.3.1 Perform Mine Countermeasures
NTA 1.3.2 Conduct Breaching of Minefields
NTA 1.4.1 Conduct Mining
NTA 1.4.4 Detonate Mines/Explosives
NTA 1.5.2 Conduct Maritime Superiority
NTA 1.5.3 Conduct Strike/Power Projection Warfare
NTA 1.5.4 Conduct Amphibious Operations
NTA 1.5.5 Conduct Sustained Operations Ashore
NTA 1.5.6 Conduct Naval Special Warfare Ops
NTA 1.5.7 Conduct Unconventional Warfare

Develop Intelligence

NTA 2.2 Collect Data and Intelligence
NTA 2.2.3 Perform Tactical Recon. & Surveillance
NTA 2.4.5.3 Provide Indications and Warnings
NTA 2.4.6 Provide Intel Support

Employ Firepower

NTA 3.1.1 Request Attack
NTA 3.1.2 Select Target to Attack
NTA 3.1.7 Employ Counter-Targeting
NTA 3.2.1.1 Attack Surface Targets
NTA 3.2.1.2 Attack Submerged Targets
NTA 3.2.2 Attack Enemy Land Targets
NTA 3.2.3 Attack Enemy Aircraft and Missile
NTA 3.2.4 Suppress Enemy Air Defenses (SEAD)
NTA 3.2.5 Conduct Electronic Attack

NTA 3.2.6 Interdict Enemy Forces and Targets
NTA 3.2.7 Intercept, Engage, and Neutralize Enemy Aircraft and Missile Targets
NTA 3.2.8 Conduct Fire Support
NTA 3.2.9 Conduct Non-lethal Engagement
NTA 3.2.10 Integrate Tactical Fires

Perform Logistics and Combat Service Support

NTA 4.2.1 Conduct Fuel Management
NTA 4.5.6 Maintain and Operate Logistics
NTA 4.7.7 Provide Water
NTA 4.9 Train Force and Personnel

Exercise Command and Control

NTA 5.1.3 Maintain Information and Force Status
NTA 5.4.3 Synchronize Ops & Maneuver Firepower
NTA 5.5.1 Plan, Integrate and Employ C2 Attack
NTA 5.5.2 Plan, Integrate and Employ C2 Protect
NTA 5.5.4 Conduct Electronic Warfare Support (ES)
NTA 5.6 Conduct Acoustic Warfare

Protect the Force

NTA 6.2.2 Conduct Deception Operations
NTA 6.2.1 Evacuate Non-combatants from the Area
NTA 6.2.4 Perform Combat Search and Rescue
NTA 6.3.1 Protect and Secure the Area of Operations
NTA 6.3.3 Combat Terrorism
NTA 6.5.1 Provide Disaster Relief

5.4.4 Tactical Feedback and Lesson's Learned

In addition to strategic guidance, the Navy also uses lessons learned from military experience, training evolutions and experimentation in order to develop requirements, formulate an overarching training plan and develop combat Tactics, Techniques, and Procedures (TTP).

5.5 Navy Doctrine, Tactics, Techniques and Procedures

Combat success requires a strategy for the successful employment of warfighting assets. This strategy is developed into combat doctrine. Doctrine facilitates combat readiness by standardizing operations and military tasks. As a part of warfighting doctrine, the Navy develops Tactics, Techniques, and Procedures (TTP) in order to rehearse necessary combat skills at stateside ranges prior to deployment.

6 Department of the Navy Training Range Programs

The Department of the Navy (DoN) has several programs that provide guidance for the sustainment of DoN training ranges.

6.1 Tactical Training Theater Assessment and Planning (TAP) Program

The TAP program was developed by the Navy in 2002 in order to serve as the overarching fleet training area sustainment program. The purpose of TAP is to support Navy objectives that:

- Promote the use and management of ranges in a manner that supports national security objectives and a high state of combat readiness.
- Ensure the long-term viability of range assets while protecting human health and the environment.

Key components of the TAP program include:

- A range capability assessment process.
- Comprehensive environmental planning.
- Navy specific Range Complex Management Plans.
- Navy Ranges Required Capabilities Document.

6.2 Navy Ranges Required Capabilities Document

The Navy Range Capabilities Document (RCD) was developed in order to augment and support range management objectives by identifying the required training space for Navy ranges. The RCD describes the capabilities that a range of a given type and assigned role and mission must have to support the type of training or testing assigned to that range by the Navy Ranges Strategic Study.

6.2.1 The RCD provides a capabilities template may be used to perform a gap analysis between a ranges current-versus-required capabilities; required capabilities that will allow Navy ranges to support mission essential training in an unconstrained environment. RCD capability shortfalls then provide a basis for follow-on investment strategies.

6.2.2 The RCD describes the required capabilities for training ranges for three levels of training complexity (Basic, Intermediate, and Advanced) along the Navy's Primary Mission Areas (PRMARs).

6.2.3 The RCD also discusses the requirements associated with joint training. The 2002 Training

Transformation (T2) plan mandated at least 25 percent of all Department of Defense (DoD) training should be conducted in a joint environment. The T2 mandate requires the Navy to identify specific ranges for certification to host joint training exercises. The Joint National Training Capability (JNTC) program (discussed in section 4.5) is tasked with providing the specific requirements associated with range certification for joint training.

6.3 Range Complex Management Plan

The Navy's Range Complex Management Plan (RCMP) is a TAP program tool, designed to address and plan for all aspects of range sustainment, range management procedures, record keeping and to organize internal components in order to achieve TAP program objectives. The RCMP:

- Describes the current range infrastructure; management organization, training requirements and makes recommendations for range investments.
- Analyzes current range capabilities, utilizing the Required Range Capabilities (RCD) document to identify capability "gaps" and make investment recommendations over a 10 year planning cycle.

6.4 Range Air Installation Compatible Use Zones (RAICUZ)

The Navy's RAICUZ program is designed to protect public health, safety and welfare, and to prevent encroachment from degrading the operational capabilities of air-to-surface ranges. The RAICUZ program includes range safety and noise analysis, and provides land use recommendations that are compatible with Range Compatibility Zones and noise levels associated with military range operations.

Periodically, the Navy conducts a RAICUZ study for each range in order to:

- Quantify range compatibility zones and aircraft noise zones affected by weapons and noise impacts.
- Develop a strategy to promote compatible land development with regard to public health and safety.
- Identify and program land acquisition in critical areas where actions to achieve compatibility within the RAICUZ program is desired.

7 Mission of U.S. Naval Aviation

The mission of U.S. Naval Aviation is to support the objectives of the President of the United States and the Department of Defense, worldwide and at all times.

7.1 Commander, Naval Air Forces

Commander, Naval Air Forces (CNAF), located in San Diego, California, is in command of all U.S. Navy aviation assets. CNAF is responsible for the material readiness, administration, training, and inspection of units/squadrons under their command and for providing operationally ready air squadrons and aircraft carriers to the fleet.

The mission of CNAF is to man, train and equip a Naval Air Force that is forward deployed in direct support to the Fleet and Unified Commanders.

7.1.1 Naval Aviation Enterprise

The Naval Aviation Enterprise (NAE) is a CNAF led program designed to sustain and advance Naval Aviation warfighting capabilities.

“Naval Aviation continues to be in high demand, operating forward in every region of the world, and engaged in combat operations in Iraq and Syria. I am committed, along with all our NAE leaders, to identifying and solving our most impactful readiness degraders and maintaining the wholeness of our aviation fleet - as an enterprise – in order to ensure our aviators, aircrew and maintainers have the resources they need to focus on warfighting first, to be ready to operate forward and to continue to be successful when they sail or fly in harm’s way.”

- Vice Admiral Mike Shoemaker, Commander, U.S. Naval Air Forces

Naval Aviation Enterprise principles include:

- Improve readiness, sustain the fleet and increase efficiencies.
- Apply disciplined, process-driven, analytical methodologies.
- Use consistent, integrated and hierarchical metrics.
- Ensure full and consistent transparency of data, information and activities.
- Establish and maintain accountability for actions and results.
- Commit to active participation.
- Understand the single fleet driven metric: Naval Aviation forces efficiently delivered for tasking.

7.2 Mission of the Naval Aviation Warfighting Development Center (NAWDC)

The Naval Aviation Warfighting Development Center (NAWDC), located in Fallon, Nevada, is the schoolhouse Center-of-Excellence (COE) for Naval Aviation and Naval Strike Warfare.

7.2.1 The mission of NAWDC is to train Naval Air Forces in advanced Tactics, Techniques and Procedures (TTP) across all assigned combat mission areas, and the development, validation and standardization of combat TTPs for Naval Aviation and the training of Carrier Air Wings to execute Major Combat Operations.

Joint Vision 2010: *“Realistic and stressful training has been the primary way to keep readiness high and prepare our men and women to face the challenges of combat. Such training, consisting of carefully balanced programs of individual, crew, and larger organizational training and assessments, is central to training the way we will fight.”*

7.2.2 NAWDC is also designated as the Military Range Commander (MRC) for the Fallon Range Training Complex (FRTC). As MRC, NAWDC is tasked to develop and maintain the Fallon Range Complex Management Plan (RCMP) and to identify range and airspace capabilities for existing and future training operations.

7.2.3 NAWDC is jointly accredited via the JNTC program (section 4.5) in two areas:

- Air Wing Fallon JNTC Program
- NAWDC Joint Close Air Support (JCAS) JNTC Program

7.3 Mission of the Fallon Range Training Complex (FRTC)

The Fallon Range Training Complex (FRTC) is the Navy’s premier range for advanced strike warfare training. Every Carrier Air Wing conducts advanced strike warfare training at Fallon prior to deployment.

7.3.1 The FRTC’s contribution to Naval Aviation readiness is unique and the location of the FRTC was chosen by the Navy for its ability to provide the airspace and training ranges necessary in order to train deploying forces at the advanced level of combat TTP employment. The FRTC is a crown jewel asset for Naval Aviation and its capabilities are not replicable anywhere else in the world.

7.3.2 The quantitative evaluation and certification of Naval Aviation’s live end-to-end training capability and platform and weapon TTP development/refinement is largely accomplished by NAWDC at the FRTC. The FRTC provides the Land, Airspace and Training Systems necessary to:

- Train deploying forces in a realistic and complex threat environment.
- Increase their understanding and proficiency of combat TTPs.
- Assess the combat readiness of deploying forces.

SRR 2012: *“Having access to high quality range resources and infrastructure is fundamental to ensuring military readiness.”*

7.3.3 The FRTC trains deploying Naval Aviation forces in all tasked mission areas. This includes the Joint Tasks and NTAs discussed in section 5.4 and the following Navy mission areas:

- | | |
|---------------------------|-------------------------------|
| ▪ Anti-Air Warfare (AAW) | ▪ Anti-Surface Warfare (ASUW) |
| ▪ Strike Warfare (STW) | ▪ Expeditionary Warfare (EXW) |
| ▪ Electronic Warfare (EW) | ▪ Naval Special Warfare (NSW) |

7.3.4 The FRTC trains and supports upwards of twenty-five Major Training Events (MTE) per year, supporting tactical Naval Aviation training at the individual, unit/squadron and group/advanced/integrated levels. A Major Training Event (MTE) is at least 3-4 weeks in duration and is comprised of multiple training events and Large Force Exercises (LFE). MTE’s and LFE’s fully utilize all FRTC capabilities and are the primary mission areas for NAWDC advanced strike warfare training and assessment.

	<u>Annual Events Supported</u>
Carrier Air Wings (CVW)	
• CVW Full detachments	4 *
• CVW Sustainment detachments	2-3 *
• CVW Strike of the month	8
• CVW Off-Carrier Strike	2
Advanced Readiness Programs (ARP)	
• Strike Fighter ARP	4 *
• Helo ARP	4
• Electronic Warfare ARP	5 *

Weapons and Tactics Courses		
• TOPGUN SFTI		3 *
• Seawolf WTI		3 *
• Growler WTI		3 *
• Hawkeye WTI		2
• Viper U Course		4
Other Unit Level Training (ULT)		
• Fleet ULT Events	750-1250 (3-5 per day)	

* Considered a Major Training Event in terms of duration (3-4 weeks) and high level of training resources involved in support.

7.3.5 Platforms supported at the FRTC:

- | | | |
|-------------|----------|----------|
| • F/A-18C/D | • E-2 | • CH-47 |
| • F/A-18E/F | • E-3 | • OH-58 |
| • E/A-18G | • E-8 | • MK-58 |
| • B-1 | • P-3 | • OV-10 |
| • B-52 | • P-8A | • C-402 |
| • F-5 | • KC-10 | • C-130 |
| • F-15 | • KC-135 | • RQ-4 |
| • F-16 | • B-707 | • RQ-9 |
| • F-21 | • UH-1 | • MC-12 |
| • F-22 | • UH-60 | • AT-802 |
| • F-35 | • MH-60 | |

Some of these Joint platforms participate in Fallon training events as a part of the DoD’s Joint National Training Capability (JNTC) accreditation/certification program.

SRR 2014: *“Effective training is the cornerstone for success in carrying out DoD’s missions. Ensuring effective training will continue to challenge the Department through this period of constrained budgets, rapidly evolving military capabilities, competition for the land, sea, air, and frequency spectrum that training requires, and evolving threats”.*

8 Summary on the Precedent for Tactical Training

8.1 The precedent for the Navy to train deploying forces in combat Tactics, Techniques and Procedures (TTP) begins with Title 10 and the authority for the President of the United States, Congress and the Department of Defense, to man, train and equip the services for combat.

8.2 Threat assessments ultimately determine required warfighting capabilities. Required warfighting capabilities derive Tactics, Techniques and Procedures (TTP). Combat readiness is attained when TTPS are trained to in a threat-realistic environment.

8.3 The responsibility to train deploying Naval Aviation forces resides with the Naval Aviation Warfighting Development Center (NAWDC). NAWDC must ensure the combat readiness of our deploying forces by assessing their combat TTP execution in a threat-realistic environment.

NAWDC utilizes the Fallon Range Training Complex (FRTC) in order to accomplish these mission objectives.

8.4 The FRTC is the final stop in the shore-based phase of the Optimized Fleet Response Plan (OFRP) for the preparation and assessment of our deploying Naval Aviation and Naval Special Warfare forces. The FRTC must be sufficiently resourced, maintained and prepared to exercise the Carrier Air Wing to its full capability and capacity in order to provide combat ready forces for deployment in support of U.S. National Security objectives.

Naval Aviation Warfighting Development Center (NAWDC)

Required Warfighting Capabilities

1: Background

1.1 This chapter analyzes the mission and training requirements for Naval Aviation at the Fallon Range Training Complex (FRTC) and translates those requirements into Land and Airspace requirements.

1.2 The Naval Aviation Warfighting Development Center (NAWDC) is tasked to meet the training objectives of the U.S. Department of Defense Primary Mission Areas and Navy Tactical Tasks (NTA):

Primary Mission Areas:

- Anti-Air Warfare (AAW)
- Strike Warfare (STW)
- Electronic Warfare (EW)
- Expeditionary Warfare (EXW)
- Anti-Surface Warfare (ASUW)
- Naval Special Warfare (NSW)

Navy Tactical Tasks (NTA):

- NTA 1.0 – Deploy/Conduct Maneuvers
- NTA 2.0 – Develop Intelligence
- NTA 3.0 – Employ Firepower
- NTA 4.0 – Perform Logistics
- NTA 5.0 – Exercise Command and Control
- NTA 6.0 – Protect the Force

2: Background on Tactical Training Capabilities

2.1 Combat Readiness and the Fog of War

2.1.1 Within the Optimized Fleet Response Plan (OFRP), forces preparing for deployment begin their turn-around training cycle in a “crawl, walk, run” fashion. This equates to training phases of basic, intermediate, and advanced levels. As the level of training progresses, an increasingly more sophisticated training environment is presented in an effort to mature deploying forces to the advanced level.

2.1.2 Training to the advanced level requires that deploying forces execute assigned combat TTPs in the most realistic training environment available. The end goal is combat success as derived from realistic and meaningful training.

2.1.3 The level of combat readiness required and the metrics that define it are (from Chapter 1) determined by threat assessments:

- Threat assessments determine combat Tactics, Techniques, and Procedures (TTP).
- Combat TTPs are used to design the training environment.
- Combat readiness is achieved when the trained element executes combat TTPs in a complex and realistic environment where performance is assessed and measured against an adequate standard or metric.

2.1.4 Possible outcomes of failing to train to a threat-realistic environment include the potential for:

- Loss of lives and/or warfighting assets in combat.
- Less than optimal combat success.
- Inaccurate or insufficient TTP employment.
- Unit overconfidence as induced by success achieved in a less stressed environment.

2.1.5 For Naval Aviation, this level of combat training is conducted by NAWDC at the FRTC during the advanced and sustainment phases of the OFRP.

2.1.6 One of the missions of NAWDC is to induce the “fog of war” associated with combat to such a degree that deploying forces will be challenged to an appropriate level of complexity in order to achieve satisfactory combat TTP execution prior to deployment.

2.1.7 In order to achieve required combat readiness levels, the Navy strives for pre-deployment training objectives that allow for:

- The employment of combat systems in a threat-realistic training environment.
- The employment of weapons systems at realistic combat TTP envelopes.
- Full weapon system employment in a live scenario.
- Assessment of combat TTPs and combat readiness.
- Capability to assess training shortfalls and assign mitigation measures across appropriate portions of the OFRP.

2.1.8 The following are just some examples of Air Wing training metrics collected by NAWDC in order to evaluate Combat TTP proficiency:

- | | |
|--|---------------------------------|
| ○ % of air-to-air missile shots taken | ○ % of blue-on-blue fratricide |
| ○ % of air-to-air missile shots assessed as valid | ○ % of blue-on-white fratricide |
| ○ % of surface-to-air shots taken | ○ % of ordnance released |
| ○ % of surface-to-air shots assessed as valid (surface-to-air counter tactics) | ○ % of fused ordnance on target |

Some of this data is recorded during live events and some data is recorded from advanced simulations.

2.2 Types of Training Environments

2.2.1 Training proficiency may be obtained via several types of training venues, sometimes referred to as the LVC construct:

- *Live*: Training that involves actual personnel operating actual systems in a realistic training environment.
- *Virtual*: Training that involves actual personnel operating simulated systems in a synthetic environment.
- *Constructive*: Training that involves actual or simulated personnel operating simulated or constructive systems in a constructive environment.

2.2.2 Certain areas of pre-deployment training, especially at the basic and intermediate stages, may be accomplished by either Virtual or Constructive (V/C) training techniques. V/C training may contribute to overall readiness to certain degrees, but at some point within the advanced training phase of the OFRP it becomes essential to assess the combat capability of the unit in a live training environment.

2.3.3 End-to-end (full cycle) live training is critical in order to:

- Exercise the full cycle of the particular weapon systems (planning, building, loading and employment requirements)
- Fully assess combat TTP execution.
- Fully assess the level of combat proficiency (combat readiness).

These advanced type assessments cannot be accomplished in the V/C arena alone.

3: FRTC Overarching Requirements ISO Combat Readiness

3.1 The mission of the FRTC is to challenge the advanced-level unit to execute combat TTPs in a complex and realistic environment in order that deploying forces may achieve a high degree of combat readiness prior to deployment.

SRR 2014: *“DoD ranges must provide the capacity and capabilities needed for effective training. Ranges give our nation’s military personnel the ability to train as they will operate which maximizes the probability of mission success and reduces the risk of casualties. Through the Sustainable Ranges Initiative (SRI) and related efforts, DoD is working to sustain the capability to train on its ranges.”*

3.2 Training realistically at the advanced level requires a moderate investment in range resources and infrastructure, as follows:

3.2.1 Training Space

- Land
 - Land is required in order to train in realistic environments.
 - Open land where training activities are nonhazardous.
 - Closed lands in order to protect the public from potentially hazardous activities.
- Airspace
 - Airspace is required in order to train in realistic environments.
 - Military Operating Areas (MOA) and Air Traffic Control Assigned Airspace (ATCAA) where training is nonhazardous.
 - Restricted Areas are required in order to protect commercial and general aviation from potentially hazardous training activities.

3.2.2 Training Systems and Infrastructure

- Blue Force Systems

- Systems that are required to support the local training platform architecture:
 - Blue Force Communications and Link systems.
 - Blue Force Training Support Systems.
- Opposition Force (OPFOR) Systems
 - Red Force Systems provide for a realistic threat environment with air and ground threats (opposing forces):
 - Threat Opposing Forces.
 - Threat Ground Targets and Target Complexes.
 - Threat Electronic Warfare Systems.
- Instrumentation Systems
 - White Force Systems provide monitoring and control of training events for safety purposes and to record and playback event data for quantitative performance feedback and collection of performance based metrics:
 - Instrumentation & tracking systems.
 - Tactical record, display and debrief systems.
 - Range Control (monitoring & safety) systems.
 - Data recording systems (for metric assessments).

3.2.3 Encroachment Protection Measures

- Training activities that achieve critical mission requirements must be protected from incompatible types of encroachment activities that degrade training capability and/or realism:
 - Renewable energy:
 - Solar, Wind and Geothermal development.
 - Renewable energy infrastructure development.
 - Mining activities and access to mineral rights.
 - Cultural lighting effects.
 - Frequency Spectrum encroachment.
- The long term preservation and sustainment of training activities requires a training sanctuary free from infrastructure development that is harmful to the mission:
 - Towers and ground facilities.
 - Unobstructed airspace for low altitude flight operations.
 - Unimpeded ground operations.
 - Use of Night Vision Devices (NVD).
 - Cultural Lighting.
 - Frequency Spectrum sanctuaries.

SRR 2013: *“The Navy’s priority is to build and sustain combat skills and readiness. The Navy’s objective via training range capabilities is to sustain realistic training environments and space for freedom of tactical maneuver. When either of those objectives is threatened, the Navy will work to achieve a mitigated solution that preserves security of operations and training capabilities, but will not compromise the ability to survive and prevail in combat.”*

4: FRTC Bombing Range (Closed Land) Analysis

SRR 2014: *“Define future requirements for land ranges and other areas to support training, current and projected land shortfalls, and possible courses of action to mitigate shortfalls at Navy range complexes.”*

4.1 Background on the Land Analysis Process

- Threat assessments and mission requirements are used to derive combat Tactics, Techniques, and Procedures (TTP).
- Combat TTPs determine tactical training capabilities.
- Tactical training capabilities produce weapon system employment parameters.
- Weapon system employment parameters (for air-to-surface weapons) are entered into the Weapon’s Danger Zone (WDZ) program.
- The WDZ program outputs ground weapon “footprints.”
- Ground weapon footprints define land training space requirements.
- As air-to-surface training is potentially hazardous to the public, these land space requirements define closed land (Bombing Range) requirements.

4.2 Land Analysis Tools and Methodology

The Navy uses the Weapons Danger Zone (WDZ) program to analyze air-launched weapons and the Surface Danger Zone (SDZ) program to analyze surface-fired ordnance and small arms. Both the WDZ and SDZ programs were used to compile the data related to land capabilities that are outlined in this chapter.

4.3 Training Non-Combat Expenditure Allowance (NCEA)

In order to execute the full cycle “Live” training execution of combat TTPs during the Optimized Fleet Response Plan (OFRP), the Navy provides deploying forces with a Non-Combat Expenditure Allowance (NCEA) in order to train to and attain weapon combat proficiency prior to deployment.

4.3.1 The Navy releases approximately 85% of its training NCEA at Fallon during the advanced phase of pre-deployment training. The following NCEA list represents the type of ordnance expended at Fallon on a routine and persistent basis:

- | | | |
|-------------------|---------------|-------------------|
| ○ BDU-33/45/48/50 | ○ LGTR | ○ 105 mm |
| ○ BLU-110/111 | ○ MK 76 | ○ 20mm / 40mm |
| ○ GBU-10/12/16 | ○ MK 82/83/84 | ○ 5.56 / 7.62 mm |
| ○ GBU-31/32/38/54 | ○ MK 106 | ○ 50 Cal |
| ○ APKWS | ○ AGM-114 | ○ 2.75/5.0 Rocket |

Weapon vocabulary:

Bomb Dummy Unit (BDU)
Bomb Live Unit (BLU)
Guided Bomb Unit (GBU)
Advanced Precision Kill Weapon System (APKWS)
Laser Guided Training Round (LGTR)
Mark (MK) A generic weapon designation

Air-to-Ground Missile (AGM)
Stand-off Land Attack Missile (SLAM)
SLAM Expanded Response (ER)
Joint Air-to-surface Missile (JASM)
Maverick (AGM-165)
Joint Standoff Weapon (JSOW)

4.3.2 These NCEA weapons play a critical role in NAWDC’s assessment of weapon TTP employment metrics that measure combat readiness at the advanced level of the OFRP.

4.3.3 This weapons list does not include the family of long-range weapons such as:

- SLAM ER
- JASM
- AGM-165
- JSOW

These types of weapons are not included in the FRTC analysis for the following reasons:

- They are not released in routine or persistent numbers in combat or at the FRTC.
- They are weapons that have extremely large weapon release envelopes that make land and airspace compatibility at the FRTC impractical.

4.3.4 Weapon systems continue to be developed and designed with increased range release parameters in order to counter increasing threat capabilities.

4.3.5 The Navy strives to provide the most realistic training scenarios possible, including releasing weapons at profiles consistent with training (TTP) doctrine. This employment of weapons at increased ranges in a training environment is critical to developing the proficiency required for combat success.

4.3.6 Training with these weapons supports Naval Aviation in the primary mission area of Strike Warfare (STW) and Naval Tactical Tasks (NTA):

NTA 1.5.2 Conduct Maritime Superiority
 NTA 1.5.3 Conduct Strike/Power Projection Warfare
 NTA 1.5.4 Conduct Amphibious Operations
 NTA 1.5.5 Conduct Sustained Operations Ashore
 NTA 1.5.6 Conduct Naval Special Warfare Ops

NTA 2.2 Collect Data and Intelligence
 NTA 2.4.6 Provide Intel Support

NTA 3.0 – Employ Firepower
 NTA 3.1.2 Select Target to Attack
 NTA 3.2.1.1 Attack Surface Targets
 NTA 3.2.1.2 Attack Submerged Targets
 NTA 3.2.2 Attack Enemy Land Targets
 NTA 3.2.3 Attack Enemy Aircraft and Missile
 NTA 3.2.4 Suppress Enemy Air Defenses (SEAD)
 NTA 3.2.5 Conduct Electronic Attack

NTA 3.2.6 Interdict Enemy Forces and Targets
 NTA 3.2.7 Intercept, Engage, and Neutralize Enemy Aircraft and Missile Targets
 NTA 3.2.8 Conduct Fire Support
 NTA 3.2.9 Conduct Non-lethal Engagement
 NTA 3.2.10 Integrate Tactical Fires

NTA 5.1.3 Maintain Information and Force Status
 NTA 5.4.3 Synchronize Ops & Maneuver Firepower
 NTA 5.5.1 Plan, Integrate and Employ C2 Attack
 NTA 5.5.2 Plan, Integrate and Employ C2 Protect
 NTA 5.5.4 Conduct Electronic Warfare Support (ES)

NTA 6.2.1 Evacuate Non-combatants from the Area
 NTA 6.2.4 Perform Combat Search and Rescue
 NTA 6.3.3 Combat Terrorism
 NTA 6.5.1 Provide Disaster Relief

4.4 Weapon Classes

Refer to Table 2-1. For simplicity in this analysis, the Navy’s NCEA weapons list has been divided into four categories of weapons “classes” based upon weapon release standoff distances, from small to large.

- LASER Guided Weapon (LGW) Class
 - The smallest class of the NCEA weapon footprints.

- Includes the class of all LASER Guided weapons (LGW) except for the Dual Mode Laser Guided Bomb (DMLGB).
- Also includes all weapons with WDZs smaller than the LGW Class (such as the family of general purpose bombs).
- Joint Direct Attack Munition (JDAM) Class
 - The basic category of NCEA standoff (smart) weapons.
 - Includes all types and sizes of the JDAM family.
- HELLFIRE (HF) Class
 - The class of NCEA standoff missiles.
 - Includes the AGM-114 class of HELLFIRE missiles.
- Dual Mode LASER Guided Bomb (DMLGB) Class
 - The largest class of NCEA weapons which require the maximum employment parameters for realistic standoff distances.
 - Includes weapons with up to 14NM of standoff capability.

Weapons Category	Weapons Release Parameters			
	Altitude MSL	Release Range NM	Dive Angle	Release Azimuth
LASER Guided Weapons (LGW)	30K	1-5	+5 to -55	0-360
Joint Direct Attack Munition (JDAM)	30K	2-10	0 to -40	0-180
HELLFIRE (HF)	2K	.6 – 4.3	0 to -5	0-180
Dual Mode LASER Guided Bomb (DMLGB)	30K	2-14	0	0-180

Table 2-1. Naval Aviation Weapons Categories and Required Release Parameters

4.5 Required Weapon Release Parameters

The weapon release parameters listed in Table 2-1 represent the NAWDC-approved, tactically acceptable release parameters for the current cadre of Navy NCEA. These parameters do not represent the full system combat capability, but are an acceptable offset from the combat TTP for training purposes. These parameters support:

- Practical/acceptable weapon release ranges for training purposes.
- A maximum of 30,000 feet release altitude, above Mean Sea Level (MSL).

- A required 360° attack azimuth (release heading) for the Laser-Guided Weapons (LGW) class of munitions.
- A 180° attack azimuth for all other munitions classes.
- A minimum 10 NM release range for the JDAM class.
- A minimum 14 NM release range for the Dual Mode Laser-Guided Bomb (DMLGB) class.

4.5.1 Weapon Footprint Determination

Refer to Figure 2-1. When the parameters from Table 2-1 are entered into the Weapons Danger Zone (WDZ) program (described in section 4.2) the output is a map depicting with 99.99% certainty where all released ordnance may impact. Data such as this may be used to determine bombing range (closed land) requirements.

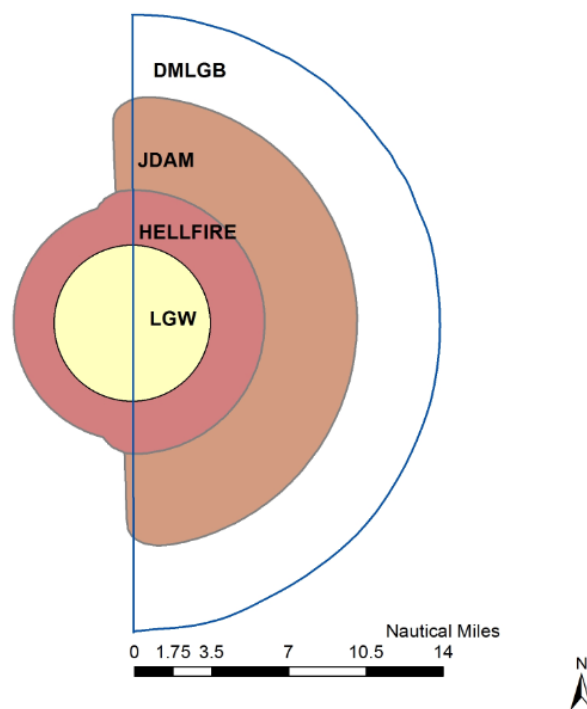


Figure 2-1. FRTC Required Weapons Release Envelopes

4.6 Bombing Range Requirements

4.6.1 Bombing ranges perform an essential service towards the overall validation and assessment of combat TTPs by providing the scenario complexity required for the advanced level of weapons training by providing targets and target area complexes that provide key attributes:

- Bombing ranges consisting of closed lands:
 - That accommodate WDZ footprints.
 - Representative of a realistic training space.
 - Segregated (and fenced) from the public for safety purposes.
- Bombing range target complexes:
 - Realistic target complexes.
 - Realistic target sets.
- Bombing range redundancy:
 - Multiple/redundant bombing ranges for threat scenario complexity.
 - Multiple bombing ranges for Large Force Exercises (LFE) and in order to train to the advanced level.
- Target Complexity:
 - Multiple targets and target complexes at each range (threat scenario complexity).
- Target Redundancy:
 - Multiple target areas being used simultaneously for Large Force Exercises and to provide target area complexity.
 - Multiple Joint Direct Points of Impact (JDPI) for target area complexity and real world target threat representation (threat scenario complexity).
- Target Fidelity:
 - Target maintenance and sustainment programs in order to maintain a realistic appearance for targets and target area complexes.

4.6.2 These bombing range training attributes are required in order to provide a threat-realistic training environment by inducing the high intensity stressors required in order to prepare our deploying forces for success in combat. These types of investments in training improve survivability and preserve assets for the future.

4.7 Special Operations Forces (SOF) Integration

A major focus area for integrated training at Fallon is the requirement for Naval Aviation tactical platforms to train with Special Operations Forces in the mission area of “SOF Integration” prior to deployment. SOF Integration benefits both Naval Aviation platforms and ground SOF forces (Naval Special Warfare) in the training of Tactics, Techniques and Procedures (TTP) in the following mission areas:

NTA 1.1.2.4 Conduct Tactical Insert & Extract
NTA 1.2.8 Conduct Tactical Recon. & Surveillance
NTA 1.3.2 Conduct Breaching of Minefields
NTA 1.4.4 Detonate Mines/Explosives
NTA 1.5.4 Conduct Amphibious Operations
NTA 1.5.5 Conduct Sustained Operations Ashore
NTA 1.5.6 Conduct Naval Special Warfare Ops
NTA 1.5.7 Conduct Unconventional Warfare

NTA 2.2 Collect Data and Intelligence
NTA 2.2.3 Perform Tactical Recon. & Surveillance
NTA 2.4.5.3 Provide Indications and Warnings
NTA 2.4.6 Provide Intel Support

NTA 3.1.1 Request Attack

NTA 3.1.2 Select Target to Attack
NTA 3.1.7 Employ Counter-Targeting
NTA 3.2.1.1 Attack Surface Targets
NTA 3.2.2 Attack Enemy Land Targets
NTA 3.2.4 Suppress Enemy Air Defenses (SEAD)
NTA 3.2.6 Interdict Enemy Forces and Targets
NTA 3.2.8 Conduct Fire Support
NTA 3.2.9 Conduct Non-lethal Engagement
NTA 3.2.10 Integrate Tactical Fires

NTA 5.4.3 Synchronize Ops & Maneuver Firepower
NTA 5.5.1 Plan, Integrate and Employ C2 Attack
NTA 5.5.2 Plan, Integrate and Employ C2 Protect

NTA 6.2.2 Conduct Deception Operations

NTA 6.2.1 Evacuate Non-combatants from the Area
 NTA 6.2.4 Perform Combat Search and Rescue
 NTA 6.3.1 Protect and Secure the Area of Operations

NTA 6.3.3 Combat Terrorism
 NTA 6.5.1 Provide Disaster Relief

4.8 Naval Special Warfare Closed Land Requirements

Refer to Table 2-2. This table lists the categories of training events required by Naval Special Warfare at the FRTC and lists the firing ranges and azimuths required for these training and weapon categories.

4.8.1 Naval Special Warfare (NSW) trains to the mission of Tactical Ground Mobility at the FRTC and has the following weapons training requirements:

- Multiple training areas with threat and target complexity and redundancy in order to accommodate Immediate Action Drills (IAD) training.
- 360° field of fire for small arms and up to 7.62 and 40mm.
- 180° field of fire for .50 Cal.
- 360° field of fire at multiple firing positions (scenario realism and complexity).
- Fixed and rotary wing aviation platform Close Air Support (CAS) integration.
- On and off-trail routes in various types of terrain environments.

4.8.2 The figures in Table 2-2 represent the Naval Special Warfare (NSW) combat training requirement with tactically acceptable Surface Danger Zones (SDZ). These SDZs were used in the design of the proposed expansion of the Bravo 16 range (outlined in Annex A).

Training Event	Weapon Caliber	Firing Azimuth (degrees)	Firing Range (meters)
Static Live Fire	5.56/7.62/300WM/.50Cal/40mm/84mm	40	7.5K
Basic Live Fire IADs (Open Terrain)	5.56/7.62/40mm/84mm	360	4.1K
Advanced Live Fire IADs (Open Terrain)	5.56/7.62/40mm/84mm	360	4.1K
Adv. Live Fire IADs (.50 Cal open terrain)	.50 Cal	180	6.8K
Adv. Live Fire IADs (Urban Village)	5.56/7.62/40mm/84mm	360	4.1K
Integrated CAS	MK-76 / 20mm TP	360	9.2K

Table 2-2. Naval Special Warfare Weapons Classes for the FRTC

4.8.3 Naval Special Warfare (NSW) also trains to the mission of SOF Integration between Naval Aviation platforms and NSW units, as described in section 4.7.

5: FRTC Open Land Training Requirements

5.1 Open lands are used to accomplish critical mission training objectives for the Navy. Open lands are public lands that are withdrawn from the Bureau of Land Management (BLM) using the same process as for closed lands, with the primary exception being that open land activities are nonhazardous to the public.

5.1.1 The mission types of open land training for Naval Aviation include:

- Integrated air and ground events
- Combat Search and Rescue (CSAR)
- CSAR Rescue Mission Escort
- Convoy Operations
- Convoy Escort
- Simulated Close Air Support (CAS)
- Simulated Military Operations in Urban Terrain
- Helicopter Mountain Flying Course
- Helicopter Rope Suspension Training (HRST)
- Special Operations Infiltration/Exfiltration
- Time Sensitive Targeting
- Electronic Warfare (EW)
- EW in Mountainous Terrain
- Intelligence, Surveillance, & Reconnaissance

5.1.2 The mission types of open land training for Naval Special Warfare include:

- Tactical Ground Mobility driver training.
- Long Range Navigation.
- Integrated Direct Action assaults in open and urban terrain:
 - Helicopter Assault Force (HAF)
 - Vehicle Assault Force (VAH)
 - Ground Assault Force (GAF)
 - Simulated Close Air support (CAS)
- Special Reconnaissance (SR).
- High Environment Altitude Training (HEAT).
- NSW Special Operations Infiltration/Exfiltration.

5.2 Integrated Air and Ground Training Events

The vast majority of open land training activities are integrated with fixed wing and rotary wing platforms, and includes the integration of ground forces that train in realistic mission scenarios. Refer to Figure 2-2, which depicts an example of the general flow of fixed and rotary wing aircraft in the open land training area:

- Fixed wing aircraft fly at both low and high altitude profiles at speeds up to 400-600 knots.
- Rotary Wing platforms fly at low altitude at airspeeds from 50 to 150 knots.
- These events take place both day and night and involve dynamic scenarios with threat opposition forces and threat Electronic Warfare training systems.
- A large majority of these events require helicopter landing zones to embark and disembark ground crews or Special Operations personnel.

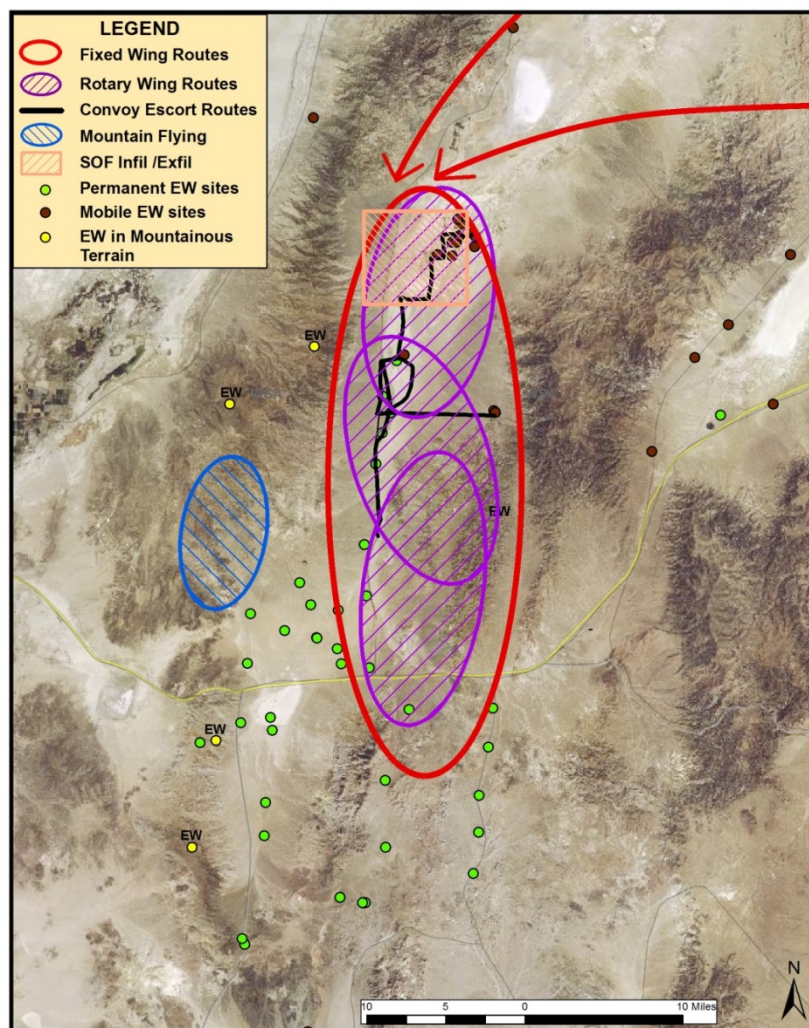


Figure 2-2. FRTC Training in the Dixie Valley

5.3 Electronic Warfare Training in Mountainous Terrain

Refer to Figure 2-2. Electronic Warfare (EW) training systems provide an essential contribution to the opposition forces' presentation within the threat-realistic training environment. EW training systems are dispersed widely around the Dixie Valley Training Area.

5.3.1 The majority of FRTC EW systems have historically been placed down in the valleys. NAWDC requires EW and other Communications and Radio Frequency (RF) training systems to be located in certain areas of mountainous terrain surrounding the Dixie Valley training area (shown in Figure 2-2 as "EW in Mountainous Terrain"). This is how the enemy operates, and NAWDC needs to ensure that the FRTC remains threat-realistic.

5.3.2 NAWDC also requires a limited amount of mountainous EW training spaces that are conducive to Navy training by allowing the use of a limited number of training systems that require a clean Radio Frequency (RF) environment (avoidance of electromagnetic interference).

5.3.3 With regard to RF and EW systems in mountainous terrain, the withdrawal of land is the preferred alternative over the historical use of smaller rights-of-ways (ROW), as ROW do not protect against invasive forms of encroachment from nearby locations that are not conducive to the Navy mission, and which would have a detrimental effect to Navy RF training systems.

5.4 Encroachment Mitigation

The open land mission areas described for the Dixie Valley Training Area (DVTA) above are essential to the mission of NAWDC and require protection from encroachment activities.

Mission Activities within the DVTA					
DVTA Mission Activities	Flight Environment Altitude/Airspeed	Fixed Wing	Rotary Wing	Ground Operations	Mission Threat
Combat Search & Rescue (CSAR)	Low / Slow		X	X	Notes 1,2,3
CSAR Rescue Escort (RESCORT)	High / Fast Low / Fast	X	X	X	Notes 1,2,3
Special Operations Infiltration/Exfil	Low / Slow		X	X	Notes 1,2,3
Convoy Operations Convoy Escort	Low / Slow High / Fast	X	X	X	Notes 1,2,3
Helicopter MTN Flying Course	Low / Slow		X		Notes 1,3
NSW Direct Action Assault	Low / Fast		X	X	Notes 1,2,3
NSW Special Reconnaissance				X	Note 2
Note 1: Vertical obstruction hazards to low altitude flight.					
Note 2: Ground obstructions as obstacles to ground mobility or helicopter landing zones.					
Note 3: Adverse impacts of Cultural Lighting and use of Night Vision Devices (NVD).					

Table 2-3. Mission Activities and Mission Threats

5.4.1 Refer to Table 2-3. The Open Land training activities that are conducted in the DVTA are susceptible to a variety of encroachment activities that are potentially very harmful to the mission:

- Frequency Spectrum
- Renewable Energies
- Mining Operations
- Infrastructure Development
- Cultural Lighting Affects
- Environmental and Security Concerns

5.4.2 Frequency Spectrum

One of the most problematic forms of encroachment for the Navy today is in the realm of frequency spectrum encroachment, which severely degrades the mission by the denial of critical

RF communications and Electronic Warfare training system frequencies. Frequency spectrum encroachment is a primary concern for the services as addressed at length in DoD Sustainable Range Reports. The FRTC must protect critical areas of the RF Spectrum related to:

- Radio Frequencies for Communications and Link training systems.
- Electronic Warfare training systems.

5.4.3 **Renewable Energies, Mining Operations, and Infrastructure Development**

The notes section in Table 2-3 lists the types of threats to the mission within the DVTA. These types of training encroachment are caused by several types of activities:

- Renewable energies development.
- Communications development.
- Mining operations.

5.4.4 The following are examples of the types of additional infrastructure that are produced from these types of activities:

- Renewable Energies infrastructure types:
 - Ground Structures:
 - Power lines
 - Windmills
 - Geothermal plants
 - Cultural lighting.
- Communications development:
 - Cell phone and Communications towers.
- Mining operations:
 - Cultural lighting.
 - Access roads.
 - Slurry railways.

5.4.5 These types of infrastructure development seriously degrade the quality of air and ground training available within the DVTA.

- Ground structures, towers, and power lines impede ground mobility and helicopter landing zones.

5.4.6 Development of these types of infrastructure would adversely impact air and ground training capabilities within the proposed DVTA and also present a risk to flight safety.

5.5 **Aviation Safety of Flight**

The types of infrastructure described above pose a safety hazard to all aviation related activities:

- Towers and power lines create a safety-of-flight hazard for low flying aircraft and for helicopter landing zones.
- Cultural lighting poses a safety-of-flight risk for the use of Night Vision Devices (NVDs) by fixed-wing and rotary-wing platforms.

5.6 Cultural Lighting

5.6.1 Training with Night Vision Devices (NVDs) is essential to the Navy as NVDs are used routinely in combat. At the FRTC both Fixed and Rotary Wing aircraft operate with NVDs at night. Approximately 35 percent of the missions flown at the FRTC are at night.

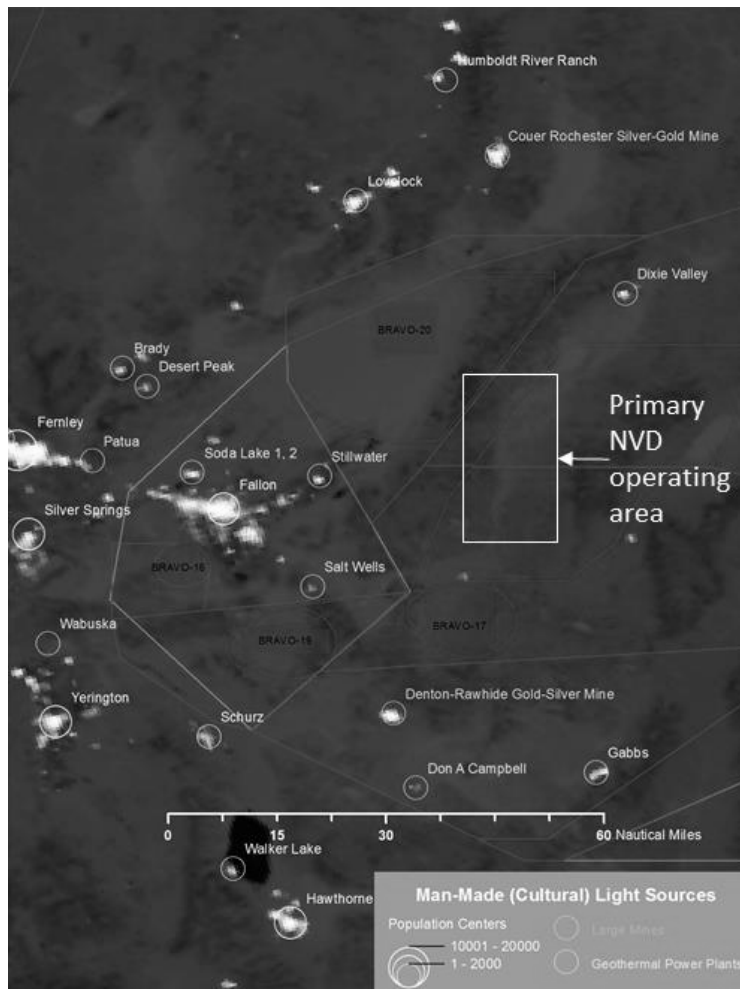


Figure 2-3. NASA Depiction of Cultural Lighting in Northern Nevada

5.6.2 Refer to Figure 2-3. The quality of NVD training is adversely impacted by the presence of cultural lighting. This also presents safety concerns as the result of NVD “washout” from the effects of cultural lighting. Washout causes a reduced resolution in the presence of cultural lighting and severely reduces the ability of NVDs to resolve details, such as that from unlit towers or unlit ground obstructions.

5.6.3 Historically, NAWDC and the FRTC have a fairly good safety record with NVD usage, largely because of the lack of cultural lighting within the Dixie Valley Training Area (and as depicted as the area in Figure 2-3, labeled as “Primary NVD operating area”). Mining activities

and Geothermal plants are the primary sources of cultural lighting that are impediments to training activities and aviation safety.

5.7 Environmental Concerns

5.7.1 Sage Grouse

The Sage Grouse habitat at the FRTC does not currently encroach upon Navy training lands. Although the Sage Grouse is currently not on the Threatened and Endangered (T&E) species list; certain groups are trying to get the Sage Grouse listed as T&E. The Sage Grouse is on a BLM watch list in order to monitor and preserve the Sage Grouse habitat in an effort to prevent the Sage Grouse from eventually being T&E listed.

5.7.2 While the Sage Grouse is not currently a threat to Navy training, becoming listed on the T&E list would pose serious impacts to training due to potential noise impacts. This situation is being monitored.

5.8 Wilderness Study Areas

Refer to Figure 2-4. NAWDC seeks to maintain the status of current WSAs for the duration of the proposed land withdrawal, seeking neither to convert them to Wilderness Areas nor opening them for other uses.

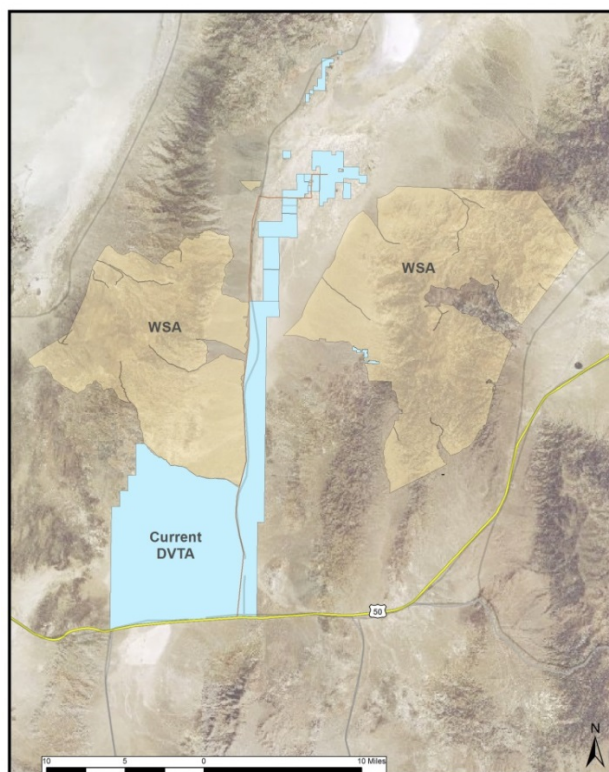


Figure 2-4. Wilderness Study Areas within the FRTC Dixie Valley Training Area

5.8.1 Wilderness Study Areas (WSA) are actually quite compatible with Navy mission areas in the Dixie Valley Training Area. WSAs serve to prevent encroachment of all types while allowing the Navy access to conduct low-altitude training flights over them.

- Current WSA status permits low-altitude flight operations and is compatible with the Navy mission.
- Conversion to Wilderness Areas would likely prohibit numerous Navy training activities.
- Reversion back to Public Lands is not compatible with the Navy mission, as this action would lead to the buildup of further encroachment activities that are harmful to the mission of the U.S. Navy.

6: Security Concerns

6.1 Previous attempts have been made by certain foreign powers to attempt to establish a permanent presence on or near the FRTC. Foreign powers with an intelligence interest in the FRTC attempt to gain a controlling position in mining companies holding claims or operating mines on public lands under the FRTC airspace.

6.2 Such cases are processed by the Committee on Foreign Investment in the United States (CFIUS).

6.3 NAWDC opposes any attempts by foreign powers with intelligence interest to gain any permanent presence on or near the FRTC.

7: FRTC Airspace Requirements

Airspace requirements, similar to land requirements, are threat and TTP driven. The Navy requires airspace in order to safely train to the same mission areas and Naval Tactical Tasks as described in Chapter 1, Section 5.4.

SRR 2014: *“Define future requirements for military airspace, current and projected airspace shortfalls, and possible courses of action to mitigate shortfalls at installation, range complex, and regional and service levels.”*

7.1 Airspace supports Naval Aviation in the mission of Anti-Air Warfare (AAW) and the following Navy Tactical Tasks (NTA):

Deploy & Conduct Maneuver

NTA 1.1.2.4 Conduct Tactical Insert & Extract
 NTA 1.2.8 Conduct Tactical Recon. & Surveillance
 NTA 1.5.2 Conduct Maritime Superiority
 NTA 1.5.3 Conduct Strike/Power Projection Warfare
 NTA 1.5.4 Conduct Amphibious Operations
 NTA 1.5.5 Conduct Sustained Operations Ashore
 NTA 1.5.6 Conduct Naval Special Warfare Ops

Develop Intelligence

NTA 2.2 Collect Data and Intelligence
 NTA 2.2.3 Perform Tactical Recon. & Surveillance
 NTA 2.4.5.3 Provide Indications and Warnings
 NTA 2.4.6 Provide Intel Support

Employ Firepower

NTA 3.1.1 Request Attack
 NTA 3.1.2 Select Target to Attack
 NTA 3.1.7 Employ Counter-Targeting
 NTA 3.2.1.1 Attack Surface Targets

NTA 3.2.2 Attack Enemy Land Targets
NTA 3.2.3 Attack Enemy Aircraft and Missile
NTA 3.2.4 Suppress Enemy Air Defenses (SEAD)
NTA 3.2.5 Conduct Electronic Attack
NTA 3.2.6 Interdict Enemy Forces and Targets
NTA 3.2.7 Intercept, Engage, and Neutralize Enemy Aircraft and Missile Targets
NTA 3.2.8 Conduct Fire Support
NTA 3.2.9 Conduct Non-lethal Engagement
NTA 3.2.10 Integrate Tactical Fires

Exercise Command and Control

NTA 5.1.3 Maintain Information and Force Status
NTA 5.4.3 Synchronize Ops & Maneuver Firepower
NTA 5.5.1 Plan, Integrate and Employ C2 Attack
NTA 5.5.2 Plan, Integrate and Employ C2 Protect
NTA 5.5.4 Conduct Electronic Warfare Support (ES)

Protect the Force

NTA 6.2.1 Evacuate Non-combatants from the Area
NTA 6.2.4 Perform Combat Search and Rescue
NTA 6.3.1 Protect and Secure the Area of Operations
NTA 6.3.3 Combat Terrorism
NTA 6.5.1 Provide Disaster Relief

7.2 FRTC Airspace Requirements for Large Force Exercises

NAWDC's primary mission is to train deploying forces in Large Force Exercise (LFE) events in Air Warfare and at the advanced TTP level. LFE events require airspace in the form of Military Operating Areas and/or Air Traffic Controlled Assigned Airspace (ATCAA). The overall Special Use Airspace required in order to realistically employ current TTPs with modern aircraft radar and weapons systems is:

- 100 x 200 NM of airspace (20,000 square nautical miles).
- 500 feet Above Ground Level (AGL) to 50,000 feet in altitude MSL.
- Full supersonic capable.

Achieving this size of Special Use Airspace is not realistic for Northern Nevada due to the National Airspace System that surrounds the FRTC. NAWDC is interested in further discussions with the FAA regarding the feasibility of additional MOA/ATCAA training space added onto the FRTC on an infrequent basis and only for a few hours at a time. Any increase in the size of the MOA/ATCAA structure would be beneficial to training.

The FRTC will require additional restricted airspace in order to protect general aviation from the hazardous activities associated with air-to-surface weapons employment associated with the air-to-surface activities described in Section 4.5 for the Bravo 17 and Bravo 20 ranges, and Section 4.7 for the Bravo 16 range.

8: FRTC Systems Requirements

Replicating a realistic and stressful combat environment at the advanced level requires a moderate investment in training range systems and infrastructure.

SRR 2013: *“Training within a robust EW environment saturated with offensive and defensive weapon systems poses unique weapon system de-confliction challenges similar to what is experienced in modern conflicts and ensures the greatest fidelity for realistic training.”*

- Blue Force Systems
 - Systems that are required to support the local platform architecture:
 - Blue Force Communications and Link systems
 - Blue Force Training Support Systems

- Opposition Force (OPFOR) Systems
 - OPFOR (or Red systems) provide for a realistic threat environment with air and ground threats (opposing forces):
 - Threat Opposing Forces
 - Threat Ground Targets and Target Complexes
 - Threat Electronic Warfare Systems
- Instrumentation Systems
 - White Force Systems provide the monitoring of training events for execution and safety purposes, and to record and playback event data for quantitative performance feedback purposes:
 - Instrumentation & Tracking Systems
 - Tactical record, display, and debrief systems
 - Range Control (monitoring & safety) systems
 - Weapon impact and scoring systems

9: Required Warfighting Capabilities Summary

9.1 Threat assessments determine combat Tactics, Techniques, and Procedures (TTP).

9.2 In order to attain combat readiness, TTPs must be exercised in a threat-realistic training environment.

9.3 The FRTC requires Land, Airspace, and Training Systems in order to provide a realistic threat environment.

9.4 The advanced combat TTP assessment for deploying Naval Aviation forces is accomplished by the Naval Aviation Warfighting Development Center (NAWDC) at the Fallon Range Training Complex (FRTC).

9.5 The FRTC requires protection from numerous forms of encroachment that threaten the mission of NAWDC in providing a realistic training environment.

This page intentionally left blank.

Fallon Range Training Complex

Training Capabilities Analysis

1: Background

1.1 This Chapter analyzes the current training capabilities available at the Fallon Range Training Complex (FRTC) in regards to available land and airspace.

1.2 Land Analysis Tools and Methodology

The Navy uses the Weapons Danger Zone (WDZ) program to analyze air-launched weapons and the Surface Danger Zone (SDZ) program to analyze surface-fired ordnance and small arms. Both the WDZ and SDZ programs were used to compile the data related to land capabilities that are outlined in this chapter.

2: FRTC Lands Description

2.1 Refer to Figure 3-1. The Fallon Range Training Complex (FRTC) is comprised of about 230,000 acres of total land that is used for training. The Navy generally trains on three types of land:

2.2 **Closed Navy Lands.** Closed lands are typically withdrawn from the Bureau of Land Management (BLM) via legislative processes. Closed lands are typically Navy-administered and closed in order to protect the public from hazardous training such as from air-to-surface weapons employment. Closed lands at the FRTC are comprised of the four bombing ranges: Bravo 16, Bravo 17, Bravo 19, and Bravo 20.

2.3 **Open Navy Lands.** Open Navy lands are also withdrawn from the BLM. Open lands are typically Navy-managed but may be jointly administered between the Navy and BLM. These public lands are open to the public for recreational use since the training activities do not pose any threat to military or public safety.

2.4 **BLM Lands.** Bureau of Land Management (BLM) lands are public lands that are administered by the BLM and are sometimes used by the Navy for nonhazardous training activities.

2.5 FRTC Lands and Training Activities

Table 3-1 lists the acreage sizes for each of the training areas associated with the FRTC lands. Table 3-2 lists the types of training missions that are accomplished on the different types of land.

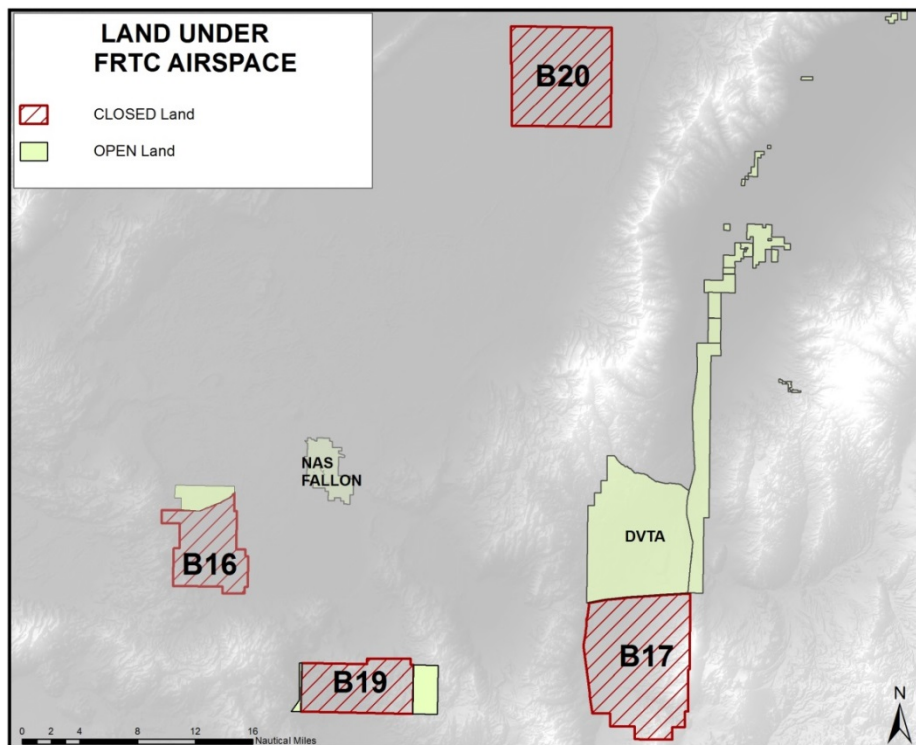


Figure 3-1. FRTC Lands

Range	Acreage	Land Type
B-16	27,250	Closed
B-17	52,830	Closed
B-19	29,270	Closed
B-20	41,000	Closed
Dixie Valley Training Area	68,400	Open

Table 3-1. FRTC Training Areas and Acreages

Land Type	Mission Type	Training Description
Closed Lands (Bombing Ranges)	- Air-to-Surface (A/S) Ordnance - Close Air Support	- Hazardous training activities - Live Weapons
Open Lands (Dixie Valley)	- Search and Rescue - Land Navigation - Convoy Escort - Dynamic & Time Sensitive Targeting	- Benign training activities - Blank ammunition only
BLM (Public Lands)	- Search and Rescue - Land Navigation - On Road Cross Country Navigation	

Table 3-2. FRTC Mission Types and Range Lands

3: FRTC Bombing Range (Closed Lands) Analysis

3.1 Background

This section analyzes the training capabilities currently available for the mission of Naval Aviation air-to-surface ordnance and for the mission of the Naval Special Warfare surface-fired weapons capabilities.

3.2 Naval Aviation Air-to-Surface Analysis

3.2.1 The FRTC bombing range analysis was accomplished using the four categories of weapons system classes described in Chapter 2, Section 4.4.

3.2.2 Only the B-17 and B-20 ranges were considered for analysis, as they are the FRTC’s primary Large Force Exercise (LFE) training ranges and the remaining ranges have airspace limitations that preclude them from use as LFE assets.

3.2.3 In order to assess the maximum capabilities available for air-to-surface weapons employment at the FRTC, the highest possible values of weapon release range and heading azimuth were entered into the Weapons Danger Zone (WDZ) analysis tool, with the only restriction being the requirement to retain all weapon impacts within existing Navy range boundaries.

3.2.4 Refer to Figure 3-2 for an example of a JDAM weapons footprint at the Bravo 20 range. This map demonstrates the different types of weapon footprint analysis that result from the differing weapon release parameters that are entered into the WDZ analysis program.

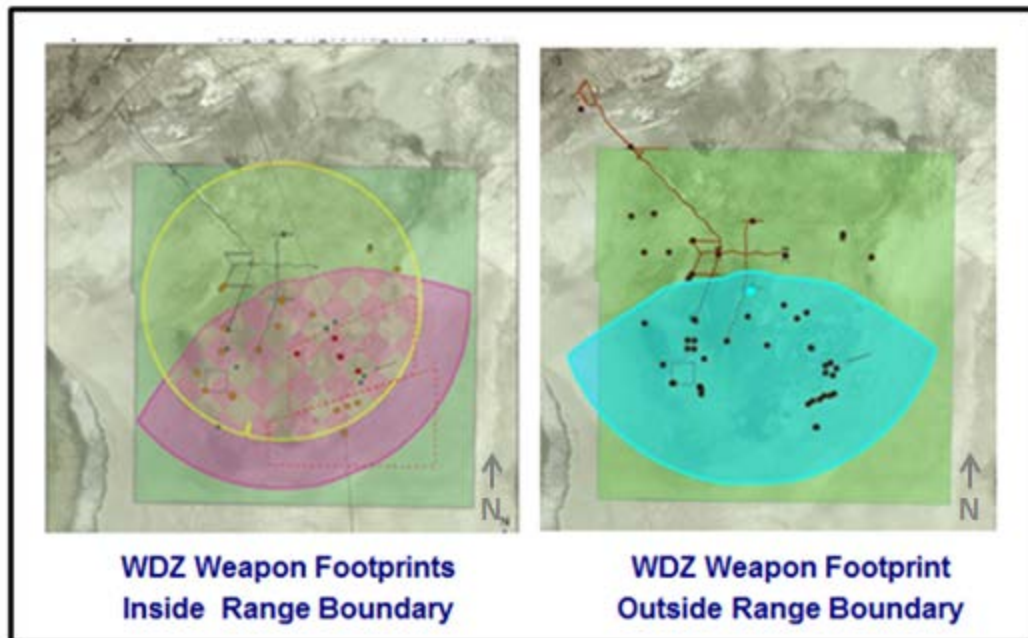


Figure 3-2. Example JDAM WZ footprints at Bravo 20

3.2.5 The map on the left portrays two types of JDAM deliveries, each with different release parameters.

- The yellow circle depicts a JDAM released at 4.0 Nautical Miles (NM) with a release heading of 0-360 degrees in azimuth, which results in a circular footprint.
- The red area represents a JDAM released at 4.5 NM between the headings of 300 to 030 degrees (magnetic) azimuth.

The map on the right shows a JDAM footprint in blue that is off range because it has either exceeded the maximum release heading (azimuth) or the maximum release range, or both, either of which could place the weapon off range.

3.2.6 This same process is utilized to determine the maximum allowable weapon release parameters for all ordnance expended at all of the bombing ranges at the FRTC.

- Navy range policy is to retain, with 99.99% certainty, that air-to-surface ordnance remains within range boundaries in order to protect public safety.
- It is this policy that limits the release parameters available for training.
- The maximum weapon release parameters available for training are consequently determined by the size of the land space available.

3.3 Air-to-Surface Weapons Analysis

3.3.1 The data in Table 3-3 was developed using the analysis described in the previous section. This data represents the current maximum allowable release ranges and release azimuth headings available at the Bravo-17 and Bravo 20 ranges of the FRTC within existing range boundaries and within existing restricted airspace.

3.3.2 The data demonstrates:

- Weapons within the LGW class may be released between 0 to 360 degrees in azimuth and up to 5.5 Nautical Miles (NM) in release range at Bravo 17, and 5.0 NM release range at Bravo 20.
- For the JDAM class of weapons:
 - Both the B-17 and B-20 ranges are limited to a 4NM release at 180 degrees of azimuth.
 - Release Ranges outside of 4 NM will severely restrict available release azimuth down to as low as 040 degrees (with 180 degrees being the requirement).
- For the DMLGB class:
 - Release parameters are very restrictive for both the release range and release azimuth.
 - Release Ranges outside of 4 NM will severely restrict available release azimuth down to as low as 040 degrees.
- For all weapons classes:
 - All ordnance may be safely released up to FL 300 (30,000 feet above Mean Sea Level), except for the HELLFIRE (HF) class which is limited to a release height of 700 feet Above Ground Level.
 - Restricted airspace is required for all ordnance releases. It is the available land and restricted airspace that constrains current capability at the FRTC.

Weapon Class	Altitude	Maximum Release Range (NM)		Release Azimuth (degrees)	
		B-17	B-20	B-17	B-20
LASER Guided Weapon	30K MSL	5.5	5	0-360	0-360
Joint Direct Attack Munition	30K MSL	4	4	0-180	0-180
HELLFIRE	700 FT	2.8	3	0-035	0-008
DUAL MODE LASER GUIDED BOMB	30K MSL	7	5	0-040	0-040

Table 3-3. Current FRTC Weapons Capabilities

3.4 NSW Surface Fires Analysis

3.4.1 Naval Special Warfare (NSW) accomplishes its mission of Tactical Ground Mobility training at the Bravo 16 range of the FRTC. The analysis to determine the maximum weapon employment parameters for Firing Range and Firing Azimuth are very similar to the analysis used in the previous section (3.2), except that input parameters are entered into the Surface Danger Zone (SDZ) program vice the WDZ program. SDZ is similar to WDZ: both calculate with a high degree of certainty the probability of weapon impact location.

3.4.2 Refer to Table 3-4. Six types of training events were categorized for this analysis. The data demonstrate the current maximum capability of NSW training events at the Bravo 16 range, as limited by the Firing Range and Firing Azimuth.

Training Event	Weapon Caliper	Firing Azimuth (degrees)	Firing Range (meters)
Static Live Fire	5.56/7.62/300WM/.50Cal/40mm/84mm	20	6.8K
Basic Live Fire Immediate Action Drills (IAD)	5.56/7.62/40mm/84mm	20	4.1K
Advanced Live Fire IADs	5.56/7.62/40mm/84mm	60	4.1K
Adv. Live Fire IADs (.50 Cal)	.50 Cal	0	0
Adv. Live Fire IADs (Urban Village)	5.56/7.62/40mm/84mm	0	0
Integrated Close Air Support	MK-76 / 20mm	0	0

Table 3-4. Naval Special Warfare Weapons Classes for the FRTC

3.4.3 The data in Table 3-4 illustrates that firing azimuths for the weapons calipers are limited to 60 degrees in azimuth or less, as constrained by the current B-16 land space available.

4: FRTC Open Lands Analysis

Refer to Figure 3-3. The primary open land training area at the FRTC is the Dixie Valley Training Area (DVTA), located in Dixie Valley just north of the Bravo 17 range.

- The DVTA is home to the critical training capabilities listed in the Open Lands section of Table 3-2.
- The DVTA is comprised of approximately 68,437 acres.

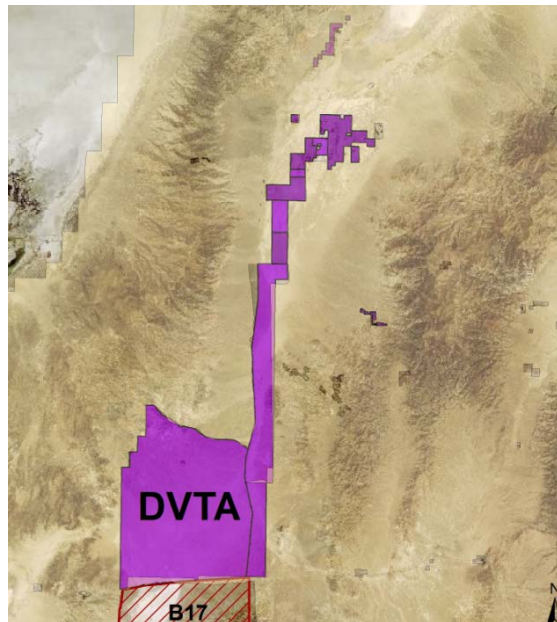


Figure 3-3. Map of the Current Dixie Valley Training Area (DVTA)

5: FRTC Airspace Analysis

5.1 FRTC Airspace Description

Refer to Figure 3-4. The Fallon Range Training Complex (FRTC) airspace is roughly 125 Nautical Miles (NM) in width by 100 NM in height, and is comprised of a combination of Restricted Areas, Military Operating Areas (MOA), and Air Traffic Control Assigned Airspace (ATCAA) areas.

5.2 The FRTC supports numerous Large Force Exercises (LFE). LFEs require the maximum amount of airspace available. NSAWC refers to these LFE events as “Commodore Airspace” events. Commodore Airspace is comprised of the Fallon North 1 through 4 Military Operating Areas (MOA) and the Fallon South 1 through 5 MOAs.

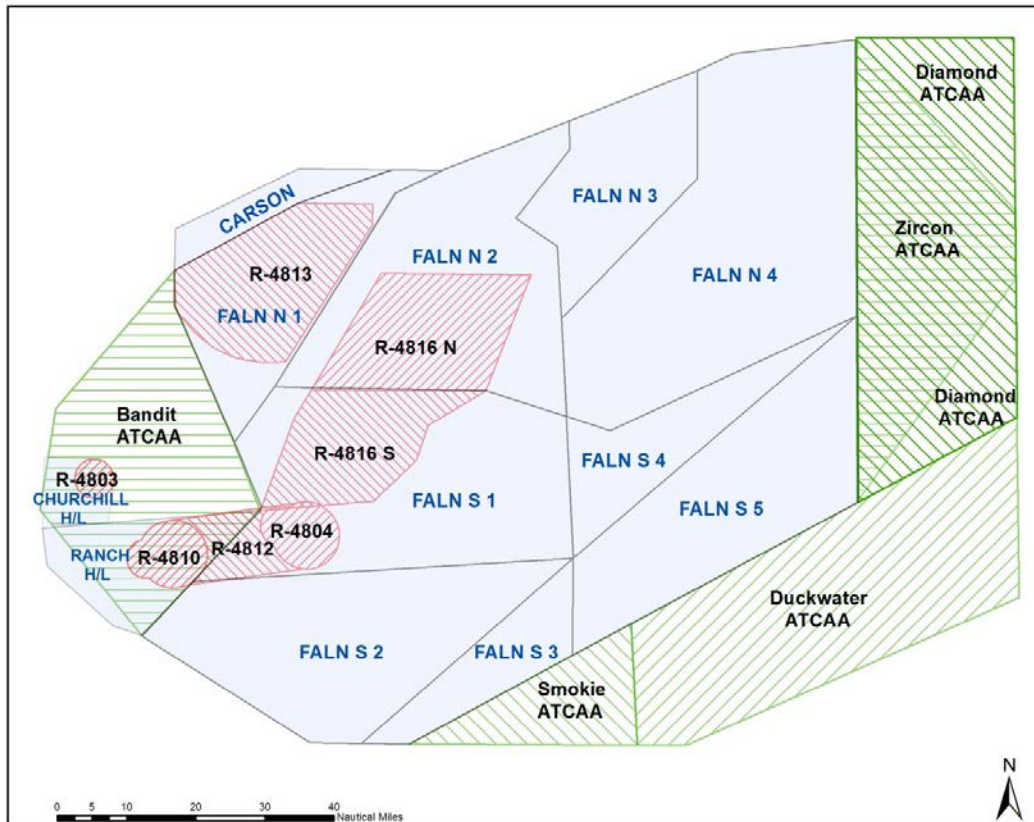


Figure 3-4. Fallon Range Training Complex Airspace

5.3 FRTC Airspace Capabilities

Refer to Figure 3-5.

- Commodore airspace is approximately 90 NM long (width) by an average of 65 NM wide (height).
- This equates to 7,156 square nautical miles of usable airspace.
- When activated, Commodore Airspace extends from the surface up to FL500 for most areas.

5.4 Commodore Airspace may be expanded in width by activating the Bandit ATCAA and either the Zircon or Diamond ATCAAs.

- When these ATCAAs are activated the usable airspace for the FRTC becomes approximately 140 NM long by an average of 65 NM wide.
- This equates to 8,958 square nautical miles of usable airspace.

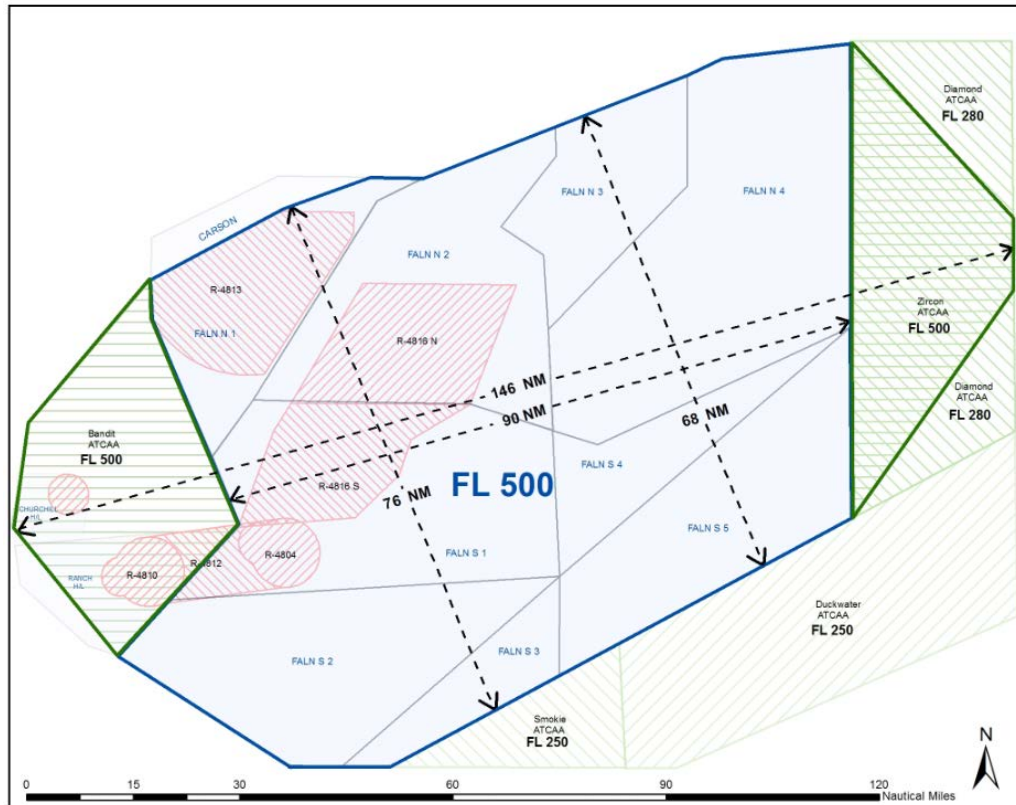


Figure 3-5. FRTC Airspace Capabilities

5.5 Activation of the Smokie and Duckwater ATCAAs do not add any appreciable training capability for Large Force Exercises as their altitude limit is capped at FL250. LFE training typically requires Commodore airspace from surface to FL400 or higher, with FL500 preferred.

5.6 The same limitation can be said for the activation of the Diamond ATCAA, where the cap at FL280 is also not very conducive to LFE training events.

6: FRTC Current Capabilities Summary

6.1 Air-to-Surface and Surface Fires capabilities at the FRTC are currently constrained by limitations in the size of the closed lands and restricted airspace required in order to protect the public from hazardous activities.

6.2 The FRTC has a limited amount of open lands available for non-hazardous training activities.

6.3 Air-to-Air training for Large Force Exercise events are currently constrained by the existing size of the FRTC MOA/ATCAA airspace structure.

This page intentionally left blank.

Fallon Range Training Complex Warfighting Capability Gap Analysis

1: Background

1.1 This Chapter identifies capability gaps in the Fallon Range Training Complex (FRTC) for the resources of Land and Airspace. This was accomplished by making a comparison between required warfighting capabilities (Chapter 2) and current FRTC capabilities (Chapter 3) for each.

2: FRTC Weapon System Gap Analysis

2.1 Air-to-Surface Weapon System Gap Analysis

The air-to-surface weapon system capability gap analysis for the FRTC is shown in Table 4-1.

Table 4-1 Weapon Class descriptions:

- LGW LASER Guided Weapons
- JDAM Joint Direct Attack Munition
- HF HELLFIRE
- DMLGB Dual Mode LASER Guided Bomb

FRTC Air-to-Surface Weapons Class Gap Analysis							
Training Category	Weapons Class	Required Release Range (Chapter 2)	Current Release Range (Chapter 3)	Release Range Capability Gap	Required Release Azimuth (Chapter 2)	Current Release Azimuth (Chapter 3)	Release Azimuth Capability Gap
Air-to-Surface Weapons Employment	LGW	5 NM	5 NM	0%	0-360	0-360	0%
	JDAM	10 NM	4 NM	60%	0-180	0-180	0%
	HF	4.3 NM	3 NM	30%	0-180	0-035	81%
	DMLGB	14 NM	7 NM	50%	0-180	0-040	78%

Table 4-1. FRTC Air-to-Surface Weapon System Gap Analysis

2.1.1 The data in Table 4-1 represent the family of NCEA weapons released at the FRTC for advanced level training. These classes of weapons were identified in Chapter 2, Section 4.4.

2.1.2 Table 4-1 makes a comparison, for each weapon class, between the required Release Range and Release Azimuth versus current. Capability gaps are listed as a percentage of gap deficiency. For example, the JDAM weapon’s class requires a 10 NM release capability for realistic TTP training and assessment and only has a 4 NM release capability. Therefore, the JDAM class has a 60% Release Range capability gap.

2.1.3 These percentage gaps are based upon the NAWDC recommended weapon training release parameters proposed in Chapter 2 and not from actual combat employment of the weapon systems. NAWDC has instituted lower weapons “training” parameters in an effort to be better stewards of public land and airspace resources.

2.1.4 Refer to Figure 4-1 for an example of the weapon release footprint from Chapter 2 as overlaid upon current B-17 and B-20 ranges.

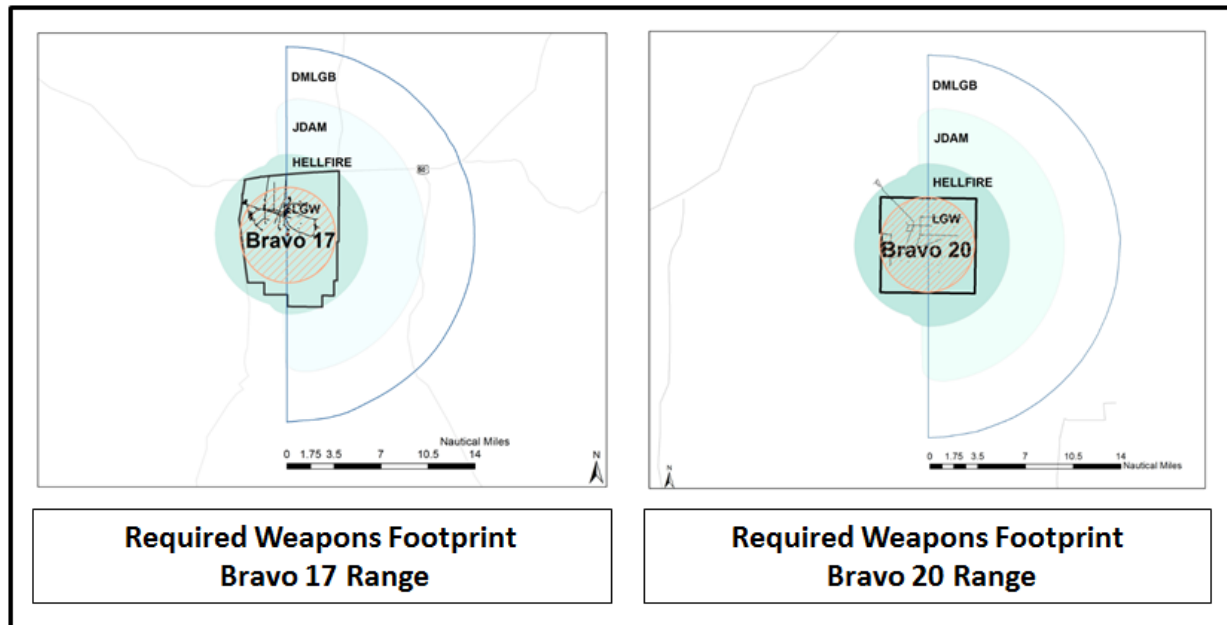


Figure 4-1. Depiction of Required Training Footprint at B-17 and B-20

2.2 Naval Special Warfare (NSW) Surface Fires Gap Analysis

2.2.1 Naval Special Warfare (NSW) train to multiple categories of surface firings at the Bravo 16 range of the FRTC.

2.2.2 Refer to Table 4-2. The data makes a comparison, for each training category, between what is required (Chapter 2) and what is currently available (Chapter 3). Capability gaps in Firing Range and Firing Azimuth are expressed as a percentage of gap deficiency.

- For example, the Static Live Fire category requires a 7.5 KM firing range capability and currently has a 6.8 KM firing range, resulting in a 10% Firing Range capability gap.
- Other required training categories have zero current capability, equating to a 100% gap deficiency.

FRTC Surface Fired Ordnance Gap Analysis						
Training Category	Required Firing Range (Chapter 2)	Current Firing Range (Chapter 3)	Firing Range Capability Gap	Required Firing Azimuth Degrees (Chapter 2)	Current Firing Azimuth Degrees (Chapter 3)	Firing Azimuth Capability Gap
Static Live Fire	7.5 KM	6.8 KM	10%	40	20	50%
Basic Live Fire (LF)	4.1 KM	4.1 KM	0%	360	20	94%
Advanced LF IAD	4.1 KM	4.1 KM	0%	360	60	83%
Advanced LF .50	6.8 KM	0 KM	100%	180	0	100%
Advanced LF Urban	4.1 KM	0 KM	100%	360	0	100%
Integrated CAS	9.2 KM	0 KM	100%	360	0	100%

Table 4-2. FRTC Surface Fired Ordnance Gap Analysis

3: FRTC Land GAP Analysis

3.1 Table 4-3 lists the Land Area capability gaps for the bombing ranges (closed lands) and the Dixie Valley Training Area (open lands), and makes a comparison between what is required (Chapter 2) and what is currently available (Chapter 3). Capability gaps are expressed as a percentage of gap deficiency.

FRTC Land Gap Analysis						
Training Resource	Bombing Range	Land Type	Required (Chapter 2)	Current (Chapter 3)	Capability Gap	Additional Land Requirement
Bombing Ranges	B-16	Closed	52,730	27,250	48%	25,480
	B-17	Closed	210,400	52,830	75%	155,790
	B-20	Closed	203,900	41,000	80%	163,170
Dixie Valley Training Area		Open	364,200	68,400	81%	295,800

All Figures listed in Acres

Table 4-3. FRTC Land Gap Analysis

3.2 The data in Table 4-3 demonstrate that full mission training capabilities may be met with corresponding land expansions at the various bombing ranges (B-16, B-17, B-20) and the Dixie Valley Training Area (DVTA). The recommended figures (in acres) for each area are listed in the “Additional Land Requirement” column.

3.3 FRTC Land Requirements

Refer to Annex A for a description of FRTC Land Requirements.

4: Bravo 17 Mitigation of Public Risk

4.1 Refer to Figure 4-1. The FRTC bombing ranges have not changed significantly in terms of size or location since 1962. Evolving changes regarding the mission of Naval Aviation and advances in platform and weapon system capabilities have yielded increasingly larger standoff distances over time.

4.1 The increasingly longer standoff ranges of the weapon systems deployed at the Bravo 17 range have created a moderate risk to the public due to the proximity of the Bravo 17 range to U.S. Highway 50. Expansion of the Bravo 17 range to the south, away from U.S. Highway 50, would significantly reduce public risk.

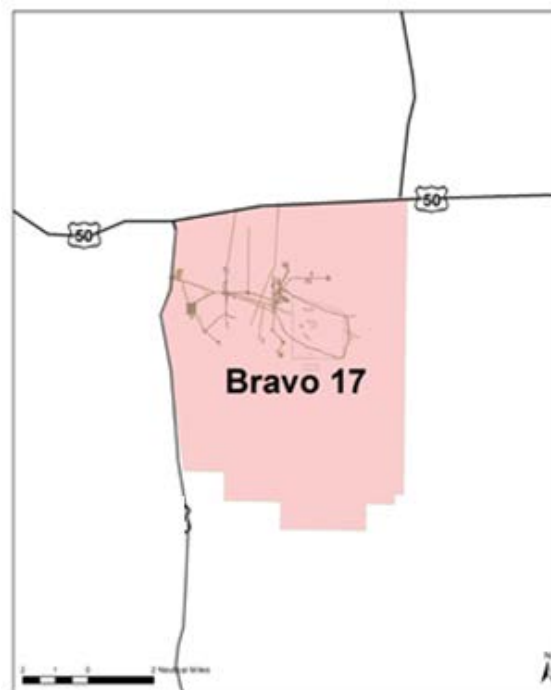


Figure 4-1. Proximity of Bravo 17 Bombing Range to U.S. Highway 50

5: FRTC Airspace Gap Analysis

Refer to Figure 4-2 for a depiction of FRTC airspace.

5.1 Airspace Description and Usage

- Military Operating Areas (MOA) and Air Traffic Control Assigned Airspace (ATCAA) areas are required for nonhazardous activities.
- Restricted airspace is required for hazardous air-to-surface activities associated with the bombing ranges (Bravo 16, Bravo 17, Bravo 19 and Bravo 20).

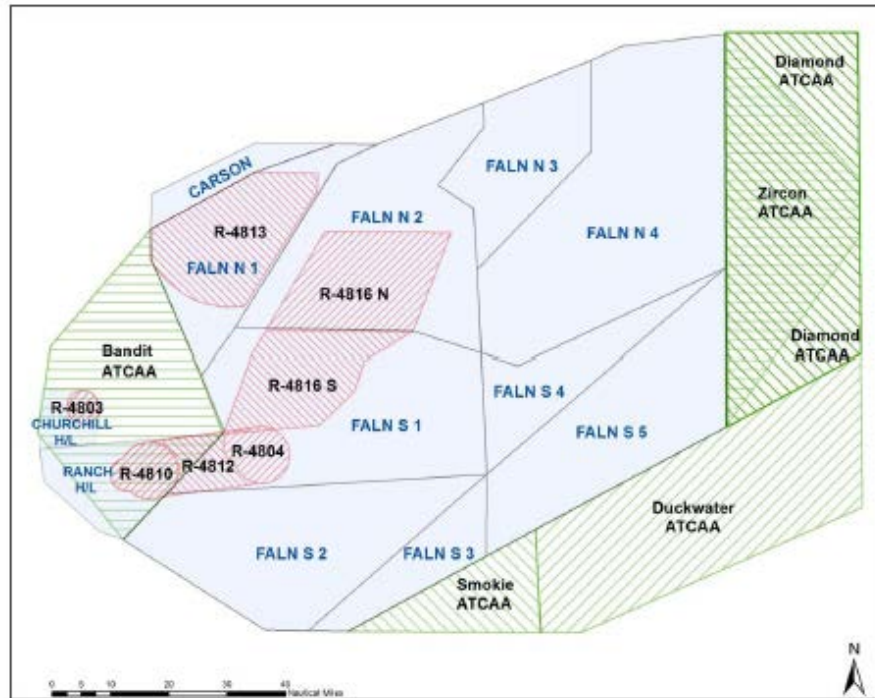


Figure 4-2. FRTC Airspace

5.2 Evolving changes in the mission of Naval Aviation and advances in platform and weapons capabilities, along with the development, execution, and refinement of combat Tactics, Techniques, and Procedures (TTP), have necessitated increasingly larger Air-to-Air and Air-to-Surface training areas.

5.3 Refer to Table 4-4. For this comparison, the FRTC airspace has been divided into two categories:

- Military Operation Areas (MOA) and Air Traffic Control Assigned Airspace (ATCAA) are required for general Air-to-Air training activities.
- Restricted airspace is required for the Air-to-Surface activities.

FRTC Airspace Gaps				
Training Category	Resource Type	Required (Chapter 2)	Current (Chapter 3)	Capability Gap
Air-to-Air Activities	MOA / ATCAA	20,000	8,958	55% *
Air-to-Surface Activities	Restricted Airspace	600	515	14%
All Figures listed in Square Nautical Miles				
* Attainment at FRTC not feasible				

Table 4-4. FRTC Airspace Capability Gaps

5.4 Table 4-4 makes a comparison between what is required (Chapter 2) and what is currently available (Chapter 3). Capability gaps are expressed as a percentage of gap deficiency.

- The 55% capability gap listed for the MOA/ATCAA airspace category is not attainable due to the location of the FRTC within the National Airspace System.
- The area listed for restricted airspace is an estimate based upon proposed land expansions at the Bravo ranges (B-16, B-17, B-20). Air-to-Surface activities have a current 14% gap in Restricted Airspace capability.

5.6 FRTC Airspace Requirements

Refer to Annex B for a description of FRTC Airspace Requirements.

6: FRTC Encroachment Gap Analysis

Training activities that achieve essential mission training requirements must be protected from incompatible types of encroachment that degrade training capability and realism. The long-term preservation and sustainment of training activities requires a training sanctuary free from encroachment activities and the infrastructure development that accompanies these activities.

6.1 The FRTC is susceptible to a variety of encroachment activities that are potentially very harmful to the mission. The primary training area of concern is the Dixie Valley Training Area (DVTA), though other forms of encroachment may be FRTC wide, as with the Electromagnetic Spectrum and Operational Security concerns.

6.2 Refer to Table 4-5, which lists the encroachment categories and makes a comparison between their current status and any future planned mitigation actions.

FRTC Encroachment Gaps				
Encroachment Category	Threat to Training	Current Status	Future Efforts	Remarks
Renewable Energies	Infrastructure Development	Red	Green	Note 1
Mining Operations	Infrastructure Development	Red	Green	Note 1
Electromagnetic Spectrum	RF Infringement	Red	Red	Note 2
Operational Security	Foreign Investment	Yellow	Yellow	Note 3
<p>Note 1: Resulting infrastructure create flight safety hazards, ground mobility obstacles, cultural lighting and heat signature effects that are detrimental to the use of night vision devices and infrared weapons systems.</p> <p>Note 2: FCC initiatives to re-allocate military frequency bands for civilian and commercial use in support of the National Broadband Plan directly impact the Navy’s use of the frequency spectrum to train and operate.</p> <p>Note 3: Foreign investment provides the opportunity for persistent surveillance of Navy activities (a foreign firm acquired a closed gold mine adjacent to the Fallon Range Training Complex in 2010).</p>				

Table 4-5. FRTC Encroachment Capability Gaps

6.3 Table 4-5 Encroachment Ratings:

- Red Severe threat to training.

- Yellow Moderate threat to training.
- Green Low threat to training.

6.4 Table 4-5 demonstrates a substantial improvement in encroachment protection in the areas of Renewable Energies and Mining Operations, if the preferred alternative for land acquisition within the Dixie Valley Training Area (DVTa) were to be approved.

6.5 Regarding mitigation of the Electromagnetic Spectrum and Operational Security issues however, additional actions are necessary to prevent future encroachment threats to the mission.

- Electromagnetic Spectrum:
 - Is referenced as a moderate training concern in OSD Sustainable Range Reports and in DoD Sustainable Range Initiative (SRI) literature, and is documented as a severe threat to both current and future training for the FRTC in the Navy's Range Complex Management Plan (RCMP).
- Operational Security:
 - DoD and the Navy are becoming increasingly aware of foreign acquisition or ownership of assets near training areas in the United States. The development of additional statutory and regulatory mechanisms is being considered to address the problem of security encroachment. This effort is being led by the Committee on Foreign Investment in the U.S. (CFIUS).

This page intentionally left blank.

Naval Aviation Warfighting Development Center (NAWDC) Fallon Range Training Complex (FRTC) Land Requirements

1: FRTC Land Requirements

Refer to Figure 1. The proposed FRTC land expansion includes:

- Land expansion at three of the bombing ranges: Bravo-16, Bravo-17, and Bravo-20.
- Land expansion of the Dixie Valley Training Area (DVTA).
- Final expansion sizes (acres) will be determined as a part of the overall NEPA process, as chosen from a selection of alternatives. The alternatives described in this document are the “preferred” alternatives for each land area and in that respect represent a practical scenario for cost and budget data estimation.

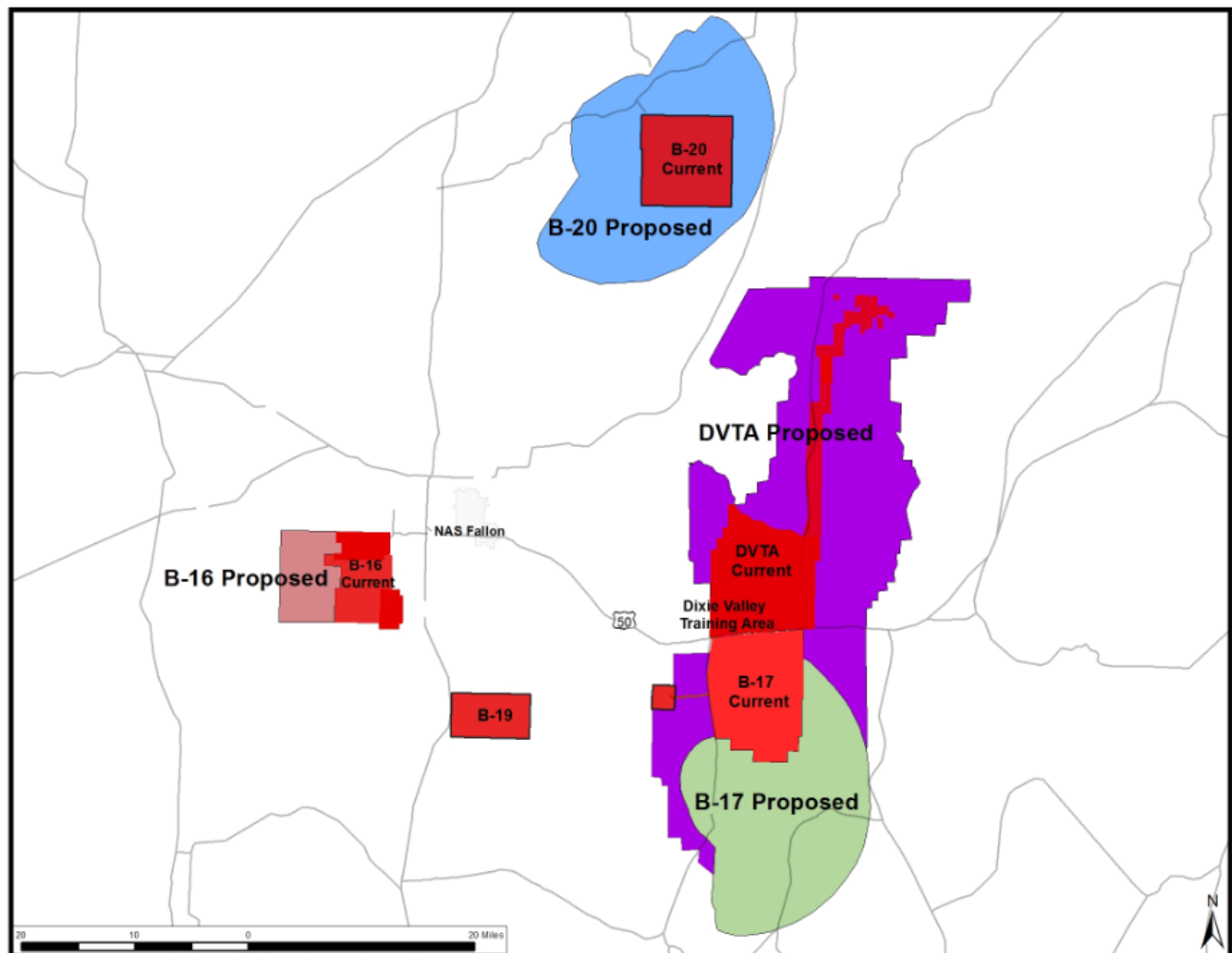


Figure 1: Overall Map of FRTC Land Requirements

2: Bravo 16 Range

2.1 Refer to Figure 2. The preferred alternative for the Bravo-16 range expansion equates to approximately 32,164 acres extending out to the West and slightly to the North of the current range boundary.

- Bravo-16 expanded lands consist of:
 - 32,164 acres of Bureau of Land Management (BLM) lands (100%).
 - Zero private acreage (0%).
- Bravo-16 land issues:
 - Some archeological concern areas.
 - Five active BLM mining leases.
 - One socio-economic concern, regarding the required closing of Sand Canyon RD, a public recreation access thoroughfare that would require alternate means of access around the proposed expanded training range.

2.2 Bravo-16 Acreages. Current: 27,250 Expanded: 32,164 Total: 59,410

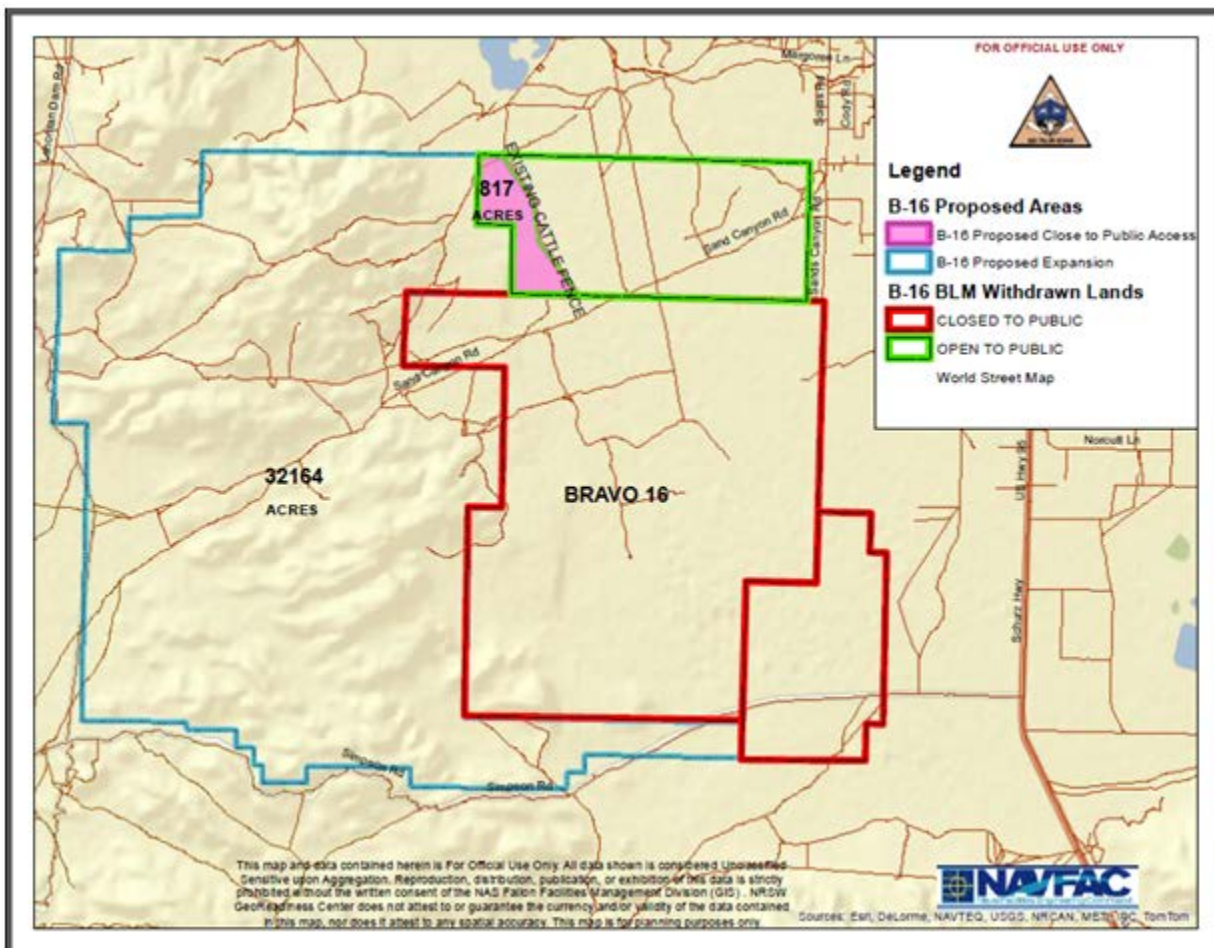


Figure 2: Bravo 16 Lands Preferred Alternative

3: Bravo 17 Range

3.1 Refer to Figure 3. The preferred alternative for the Bravo-17 range expansion equates to approximately 178,700 acres extending to the South of the current range boundary.

- Bravo-17 lands consist of:
 - 177,970 acres of BLM land (99.6%).
 - 732 acres of private (.41%).
- Bravo-17 Land Issues:
 - No environmental concern areas.
 - Potentially 71 active BLM mining lease areas.
 - Five geothermal leases.
 - One socio-economic concern, regarding the possible closing of State HWY 839, which is a public thoroughfare for traffic that travels primarily to the Rawhide mine. The proposal may require an alternate routing of dirt road along the western side of the Sand Springs mountain range, just west of Bravo-17.

3.2 Bravo-17 Acreages. Current: 52,280 Expanded: 178,700 Total: 230,980

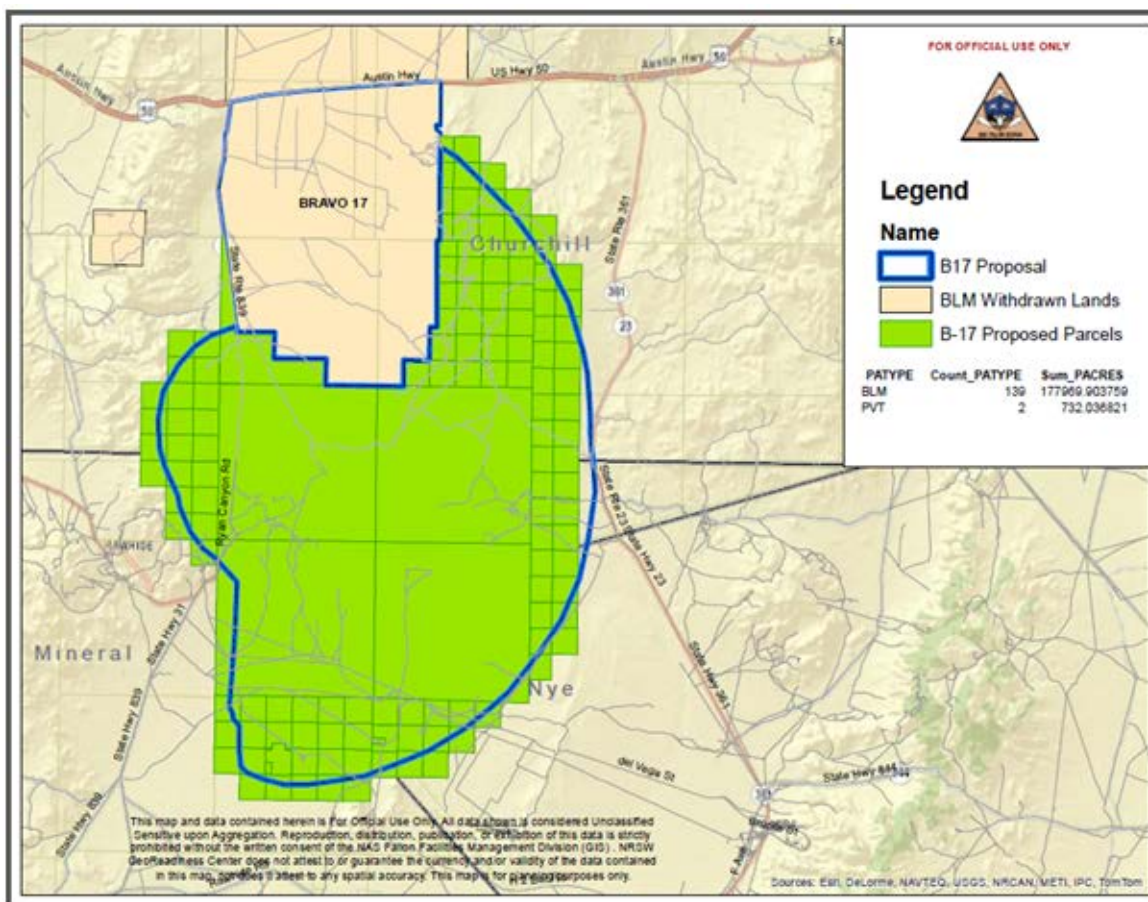


Figure 3: Bravo 17 Lands Preferred Alternative

4: Bravo 20 Range

4.1 Refer to Figure 4. The preferred alternative for the Bravo-20 range expansion equates to approximately 183,345 acres and extends the current range boundaries on all sides.

- Bravo-20 lands consist of:
 - 121,483 acres of BLM land (66%).
 - 44,150 acres of private land (24%).
 - 17,708 acres of Churchill County owned land (9.7%).
- Bravo-20 Land Issues:
 - No environmental concern areas.
 - Potentially 3 active BLM mining lease areas.
 - One geothermal lease area.
 - Two potential socio-economic concerns:
 - 1) May require the closure of dirt road “Power Line Road” used for access to the current range and for areas to the North and Eastern areas of the areas in Pershing County. Alternate access would be via Interstate 80 utilizing new access roads at and East of Lovelock, Nevada.
 - 2) A proposed slurry pipe line or mini rail system to transport slurry from the Buena Vista Mine to U.S. Highway 95. This process would also require re-routing through Northern access routes to Lovelock and U. S. Highway 80.

4.2 Bravo-20 Acreages. Current: 41,000 Expanded: 183,345 Total: 234,345

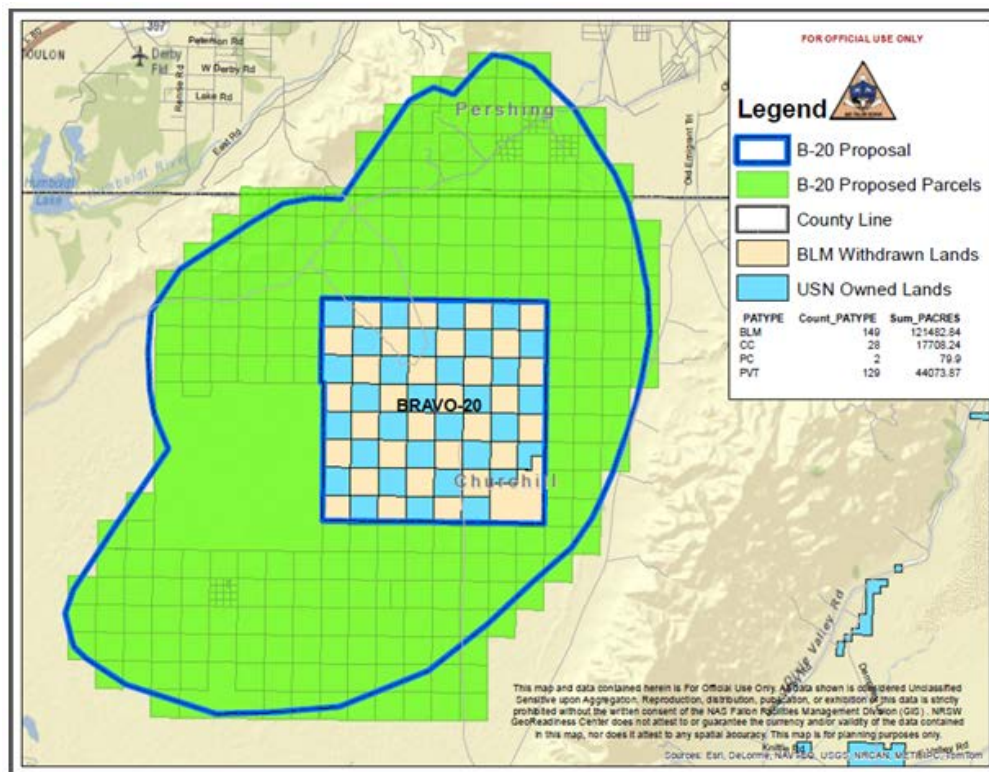


Figure 4: Bravo 20 Lands Preferred Alternative

5: Proposed Land Action for the Dixie Valley Training Area

5.1 Refer to Figure 5. The preferred alternative for the Dixie Valley Training Area (DVTA) is approximately 295,800 acres and expands the current area to the North.

- DVTA lands consist of:
 - Estimated 288,000 acres of BLM land.
 - 550 acres of private land and Churchill County owned land.
 - 6,799 acres of Navy owned land.
- DVTA Land Issues:
 - Environmental concerns: Sage Grouse habitat.
 - Potentially 17 mining leases.
 - Two geothermal leases.
 - Potential socio-economic concerns:
 - 1) Public: none, as open lands are joint use to the public.
 - 2) Commercial: reduced access for energy and mining proposals.

5.2 Proposed Dixie Valley Training Area

Acreage: Current: 68,400 Expanded: 295,800 Total: 364,200

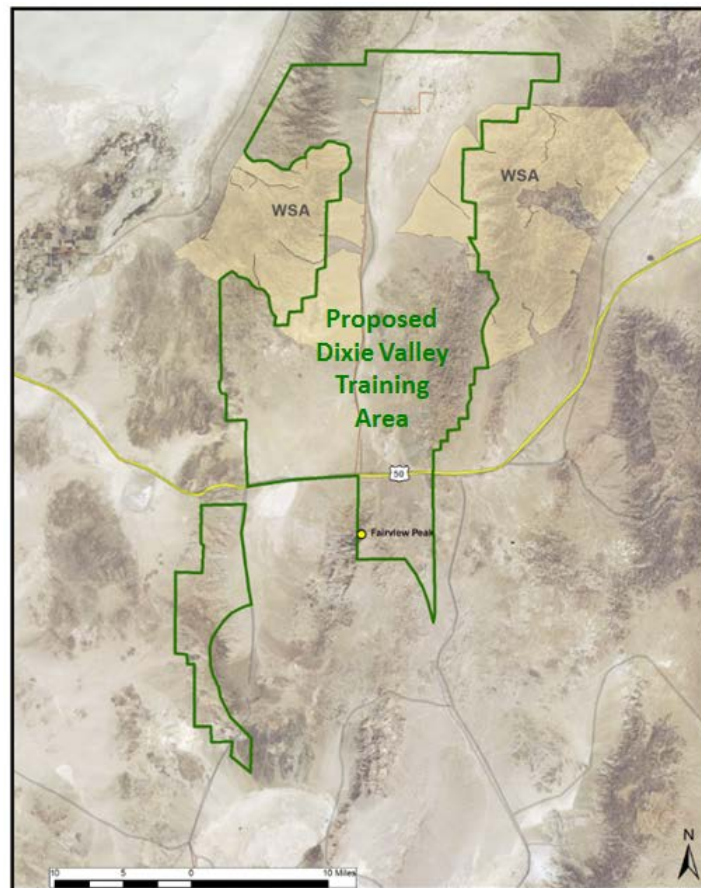


Figure 5. NAWDC Proposed Dixie Valley Training Area

This page intentionally left blank.

Naval Aviation Warfighting Development Center (NAWDC) Fallon Range Training Complex (FRTC) Airspace Requirements

1: Background on FRTC Airspace Requirements

1.1 Airspace requirements at the Fallon Range Training Complex (FRTC) are mission and event specific. Smaller unit-level events may be accommodated in “working areas” distributed throughout the FRTC. For Large Force Exercise (LFE) events, larger training areas are required. The FRTC airspace is modular and scalable in order to accommodate the Special Use Airspace requirements of either requirement.

1.2 The following is a summary of the proposals listed in this document:
Refer to Figure 1 for an overview of FRTC airspace and change proposals:

- Restricted Airspace modifications to:
 - R-4803 (Bravo 16), R-4804 (Bravo 17), R-4810 (Bravo 19), R-4813 (Bravo 20), R-4812, and R-4816 N/S.
- Realignment of the northern border between the Carson MOA and the Fallon North 4 MOA.
- Modifications to existing MOA & ATCAA structures.
- Modifications to the Reno MOA.

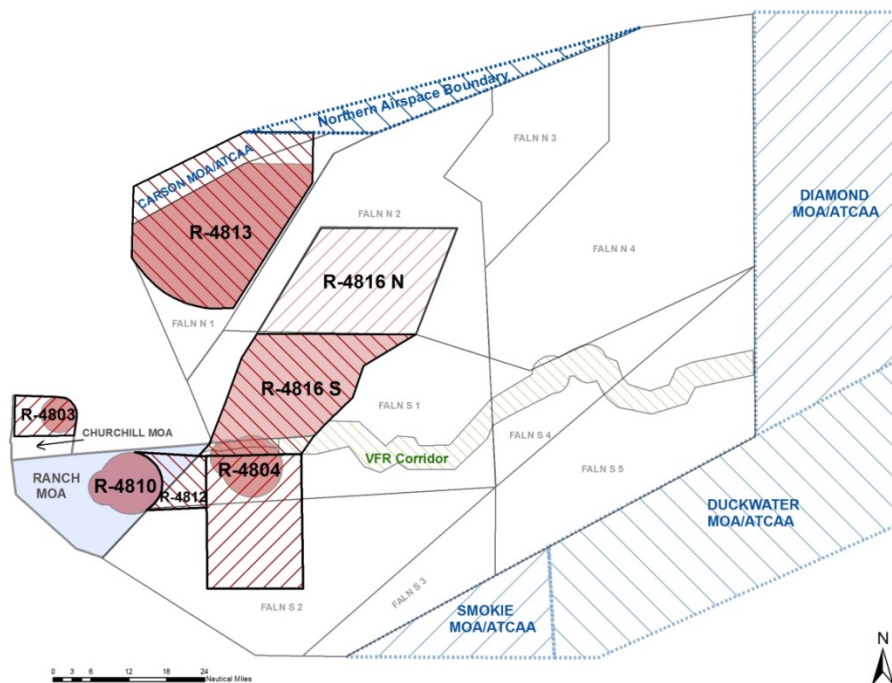


Figure 1: Overall Map of Proposed Fallon Airspace Change Areas

2: R-4803 Restricted Area

- Refer to Figure 2. R-4803 airspace enhancements are associated with the Bravo 16 training range.
- R-4803 would increase in size to accommodate enhanced weapons release envelopes and to protect general aviation from hazardous weapons activities.
- Total increase in size would be dependent upon the final outcome of the NEPA process. The proposed alternative #1 solution is shown in Figure 1 and would equate to approximately 60 Square Nautical Miles.
- R-4803 would be divided into two sections, R-4803 West and R-4803 East, in order to accommodate concurrent and non-integrated training events.
- Requested R-4803 altitude stratification:
 - R-4803A Surface to 9,999 feet MSL
 - R-4803B 10,000 to 17,999 feet MSL

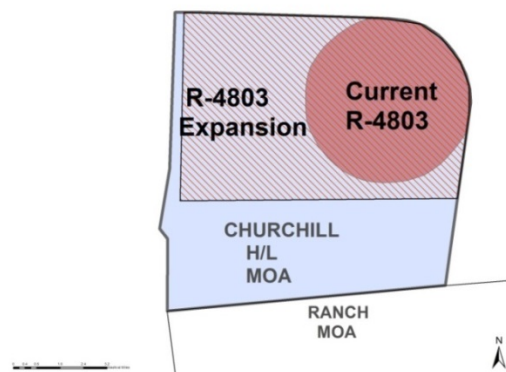


Figure 2: Restricted Area R-4803 (Bravo 16 Range) Enhancements

3: R-4804 Restricted Area

- Refer to Figure 3. R-4804 enhancements are associated with the Bravo 17 training range. The new R-4804 would accommodate additional air-to-surface weapons envelopes, reduce risk to the public, and protect general aviation from hazardous weapons activities.
- Total increase in size would be dependent upon the final chosen alternative as an outcome of the NEPA process. Proposed Alternative 1 solution is shown and airspace would equate to approximately 325 Square Nautical Miles.
- R-4804 would absorb a portion of R-4812 as detailed in Section 4.
- Requested R-4804 altitude stratification:
 - R-4804A Surface to 9,999 feet MSL
 - R-4804B 10,000 to 17,999 feet MSL
 - R-4804C FL180 to FL500 (as assigned)

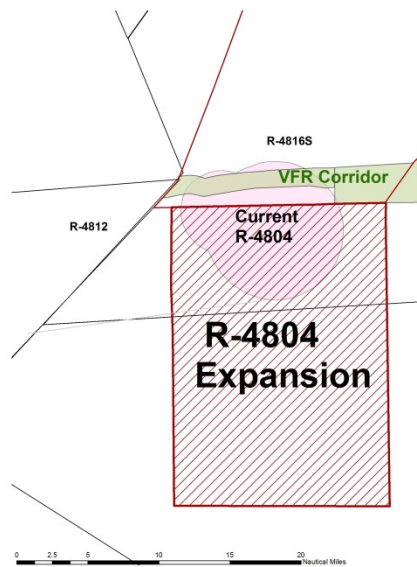


Figure 3: Restricted Area R-4804 (Bravo 17 Range) Enhancements

4: R-4812 Restricted Airspace

- Refer to Figure 4. R-4812 airspace recommendations are associated with the Bravo 17 and Bravo 19 training ranges.
- The current R-4812 lies between Bravo 19/ R-4810 and Bravo 17/R-4804. The proposal is to modify R-4812 on the eastern side to align with the newly proposed R-4804.
- Total decrease in size would be dependent upon the final chosen alternative as an outcome of the NEPA process. Proposed Alternative 1 solution is shown and airspace would equate to approximately 73 Square Nautical Miles.

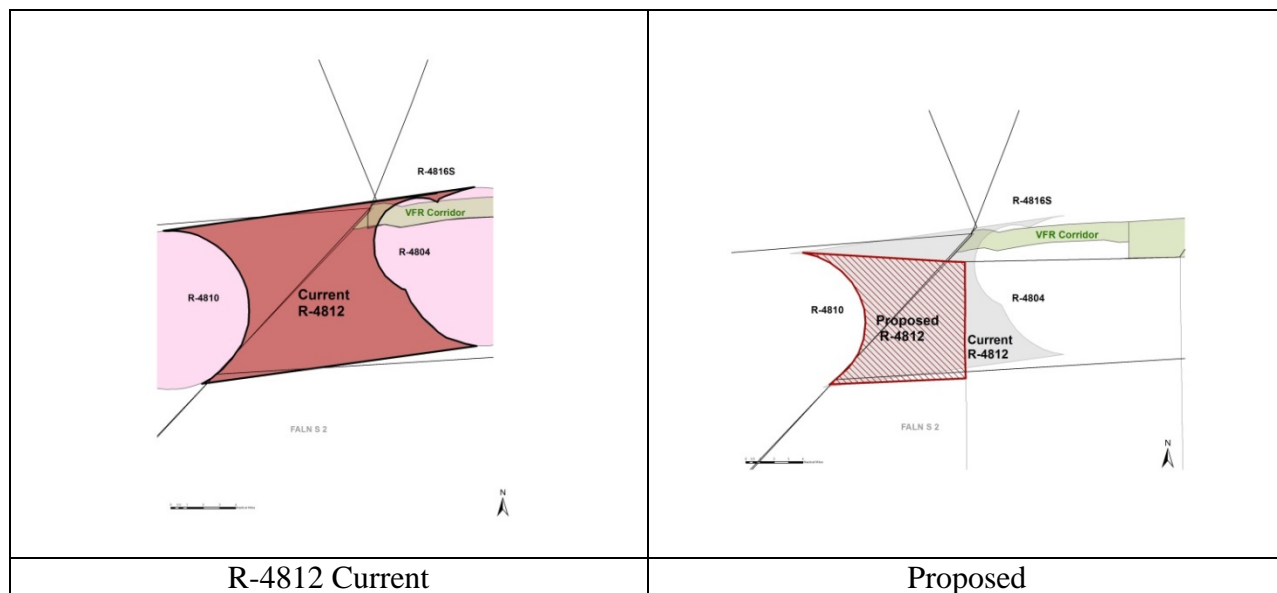


Figure 4: Restricted Area R-4812 Deletion/Modification

5: R-4816 Restricted Airspace

- R-4816 airspace consists of R-4816 North and R-4816 South.

5.1 R-4816 North

- Refer to Figure 5. R-4816 North Boundaries would not change.
- R-4816 North current altitude is 1500 AGL to 17,999 MSL. This proposal requests a modification in altitude from surface to 17,999 MSL.
- Requested R-4816 North altitude stratification:
 - R-4816 North A Surface to 9,999 feet MSL
 - R-4816 North B 10,000 to 17,999 feet MSL
 - R-4816 North C FL180 to FL500 (as assigned)

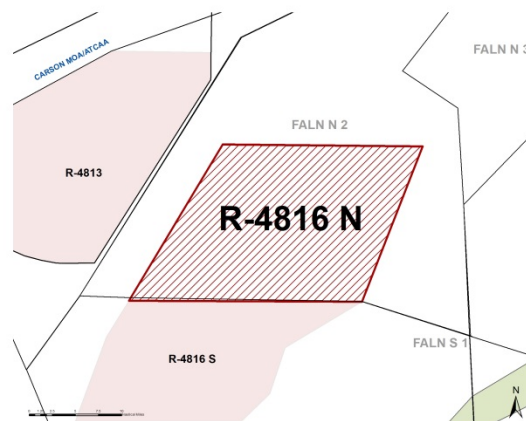


Figure 5: Restricted Area R-4816 North

5.2 R-4816 South

- Refer to Figure 6. This proposal would modify the southern border of R-4816 South to better align with the northern border of the newly designed R-4804 and to better accommodate the VFR Corridor. Currently, the VFR corridor encroaches within Bravo 17/R-4804 Restricted Airspace.
- Under this change, R-4816 South would encompass the VFR Corridor within its southern boundary. The VFR corridor would run through the newly proposed R-4816 South from 2,000 AGL to 8,500 MSL.
- The estimated size of the new R-4816 South is approximately 360 Square Nautical Miles.
- R-4816 South current altitude is 500 AGL to 17,999 MSL. This proposal requests a modification in altitude from surface to 17,999 MSL.
- Requested R-4816 South altitude stratification:
 - R-4816 South A Surface to 9,999 feet MSL
 - R-4816 South B 10,000 to 17,999 feet MSL
 - R-4816 South C FL180 to FL500 (as assigned)

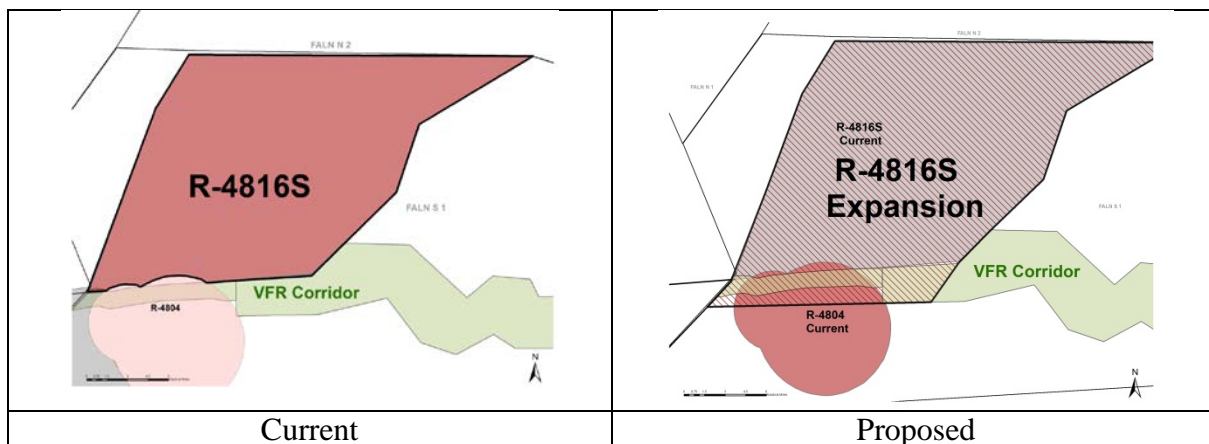


Figure 6: Restricted Area R-4816 South Modification

6: R-4813 Restricted Area

- Refer to Figure 7. R-4813 enhancements are associated with the Bravo 20 training range.
- R-4813 would expand to accommodate additional weapons release envelopes and to protect general aviation from hazardous air-to-surface activities.
- The total increase in size is dependent upon the final chosen Alternative as an outcome of the NEPA process. The proposed Alternative 1 solution is shown and airspace would equate to approximately 563 Square Nautical Miles in size.
- Requested R-4813 altitude stratification:
 - R-4813A Surface to 9,999 feet MSL
 - R-4813B 10,000 to 17,999 feet MSL
 - R-4813C FL180 to FL500 (as assigned)

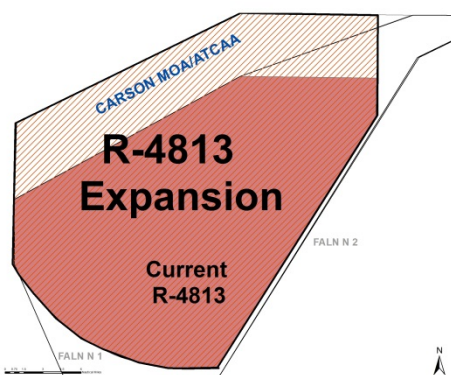


Figure 7: Restricted Area R-4813 (Bravo 20 Range) Enhancements

7: R-4810 Restricted Area

- Refer to Figure 8. R-4810 is associated with the Bravo 19 range.
- R-4810 would increase in altitude from surface to 17,999 MSL in order to increase airspace utilization/efficiencies and remove gapped airspace coverage associated with the Bandit ATCAA.
- R-4810 would also absorb a portion of the former R-4812 as detailed in Section 4.
- The estimated size of the new R-4810 is approximately 121 Square Nautical Miles.

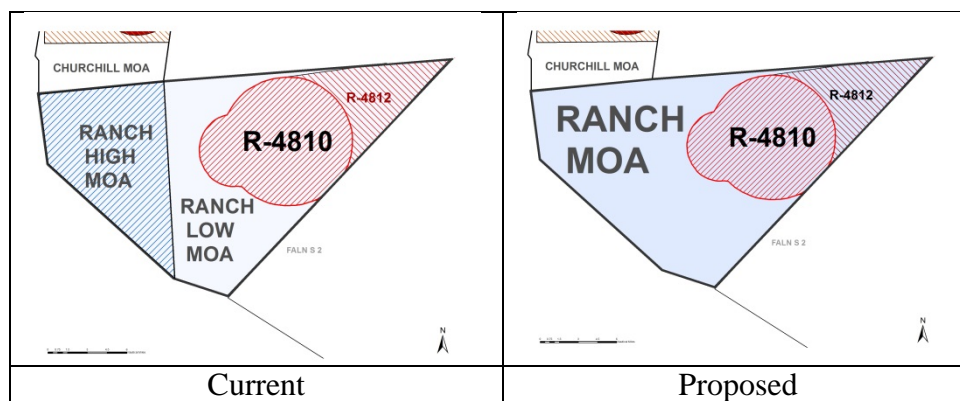


Figure 8: Restricted Area R-4810 and Ranch MOA

- In order to accommodate changes to the R-4810 Restricted Airspace, the NAS Fallon departure and arrival corridors would have to be moved. The proposal at this time is to recommend shifting the arrival and departure corridors over the Bravo 16 range and Restricted Area R-4803. This would limit the new R-4803 to a maximum altitude of 10K MSL, but would be preferred over leaving Bravo 19 and R-4810 as status quos.

8: Ranch MOA

- Refer to Figure 8. This requirement is also associated with the Bravo 19 range and R-4810.
- Create one Ranch MOA (current Ranch Low and Ranch High) from surface to 17,999.

9: Northern Airspace Boundary

- Refer to Figure 9. Realign the northern boundary between the top of the Carson MOA and the Fallon North 4 MOA.

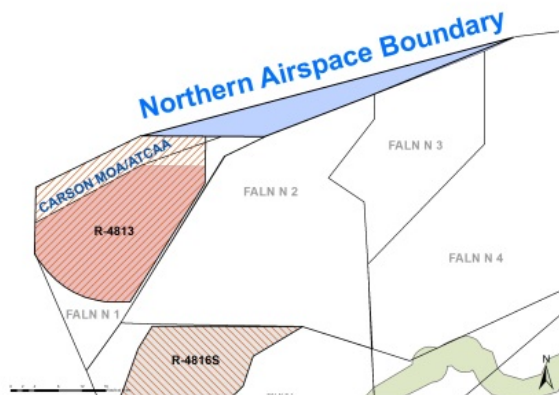


Figure 9: Northern Airspace Boundary

10: Southern and Eastern MOAs and ATCAAs

Refer to Figure 10. Regarding the Southern and Eastern Military Operations Areas (MOA) and Air Traffic Control Assigned Airspace (ATCAA), this requirement enhances the training capabilities of these areas by the creation of a MOA/ATCAA structure as follows:

- Diamond MOA / ATCAA:
 - Diamond MOA. Create a Diamond MOA from 200 AGL to FL180
 - Diamond ATCAA Modify altitudes to FL180 to FL280
- Duckwater MOA / ATCAA:
 - Duckwater MOA Create a Duckwater MOA from 200 AGL to FL180
 - Duckwater ATCAA Modify altitudes to FL180 to FL280
- Smokie MOA / ATCAA:
 - Smokie MOA Create a Smokie MOA from 200 AGL to FL180
 - Smokie ATCAA Modify altitudes to FL180 to FL280

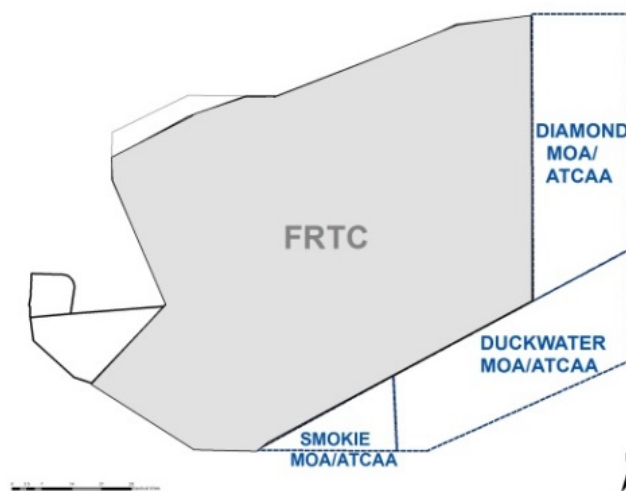


Figure 10: Southern and Eastern Airspace

11: Reno MOA

- Refer to Figure 11. Current Reno MOA airspace is 13,000 MSL to FL310.
- Modify altitude to 200 feet AGL to FL400 (as assigned).
- Add Supersonic capability above FL300.
- Add Chaff and Flare release capability. Standard flare minimum altitude restrictions would apply.

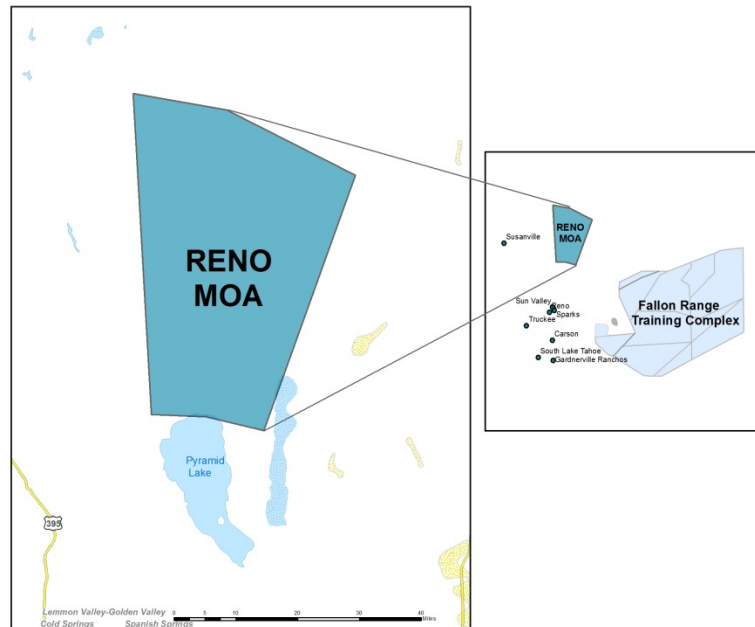
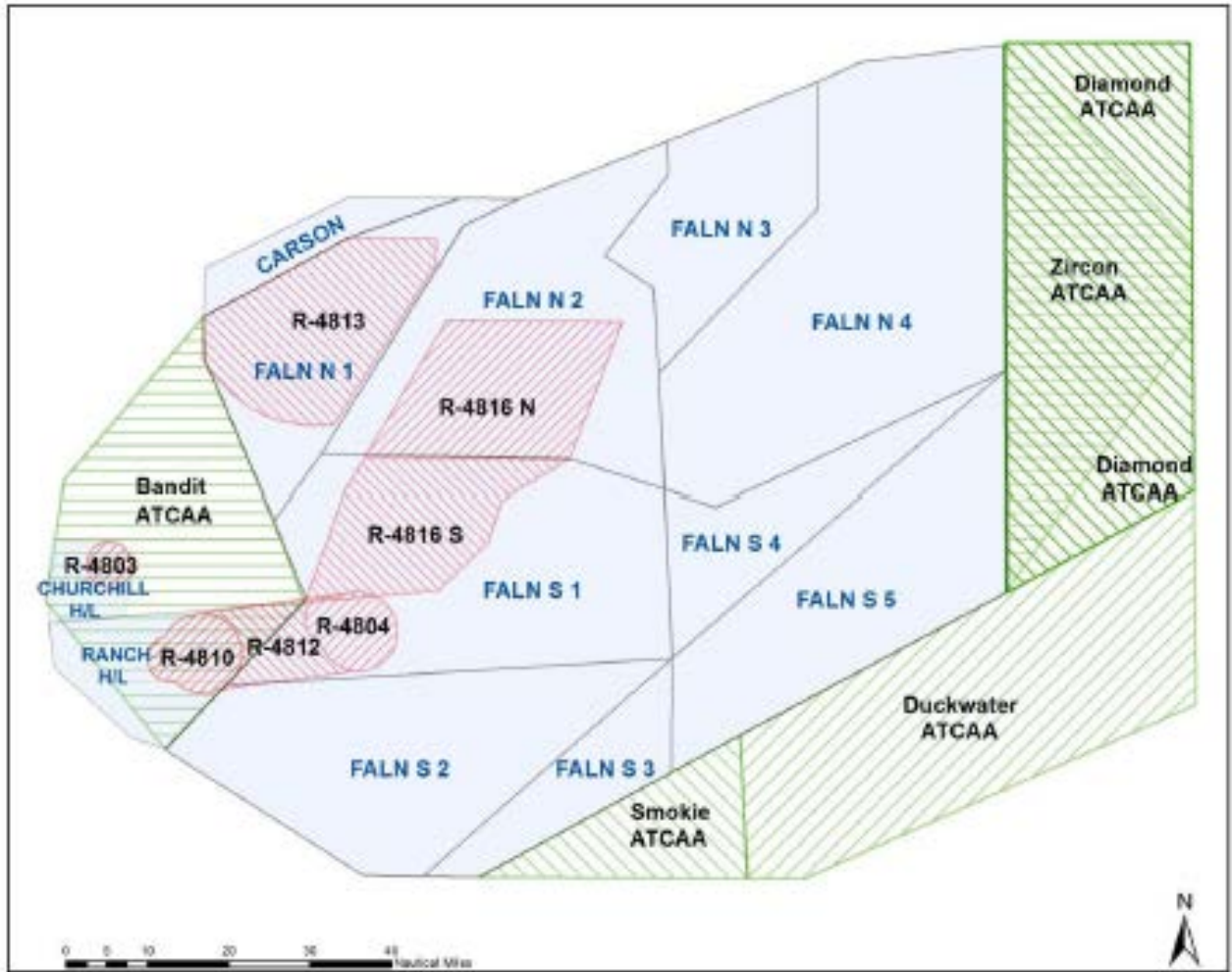
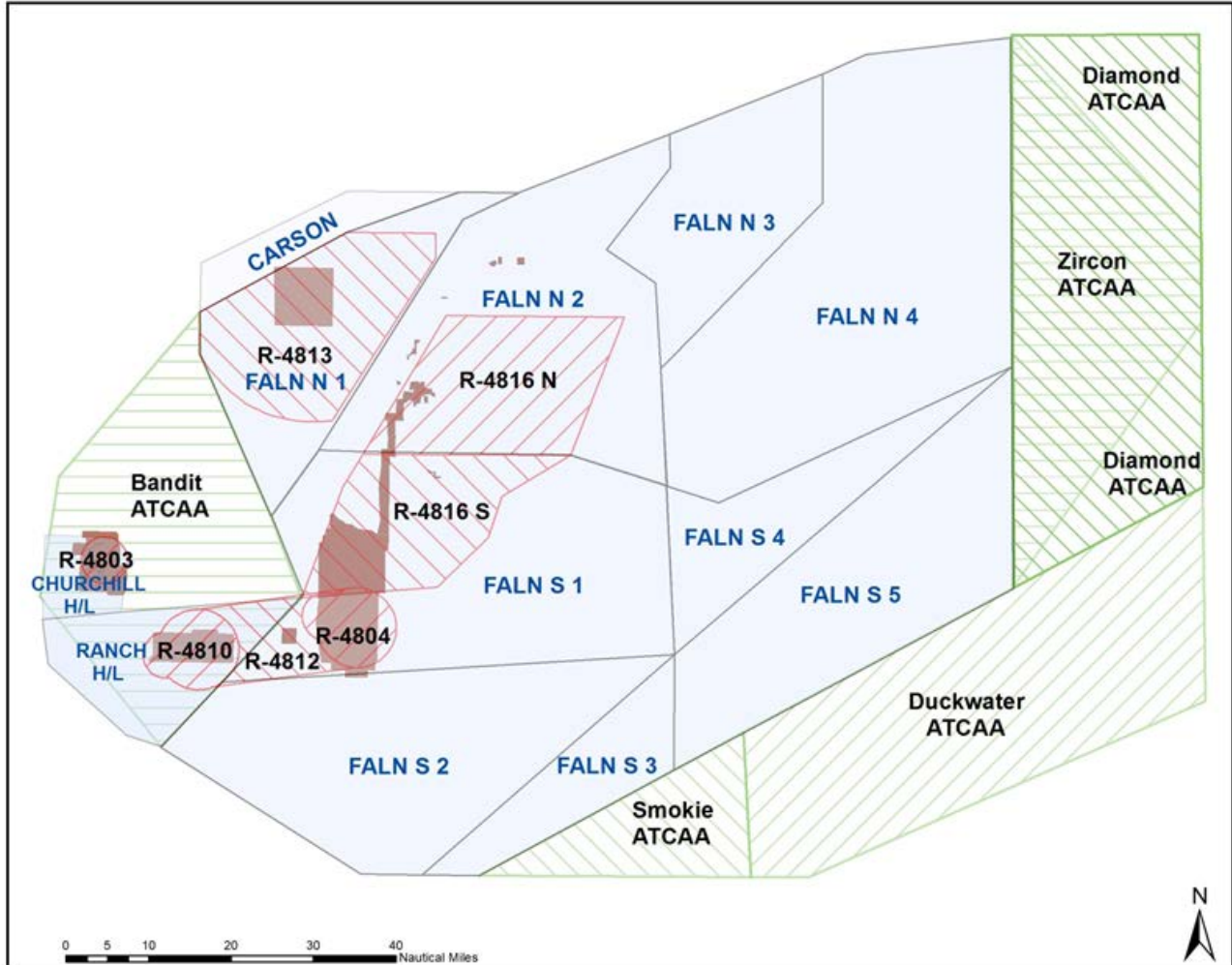


Figure 11: Reno MOA



FRTC Airspace

Fallon Range Training Complex



Land and Airspace