
FRTC Modernization EIS

Supporting Study Airfield / Air Traffic Impacts Study

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AIRFIELD / AIR TRAFFIC IMPACTS STUDY
IN SUPPORT OF THE
FALLON RANGE TRAINING COMPLEX MODERNIZATION
ENVIRONMENTAL IMPACT STATEMENT



**NOVEMBER
2018**

Airspace/Air Traffic Impacts Study

FRTC Modernization EIS

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1 FRTC Modernization EIS Airspace/Air Traffic Impacts Study

1.1 Introduction

This study focuses on the twelve civil and private recognized airfields that are under or adjacent to the Fallon Range Training Complex (FRTC) airspace as defined in the Modernization Environmental Impact Statement (EIS). Additionally it examines the nineteen regional civil and private airfields, and the five major military and commercial regional airfields (Table 1-1), that generate civil and commercial traffic that either utilizes FRTC airspace, or is affected by the activation of Special Use Airspace (SUA) in the FRTC.

Table 1-1: FAA Registered Airfields in FRTC Modernization EIS Region of Influence

Name (Location Identification)	Location	Remarks
Air Sailing Glider Port (NV23)	75 miles northwest of Fallon, Nevada	Private Use Visual Flight Rules
Austin (TMT)	70 miles east northeast of Fallon, Nevada	Bureau of Land Management/Public Use
Battle Mountain (BAM)	127 miles northeast of Fallon, Nevada	County Owned/Public Use
Barker Creek Ranch (NV31)	104 miles southeast of Fallon, Nevada	Private Use Visual Flight Rules
Black Rock City (88NV)	92 miles north northwest of Fallon, Nevada	Bureau of Land Management /Leased for Private Use
Black Rock Desert high altitude rocket launch area	97 miles north northwest of Fallon, Nevada	Bureau of Land Management/ Public launches under terms of BLM permit
Carson City (CXP)	55 miles southwest of Fallon, Nevada	Public Use
Crescent Valley (U74)	132 miles northeast of Fallon, Nevada	Bureau of Land Management/Public Use
Darrow Field Airport (26NV)	6 miles southwest of Fallon, Nevada	Private Use Visual Flight Rules
Dayton Valley Airpark (A34)	53 miles west southwest of Fallon, Nevada	Privately Owned /allows Public Use
Derby Field (LOL)	50 miles north of Fallon, Nevada	County Owned/Public Use
Dixie Valley Airport (NV30)	50 miles northeast of Fallon, Nevada	Private Use Visual Flight Rules
Duckwater (01U)	174 miles southeast of Fallon, Nevada	Bureau of Land Management/Public Use
Elko Regional Airport (EKO)	181 miles northeast of Fallon, Nevada	Publicly Owned
Ely Airport (ELY)	206 miles east of Fallon, Nevada	Publicly Owned
Empire (18NV)	82 miles north northwest of Fallon, Nevada	Bureau of Land Management /Leased for Private Use

1 **Table 1-1: FAA Registered Airfields in FRTC Modernization EIS Region of Influence (continued)**

Name (Location Identification)	Location	Remarks
Eureka Airport (05U)	151 miles east of Fallon, Nevada	County Owned/Public Use
Fallon Municipal Airport (FLX)	2 miles northeast of Fallon, Nevada	Publicly Owned
Fallon Naval Air Station/Van Voorhis Field Airport (NFL)	3 miles northeast of Fallon, Nevada	Navy Owned
Fallon Southwest Airpark Airport (1NV1)	5 miles southwest of Fallon, Nevada	Private Use Visual Flight Rules
Farias Wheel (NV33)	56 miles southwest of Fallon, Nevada	Private Use Visual Flight Rules
Flying Eagle (77NV)	102 miles southeast of Fallon, Nevada	Private Use Visual Flight Rules
Gabbs (GAB)	53 miles southeast of Fallon, Nevada	County Owned/Public Use
Hadley (NV83)	104 miles southeast of Fallon, Nevada	Private Use Visual Flight Rules
Hawthorne (HTH)	65 miles south of Fallon, Nevada	County Owned/Public Use
Kingston (N15)	77 miles east of Fallon, Nevada	Public Airport
McCarran International Airport (LAS)	307 miles southeast of Fallon, Nevada	International Airport
Minden-Tahoe (MEV)	62 miles southwest of Fallon, NV	Public Airport
Nellis Air Force Base (LSV)	298 miles southeast of Fallon, Nevada	U.S. Air Force Owned
North Las Vegas Airport (VGT)	293 miles southeast of Fallon, Nevada	Publicly Owned
O'Toole Ranch (NV02)	63 miles east southeast of Fallon, Nevada	Private
Reno Stead (RTS)	60 miles west northwest of Fallon, Nevada	Public Airport
Reno-Tahoe International Airport (RNO)	65 miles west of Fallon, Nevada	International Airport
Rolling Thunder (NV96)	53 miles northwest of Fallon, Nevada	Private Use Visual Flight Rules
Rosachi Air Park (N59)	53 miles southwest of Fallon, NV	Bureau of Land Management/Public Use
Silver Springs (SPZ)	26 miles west southwest of Fallon, Nevada	County Owned/Public Use
Tiger Field (N58)	25 miles west northwest of Fallon, Nevada	Bureau of Land Management/Public Use
Yerington (O43)	39 miles southwest of Fallon, NV	Public Airport

Source: <http://www.city-data.com>; airnav.com/airport

2 **Figure 1-1 depicts the geographical disposition of the regional airfields against the existing FRTC SUA.**

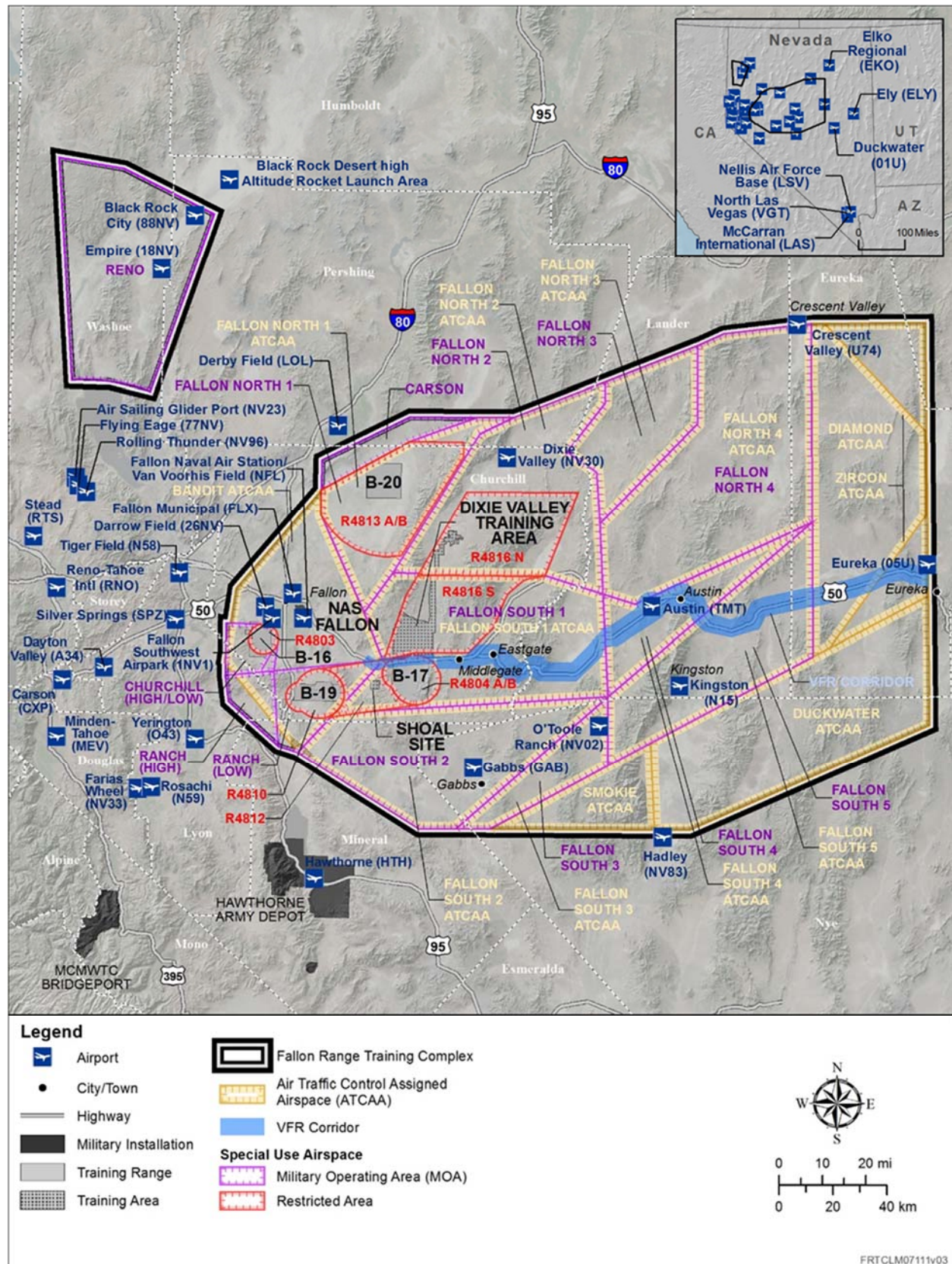


Figure 1-1: FRTC Modernization EIS ROI Airfields

This study also analyzes the FRTC influence on Federal Aviation Administration (FAA) Air Traffic Control (ATC) utilizing high altitude Jet (J) routes and Q-routes, and low altitude T-routes and V-routes. Military Training Routes (MTR) also transit the FRTC and are considered in the analysis of the modernization EIS alternatives.

1.2 Existing Airspace and Airspace Use in the FRTC Region

FRTC airspace includes Restricted Areas, Military Operating Areas (MOA), and Air Traffic Control Assigned Airspace (ATCAA) as defined by JO FAA Order 7400.10ⁱ. These definitions are identical to information found in DOD Flight Information Publications (FLIP) AP1A Special Use Airspace and Joint Mission Planning System (JMPS) software with current Digital Aeronautical Flight Information Files (DAFIF).ⁱⁱ Of the specific SUA categories that comprise the overall FRTC; there are seven Restricted Areas, four of which are associated with bombing ranges, fourteen Military Operating Areas (MOA), five stand-alone Air Traffic Control Assigned Airspace (ATCAA), and ten ATCAAs that are associated with MOAs. Additionally, the Visual Flight Rules (VFR) Corridor bisects the FRTC airspace east and west following U.S. Highway 50 and extends from 2,000 feet above ground level (AGL) up to 8,500 feet MSL within one mile north of U.S. Highway 50 between Sand Mountain and Fairview Peak. East from Fairview Peak, it extends from 2,000 feet AGL to 10,500 feet mean sea level (MSL), and lies within one mile north, and two miles south, of U.S. Highway 50 to the intersection of State Route 722 at Eastgate. The same altitude restriction continues to apply within two miles to either side of State Route 722 to the town of Austin, where it rejoins U.S. Highway 50 and proceeds to the eastern boundary of the Austin MOA.

1.2.1 Description of Regional Airspace

FRTC airspace, both currently, and under any of the Modernization EIS alternatives, is generally active from 0730-2300 (winter) and 0830-0000 (summer), Monday through Friday changing with daylight savings time, and reported to the FAA as such. Currently within the FRTC, Visual Meteorological Conditions (VMC) apply at all times. Of note, civil air traffic is authorized within the boundaries of the MOAs. All participants must be cognizant for uncontrolled civilian VFR traffic. Civilian aircraft are not authorized within the restricted areas. These same conditions will be carried forward under all of the Modernization EIS alternatives.

Regional airspace surrounding the FRTC, and including the FRTC when the SUA is not active, is administered and controlled by Air Route Traffic Control Centers (ARTCC) in Oakland, CA for the western FRTC airspace and Salt Lake City, UT for the eastern airspace. For airspace at and above 18,000 feet, the air routes and airspace guidance is depicted on the FAA Flight Information Publication (FLIP) Instrument Flight Rules (IFR) Enroute High Altitude – U.S. H-3. For airspace up to but not including 18,000 feet, the air routes and airspace guidance is depicted on the FAA FLIP IFR Enroute Low Altitude – U.S. L-9.

1.2.2 Regional Air Navigation Routes

FAA established air navigation routes are depicted on the FLIP IFR Enroute charts. Between the high- and low-altitude charts, there are eleven different identified types of routes found in the regional airspace adjacent to and through the FRTC.

The FAA is modernizing the National Airspace System (NAS) by introducing the Next Generation Air Transportation System (NextGen). The FAA has implemented Performance-Based Navigation (PBN), which is comprised of Required Area Navigation (RNAV) and Required Navigation Performance (RNP), and which describes an aircraft's capability to navigate using performance standards. The PBN will provide for more efficient design of airspace and procedures which collectively result in improved

safety, capacity, predictability, operational efficiency, and environmental impacts. RNAV enables aircraft to fly on any desired flight path within the coverage of ground- or space – based navigation aids, within the limits of the capability of aircraft self-contained systems, or a combination of both capabilities. The FAA is replacing many of the high- and low-altitude routes that rely on ground-based navigation aids (NAVAIDs) with RNAV routes for use by aircraft with RNAV capability.ⁱⁱⁱ

1.2.2.1 High

Jet routes can only be located on a direct course for navigating aircraft at altitudes between 18,000 feet mean sea level (MSL) and flight level (FL) 450, inclusive between two ground-based NAVAIDs and defined intersections, and require that pilots fly directly toward or away from an established NAVAID.^{iv}

Q-routes (high) are available for use by RNAV equipped aircraft and consist of a direct course for navigating aircraft at altitudes between 18,000 feet mean sea level (MSL) and flight level (FL) 450, between the waypoints specified for that route. They can be flown using positioning from either satellite signals or Distance Measuring Equipment (DME) in case of a GPS outage. Q-Routes are replacing many Jet routes in high-altitude airspace (18,000 to 45,000 feet).

Figure 1-2 illustrates that designated high altitude routes in the FRTC regional airspace are essentially routed outside of the FRTC SUA.

1.2.2.2 Low

V-routes are low-altitude airways. They are defined in straight-line segments, each of which is based on a straight line between either two VHF omnidirectional range (VOR) stations, or a VOR and a recognized VOR intersection.

T-routes (low) are available for use by RNAV equipped aircraft and can be flown only with GNSS and are replacing many Victor routes in airspace from 1,200 feet above the surface to 18,000 feet.

LF/MF airways (airways based on Low Frequency/Medium Frequency NAVAIDs) are sometimes referred to as colored airways because they are identified by color name and number.^v

Figure 1-3 illustrates that designated low altitude routes in the FRTC regional airspace are wholly routed outside of the FRTC SUA.

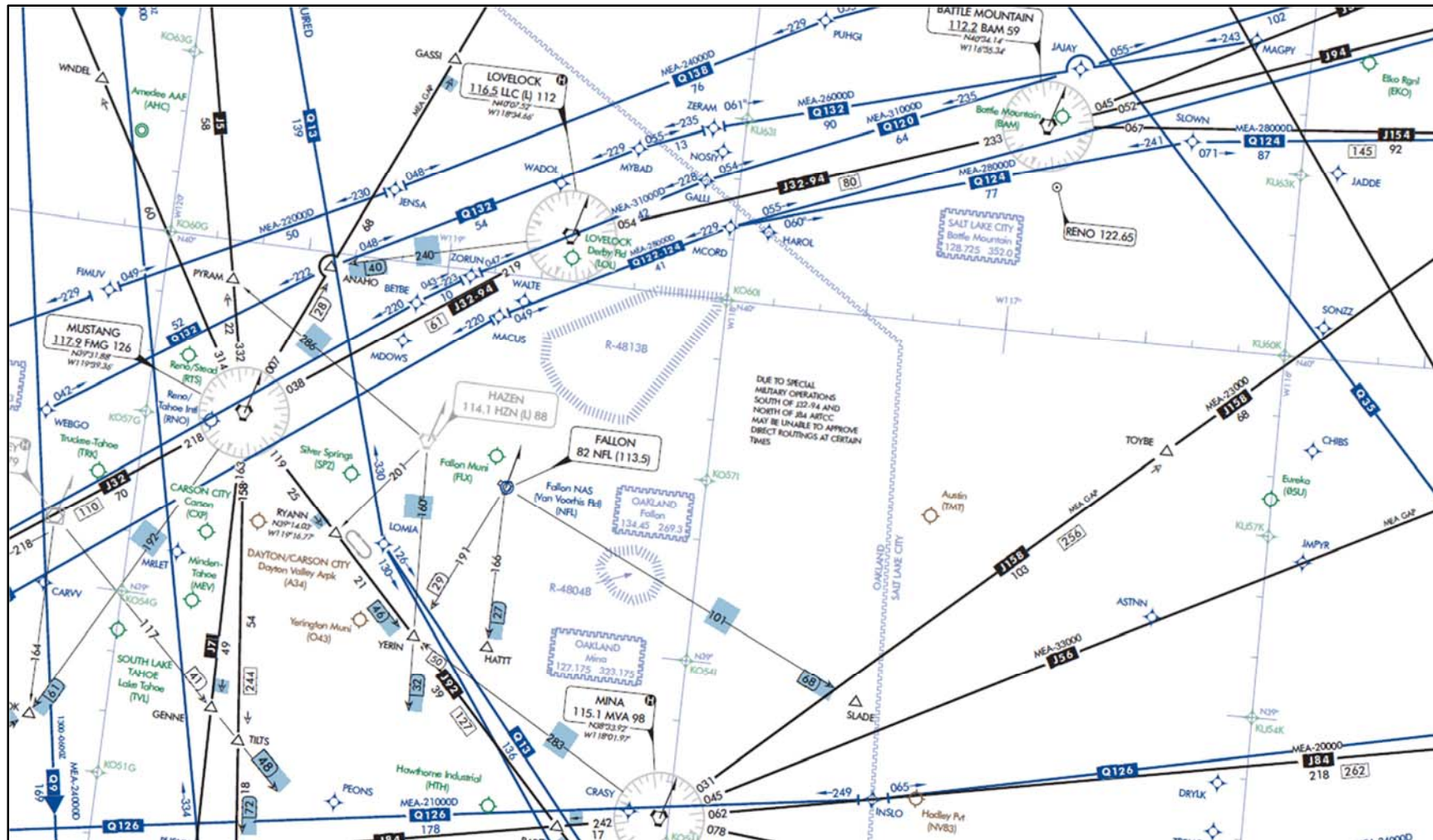


Figure 1-2: FRTC Associated High Altitude Airspace Routes

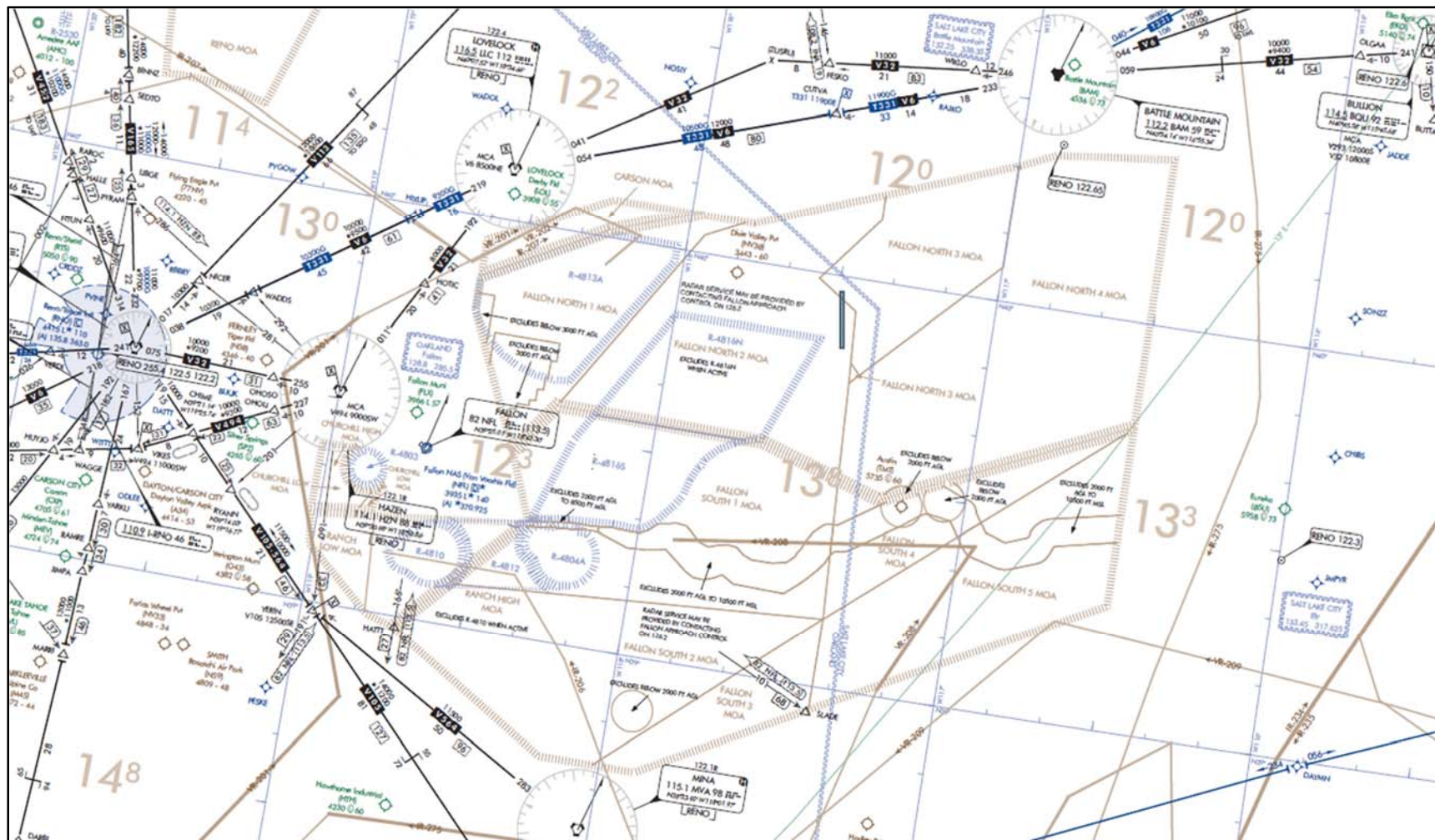


Figure 1-3: FRTC Associated Low Altitude Airspace Routes

1.2.2.3 Military Training Routes

The Military Training Route (MTR) Program is a joint venture by the Federal Aviation Administration (FAA) and the Department of Defense (DOD), developed for use by military aircraft to gain and maintain proficiency in tactical "low level" flying. These low-level training routes are generally established below 10,000' Mean Sea Level (MSL) for speeds in excess of 250 knots to accommodate both Visual Flight Rules (VFR) and Instrument Flight Rules (IFR). Figure 1-4 depicts the MTRs that both intersect FRTC airspace and utilize the regional airspace adjacent to the FRTC SUA.

- **Visual Routes (VR):** VR, or VFR routes, are designed to be flown at 1,500' AGL and below. They shall be conducted under VFR, except when flight visibility must be 5 Statute Miles or more and flights shall not be conducted below a ceiling of less than 3,000' AGL.
- **Instrument Routes (IR):** IR, or IFR routes, are designed to be flown above 1,500' AGL. They shall be conducted in accordance with IFR regardless of weather conditions. IR MTRs require a specific Air Traffic Control (ATC) entry clearance prior to entering and pilots shall be responsible for obtaining an IFR ATC exit clearance prior to exiting an IR route.

Military Training Routes (MTRs) originate from two primary commands that include portions of the FRTC in their route descriptions (Table 1-2). Commander, Strike Fighter Wing, U.S. Pacific Fleet (CSFWP) and Travis Air Force Base (AFB) low-level MTRs cross, or pass, adjacent to FRTC airspace. Commander, Naval Air Warfare Center, Weapons Division (NAWC-WD) has a low-level MTR accessing FRTC airspace only in support of Pacific Missile Test Center (PMTTC) missions.^{vi}

Table 1-2: Military Training Routes Associated with Fallon Range Training Complex

MTR	Comment
VR-1250	CSFWP low-level training route, FRTC MOA/Restricted Area entry authorization required.
VR-1251	
VR-1252	
VR-1253	
VR-1254	
VR-1255	
VR-1259	
VR-1260	
VR-1261	
VR-1264	
VR-201	
VR-202	
VR-208	
VR-209	
IR-206	NAWC-WD low-level training route, used only in support of PMTTC authorized test missions.
IR-207	Commander Strike Fighter Wing, US. Pacific Fleet, radar navigation/terrain following training route into the FRTC.
IR-264	Per DoD Flight Information Publication, Area Planning 1B, Aircrews are responsible for resolving these IR route conflicts with the appropriate agency.
IR-275	
IR-280	
IR-281	
IR-282	

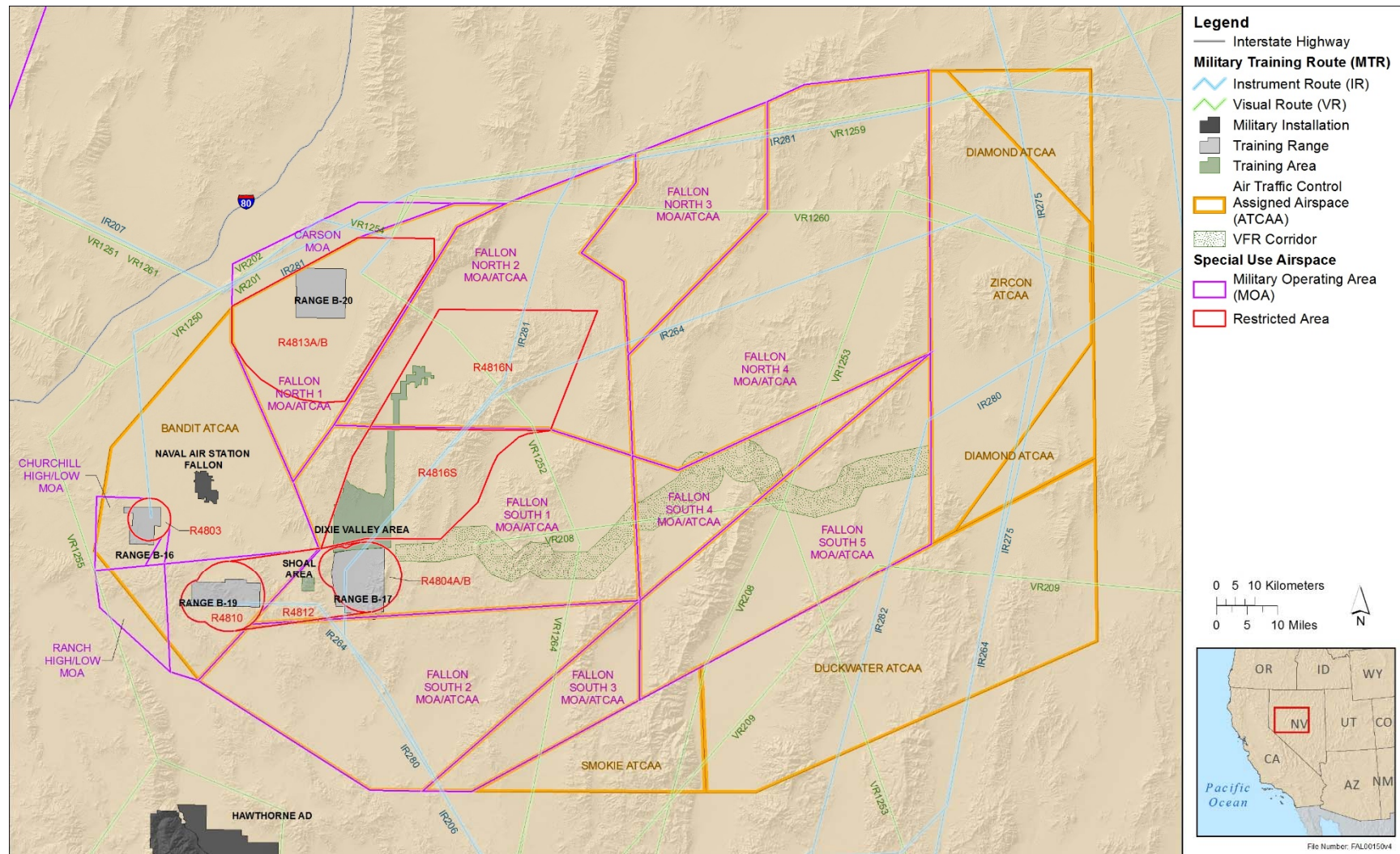


Figure 1-4: MTRs Intersecting FRTC

1.2.3 Regional Airfields

During the development of the FRTC Modernization effort, the staffs of Naval Aviation Warfighting Development Center (NAWDC) and Naval Air Station (NAS) Fallon identified 36 airfields in the regional vicinity of the FRTC whose aircraft may use of the FRTC airspace or be affected by changes to the FRTC airspace. Out of those 36 airfields, 13, not including Naval Air Station (NAS) Fallon, are located either underneath the FRTC SUA or immediately adjacent (Table 1-3).

Table 1-3: Airfields Under/Adjacent to FRTC Airspace

Commercial/Private Airfields Under/Adjacent to FRTC Airspace						
Name	FAA Identifier	Tower Y/N	Runway Data ¹	Aircraft Based at Field	Operations Tempo	Instrument Procedures
Crescent City	U74	No	Dirt - 5/23 5424', 14/32 4650'	None	50/year, 100% transient GA	None
Eureka	05U	No	Asphalt – 18/36 5940'	2 single engine	Average 30/week, 62% transient, 28% local GA, 10% military	Instrument approaches available
Kingston	N15	No	Dirt/gravel – 7/25 3700', 16/34 3072', Helipad – concrete	3 single engine, 1 helicopter	35/week – 58% transient, 40% local GA 1% air taxi, 1% military	None
Hadley	NV83	No	Asphalt – 17/35 6776'	Private - 2 single engine	Average 38/week, 50% transient, 50% local GA	None
O'Toole Ranch	NV02	No	Dirt – 7/25 4000'	Private - None	N/A	None
Austin	TMT	No	Asphalt – 1/19 6000'	2 single engine	Average 39/week, 54% transient, 37% local GA, 9% military	None
Gabbs	GAB	No	Dirt – 9/27 5900', 16/34 2800'	1 single engine	Average 48/month, 52% transient, 31% military, 17% local GA	None

1

Table 1-3 Airfields Under/Adjacent to FRTC Airspace (continued)

Commercial/Private Airfields Under/Adjacent to FRTC Airspace						
Name	FAA Identifier	Tower Y/N	Runway Data ¹	Aircraft Based at Field	Operations Tempo	Instrument Procedures
Fallon Southwest Airpark	1NV1	No	Gravel – 17/35 2650'	Private - 7 Single engine	N/A	None
Darrow Field	26NV	No	Asphalt – 16/34 2483'	Private - 1 Single engine, 4 ultralights	N/A	None
Fallon Municipal	FLX	No	Asphalt – 3/21 5703' Dirt – 13/31 4207'	71 Single engine, 1 multi-engine, 5 ultralights	Average - 24/day, 41% local GA, 37% transient GA, 18% air taxi, 4% military	Instrument approaches available
Derby Field	LOL	No	Asphalt – 2/20 5529', 8/26 4931'	2 single engine	Average 37/week, 85% transient, 9% military, 6% local GA	None
Dixie Valley	NV30	No	Asphalt – 16/34 6000'	Private - Terra-Gen Operating Co.	N/A	None
Silver Springs	SPZ	No	Asphalt – 6/24 6001'	12 Single engine airplanes, 1 military, 1 multi engine, 1 glider	Average 30/day, 31% local GA, 52% transient GA, 17% military	Instrument approaches, departures available

Notes: GA= General Aviation

¹ Runway Data is presented by runway surface, compass direction of the runways (18/36 indicates a runway that is oriented in the 180-degree to 360-degree directions. In this example, aircraft can either land from the south [180 degrees] or from the north [360 degrees]), and length of runway

- 2 Of the airfields inventoried in Table 1-3, a total of 108 air vehicles are reported as based at the
 3 airfields.^{vii} Of these, 66% are based at Fallon Municipal. Collectively, these 13 airfields report an average

of 559 operations per week, with 30% occurring out of Fallon Municipal. Austin, has the second highest weekly operations tempo and when combined with Fallon Municipal, compromised 37% of the weekly civil air operations in the FRTC airspace. Fallon Municipal, Austin, and Silver Springs all have published precision approach procedures. Table 1-4 details the use of the remaining airfields in the FRTC region of influence.

Table 1-4: Regional Vicinity Airfields to FRTC Airspace

Regional Vicinity Airfields to FRTC Airspace						
Name	FAA Identifier	Tower Y/N	Runway Data	Aircraft Based at Field	Operations Tempo	Instrument Procedures
Elko	EKO	No	Asphalt – 6/24 7454', 12/30 3015'	62 Single engine airplanes, 8 Multi engine airplanes, 6 Helicopters, 1 Ultralight	Average 56/day. 48% transient GA, 23% local GA, 18% air taxi, 11% commercial, <1% military	Instrument approaches, departures available
Ely	ELY	No	Asphalt – 18/36 6018', 12/30 4825'	10 Single engine airplanes, 2 Multi engine airplanes, 1 Jet airplane, 4 Ultralights	Average 44/week, 17% local GA, 35% transient GA, 38% air taxi, 10% military	Instrument approaches, departures available
Duckwater	01U	No	Dirt – 13/33 3400', 3/21 2700'	None Reported	Average 33/month, 100% transient GA	None
Hawthorne Industrial	HTH	No	Asphalt – 10/28 6000', Dirt - 15/33 3250'	6 Single engine airplanes, 1 Multi engine airplanes, 1 Ultralight	Average 35/day, 24% local GA, 71% transient GA, 3% air taxi, 2% military	Instrument approaches, departures available
Rosaschi Air Park	N59	No	Asphalt – 7/25 4800', Dirt – 17/35 3700'	2 Single engine, 2 ultralights	Average 119/week, 84% transient GA, 16% local GA, <1% military	None
Farias Wheel	NV33	No	Asphalt – 16/34 3391'	Private - 15 Single engine, 1 multiengine	Aircraft operations: Average 29/week, 20% transient GA, 78% local GA, 2% air taxi	None

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Table 1-4: Regional Vicinity Airfields to FRTC Airspace (continued)

Regional Vicinity Airfields to FRTC Airspace						
Name	FAA Identifier	Tower Y/N	Runway Data	Aircraft Based at Field	Operations Tempo	Instrument Procedures
Tiger Field	N58	No	Asphalt – 15/33 3974', Gravel/Dirt – 5/23 2750'	2 single engine	Average 60/week, 76% transient, 19% local GA, 5% military	None
Minden-Tahoe	MEV	No	Asphalt – 16/34 7399' & 12/30 5399'. Dirt – 12G/30G 2050'	195 Single engine airplanes, 38 Multi engine airplanes, 10 Jet airplanes, 9 helicopters, 101 gliders	Average 218/day, 53% local GA, 44% transient GA, 3% air taxi, <1% military	Instrument approaches, departures available
Carson	CXP	No	Asphalt – 9/27 6101'	240 Single engine airplanes, 46 Multi engine airplanes, 15 Jet airplanes, 26 helicopter, 2 gliders, 20 Ultralights	Average 229/day, 46% local GA, 45% transient GA, 9% air taxi	Instrument approaches, departures available
Dayton Valley Airpark	A34	No	Asphalt – 5/23 5343'	Private - 41 Single engine airplanes, 3 helicopters, 1 glider	Average 53/day, 33% local GA, 48% transient GA, 18% military	None

2

3

1

Table 1-4: Regional Vicinity Airfields to FRTC Airspace (continue)

Regional Vicinity Airfields to FRTC Airspace						
Name	FAA Identifier	Tower Y/N	Runway Data	Aircraft Based at Field	Operations Tempo	Instrument Procedures
Reno/ Stead Home to the National Championship Air Races every September	RTS	No	Asphalt – 14/32 9000', 8/26 7608'	64 Single engine airplanes, 6 Multi engine airplanes, 6 jets, 1 Helicopter, 16 Military aircraft	Average 157/day, 52% local GA, 32% transient GA, 15% military	Instrument approaches, departures available
Rolling Thunder	NV96	No	Dirt – 5/23 2000'	Private - 1 single engine, 1 multi-engine	N/A	None
Flying Eagle	77NV	No	Asphalt – 16/34 4564'	Private - 7 single engine, 3 multi-engine	N/A	None
Air Sailing Gliderport	NV23	No	Dirt – 17/35 7000', 3/21 3000'	Private - 2 single engine, 12 gliders	N/A	None
Empire	18NV	No	Dirt – 18/36 3770', 7/25 3170'	Private (Empire Mining, Co.) - 1 Single engine aircraft	Average 20/month, 62% local GA, 38% transient GA	None
Black Rock City (Burning Man Airport)	88NV	No	Dirt – 5R/23L 6272', 5L/32R 6000'	Private - 125 Single engine airplanes, 5 Ultralights	N/A - Preregistration required for use. Detailed info at: http://airport.burningman.org	None
Black Rock Desert High Altitude Rocket Launch Area	N/A	No	N/A	N/A	http://www.aeropac.org/blackrock.html	None

Notes: GA= General Aviation

¹ Runway Data is presented by runway surface, compass direction of the runways (18/36 indicates a runway that is oriented in the 180-degree to 360-degree directions. In this example, aircraft can either land from the south [180 degrees] or from the north [360 degrees]), and length of runway

The FRTC region of influence consists of the FRTC SUA and the ranges, training areas, and land area underneath, as well as military training routes, enroute airways, airports and airfields that may interact with the FRTC. The five remaining identified airfields within the FRTC airspace region of influence are two major military airbases, and three large, commercial, international and regional airports.

- **Naval Air Station Fallon.** NAS Fallon lies southeast of the city of Fallon and is sited under the FRTC SUA. NAS Fallon and the FRTC are the Navy's premier integrated strike warfare training facilities supporting present and emerging National Defense requirements. Their mission is to support carrier air wings preparing to deploy; and other units participating in training events, including joint and multinational training and exercises. NAS Fallon is open for all air operations. For safety reasons, the air station has to be operating anytime scheduled aircraft are training in the FRTC airspace. . When open, the NAS Fallon Air Traffic Control (ATC) function is fully manned, as well as a range control facility for all ordnance and laser operations. NAS Fallon's normal operating hours are:
 - Weekdays – 0715-2345 local
 - Weekends – By NOTM
 - Holidays – By NOTAM
- **Nellis Air Force Base.** A part of the United States Air Force's Air Combat Command, the base is located northeast of Las Vegas, Nevada. As the home of the USAF Warfare Center, similar to the Navy's NAWDC, units at Nellis continue to provide training for composite strike forces that include every type of aircraft in the U.S. Air Force inventory, along with air and ground units of the Army, Navy, Marines and air units from allied nations. Nellis is also responsible for operational test and evaluation, as well as tactics development, as the support base for the Nevada Test and Training Range (NTTR). Air traffic between Nellis and the FRTC occasionally consists of support for Large Force Exercise (LFE) joint military training events between the NTTR and the FRTC.^{viii}
- **Reno/Tahoe International Airport.** Reno/Tahoe is a public and military use airport located three nautical miles southeast of downtown Reno, in Washoe County, Nevada. It is the state's second busiest commercial airport. In addition to scheduled commercial aviation flights, it is also designated as the Reno Air National Guard Base and is home to the Nevada National Guard's 152nd Airlift Wing, flying C-130 aircraft.
- **McCarran International Airport.** McCarran is the state's busiest commercial airport and serves as the primary commercial airport for Las Vegas and the Las Vegas Valley. It is located five miles south of downtown Las Vegas.
- **North Las Vegas Airport.** North Las Vegas Airport is three miles northwest of downtown Las Vegas and is the third busiest commercial airport in the state. It provides commercial air services for private and chartered general aviation traffic, as well as supporting a majority of helicopter operations, both public and commercial, in the Las Vegas Valley.

1.2.3.1 Access and Usage

Civil air traffic is authorized in all of the FRTC MOAs. In accordance with FAA-established flight procedures, although not required, ATC or a military radar unit (for the FRTC, which service is provided by NAS Fallon's "Desert Control") may provide advisory/monitoring/separation services within the MOA.

However, the civil pilot is responsible for remaining within the area and exercising "see and avoid" during visual conditions. Specific flight rules apply that affect both military use of the MOAs as well as the safety and use of the airspace by civil traffic.

- **VFR traffic:**

- The pilot should contact the controlling agency, "Desert Control" when operating within 100 NM of the MOA to be crossed because the status (active/inactive) may change frequently.
- While flight through an active MOA is not prohibited to civilian traffic, it places additional burdens on the civil pilot to see and avoid the scheduled military training activities.
- Civil transit of an active MOA, if unreported to ATC, may represent a significant safety hazard. Further, until positive communication can be established between ATC and the civil traffic, it may result in the military activity needing to pause until deconfliction can be assured.

- **IFR traffic:**

- Whenever an MOA is being used, non-participating IFR traffic may be cleared through an MOA if IFR separation can be provided by Air Traffic Control (ATC).
- Otherwise, ATC will reroute or restrict non-participating IFR traffic.

1.2.3.2 Traffic Patterns

For the twelve civil/private airfields identified as being sited under or immediately adjacent to the FRTC SUA, all will remain outside of the reconfigured restricted airspaces identified in the Modernization EIS alternatives. The two airfields that would be most affected by the modernized restricted areas are Gabbs, and O'Toole Ranch, both of which are located east of the expanded restricted airspace associated with the modernized B-17 bombing range. Two other airports, Austin and Dixie Valley, are sited east of the proposed modernized restricted areas, but would only be minimally affected by the modernization. For Silver Springs, the published missed approach procedures would have to be adjusted by the FAA to ensure aircraft executing the missed approach would remain clear of the modernized R-4803. For the three airports located on the FRTC SUA border to the south (Hadley), east (Eureka), and north (Crescent Valley) air traffic requirements for flights into the closest MOA remain unchanged.

- **Gabbs (GAB).** The primary runway for Gabbs runs east (090) and west (270), with a left hand traffic pattern. Although there are no published approach and departure procedures, the FAA has provided remarks in its published FAA Airport/Facility Directory^{ix} that recommend that landings be conducted on Runway 9, and takeoffs on Runway 27. The airfield pattern will facilitate restricted airspace avoidance on approach and landing. For restricted airspace avoidance on airfield departures on Runway 27, aircraft would either need to conduct: a turn to either the southwest to proceed to the west through the MOA, or to exit the FRTC SUA, or a turn to the north northeast to remain in the MOA and intersect the VFR Civil Corridor.
- **O'Toole Ranch (NV02).** The primary runway for O'Toole Ranch runs east-northeast (070) and west-southwest (250), with a left hand traffic pattern. There are no published approach and departure procedures. O'Toole Ranch currently remains well outside of FRTC restricted

airspace, and would remain for all of the identified Modernization EIS alternatives restricted airspace. All approach and departure procedures should remain consistent with operating under the MOA. For airfield departures on Runway 25, aircraft either need to conduct a turn to either the southwest to proceed to the west through the MOA, or to exit the FRTC SUA, or a turn to the north northeast to remain in the MOA and intersect the VFR Civil Corridor.

- **Austin (TMT).** Austin is sited under a MOA and lies directly along the VFR Civil Corridor. Accordingly, under the Modernization EIS airspace alternatives, traffic patterns for Austin will remain unchanged. The expansion of the restricted airspace associated with B-17 may increase the volume of traffic along the VFR Civil Corridor.
- **Dixie Valley (NV30).** Dixie Valley is a private airfield used to support the Terra-Gen Operating Company geothermal power plant. The airfield is sited under a MOA and lies east of the modernized restricted airspace associated with the B-20 range. Accordingly, under the modernization airspace alternatives, traffic patterns for Dixie Valley will remain unchanged. The expansion of the restricted airspace associated with B-20 may influence Dixie Valley traffic to greater utilize the VFR Civil Corridor.
- **Silver Springs (SPZ).** Silver Springs is a public-owned, single runway airfield sited west of the FRTC. The runway for Silver Springs runs east-northeast (060) and west-southwest (240), with a left hand traffic pattern. The published instrument approach for runway 24 has missed approach instructions that direct aircraft into a climbing left turn once they are 2600 feet AGL to 9900 MSL direct to the Hazen VORTAC. The expansion of the restricted airspace associated with B-16 may influence Silver Springs traffic, and the adjustment of missed approach procedures to remain clear of the restricted airspace.
- **Crescent Valley (U74).** Crescent Valley airport is sited under the extreme northern portion of the proposed Fallon North 4 MOA. Airspace dimensions under the modernization alternatives for the MOA remains unchanged.
- **Eureka (05U).** Eureka airport is sited under the extreme eastern boundary of the FRTC, under the proposed Diamond MOA, with a proposed floor of 1200 feet. Instrument departures and approaches for Eureka take traffic east of the airport, away from the FRTC SUA. For traffic proceeding west into the FRTC SUA, the VFR Civil Corridor commences at Eureka.
- **Hadley (NV83).** Hadley is a private airfield used to support the Round Mountain Gold Corporation. The airport is sited under the extreme southern boundary of the FRTC, under the proposed Smokie South 4 MOA, with a proposed floor of 200 feet.

1.2.3.3 Local Course Rules

FRTC SUA, outside of active restricted areas, follows FAA guidance on MOA usage by civil aviation. NAWDC and Desert Control ATC control make provisions to enable aerial access to private and public use land beneath the FRTC, and for terminal VFR and IFR flight operations where available. These provisions also can accommodate instrument arrivals/departures at Eureka and Fallon Municipal for their associated instrumented instructions, with minimum delay. MOAs are always joint use in that VFR aircraft are not denied access, and IFR aircraft may be routed through the airspace. As such, civil traffic is authorized in all FRTC MOAs.

1.2.3.3.1 Instrument Approach Procedures

- 1 Of the twelve airports under or immediately adjacent to the proposed modernized FRTC SUA, only
- 2 Eureka (Figure 1-4) and Fallon Municipal (Figures 1-5 and 1-6) have published instrument approach
- 3 instructions, that may be affected by the final identified Modernization EIS alternative. Derby Field
- 4 published instrument approaches are designed to safely parallel the FRTC SUA boundary and would be
- 5 unaffected by the any of the Modernization EIS alternatives.

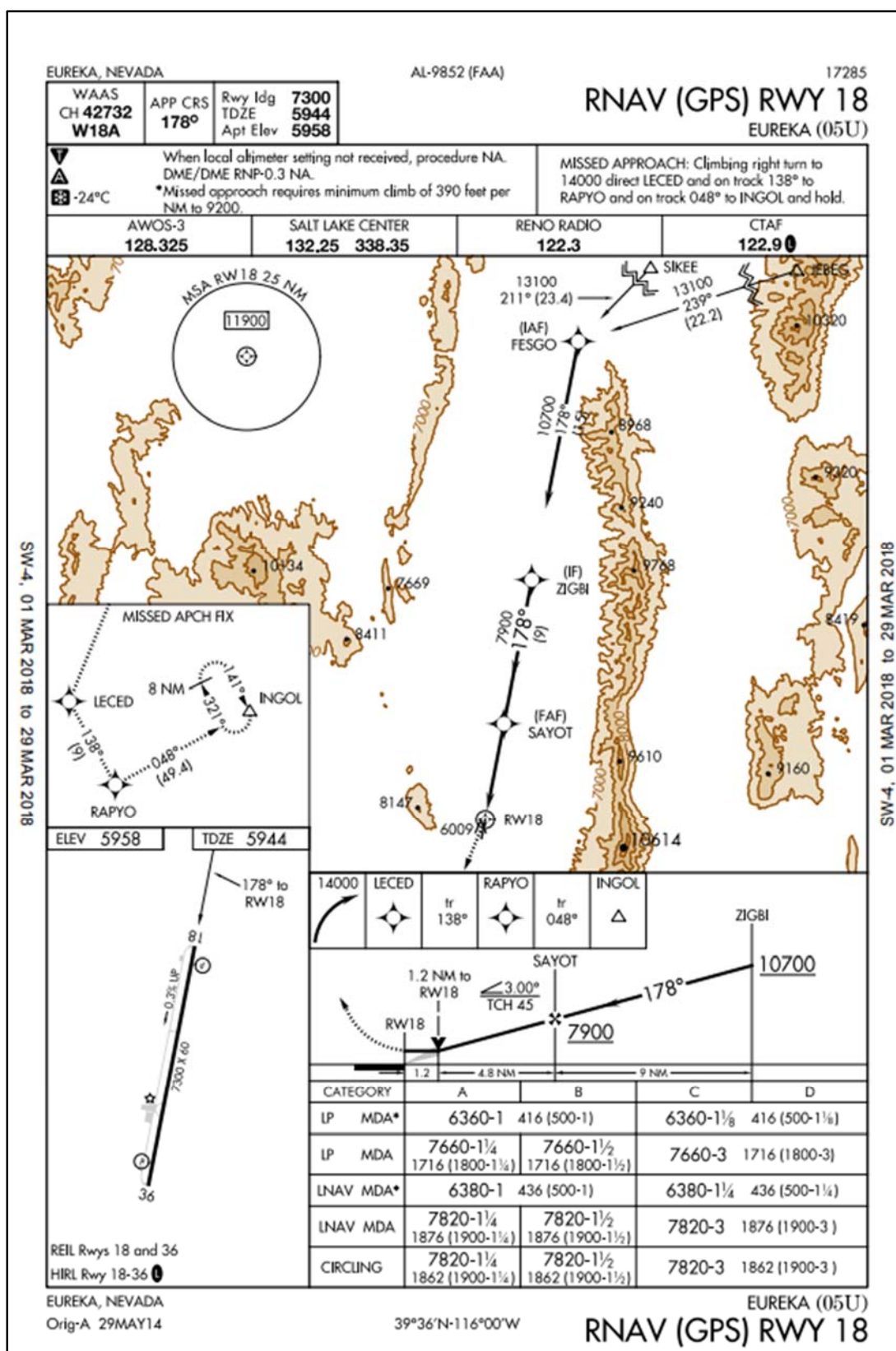


Figure 1-5: Eureka instrument Approach for Runway 18

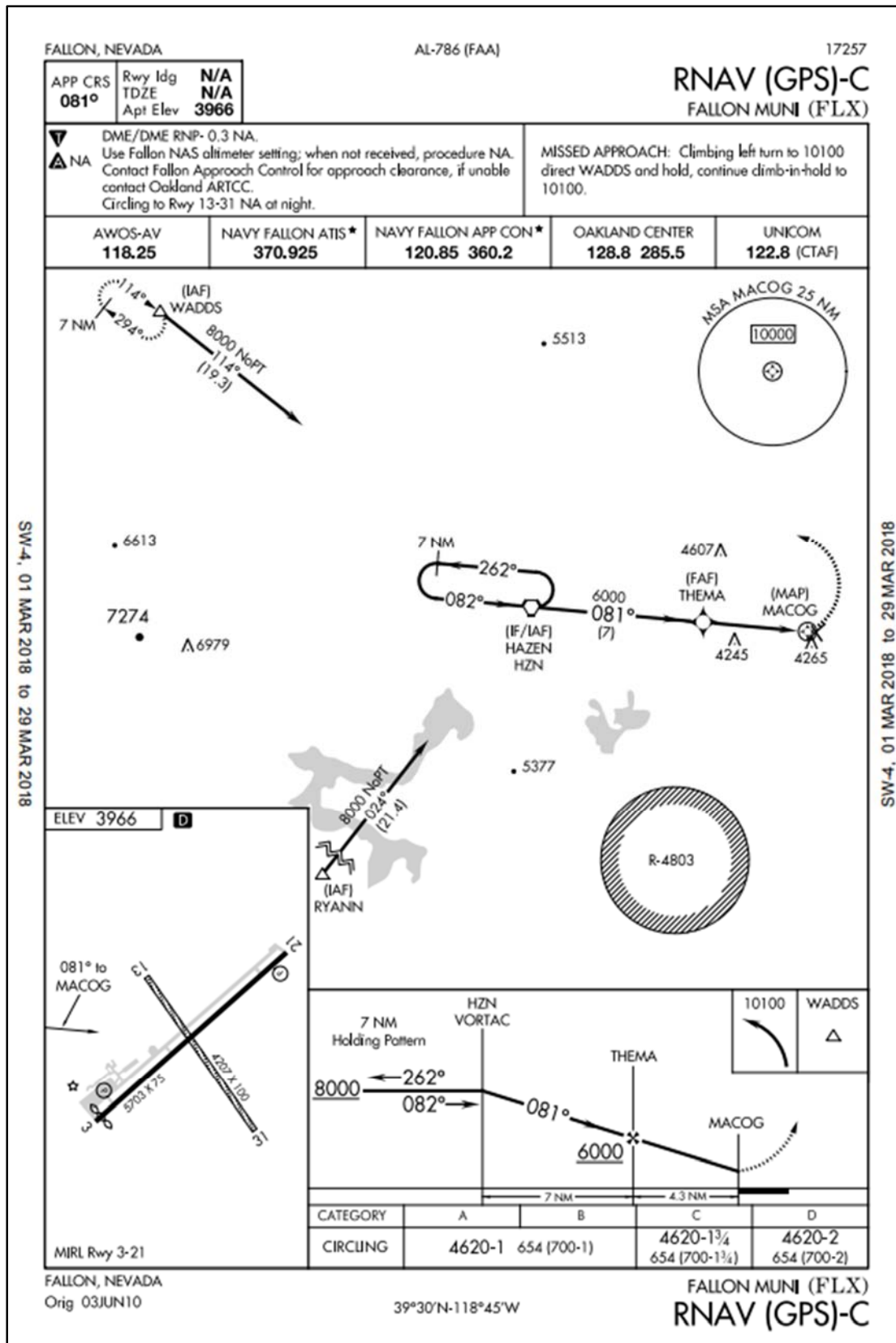


Figure 1-6: Fallon Municipal GPS Approach

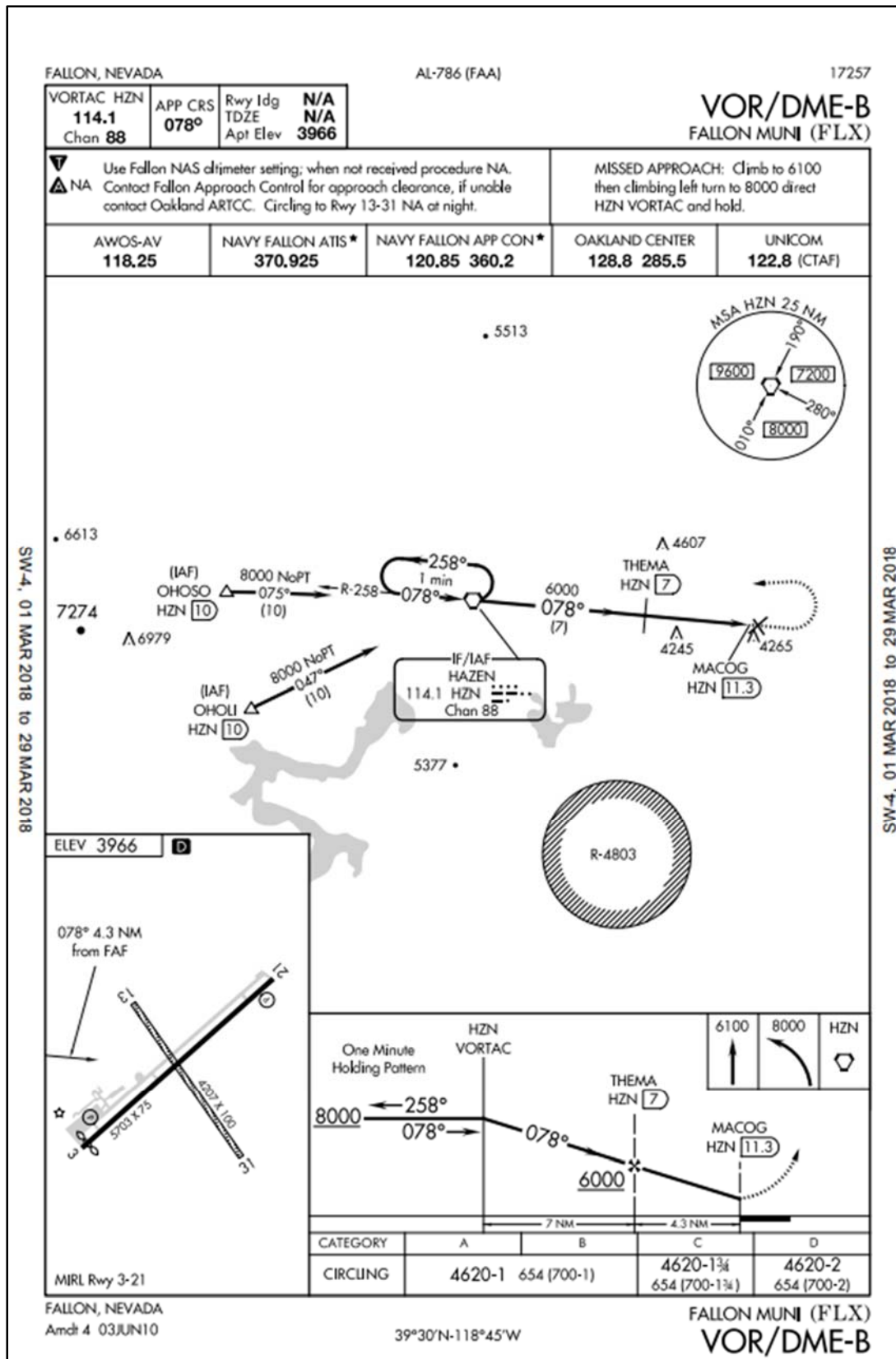


Figure 1-7: Fallon Municipal VOR/DME-B Approach

1.2.3.3.2 Visual Approaches and Departures

For the twelve airports under or immediately adjacent to the proposed modernized FRTC SUA, there are no published visual approach or departure procedures. All of the twelve airfields have established a left-hand traffic pattern, and none of them have a control tower.

1.2.4 Airspace Use by Commercial Aviation (Fixed and Rotary Wing)

There are three existing Jet routes (J84, J56, and J158) through the existing FRTC ATCAAs in the souths and west. Additionally, there is a Q route along the southern border of the FRTC SUA, another that is adjacent to the eastern borders of the FRTC SUA, and a third that skirts the northern border of the FRTC SUA. As with the Jet routes, final reconfiguration of these Q routes, if required, would not occur until the final determination on the FRTC Modernization configuration. Figure 1-2 provides clear illustration that ATC T and V routes are not established through FRTC SUA, and as such low-altitude commercial traffic is not routed through the FRTC. Although commercial traffic through FRTC MOAs is incompatible, any reconfiguration of T and V routes would not occur until after the final determination on the FRTC Modernization configuration Airspace Use by General Aviation (Fixed and Rotary Wing).

Outside of the FRTC restricted airspace, where general aviation cannot fly through without getting permission from the controlling agency (Desert Control), the FRTC MOAs are always joint use in that VFR aircraft are not denied access, and IFR aircraft may be routed through the airspace. As such, civil traffic is authorized in all FRTC MOAs. Outside of published working hours or when active via NOTAM, the entire FRTC airspace is available for use by general aviation.

1.2.4.1 Emergency Services and Air MEDEVAC

The FAA Aeronautical Information Manual,^x mandated priority for air ambulance flights in the air traffic control (ATC) system, which includes the FRTC airspace. Specifically:

- Civilian air ambulance flights responding to medical emergencies (first call to an accident scene, carrying patients, organ donors, organs, or other urgently needed lifesaving medical material) will be expedited by ATC when necessary.
- Air carrier and air taxi flights responding to medical emergencies will also be expedited by ATC when necessary. The nature of these medical emergency flights usually concerns the transportation of urgently needed lifesaving medical materials or vital organs.
- It is important for ATC to be aware of “MEDEVAC” status, and it is the pilot’s responsibility to ensure that this information is provided to ATC.

For the FRTC, normally, the controlling agency (Oakland Center or Salt Lake Center) will coordinate with Desert Control for priority handling of MEDEVAC flights that need to transit the FRTC, prior to hand-off. To deconflict concurrent military training flights in the FRTC, Desert Control for all MEDEVAC flights will cap the airspace so they can safely transit through the FRTC SUA, usually 1,000 feet above and below their required transit altitude. This compliance with FAA requirements will not change as a result of the FRTC Modernization.

1.2.4.2 VFR Corridor

The Fallon VFR Civil Corridor between R-4804 and R-4816S extends from 2,000 ft. AGL up to 8,500 ft. MSL within one mile north of U.S. Highway 50 between Sand Mountain (NFL 100/18 nm) and Fairview Peak (NFL 091/23 nm). East from Fairview Peak, it extends from 2,000 ft. AGL to 10,500 ft. MSL, and lies within one mile north, and two miles south, of U.S. Highway 50 to the intersection of State Route 722 at

Eastgate (NFL 085/36 nm). The same altitude restriction continues to apply within two miles to either side of State Route 722 to the town of Austin (NFL 070/76 nm), where it rejoins U.S. Highway 50 and proceeds to the eastern boundary of the Austin MOA. Within the Fallon MOAs, military aircraft shall avoid the VFR corridor between the altitudes of 2,000 AGL and 8,500 MSL, unless abiding by VFR criteria (max 250 kts. Below 10,000 ft.).^{xi}

1.2.4.3 Daily Flight Operations between FLX and NV30.

The Terra-Gen Operating Co. geothermal project utilizes the Dixie Valley airport daily to conduct shift worker transport from Fallon Municipal. This is a daily flight from Fallon Municipal (FLX) to the Dixie Valley airport, (NV30) serving the geothermal power plant. A reasonable estimate would be 500 flights/year (2 flights/day x 250 work days). The proposed modernization of the B-20 range maintains the restricted airspace up against the west face of the Stillwater Mountain Range. Transit to Dixie Valley from Fallon Municipal through the MOAs would continue to be done along the east face of the Stillwater Range to remain clear of the B-20 and existing, unchanged Dixie Valley Training Area (DVTA) restricted airspace. To facilitate a safer and more expeditiously transit to the Dixie Valley airport, real time communication with Desert Control may allow transit through the restricted airspace if it is currently unused, despite the schedule.

1.2.4.4 Range Complex Management Activities

The FRTC regularly utilizes government and civilian contracted aircraft to perform range maintenance, systems support, and specific safety related training. These activities are scheduled with NAWDC and if occurring outside of normal training hours, will also be published in NOTAMs.

Maintenance: Equipment Pickup or Drop-off. Routine maintenance of range systems and infrastructure. May include aerial support for remote access or precision external load operations for construction or maintenance. Aerial support may be provided by government or civilian charter aircraft. Platforms: 1 SH-60 or 1 Bell 206; (Note: Target area airspace closed to military training aircraft w/ ground personnel on range.); Land: B-16, or B-17, or B-19 or B-20, or DVTA. Six events/year.

Radar Tracking - Checks to Support Airspace. Objective is periodic re-validation of range systems and procedures for the proper operation of the FRTC. Platforms: 1 x FA-18, or EA-18, or F-16, or F-5, or E-2, or SH-60. 11 events/year.

Electronic Warfare (EW) Systems Maintenance. Routine maintenance of EW sites and bombing range systems. May include aerial support for remote access, or precision external load operations for construction or maintenance. Aerial support provided by civilian charter aircraft.

- Platforms: 1-20 civilian contract personnel in 1-6 trucks and/or 1 Bell 206 helicopter (Note: Target area airspace closed to military training aircraft with ground personnel on range.)
- Land areas: B-16, or B-17, or B-19 or B-20, DVTA.
- Averages eight events/year.

EW Operational Support. Periodic checks to support airspace. Objective is periodic re-validation of range systems and procedures for the proper operation of the FRTC.

- Platforms: 1 x FA-18, or EA-18, or F-16, or F-5, or E-2, or SH-60.
- 21 events/year.

Medical Evacuation Training. Unit Level Training (ULT), NASF "Longhorns". Execute medical evacuation training.

- Platforms: SH-60/MH-60.
- Land areas: Centroid, B-17, B-19, B-20, DVTA.
- 12 events/year.

1.2.4.4.1 NDOW Airborne Wildlife Surveys

The Nevada Department of Wildlife (NDOW) conducts aerial surveys of the Stillwater National Wildlife Refuge (NWR), near the B-20 range, for habitat, waterfowl, and colonial birds throughout the year. NDOW coordinates range access with NAWDC and predominantly schedules the aerial surveys to be conducted on weekends, particularly Sundays, when the range is not routinely operating as it requires transit of restricted airspace. For access on emergent survey requirements, weekday scheduling with NAWDC is implemented when the schedule permits access to restricted airspace. Additional NDOW aerial events periodically conducted in the FRTC SUA include wildlife population counts (big horn sheep, antelope, deer, wild horse and burro, etc.). Platforms used include Cessna C-206 or Bell B-206. NDOW also supports other State and Federal agencies in resource management in the FRTC.

1.2.4.4.2 Other State or Federal Agency Air Activity

NAWDC consistently schedules federal agency activities for aerial work through the FRTC. These events are primarily schedule outside of range training times, but on a case by case basis, can be scheduled to operate in FRTC SUA that is not required for training during the normal working week. The following activities and frequencies are excerpted from the NAWDC schedule archives.

Bureau of Land Management (BLM). Activities such as aerial reseeding, and wild life population counts (bighorn sheep, antelope, deer, wild horse and burro, etc.) Platforms: Cessna C-206 or Bell B-206, 12 events/year.

Wildlife Surveys. Federal wildlife management agencies (BLM, USFWS, USDOF, et al) collaborate on wildlife population counts (e.g. antelope, deer, and burro) Platforms: Cessna C-206 or Bell B-206. Specific focus includes:

- **Wild Horse Census** - Wildlife management agencies (BLM, USFWS, USDOF, et al) conduct wild horse population counts. Platforms: Cessna C-206 or Bell B-206. Four events/year.
- **Bighorn Sheep Count** - Wildlife management agencies (BLM, USFWS, USDOF, et al) conduct bighorn sheep population counts. Platforms: Cessna C-206 or Bell B-206. As required, but nominally less than one event/year on average.

Water Resources Survey. Federal wildlife management agencies (BLM, USFWS, USDOF, et al) survey water guzzlers for big horn sheep, antelope, deer, wild horse and burro, etc. Platforms: Cessna C-206 or Bell B-206. As required, but nominally less than one event/year on average.

Range Survey. NAWDC (N38) and civilian contractor personnel surveying areas for target maintenance and upgrade and/or electronic warfare (EW) sites. Includes aerial surveys. Aerial support provided by civilian charter aircraft. Platforms: Government civilian and contract employee personnel in 1-2 trucks, and a Bell 206 helicopter. (Note: Target area airspace closed to military training aircraft w/ ground personnel on range.); Land: B-16, or B-17, or B-19 or B-20. Ten events/year.

1 **Test and Evaluation (T&E).** Government and Department of Defense agencies utilize various fixed wing
2 platforms (Cessna 172, 182, 310, 320, & 402; Lear Jet, and miscellaneous other aircraft) to conduct on
3 the average 17 events/year in support of particular programs. Additionally, Unmanned Aircraft Systems
4 (UAS) T&E is also conducted by various agencies utilizing RQ-20, MQ-9, and MQ-8. Eight events/year.

5 For certain aerial requirements, the FAA issues Temporary Flight Restrictions (TFR), which are a
6 regulatory action, via the U.S. NOTAM System. TFRs are issued within the sovereign airspace of the
7 United States to restrict certain aircraft from operating within a defined area on a temporary basis to
8 protect persons or property in the air or on the ground. Within the FRTC, TFRs may be issued for
9 disaster or hazard situations such as: toxic gas leaks or spills, fumes from flammable agents, aircraft
10 accident/incident sites, aviation or ground resources engaged in wildfire suppression, or aircraft relief
11 activities following a disaster.^{xii} Desert Control will support the TFR activity through scheduling and FRTC
12 SUA control as required.

2 Potential Impact of DEIS Alternative 1

2.1.1 Description of EIS Alternative 1 Airspace Changes

The Navy would largely implement airspace changes inside the existing SUA of the FRTC, except for a slight expansion beyond the current northern boundary (Figure 2-1). Changes in the individual components (Restricted Area, Military Operating Area, and Air Traffic Control Assigned Airspaces) of the airspace are defined in Table 2-1. The objective of these changes is to use airspace more efficiently during Large Force Exercises while civilian aviators maximum access.

Table 2-1: Proposed Special Use Airspace Changes

Current SUA	Proposed SUA	Current Floor/Ceiling	Proposed Floor/Ceiling	Proposed Boundary Changes	Other Proposed Changes
R-4804A ²	R-4804A ²	Surface to 17,999 feet MSL	No Change	No Change	--
R-4804B	R-4804B	18,000 feet MSL ATC Assigned	No Change		
-	R-4804C	-	34,999 feet MSL to 50,000 feet MSL	No Change	
-	R-4805A	--	Surface to 17,999 feet MSL	Abuts R-4804 and extends airspace to the south to encompass the new B-17 (all alternatives)	--
-	R-4805B	-	18,000 feet MSL to 50,000 MSL		
R-4810	R-4810	Surface to 17,000 feet MSL	No Change	No Change	--
-	R-4810B		17,000 feet MSL to 17,999 feet MSL	Established to increase safety and improve efficiency by mirroring the existing R-4812, and the modifications to the adjoining Ranch MOA	
R-4812 ²	R-4812 ²	Surface to 17,999 feet MSL	No Change	No Change	--
	R-4814A	--	Surface to 17,999 feet MSL	Establish to match associated B-20 range changes to optimize training.	
	R-4814B	-	18,000 feet MSL to 29,000 feet MSL		
	R-4816S (Low)	--	Surface to 499 feet AGL ⁴	Establish to allow better use of current associated proposed land range changes in the Dixie Valley Training Area.	
	R-4816N (Low)		Surface to 1499 feet AGL		
R-4816N	R-4816N	1500 feet AGL to 17,999 feet MSL	No Change	-	
R-4816S	R-4816S	500 feet AGL to 17,999 feet MSL	No Change	--	
Military Operating Areas (MOA)					
Ranch High	Ranch	9,000 feet MSL to 13,000 feet MSL	500 feet AGL to 17,999 feet MSL	No Change	Modify the altitudes of the Ranch Low and High to be combined into a single Ranch MOA
Ranch Low		500 feet AGL to 9,000 feet MSL			

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Table 2-1: Proposed Special Use Airspace Changes (continued)

Current SUA	Proposed SUA	Current Floor/Ceiling	Proposed Floor/Ceiling	Proposed Boundary Changes	Other Proposed Changes
MOA (continued)					
Reno	Reno	MOA: 13,00 feet MSL to 17,999 feet MSL	MOA: 1,500 feet AGL to 17,999 feet MSL	No Change	Allow chaff and flare release capability and supersonic capability above 30,000 feet.
		ATCAA: 18,000 feet to 31,000 feet MSL.	ATCAA: 18,000 feet to 31,000 feet MSL. Up to 40,000 feet MSL on request		
Fallon North 1	Fallon North 1	MOA: 100 feet AGL to 17,999 feet MSL	No Change	Expand northern borders of Fallon North 1 to 3 MOAs slightly to the north.	
Fallon North 2	Fallon North 2	ATCAA: 18,000 feet to 50,000 feet MSL (as coordinated).			
Fallon North 3	Fallon North 3				
Fallon North 4	Fallon North 4	MOA: 200 feet AGL to 17,999 feet MSL	No Change	Expand northern border of Fallon North 4 MOA to the north.	
		ATCAA: 18,000 feet to 50,000 feet MSL (as coordinated)			
Fallon South 1	Fallon South 1	MOA: 100 feet AGL to 17,999 feet MSL	No Change	No Change	
		ATCAA: 18,000 feet to 50,000 feet MSL (as coordinated)			
Fallon South 2	Fallon South 2	MOA: 100 feet AGL to 17,999 feet MSL.	No Change	Combine the Fallon South 2 and 3 into a Single MOA/ATCAA.	
Fallon South 3		ATCAA: 18,000 feet to 50,000 feet MSL (as coordinated).			
Fallon South 4	Fallon South 3	MOA: 200 feet AGL to 17,999 feet MSL.	No Change	Combine the Fallon South 4 and 5 into a Single MOA/ATCAA.	
Fallon South 5		ATCAA: 18,000 feet to 50,000 feet MSL (as coordinated).			
	Diamond	--	1,200 feet AGL up to 17,999 feet MSL	Southeast corner of current Diamond ATCAA	Northern Diamond ATCAA renamed Ruby ATCAA
		ATCAA: 18,000 feet MSL to 29,000 feet MSL.	18,000 feet MSL to 50,000 feet MSL or as assigned.		
	Duckwater	--	MOA: 200 feet AGL up to 17,999 feet MSL.	The borders would be modified horizontally to better align with local air traffic routes. ⁴	New MOA under existing ATCAA
		ATCAA: 18,000 feet MSL to 25,000 feet MSL.	ATCAA: 18,000 feet MSL to 50,000 feet MSL.		

1

Table 2-1: Proposed Special Use Airspace Changes (continued)

Current SUA	Proposed SUA	Current Floor/Ceiling	Proposed Floor/Ceiling	Proposed Boundary Changes	Other Proposed Changes
MOA (continued)					
		ATCAA: 18,000 feet MSL to 25,000 feet MSL.	ATCAA: 18,000 feet MSL to 50,000 feet MSL.		
	Ruby	--	MOA: 1,200 feet AGL up to 17,999 feet MSL	New MOA/ATCAA (formerly Diamond North ATCAA)	
			ATCAA: 18,000 feet MSL to 28,000 feet MSL		
	Smokie		MOA: 200 feet AGL up to 17,999 feet MSL.	The borders would be modified horizontally to better align with local air traffic routes.4	New MOA under existing ATCAA
		ATCAA: 18,000 feet MSL to 25,000 feet MSL.	ATCAA: 25,000 feet MSL to 29,000 feet MSL		
	Zircon	--	MOA: 1,200 feet AGL up to 17,999 feet MSL	New MOA under existing ATCAA	
		ATCAA: 18,000 feet MSL to 50,000 feet MSL.	No change		

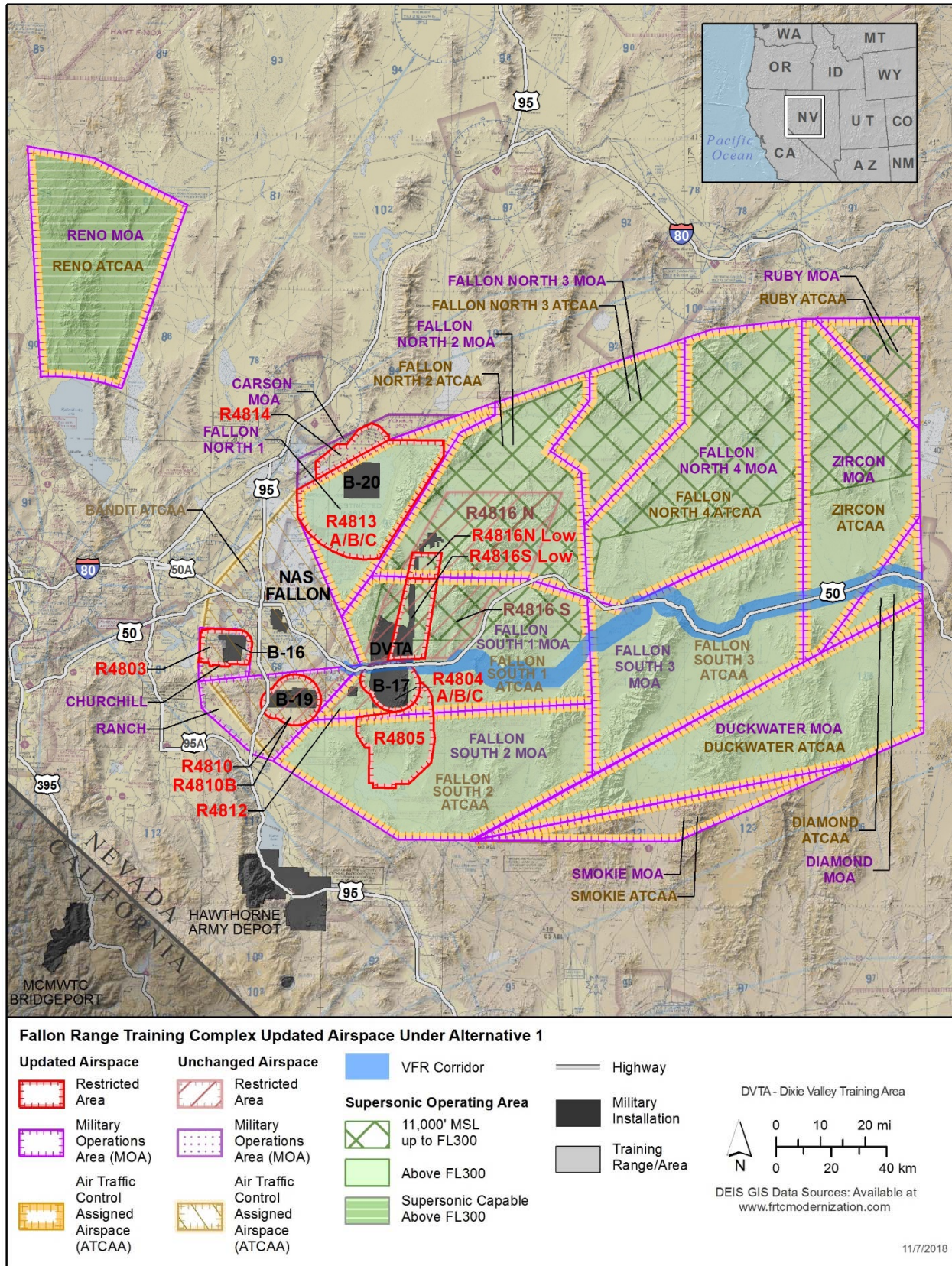


Figure 2-1: Fallon Range Training Complex Updated Airspace Under Alternative 1

2.1.2 Impacts to Regional Air Navigation Routes

Figures 1-1 and 1-2 depict the current FAA air route structure around the FRTC. Final FAA rulemaking and any air navigation route changes will not be effected until the final determination on the FRTC Modernization is made. As the proposed overall FRTC SUA boundary is unchanged with the exception of the slight expansion beyond the current northern boundary, the minor adjustments required by the FAA for air navigation routes under Alternative 1 would be minimal.

2.1.2.1 High / Low

The current alignment of Smokie and Duckwater ATCAAs are east and west. Navy proposes (with FAA concurrence) to realign Smokie and Duckwater in a north/south alignment with Duckwater to the north and Smokie to the south. These changes would provide better alignment with local FAA routes in the area. Table 2-1 notes that the ceilings for Duckwater and Diamond are proposed to be raised to 50,000 feet MSL to align with the Zircon ceiling. The three existing Jet routes through the proposed Duckwater, Smokie, Diamond, and Zircon are J158, J56, and J84. Final reconfiguration of these routes, if required, would not occur until the final determination on the FRTC Modernization configuration.

Figure 1-2 provides clear illustration that ATC V routes are not scheduled through FRTC SUA. A reconfiguration of V routes would not occur after the final determination on the FRTC Modernization configuration as commercial traffic through FRTC MOAs is incompatible.

2.1.2.2 Q / T

Q routes depicted in Figure 1-1 that may be potentially impacted by the FRTC Modernization are Q126 along the southern border of the FRTC SUA, Q13 that is adjacent to the eastern borders of the FRTC SUA, and Q122-124 that skirts the northern border of the FRTC SUA. As with the Jet routes, final reconfiguration of these routes, if required, would not occur until the final determination on the FRTC Modernization configuration.

Figure 1-2 provides clear illustration that ATC T routes are not scheduled through FRTC SUA. Although commercial traffic through the FRTC MOAs is incompatible, any reconfiguration of T routes would only occur after the final determination of the FRTC airspace configuration is made.

2.1.3 Impacts to Regional Airfields

As the proposed overall FRTC SUA boundary is unchanged with the exception of the slight expansion beyond the current northern boundary, the minor adjustments required by the FAA for air navigation, and arrival and departure operations for regional airfields would be minimal. Figure 2-2 depicts how the proposed FRTC SUA under Alternative 1 related to the identified regional airports.



Figure 2-2: FRT Regional Airport Locations Alternative 1 SUA

2.1.3.1 Access and Usage

As the proposed overall FRTC SUA boundary is unchanged with the exception of the slight expansion beyond the current northern boundary, current airfield access and usage standards would be carried forward for Alternative 1. For the twelve civil/private airfields identified as being sited under or immediately adjacent to the FRTC SUA, all will remain outside of the reconfigured restricted airspaces. The two airfields that would be most affected by the modernized restricted areas associated with the modernized B-17 bombing range are Gabbs, and O'Toole Ranch, both of which are located east of the proposed expanded restricted airspace. The primary impact would be to aircraft flight paths on easterly approaches to both airports, as the proposed restricted airspace boundary associated with the B-17 modernization would be located just to the west of the airports. Two other airports, Austin and Dixie Valley are sited east of the proposed modernized restricted areas, and would only be minimally affected by the modernization. For the three airports located on the FRTC SUA border to the south (Hadley), east (Eureka), and north (Crescent Valley) air traffic requirements for flights into the closest MOA remain unchanged.

2.1.3.2 Traffic Patterns

See section 1.2.3.2 for detailed discussion on traffic patterns for potentially affected regional airports. Under Alternative 1, the primary airport impacted by the expansion of restricted airspace associated with the proposed expansion of B-17 is Gabbs. The primary runway for Gabbs runs east (090) and west (270), with a left hand traffic pattern. Although there are no published approach and departure procedures, the FAA has provided remarks that recommend that landings be conducted on Runway 9, and takeoffs on Runway 27. The current airfield pattern will facilitate restricted airspace avoidance on



Figure 2-3: Alternative 1 Distance Measurement Gabbs Runway 27 to R-4805

approach and landing. For restricted airspace avoidance on airfield departures on Runway 27, aircraft would have 5.48 NM from the departure end of Runway 27 to the eastern border of the proposed R-4805, and would either need to conduct:

- A turn to the southwest to proceed to the west through the MOA, or to exit the FRTC SUA

- A turn to the north northeast to remain in the MOA and intersect the VFR Civil Corridor

2.1.3.3 Local Course Rules

FRTC SUA, outside of active restricted areas, follows FAA guidance on MOA usage by civil aviation. NAWDC and Desert Control would make provisions to sustain aerial access to private and public use land beneath the FRTC, and for terminal VFR and IFR flight operations where available. These provisions also can accommodate instrument arrivals/departures at Eureka and Fallon Municipal for their associated instrumented instructions, with minimum delay. MOAs are always joint use in that VFR aircraft are not denied access, and IFR aircraft may be routed through the airspace. As such, civil traffic would continue to be authorized in all FRTC MOAs for Alternative 1.

2.1.3.3.1 Instrument Approach Procedures

Of the twelve airports under or immediately adjacent to the proposed modernized FRTC SUA, only Eureka (Figure 1-4) and Fallon Municipal (Figures 1-5 and 1-6) have published instrument approach instructions. Alternative 1 would have no impact on Eureka and Fallon Municipal instrument approaches.

2.1.3.3.2 Visual Approaches and Departures

For the twelve airports under or immediately adjacent to the proposed modernized FRTC SUA, there are no published visual approach or departure procedures. All of the airfields have established a left-hand traffic pattern, and none of them have a control tower. Alternative 1 would have no impact on visual flight operations.

2.1.4 Impacts to Airspace Use by Commercial Aviation (Fixed and Rotary Wing)

Alternative 1 would have no direct impact on the FAA's decision on the reconfiguration of regional J, Q, T, and V routes, and would not occur after the final determination on the FRTC Modernization configuration as scheduled commercial traffic through active FRTC MOAs is incompatible.

2.1.5 Impacts to Airspace Use by General Aviation (Fixed and Rotary Wing)

Outside of the FRTC restricted airspace, where general aviation cannot fly through without getting permission from the controlling agency (Desert Control), the FRTC MOAs under Alternative 1 would always be joint use in that VFR aircraft are not denied access, and IFR aircraft may be routed through the airspace. As such, civil traffic would be authorized in all FRTC MOAs. Outside of published working hours or when active via NOTAM, the entire FRTC airspace is available for use by general aviation.

2.1.5.1 Emergency Services and air MEDEVAC

Air ambulance (MEDEVAC) flights will continue to be granted priority in the air traffic control (ATC) system in accordance with FAA regulations. This will not change as a result of the FRTC Modernization, Alternative 1.

2.1.5.2 VFR Corridor

The VFR Civil Corridor procedures would remain unchanged as a result of the FRTC Modernization, Alternative 1. The VFR Civil Corridor is proposed to be extended east through the proposed Diamond and Zircon MOAs in Alternative 1.

2.1.5.3 Daily Flight Operations between FLX and NV30.

Restricted airspace over the B-20 range and the overall Dixie Valley Training Area (DVTA) is unchanged within the Modernization. Additionally, a new lower block of restricted airspace (R-4816L) would be

created underneath portions of R-4816 N and R-4816S. This is a daily flight from Fallon Municipal to the Dixie Valley airport, serving the Geothermal Power Plant. A reasonable estimate would be 500 flights/year (2 flights/day x 250 work days). Transit to Dixie Valley from Fallon Municipal through the MOAs would continue to be done along the east face of the Stillwater Range to remain clear of the B-20 and the DVTA restricted airspace. To facilitate a safer and more expedition transit to the Dixie Valley airport, real time communication with Desert Control may allow transit through the restricted airspace if it is currently unused, despite the schedule.

2.1.5.4 Management Activities

See paragraph 1.2.5.4 for activities that would be carried forward for Alternative 1.

2.1.5.4.1 NDOW Airborne Wildlife Surveys

The Nevada Department of Wildlife (NDOW) conducts aerial surveys of the Stillwater National Wildlife Refuge (NWR) for habitat, waterfowl, and colonial birds throughout the year. NDOW coordinates range access with NAWDC and predominantly schedules the aerial surveys to be conducted on weekends, particularly Sundays, when the range is not routinely operating. Under Alternative 1, for access on emergent survey requirements, weekday scheduling with NAWDC will be effected when the schedule permits access to restricted airspace.

See paragraph 1.2.5.4.1 for activities that would be carried forward for Alternative 1.

2.1.5.4.2 Other State or Federal Agency Air Activity

Under Alternative 1, TFRs may be issued for disaster or hazard situations such as: toxic gas leaks or spills, fumes from flammable agents, aircraft accident/incident sites, aviation or ground resources engaged in wildfire suppression, or aircraft relief activities following a disaster. Desert Control will support the TFR activity through scheduling and FRTC SUA control as required.

See paragraph 1.2.5.4.2 for activities that would be carried forward for Alternative 1.

2.1.5.5 Other Barriers to Access or Restricted Freedom of Movement

Other than the previous identified potential impacts that may impose delays, increased flight times and extended routing; restricted airspace a little more than five miles west of Gabbs Airport, and the creation of MOAs in the eastern section of the FRTC SUA, no current barriers under Alternative 1 have been identified. Future potential issues are addressed in the recommendation section.

3 Potential Impact of DEIS Alternative 3

3.1.1 Description of EIS Alternative 3 Airspace Changes

Alternative 3 is similar to Alternative 1 in terms of land withdrawal and acquisition, except for B-17, and similar to Alternative 2 in terms of managed access. During the public scoping period and meetings with various stakeholders following the scoping process, the Navy received numerous comments requesting reconfiguration of the Bravo ranges to reduce potential impacts to hunting, grazing, recreation, transportation, and other resources. The Navy considered an alternative that would move B-17 farther to the southeast and rotated (Figure 3-1). By shifting B-17, the Navy would expand the DVTA along the western side of State Route 839 and around Earthquake Fault Road.

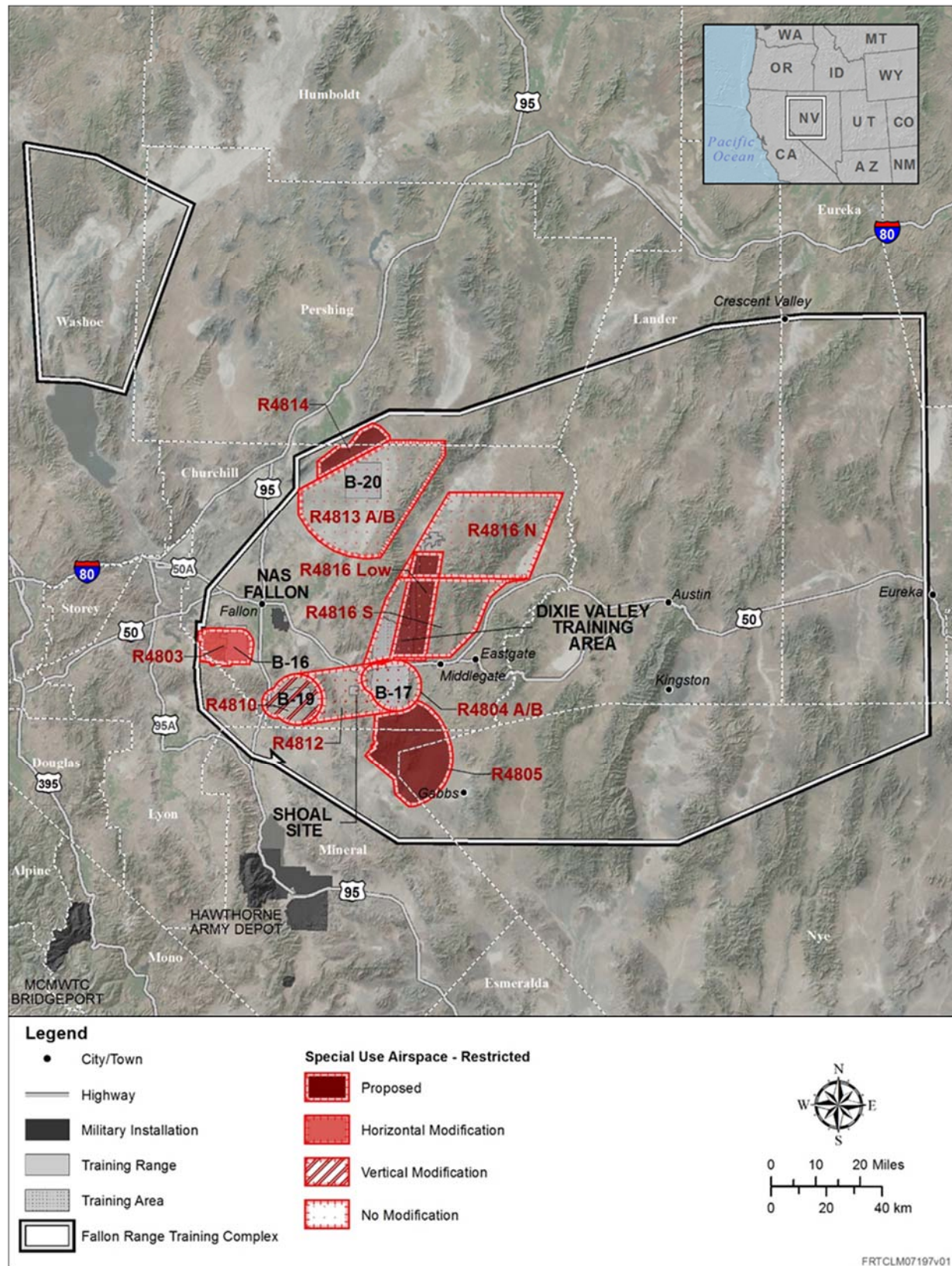


Figure 3-1: Fallon Range Training Complex Restricted Airspace Under Alternative 3

3.1.2 Impacts to Regional Air Navigation Routes

Figures 1-1 and 1-2 depict the current FAA air route structure around the FRTC. Final FAA rulemaking and any air navigation route changes will not be effected until the final determination on the FRTC Modernization is made. As the proposed overall FRTC SUA boundary is unchanged with the exception of the slight expansion beyond the current northern boundary, the minor adjustments required by the FAA for air navigation routes under Alternative 3 would be minimal.

3.1.2.1 High / Low

The current alignment of Smokie and Duckwater ATCAAs are east and west. Navy proposes (with FAA concurrence) to realign Smokie and Duckwater in a north/south alignment with Duckwater to the north and Smokie to the south. These changes would provide better alignment with local FAA routes in the area. Table 2-1 notes that the ceilings for Duckwater and Diamond are proposed to be raised to 50,000 feet MSL to align with the Zircon ceiling. The three existing Jet routes through the proposed Duckwater, Smokie, Diamond, and Zircon are J158, J56, and J84. For Alternative 3 final reconfiguration of these routes, if required, would not occur until the final determination on the FRTC Modernization configuration.

Figure 1-2 provides clear illustration that ATC V routes are not scheduled through FRTC SUA. A reconfiguration of V routes would not occur after the final determination on the FRTC Modernization configuration as commercial traffic through FRTC MOAs is incompatible.

3.1.2.2 Q / T

Q routes depicted in Figure 1-1 that may be potentially impacted by the FRTC Modernization are Q126 along the southern border of the FRTC SUA, Q13 that is adjacent to the eastern borders of the FRTC SUA, and Q122-124 that skirts the northern border of the FRTC SUA. As with the Jet routes, final reconfiguration of these routes, if required, would not occur until the final determination on the FRTC Modernization configuration.

Figure 1-2 provides clear illustration that ATC T routes are not scheduled through FRTC SUA. Although commercial traffic through the FRTC MOAs is incompatible, any reconfiguration of T routes would only occur after the final determination of the FRTC airspace configuration is made.

3.1.3 Impacts to Regional Airfields

As the proposed overall FRTC SUA boundary is unchanged with the exception of the slight expansion beyond the current northern boundary, the minor adjustments required by the FAA for air navigation, and arrival and departure operations for regional airfields would be minimal. Figure 3-2 depicts how the proposed FRTC SUA under Alternative 3 related to the identified regional airports.

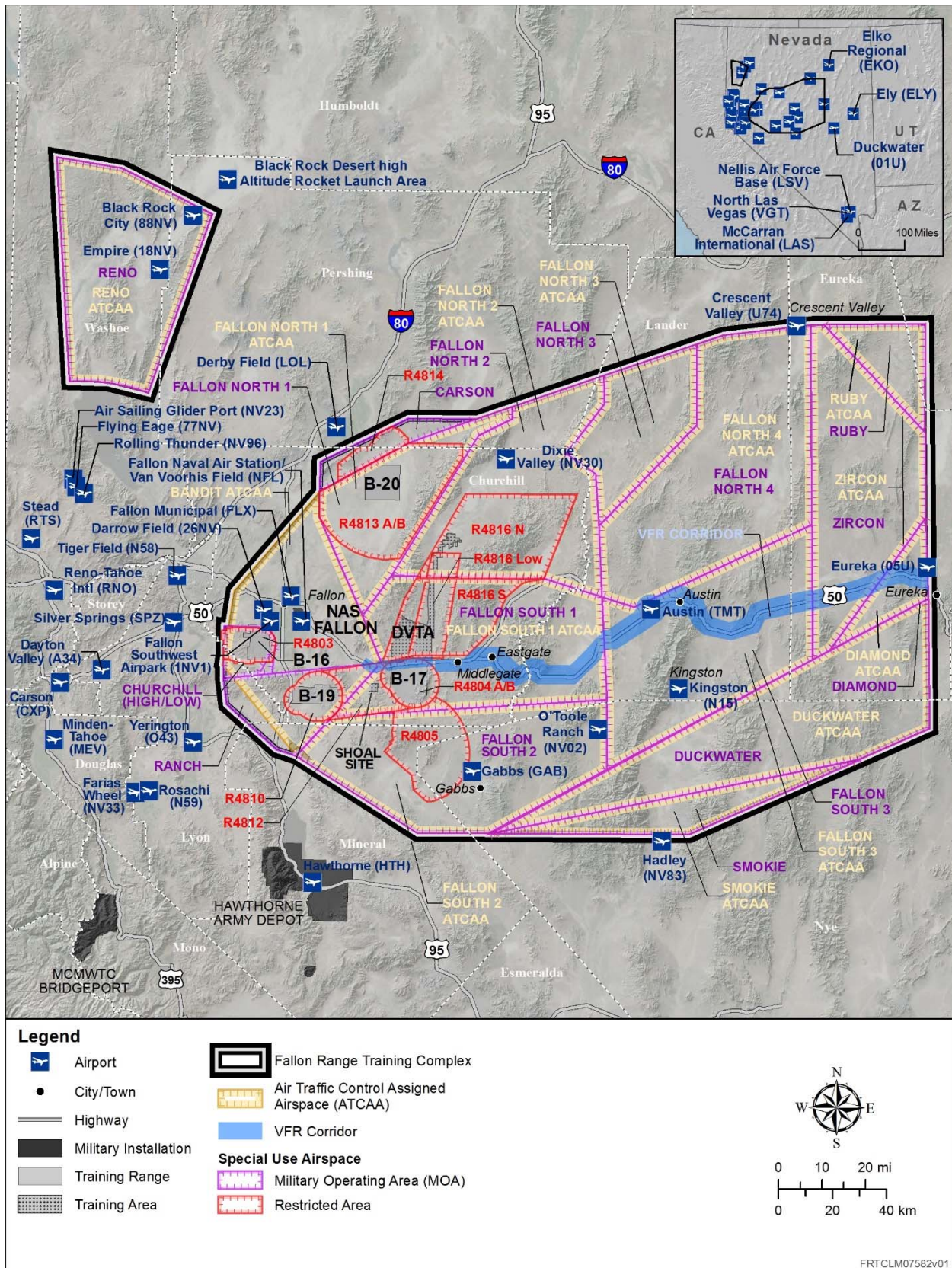


Figure 3-2: FRTC Regional Airport Locations Alternative 3 SUA

3.1.3.1 Access and Usage

As the proposed overall FRTC SUA boundary is unchanged with the exception of the slight expansion beyond the current northern boundary, current airfield access and usage standards would be carried forward for Alternative 3. For the twelve civil/private airfields identified as being sited under or immediately adjacent to the FRTC SUA, all would remain outside of the reconfigured restricted airspaces. The two airfields that would be most affected by the modernized restricted areas associated with the modernized B-17 bombing range are Gabbs, and O'Toole Ranch, both of which are located east of the proposed expanded restricted airspace. The primary impact would be to aircraft flight paths on easterly approaches to both airports, as the proposed restricted airspace (R-2805) boundary associated with the B-17 modernization would be located just to the west of the airports. Two other airports, Austin and Dixie Valley are sited east of the proposed modernized restricted areas, and would only be minimally affected by the modernization. For the three airports located on the FRTC SUA border to the south (Hadley), east (Eureka), and north (Crescent Valley) air traffic requirements for flights into the closest MOA remain unchanged.

3.1.3.2 Traffic Patterns

See section 1.2.3.2 for detailed discussion on traffic patterns for potentially affected regional airports. Under Alternative 3, the primary airport impacted by the expansion of restricted airspace associated with the proposed expansion of B-17 is Gabbs. The primary runway for Gabbs runs east (090) and west (270), with a left hand traffic pattern. Although there are no published approach and departure procedures, the FAA has provided remarks that recommend that landings be conducted on Runway 9, and takeoffs on Runway 27. The current airfield pattern facilitates restricted airspace avoidance on

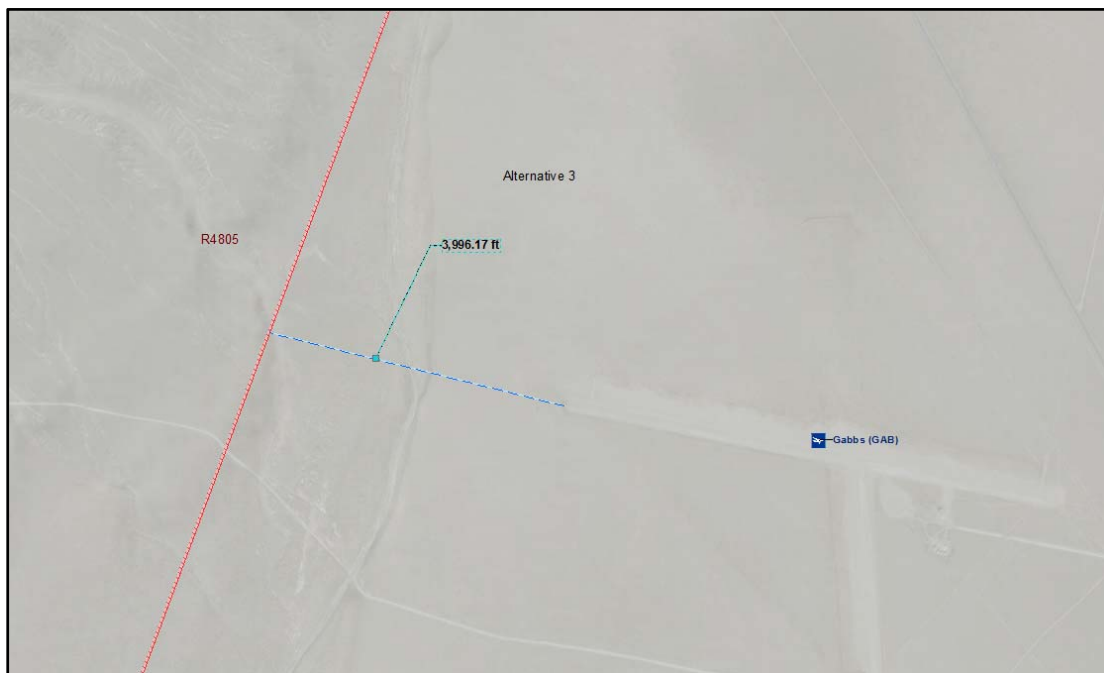


Figure 3-3: Alternative 3 Distance Measurement Gabbs Runway 27 to R-4805

approach and landing. For restricted airspace avoidance, when active, on airfield departures on Runway 27, aircraft would have 3996 feet from the departure end of Runway 27 to the eastern border of the proposed R-4805, and would either need to conduct:

- An immediate turn to either the southwest to proceed to the west through the MOA, or to exit the FRTC SUA
- An immediate turn to the north northeast to remain in the MOA and intersect the VFR Civil Corridor

3.1.3.3 Local Course Rules

FRTC SUA, outside of active restricted areas, follows FAA guidance on MOA usage by civil aviation. NAWDC and Desert One ATC control would make provisions to sustain aerial access to private and public use land beneath the FRTC, and for terminal VFR and IFR flight operations where available. These provisions also can accommodate instrument arrivals/departures at Eureka and Fallon Municipal for their associated instrumented instructions, with minimum delay. MOAs are always joint use in that VFR aircraft are not denied access, and IFR aircraft may be routed through the airspace. As such, civil traffic would continue to be authorized in all FRTC MOAs for Alternative 3.

3.1.3.3.1 Instrument Approach Procedures

Of the twelve airports under or immediately adjacent to the proposed modernized FRTC SUA, only Eureka (Figure 1-4) and Fallon Municipal (Figures 1-5 and 1-6) have published instrument approach instructions. Alternative 3 would have no impact on Eureka and Fallon Municipal instrument approaches.

3.1.3.3.2 Visual Approaches and Departures

For the twelve airports under or immediately adjacent to the proposed modernized FRTC SUA, there are no published visual approach or departure procedures. All of the airfields have established a left-hand traffic pattern, and none of them have a control tower. Alternative 3 would have no impact on visual flight operations.

3.1.4 Impacts to Airspace Use by Commercial Aviation (Fixed and Rotary Wing)

Alternative 3 would have no direct impact on the FAA's decision on the reconfiguration of regional J, Q, T, and V routes, and would not occur after the final determination on the FRTC Modernization configuration as scheduled commercial traffic through active FRTC MOAs is incompatible.

3.1.5 Impacts to Airspace Use by General Aviation (Fixed and Rotary Wing)

Outside of the FRTC restricted airspace, where general aviation cannot fly through without getting permission from the controlling agency (Desert Control), the FRTC MOAs under Alternative 3 would always be joint use in that VFR aircraft are not denied access, and IFR aircraft may be routed through the airspace. As such, civil traffic would be authorized in all FRTC MOAs. Outside of published working hours or when active via NOTAM, the entire FRTC airspace is available for use by general aviation.

3.1.5.1 Emergency Services and air MEDEVAC

Air ambulance (MEDEVAC) flights will continue to be granted priority in the air traffic control (ATC) system in accordance with FAA regulations. This compliance with FAA requirements would not change as a result of the FRTC Modernization, Alternative 3.

3.1.5.2 VFR Corridor

The VFR Civil Corridor procedures would remain unchanged as a result of the FRTC Modernization, Alternative 3. The VFR Civil Corridor is proposed to be extended east through the proposed Diamond and Zircon MOAs in Alternative 3.

3.1.5.3 Daily Flight Operations between FLX and NV30.

Restricted airspace over the B-20 range and the overall Dixie Valley Training Area (DVTA) is unchanged within the Modernization in Alternative 3. Additionally, a new lower block of restricted airspace (R-4816L) would be created underneath portions of R-4816N and R-4816S. This is a daily flight from Fallon Municipal to the Dixie Valley airport, serving the Geothermal Power Plant. A reasonable estimate would be 500 flights/year (2 flights/day x 250 work days). Transit to Dixie Valley from Fallon Municipal through the MOAs would continue to be done along the east face of the Stillwater Range to remain clear of the B-20 and the DVTA restricted airspace. To facilitate a safer and more expedition transit to the Dixie Valley airport, real time communication with Desert Control may allow transit through the restricted airspace if it is currently unused, despite the schedule.

3.1.5.4 Management Activities

See paragraph 1.2.5.4 for activities that would be carried forward for Alternative 3.

3.1.5.4.1 NDOW Airborne Wildlife Surveys

The Nevada Department of Wildlife (NDOW) conducts aerial surveys of the Stillwater National Wildlife Refuge (NWR) for habitat, waterfowl, and colonial birds throughout the year. NDOW coordinates range access with NAWDC and predominantly schedules the aerial surveys to be conducted on weekends, particularly Sundays, when the range is not routinely operating. Under Alternative 3, for access on emergent survey requirements, weekday scheduling with NAWDC will be effected when the schedule permits access to restricted airspace.

See paragraph 1.2.5.4.1 for activities that would be carried forward for Alternative 3.

3.1.5.4.2 Other State or Federal Agency Air Activity

Under Alternative 3, TFRs may be issued for disaster or hazard situations such as: toxic gas leaks or spills, fumes from flammable agents, aircraft accident/incident sites, aviation or ground resources engaged in wildfire suppression, or aircraft relief activities following a disaster. Desert Control will support the TFR activity through scheduling and FRTC SUA control as required.

See paragraph 1.2.5.4.2 for activities that would be carried forward for Alternative 3.

3.1.5.5 Other Barriers to Access or Restricted Freedom of Movement

Other than the previous identified potential impacts that may impose delays, increased flight times and extended routing; restricted airspace even more immediately west of Gabbs Airport, and the creation of MOAs in the eastern section of the FRTC SUA, no current barriers under Alternative 3 have been identified. Future potential issues are addressed in the recommendation section.

4 Recommendations and/or Mitigations

4.1 Recommendations

Final determination of FRTC SUA under the Modernization would not be determined by the FAA until the final land configuration of the proposed expansions of B-16, B-17, and B-20. Further, the expansion of the DVTA and the final boundaries of the supporting restricted areas would be finalized at the same time. Other airfield and airspace considerations for the FRTC Modernization going forward include:

4.1.1 Automatic Dependent Surveillance-Broadcast (ADS-B)

ADS-B is the next generation of air traffic safety, control, efficiency, and situational awareness. Per the Federal Electronic Code of Federal Regulations (e-CFR) 14 CFR 91.225^{xiii}, After January 1, 2020, and unless otherwise authorized by ATC, no person may operate an aircraft in Class A airspace unless the aircraft has ADS-B equipment installed. Desert Control, if using ADS-B can more effectively monitor VFR traffic in the FRTC SUA, as at the same time ensure that the civil traffic has traffic, weather, and flight-information services in near real-time. At its core, ADS-B data shares information about the aircraft identity, position, altitude, and velocity, all of which is derived from Global Positioning System (GPS).

4.1.2 VFR Civil Corridor Straightening

With the VFR Civil Corridor proposed to be extended east through the proposed Diamond and Zircon MOAs to the eastern boundary of the FRTC SUA in all Alternatives, the amount of course and altitude changes for aircraft flying the corridor will increase. Under the FAA mandate for the implementation of ADS-B, the ability for civil aircraft to efficiently transit the FRTC SUA would be greatly improved and would negate the need for the VFR Civil Corridor to visually follow U.S. Route 50, including all the turns and altitude changes. A more direct route, in an established altitude block, would facilitate a faster transit, improve safety, and enhance pilot situational awareness.

4.1.3 Improved Desert Control Communications for Civil Traffic

ADS-B offers increased efficiency for civil transit of FRTC SUA. The ability for Desert Control to track civil aircraft, through improved accuracy of ADS-B positional data received, would make training safer in the FRTC SUA, and benefit civil aircraft transiting the SUA. To fully leverage the positional awareness gains offered by ADS-B, the low-level radio coverage of Desert Control across the FRTC SUA would need to be expanded, through additional communication relays. Current communication systems and infrastructure provide very limited communications capabilities to the Smokie, Duckwater, Diamond, Zircon, and Ruby MOAs proposed in the Modernization Alternatives. Further, current communication is unable to support desired instrument approaches for the Gabbs and Austin airports, and there is virtually no capability to provide communications for the O-Toole, Hadley, Kingston, Crescent Valley, and Eureka airports. Particularly for Alternative 3, reliable Desert Control communications at Gabbs would facilitate real-time R-4805 status for westerly departures, and may alleviate the need for immediate turns after take-off from Runway 27.

4.1.4 Additional Instrumented Approaches

The prevalence of GPS in navigation, and the capabilities offered by ADS-B, may allow additional airports in the FRTC region of influence, to explore the creation of instrument approaches. Future liaison with the FAA, once ADS-B is fully implemented, and low-level radio coverage of Desert Control across the FRTC SUA is expanded through additional communication relays, may lead to the ability of local FRTC

- 1 region airfields to develop instrumented approaches, which would further make civil traffic in the FRTC
- 2 SUA more predictable, safer, and efficient.

1 5 References

ⁱ Department of Transportation. Federal Aviation Administration, Order JO 7400.10, Special Use Airspace. 16 February 2018.

ⁱⁱ Department of the Navy. Fallon Range Training Complex (FRTC) Range Operations Manual. NAWDCINST3700.2C. January 2018.

ⁱⁱⁱ Department of Transportation, Federal Aviation Administration. Fact Sheet – NextGen and Performance-Based Navigation. 13 October, 2014.

^{iv} Department of Transportation. Federal Aviation Administration, Order JO 7400.11B, Airspace Designations and Reporting Points. 03 August 2017.

^v Department of Transportation. Federal Aviation Administration, Instrument Procedures Handbook, FAA-H-8083-16B. 14 September, 2017.

^{vi} Department of the Navy. Fallon Range Training Complex Range Complex Management Plan (RCMP), January 2013.

^{vii} AirNAV.com. FAA Information effective 01 March 2018.

^{viii} Department of the Air Force. USAF Fact Sheet, Nellis Air Force Base. October 2017

^{ix} Department of Transportation. Federal Aviation Administration, FAA Airport/Facility Directory (AF/D), SW, 01 FEB 2018 – 29 Mar 2018, pg. 298.

^x Department of Transportation. Federal Aviation Administration, Aeronautical Information Manual (AIM), October 12, 2017.

^{xi} Department of the Navy. Fallon Range Training Complex (FRTC) Range Operations Manual. NAWDCINST3700.2C. January 2018.

^{xii} Department of Transportation. Federal Aviation Administration, Order JO 7110.65X, Air Traffic Control. October 12, 2017.

^{xiii} Department of Transportation. Federal Aviation Administration, Title 14, Aeronautics and Space, Chapter 1, Subchapter F, Part 91, Subpart C, §91.225. March 27, 2018.