

Offutt Air Force Base

MID-AIR COLLISION AVOIDANCE (MACA)

SAFETY PAMPHLET



55TH WING SAFETY

OFFUTT AIR FORCE BASE, NE 68113

December 2025



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This handbook is for situational awareness only and not for navigation. Per the Federal Tort Claims Act, 28 USC, Section 2680, the United States Air Force reserves protection from liability and furthermore, accepts no liability for any claim arising under or because of reliance upon this handbook.

Consult the latest issues of FAA regulations, Sectional Charts, and Airport/Facility Directories while considering environmental and meteorological conditions.

NOTICE TO FELLOW AVIATORS

Fellow Aviators:

1. The Offutt Air Force Base (AFB) Mid-Air Collision Avoidance (MACA) Program aims to inform and educate all aviators, military and civilian, operating in Omaha, Nebraska and surrounding airspace to enable a safe flying environment. Prepared together by Air Force Flight Safety Offices and local air traffic control (ATC), this MACA Guide introduces Offutt AFB airspace, military flight patterns, local operating procedures, restricted areas, typical departure and arrival routings, and permanent and transiting aircraft familiarization.
2. Omaha Airspace observes extensive use of privately owned aircraft, commercial air traffic, and much of the USAF and military inventory. As our airspace becomes more congested, the possibility of mid-air collision increases, and aviator diligence becomes even more paramount.
3. Due to Offutt AFB possessing unique missions, a centralized location within the continental United States, and on base aircraft manufacturing support (Lockheed Martin, Boeing, etc.), this Class D airspace hosts a wide variety of aircraft types and categories from all over the world. Additionally, Offutt AFB is home to many heavy aircraft operated 24/7/365 by the 55th Wing (USAF), the 95th Wing (USAF), and VQ-3 (USN). Furthermore, Offutt AFB hosts an Aero Club operating lightweight aircraft hangered on base. Lastly, Offutt AFB is surrounded by many other airfields, military and civilian, and (medical) facility heliports further complicating and congesting the airspace.
4. After reviewing this pamphlet, if you have any questions or concerns, please contact the Flight Safety Office(s) directly. You can find this document and other resources at our Offutt AFB Safety Website (QR code below).



55th Wing Flight Safety
513 SAC Boulevard, Suite 225
Offutt AFB, NE 68113
55WG.SEF@us.af.mil
(402) 294-3404

<https://www.offutt.af.mil/Resources/Flight-Safety/>

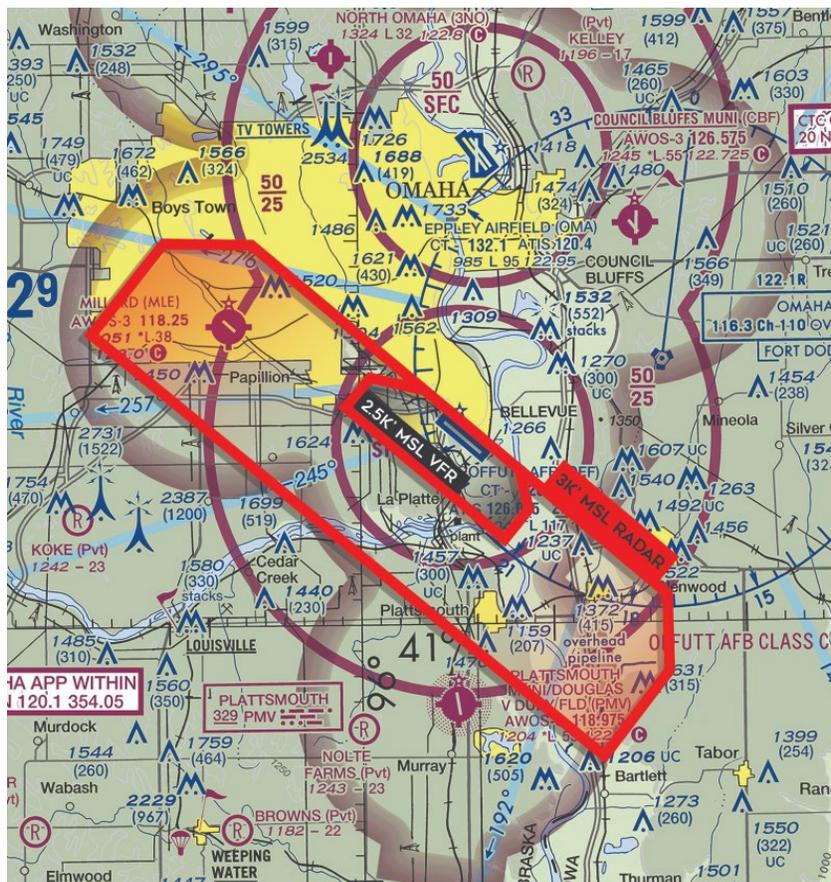
AIRFIELD INFORMATION

Offutt AFB (KOFF) has IFR and VFR patterns to both Runway 13 and Runway 31, which are flown south of the field to deconflict with Omaha Eppley Airport (KOMA). Both IFR patterns commonly fly at 3,000' MSL (potentially higher for vectored RNAV approaches) and the VFR patterns fly at 2,500' MSL. Fighters and bombers may use the KOFF Overhead pattern, which is at 3,000' MSL. The KOFF Runway 13 IFR Pattern overflies much of the Omaha Metro and Millard Airport airspaces. The KOFF IFR Pattern flies through the Omaha Southern Practice Areas. The Offutt AFB MACA website lists a KML for Foreflight map overlays (see QR Code on previous page). See *Services Available to Pilots* below for frequencies and other information.

NOTE: With ATC approval, Offutt AFB Tower does commonly permit military aircraft to complete a VFR pattern north of the KOFF field.

NOTE: Due to the close proximity of KOFF and KOMA airspaces, Omaha Approach usually controls KOFF airspace, and only releases control back to KOFF Tower when aircraft are entering or flying within the KOFF VFR pattern (i.e. – if an aircraft completes an KOFF IFR approach to option radar, Omaha Approach retains control of KOFF airspace). KOFF VFR Pattern aircraft are NOT monitoring Omaha Approach; recommend all aircraft transiting KOFF airspace contact KOFF Tower to increase situational awareness of all aircraft.

NOTE: KOFF standard IFR climb out is runway heading to 3,000 MSL.



FLYING CONSIDERATIONS

OPERATIONAL MISSIONS: 24/7/365, Offutt AFB hosts numerous aircraft conducting operational missions throughout the world and Continental United States.

FLIGHT TRAINING: As the home station to the RC/TC/WC-135 variants and the E-4B, Offutt AFB hosts all “schoolhouse” qualification training for these aircraft. As a result, many sorties conduct numerous hours (typically, 1-2 hrs) of IFR and VFR pattern operations for training and examination (“checkride”) purposes. Local training sorties typically occur on weekdays between 0900-2359L but can occur outside this window.

IFR FOCUSED: Offutt AFB heavy aircraft typically file IFR, and they primarily use instrumentation in the IFR pattern with minimal time looking outside. Due to fast pattern airspeeds and very small cockpit windows, visually acquiring smaller and slower aircraft remains very difficult resulting in many aircraft going unseen. As a result, these aircrew typically rely upon TCAS, ADS-B, and ATC callouts to deconflict with traffic, though visually clearing still remains a high-priority for Offutt AFB aviators. See TCAS and ADS-B section below (same page) for further information.

UHF RADIOS: Military aircraft commonly use UHF radios & frequencies, including when transmitting to ATC. Most Offutt AFB (heavy) aircraft will use VHF frequencies when in Omaha airspace, but many *transient fighter aircraft typically use UHF radio frequencies only, which will prevent their UHF transmissions from being heard by civilian aviators over VHF frequencies.*

MILITARY CALLSIGNS: Military callsigns are usually 5-letter words followed by a 2-digit number (e.g. MAVRK23, HOOVR34, COBRA45, SNOOP38, GORDO12, etc.).

TRAFFIC COLLISION AVOIDANCE SYSTEMS (TCAS): Due to military operational requirements, Offutt AFB aircraft may not be using Mode S nor have the capability to receive Resolution Advisories (RAs). Additionally, *many fighter aircraft do not possess any TCAS capabilities though they will squawk Mode 3 and Mode S. Lastly, Offutt AFB Aero Club aircraft do NOT possess TCAS capability.* See Page 16 for further.

AUTOMATICS DEPENDENT SURVEILLANCE - BROADCAST (ADS-B): Many Offutt AFB heavy aircraft possess ADS-B but their ADS-B Out functionality may remain inhibited due to mission requirements. If the aircraft possesses ADS-B, the ADS-B In functionality will remain operable regardless of mission requirements. *Most fighter and bomber aircraft do NOT possess ADS-B capabilities. Offutt AFB Aero Club aircraft ONLY possess ADS-B Out capability.*

OFFUTT AFB AIRCRAFT

Offutt AFB is home to several large United States Air Force (USAF) and United States Navy (USN) aircraft including multiple C-135 variants, the E-4B (Boeing 747), and the E-6B (Boeing 707). Offutt AFB also operates an Aero Club flying high and low wing, light civil aircraft (Cessna 172H, Cessna 172M, Piper Arrow, & Piper PA-28 Warrior II).

Due to military requirements, many of these heavy aircraft may not receive TAs, RAs, and/or not squawking Mode S. Some Aero Club aircraft do not have TCAS

RC-135V/W RIVET JOINT



RC-135S COBRA BALL



RC-135U COMBAT SENT



WC-135 CONSTANT PHOENIX



These C-135 variants are heavy aircraft. Wake turbulence is possible, especially after *initial takeoff*. Depending upon the situation, these aircraft may not be squawking, transmitting ADSB, nor receiving Resolution Advisory (RA) alerts.

Rate of Climb: +1000-4000 FPM

Climb Speeds: 250-300 KIAS

Approach Speeds: 140-165 KIAS

Pattern Speeds: 180-250 KIAS

E-6B MERCURY



This USN Boeing 707 heavy aircraft is very similar to the Offutt AFB C-135 variants but can fly slower on approach. Wake turbulence is possible, especially after *initial takeoff*. In certain situations, the E-6 flies without transmitting its position to civilian aircraft.

Rate of Climb: +1000-4000 FPM

Climb Speeds: 250-300 KIAS

Approach Speeds: 125-165 KIAS

Pattern Speeds: 180-250 KIAS

E-4B NIGHTWATCH



The E-4B is a heavy aircraft, Boeing 747-200; significant wake turbulence is probable. In certain situations, the E-4B flies without transmitting its position to civilian aircraft.

NOTE: Pay close attention to radio calls and ATC instructions when the E-4B is flying! Certain times the E-4B takeoffs/landings will take precedence over all other traffic. ATC may cancel landing clearance or tell other aircraft to IMMEDIATELY give-way to the E-4B, including changing flight path and/or altitude. All aviators must anticipate and adhere to these communications promptly!

Rate of Climb: +1000-4000 FPM

Climb Speeds: 250-300 KIAS

Approach Speeds: 140-165 KIAS

Pattern Speeds: 180-250 KIAS

OFFUTT AFB TRANSIENT AIRCRAFT



T-38 Talon

Rate of Climb: 1,500-2,500 FPM

Climb Speeds: 200-250 KIAS

Approach Speeds: 150 KIAS

Pattern Speeds: 250-300 KIAS



KC-135 Stratotanker

Rate of Climb: 1000-3000 FPM

Climb Speeds: 180-250 KIAS

Approach Speeds: 140-190 KIAS

Pattern Speeds: 170-200 KIAS



C-17 Globemaster

Rate of Climb: 1,000-3,000 FPM

Climb Speed: 250 KIAS

Approach Speeds: 120-170 KIAS

Pattern Speeds: 160-250 KIAS



C-5 Galaxy

Rate of Climb: 1,000-3,000 FPM

Climb Speeds: 180-250 KIAS

Approach Speeds: 115-200 KIAS

Pattern Speeds: 180-250 KIAS



C-37A Gulfstream V / C-37B (G550)

Rate of Climb: 1,000-3,750 FPM

Climb Speed: 250 KIAS

Approach Speeds: 120-160 KIAS

Pattern Speeds: 160-200 KIAS



A-10 Thunderbolt II

Rate of Climb: 1,500 FPM

Climb Speeds: 150-250 KIAS

Approach Speeds: 135 KIAS

Pattern Speeds: 150-250 KIAS



F-15

Rate of Climb: 10,000+ FPM

Climb Speeds: 200-300 KIAS

Approach Speeds: 160 KIAS

Pattern Speeds: 300 KIAS



F-16 Fighting Falcon

Rate of Climb: 10,000+ FPM

Climb Speeds: 200-300 KIAS

Approach Speeds: 160 KIAS

Pattern Speeds: 300 KIAS



F-22 Raptor

Rate of Climb: 10,000+ FPM

Climb Speeds: 250-300 KIAS

Approach Speeds: 160 KIAS

Pattern Speeds: 300 KIAS



F-35 Lightning

Rate of Climb: 10,000+ FPM

Climb Speeds: 250-300 KIAS

Approach Speeds: 160 KIAS

Pattern Speeds: 300 KIAS



F-18 Hornet

Rate of Climb: 10,000+ FPM

Climb Speeds: 250-300 KIAS

Approach Speeds: 120-150 KIAS

Pattern Speeds: 300 KIAS



B-52 Stratofortress

Rate of Climb: 1,000 – 4,500 FPM

Climb Speeds: 180-250 KIAS

Approach Speeds: 130-150 KIAS

Pattern Speeds: 180-250 KIAS



E-3 Sentry

Rate of Climb: 1,000-2,500 FPM

Climb Speeds: 180-250 KIAS

Approach Speeds: 140-160 KIAS

Pattern Speeds: 180-200 KIAS



B-2 Spirit

Rate of Climb: 1,000-3,000 FPM

Climb Speeds: 180-250 KIAS

Approach Speeds: 140-160 KIAS

Pattern Speeds: 180-200 KIAS



B-1 Lancer

Rate of Climb: 1,000-5,000 FPM

Climb Speeds: 180-250 KIAS

Approach Speeds: 160-190 KIAS

Pattern Speeds: 180-250 KIAS



C-21A Learjet

Rate of Climb: 2000-4000 FPM

Climb Speeds: 250 KIAS

Approach Speeds: 110-140 KIAS

Pattern Speeds: 150-200 KIAS



MC-12 Liberty

Rate of Climb: 2700 FPM

Climb Speeds: 250 KIAS

Approach Speeds: 105-110 KIAS

Pattern Speeds: 150-200 KIAS



C-40B / Boeing 737

Rate of Climb: 1,000-3,000 FPM

Climb Speeds: 180-250 KIAS

Approach Speeds: 130-160 KIAS

Pattern Speeds: 180-200 KIAS



C-32A / Boeing 757

Rate of Climb: 3000-4000 FPM

Climb Speeds: 250 KIAS

Approach Speeds: 140-150 KIAS

Pattern Speeds: 170-210 KIAS



EA-37B Compass Call

Rate of Climb: 1,000-3,750 FPM

Climb Speed: 250 KIAS

Approach Speeds: 120-160 KIAS

Pattern Speeds: 160-200 KIAS

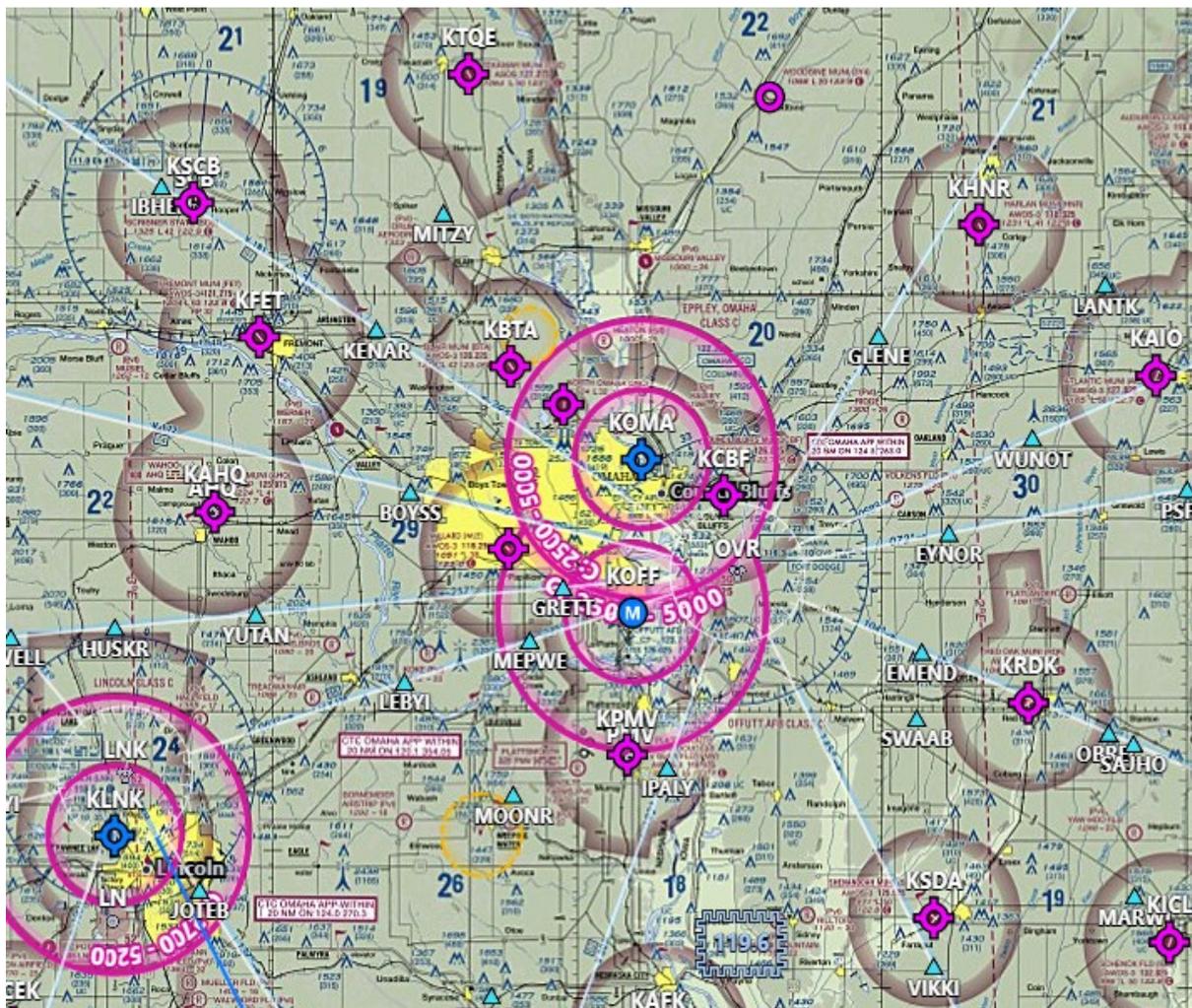
OMAHA AIRFIELDS

Omaha Airspace possesses numerous airfield types and sizes from small general aviation airfields to commercial airports (and a military base). *Eppley Airfield (KOMA) and Offutt AFB (KOFF) each possess separate but adjoining Class C airspace which require an operable transponder. Several smaller airfields, both civil and private, reside within or under this Class C airspace.*

NOTE: Many small, general aviation aircraft transit between and under this airspace without contacting either tower or operating a transponder. The airspace between the KOMA and KOFF Class C inner rings is commonly referred to as the “L Street Corridor” where VFR pilots travel westbound or eastbound across Omaha (See red arrow depicted on page 13).

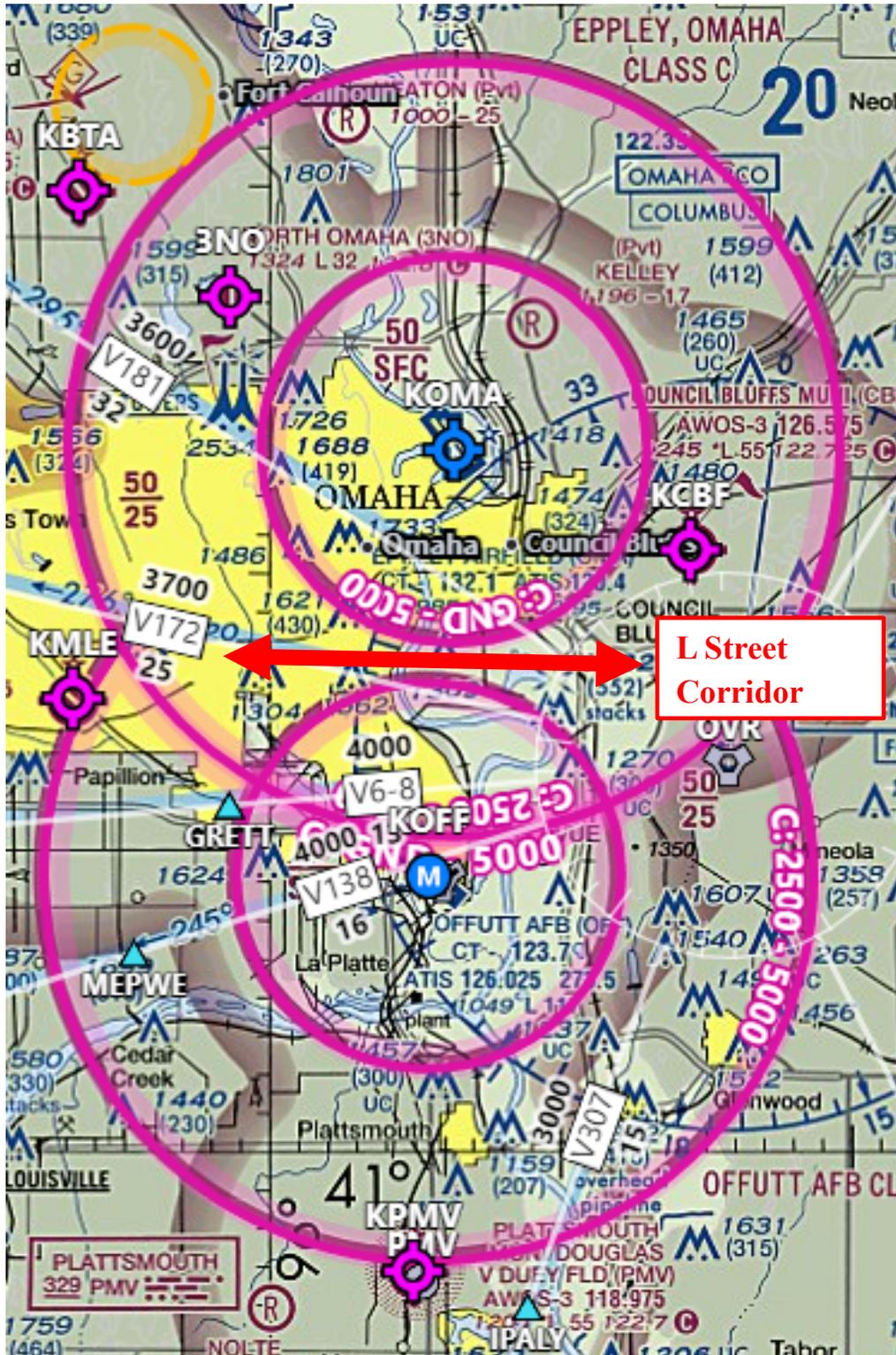
Airfields within 30 NMs of the Omaha Metro:

- Red Oak Municipal Airport (KRDK)
- Harlan Airport (KHNR)
- Shenandoah Airport (KSDA)
- Blair Airport (KBTA)
- Tekamah Airport (KTQE)
- Fremont Airport (KFET)
- Wahoo Airport (KAHQ)
- Nebraska City Airport (KAFK)
- Atlantic Airport (KAIO)



The following airfields are within 10 NMs of KOMA and KOFF:

- Millard (KMLE)
- Plattsmouth Airport (KPMV)
- Council Bluffs (KCBF)
- North Omaha (3NO)
- (Private) Ruckl (IA35)
- (Private) Heaton (75NE)
- (Private) Kelley (IA32)



OMAHA ARRIVALS & DEPARTURES

The KOFF typical departure for military aircraft is runway heading to 3,000 MSL; occasionally, these aircraft depart directly into the KOFF VFR Pattern at 2,500 MSL.

Offutt Aero Club aircraft typically depart to the Omaha South Practice Areas (Omaha SPA) by climbing above 2,500 MSL prior to the Highway 75 Bridge (to clear the KOFF VFR Pattern) and above 3,500 MSL prior to Plattsmouth (to clear the KOFF IFR Pattern). This routing does cross the KOFF IFR and VFR patterns laterally but vertically deconflicts these patterns with these described altitude restrictions.

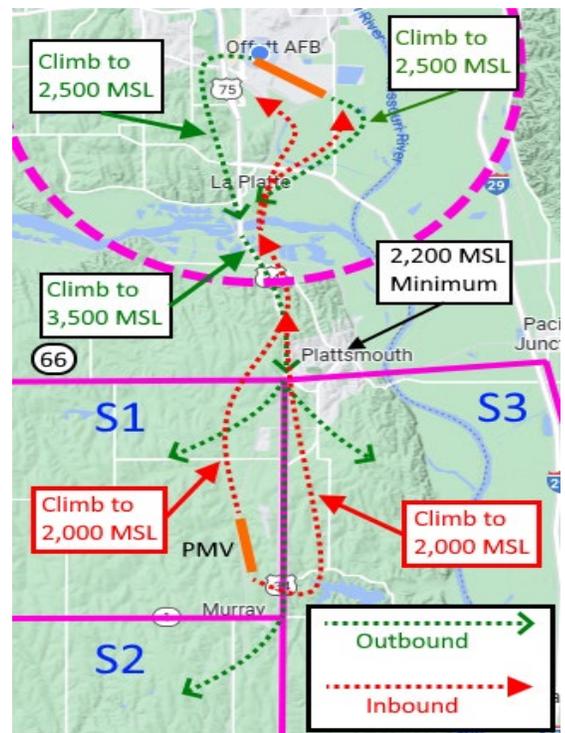
KOFF and KOMA share the same IFR arrivals into Omaha Airspace.

See below for a flight path depiction of each arrival.

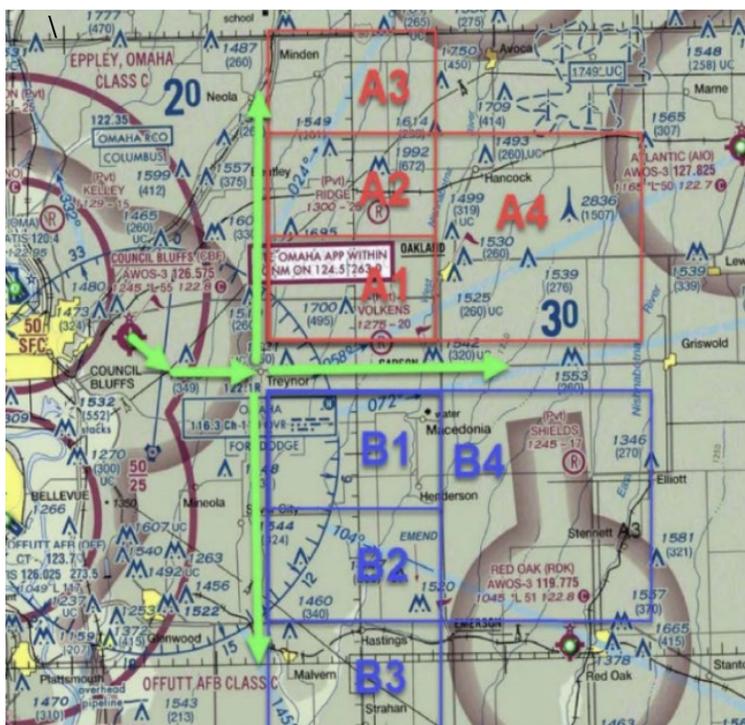
Omaha South Practice Area (Omaha SPA)



KOFF Aero Club SPA Routing



Omaha East Practice Area (EPA) & KCBF Routing



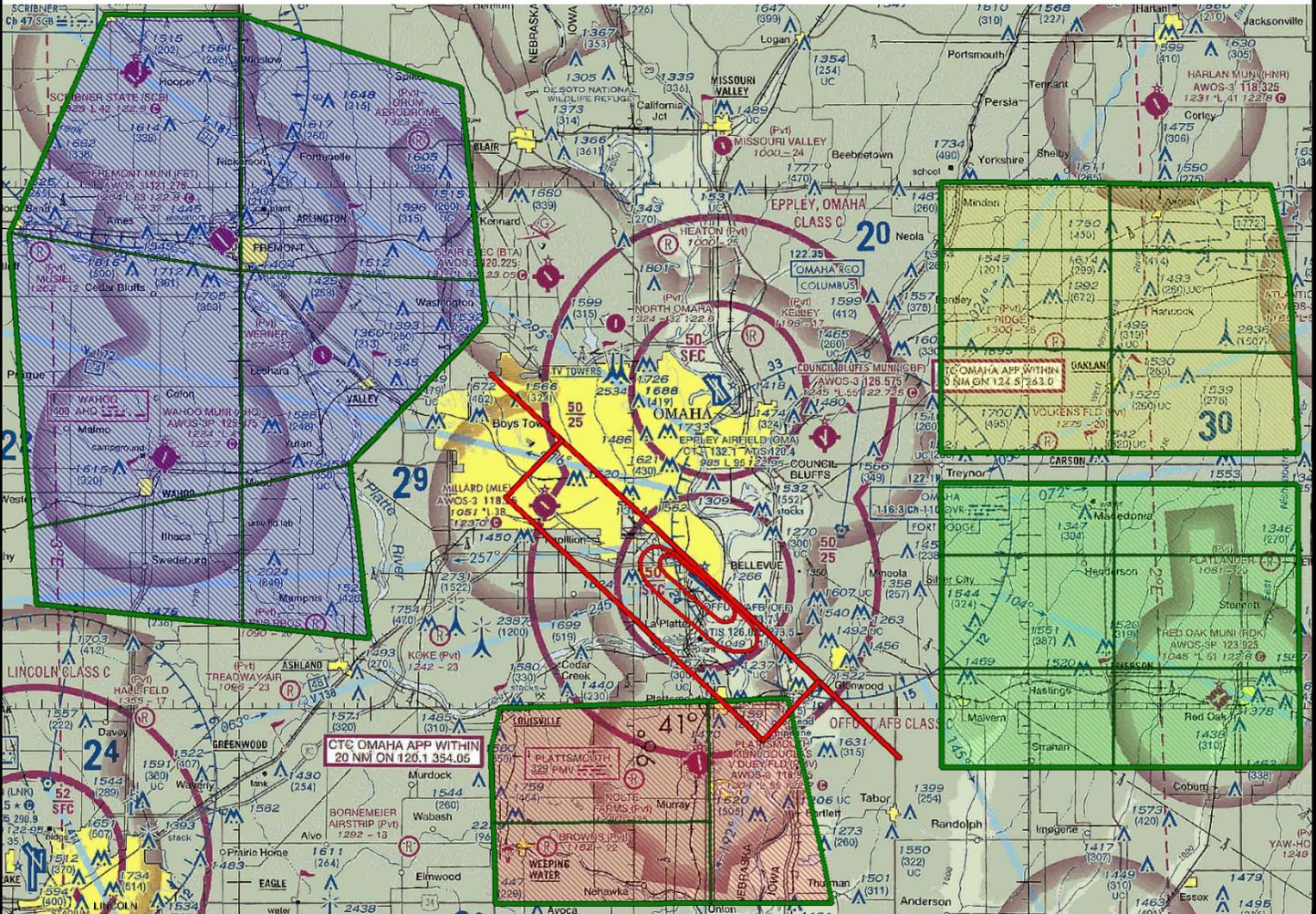
KOMA & KOFF IFR Arrivals



OMAHA AIRSPACE PRACTICE AREAS

Omaha Airspace currently possesses three practice areas (West, East, and South) on the outskirts of Omaha's Class C Airspace. *These practice areas are NOT protected airspace nor are they depicted on any IFR/VFR charts.* Altitudes associated with these practice areas are normally from 500 feet AGL to 4,500 MSL (available up to 10,000 MSL upon request). These practice area aircraft may or may not use Omaha Approach flight following.

To find the most updated NOTAMs defining these practice area (including their exact location), search for "Omaha" or "R90" at <https://notams.aim.faa.gov/notamSearch/nsapp.html#/>. See below for a screenshot of this KML file.



Omaha Practice Area Legend (Green Outline): West Practice Area (WPA) – Blue; South Practice Area (SPA) – Red; East Practice Area (EPA) – Green & Yellow.

KOFF IFR & VFR Patterns – Red Line: VFR Patterns (2.0 NMs and 2.5 NMs depicted).

Additionally, 55th Wing Flight Safety maintains a KML file including these practice areas and the Offutt AFB IFR and VFR pattern overlays for Foreflight Maps. Download this KML file at the Offutt AFB MACA Website (See QR Code on Page 3).

ACAS & TCAS

Alert Collision Avoidance System (ACAS) provides a safety-enhancing system to reduce the likelihood of midair collisions by using airborne devices aboard a broad spectrum of aircraft types to alert pilots of possible traffic conflicts. If used properly, ACAS will increase pilot situational awareness. Pilots should respond to a Traffic Advisory (TA) and/or a Resolution Advisory (RA), as applicable.

NOTE: Many aircraft within the Omaha Airspace do NOT possess ACAS, and some aircraft operate without a transponder on the outskirts and/or below Class C Airspace (e.g. – usage of the L Street Corridor (See page 12 & 13) or crop dusters remaining in Class G Airspace are just a few examples). All aircraft operating within KOFF or KOMA Class C Airspace must possess an operating transponder.

ACAS types: Traffic Alert and Collision Avoidance System (TCAS) I, TCAS II, ACAS Xa (ACAS III).

TCAS I displays TAs which provide bearing, range, and altitude of nearby aircraft (with an operating transponder) relative to own-ship to assist pilots with visual acquisition of potential traffic conflicts.

TCAS II displays TAs and RAs. RAs provide recommended vertical maneuver instructions or restrictions via visual indications and/or aural instructions for pilots to either maintain or increase vertical separation with the threatening aircraft.

ACAS Xa (ACAS III) is still in development but will incorporate both vertical and horizontal maneuvers for collision avoidance of RAs.

NOTE: Pilots should remain aware that by design, TCAS I and TCAS II do not provide any TAs nor RAs below certain altitudes (AGL). Reference AC 90-120 Table 2-3 for further detail.

NOTE: Due to operational requirements, some military aircraft may be required to restrict transponder systems which directly impact ACAS providing RAs and/or TAs.

AC 90-120 Table 2-3. TCAS II Advisory Thresholds

Own Altitude (feet)		Seconds to CPA (tau)		DMOD (NM/feet)		ZTHR (feet)	
		TA	RA	TA	RA	TA	RA
0-500	AGL	N/A	N/A	N/A	N/A	N/A	N/A
500-1000	AGL	20	N/A	0.3/1822	N/A	850	N/A
1000-2350	AGL	25	15	0.33/2005	0.20/1215	850	600
2350-5000	SDP	30	20	0.48/2916	0.35/2126	850	600
5000-10000	SDP	40	25	0.75/4557	0.55/3341	850	600
10000-20000	SDP	45	30	1.00/6076	0.80/4861	850	600
20000-42000	SDP	48	35	1.30/7898	1.10/6684	850	700
Above 42000	SDP	48	35	1.30/7898	1.10/6684	1200	800

Table 2-3 Acronyms: Time to CPA (tau), Closest Point of Approach (CPA), Altitude Threshold (ZTHR), Distance Modification (DMOD), Standard Datum Plane (SDP).

SERVICES AVAILABLE TO PILOTS

1. **Omaha Approach Control (124.0 / 135.875)** Provides air traffic services in the eastern and western portion of Omaha metro, including Lincoln, NE.
2. **Sioux City Approach Control (124.6)**
3. **Omaha Area Airport Towers & CTAFs.** KOFF & KOMA Tower controllers provide ATC services within 5 NM radius of the airport.

NOTE: VFR Pilots transiting Omaha Class C Airspace must realize IFR Aircraft on IFR Final or established in the VFR Pattern will NOT be monitoring the Omaha Approach frequency until returning to the IFR Pattern. As a result, these aircraft will not hear any VFR Pilot position reports or communications made on this Omaha Approach frequency. If needing to immediately deconflict with these aircraft via radio, VFR Pilots are encouraged to communicate on KOMA and/or KOFF Tower frequencies.

4. **Omaha Airfield Frequencies**
 - a. **Offutt AFB (KOFF) Tower: 123.7**
 - b. **Eppley Airport (KOMA) Tower: 132.1**
 - c. **Lincoln Airport (KLNK) Tower: 118.5**
 - d. **Millard Airport (KMLE) CTAF/UNICOM: 123.0**
 - e. **Council Bluffs (KCBF) Airport CTAF/UNICOM: 122.725**
 - f. **Plattsmouth (KPMV) Airport: 122.7**



OFFUTT AFB MID AIR COLLISION AVOIDANCE



DISTANCE SECONDS

	AT	
	600 MPH	210 MPH
10 MILES	60	170
5 MILES	30	85
3 MILES	18	56
2 MILES	12	38
1 MILES	6	18
0.5 MILES	3	9



BOEING E-4B

BOEING RC-135

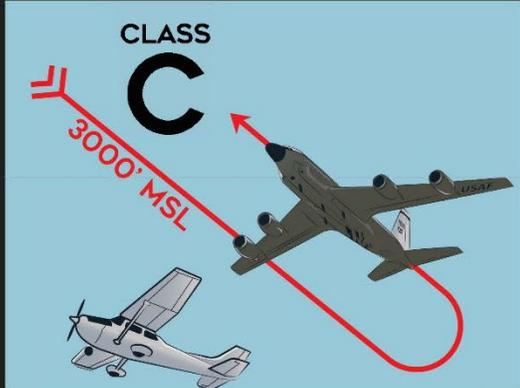
Danger Areas based on recognition and reaction time.

55th Wing Flight Safety
402-294-3404

Omaha Approach
402-682-4343



55th Wing Flight Safety available for pilot safety briefings.



Traffic Conflict Scenario for local airports: Millard and Plattsmouth contact Omaha Approach 135.875 or Millard Ground 125.4.