62d Airlift Wing
C-17 Local Flying Operations and the Civilian Aviator

62d AW Safety Office
Joint Base Lewis-McChord, WA

OVERVIEW

- Introduction
- C-17 Overview
- McChord Airspace
- NVG Operations
- Military Training Routes (Low Levels)
- Airdrop Operations
- C-17 Grant County Operations
- Mid-Air Collision Avoidance (MACA)
- Conclusion

Introduction

- **We all have responsibility to be aware of potential conflicts and AVOID them!**
  - **49% occur in the traffic pattern**
  - **Of the other 51%...**
    - **½ occurred during en route climb, cruise, descent**
    - **The rest were formation flights or other hazardous activities**
  - **80% of collisions happened w/in 10 nm of an airport**

Simulated views from within the Cessna 150 and F-16 a second before collision. Composite image by AOPA staff. Images courtesy of NTSB.

Our goal: To educate civilian pilots on the midair potential in the Grant County area and foster a safety oriented airspace in which we operate.

C-17A Overview

C-17A Overview

Wingspan: 170 feet
Length: 166 feet
Max Takeoff Weight: 585,000 Lbs
Max Cruise Speed: 350 kts/.825M
Approach Speed: 105 - 135 kts
Low Level Speed: avg. 300 kts
VHF radio: yes
Color: Dark Grey

C-17A Overview - Various Missions

Combat Airlift

Air Refueling

Supporting Scientists in Antarctica

Medevac from OIR / ORS to Germany

Presidential Support

HALO Airdrop

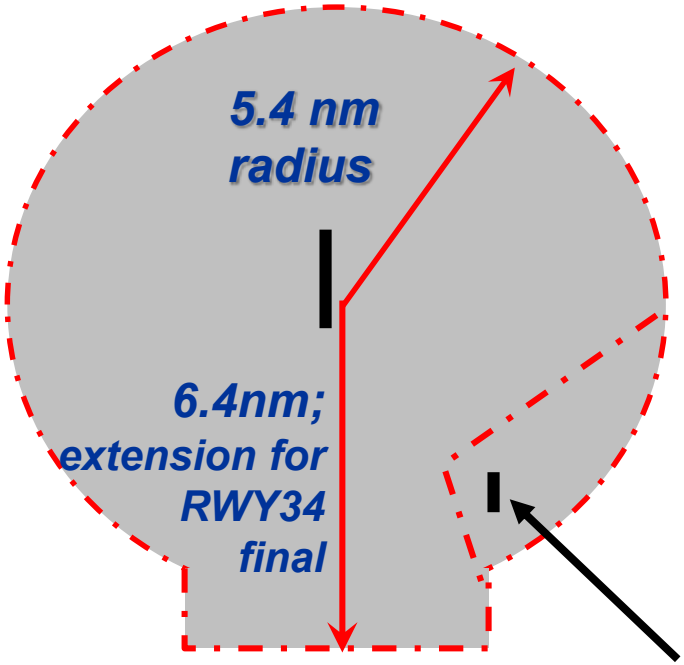
McChord Airspace – McChord Airfield (KTCM)

- McChord Field has a 10,100’ runway (RWY 34/16)
- ILS, RNAV, TACAN approaches; overt and covert Assault Landing Zone (ALZ)
- Tower is operational 24-hours per day (Freq. 124.8)
- Home to 62 AW, 446 AW, and 48x C-17A aircraft

McChord Airspace – Our Location

McChord Airspace

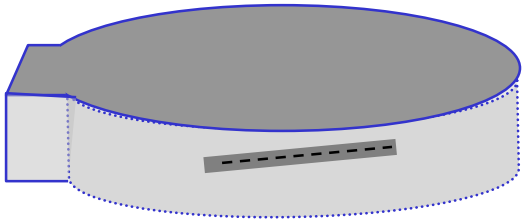
- Class “D” airspace
- 24 hours/day
- VFR transitions are not a problem
- Two-way radio communications required to enter class D



Spanaway operations excluded from Class D SFC to 1000’ MSL

Contact McChord Tower on

124.8



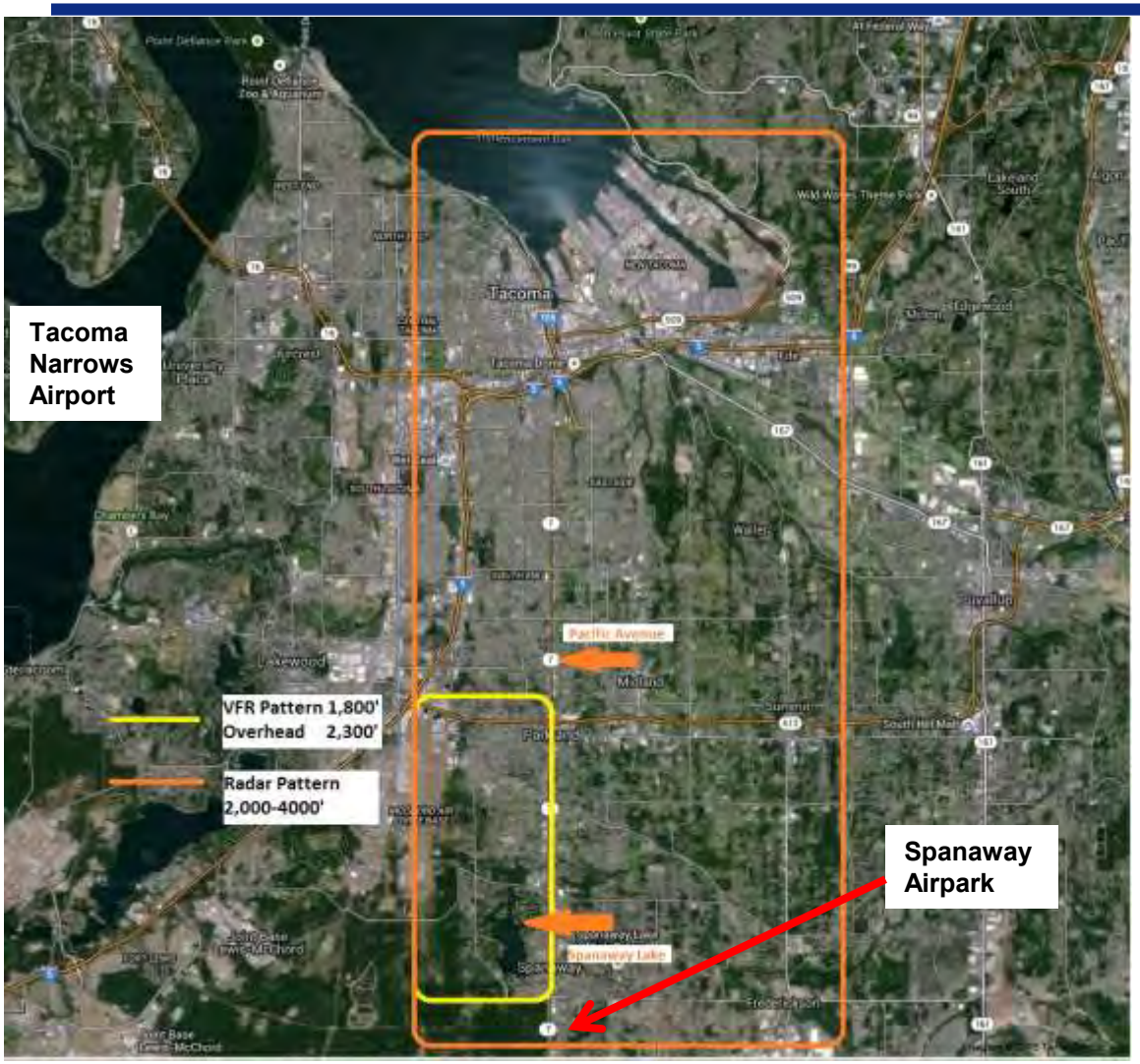
Surface to 2500’ AGL (2800’ MSL)

McChord Airspace – Common Transient Aircraft

- In the course of the year, you will share airspace with fighters, bombers, tankers, transports and helicopters. The frequent visitors are:

62d Airlift Wing

McChord Airspace – The Pattern

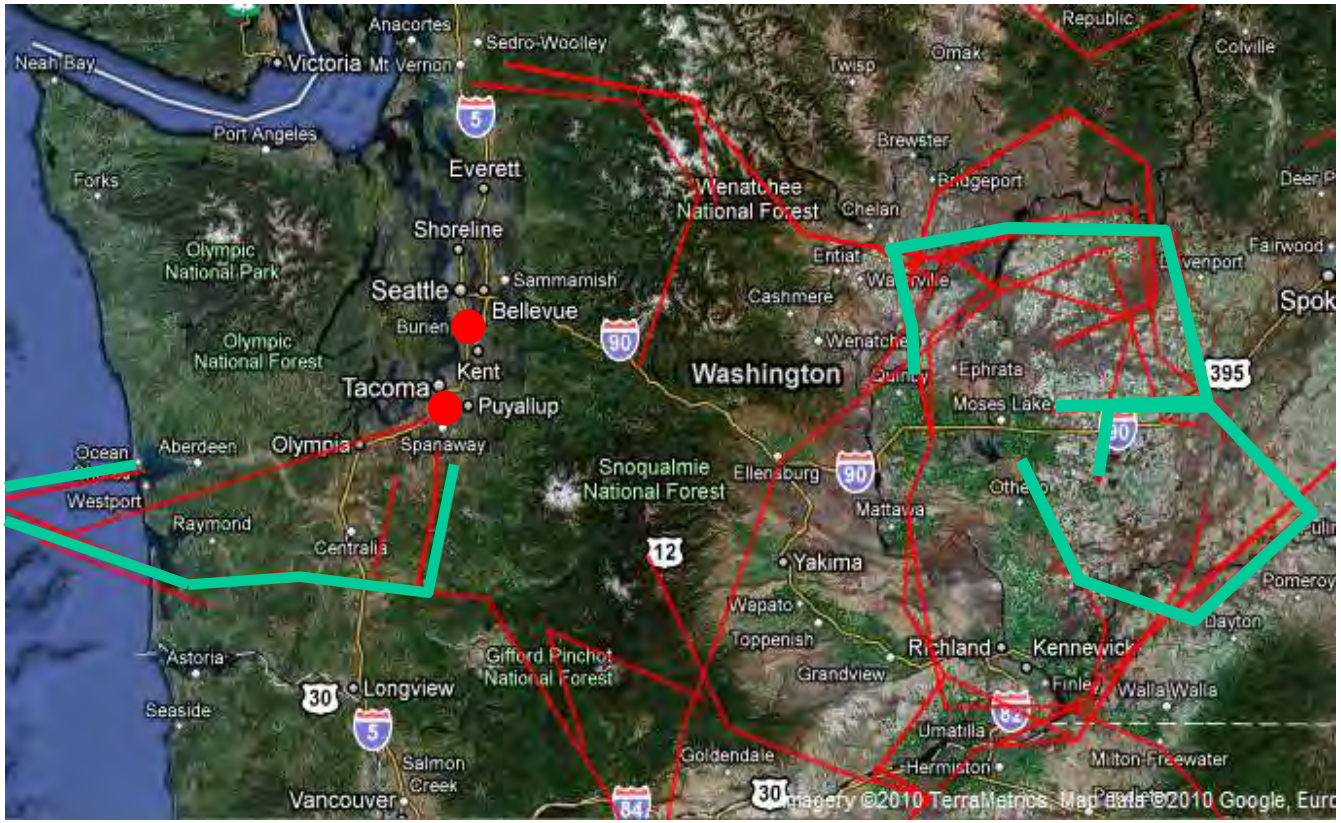


- Military aircraft avoid overflying Spanaway Lake, Brown's Point and Point Defiance
- Circling airspace is at 940' to the west of the field, and east of I-5
- Consult FLIP for a depiction of TCM instrument approaches

NVG Operations

- Comprises most of our night training
- Multiple runway lighting schemes
  - Full runway lights (overt)
  - Infrared (covert)
  - 500 ft or 1000 ft “Box”
- Aircraft lights
  - Nav Position/Red Anti-Collision lights always on
  - Infrared landing/taxi lights
- What you should know
  - Aircraft lights may look different
  - Runway lights may look off
  - NVG training is a large SA drain

Military Training Routes



- **Route Width: 5NM left/right of centerline**
- **Altitudes: 300' AGL – 5000' MSL**
  - **300-500' AGL typical**
- **Airspeeds in excess of 250 kts**
  - **310 kts typical**

- **<u>Common Routes</u>**
- **IR 325 (near Moses Lake)**
- **IR 326 (near Moses Lake)**
- **VR 331**

Military Training Routes - Sectional Charts

Team McChord

Prohibited, Restricted, and Warning Areas; Canadian Advisory, Danger, and Restricted Areas

Alert Area and MOA - Military Operations Area

Special Airport Traffic Area (See FAR 93 for details.)

ADIZ - Air Defense Identification Zone

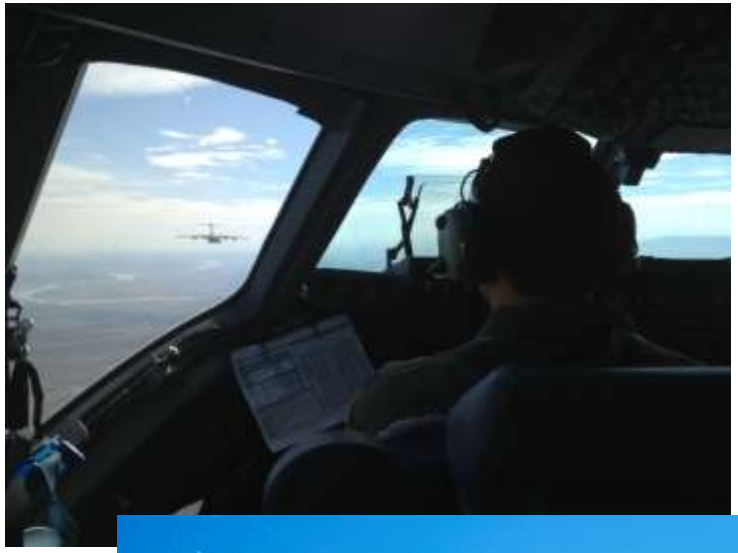
MODE C (See FAR 91.215/AIM.)

National Security Area

Terminal Radar Service Area (TRSA)

IR211 MTR - Military Training Route

Airdrop Operations

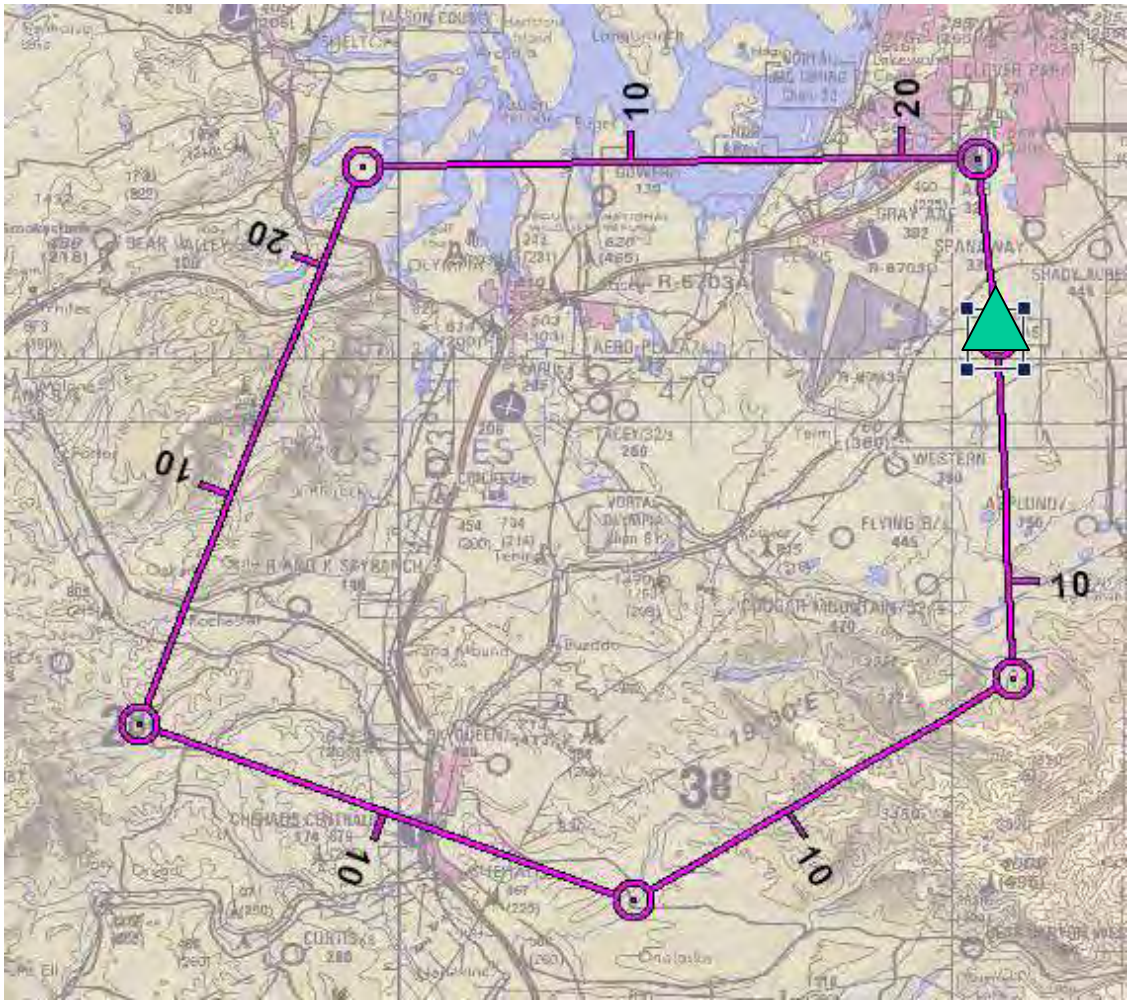


Airdrop Operations – Watch out for the COHO!

- "Flock" of C-17s
- Could be 3 or more in non-standard formation
- <u>Difficult to maneuver formation</u>
- <u>Wingmen often not squawking</u>

Airdrop Operations – Rogers DZ

- Route is VFR (can be IFR)



- Just south of Spanaway

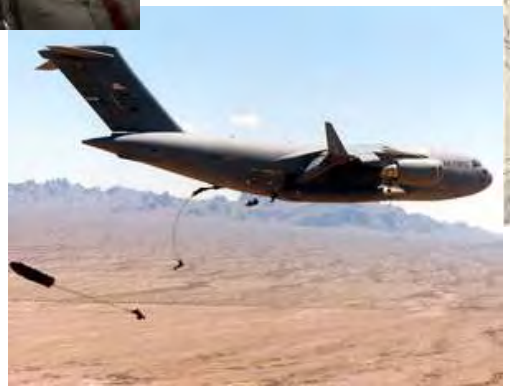
  TCM 153/8

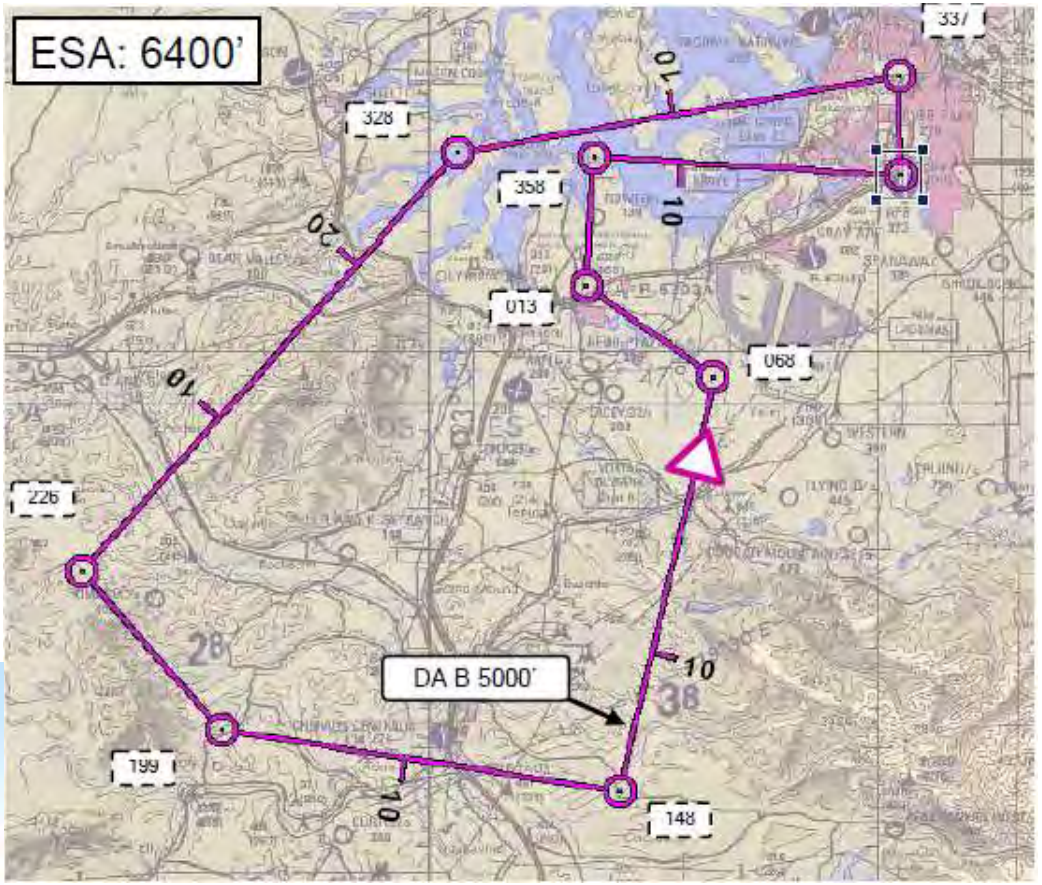
Airdrop Operations – Crate/Farmers DZ

- On McChord Field – Drop static line or freefall jumpers between 1,000 and 18,000 feet with ATC coordination

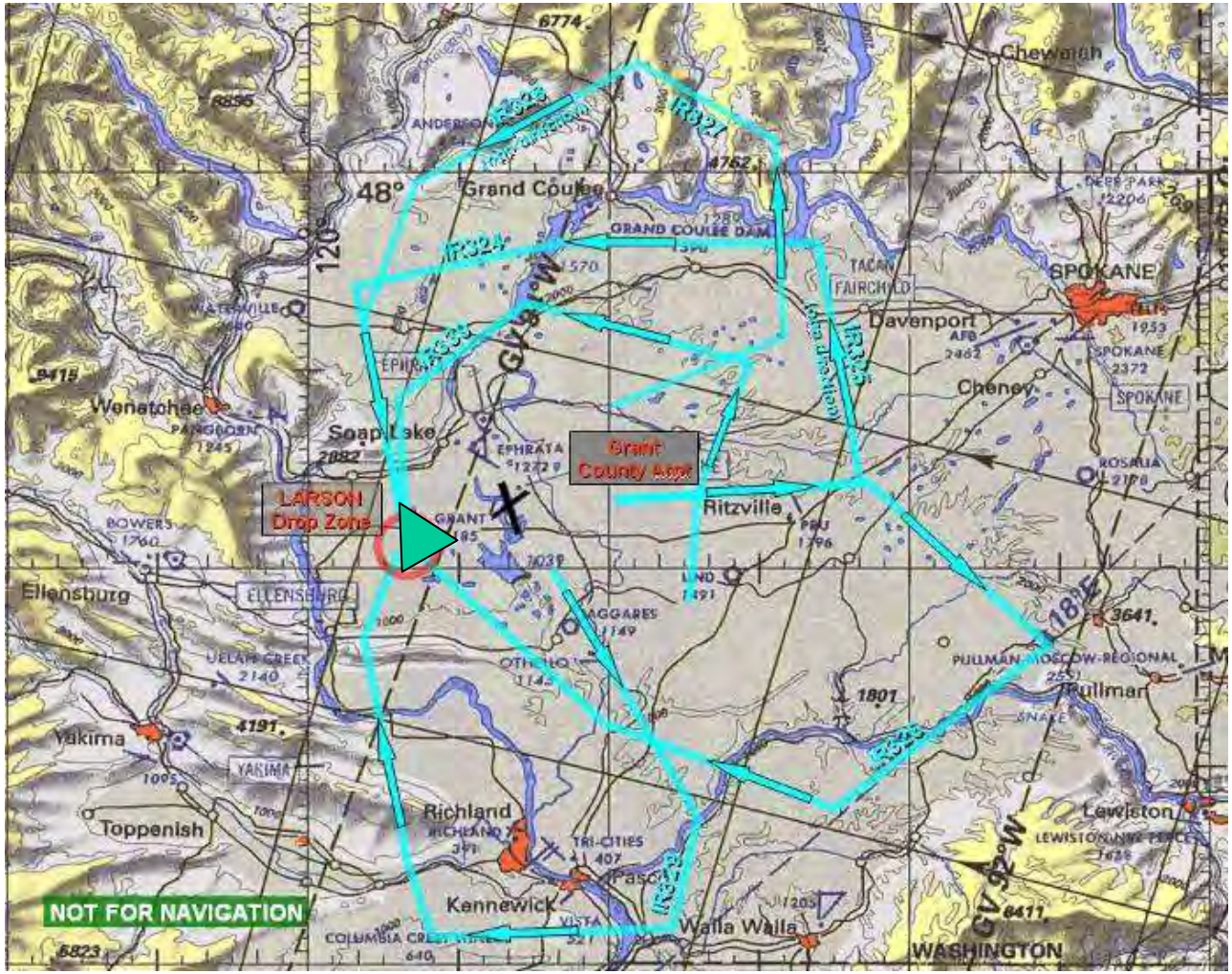
Airdrop Operations – Merrill DZ

- VFR only
- Typically drop static line troops





Airdrop Operations – KMWH Airdrop Routes



Airdrop Operations – Larson DZ

- Most Airdrop routes terminate at Larson DZ
- Sortie profiles typically include multiple 22-min "TAC 3" routes
- Highest risk exists within 20 NM N/S corridor surrounding Larson DZ.
- Crews are task saturated during and immediately after "run in" to Larson

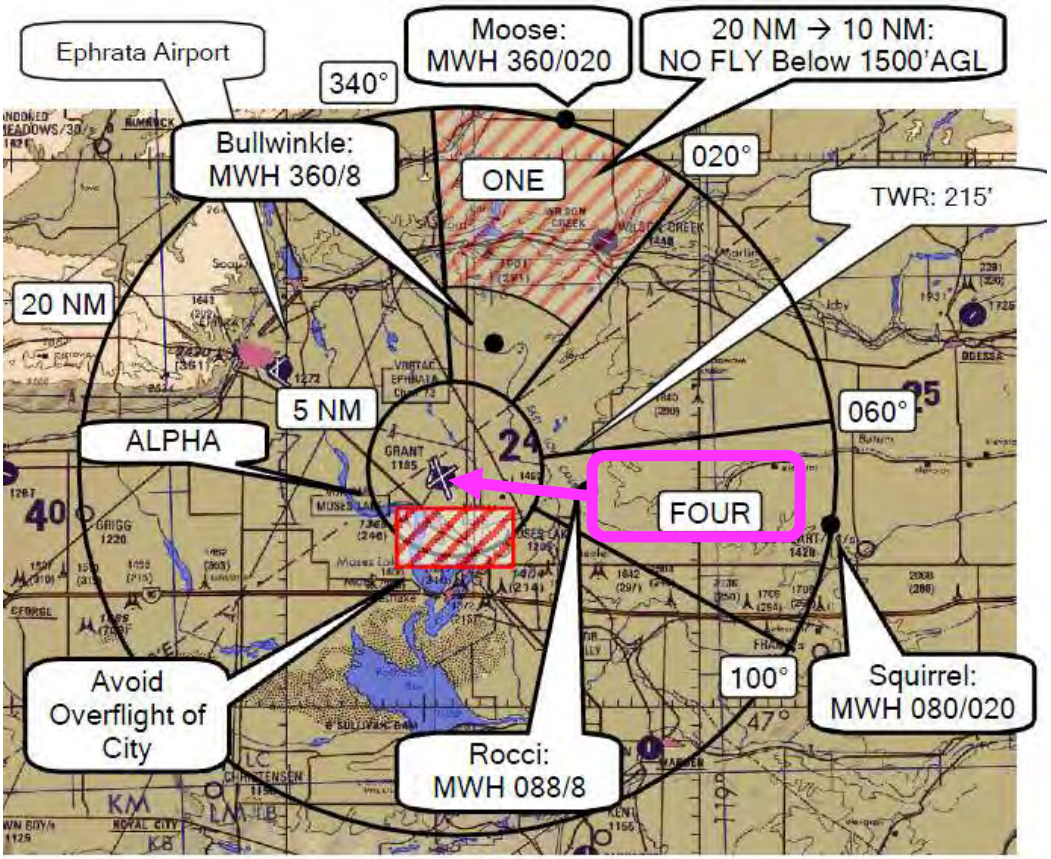
Airdrop Operations – Larson DZ

Grant County Ops

VFR/OVHD Pattern

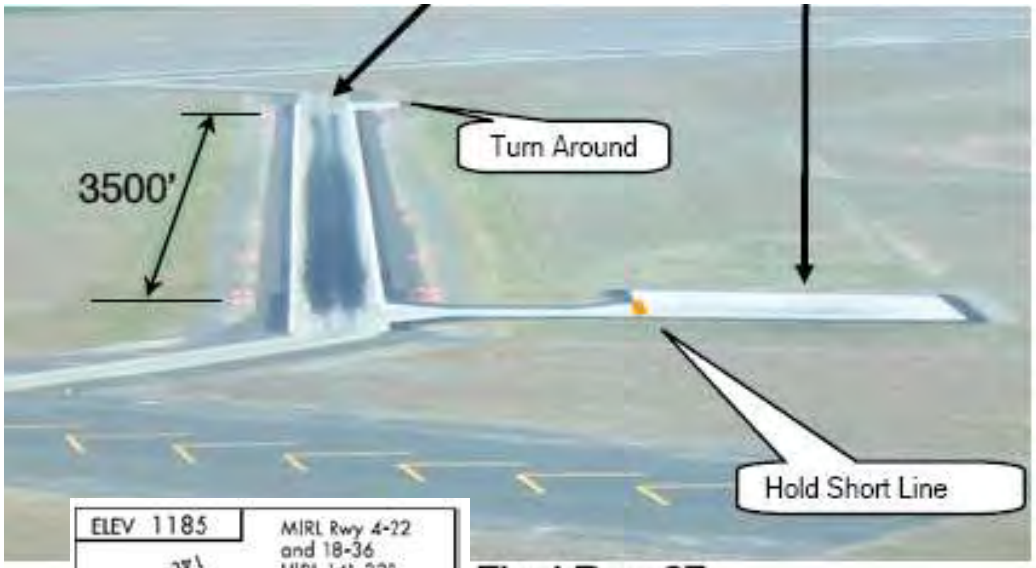
- **14L/32R 3000’ MSL**
- **9/27 3500’ MSL**
- **OVHD: 4000’ MSL**

Grant County Ops

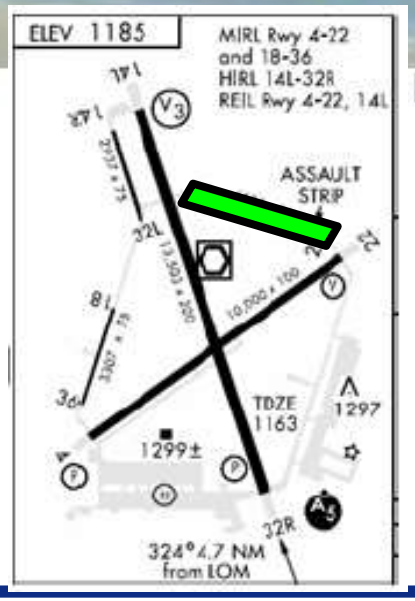


- All maneuvering below 5000' MSL during tactical arrivals will be made EAST of the main runway (32R/14L) unless coordinated otherwise with ATC
- Cancel IFR prior to commencing random approaches.
- "Moose" and "Squirrel" arrivals are not considered random approaches
- Generally, we'll establish a VFR hold pattern at "ROCCI" while the brakes cool before proceeding inbound to RWY 27

Grant County Ops - Assault Landings



Final Rwy 27



- What are they?
  - Spot landing (as short as 3500 ft long runway)
  - 500 ft landing zone
  - Max braking/reverse thrust
  - Frequent "GOATs" (Go Around at Touchdown) to maximize training
- What you should know
  - Fast-paced ops on 9/27
  - Demanding on crew SA
  - Possible conflicts w/crossing runways

Grant County Ops - After Hours

- 2200L – 0200L, airfield is uncontrolled
- Aircraft in contact with “Iron Cross”: (CTAF) 118.25
- NVG operations
- Max C-17s in the traffic pattern simultaneously:
  - 2 single ships or
  - 1 single ship and 1 formation flight (max 3 acft)

MACA – Why Do They Happen?

Team McChord

Human Error: People make mistakes

- Pilots
- Controllers

Communication

- Miscommunication
- No Communication

Environment

- Anywhere
- Anytime

PSA Flt 182 after colliding with a Cessna 172.
All aboard both aircraft and seven on the ground were killed.

MACA – Larson DZ HATR

Team McChord

29 Nov 2011

"During Airdrop Run-In – VFR traffic flew between 2-ship formation"

- **2-ship formation of C-17s flying at 145 knots, 1000' AGL, on IFR clearance**
- **C-17s have doors open, stabilized, ready for drop**
- **Co-altitude VFR traffic (Cessna) doesn't see formation until lead flies by**
- **VFR traffic makes right turn towards wingman, then spots wingman, and dives**
- **Formation lead contacted Grant County Approach and filed HATR**
- **FORMATIONS DO NOT FLY IN TCAS TA/RA MODE**
- **Wingmen TCAS in standby, unless greater than a mile in trail**

MACA –

What C-17 pilots do to prevent mid-airs

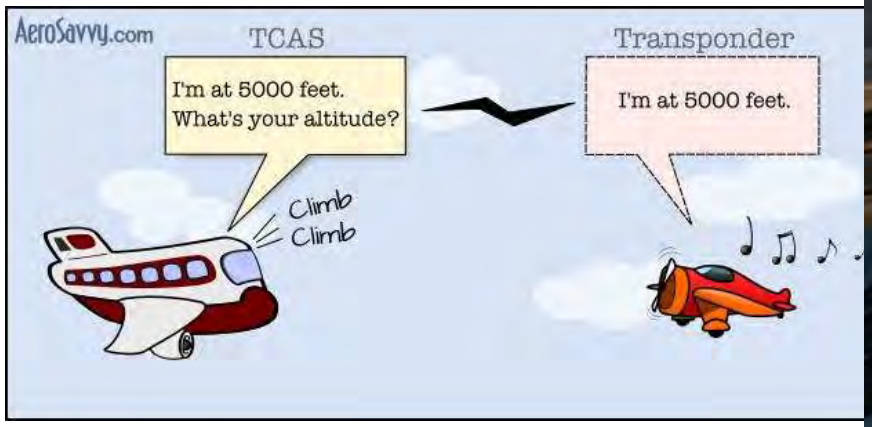
Team McChord

- Tools at our disposal
  - See and avoid
  - Preflight planning
  - Air Movement Table (AMT)
  - Traffic Collision Avoidance System (TCAS)
  - ADS-B
  - Radios/ATC
  - Crew concept
  - Hemispheric cruising altitudes
  - Operating procedures

MACA –

What you can do to prevent mid-airs

Team McChord

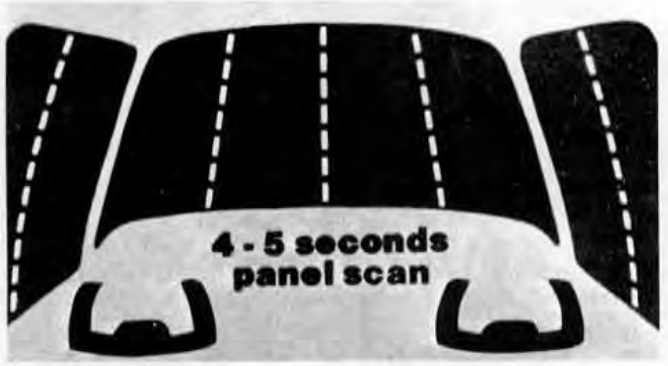


MACA –

What you can do to prevent mid-airs

Team McChord

- Check status of MTRs
  - Call FSS
  - http://sua.faa.gov
- Know your Airspace!
  - Avoid areas of greatest activity
  - Cross perpendicular to MTRs
- If able, fly at higher altitudes. Get flight following. Fly at proper VFR hemispheric altitudes.
- Make your position known
  - External lights
  - Radios (especially at Moses Lake)
  - Transponder (Mode C) and ADS-B
- Don't get complacent! Many mid-airs occur during periods of instruction and supervision. Instructors make mistakes too.



Scan Pattern Time Allocation

MACA Products

https://www.mcchord.af.mil/About-Us/Mid-Air-Collision-Avoidance/

(OR Google "McChord MACA")

SeeAndAvoid.org

Public Website

MACA Brochure

MACA Poster

MACA Products

Team McChord

Poster distributed to Local civilian Airfields:

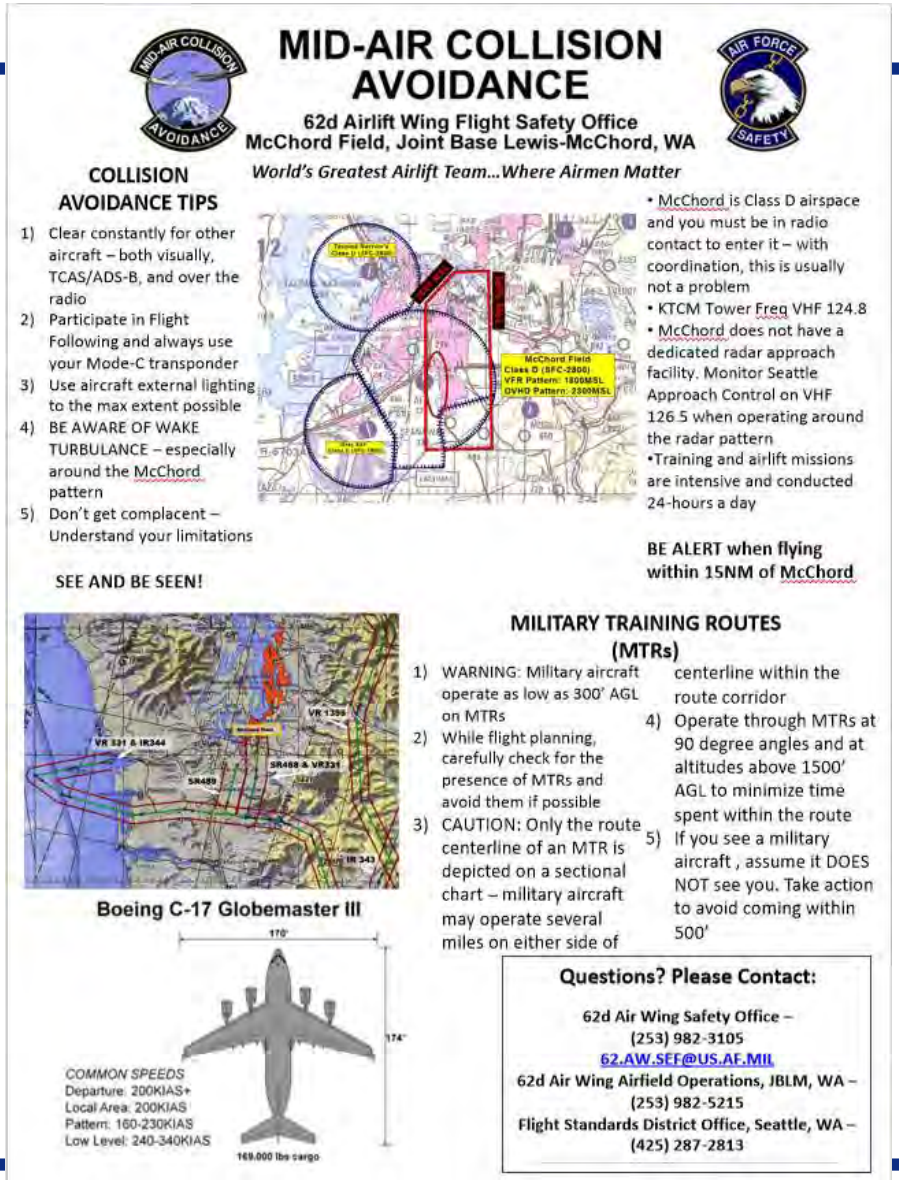
-Tacoma Narrows

-Spanaway Airpark

-Thun Field

-Boeing Field

-Auburn Muni



MID-AIR COLLISION AVOIDANCE

62d Airlift Wing Flight Safety Office
McChord Field, Joint Base Lewis-McChord, WA

World's Greatest Airlift Team...Where Airmen Matter

COLLISION AVOIDANCE TIPS

1) Clear constantly for other aircraft – both visually, TCAS/ADS-B, and over the radio
2) Participate in Flight Following and always use your Mode-C transponder
3) Use aircraft external lighting to the max extent possible
4) BE AWARE OF WAKE TURBULANCE – especially around the McChord pattern
5) Don't get complacent – Understand your limitations

SEE AND BE SEEN!

- McChord is Class D airspace and you must be in radio contact to enter it – with coordination, this is usually not a problem
- KTCM Tower Freq VHF 124.8
- McChord does not have a dedicated radar approach facility. Monitor Seattle Approach Control on VHF 126.5 when operating around the radar pattern
- Training and airlift missions are intensive and conducted 24-hours a day

BE ALERT when flying within 15NM of McChord

MILITARY TRAINING ROUTES (MTRs)

1) WARNING: Military aircraft operate as low as 300' AGL on MTRs
2) While flight planning, carefully check for the presence of MTRs and avoid them if possible
3) CAUTION: Only the route centerline of an MTR is depicted on a sectional chart – military aircraft may operate several miles on either side of centerline within the route corridor
4) Operate through MTRs at 90 degree angles and at altitudes above 1500' AGL to minimize time spent within the route
5) If you see a military aircraft , assume it DOES NOT see you. Take action to avoid coming within 500'

Boeing C-17 Globemaster III

COMMON SPEEDS
Departure: 200KIAS+
Local Area: 200KIAS
Pattern: 160-230KIAS
Low Level: 240-340KIAS

Questions? Please Contact:

62d Air Wing Safety Office –
(253) 982-3105
62.AW.SEF@US.AF.MIL
62d Air Wing Airfield Operations, JBLM, WA –
(253) 982-5215
Flight Standards District Office, Seattle, WA –
(425) 287-2813

Includes:

Local airspace

KTCM airfield information

Low level routes and busy areas

C-17 ops and info

Collision avoidance tips

Safety contact numbers

THANK YOU
&
FLY SAFE!

62AW Safety Contact Info

253-982-3105

62.AW.SEF@us.af.mil