

UNCLASSIFIED



McChord AFB C-17 Local Flying Operations and the Civilian Aviator



***Lt Col Dan DeYoung
Maj Phil Sakamoto
Capt Dan Siemen***

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

Innovative Airmen...Airlift Excellence...Respect For All!

UNCLASSIFIED



OVERVIEW



-
- Introduction
 - C-17 Overview
 - McChord Airspace
 - C-17 Grant County (Moses Lake) Operations
 - NVG and Airdrop Operations
 - Low Level Training Routes
 - 2015 RODEO
 - Mid-Air Collision Avoidance (MACA) Products
 - Conclusion

Innovative Airmen...Airlift Excellence...Respect For All!



Introduction



- Our goal with this presentation is to educate others on the midair potential in the McChord area.
- We all have responsibility to be aware of potential conflicts and AVOID them!
 - 65% occur near airports
 - 15% on low-level training routes
 - 10% in military operating areas
- The “big sky” theory is not the best approach in our saturated airspace.
 - 16 HATRs involving military aircraft reported in the local area in past 4 years



UNCLASSIFIED



C-17A Overview



Innovative Airmen...Airlift Excellence...Respect For All!

UNCLASSIFIED



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

Innovative Airmen...Airlift Excellence...Respect For All!

UNCLASSIFIED



Various Missions



Combat Airlift



Air Refueling



Supporting Scientists in Antarctica



Medevac from OEF to Germany



Presidential Support



HALO Airdrop

Innovative Airmen...Airlift Excellence...Respect For All!

UNCLASSIFIED



McChord Airfield (KTCM)



McChord Field has a 10,100' rwy (34/16)

ILS, RNAV, TACAN approaches; overt and covert Assault Landing Zone (ALZ)

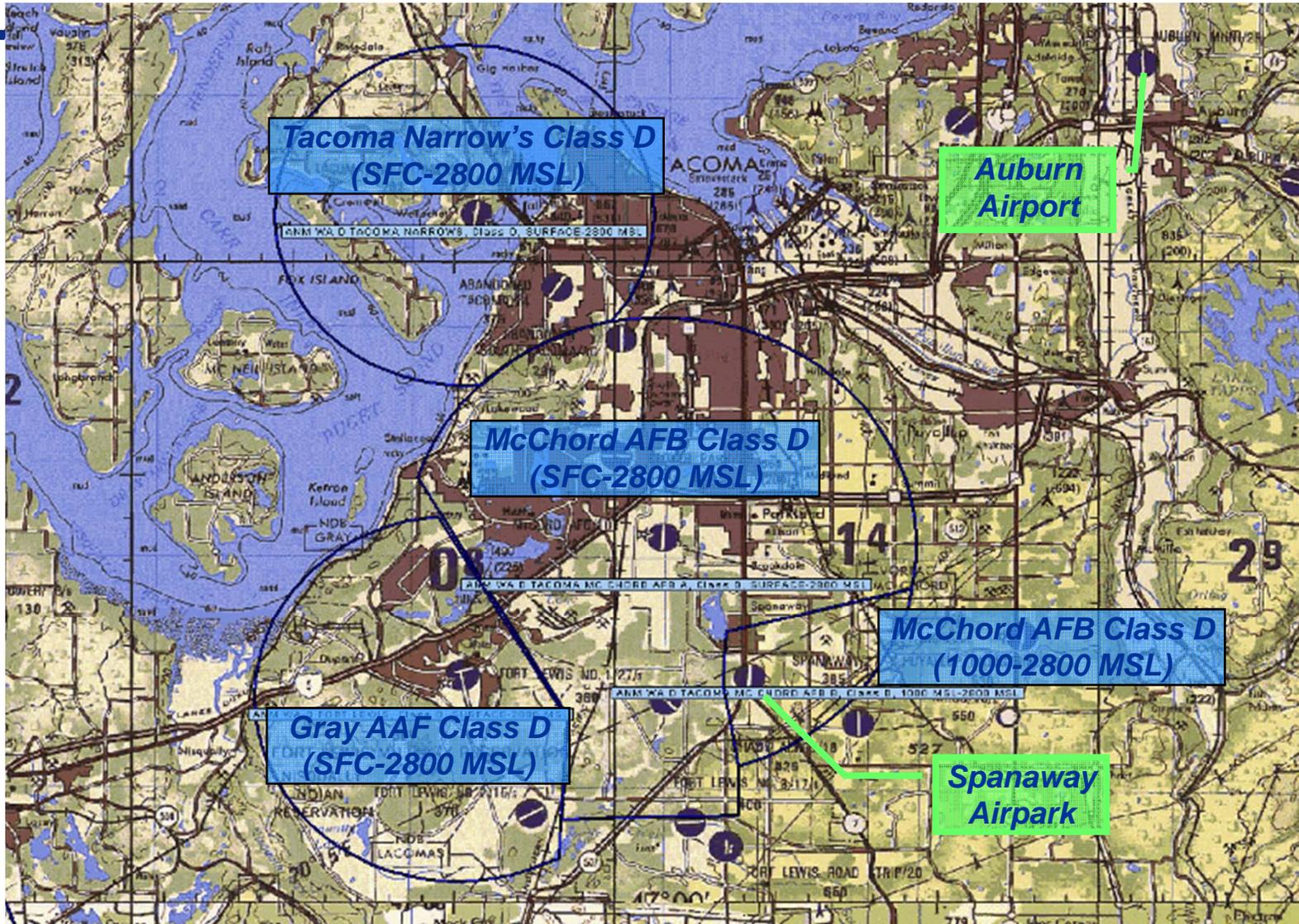
Tower is operational 24 hours per day (Freq. 124.8)

Home to 62 AW, 446 AW, 49 C-17A aircraft

Innovative Airmen...Airlift Excellence...Respect For All!



Our Location



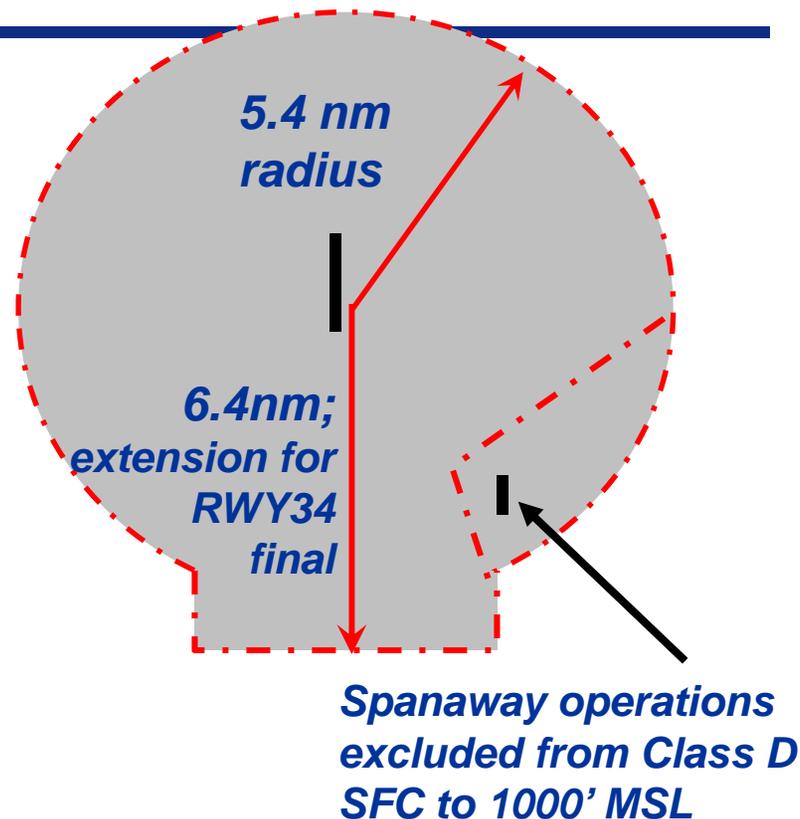
Innovative Airmen...Airlift Excellence...Respect For All!



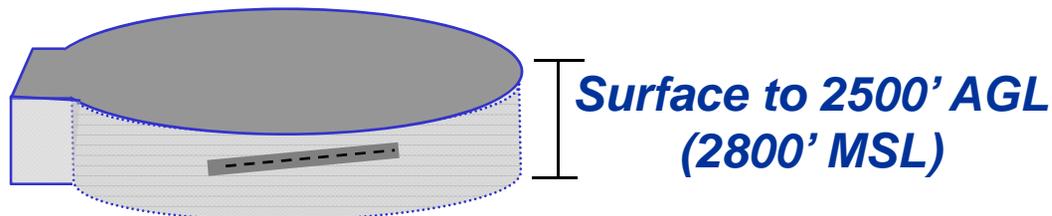
McChord's Airspace



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



Contact McChord Tower on
124.8





Common Transient Aircraft



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



CH-47

Photo taken by: Munnaf H. Joarder



F-16



C-130



P-3

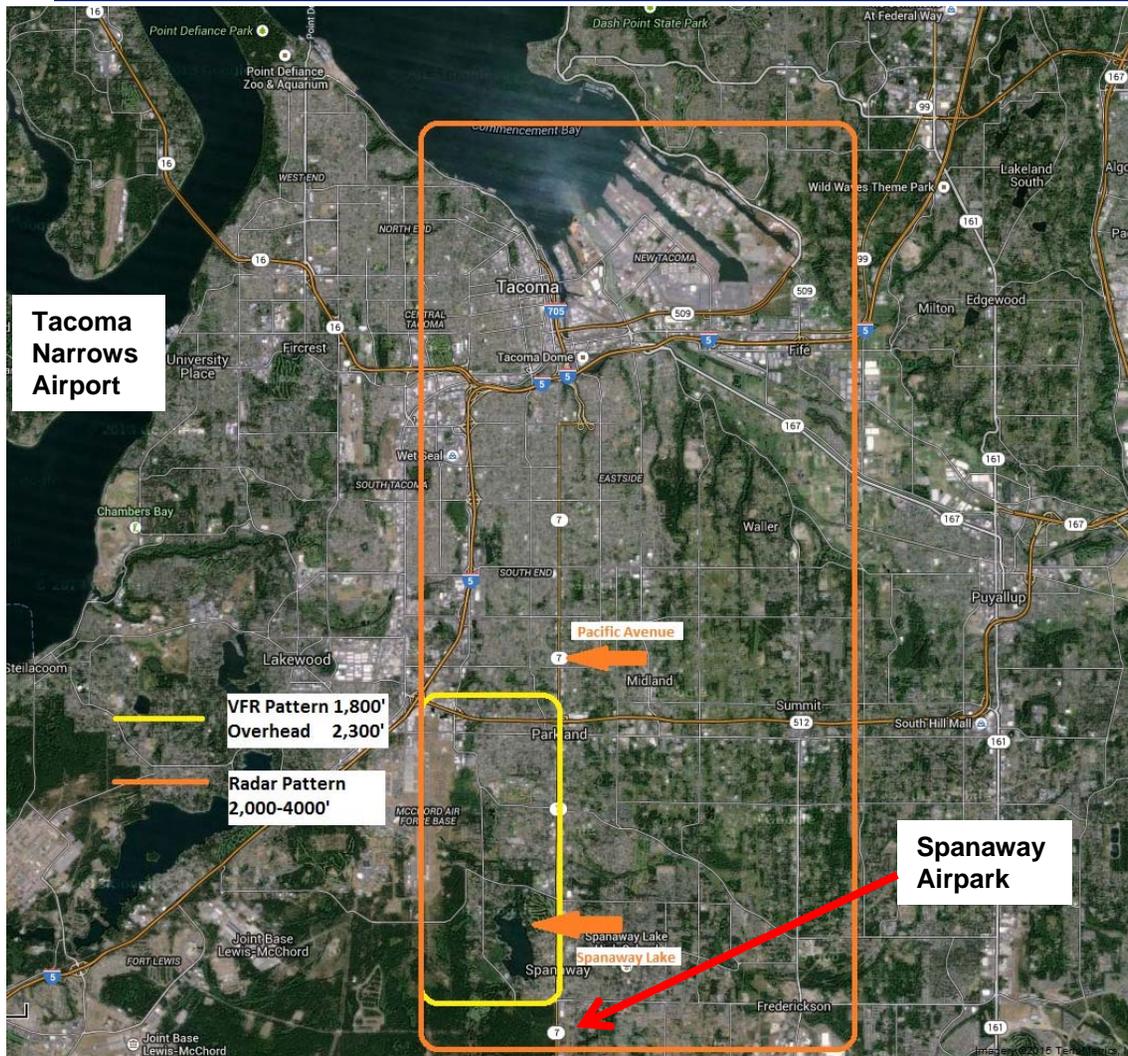


KC-135

Innovative Airmen...Airlift Excellence...Respect For All!



McChord Patterns



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

UNCLASSIFIED



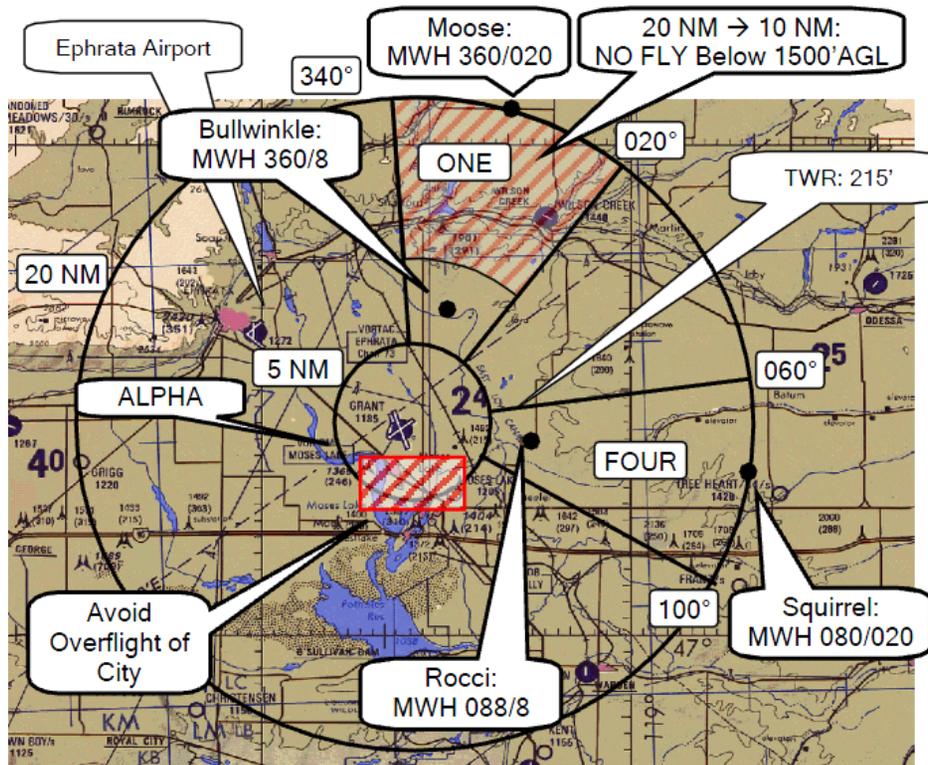
Grant County Ops



Innovative Airmen...Airlift Excellence...Respect For All!



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.

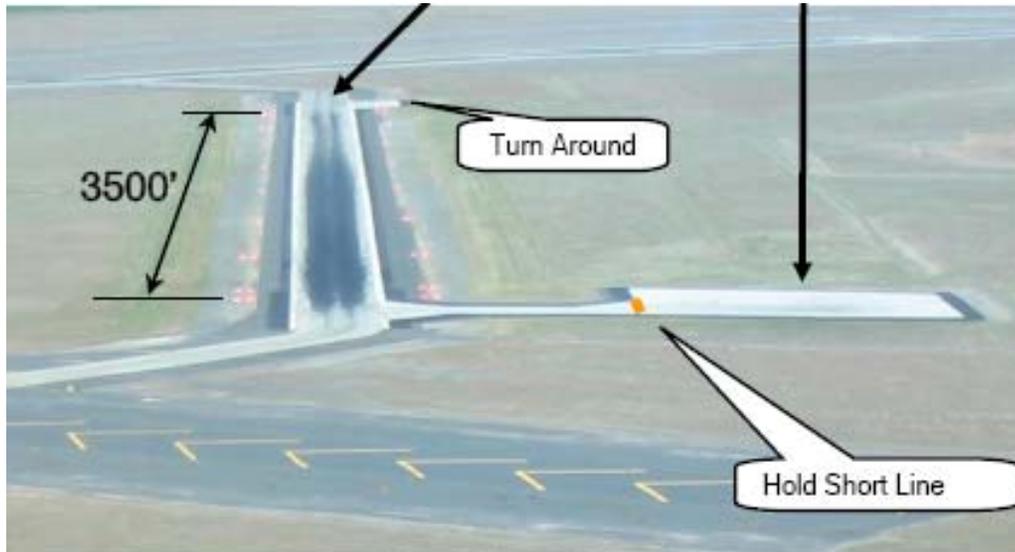
- "Moose" and "Squirrel" arrivals are not considered random approaches

VFR/OVHD Pattern

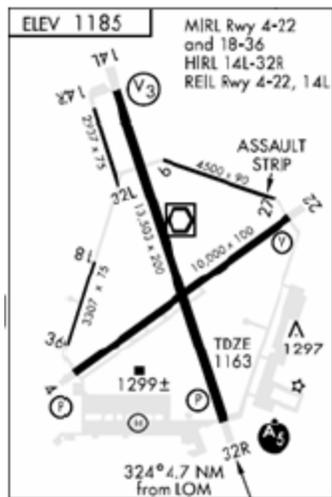
- 14L/32R 3000' MSL
- 9/27 3500' MSL (north pattern)
- OVHD: 4000' MSL



Assault Landings



Short Final Rwy 27



- What are they?
 - Spot landing (as short as 3500 ft runway)
 - Crews aim for 500 ft zone
 - Max braking/reverse thrust
 - Go around @300 ft if unstable
 - 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



After Hours



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





NVG Operations



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



UNCLASSIFIED



Airdrop!



Innovative Airmen...Airlift Excellence...Respect For All!



Watch out for the COHO!



- “Flock” of C-17s
- Could be 3 or more in non-standard formation
- Difficult to maneuver formation
- Wingmen sometimes not squawking





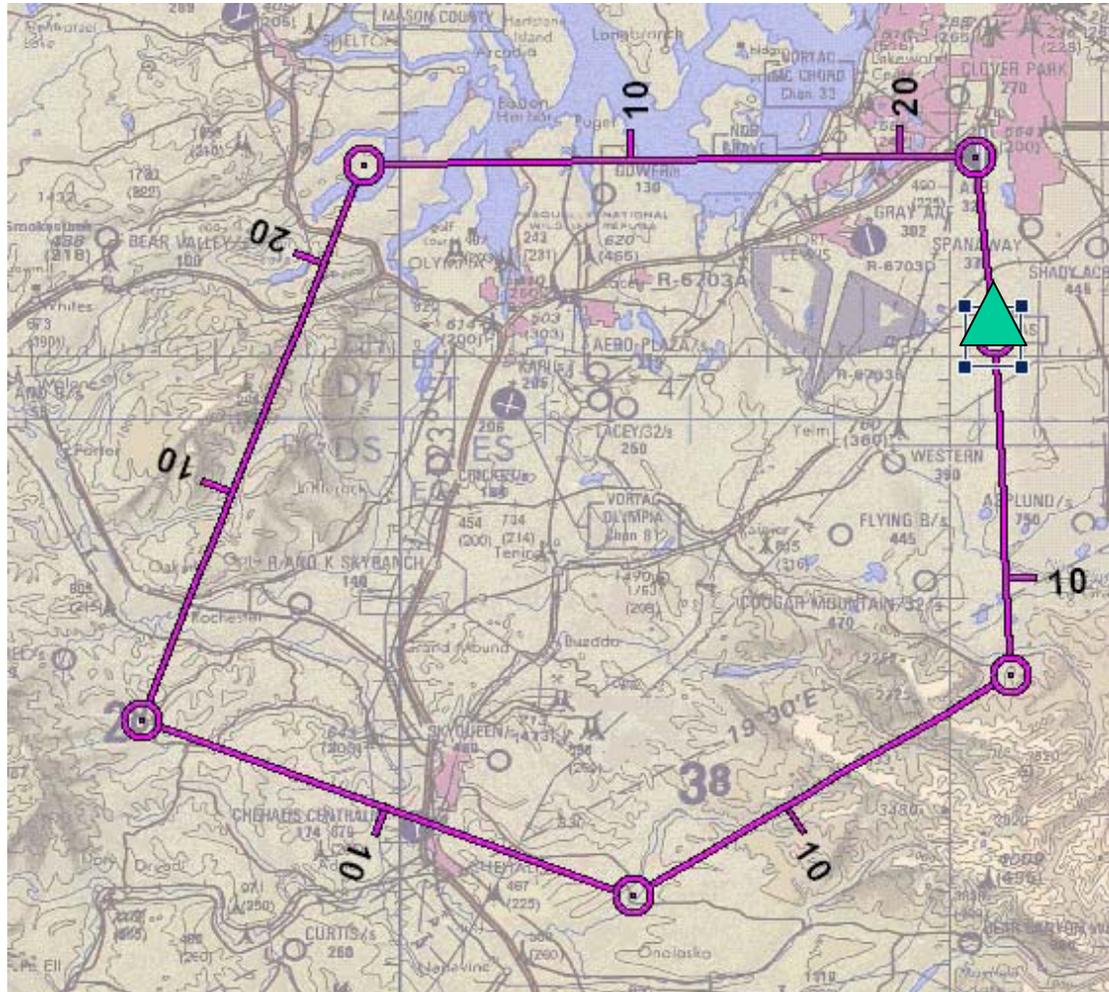
Rogers DZ



Just South of
Spanaway

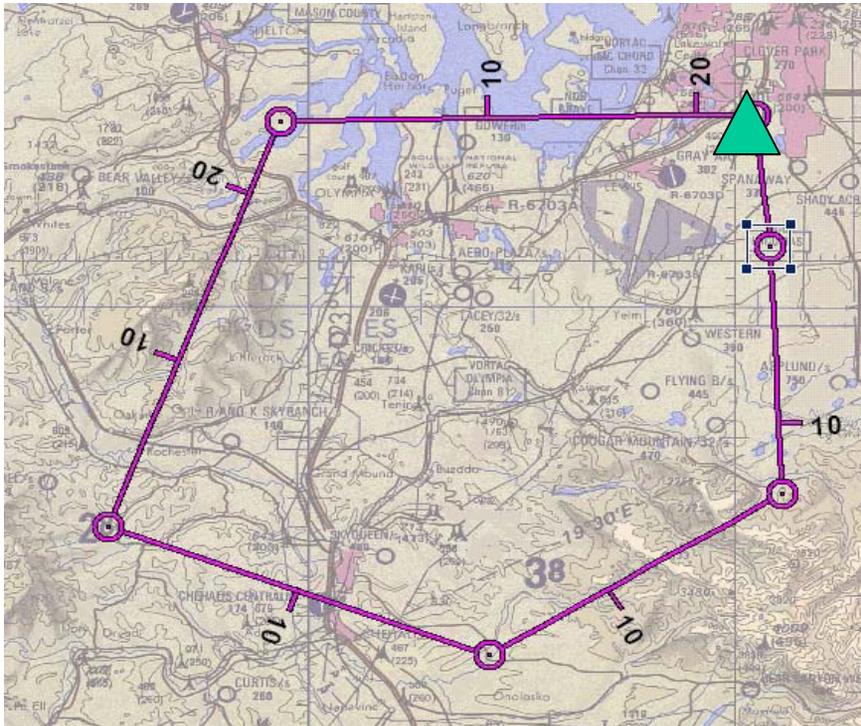
TCM
153/8

Route is
VFR (can
be IFR)





Crate/Farmers DZ

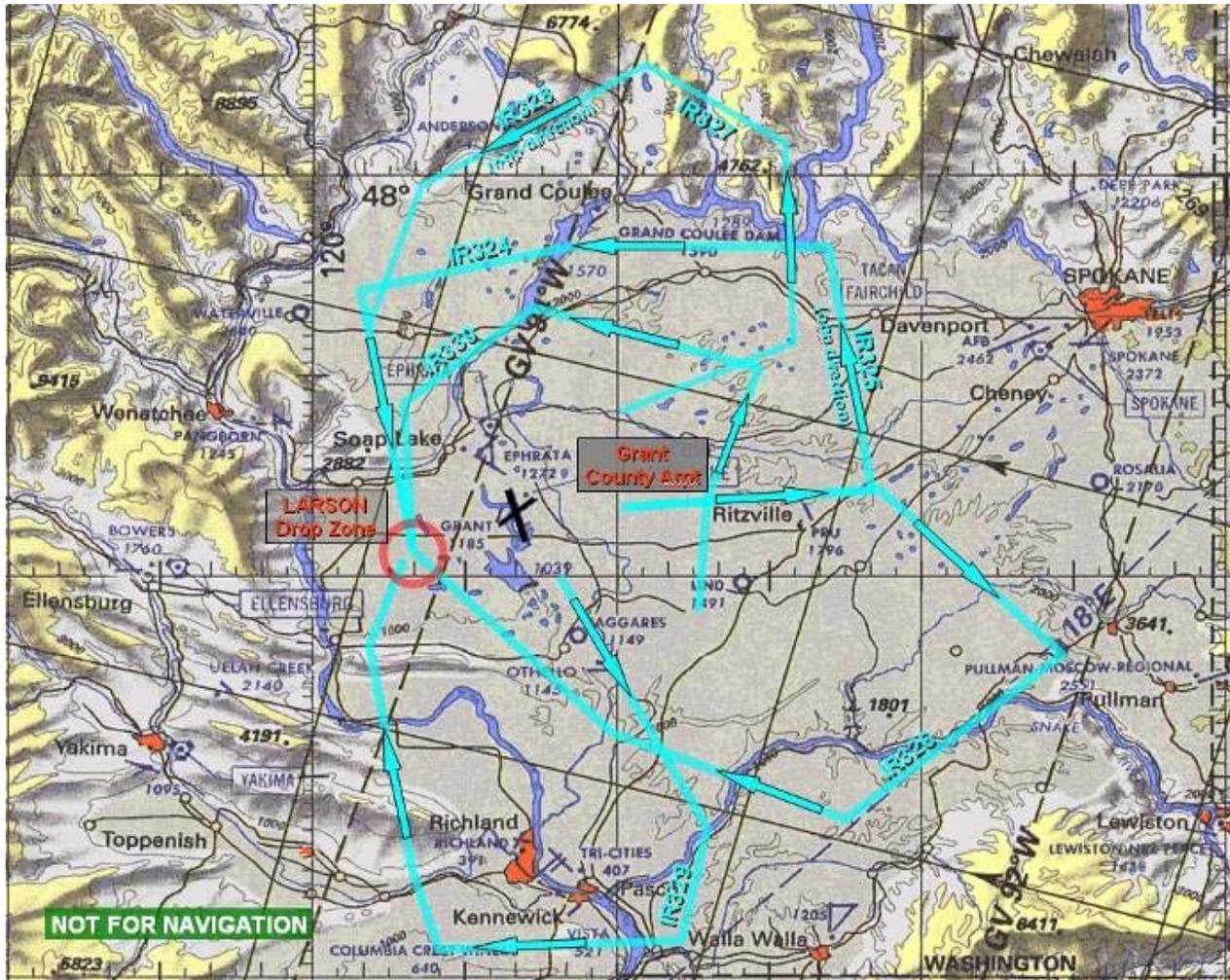


On McChord Field – drop static line or freefall jumpers between 1,000-18,000 feet with ATC coordination





KMWH Airdrop Routes



Innovative Airmen...Airlift Excellence...Respect For All!



Larson DZ



- Most Airdrop routes terminate at the 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

Respect For All!



Larson DZ HATR



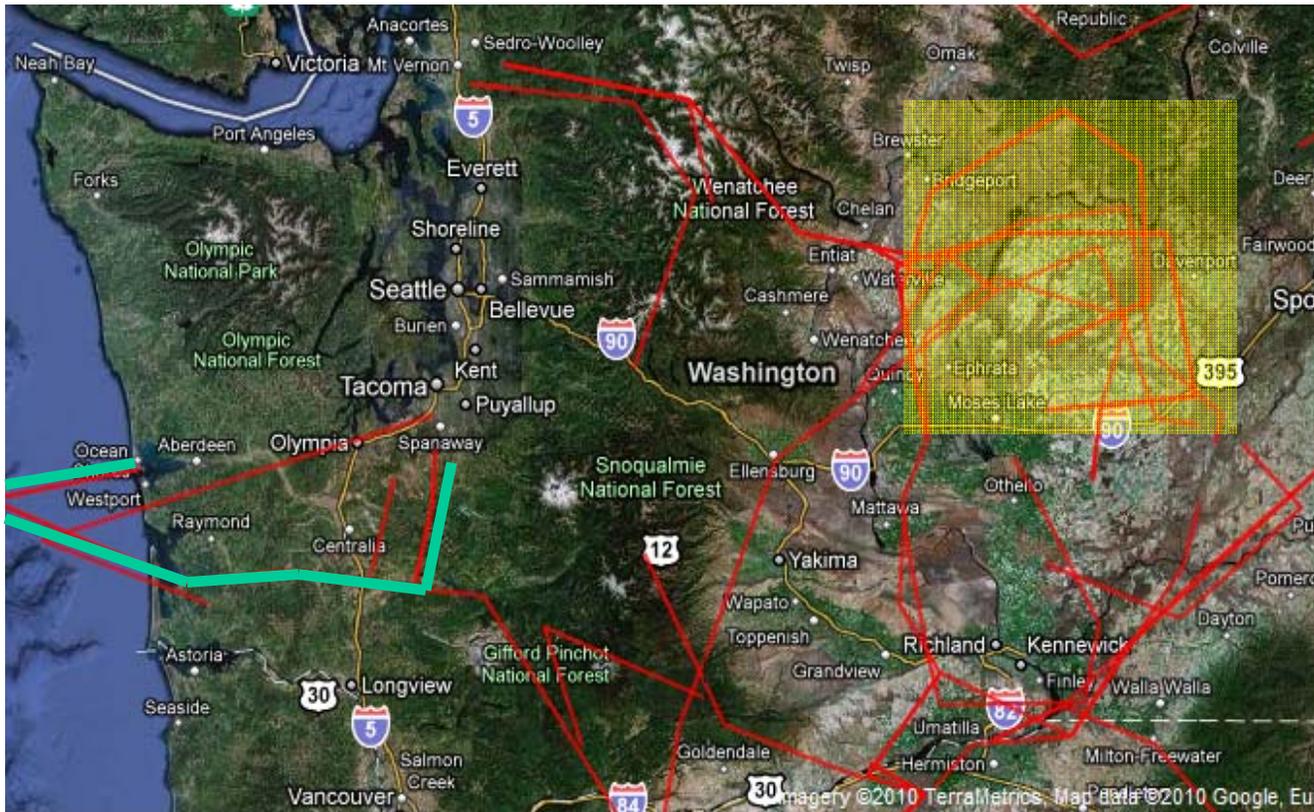
29 Nov 2011

“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



TRAINING ROUTES



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

Common Routes

- **IR 324 - IR 330**
- **VR 331**

UNCLASSIFIED



AMC RODEO 2015



Innovative Airmen...Airlift Excellence...Respect For All!

UNCLASSIFIED



Basic Overview



-
- **3-13 August 2015**
 - **Flying Competition 10-12 Aug 2015**
 - **41 Aircraft**
 - **C-17, C-130, C-5, KC-10, KC-135, A-400M, C-295**
 - **4 International Teams**
 - **Will receive local area orientation flights**
 - **Large Force Exercise 12 Aug 15**
 - **~35 aircraft military A/C operating simultaneously in central/west Wash airspace**

Innovative Airmen...Airlift Excellence...Respect For All!

UNCLASSIFIED



Gen Aviation Takeaway



-
- **KTCM airspace will be very busy 10-12 Aug!**
 - **Grant County Int'l airspace will also see increased usage**
 - **Multiple unpublished VFR routes and drops zones in use near the Yakima Training Center and Blue Mountains of southeast Wash**
 - **NOTAMS will be published that include daily start/end times and locations for increased military traffic at KTCM and KMWH**
 - **Large Force Exercise (12 Aug 15) will be extremely complex, operating in the areas of Tacoma, Spanaway, Puyallup, Olympia and Yelm**
 - **KTCM and nearby airspace will be in use by non-local and int'l aircrews that are new to GA airfields and common practices of the area**

Innovative Airmen...Airlift Excellence...Respect For All!



Mid-Air Collisions –why do they happen?



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.*



What C-17 pilots do to prevent mid-air



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

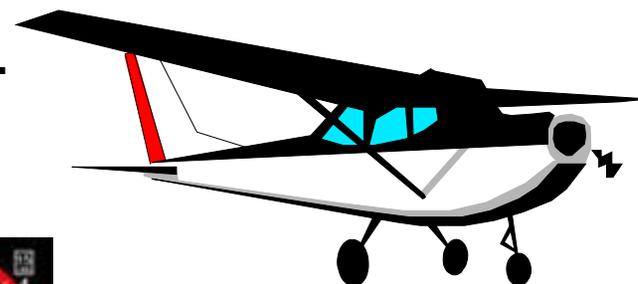




What you can do to prevent mid-air



- Avoid areas of greatest activity
 - Check status of MTRs and MOAs
- 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)
- **Don't get complacent!** Many midairs occur during periods of instruction and supervision. Instructors make mistakes too.
- Squawk!



UNCLASSIFIED



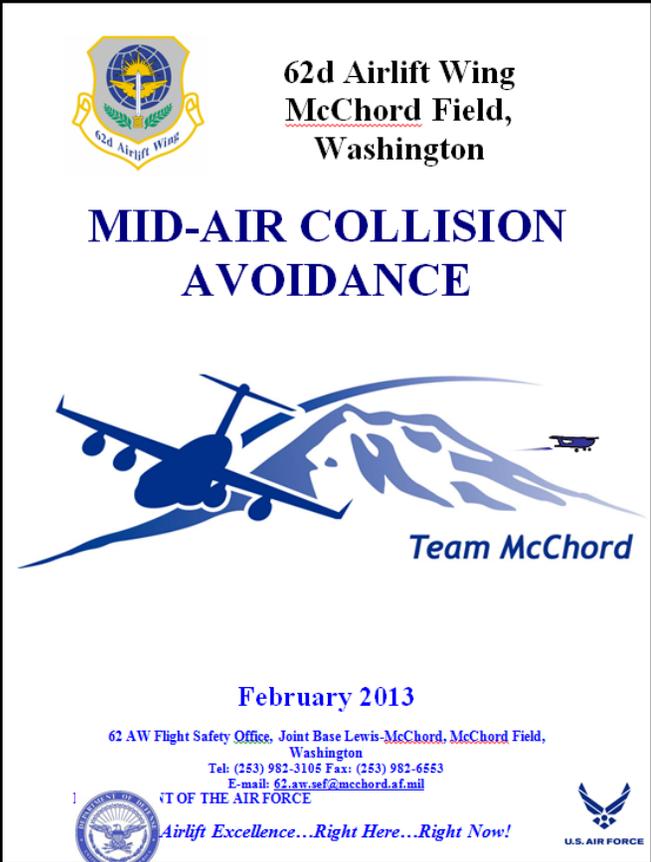
MACA Products



<http://www.62aw.af.mil/library/maca/>



Public Website
MACA Brochure
MACA Poster



The poster cover features the 62d Airlift Wing crest at the top left, followed by the text "62d Airlift Wing McChord Field, Washington". The main title "MID-AIR COLLISION AVOIDANCE" is centered in large, bold, blue letters. Below the title is the Team McChord logo, which includes a stylized aircraft and the text "Team McChord". At the bottom, it lists the date "February 2013" and contact information for the 62 AW Flight Safety Office, including the address, telephone number, and email address. The Department of the Air Force logo and the slogan "Airlift Excellence...Right Here...Right Now!" are also present, along with the U.S. Air Force logo.

62d Airlift Wing
McChord Field,
Washington

MID-AIR COLLISION
AVOIDANCE

Team McChord

February 2013

62 AW Flight Safety Office, Joint Base Lewis-McChord, McChord Field,
Washington
Tel: (253) 982-3105 Fax: (253) 982-6553
E-mail: 62_aw_saf@mcchord.af.mil

DEPARTMENT OF THE AIR FORCE
Airlift Excellence...Right Here...Right Now!

U.S. AIR FORCE

Innovative Airmen...Airlift Excellence...Respect For All!

UNCLASSIFIED



MID-AIR COLLISION AVOIDANCE



..BROUGHT TO YOU BY THE 62ND AIRLIFT WING SAFETY OFFICE
MCCHORD AIR FORCE BASE, WA (KTCM)



DID YOU KNOW....

Q: Where do near mid-air collisions occur most?
A: **65%** nearby airports
15% on low-level training routes
10% in military operating areas

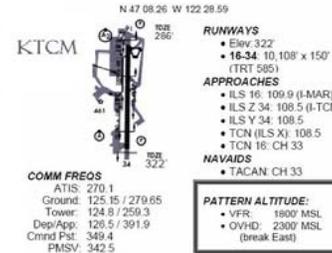
You can see that the "big sky" theory is not always the best approach in our saturated airspace. You need to know where the "threat" is and how to scan for traffic conflicts. Take a look at the material we've provided, and the images of the areas where our aircraft conduct their primary training. Keep a lookout for us and we'll do the same, because as the saying goes, "one midair will run your whole day."

Let's all have a good day!

MCCHORD AFB AIRSPACE AND NEIGHBORING AIRFIELDS



McChord AFB is designated **Class D** airspace underlying Seattle-Tacoma's Class B. Every aircraft must have Mode C transponders operating within 30 miles of SeaTac, as well as be in radio contact with McChord's **Tower** to cross its airspace (VHF 124.5). Crossings are not a problem as long as they are coordinated! McChord traffic is usually between **1,300' MSL and 2,300' MSL** when in the tower pattern.



McChord AFB does not have a dedicated military radar approach control facility. To use approach control radar service, and to hear IFR and participating VFR traffic, contact **Seattle Approach control on 126.5**. Our aircraft operate between **3,000' MSL and 4,000' MSL** when under radar vectors.

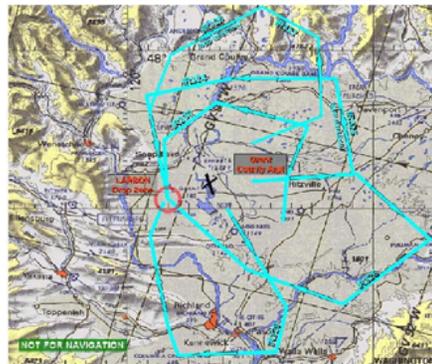


At various times of the day and night you may see up to **nine** of our large aircraft in formation at your altitude on these routes.

COLLISION AVOIDANCE TIPS

1. Climb steadily for other aircraft, both visually and over the radio.
2. Obtain an IFR clearance or participate in radar flight following when possible, and always use your Mode C transponder.
3. Use landing lights at lower altitudes, especially when near airports.
4. Approve your intention on UNICOM and use standard traffic pattern procedures at uncontrolled airfields.
5. Keep your windows and windscreen clean and clear. A bug on the windscreen can obstruct aircraft coming your way.
6. Beware of wake turbulence. Especially watch out for heavy aircraft.
7. Don't get complacent during instructor/instructor make mistakes too. Many mid-air collisions occur during periods of instruction or supervision.
8. Understand the limitations of your eyes and use proper visual scanning techniques. If another aircraft appears to have no relative motion but is increasing in size, it is on a collision course with you.
9. There is no guarantee that everyone is flying by the rules or that everyone is where they are supposed to be. Clear before and during all climbs, descents, and turns. **SEE AND BE SEEN!**

COMMON LOW LEVEL ROUTES



Pilots should be especially alert for C-17 jet traffic when flying within **15 nautical miles** of McChord AFB.

- Training is conducted **24 hours a day** throughout the year.
- While conducting night vision goggle training, McChord's airfield will be **blacked out** (covert lighting) while our aircraft are still operating on it.
- When in the local area, you can expect to see our aircraft frequently at altitudes of **4,000 ft MSL** and below conducting visual and instrument procedures.

MILITARY TRAINING ROUTE AWARENESS

1. While flight planning, carefully check charts for the presence of MTRs and avoid them if possible.
2. Since only the route centerline of an MTR is depicted on sectional charts, military aircraft may be miles on either side of centerline within the route corridor. Be especially vigilant anywhere near a charted route centerline.
3. Contact the nearest Flight Services Station for planned military activity along a route.
4. Operate through an MTR above 1,500 feet AGL (verify its operating altitudes based on three or four digit identifier).
5. Cross an MTR at 90 degrees to minimize time spent within the route.
6. If you see a military aircraft, assume he does not see you. Take action to avoid coming within 500 feet of the aircraft.

QUESTIONS? PLEASE CONTACT:

McChord AFB Flight Safety - (253) 982-3105
McChord AFB Airfield Operations - (253) 982-5215
Seattle, WA Flight Standards District Office (425) 287-2813
McChord AFB Flight Safety: 62AW.SEF@MCCHORD.AF.MIL

Poster distributed to Local civilian Airfields:

- Tacoma Narrows
- Spanaway Airpark
- Thun Field
- Boeing Field
- Auburn Muni

Includes:
Local airspace
KTCM airfield information
Low level routes and busy areas
C-17 ops and info
Collision avoidance tips
Safety contact numbers

Innov

All!

UNCLASSIFIED



THANK YOU!!!

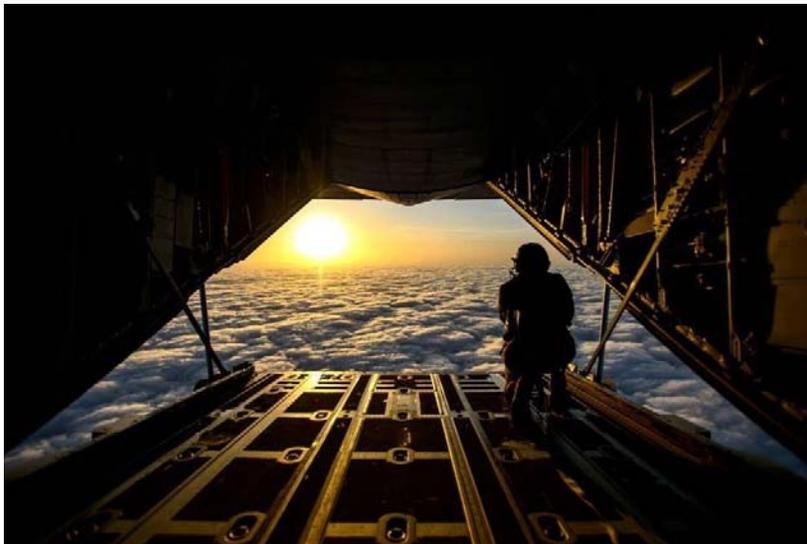
Innovative Airmen...Airlift Excellence...Respect For All!



Why are we here?



- Brief overview of local C-17 operations
- Present MACA topics shared with general aviation pilots
- Cross-talk to understand Boeing flight operations



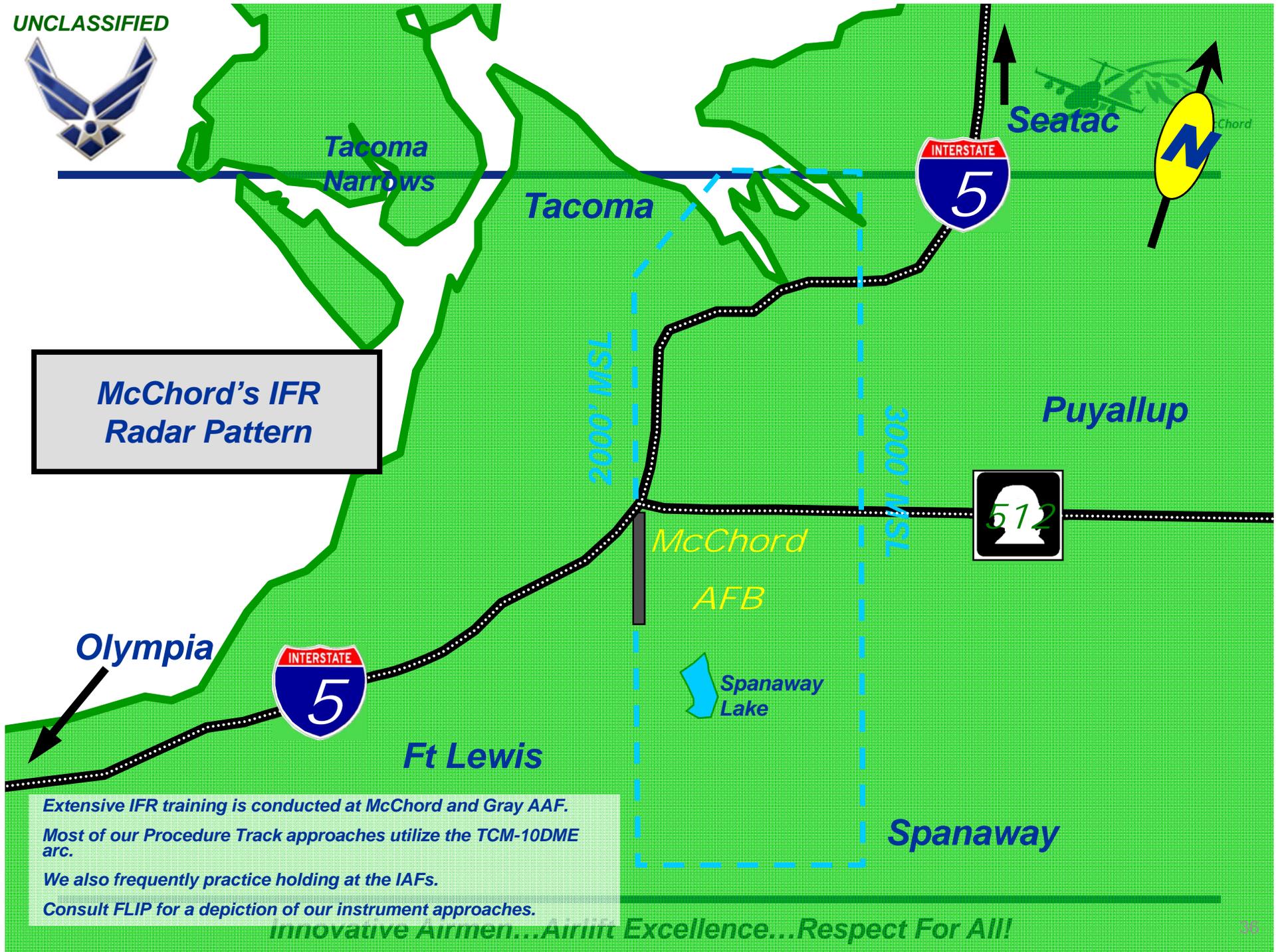


LOCAL FLYING AREA



-
- **Airspace Issues: congested airspace west of Mt Rainier**
 - **One active civilian airport w/in McChord's Class D airspace**
 - **Civilian aircraft occasionally fly through McChord approach corridor**
 - **McChord's Class D adjacent to Gray AAF's Class D**
 - **Limited airspace between Olympic mountain range to west and Cascade mountain range to east**
 - **Be vigilant for light aircraft, parachutists, and paragliders**
 - **Most pattern work accomplished at Grant County (Moses Lake) airport**
 - **Check MACA briefing at 62 AW/SE website for more detail**
 - **<http://www.62aw.af.mil/library/maca>**

UNCLASSIFIED



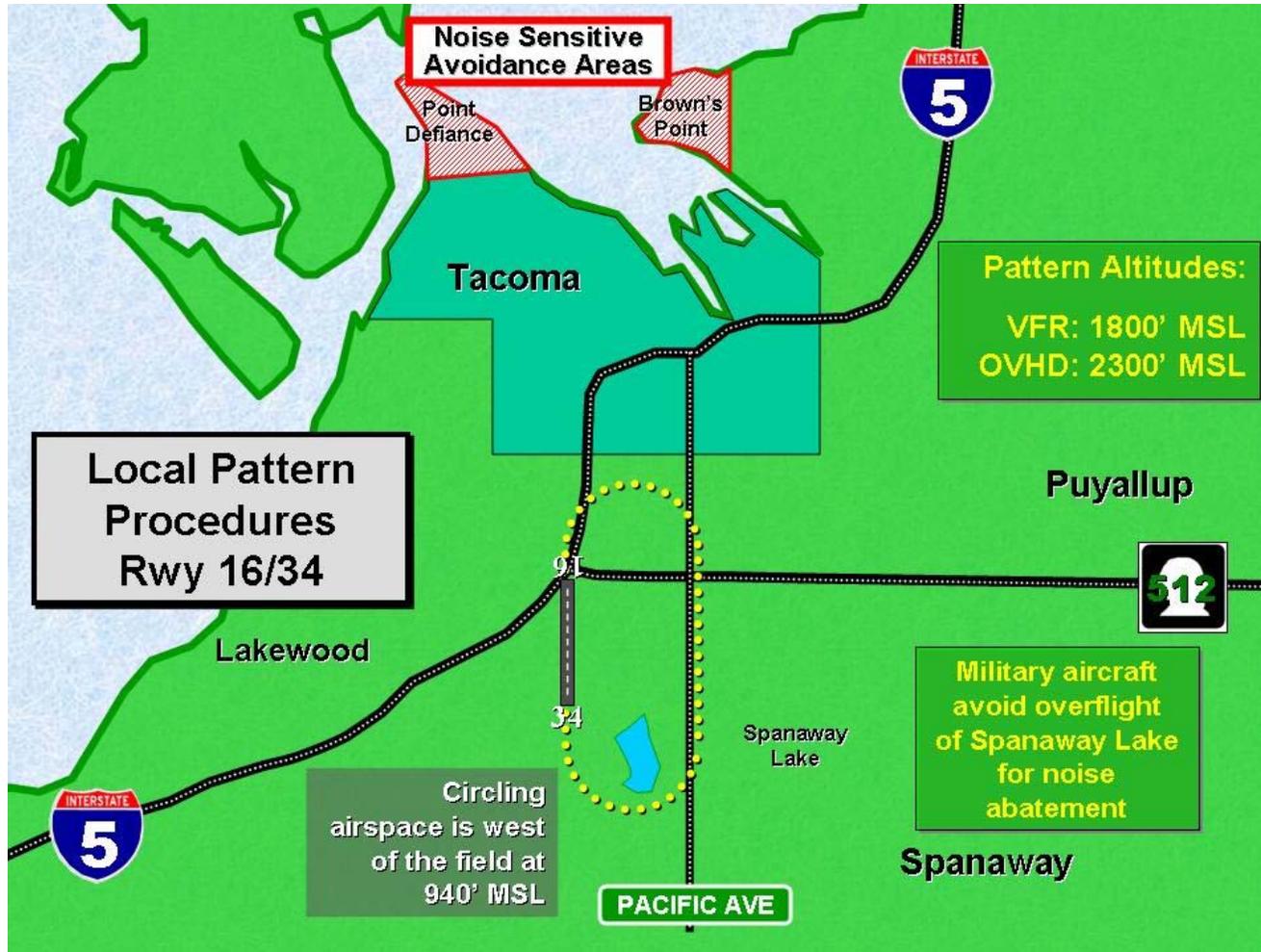
McChord's IFR Radar Pattern

Extensive IFR training is conducted at McChord and Gray AAF.
 Most of our Procedure Track approaches utilize the TCM-10DME arc.
 We also frequently practice holding at the IAFs.
 Consult FLIP for a depiction of our instrument approaches.

Innovative Airmen...Aircraft Excellence...Respect For All!



McChord "Closed" Pattern





What you can do to help



- **Be Aware**
 - **Inform yourself about local area specifics on Mid-Air Collision Avoidance**
 - **Know areas that have high volume of traffic and operations**
- **Read and heed instructions**
- **<http://public.mcchord.amc.af.mil/library/maca/index.asp>**