

Headquarters U.S. Air Force

Integrity - Service - Excellence

Remotely Operated Aircraft Operations in the National Airspace System



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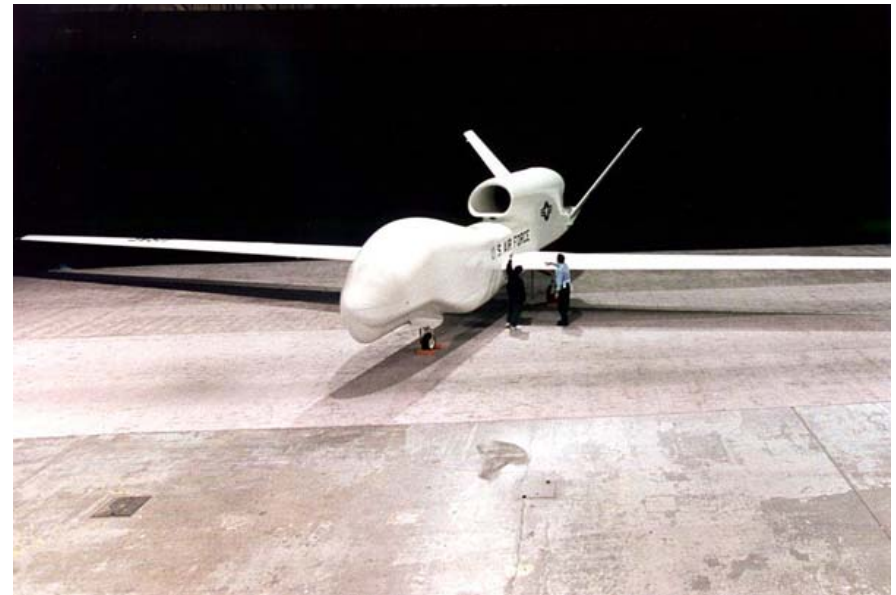
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Overview

- **Past Guidance**
- **ROA Airspace Requirements**
- **Current Guidance**
- **Pending Guidance**
- **Conclusion**





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PAST GUIDANCE

- **Within Positive Control Airspace**
- **Within Restricted Areas**
- **Within Warning Areas**

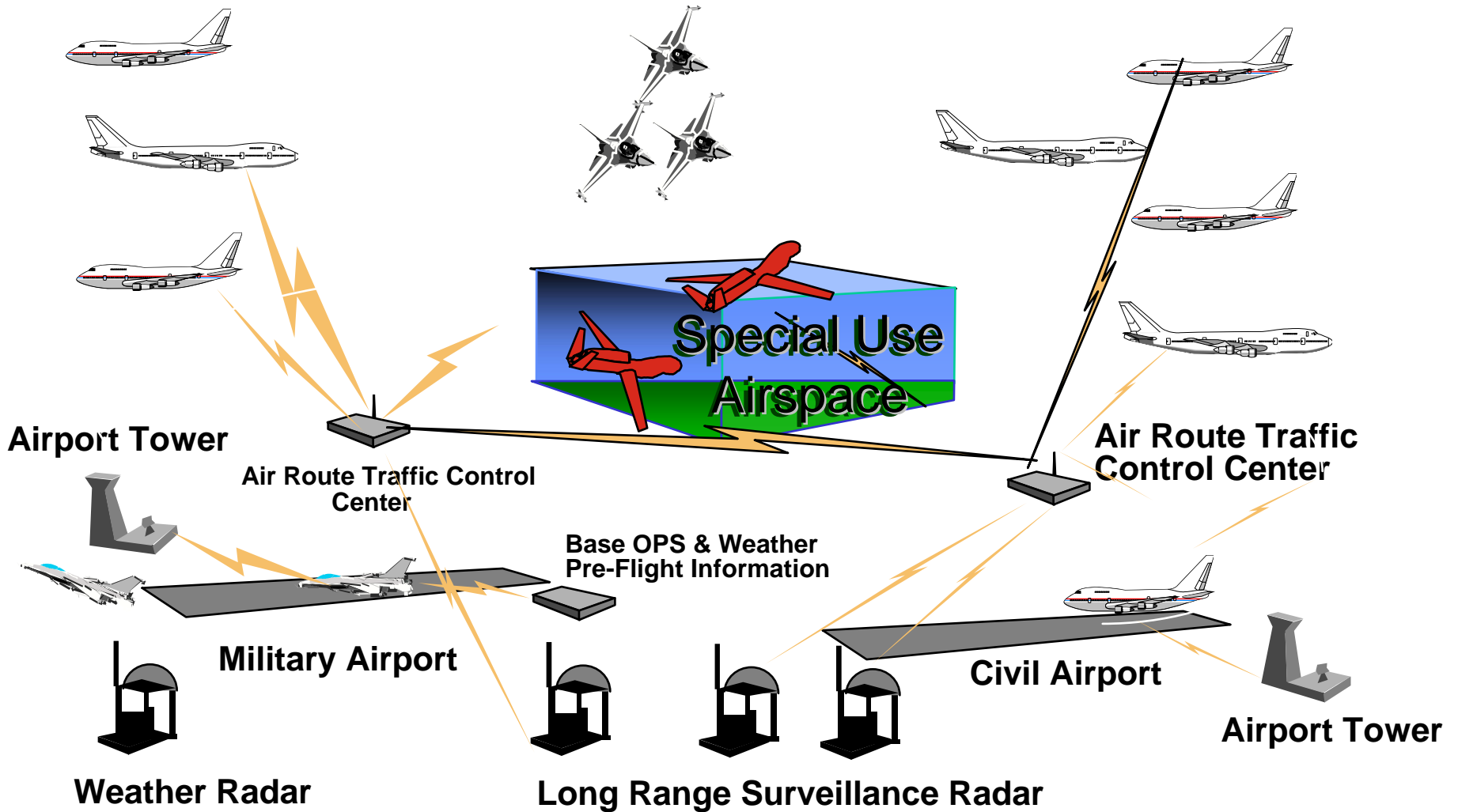


- **Requires approval from Appropriate FAA Region**



Airspace Requirements

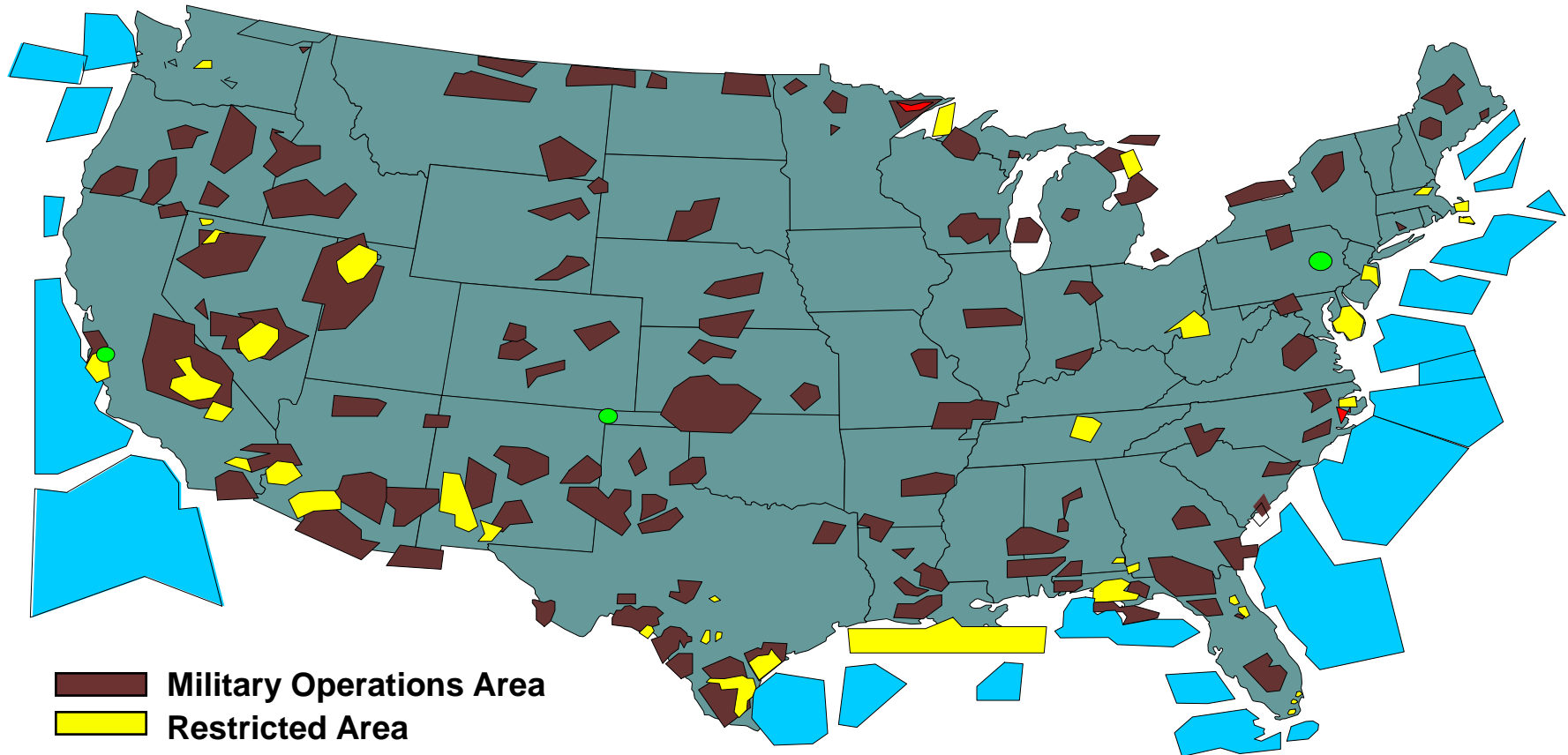
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Special Use Airspace



-  Military Operations Area
-  Restricted Area
-  Warning Area
-  Prohibited Area

- Over 900 areas
- Real time use emphasized

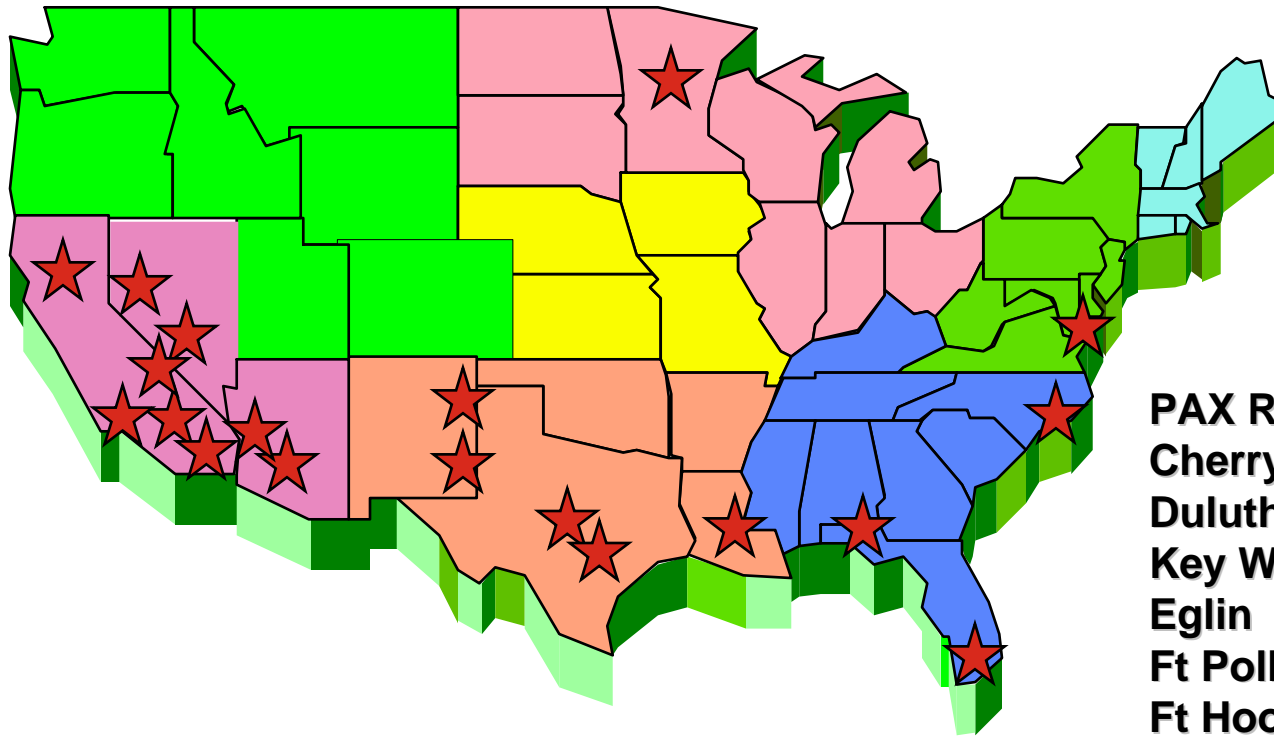


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Current Operational Locations

FAA Regions

White Sands
Ft Sumner
Ft Huachuca
Yuma
China Lake
El Mirage
29 Palms
Ft Irwin
Edwards
Fallon
Indian Springs



PAX River
Cherry Point
Duluth
Key West
Eglin
Ft Polk
Ft Hood
Hondo TX

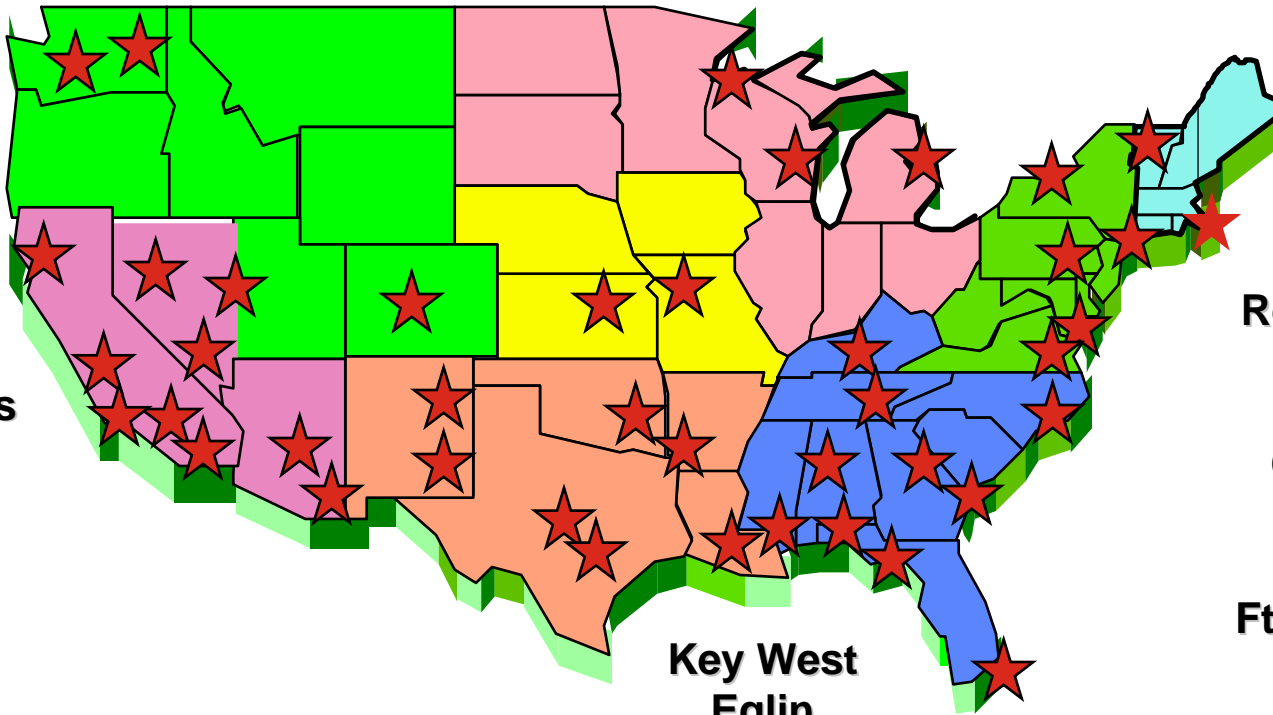


Future Operational Locations

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FAA Regions

White Sands
 Ft Sumner
 Ft Huachuca
 Yuma
 China Lake
 El Mirage
 29 Palms
 Ft Irwin
 Edwards
 Fallon
 Indian Springs
 Ft Lewis
 Yakima
 Dugway
 Ft Carson
 Ft Riley
 Ft Sill
 Ft Hood
 Hondo TX



Key West
 Eglin
 Pensacola
 Tyndall

PAX River
 Cherry Point
 Duluth
 Ft Mc Coy
 Leonard Wood
 Camp Shelby
 Ft Rucker
 Ft Benning
 Redstone Arsenal
 Ft Campbell
 Ft Knox
 Camp Grayling
 Ft Drum
 Camp Otis
 Ft Indiantown Gap
 Ft Bragg
 Ft AP Hill
 Ft Ethan Allen
 Ft Polk



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Current Guidance

- **FAA and DoD agreed to new guidance (7610.4)**
 - **Classifies ROAs as aircraft for NAS operations**
 - **Includes equipment and operational requirements**
 - **Must comply with aircraft requirements for Class of Airspace**
 - **Transponder, 2-way Radio Communication**



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Pending AF Guidance

- **★2.1.3. Publications.** The PIC will ensure current copies of the appropriate FLIP... are on the aircraft or immediately available in the ROA ground station.

- **★2.5. Prohibitions.** The following prohibitions apply to each passenger and crewmember aboard an Air Force aircraft: (Until engineering evaluations are complete the provisions of paragraph 2.5 apply to ROA ground segments including the control element and all associated communication facilities)

- **★2.5.4. Foreign Object Damage (FOD) Hazards.** MAJCOMs will provide guidance on the wearing of wigs... in the aircraft, ROA ground segment, and on the flight line. Procedures must ensure crewmembers and passengers wearing these items do not create a FOD hazard.



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Pending AF Guidance

- **★2.6.1. Flight Instrumentation.** Primary flight instrumentation must provide full-time display of attitude, altitude, and airspeed information and the capability to recognize, confirm, and recover from unusual attitudes. Information must be positioned and arranged in a manner enabling an effective pilot crosscheck. (For the purposes of this regulation the term “cockpit” includes ROA ground control stations)

- **★2.6.1.1.7. Complete Fault Indications (Off Flags) to include lost communication links for ROAs**

- **★5.1.6. Crew at their Stations.** ROA crewmembers shall not leave their duty station unless another qualified pilot is in the ground control station and the new pilot establishes control of the aircraft.



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Pending AF Guidance

- **★5.1.6.1.** While operating, each ROA shall have its own dedicated pilot controlling/monitoring its flight.
- **★8.3.3.3.** ROA Weather Requirements. MAJCOMs will determine ROA weather limit requirements based on aircraft equipage, level of autonomy and crew capabilities.
- **★9.4.6.2.** FDP for ROA operations ends at engine shut down or on completion of an in-flight handover briefing.
- **★Remotely Operated Aircraft.** An aircraft designed or modified not to carry a human pilot and is operated through remote or self-contained autonomous control. As an aircraft an ROA must meet all applicable standards required of a manned aircraft.



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Conclusion

- **Ultimate goal: Easier Airspace Access**
- **Current movement toward defining procedures is important step**
- **Proven *safety record* will lead to goal**
 - **The more we meet accepted standards (i.e. 1787) the safer the aircraft will be.**

***When it acts like, looks like,
smells like, and tastes like an
aircraft..it will have access
like an aircraft.***

