



WESTERN REGIONAL PARTNERSHIP

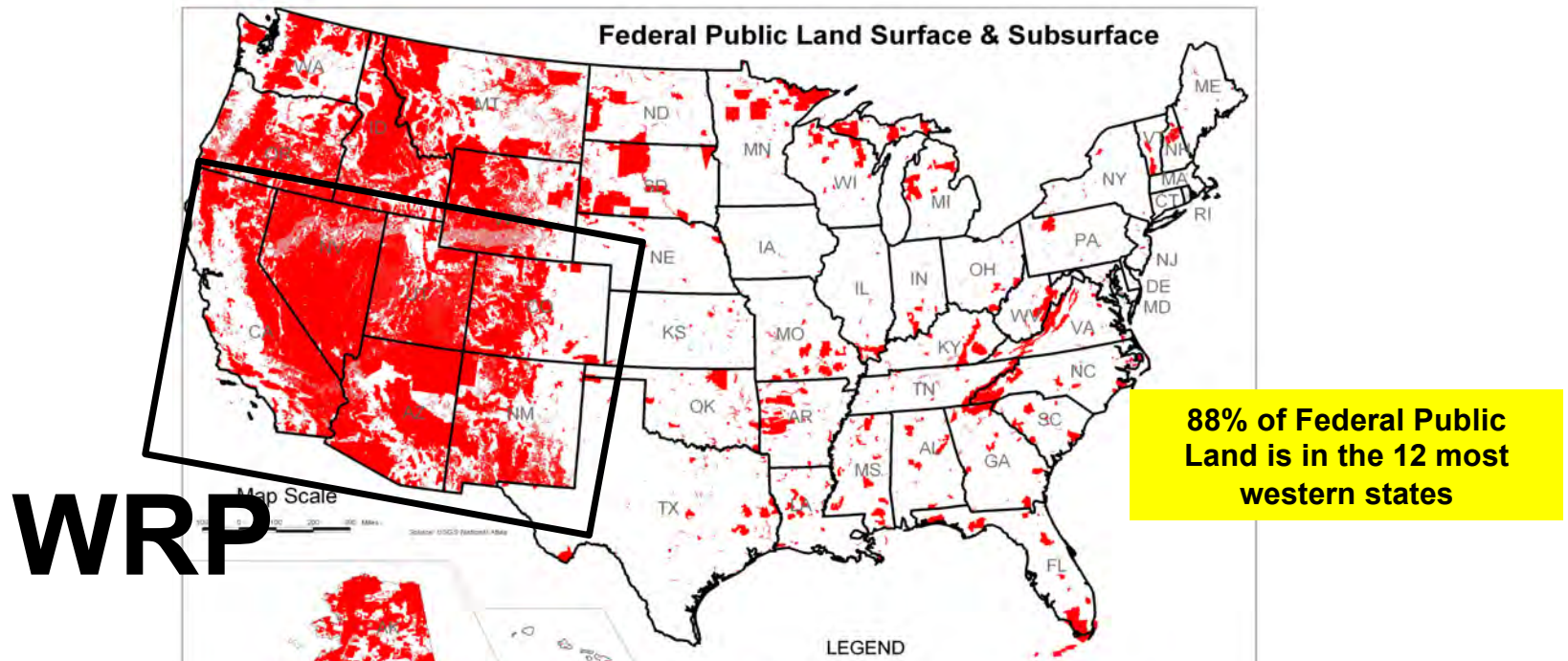
# Welcome to the WRP MRHSDP&A Webinar on 2019 Aviation Trends and Updates

- We look forward to your input on this webinar
- Please be sure your phone is on mute (and not hold)
  - This will ensure we will not have noise distractions on the webinar (such as beeps, other conversations, etc.)
- Please let us know if you have any questions or comments by using the chat box

**WRPINFO.ORG**

# WRP Mission

WRP provides a proactive and collaborative framework for **senior-policy level Federal, State and Tribal leadership** to identify common goals and emerging issues in the states of **Arizona, California, Colorado, Nevada, New Mexico and Utah** and to develop solutions that support WRP Partners and protect natural and cultural resources, while promoting sustainability, homeland security and military readiness.



# WRP Region's Uniqueness

- **Importance to the Military**
  - Extensive Training Ranges, Premier Testing Facilities, Unmatched Military Air Space
    - **Army:** ~55% of the Army's landholdings
    - **Navy:** Over 33% of Navy's landholdings
    - **Marine Corps:** 67% of Marine Corps' airspace  
85% of Marine Corps' Live Fire Ranges
    - **Air Force:** Includes four of the largest USAF range complexes - Edwards, Nellis/Creech/NTTR; Luke/Goldwater; and UTTR
    - 75% of DoD Special Use Airspace is located within the WRP Region
- **Significant amounts of Federally managed land**
  - In WRP states, Federal land ranges from 34.1% - 84.9% of total state
- **Significant State Trust Landholdings**
- **Approximately 172 Federally recognized Tribes**

State	% of Federal Public Land (not including DoD managed lands)	% of DoD Managed Land	% of Indian Trust Land	Private Land	State Trust Land	Size of State in square miles and ranking by area
Arizona	35.5%	6.6%	27.6%	17.5%	12.7%	114,000; 6 <sup>th</sup> largest state
California	40.2%	4.0%	0.5%	50.3%	2.5%	160,000; 3 <sup>rd</sup> largest state
Colorado	38.9%	0.7%	1.1%	54.9%	4.4%	104,100; 8 <sup>th</sup> largest state
Nevada	78.8%	6.1%	1.42%	13.03%	0.15%	110,561; 7 <sup>th</sup> largest state
New Mexico	29.7%	4.4%	10.2%	43.9%	11.6%	121, 593; 5 <sup>th</sup> largest state
Utah	63.6%	3.4%	4.5%	21.0%	7.5%	84,904; 13 <sup>th</sup> largest state

**These six states are home to 18% of the U.S. Population and constitute 19% of the total land mass.**



# WRP Structure

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## WRP Co-Chairs:



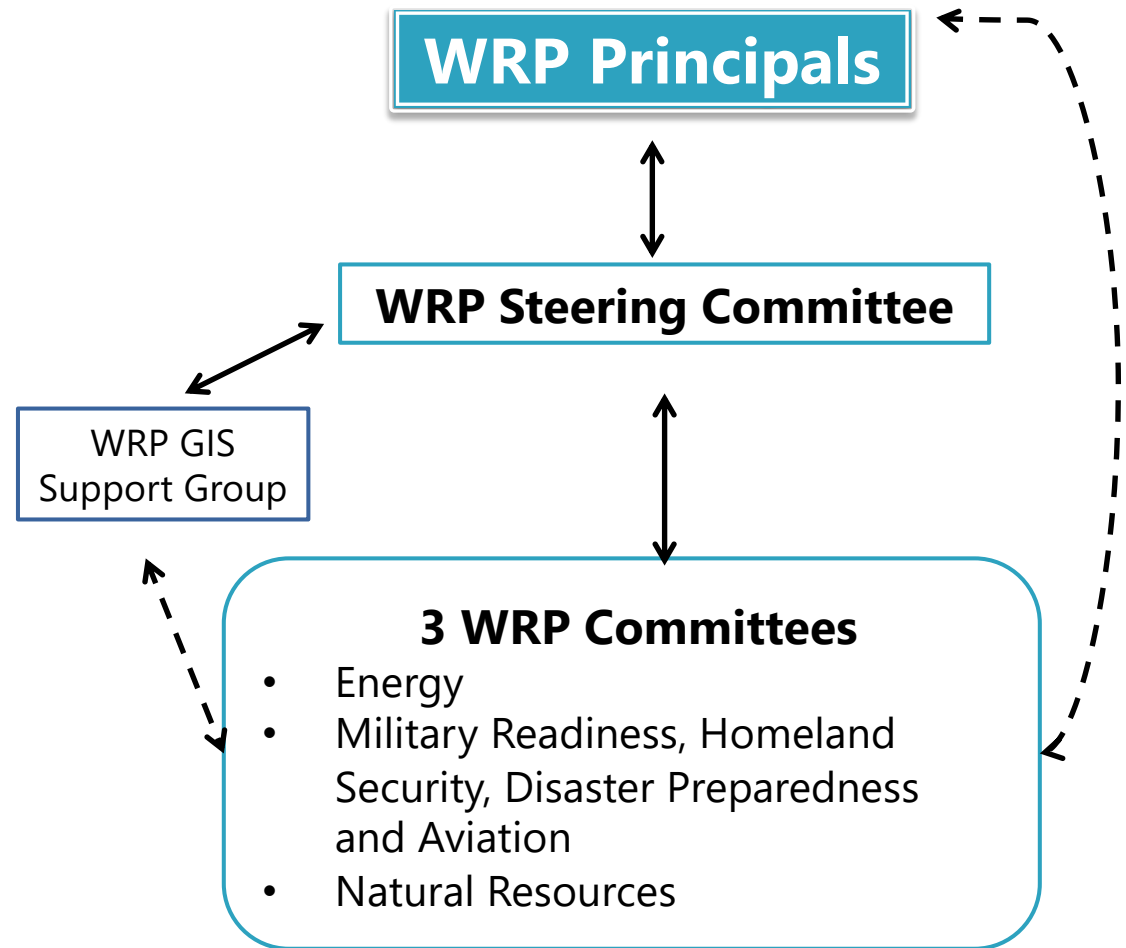
**Honorable Gary Herbert**  
Governor of Utah



**Joe Balash**, Assistant Secretary for Land and Minerals Management, DOI



**Robert McMahon**  
Assistant Secretary of Defense for Sustainment



# WRP Steering Committee



- Representatives of each of the six WRP States:
  - Arizona, California, Colorado, Nevada, New Mexico and Utah
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Customs and Border Protection, U.S. Border Patrol
- Department of Homeland Security, HQ
- Federal Aviation Administration
- Federal Emergency Management Agency
- Federal Highway Administration
- National Park Service
- Natural Resources Conservation Service
- National Oceanic and Atmospheric Administration
- Office of Secretary of Defense
- U.S. Air Force Headquarters
- U.S. Army
- U.S. Army Corps of Engineers
- U.S. Department of Energy
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- U. S. Geological Survey
- U.S. Marine Corps Installations West
- U.S. Navy
- Native American Leadership:
  - Navajo Nation, Inter-Tribal Council of CA, Inc.
- Western Governors Association Liaison

# WRP MRHSDP&A Committee Co-Chairs

- **Major Julio "J-Lo" Gonzalez**, Director of Aviation Operations, Marine Corps Installations West
- **Conor McClintock**, Regional Disaster Analyst, FEMA Region VIII, Office of the Regional Administrator
- **Kevin Moody**, Ecologist, FHWA
- **Connie Reitman**, Tribal Subject Matter Expert, F. Hogan Institute on Cultural Studies
- **Kim Stevens**, Publisher of the State Aviation Journal
- **Julie Valentine**, Senior Advisor - SW Border, Bureau of Land Management

# 2018-2019 WRP Priority

## *Advancing Compatible Planning in the West for America's Defense, Energy, Environment and Infrastructure through Enhancing Collaboration among Federal, State and Tribal Entities*


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Developed based on Committee and Working Group outcomes, SC input and Resolutions. Priority represents consensus input.

### **Statement of Purpose:**

- Agencies are streamlining planning processes (including environmental reviews and permits); more imperative to understand the new processes and collaborative engagement practices
- By working together, WRP Partners will develop best practices and models for improved planning collaboration

### **Expected Product:**

- Identification of projects, policies and plans on which to focus WRP efforts, establish mutually accepted actions and priorities with clearly identified metrics to show progress
  - Strategies (narrative) to encourage and highlight planning best practices and models to avoid mission conflict
  - Map product highlighting areas of mission overlap to drive greater collaboration among Partners
- 


# **MRHSDP&A Committee Next Steps in support of WRP Priority**

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Deep dive into three main items; looking for projects, policies and plans relating to:

1. All hazards disaster response
2. Compatible planning with the military to support military requirements (National Defense Strategy, latest DoD policies and threats impacting the mission)
3. Latest UAS trends

Will identify best practices actually deployed to address compatible planning. Committee working group calls to be held to get further input; welcome your involvement.

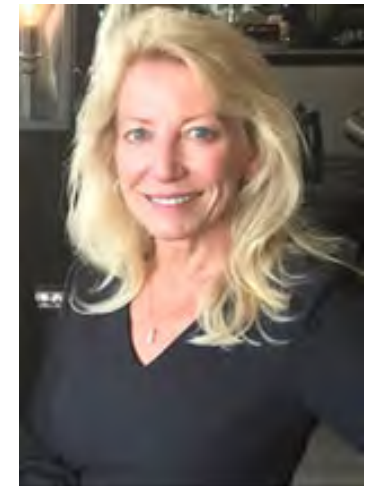


# **WRP MRHSDP&A Webinar on 2019 Aviation Trends and Updates**

- **Tamara Swann, Deputy Regional Administrator, FAA Western-Pacific Region**
  - *Region encompasses four states AZ, CA, HA and NV and three U.S. territories and includes four of the nation's ten busiest airports.*
- **Shelly S. Simi, President & CEO, National Association of State Aviation Officials**
  - *Will Provide state perspective in aviation as well as states' interests in drones (trends, gaps, emergency trends, items to consider, etc.)*
- **Mark L Bathrick, Director, U.S. Department's Office of Aviation Services**
  - *Will share current efforts and aviation safety priorities including working with drones.*
- **Jamie Flanders, GS-13, DAF, Airspace Manager, NGB/A2/3/6/10TA**
  - *Will provide outcomes from the 2019 Western Service Area Regional Airspace Council Meeting which focuses on military and civilian uses of military training airspace within the FAA's Western Service Area.*
- **Dennis W. Brown, Senior Chief of Aviation, CAL FIRE, Aviation Management Unit**
  - *Will share his thoughts on aviation firefighting in 2019 with focus on trends, gaps and partnerships to address fires.*
- **Major Julio "J-Lo" Gonzalez, Director of Aviation, Regional Airspace Coordinator, Air Traffic Control Type Commander, Marine Corps Installations-West**
  - *Will share the latest efforts by the MCI-West to use UAVs.*



# Tamara Swann



- **Deputy Regional Administrator, Western-Pacific Region**
  - Served since February 2015
  - Provides FAA leadership in cross-organizational matters; regional oversight, including daily operations and regional aviation activities (e.g., emergency planning, runway safety governance, Air Tour Management Program, and the Las Vegas Metroplex outreach efforts) and represents the FAA with industry, public and governmental organizations.
- **Over 30 years of aviation experience**
  - Previously, Safety Analysis and Evaluation Branch Manager, Flight Standards Division, Western-Pacific Region.
  - Began FAA career in 1998 at the Louisville Flight Standards District Office as an Aviation Safety Inspector.
  - Served in management positions with a national airline and is a proud veteran of the United States Air Force.
- **Graduate** of the USDA Executive Potential Program and attended Pennsylvania State University.

# Federal Aviation Administration

## Western-Pacific Region

Presented to: Western Regional Partnership

By: Tamara A. Swann, Deputy Regional Administrator

Date: July 18, 2019



**Federal Aviation  
Administration**

# Presentation Overview

- **Metroplex**
- **Noise and Performance Based Navigation**
- **Unmanned Aircraft Systems**
- **Commercial Air Space**



## There are Three Air Traffic Organization Service Areas (Western, Central, Eastern) with Nine Regional Boundaries



# Nation's Top 10 Busiest Airports

- Atlanta (ATL) 1<sup>st</sup>
- Chicago O'hare Int'l (ORD) 2<sup>nd</sup>
- **Los Angeles Int'l (LAX) 3<sup>rd</sup>**
- Dallas Fort Worth Int'l (DFW) 4<sup>th</sup>
- **Denver Int'l (DEN) 5<sup>th</sup>**
- **McCarran Int'l (LAS) 6<sup>th</sup>**
- Charlotte/Douglas Int'l (CLT) 7<sup>th</sup>
- Newark Liberty Int'l (EWR) 8<sup>th</sup>
- John F Kennedy Int'l (JFK) 9<sup>th</sup>
- **San Francisco Int'l (SFO) 10<sup>th</sup>**





# Metroplex Site Status

## ❖ Complete

- ❖ Houston
- ❖ Washington DC
- ❖ Northern California
- ❖ North Texas
- ❖ Charlotte
- ❖ Atlanta
- ❖ Southern California

## ❖ Ongoing

- ❖ Cleveland-Detroit
- ❖ Denver
- ❖ South-Central Florida
- ❖ Las Vegas





# Metroplex Phase Activities

## *Study Phase*

- Approximately 9 months
- Coordination with airports

## *Design and Procedure Development*

- Approximately 12 months
- Public workshops and comments

## *Operational, Environmental, and Safety Review*

- Approximately 16 months
- Draft Environmental Assessment (EA)
- Public workshops and comments

## *Implementation and Training*

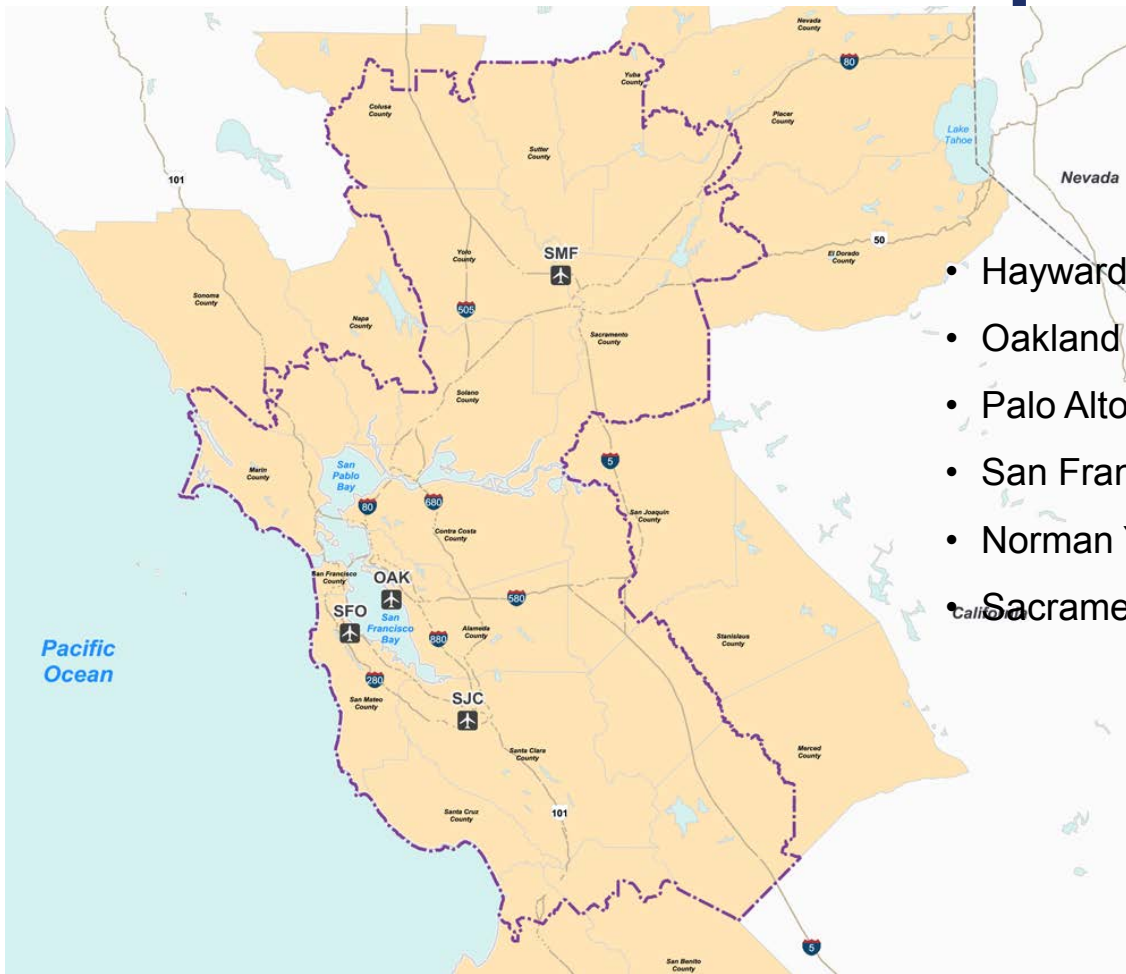
- Approximately 12 months
- Final EA/Record of Decision and public notification
- Training, procedure publication and implementation

## *Post-Implementation*

- Approximately 7 months
- Post-implementation analysis
- Procedure adjustments

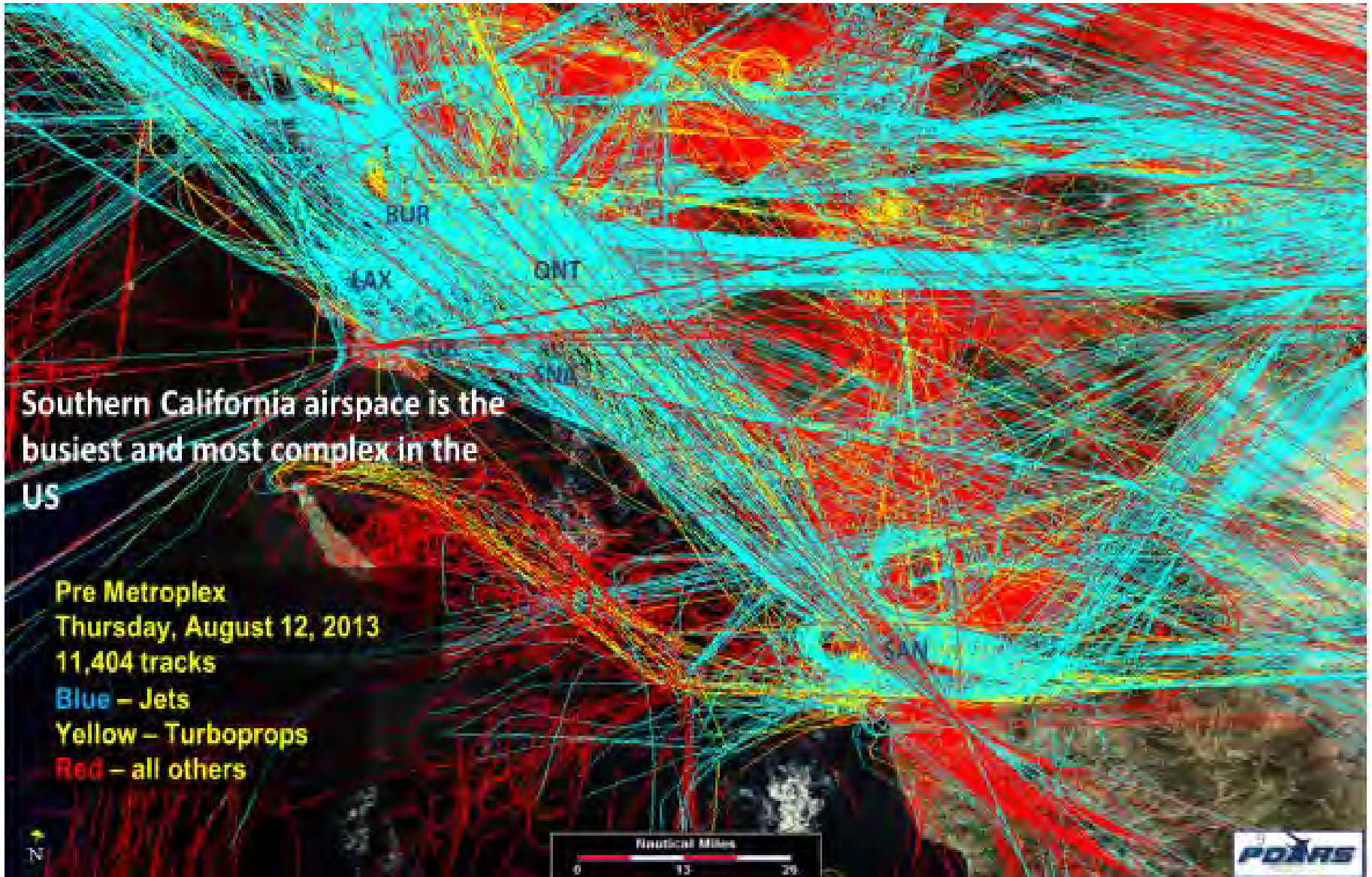


# Northern California Metroplex



- Hayward Executive Airport
- Oakland Int'l Airport
- Palo Alto, Airport
- San Francisco Int'l Airport
- Norman Y. Mineta San Jose Int'l Airport
- Sacramento Int'l Airport





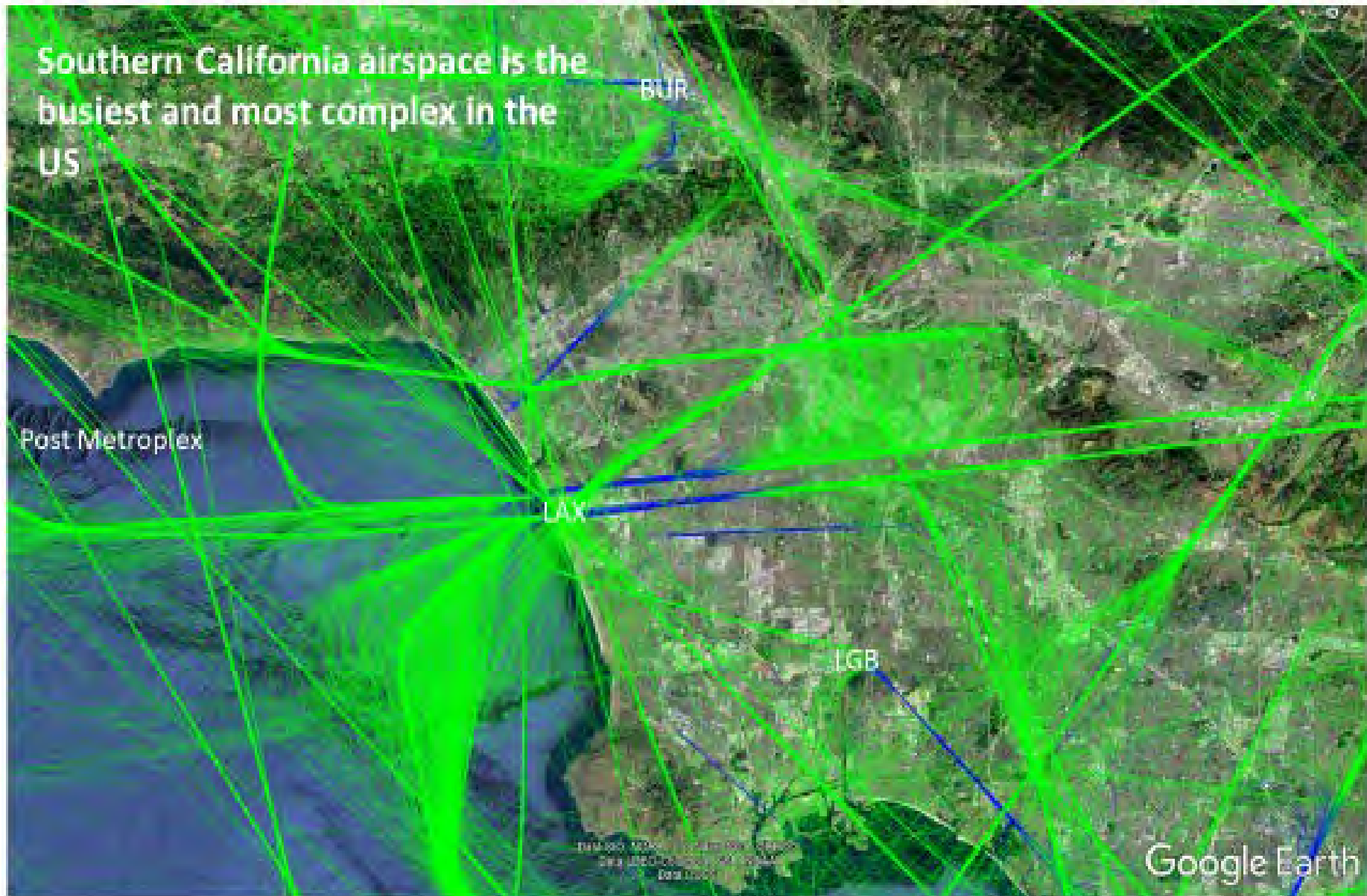
Southern California airspace is the busiest and most complex in the US

Pre Metroplex  
Thursday, August 12, 2013  
11,404 tracks  
Blue – Jets  
Yellow – Turboprops  
Red – all others





Southern California airspace is the busiest and most complex in the US





# Southern California Metroplex



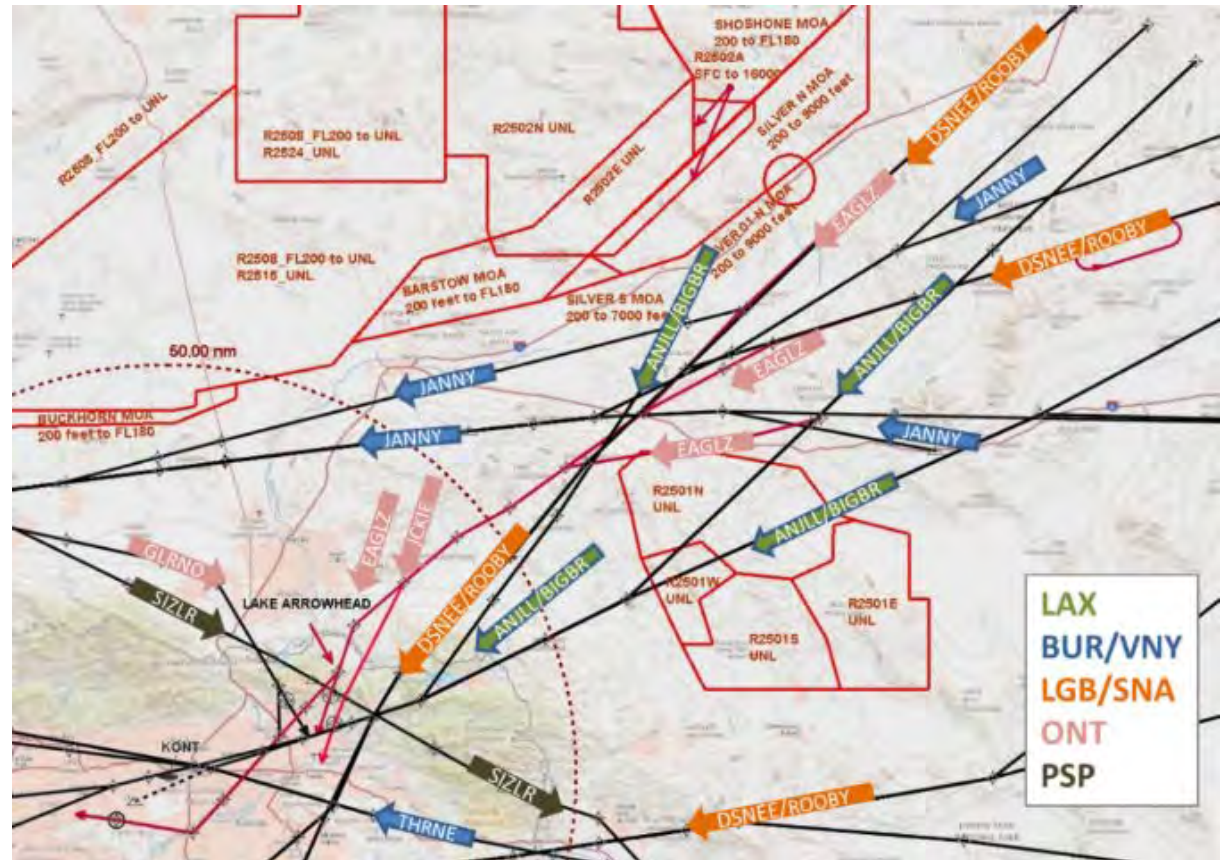
- Hollywood Burbank Airport
- Hawthorne Airport
- Los Angeles Int'l Airport
- Long Beach Airport
- Ontario Int'l Airport
- Oxnard Airport
- Palm Springs Int'l Airport
- San Diego Int'l Airport
- Santa Monica Airport
- John Wayne Airport
- Van Nuys Airport





# Southern California Complex Airspace

- SoCal airspace is one of the most complex in the world
- Multiple arrival routes converge northeast of ONT descending into SoCal airports
- **99 Procedures**
  - 41 departures
  - 37 arrivals
  - 21 approach

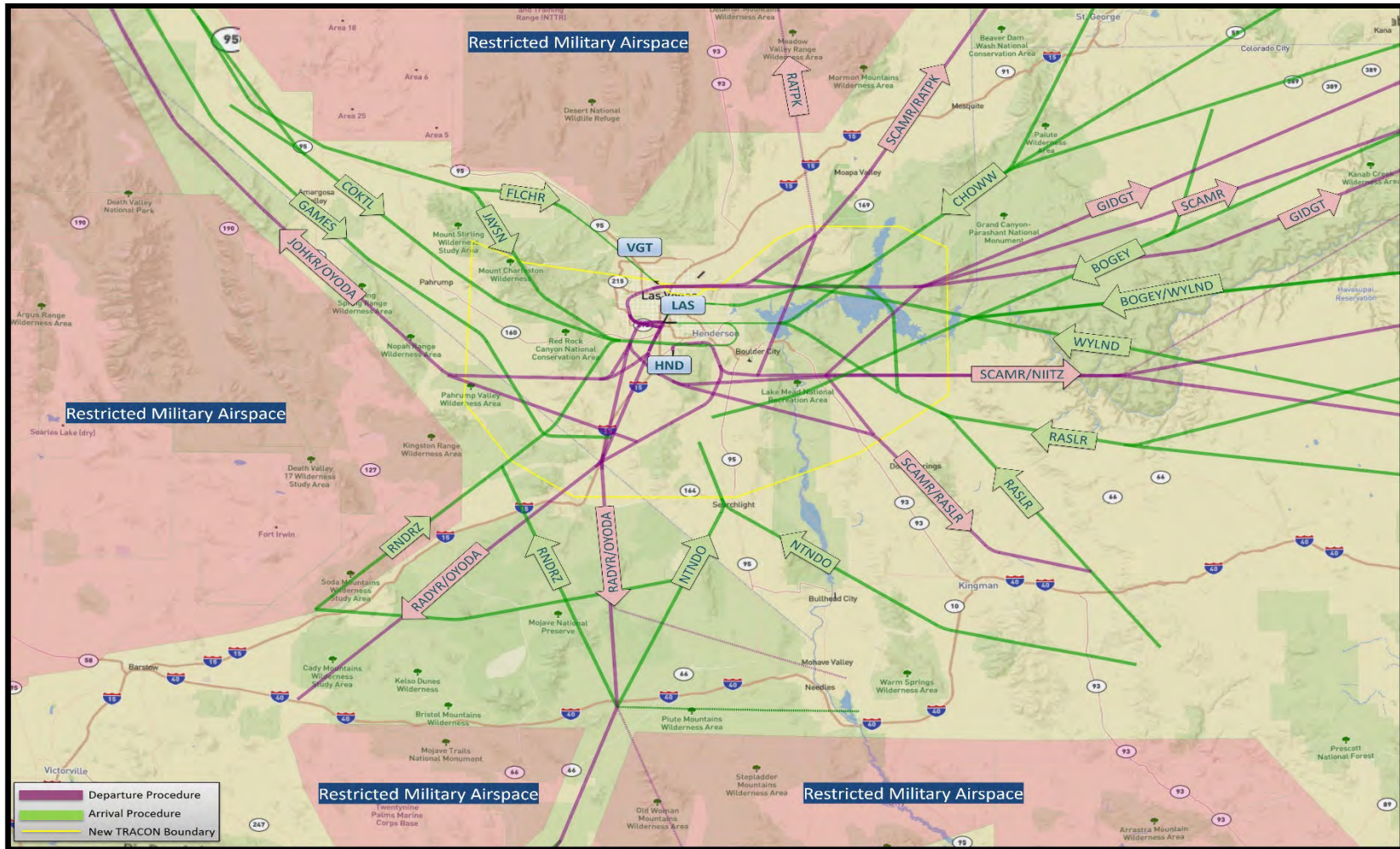


# Las Vegas Metroplex

- McCarran Int'l Airport
- Henderson Executive Airport
- North Las Vegas Airport
- Nellis Air Force Base



# Las Vegas Metroplex





# Denver Metroplex



- Denver International Airport (DEN)
- Centennial Airport (APA)
- Greeley-Weld County Airport (GXY)
- Fort Collins-Loveland Municipal Airport (FNL)
- Rocky Mountain Metropolitan Airport (BJC)



# Noise

- A collective/comprehensive effort is necessary to address impacts generated by aircraft noise
- Any effort will require support from:
  - Airport Sponsors
  - Airlines Industry, and Other System Users
  - Elected Officials
  - Community Members
  - Aircraft and Engine Manufacturers
  - FAA
- An effective mechanism is an Airport/Community Noise Roundtable



# Airport/Community Noise Roundtables and FAA Support

- There are several Roundtables in the Western Pacific Region:
  - **Hawaii Roundtable**
  - **LAX Roundtable**
  - **OAK Noise Forum**
  - **SFO Roundtable**
  - **SAN Airport Noise Advisory Committee**
  - **Santa Clara/Santa Cruz Roundtable**
  - **Others are Adhoc in nature**



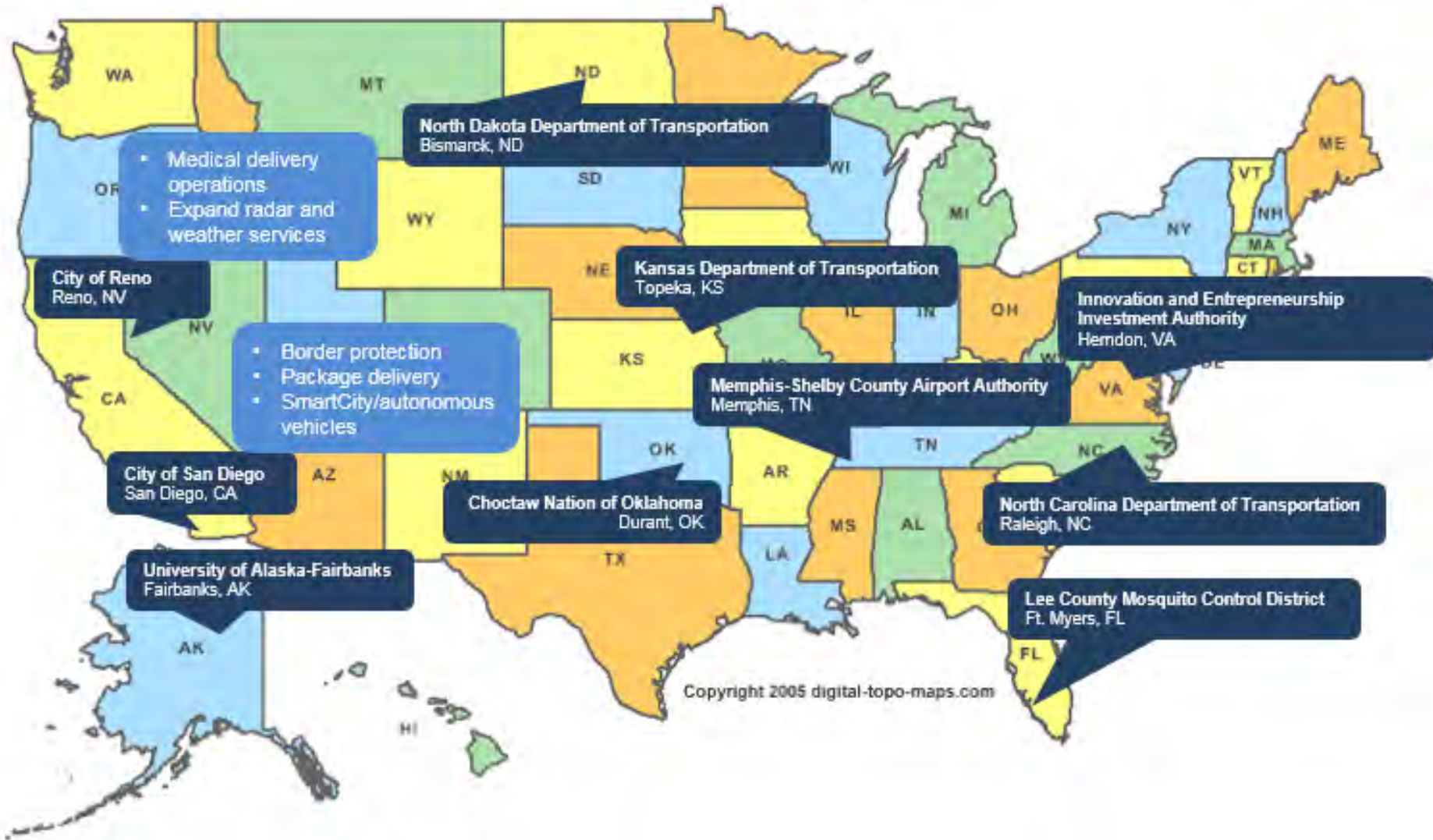


# Performance Based Navigation

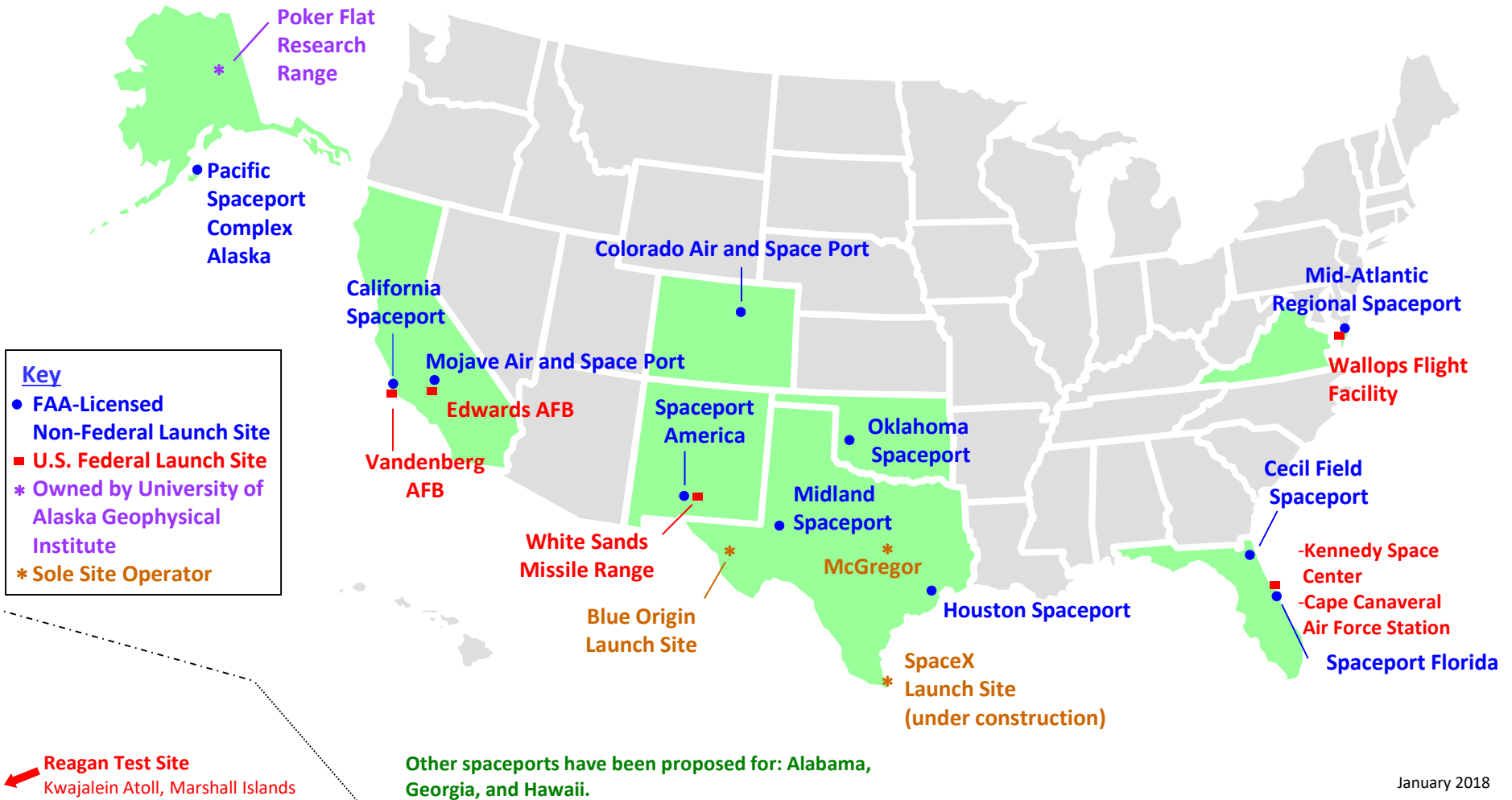
**Performance Based Navigation (PBN)** is an advanced, satellite-enabled form of air navigation in the National Airspace System (NAS) that creates precise 3-D flight paths.



# UAS IPP Participants



# Commercial/Government/Private Active and Proposed Launch Sites



January 2018



# Commercial Space in California

## California is home to:

- 2 FAA-licensed spaceports
- 10+ FAA-authorized vehicle operators
- 1 FAA/AST COE Member University
- 3 Active orbital launch operators (primarily polar orbits from VAFB)
- Numerous satellite companies, suppliers, and others reliant on the launch industry
- Innovators in satellite servicing, asteroid/lunar mining, commercial space stations, and more
- New orbital (hybrid & vertical) launch operators by 2019-2020
- Major sources of venture capital

### Bay Area & Sacramento:

Aerojet Rocketdyne, Planet, Spire Global, Space Systems Loral, Stanford, Deep Space Industries, Breakthrough Initiatives, Astranis...

### Key

- **FAA-Licensed Non-Federal Launch Site**
- **U.S. Federal Launch Site or Space Research Facility**

### Mojave:

Virgin Galactic, The Spaceship Company, Virgin Orbit, Stratolaunch, OrbitalATK, Masten, Scaled Composites, Interorbital Systems...

### Los Angeles Area & San Diego:

Boeing, Lockheed, SpaceX, Northrop Grumman, Virgin Orbit, Rocket Lab, Relativity, Vector, Aerospace Corp., ViaSat, ULA, Honeywell...

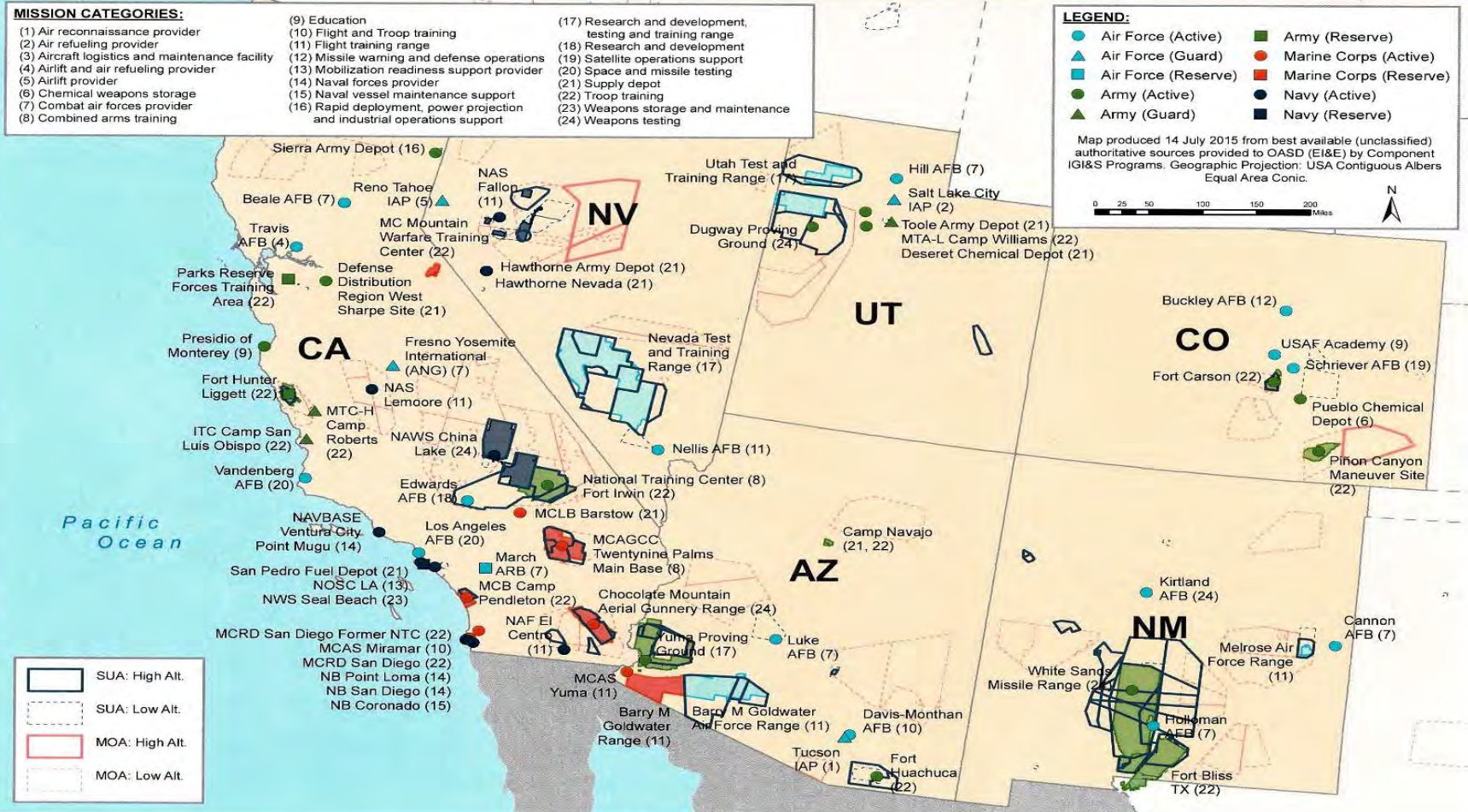




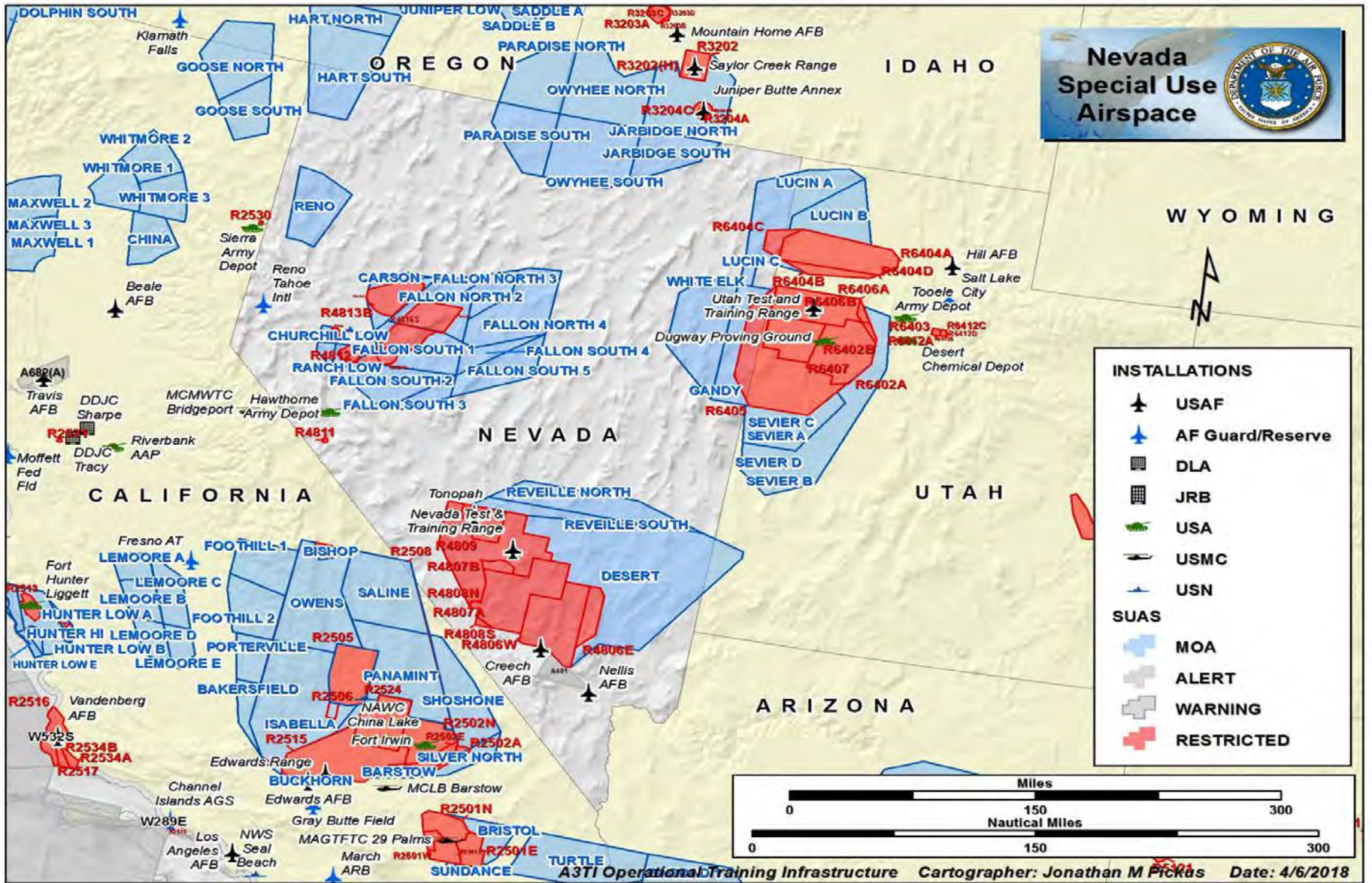
# Special Activity Airspace



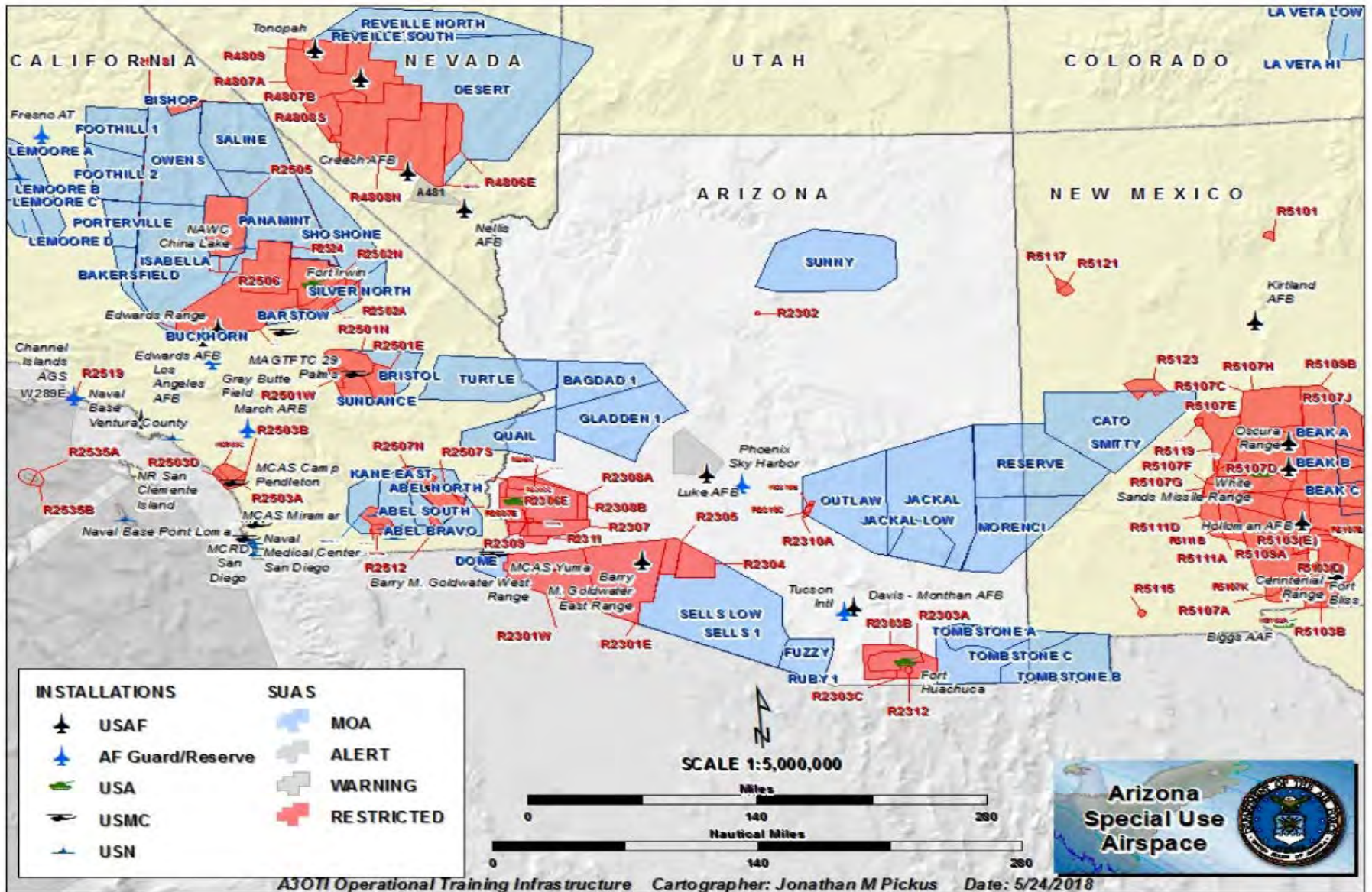
## US DEPARTMENT OF DEFENSE MILITARY INSTALLATIONS, TEST AND TRAINING RANGES - Southwestern US











# Shelly Simi



- **President & CEO, National Association of State Aviation Officials (NASAO)**
  - Works with government representatives, association leaders, corporate executives, and industry partners, marketing emerging technologies that impact transportation and mobility through visibility/brand awareness, increasing customer investment/company growth, and enhancing membership participation.
- **Previously:**
  - Director, Corporate Communications & Public Affairs, Aurora Flight Sciences Corp., a Boeing Company
  - Engaged in industry relations and public affairs in Corporate Communications, for Jeppesen, a Boeing Company.
  - PR counsel and media relations director at Adam
  - Ran her own company focused on media relations, communications and meeting planning activities for aviation and transportation.
  - Industry spokesperson and educator, General Aviation Manufacturers Association in Washington, DC.
  - Flight Operations/Fuel Coordinator for Federal Express (FedEx) Corporation in Memphis, Tennessee.
- **Founding Board Member of Women in Aviation, International and serves on the WAI Conference Planning Committee and Pioneer Hall of Fame Selection Committee. Formerly, contributing editor for *Aviation for Women* magazine, President of the Aero Club of Washington, Trustee of the University Aviation Association. Co-founder of the National Coalition for Aviation (and Space) Education and a founding member of the Aviation Communications Coalition of Washington. Women in Aviation Pioneer Hall of Fame. University Aviation Association Estridge Award and the Mervin K. Strickler, Jr. Aviation Education Leadership Award.**
- **Attended George Washington University's Public Relations Certificate Program; Bachelor of Commercial Aviation, Delta State University.**



# NASAO Briefing

July 18, 2019

**NASAO**  
**President & CEO**

Shelly Simi

**NASAO**   
National Association of State Aviation Officials

## Who/What is NASAO?

- History – Began in 1931 (pre-date the FAA)
- Purpose – public interest, meet the needs of state, region, country
- Why we are unique – work with all of aviation (airports, airlines, manufacturers, ect.)



## How do we operate?

- Strong Working Committees –
- Business partner participation
- NEW Associate member category
- Partner with FAA, DOT and other federal agencies





## How do we serve Members?

- NASAO website
  - Members only section: minutes, committee reports, published data, joint letters, task force info, etc.
- Support Aviation Education Initiatives throughout the states
- Conferences



## Member Services

### GCR 5010 Contract

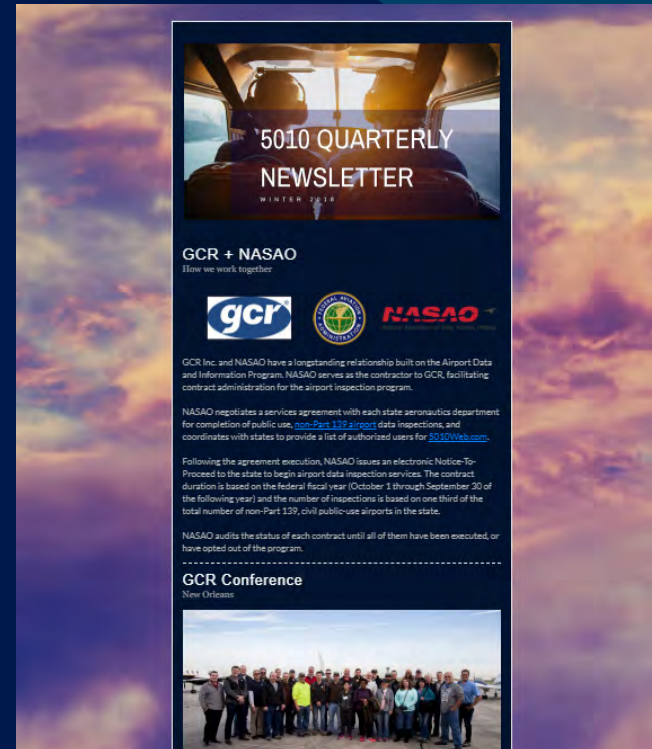
- FAA inspection program
- GCR Training Conferences
- Contract with the member states
  - 19 since beginning of the year

### Aviation Data Report

- State Survey to all State Members
- Funding capture

### ACRP Grant

- Future funding options for additional research and data collection





## Center Initiatives

### Online Aviation Training Program

- Allows state employees to gain a fundamental understanding and build upon their knowledge-base of the aviation industry.
- Seven modules:
  - 1 – Being Aware of the Airport Environment
  - 2 – Appreciating Key Partners
  - 3 – Aviation Planning 101
  - 4 - Environmental Planning 101
  - 5 – Engineering 101
  - 6 – Essentials of Project Funding
  - 7 – 1-800-Citizen Hotline
- 168 course completion certificates awarded to 36 learners
- 66 learners have signed in at least once
- Most popular course: Commercial Service Airports (36 completions)





- Topics / concurrent sessions / workshops – ranging from
  - Research you can Use
  - The Next Generation of Aviation System Planning
  - Overview of the FAA Capital Improvement Plan for the NAS
  - Airline Service to Small Communities
  - Non-Towered Airport Operations

# NASAO Legislative Update



## FAA Reauthorization Bill Overview

- Passed the House by a **398-23** vote and the Senate by **93-6**.
- Maintains level mandatory funding of \$3.35 billion annually for AIP
- Comprehensive reform of the FAA and the nation's aviation system.
- Does NOT include privatization of Air Traffic Control.
- Five year bill, reauthorizing the FAA through FY2023.
  - > Longest FAA bill in number of years since 1980s.
  - > Authorizes Supplemental Funding
  - > Expands State Block Grant Program
  - > Non-Primary Entitlement Program Reform
  - > Pavement Specification Flexibility
  - > Contract Tower Program Reforms
  - > Reforms for Operating a Drone

## Expansion of State Block Grant Program

- The cap on the State Block Grant program, which allows states to assume responsibility for administering AIP grant funding to non-primary airports, was increased from ten to twenty states.
- States that have expressed interest in learning more and possibly joining the State Block Grant Program include:
  - > Alabama
  - > Alaska
  - > Kansas
  - > Louisiana
  - > Maryland
  - > Minnesota
  - > Nevada

## Pavement Specifications

- Requires the Secretary of Transportation to allow the use of a State's highway specifications for airfield pavement construction / improvement at non-primary airports serving aircraft that do not exceed 60,000 pounds.
  - > Previous limit was 12,500
  - > The current specifications are not warranted for lighter aircraft and have created challenges related to procurement of materials and qualified vendors.
  - > This new flexibility will more easily allow vendors to provide pavement:
    - \* Needed due to the limited availability of airfield pavement materials, especially in rural areas
    - \* Safety will remain the first priority



# Contract Tower Program Reforms

Makes significant positive reforms to the Contract Tower Program including:

- Changes to the rules on when the FAA can issue benefit/cost analyses
- Removes the cap on the amount of AIP funds that can be used to construct and equip a contract tower
- Sets a maximum time limit of 90 days for the FAA to respond to increased staffing requests from contract tower airports.

# SCASDP & EAS

## **Small Community Air Service Development Program (SCASDP)**

- Authorizes \$10 million annually for SCASDP from fiscal years 2018 through 2023.
- 4.8 million of the \$10 million will fund a newly-created Regional Air Transportation Pilot Program.
- Allows communities to apply for SCASDP grants for the same project once per 10 years.
- As many as 40 communities per year could receive grants.

## **Essential Air Service (EAS)**

- Increased funding for each fiscal year from \$150 million in FY18 to \$172 million in FY2023.
- Allows DOT to waive several EAS eligibility rules
- Requires DOT to waive subsidy-per-passenger caps in some circumstances.

## Unmanned Aircraft Systems (UAS)

- **Codifies the UAS Integration Pilot Program (IPP)**
- **Counter UAS Authority**
  - Granted to DOJ & DHS
  - Codifies C-UAS testing at airports & will make technology AIP eligible
- **Repeals Special Rule for Model Aircraft and creates new framework for hobbyist**
  - Passage of an aeronautical safety and knowledge test
  - Registration and marking of the recreational drone
  - Operating under a community-based organization's set of safety guidelines
  - Below 400 feet above ground level
- **Remote Identification and Tracking**
  - Requires the FAA to establish a pilot program to begin more thoroughly utilizing remote detection and identification of drones.

# Supplemental Funding

FY2018 Appropriations	FAA Reauthorization Bill	FY 2019 Appropriations	FY 2020 Appropriations
\$1 billion	\$1 billion per year (FY19- FY23)	\$500 million	TBD?
Available through FY20	---	Available through FY21	---
<ul style="list-style-type: none"> <li>• Non primary airports not located within metro/micropolitan statistical area</li> <li>• Primary airports classified as small or non-hub</li> </ul>	<ul style="list-style-type: none"> <li>• At least 50% of the funds are required to be used for small hub airports as well as GA</li> </ul>	<ul style="list-style-type: none"> <li>• No criteria/ parameters</li> <li>• Should follow FAA Reauth criteria (\$250 million to GA)</li> </ul>	---
Cost Share: 100%	---	---	---
Round 1 - \$205 million Round 2 - \$779 million	---	\$0 appropriated thus far	Will require a budget agreement that raises BCA caps

## Aviation Funding Stability Act of 2019 / H.R. 1108

- In the event of a lapse in appropriations, the bill would maintain current funding levels for all FAA accounts by providing unobligated funds at the most recently appropriated levels
- All funds provided by H.R. 1108 would come from the Airport and Airway Trust Fund (AATF).
- H.R. 1108 garnered bipartisan support, passing by voice vote in Committee.

### **AIP Amendment**

- An amendment to H.R.1108, offered by Ranking Member Graves, increased AIP contract authority in fiscal years 2020-2023 to \$4 billion annually.



# Infrastructure Bill

## **President Trump's original proposal**

- \$1 trillion (\$200 billion in direct federal investment)
- Heavy reliance on P3s / state and local funds

## **Speaker Pelosi's proposal**

- \$2 trillion (\$1 trillion in direct federal investment)

## **House Transportation & Infrastructure Leadership**

- Funding source has not been determined
- Aim to pass a bill out of Committee before August
- Priority is a highway bill

# Future of UAS for the Nation



## UAS Potential

- Urban Air Mobility – rural prosperity (access to high speed internet, infrastructure improvement- 30 min commute to work expands the range of what is a suburb)
  - Demand growing exponentially
  - Market is forecast at \$1.3 trillion by 2030
  - NASA Launched UAM Grand Challenge
  - More than 240 UAM vehicles are in development today
  - Need for more test sites for large UAV and UAM vehicles



March 2019 - NCDOT launched the nation's first revenue flights to deliver products using drones



## UAS Potential

Greatest benefit:

- Save lives (Public Safety: search & rescue, law enforcement), Streamline Ag Management
  - Smart Farms- (check health of cattle, down fences, crop management)
  - Aerial Mapping (Small GA Airports can't afford full scale traditional aerial mapping)
- Infrastructure Management / Safety Inspections- (Airport inspections, bridges roads, inventory, sign inspection)
  - New services and new ways to accomplish same work: i.e. Energy companies' faster response when outage, maintenance of county roads/bridges





## Emergency Management Capabilities

- Deploy industry leading emergency and disaster response tools
- Deliver real-time video of crisis area to decision makers
- Provide UAS training for city official and airports
- Provide assistance to other state agencies. (SCDNR, forestry, law enforcement)
- Assist the FAA local FSDO office with accident investigation



## Industry Challenges

- **Data Security and accuracy – ability to provide useful information**
- **NAS Integration of Participating and Nonparticipating aircraft**
  - **Participating: ADS-B potential for specific missions (not for hobby flying)**
    - Class D airspace capabilities
  - **Non- participation: Detect and Avoid technology (i.e. aerial applicators typically not on radar)**
    - Expanded UAS sensor capabilities (thermal, LIDAR, infrared)
    - Real-time live video feed from UAS



# FAA Rules for UAS

## FLYING SAFELY



### Recreational or commercial use?

Using a drone in connection with a business is considered to be commercial use by the FAA. This includes but is not limited to:

- Real estate, wedding or other photography
- Inspection or survey services
- Film or television production

Visit [faa.gov/uas](http://faa.gov/uas) for more information

Go to [knowbeforeyoufly.org](http://knowbeforeyoufly.org) to stay up to date on how and when you can fly your drone.

## Know your surroundings

Some municipalities prohibit the operation of remote controlled aircraft within public spaces such as parks and school grounds. There are rules of the air you need to know. Always check with local authorities before you fly your drone.

- ✓ Fly below 400 feet
- ✓ Fly within visual line of sight
- ✓ Avoid flying over groups of people and stadium events
- ✓ Avoid flying near other aircraft
- ✓ Never fly within 5 miles of an airport without contacting airport authorities and the airport's traffic control facility
- ✓ Be aware of FAA airspace requirements [faa.gov/go/uastfr](http://faa.gov/go/uastfr)
- ✓ Keep well away from emergency response efforts such as fires
- ✓ Do not fly under the influence



# What Aviation means to the Nation

Access, when and where its needed

Enhancing airport utilization and serving the  
public interest

Ensuring long-term funding support of rural and  
small GA airports





The Possibilities are  
Endless...







# NASAO Briefing

July 18, 2019

**NASAO**  
**President & CEO**

Shelly Simi

**NASAO**   
National Association of State Aviation Officials

# Mark Bathrick



- **Director, U.S. Department's Office of Aviation Services (OAS)**
  - Served since November 1, 2005.
  - OAS is responsible for the safe, efficient, and economical operation of aircraft activities in support of all DOI Bureaus and other federal entities.
- **Retired Captain, United States Navy.** Graduate of the Navy Fighter Weapons School (TOPGUN) and British Empire Test Pilots' School (ETPS), Member of the Society of Experimental Test Pilots (SETP) and holds an FAA commercial instrument, multi-engine pilot rating.
- Served in financial management and aviation acquisition positions with the Naval Air Systems Command, the Chief of Naval Operations and the Joint Chiefs of Staff
- Commanded a carrier-based F-14 TOMCAT squadron, Chief Test Pilot and commander of a Navy flight test squadron comprised of both manned aircraft and unmanned aerial systems (UAS), and commander of the Naval Air Engineering Station at Lakehurst, NJ.
- **Recipient** of the Commander-in-Chief Installation Excellence Award, Naval Air Warfare Center Equal Employment Opportunity Leadership Award, Secretary of the Navy Achievement in Safety Award, Navy Meritorious Unit Commendations, Chief of Naval Operations Environmental Award, White House Closing the Circle Environmental Award, New Jersey Department of Environmental Protection Leadership Award, and the Dale Carnegie Leadership Award).
- **Bachelor of Science**, Aerospace Engineering, United States Naval Academy; **Master of Business Administration**, Boise State University. Member of the Naval Academy Engineering Honor Society, the National Engineering Honor Society, Tau Beta Pi, and the Drone World Expo Advisory Board.

# Western Regional Partnership Aviation Trends & Updates



## *“Drones for Good”*

### *The Interior Unmanned Aircraft Systems Program*

Mark L Bathrick  
Director  
Office of Aviation Services (OAS)  
Boise, Idaho

[Mark\\_Bathrick@ios.doi.gov](mailto:Mark_Bathrick@ios.doi.gov)

*July 18, 2019*

<https://www.doi.gov/aviation/uas>

✓ **DATA**

- ✓ Resolution
- ✓ Persistence
- ✓ Repeatable
- ✓ Analytics
- ✓ Science
- ✓ Decisions

**Sensing**

**Safety**

- ✓ < Air exposure
- ✓ < Ground exposure
- ✓ Assess hazards (fire, flood, landslide, etc.)
- ✓ Proven lifesaver.

- ✓ Acquisition 500 : 1.
- ✓ Ops / Maint.
- ✓ Infrastructure
- ✓ Training
- ✓ 1/10<sup>th</sup>.
- ✓ 2018 - saved \$14.8M.

**Savings**

**Service**

- ✓ Aviation for the masses
- ✓ Responsive
- ✓ Agile, Flexible
- ✓ 1/7<sup>th</sup>.
- ✓ >19,000.





# FIRE AVIATION WAR REPORT

Since 1930, *“The Way We’ve Always Done It”*

- Only capable ~8 hours each day (1/3<sup>rd</sup>).
  - Initial & extended attack.
  - Aerial resupply.
  - Emergency extraction.
- Smoke grounds aircraft for days.
- **20% - 50%** of **all** wildfires discovered outside aviation coverage.
  - In 2018, of California’s **10 most destructive wildfires**, **half were ignited in darkness, or more than an hour before pilots were scheduled to begin operations**, according to state fire data.
- Current drones *“observe”* but **don’t “fight.”**
- **No outcome effectiveness measures = no credible planning factors.**
- Aggressive risk reduction **not** matched with initiatives to improve effectiveness.





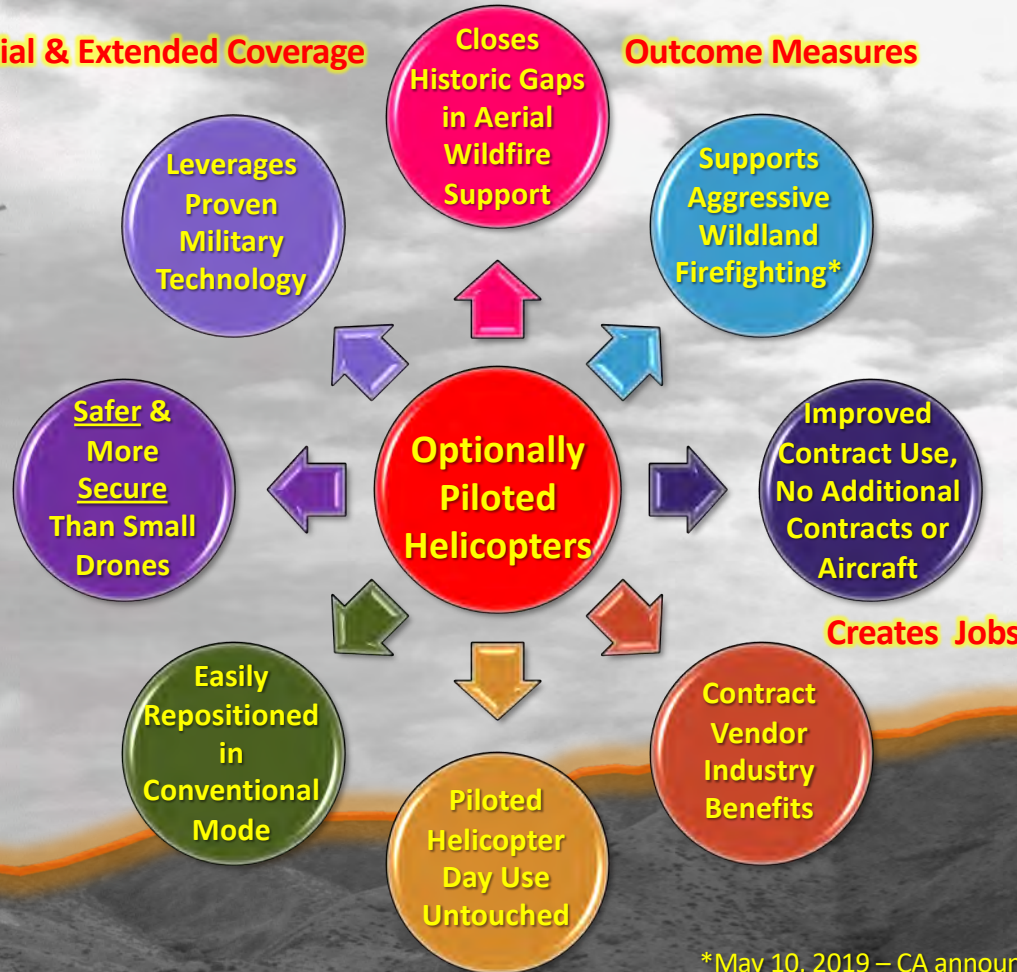
## Optionally Piloted Airplanes / Helicopters (OPA / OPH)

- **Defined** – Can be piloted **either** from the cockpit **or** remotely.
- **Add on** capability – **not** new aircraft.
- **First used in WWII** – Operations *Aphrodite* & *Anvil* (B-17, PB4Y).
- **Continued use** - F6F, F-86, F-100, F-102, F-104, F-106, **F-4**, F-16.
- **2010** - \$45.8M contract – K-MAX **firefighting helicopter** kitted to OPH.
- **2011 – 2014**: USMC K-MAX OPH deployed to Afghanistan – **1,000's** of flights, mostly **at night**, **4.5M** lbs. of cargo @ **\$1,300 / hour**
- **Safer** than small drones - redundant systems, electronic ID, easy to see.
- **Secure** – military-grade encryption.

# The Potential of Optionally Piloted Helicopters

## Initial & Extended Coverage

## Outcome Measures



2015 Unmanned Aircraft Technology Demonstration Overview  
DEC 06 2014

Endorsed:

 Tom Harbour Director, Fire and Aviation Management U.S. Forest Service, USDA	 Jim Douglas Director, Office of Wildland Fire Policy, Management & Budget, DOI
 Cam Sholly Associate Director, Visitor and Resource Protection National Park Service, DOI	 Ron Dunton Acting Director, Fire and Aviation Bureau of Land Management, DOI
 Aaron Baldwin Acting Chief, Forestry & Wildland Fire Management Bureau of Indian Affairs, DOI	 Jeff Albert Chief of the Division of Natural Resources and Conservation Planning, U.S. Fish and Wildlife Service, DOI

Approved:

Kim Thorsen, Assistant Secretary, Public Safety, Resource Protection, and Emergency Services, DOI

Mark L. Bathnick, Director, Office of Aviation Services, Office of the Secretary, DOI

Wind ↓  
Temp ↓  
Rh ↑

\*May 10, 2019 – CA announces Wildfire X-Prize competition.



# Thank You!

Mark L Bathrick, Director  
Office of Aviation Services

[Mark\\_Bathrick@ios.doi.gov](mailto:Mark_Bathrick@ios.doi.gov)

<https://www.doi.gov/aviation/uas>



# Jamie Flanders



- **GS-13, DAF, Airspace Manager, NGB/A2/3/6/10TA**
  - Served since January 2013.
  - Manages 514 Air National Guard-owned Military Operations Areas (MOAs), Restricted Areas, Warning Areas, Military Training Routes, and Aerial Refueling Routes across 94 Air National Guard Wings in the 50 States and 4 U.S. Territories. Senior Air National Guard subject matter expert, technical authority, and primary action officer for field units on matters pertaining to airspace requirements, justification, and acquisition.
- **Hosts three regional ANG Airspace and Ranges Councils** involving DoD, FAA, and other general and commercial aviation stakeholders.
- **Retired Air Force** airfield operations officer with 20 years of experience in air traffic control, airfield management, and airspace and over five years combined total combat deployments including one year as DoD liaison to the Iraq Civil Aviation Authority, Baghdad, Iraq.
- **Bachelor of Arts, Mathematics, St. Olaf College; Master of Business Administration, TUI University**

UNCLASSIFIED



# **(U) Western Regional Partnership 2019 Aviation Trends and Updates**

Jamie Flanders  
ANG Airspace Manager  
4 October 2018

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# Air National Guard Agenda

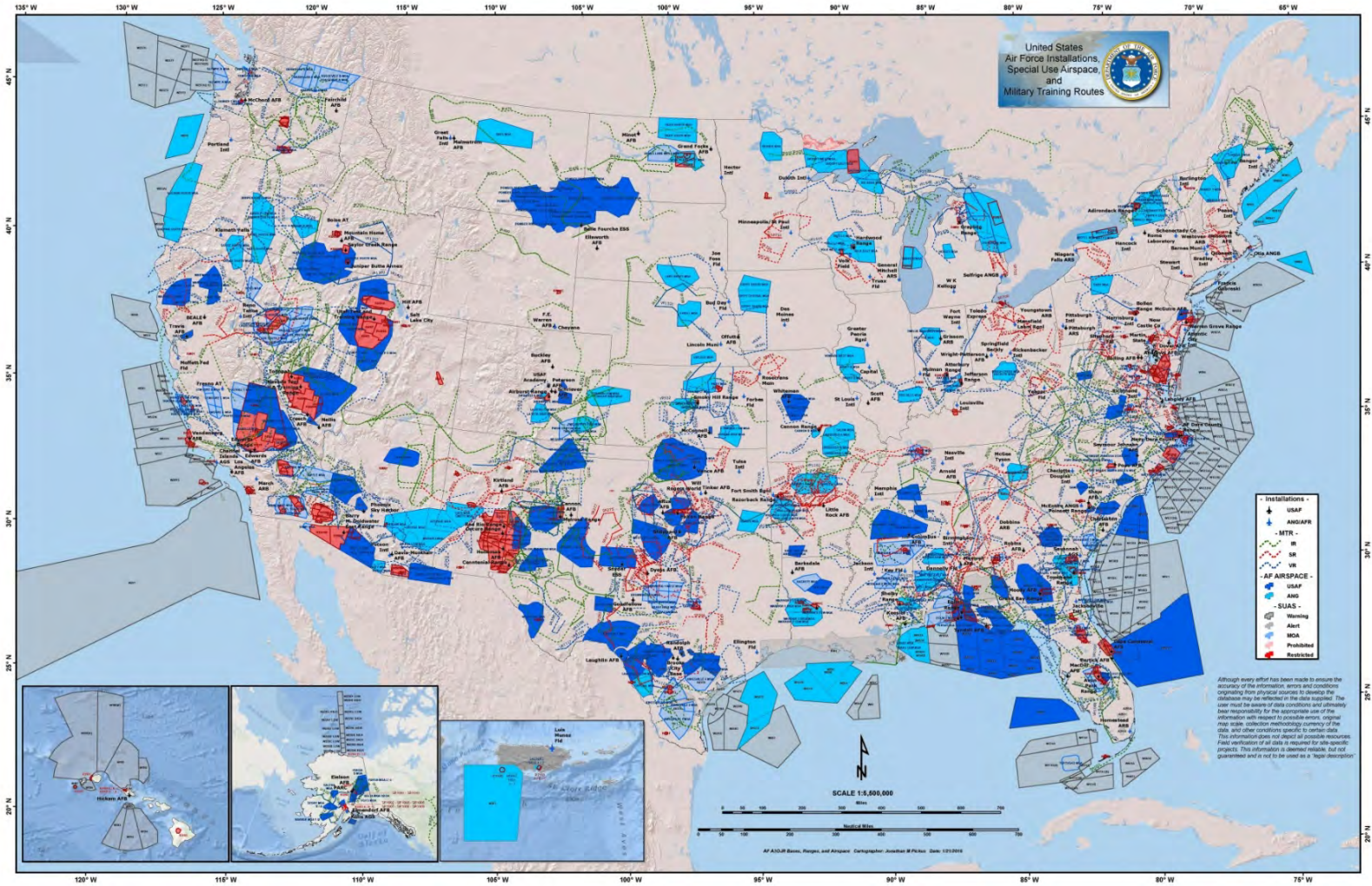


- ANG Airspace introduction
- Western Regional Airspace/Ranges Council feedback
- Oregon Airspace Update

UNCLASSIFIED

UNCLASSIFIED

# ANG Airspace Introduction



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# Western Regional ARC



Air National Guard hosts three Regional Airspace/Ranges Councils (ARCs) every year

- Western: Joint Base Pearl Harbor, HI, March 5-6 2019
- Eastern: Atlanta, GA, April 16-17 2019
- Central: Tulsa, OK, May 22-23 2019

Attendees include DoD military units, FAA, general & commercial aviation stakeholders

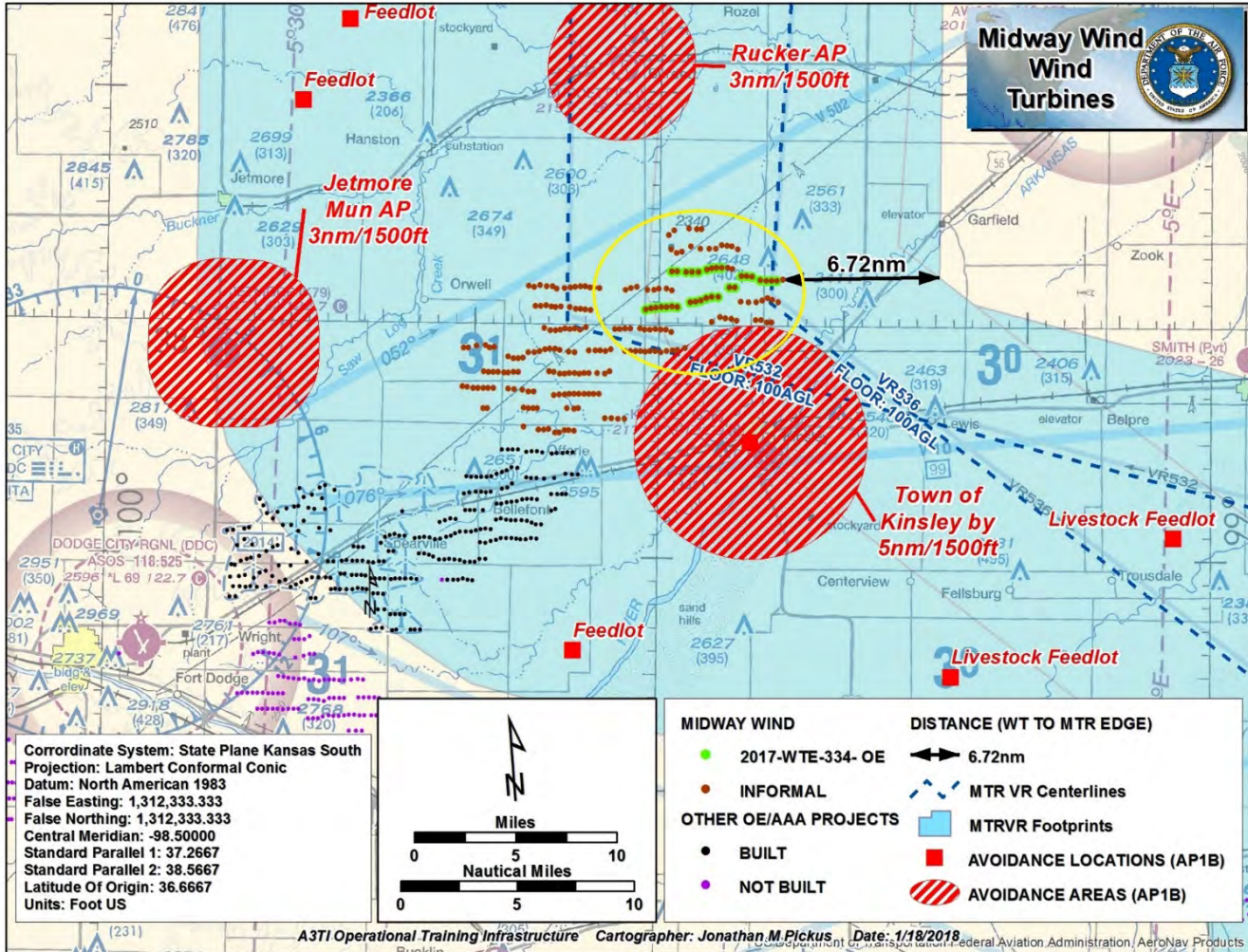
2019 Focus:

- 2020 FAA Mandate for ADS-B Out - FAA and DoD developing Memorandum of Agreement to accommodate DoD requirements
  - Multiple airframes will not equip due to pending retirements
  - Allow DoD to operate on/off switch for security/training
  - DoD to identify those aircraft that will never equip due to security
- Wind Farm encroachment into military airspace

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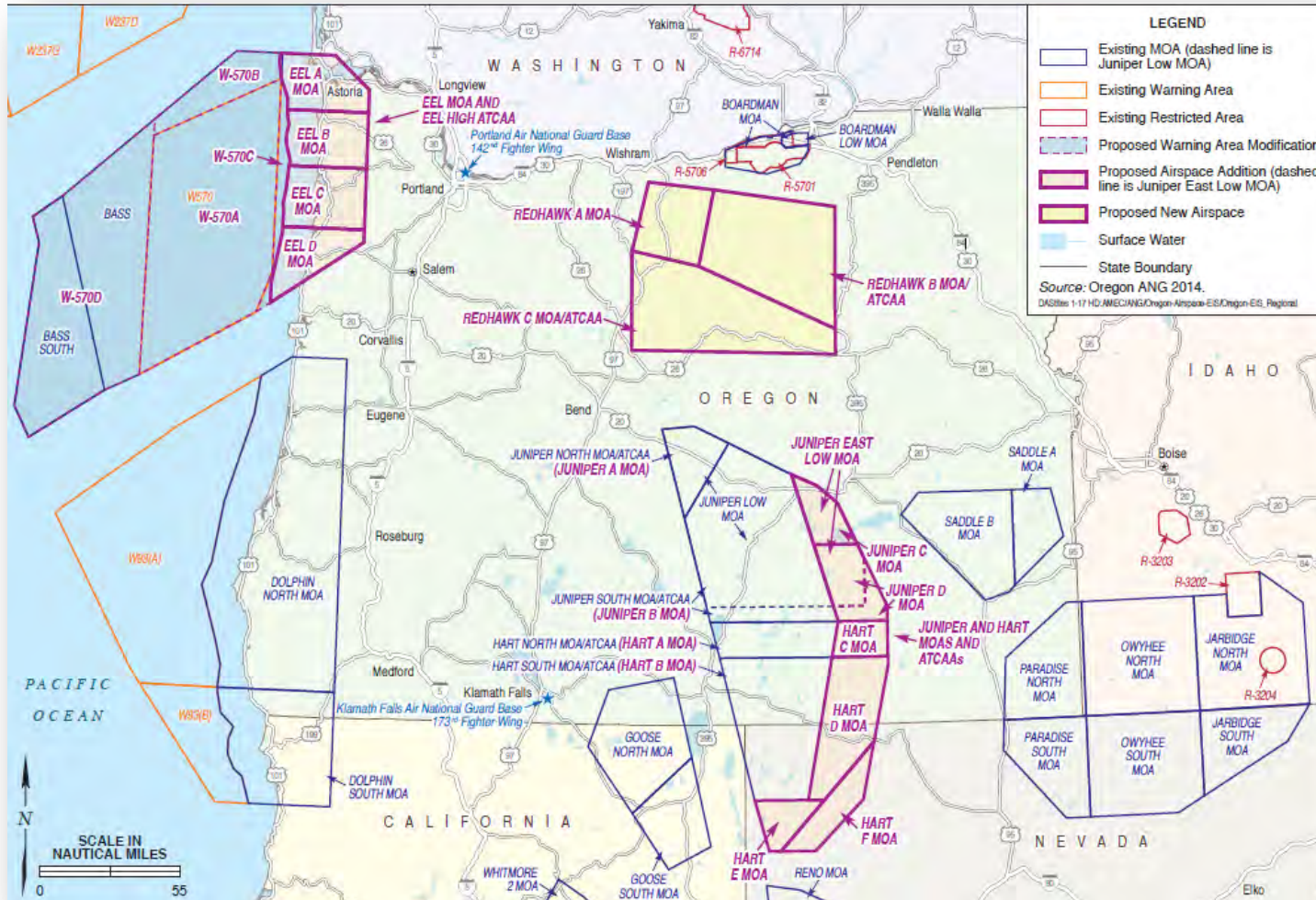


# Wind Encroachment



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# Oregon Airspace



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# Questions?

UNCLASSIFIED

# Dennis Brown



- **Senior Chief of Aviation, CAL FIRE, Aviation Management Unit**
  - Served since January 2019.
  - Responsible for the operations of the CAL FIRE fixed- and rotary-wing fleet of 52 fire fighting aircraft.
  - Previously served at CAL FIRE since 2009 as Chief of Flight Operations, Aviation Officer/Fixed-wing Program Manager, and Aviation Officer (pilot).
- **38-year career with the US Forest Service** in a variety of positions and locations in California, ranging from firefighter through Engine Captain, Smokejumper and Fuels Management Officer. Served as Air Attack Officer on the Klamath National Forest, then Regional Aviation Safety Officer for the USFS in California. (Region 5).
- **Associate of Science** in Forestry, Feather River Junior College.

A sunset over an aviation museum. The sky is filled with orange and yellow clouds. In the foreground, a palm tree is silhouetted against the bright light. In the background, several vintage aircraft are parked on a grassy field, with a fence in front of them. The aircraft have various numbers on their tails, including 91, 88, 76, 4, and 96.

# **CAL FIRE UPDATE 2019**

**Dennis W. Brown**

**Senior Chief of Aviation CAL FIRE**

## **CAL FIRE Aviation Goal**

- **Have an aircraft on any fire in California within 20 minutes**
- **CAL FIRE will strive to contain 95% of all unwanted fires at 10 acres or less**

**How do we do that?**

**RAPID INITIAL ATTACK**



# 15 Rockwell OV-10 Broncos Air Tactical (ATGS) platform Command and Control





A photograph of a white Grumman S2-T airtanker aircraft in flight, dropping a large volume of red fire retardant over a wildfire. The aircraft is positioned in the upper left quadrant of the frame, with the number '90' visible on its tail. The retardant forms a thick, red, conical plume that extends across the middle of the image. Below the plume, a line of intense orange and yellow flames is visible, with dark smoke rising from the fire. The background is a hazy, greyish-brown sky. The image is framed by a solid blue border on the left and right sides. On the right side of the blue border, there are several white diagonal lines.

**23 Grumman S2-T 1200 Gallon  
airtankers**

# 2019 CAL FIRE EU CONTRACT



# CAL FIRE CWN CONTRACTS





# 12 UH-1H Super Huey Helicopters





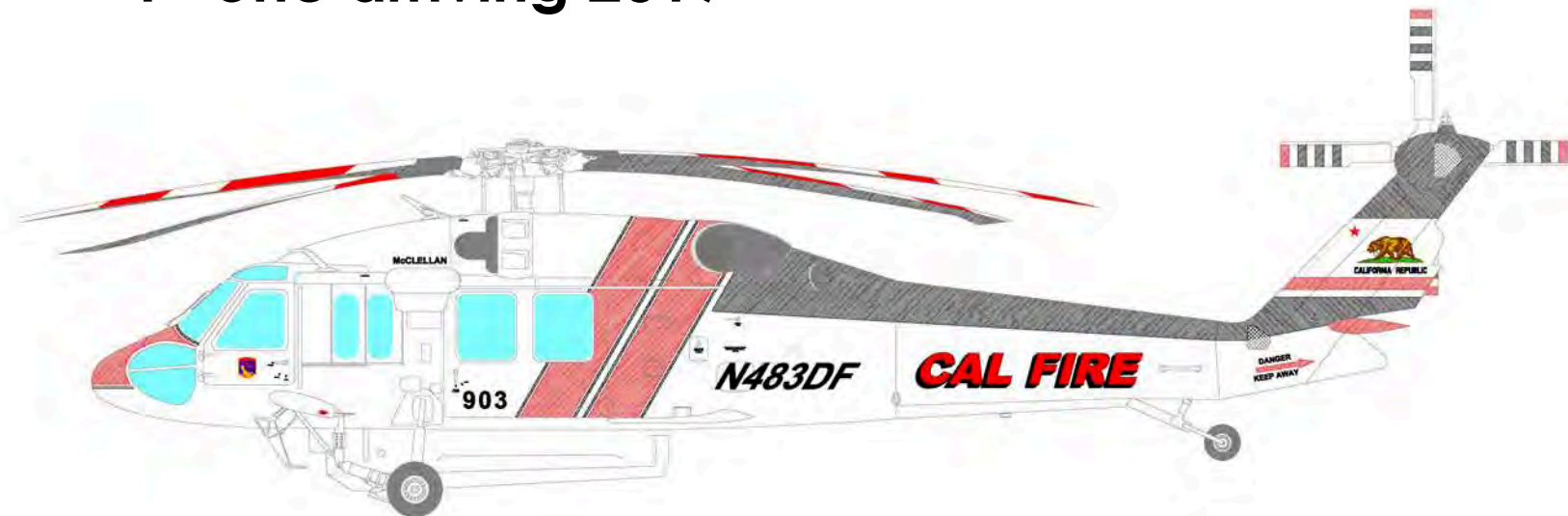




**CWN**  
**Call When Needed Helicopters**

# 12 New S-70i Blackhawk (Firehawk) Helicopters

## 1<sup>st</sup> one arriving 2019

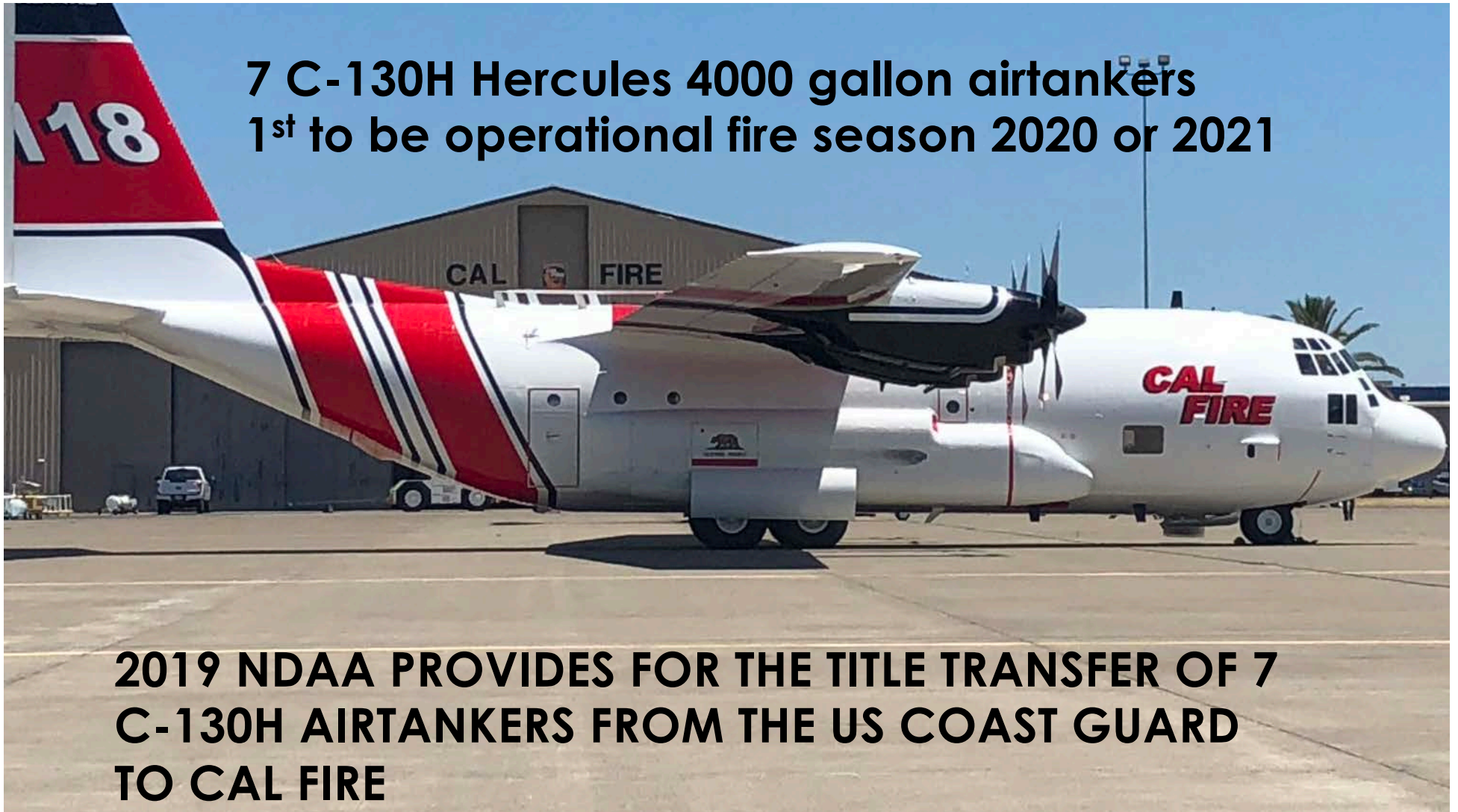


 ANATOLIY MANAGANOV AND SASSI PRINCE ARCHITECT McCLELLAN PARK, CA 94612	APPROVAL	DATE	CALIFORNIA DEPARTMENT OF FORESTRY and FIRE PROTECTION TITLE ILLUSTRATION - CAL FIRE S70i
	DRAWN BY: SASSI PRINCE CHECKED DESIGN	08/23/14	
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES TOLERANCES ARE DECIMALS ANGLES	TOTAL	SFD	SIZE (DWG 10)





**7 C-130H Hercules 4000 gallon airtankers  
1<sup>st</sup> to be operational fire season 2020 or 2021**



**2019 NDAA PROVIDES FOR THE TITLE TRANSFER OF 7  
C-130H AIRTANKERS FROM THE US COAST GUARD  
TO CAL FIRE**



**INITIAL ATTACK IS EFFECTIVE 90 TO  
95% OF THE TIME, BUT SOME DAYS  
EVEN UNLIMITED RESOURCES ARE  
NOT ENOUGH TO KEEP FIRES  
SMALL**



Global Supertanker Boeing 747-400  
19,600 gallons

**2017 FIRE SEASON: IS IT THE NEW NORM?  
NEARLY 9,000 WILDFIRES IN CALIFORNIA  
1.2 MILLION ACRES BURNED  
OVER 10,800 STRUCTURES DESTROYED  
46 FATALITIES**





**2018 FIRE SEASON**  
**8,527 FIRES BURNED**  
**1,893,913 ACRES**  
**OVER 18,000 STRUCTURES LOST**  
**85 FATALITIES**







[www.ALERTWildfire.org](http://www.ALERTWildfire.org)

7:02 AM



Camp Fire—35 Minutes

7:07 AM



Greenville-Alex-19 8:126.30 Y:48.05 Z:1.4 © Nevada Science Lab 2018/11/08 07:02:03-80 North Park Greenville-Alex-19 8:126.30 Y:48.07 Z:1.4 © Nevada Science Lab 2018/11/08 07:07:17-26

7:11 AM



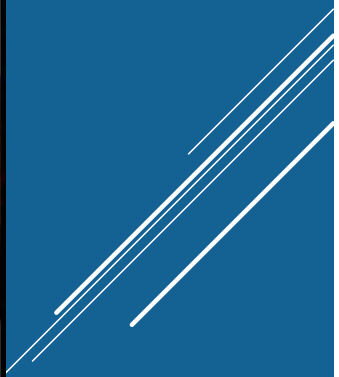
7:18 AM



7:26 AM



7:37 AM











## The CAMP FIRE is Officially Out!

Structures  
Destroyed:  
13,954 homes  
514 Commercial

Acres Burned:  
153,336  
240 Sq Miles

Deaths: 84

Residents  
Displaced:  
About 52,000

Stats Per Cal-Fire  
11/24/2018







***THANK YOU FOR YOUR SUPPORT  
QUESTIONS?***

# Major Julio “J-Lo” Gonzalez



- **Director of Aviation, Regional Airspace Coordinator, Air Traffic Control Type Commander, Marine Corps Installations-West**
  - Served since 2018.
  - Represents the Commanding General of Marine Corps Installations – West to federal, state, county, local, DoD, and other non-DoD airspace users regarding ATC and airspace and oversees MCI-West Air Traffic Control facilities.
- Previously served as a CH-46E pilot in Iraq, an Air Traffic Control Detachment Commander in Afghanistan, Director of Air Traffic Control at Marine Corps Air Station Yuma, Senior Marine Corps Liaison Officer to U.S. Air Force Central Command at Al Udiid, Qatar, and Operations Officer at Marine Tactical Air Command Squadron 38, Marine Corps Air Station Miramar.
- **President** of Head Strong & Ready, a 501(c)3 providing low-cost psychological services and educational testing to military veterans, first-responders, and their families.
- **Bachelor of Science**, Geography, Penn State University; **Master of Arts**, International Relations, Tufts University.



# **Marine Corps Installations – West**

# **Unmanned Aerial Systems Efforts**

Major Julio “J-Lo” Gonzalez  
United States Marine Corps





# Why a Marine Corps?



**ARMY**



**MARINES**



**AIR FORCE**



**NAVY**





# Why a Marine Corps?



## ARMY



## MARINES



**“[The Marine Corps] must be the most ready when the nation is generally least ready... to provide a balanced force in readiness for a naval campaign, and, at the same time, a ground and air striking force ready to suppress or contain international disturbances short of large-scale war.” -82nd Congress, 1952**







# Installations Support Operating Forces



**SUPPORTING ESTABLISHMENT**

**OPERATING FORCES**

**Installations**





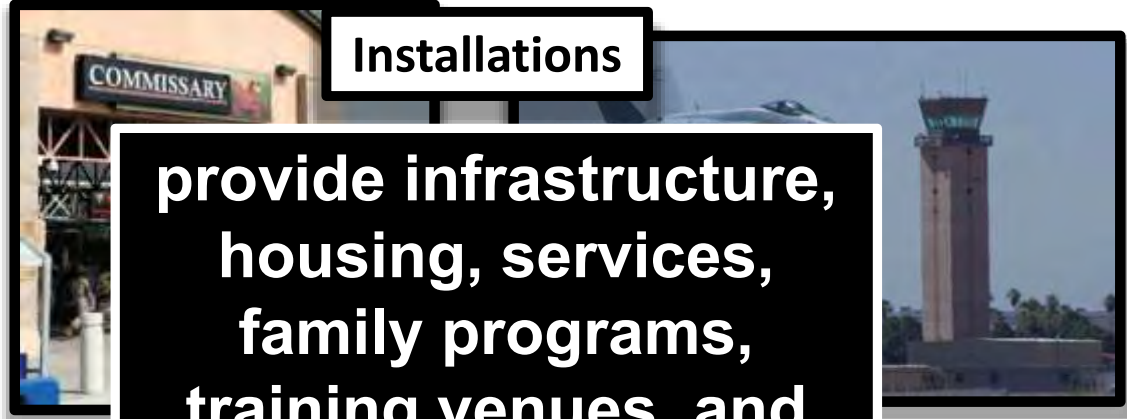
# Installations Support Operating Forces



**SUPPORTING ESTABLISHMENT**

**OPERATING FORCES**

**Installations**



**provide infrastructure, housing, services, family programs, training venues, and force protection**



**do not protect or manage installations**







# UASs Supporting Installations

## Installation Responsibilities:

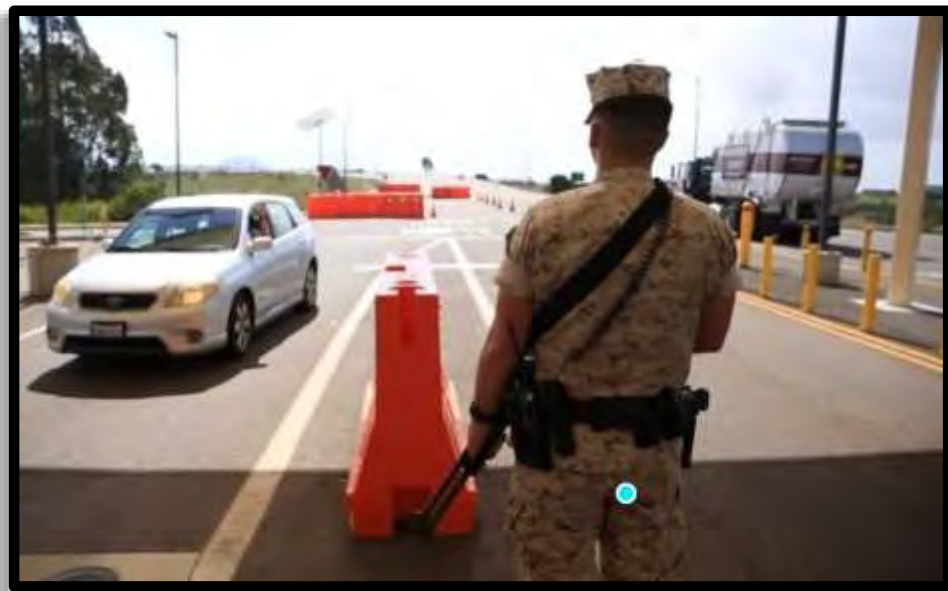
- Resource Management/ Conservation
- Disaster Management
- Force Protection
- Provide Utilities
- Safety





# UASs Supporting Installations

**Can UASs help installations do these things better, more safely, and cheaper?**





# FIND

EOC  
Fusion Center



Web-based feed

Ground Control Station

MQ-9A Reaper

- Synthetic Aperture RADAR
- Ground Moving Target Indicator
- Electro Optical/Infrared Video Moving Target Indicator
- Artificial Intelligence Minotaur Integration

4G LTE feed

Ground-based Surveillance Tower



Surveillance Tower Feed



MQ-9 Feed

Lost Hiker



Poacher

# CONFIRM





**FIX**

EOC  
Fusion Center



Ground Control Station



MQ-9A Reaper



RQ-21 Blackjack



RQ-20 Puma



Drone launched from  
surveillance tower



Ground-based  
Surveillance Tower



Instant Eye



Lost Hiker



Poacher



Surveillance  
Drone Feed



4G LTE feed

4G LTE feed



Surveillance Tower  
Feed



MQ-9  
Feed



RQ-21  
Feed



Surveillance Drone  
Feed

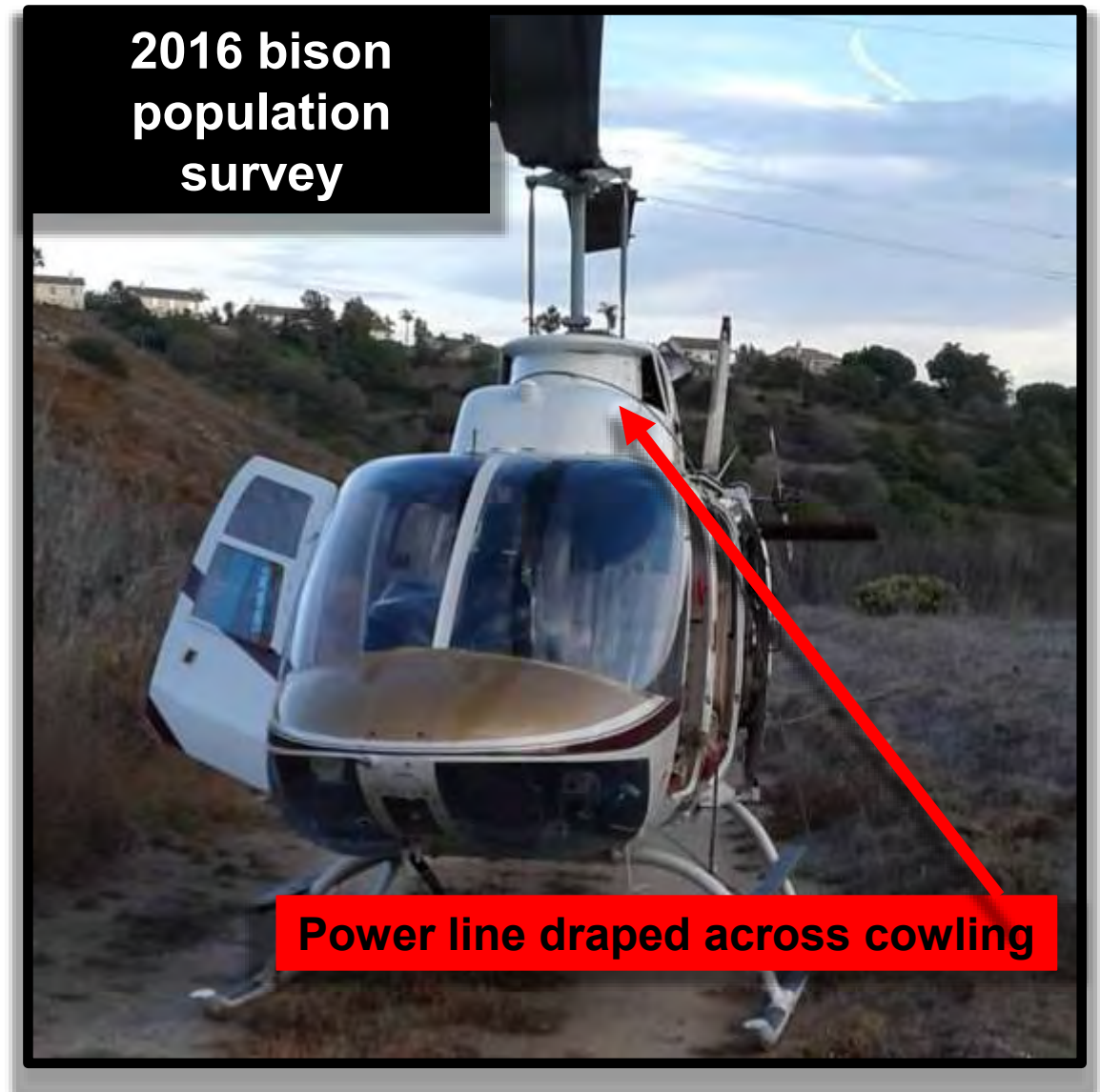


# Operation Wild Buck



## The Problem

- Camp Pendleton Game Warden surveys wild deer and bison population via contracted helicopter
- Helicopter survey = most scientifically sound method
- Helicopter survey = expensive and dangerous







# Operation Wild Buck

December 2018



## WHAT WE ACHIEVED

- Integrated UAS stacks/coordination
- Target cueing from Group 5 UAS to Group 1 UAS
- Real-time UAS feed into Camp Pendleton Emergency Operations Center via URL client
- Clear, reliable comms between all participants via Enterprise Land Mobile Radio (E-LMR) Network:
  1. Camp Pendleton Emergency Operations Center
  2. MQ-9A GCS at March Air Reserve Base (Riverside, CA)
  3. Game Warden/ Puma UAS operators in the field
  4. Deer Scouts on hilltop



# OPERATION WILD BUCK COST COMPARISONS



METHOD	PLANNING MAN HOURS	EXECUTION MAN HOURS	MAINTENANCE MAN HOURS	DEER COUNTING PERSONNEL	SUPPORT PERSONNEL	FUEL COST PER FLIGHT HOUR	MAINTENANCE COST PER FLIGHT HOUR	TOTAL COST PER FLIGHT HOUR	ORM VALUE
<b>Contracted manned helicopter</b>	<b>4</b>	<b>20</b>	<b>n/a</b>	<b>3</b>	<b>2</b>	<b>Included in contract</b>	<b>Included in contract</b>	<b>\$1250</b>	<b>2</b>
MQ-9A Reaper	6	60	10.3	1	10	\$96	\$591	\$687	3
RQ-20A Puma	2	8	1	1	3	Battery-operated	TBD	TBD	5
<b>Group 5 + Group 1 UAS</b>	<b>8</b>	<b>68</b>	<b>11.3</b>	<b>2</b>	<b>13</b>	<b>\$96</b>	<b>TBD</b>	<b>\$687+</b>	<b>4</b>





# OPERATION WILD BUCK COST COMPARISONS



METHOD	PLANNING MAN HOURS	EXECUTION MAN HOURS	MAINTENANCE MAN HOURS	DEER COUNTING PERSONNEL	SUPPORT PERSONNEL	FUEL COST PER FLIGHT HOUR	MAINTENANCE COST PER FLIGHT HOUR	TOTAL COST PER FLIGHT HOUR	ORM VALUE
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<b>Group 5 + Group 1 UAS</b>	<b>8</b>	<b>68</b>	<b>11.3</b>	<b>2</b>	<b>13</b>	<b>\$96</b>	<b>TBD</b>	<b>\$687+</b>	<b>4</b>

Assumes most catastrophic risk of Class A mishap



Assumes standard flight planning + 5 hour execution window





# OPERATION WILD BUCK COST COMPARISONS



METHOD	PLANNING MAN HOURS	EXECUTION MAN HOURS	MAINTENANCE MAN HOURS	DEER COUNTING PERSONNEL	SUPPORT PERSONNEL	FUEL COST PER FLIGHT HOUR	MAINTENANCE COST PER FLIGHT HOUR	TOTAL COST PER FLIGHT HOUR	ORM VALUE
Contracted manned helicopter	4	20	n/a	3	2	Included in contract	Included in contract	\$1250	2
<b>Contracted manned helicopter: 5 personnel, 24 man hours, \$1250/hour, higher risk</b>  <b>Group 5 + Group 1 UAS: 15 personnel, 87.3 man hours, \$687+, lower risk</b>									
MQ-9A Reaper									3
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# OPERATION WILD BUCK COST COMPARISONS

METHOD	PLANNING MAN HOURS	EXECUTION MAN HOURS	MAINTENANCE MAN HOURS	DEER COUNTING PERSONNEL	SUPPORT PERSONNEL	FUEL COST PER FLIGHT HOUR	MAINTENANCE COST PER FLIGHT HOUR	TOTAL COST PER FLIGHT HOUR	ORM VALUE
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**Contracted manned helicopter: 5 personnel, 24 man hours, \$1250/hour, higher risk**

**Group 5 + Group 1 UAS: 15 personnel, 87.3 man hours, \$687+, lower risk**



These costs are expended in training and operations that would be scheduled anyway, and hence, not additive costs



# Operation Wild Buck



## LESSONS LEARNED

### ■ **COORDINATION/SETUP PROCESSES**

- Have a pre-built template for more efficient future employment

### ■ **ELECTRONIC TRANSFER OF DATA**

- Radio/other electromagnetic interference
- cable lengths
- E-LMR/ Microwave Backhaul Service

### ■ **VARYING QUALITY OF VIDEO FEED**

### ■ **BE ABLE TO COMMUNICATE BY GEOLOCATION**

- UAS crew operators
- Command Center C2 systems



RQ-21 Blackjack at CAMPEN outlying field





# COMMAND AND CONTROL



**Command  
and Control**

**Drones**

**Don't put the cart  
before the horse**



Questions?