



# UAS INTEGRATION PILOT PROGRAM



U.S. Department of Transportation  
Federal Aviation Administration

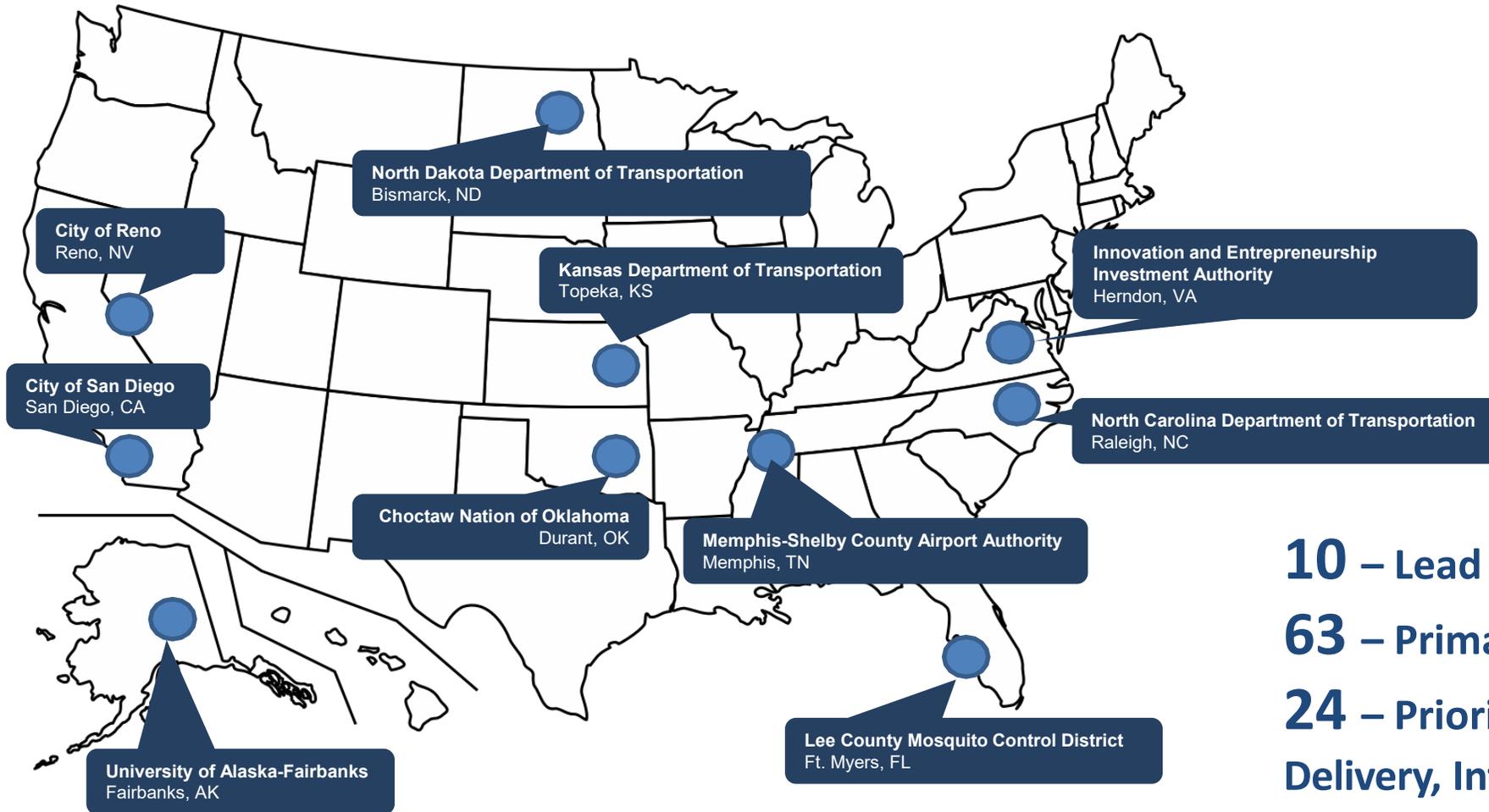
## Program Overview

Russ Buchholz, UAS Integration Program Administrator





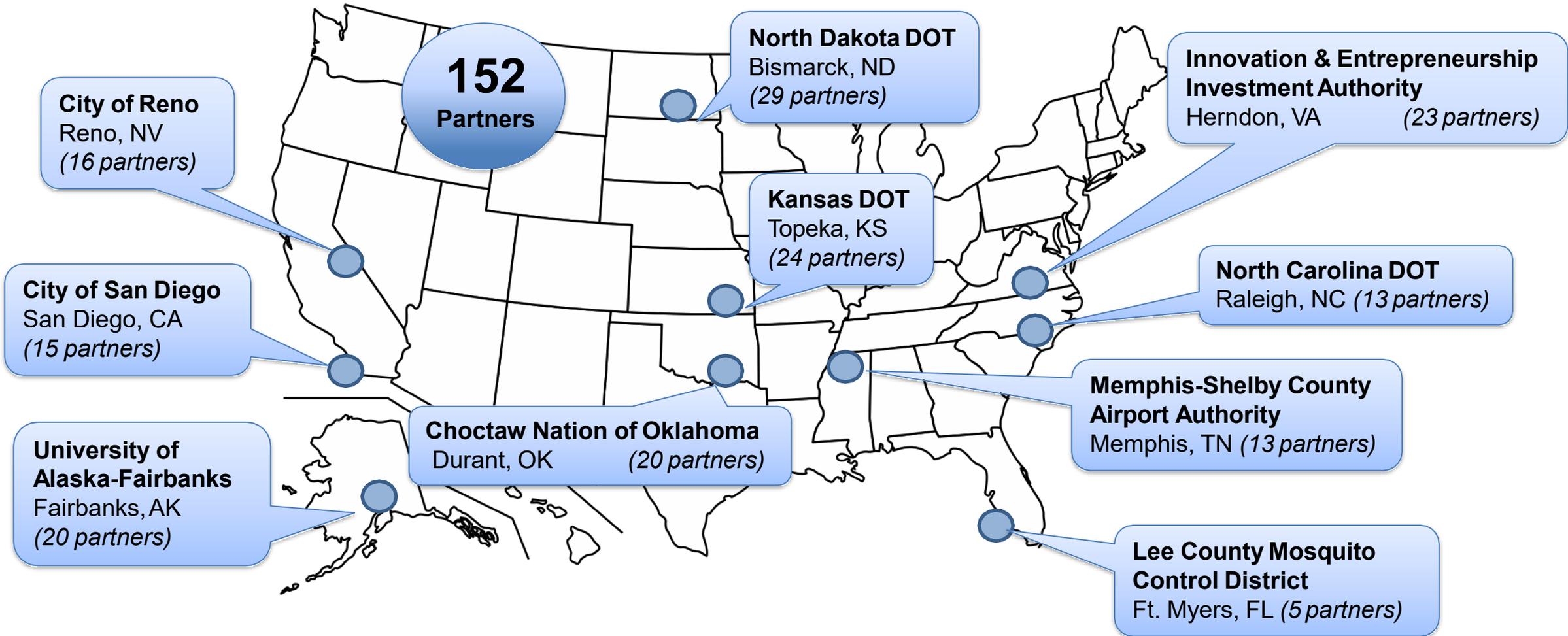
# IPP – National Effort



**10** – Lead Participants,  
**63** – Primary Team Members  
**24** – Priorities (i.e. Package  
Delivery, Infrastructure Inspections)



# IPP – Federal, State, Tribal, and Private Partnerships



Note: Some partners are shared across multiple Lead Participants



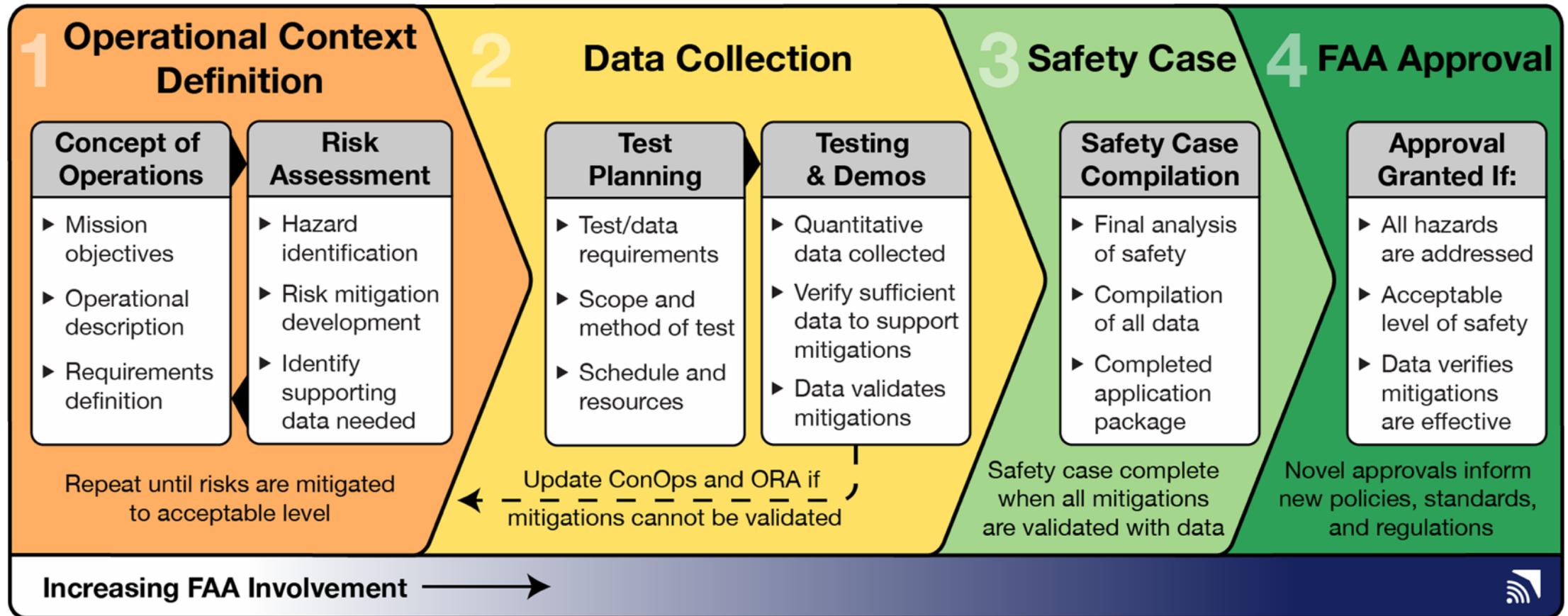
## FAA's Involvement

- **Five** assigned Program Managers assigned specifically to selected entities
- **An entire program office** dedicated to the IPP
- FAA team of **140 experts** ready to assist





# Safety Case Development Process



# IPP Contributions to Repeatable and Scalable





## Accomplishments so far:

- **Multiple** part 107 waivers awarded for Beyond Visual Line of Sight and Operations Over People
- **Many** demonstrations covering:
  - Infrastructure inspections
  - Package delivery
  - Media coverage
- Logged **315** flights into Data Portal



# Overview

- Pulling the Research Thread
- Waiver Trend Analysis Framework
- Analyzing Safety Risk Assessments
- Defining Operational Critical Paths

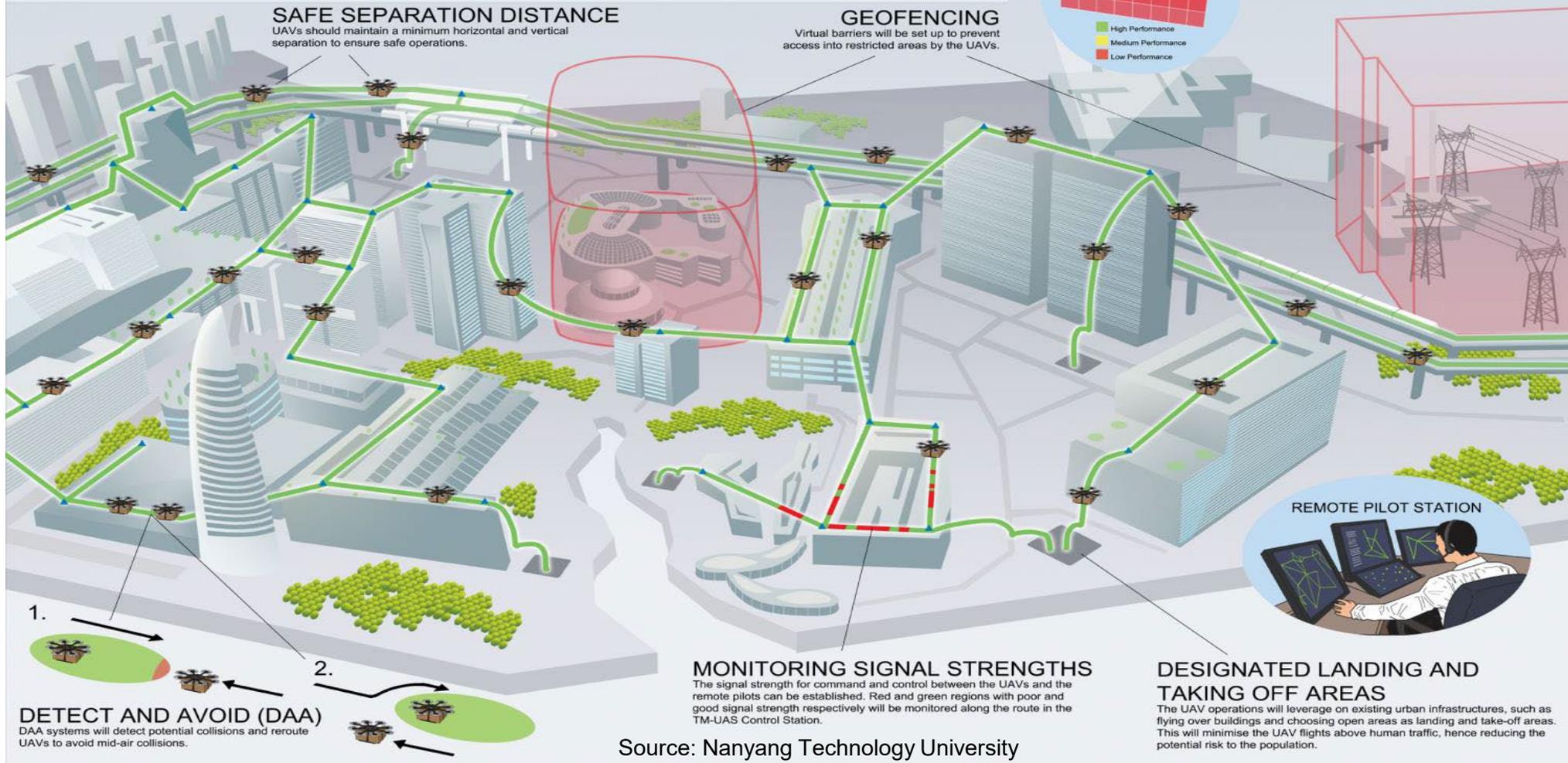


*Research + Operations = Rulemaking*



## The Goal: Enable cross-modal technologies to ensure safe operations in any environment

The skies will in the future be filled with Unmanned Aircraft Vehicles (UAVs, or commonly known as drones) for delivery, inspection, rescue and surveillance purposes. With the increasing density of UAV operations, it is important to have an efficient and safe traffic management system to ensure the urban airspace can be utilised optimally with population's safety. Nanyang Technological University's scientists from Air Traffic Management Research Institute (ATMRI) is aiming to free up the urban airspace for UAV operations, developing technologies such as traffic management control, smart routing and collision avoidance.



Source: Nanyang Technology University

**NDDOT**  
North Dakota  
Department of Transportation



# NDDOT Integration Pilot Program



# Program Overview

▶ **Mission I**

Emergency and Media Response

▶ **Mission II**

Infrastructure Inspections

\* Selected by FAA

# Mission I

## Emergency and Media Response

Partners: CNN and Botlink, Cass Co Sheriff, ParaZero, Vigilant Aerospace Systems, NDSU

- ▶ Operation over People (OOP)
- ▶ Operated in a Controlled Airspace (Class D)
- ▶ Parachute used for Risk Mitigation w/ DJI
- ▶ 2 UASs flying simultaneously for sustained amount of time

\*Vantage Robotics Snap (mass alone)

\*DJI Phantom 4 (mass + parachute)

- ▶ Community Outreach
  - NDSU
  - Public perception



# Mission I Highlights

- ▶ Safety was and still is our #1 Priority
- ▶ Pilots performed in a Sterile Environment
- ▶ Media Coverage
- ▶ Attended by a lot of Dignitaries
- ▶ Community Outreach Booth - Survey and Social Media (Facebook and Snapchat)
- ▶ Website [dot.nd.gov/UAS](http://dot.nd.gov/UAS)

Video by  
Botlink





# Mission II

## Infrastructure Inspections

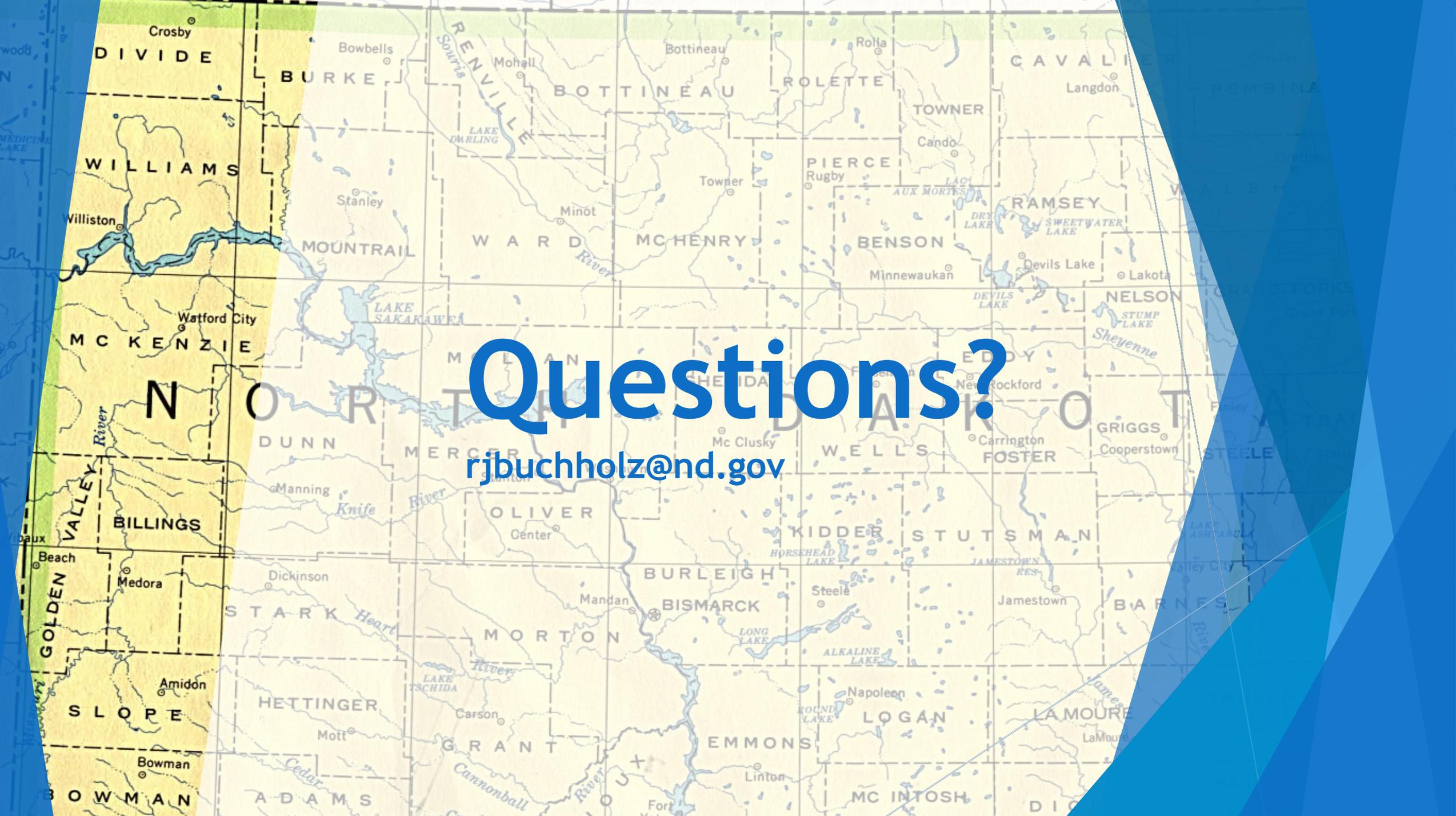
Partners: Xcel Energy, Harris Corporation, Appareo, Echodyne

- ▶ Using existing BVLOS and Night Navigation Waivers
- ▶ Leveraging PSP, operating currently in a Rural Environment in Colorado
- ▶ Upcoming : City Limits of Grand Forks, ND
- ▶ Static Routes vs Dynamic Routes
- ▶ Concerns / Obstacles
  - Operations of Moving Vehicles
  - Operations over People
- ▶ Unmanned Aircraft System
  - \*Vapor 55 or \*TBD
- ▶ Timeframe: May 2019



AirMap  
Adams Communication & Engineering  
Technology (ACET)  
Airbus Americas Inc. dba Airbus Aerial  
Altavian, Inc  
Appareo  
Botlink  
CNN - Cable News Network  
Echodyne  
Grand Forks Regional Economic Dev.  
Harris Corporation  
Iridium Satellite LLC  
North Dakota Department of Commerce  
North Dakota Department of Emergency  
Services  
North Dakota League of Cities  
North Dakota Aeronautics Commission  
North Dakota Aviation Council (General  
Aviation)  
North Dakota Game and Fish Department  
North Dakota Highway Patrol

North Dakota Indian Affairs Commission  
North Dakota Lt. Governor Office  
North Dakota National Guard, Office of the  
Adjutant General  
North Dakota Safety Council  
North Dakota State College of Science (NDSCS)  
North Dakota State Office of Adjutant General  
North Dakota State University (NDSU)  
Northern Plains UAS Test Site  
ParaZero  
Regulus Cyber  
Rockwell Collins  
Simulyze, Inc  
TURTLE MOUNTAIN Band of Chippewa Indians  
uAvionix  
University of North Dakota (UND)  
University of North Dakota (UND) - Rias  
Vigilant Aerospace Systems, Inc.  
Xcel Energy

A map of North Dakota showing county boundaries and names. The map is overlaid with a blue geometric graphic on the right side. The word "Questions?" is written in large blue font across the center of the map. Below it, the email address "rjbuchholz@nd.gov" is written in a smaller blue font. The map includes labels for various counties such as Divide, Burke, Renville, Bottineau, Rolette, Cavalier, Williams, Mountrail, Ward, McHenry, Benson, Ramsey, Nelson, Mckenzie, North Dakota, Eddy, Griggs, Foster, Steele, Billings, Oliver, Kidder, Stutsman, Golden Valley, Stark, Burleigh, Bismarck, Morton, Logan, La Moure, Slope, Hettinger, Grant, Emmons, and Bowman. It also shows major rivers like the Missouri, Yellowstone, and Red, and several lakes including Lake Sakakawea, Lake Tostee, and Lake Oahe.

# Questions?

[rjbuchholz@nd.gov](mailto:rjbuchholz@nd.gov)