

# ADVANCED TECHNOLOGY INITIATIVES

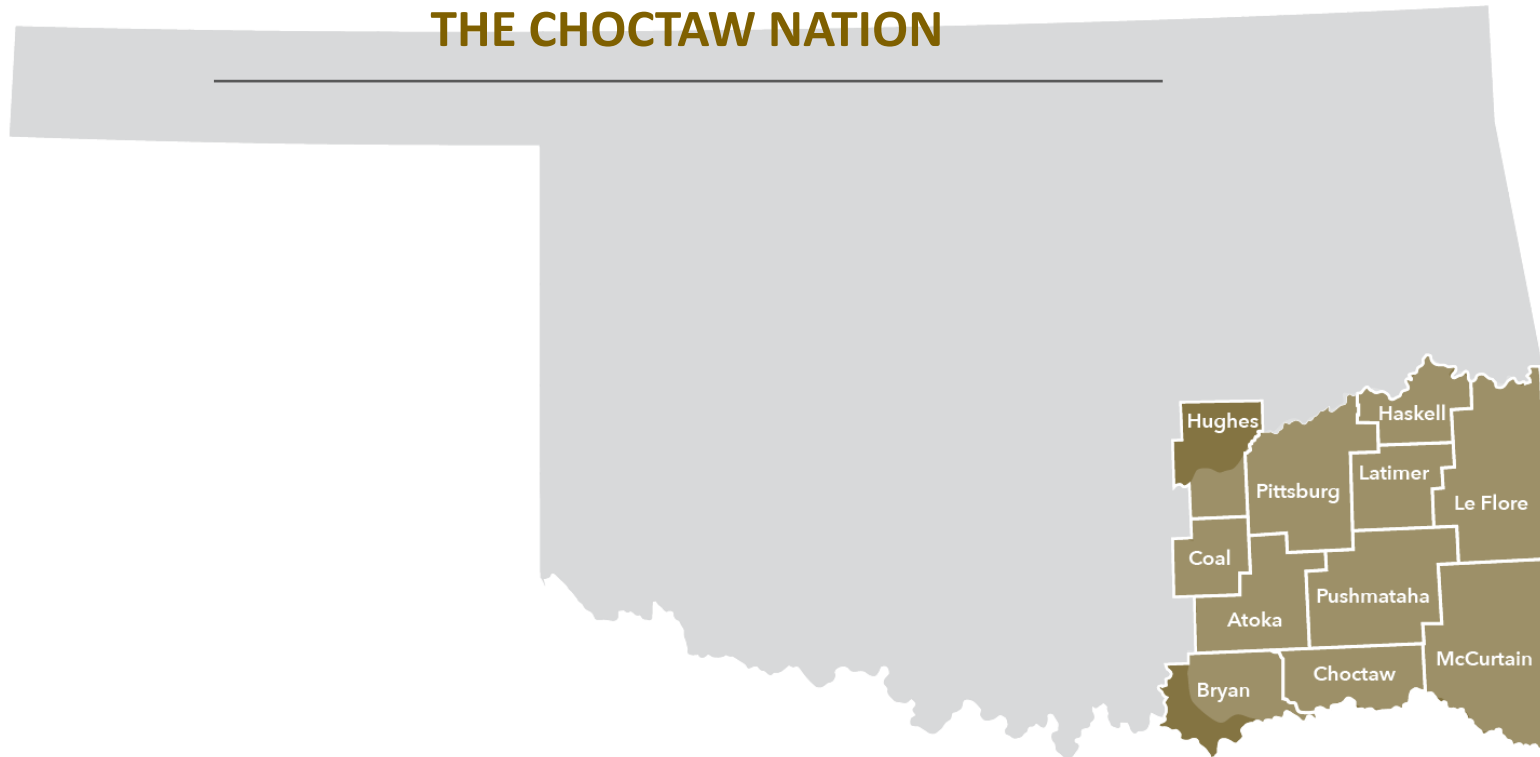
James L. Grimsley / Executive Director – Advanced Technology Initiatives



**Choctaw Nation** UAS BEYOND



## THE CHOCTAW NATION



The Choctaw Nation consists of 10½ counties in the southeastern part of Oklahoma. The Choctaw Nation is bounded on the east by the State of Arkansas, on the south by the Red River, on the north by the South Canadian, Canadian and Arkansas Rivers. The western boundary generally follows a line slightly west of Durant, then due north to the South Canadian River.

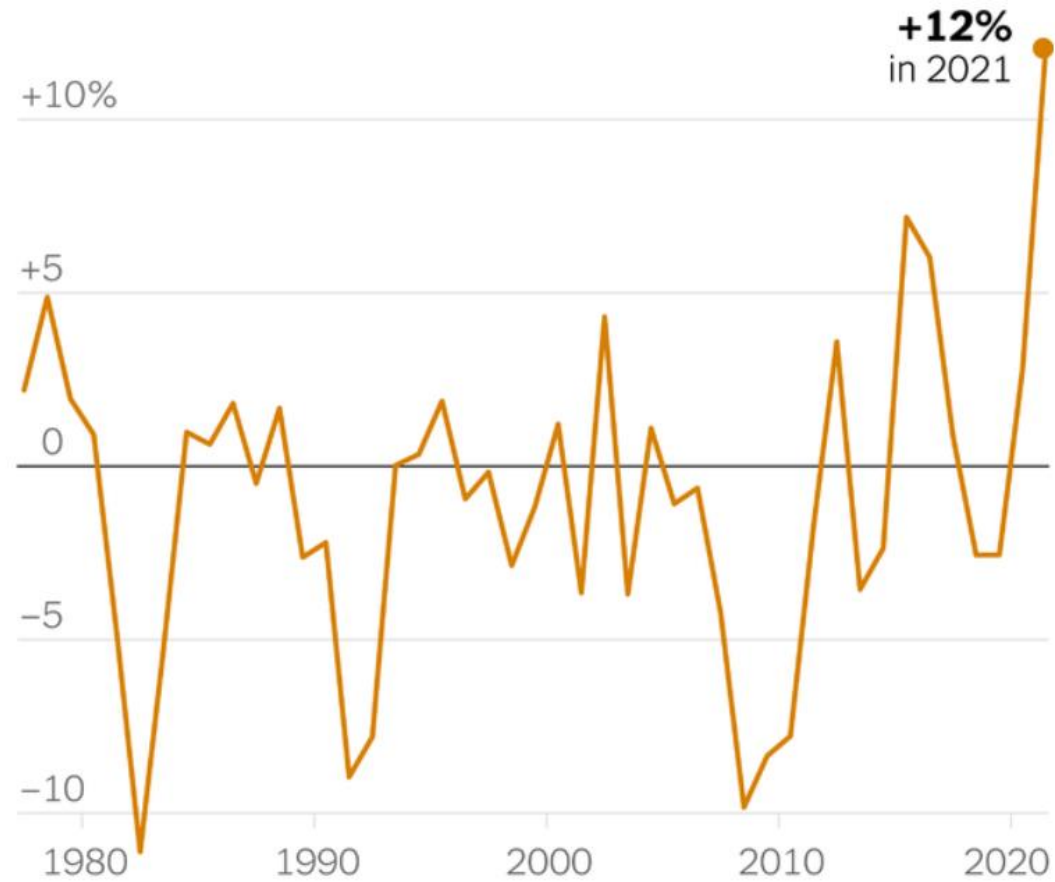


*Why?*

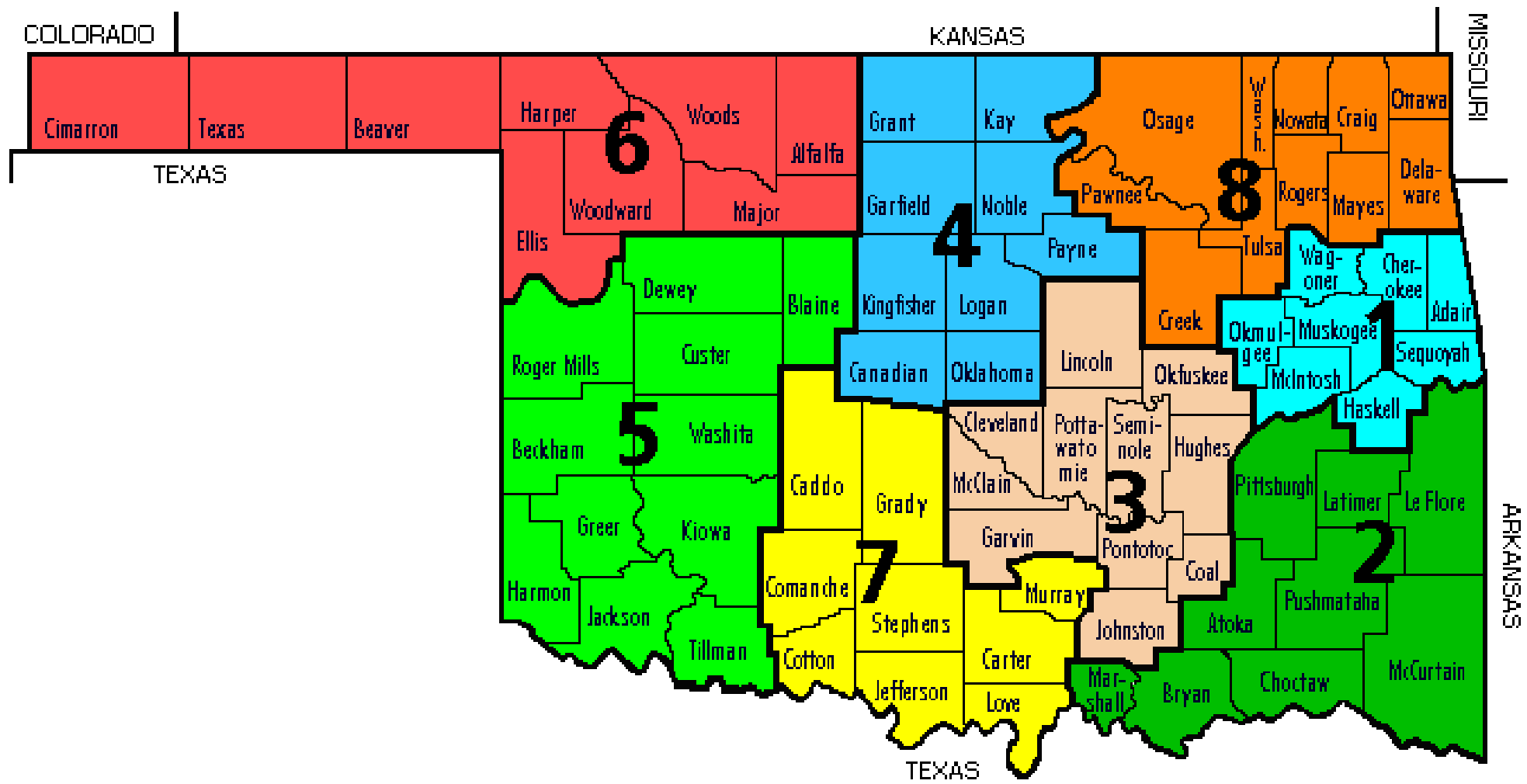


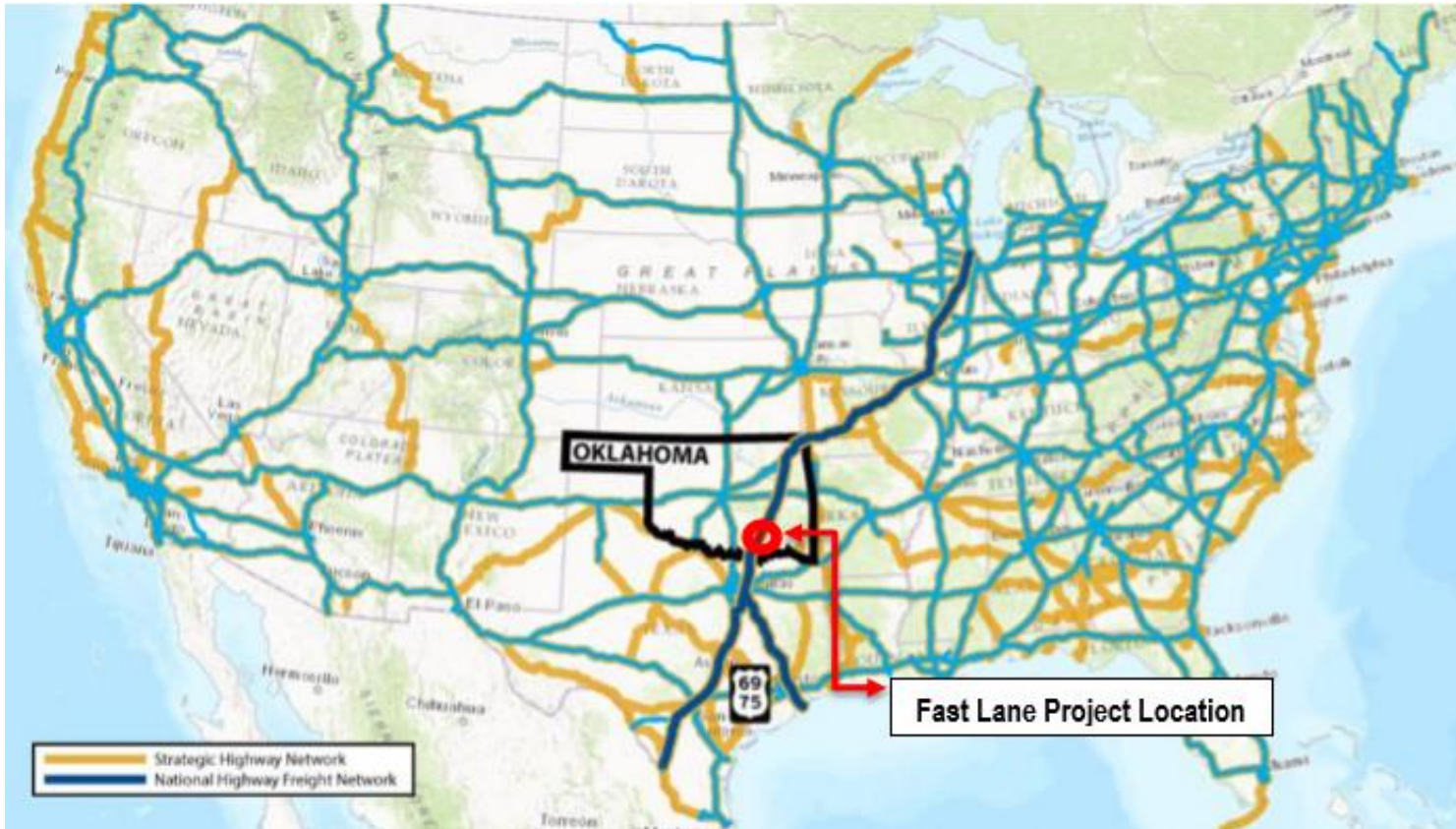
## U.S. traffic deaths per capita

Annual percent change ending in September of each year



Source: National Highway Safety Administration








# The Great Horse-Manure Crisis of 1894

The problem solved itself

Wednesday, September 1, 2004

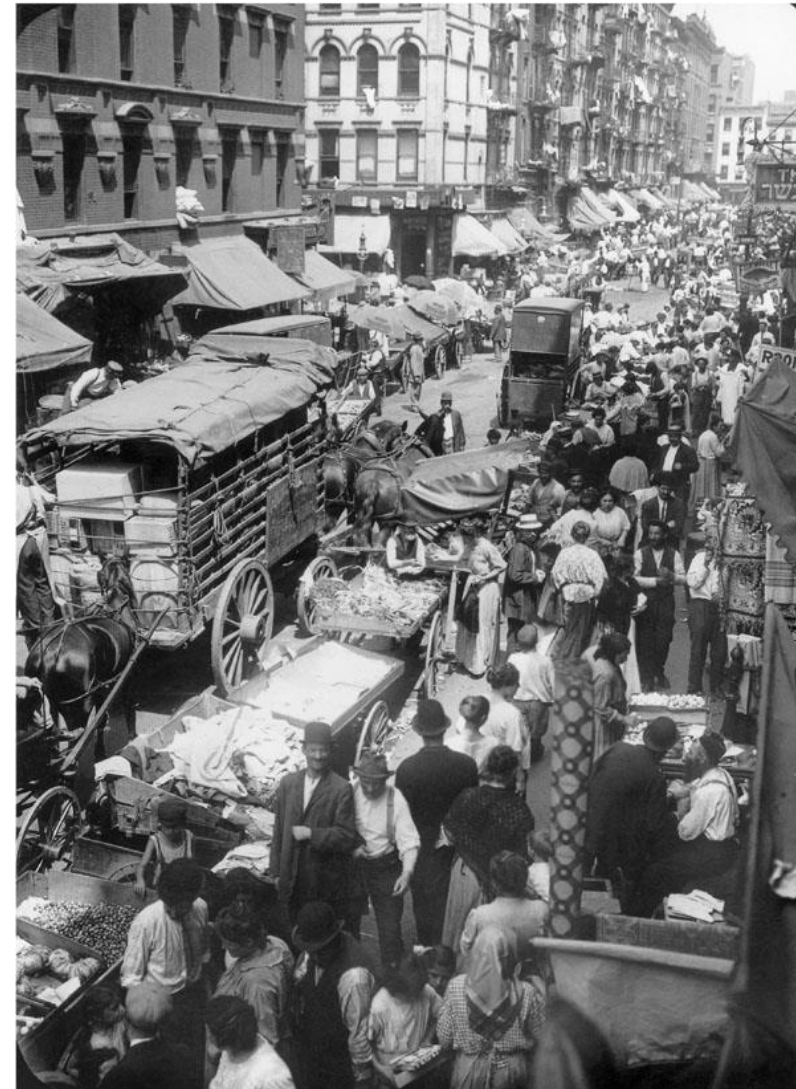


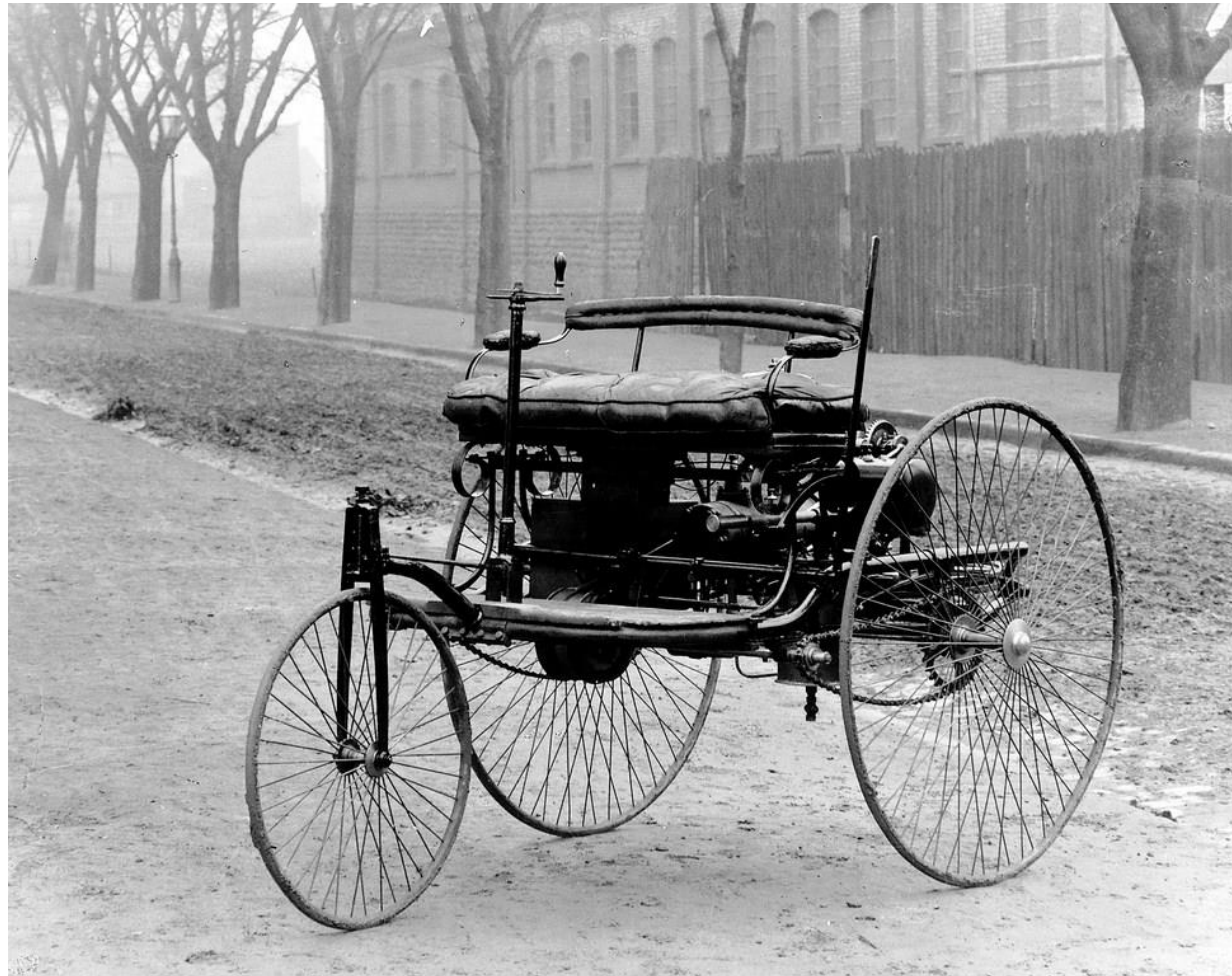
 Stephen Davies

Economic History Technology Innovation



**W**e commonly read or hear reports to the effect that "if trend X continues, the result will be disaster." The subject can be almost





**Benz Patent-Motorwagen 1885**





Easter morning 1900: 5<sup>th</sup> Ave, New York City. Spot the automobile.



Source: US National Archives.

Easter morning 1913: 5<sup>th</sup> Ave, New York City. Spot the horse.

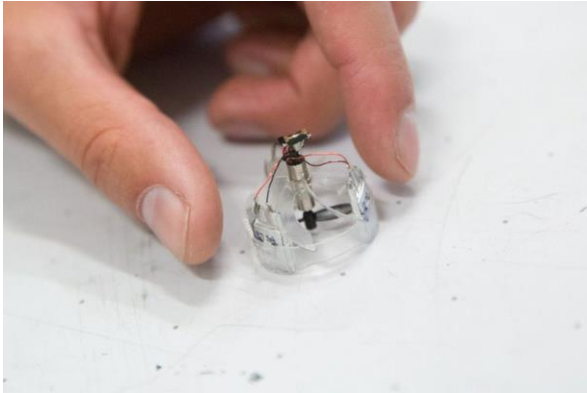


Source: George Grantham Bain Collection.



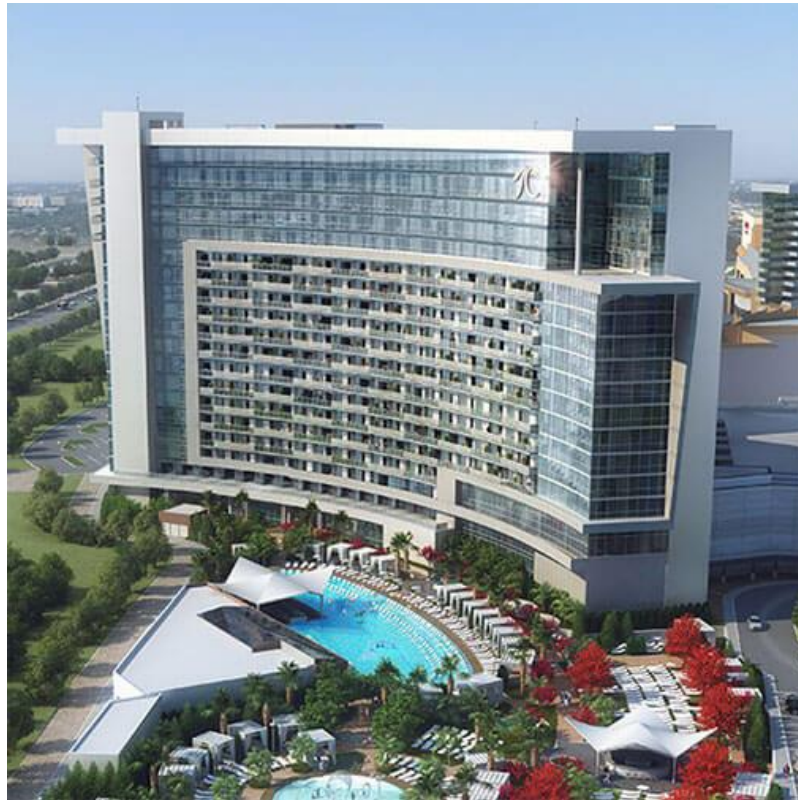


# Electric Propulsion





## THE CHOCTAW NATION





**May 2018:** Choctaw Nation of Oklahoma selected as only tribal government to participate in the FAA UAS Integration Pilot Program (IPP).

**October 2020:** Choctaw Nation started the FAA BEYOND program as the UAS IPP ended. BEYOND program is 4 years.

## Choctaw Nation Selected to Participate in FAA Drone Program Known as UASIPP

by STACY HUTTO

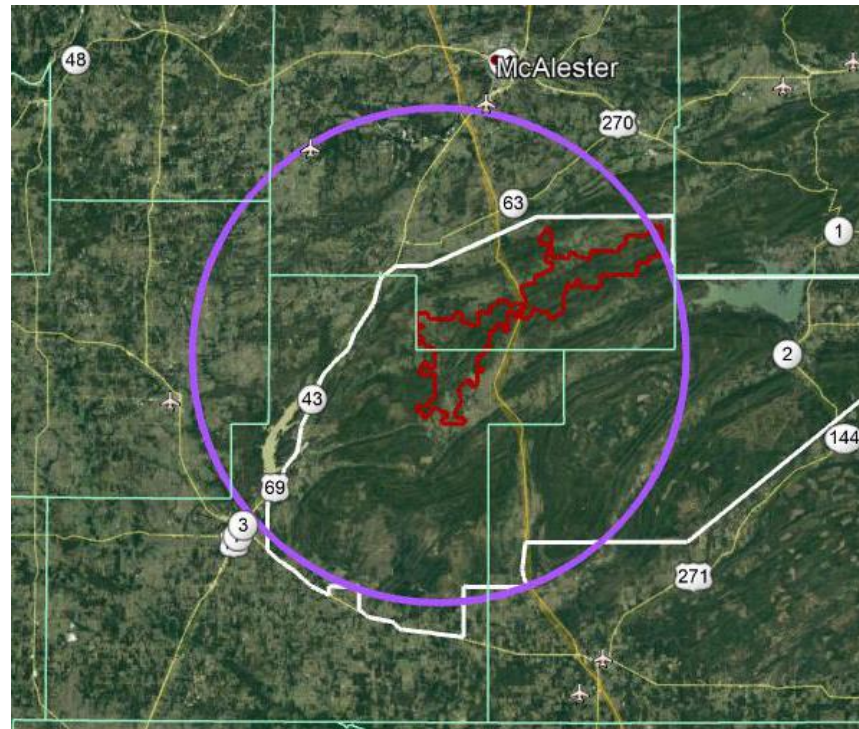


Chief Gary Patton and representatives from the City of San Diego, California; Innovation and Entrepreneurship Investment Authority, Herndon, Virginia; Kansas Department of Transportation, Topeka, Kansas; Lee County Mosquito Control District, Ft. Myers, Florida; Memphis-Shelby County Airport Authority, Memphis Tennessee; North Carolina Department of Transportation, Raleigh, North Carolina; North Dakota Department of Transportation, Bismarck, North Dakota; The City of Reno, Nevada; and the University of Alaska -Fairbanks, Fairbanks, Alaska learned they had been chosen for the initial Unmanned Aircraft Systems, or drone, Integration Pilot Program, or UASIPP, when U.S. Transportation Secretary Elaine L. Chao made the announcement on Wednesday, May 9.



# Choctaw Nation of Oklahoma Emerging Aviation Technology Center

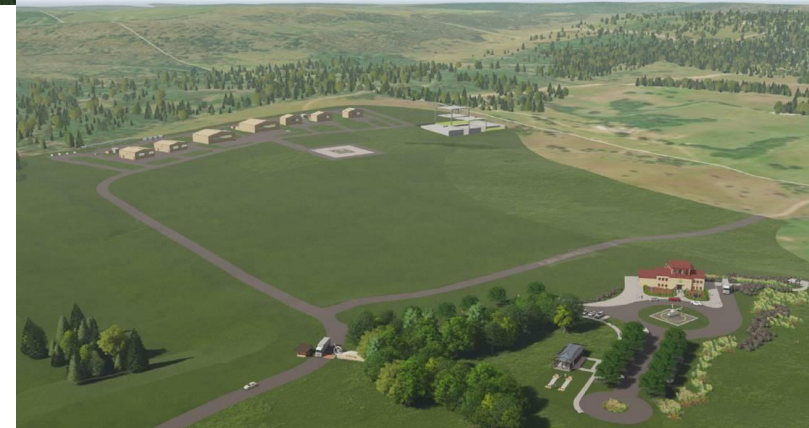
- The Choctaw Nation of Oklahoma (CNO) is the third largest federally-recognized Native American tribe in the United States.
- CNO is constructing an advanced aviation testing center located on 44,000+ acres of tribally-owned land in Southeastern Oklahoma.
- The test range is 25 miles long and can support a variety of testing scenarios for emerging aviation technology such as safe beyond visual line of sight (BVLOS) operations of unmanned aircraft and rapid access to flight testing for electric vertical take-off or landing (eVTOL) systems.
- CNO is making considerable investments in infrastructure (buildings, landing facilities, ground-based radar, communications links, etc.) to support a variety of test activities.
- The CNO was the only tribal government selected to participate in the Federal Aviation Administration (FAA) UAS Pilot Program (UASIPP) and is the only tribal government participating in the follow-on FAA BEYOND program.
- Package delivery, linear infrastructure inspection and weather research will be our focus during the BEYOND program.



- Red outline
  - Ranch boundaries
- White outline
  - Authorized airspace
- Purple outline
  - Radar coverage

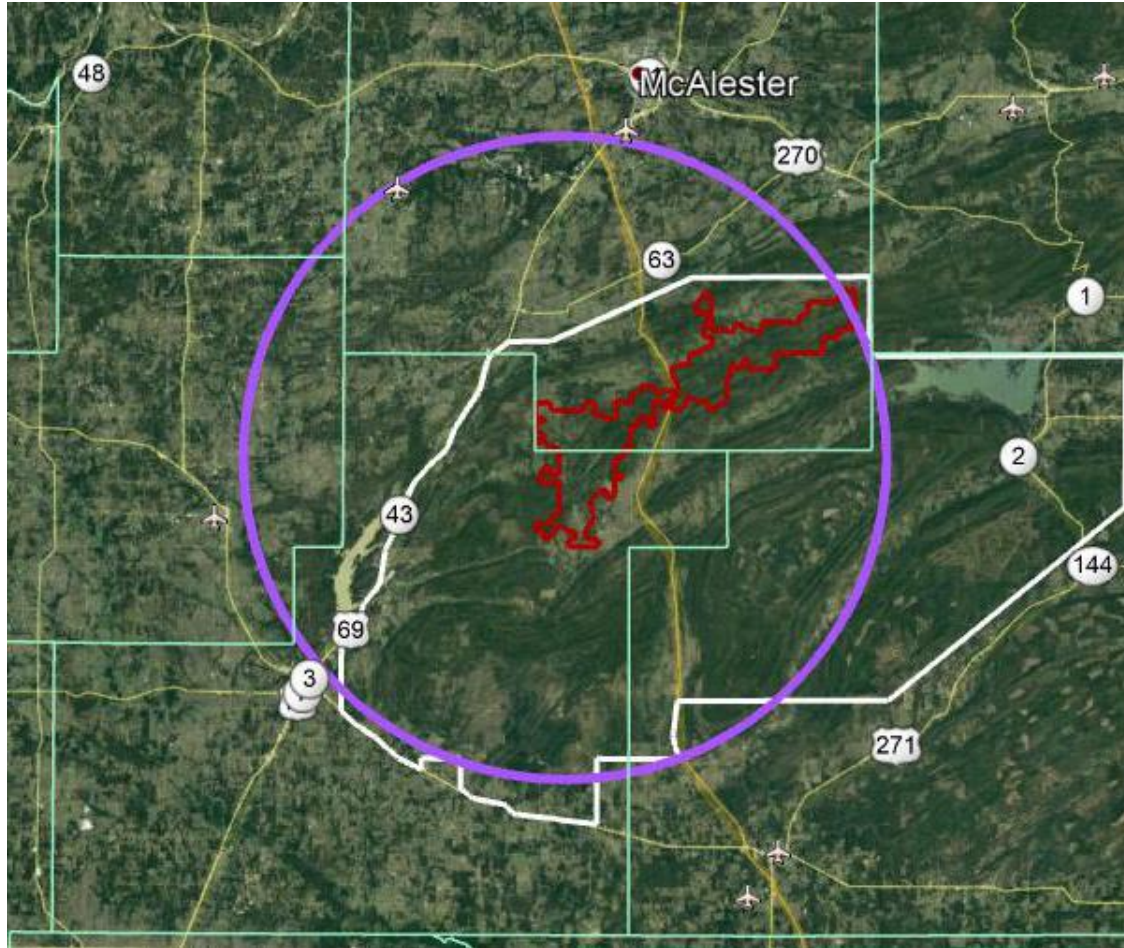


# Emerging Aviation Technology Center





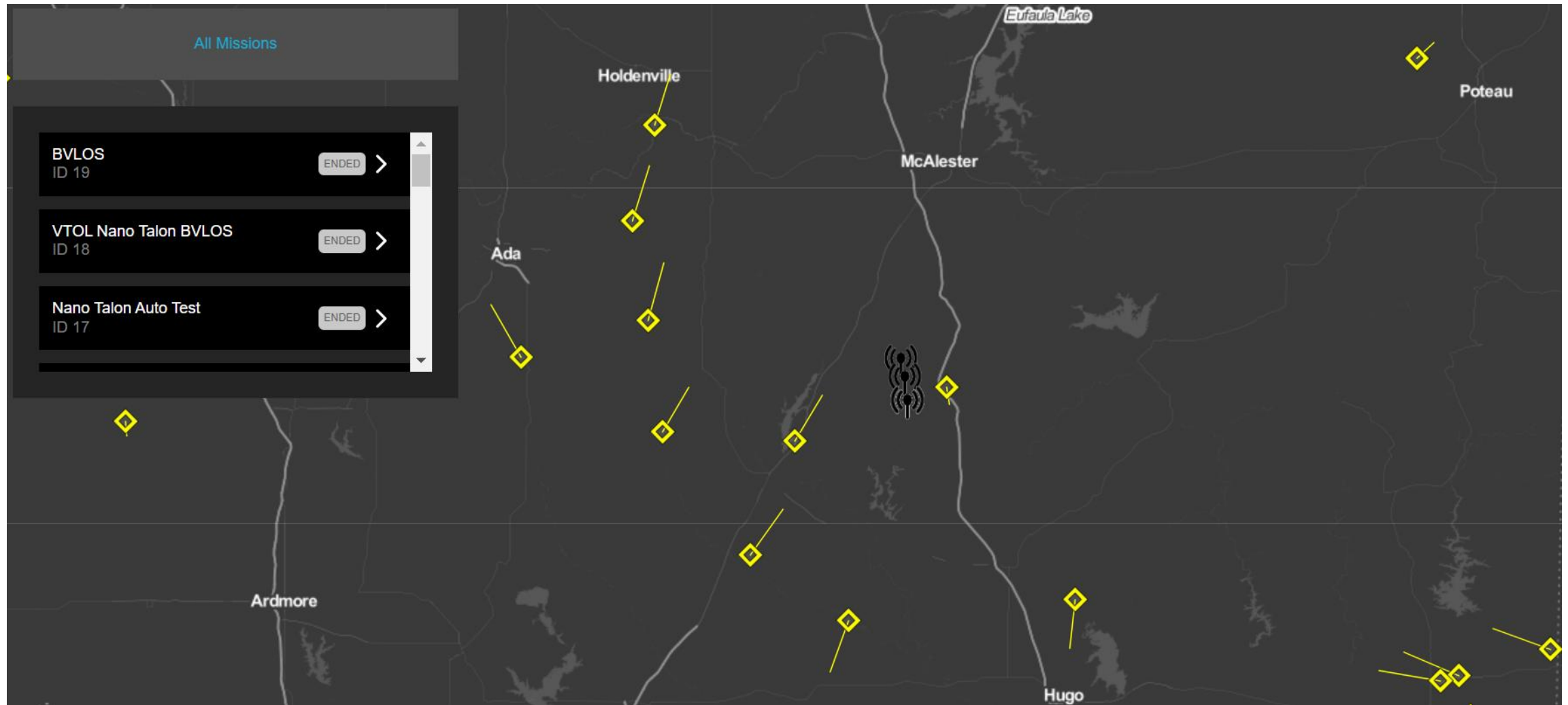
# Choctaw Nation of Oklahoma Emerging Aviation Technology Center







# ADS-B Surveillance System







# Ground-Based Radar System





## THE CHOCTAW NATION

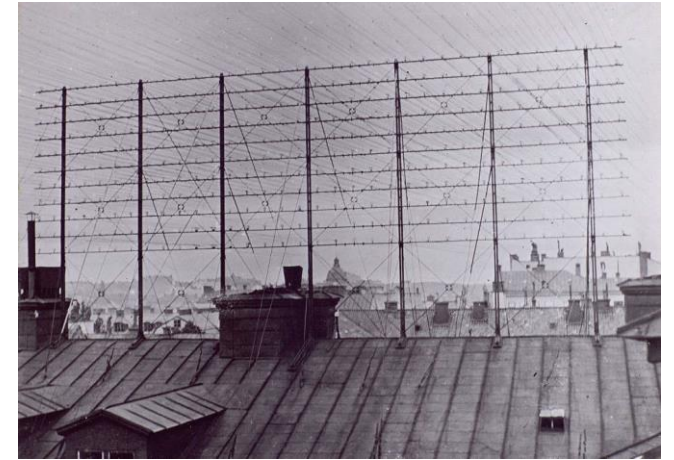
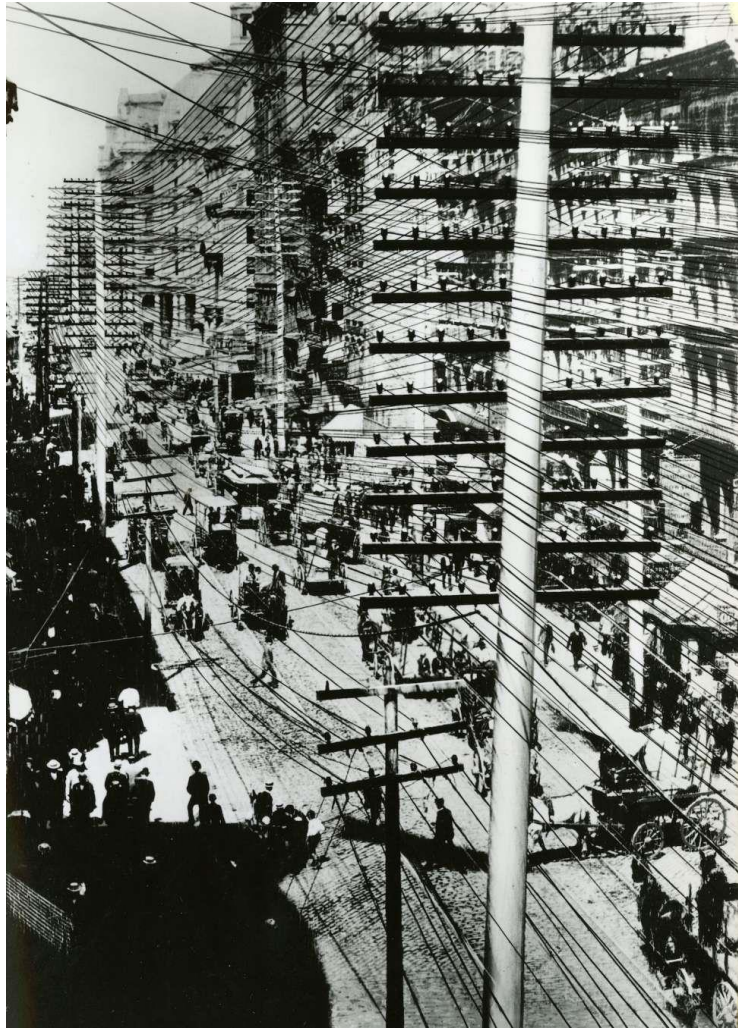
### Choctaw Ranch is:

- 135 miles to Plano, TX
- 115 miles to Tulsa, OK
- 118 miles to Ft. Smith, AR
- 150 miles to Oklahoma City, OK
- 155 miles to DFW Airport





***“Emerging technologies can be an ‘equalizer’ for quality of life and safety for rural and remote areas.”***





## National Rural Health Association Policy Brief



### EMS Services in Rural America: Challenges and Opportunities

Nikki King, MHSA, Marcus Pigman, MHA, Sarah Huling, BS- ARRT, ARDMS,  
and Brian Hanson, PhD

#### *Executive Summary:*

*Across the United States, about 57 million people, or 18% of the total population, call rural communities home<sup>1</sup>. While rural America may conjure idyllic images of family farms, the truth is far more staggering. Rural Americans, on average, tend to be older, sicker, and poorer<sup>2</sup>. The Centers for Disease Control (CDC) concludes in a recent report that “percentages of potentially excess deaths among persons aged <80 years from the five leading causes were higher in nonmetropolitan areas than in metropolitan areas”<sup>3</sup>. 26.7% of rural children live in poverty, a nearly 7% increase in recent years due, for the most part, to declining average family incomes<sup>4</sup>. In addition to declining incomes, the gap in life expectancies between rural and urban Americans has also been widening. A study of data that ranged from 1969-2009 found that the average life expectancy of rural Americans was just 76.7, nearly 2.5 years below that of their urban counterparts<sup>5</sup>. However, in some rural regions, the difference between urban and rural life expectancies is as much as 20 years<sup>6</sup>. Despite this clear need for increased healthcare access in rural areas, only 9% of practitioners in the U.S. work in rural America<sup>7</sup>. Additionally, rural hospitals are facing closure crisis, with about 41 percent of Critical Access Hospitals (CAHs) facing negative operating margins, which further decreases possible points of care for people with a pronounced need<sup>8 9</sup>.*



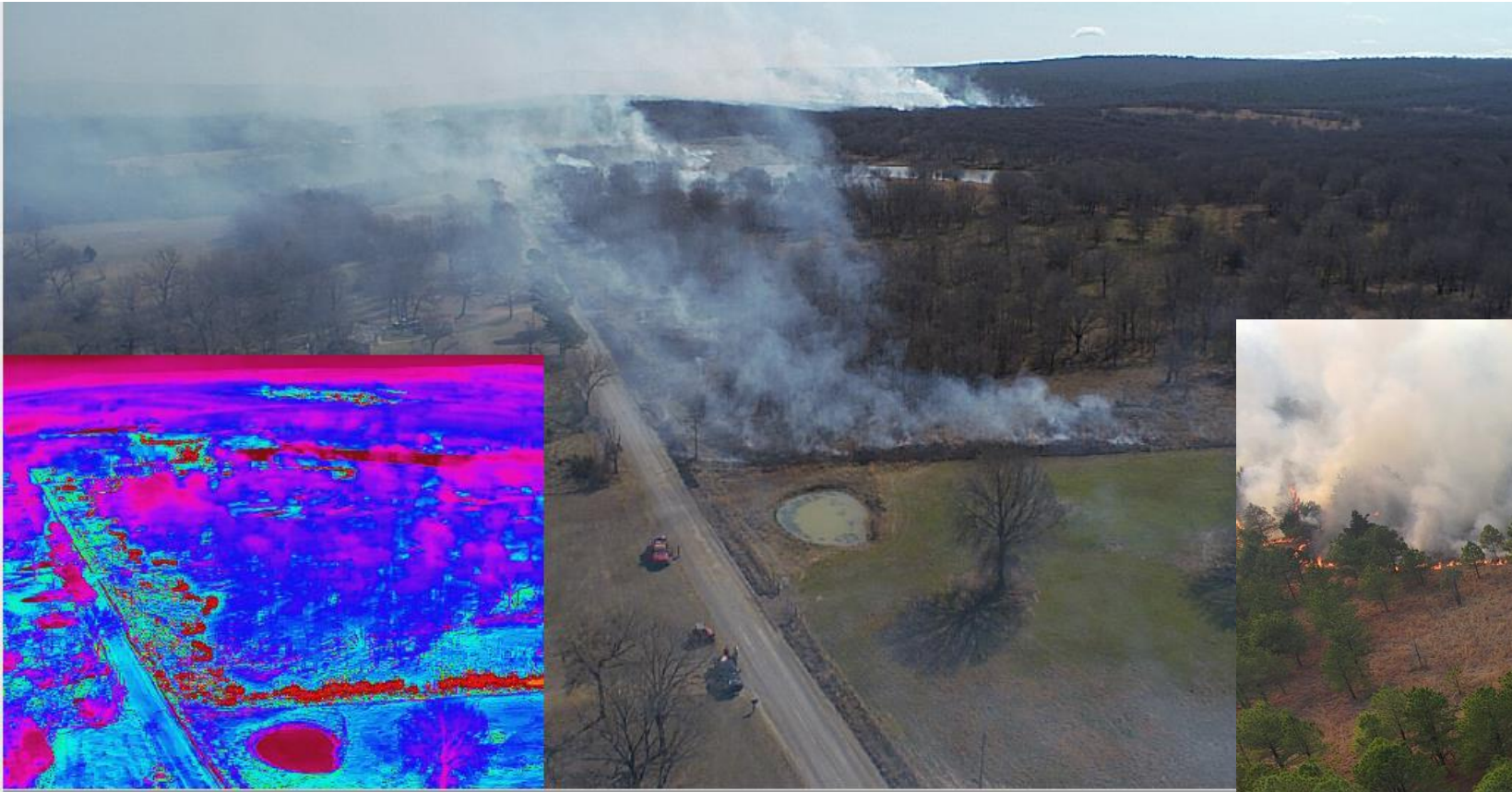


# *Other Missions*





# Forest Fire Missions





# Pecan Grove Inspections..





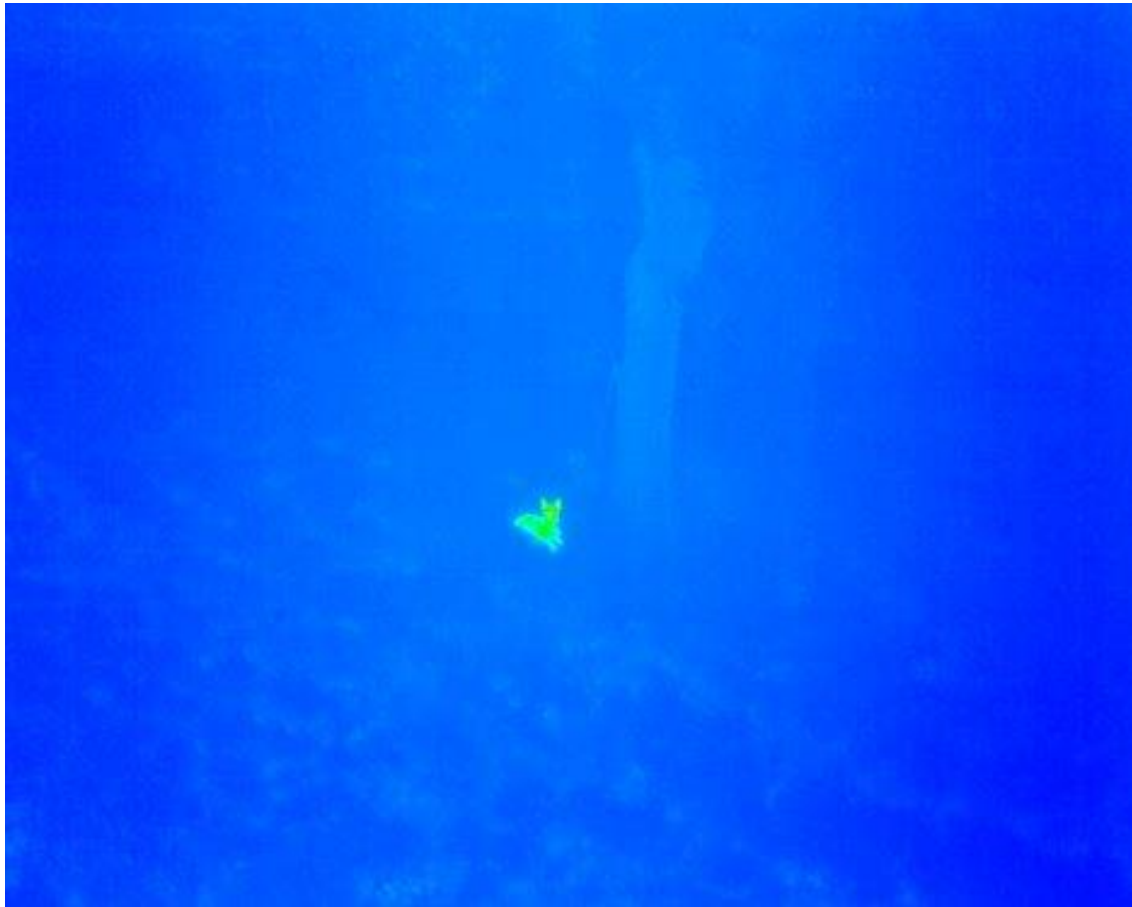
# Infrastructure Inspection



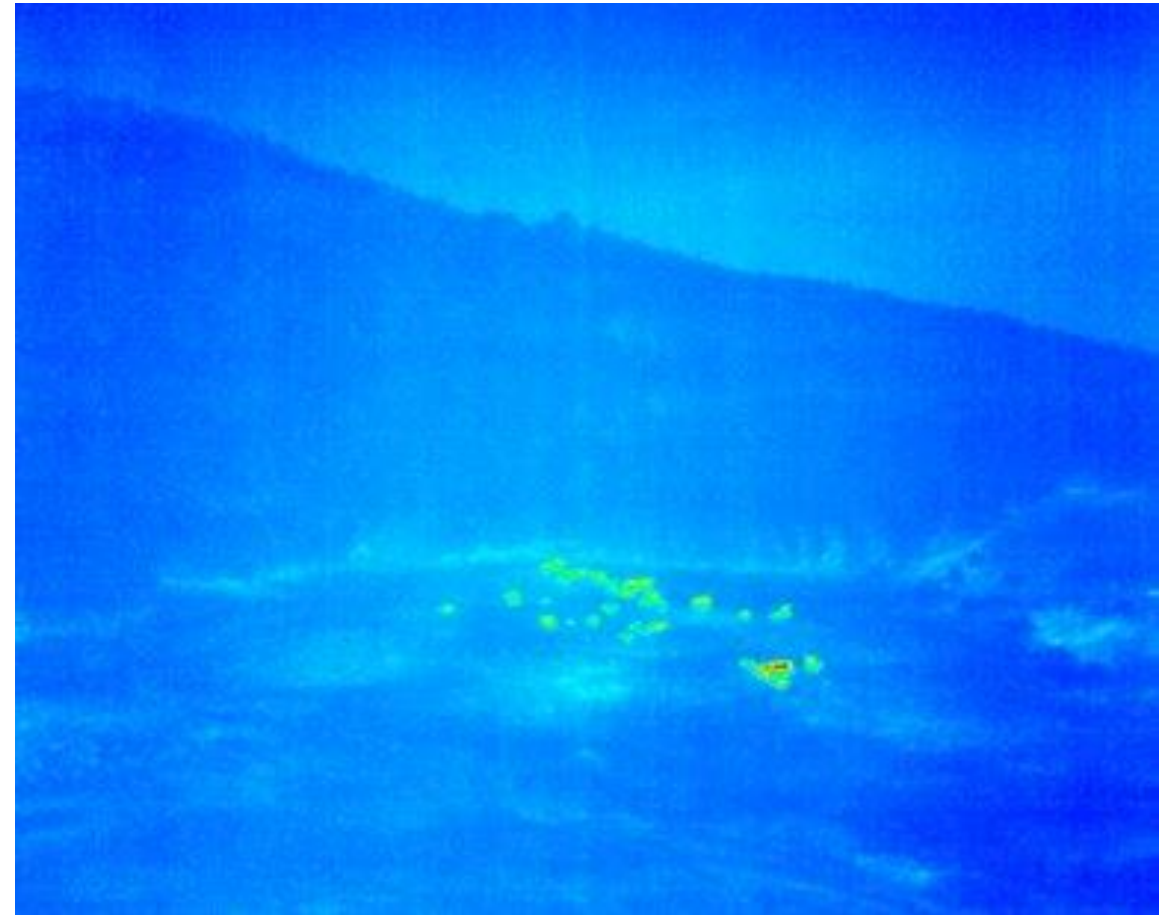
Aerial Image showing Cross Member damage only observable from the air



# Search and Rescue at Night



Lost puppy hiding under a tree



Cattle heat signature in mountains



# Tornado Post-Damage Assessment Flights





# Tornado Post-Damage Assessment Flights





## Townhalls and Community Outreach

- First ever IPP community outreach meeting in the U.S. on July 31, 2018 in Atoka, OK
- Reached thousands of people through multiple townhall meetings, community outreach events, and many industry events





# Our predictions...

- We see more activity in the near-term with crewed eVTOL systems
  - Clearer regulatory path to operations
  - Can be accommodated much easier in the NAS
- UAS (and especially small UAS) will still require a few years before we can see regular expanded and advanced operations (BVLOS, etc.)
  - Several rulemaking efforts must be completed first





# Benefits of Emerging Aviation Technology for Rural and Remote Areas

- Our ground transportation network will be increasingly more difficult to expand and sustain in the future
- Whereas infrastructure expansions such as rural broadband are accelerating, ground transportation infrastructure is not.
- “Democratization” of eVTOL can greatly benefit rural, remote and developing areas.



**Yakoke! (“Thank you!”)**

**James L. Grimsley**  
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