



U.S. Department
of Transportation

**Federal Highway
Administration**

Center for Accelerating Innovation



Unmanned Aerial Systems (UAS)

What is “*Every Day Counts*”(EDC)?

State-based model to identify and rapidly deploy proven but underutilized innovations to:

- ✓ shorten the project delivery process
 - ✓ enhance roadway safety
 - ✓ reduce congestion
 - ✓ improve environmental sustainability
-
- EDC Rounds: two year cycles
 - Initiating 5th Round (2019-2020) - 10 innovations
 - To date: 4 Rounds, over 40 innovations

For more information: <https://www.fhwa.dot.gov/innovation/>

FAST Act, Sec. 1444

Unmanned Aerial Systems



□ What are they?

- “Drones”
- Multi-use aircraft controlled from a **licensed** operator on the ground
- Coupled with sensors such as high definition cameras and LiDAR

□ What are they used for?

- Enhanced data acquisition for:
 - › **Structural Inspection**
 - › **Construction Inspection**
 - › **Emergency Response**

Benefits

- ❑ Improved Safety
- ❑ Increased Efficiency
- ❑ Increased Quality
- ❑ Reduced Costs

“An average cost savings of 40% over traditional inspection methods”

- Minnesota DOT

“Workforce was 45% more productive and the project was completed ahead of schedule”

- Utah DOT

“Reduced lane closures and increased safety for both workers and the traveling public”

- New Jersey DOT

Mission Statement

To facilitate the National Deployment of Unmanned Aerial Systems (UAS) to increase safety and efficiency, while saving time and money for the taxpayers.



Photo Credit: Ohio DOT



Photo Credit: North Carolina DOT



Photo Credit: Ohio DOT

Structural Inspection

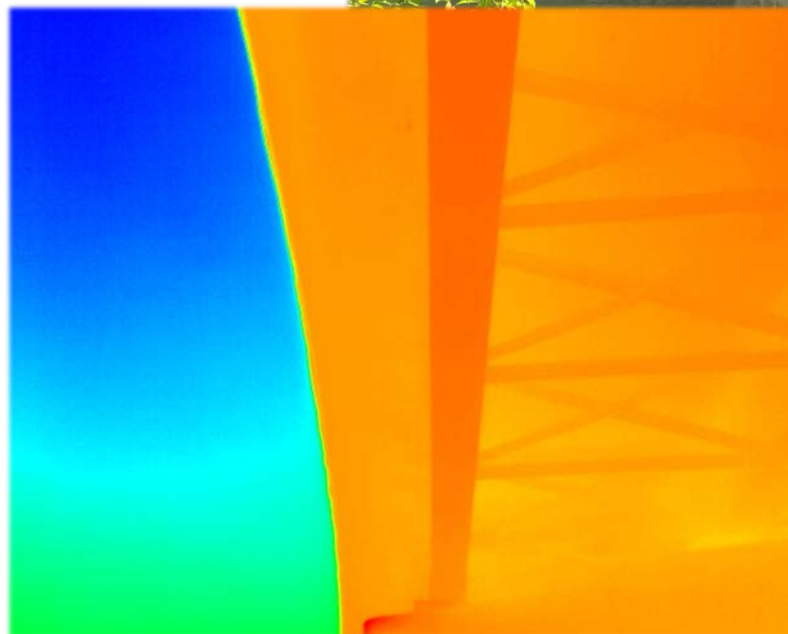
- ❑ Bridge Inspection
- ❑ High Mast Lighting
- ❑ Confined Space Inspection
- ❑ Retaining Walls
- ❑ Tunnels



Photo Credit: Ohio DOT



Photo Credit: Iowa State University



Construction Inspection

- ❑ Surveying
- ❑ Routing Inspection
- ❑ Construction Quantities
- ❑ Pre-Construction/Project Scoping
- ❑ Work Zone Traffic Monitoring

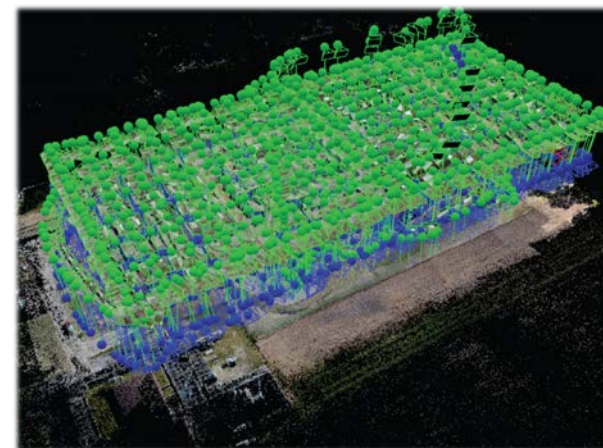


Photo Credit: Ohio DOT



Photo Credit: Ohio DOT

Emergency Response

- Flooding Events
- Wind Events
- Earth Movement (landslides, mudslides, volcanoes)
- Fire Events
- Earthquakes



Photo Credit: North Carolina DOT



Photo Credit: Ohio DOT

Core Implementation Team

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Office of Infrastructure, FHWA



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Army Corps of Engineers
Representative

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Emergency Response
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Rich Juliano

ARTBA Representative

Brian Deery

AGC Representative

Opportunities and Obstacles

Opportunities	Obstacles/Threats
<ul style="list-style-type: none">❖ UAS FAA Pilot Program❖ Public perception (Excitement)❖ STIC and AID funding❖ FAA regulations	<ul style="list-style-type: none">❖ Lack of organizational structure at the state level❖ Resistance to change❖ No control over others using drones

How to achieve our mission?

Ongoing Efforts	Proposed Efforts
<ul style="list-style-type: none">❖ FHWA National UAS Peer Exchange❖ PIARC Report and Webinar❖ Domestic SCAN❖ TechBrief Development❖ Bridge Inspection Data Management Project	<ul style="list-style-type: none">❖ Peer exchanges❖ Webinars❖ Guide specifications❖ UAS training programs❖ Regional Workshops

EDC-5 Funding Opportunities:

- ❑ ***State Transportation Innovation Council (STIC) Incentive***
 - ✓ Up to \$100,000 per STIC per year to standardize an innovation
 - ✓ <https://www.fhwa.dot.gov/innovation/stic/>

- ❑ ***Accelerated Innovation Deployment (AID) Demonstration***
 - ✓ Up to \$1 million available per year to deploy an innovation not routinely used
 - ✓ <https://www.fhwa.dot.gov/innovation/grants/>

Innovation Deployment News



Weekly newsletter



Bi-monthly magazine

To Subscribe:

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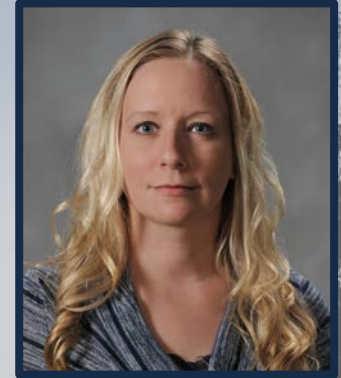
Unmanned Aerial Systems (UAS) for:

Unmanned Aerial Systems

□ Spotlight on:

- **Bridge Inspections**

Jennifer Wells, Minnesota DOT
State Bridge Inspection Engineer



- **Surveying**

Paul Wheeler, Utah DOT
Lead UAS Coordinator



Photo Credit: North Carolina DOT