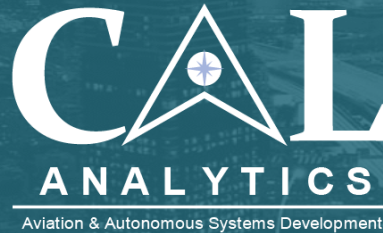


UAS Capabilities in Ohio

Drones for First Responders

June 11, 2024



Purpose

- **Inform public safety services in Ohio of the investments Ohio/ODOT has made in terms of UAS infrastructure**
- **Inform potential users of the capabilities available for UAS operations**
- **Provide guidance on enabling BVLOS operations**
- **Assess interest on a state-wide DFR Pilot Program**

Outline

- **UAS Infrastructure in Ohio**
- **Applicable Use Cases**
- **Hilliard Police Dept Pilot Program**
- **State-Wide DFR Pilot Program**



UAS Digital Infrastructure in Ohio

Ohio AAM Infrastructure

AIRSPACE SURVEILLANCE

ADS-B Network

- Statewide coverage

Local Ground Radar

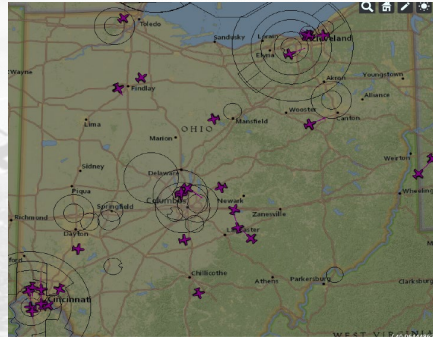
- Localized ground radar networks being stood up in various locations

FAA Radar Feeds

- Working to integrate existing FAA radar feeds for general AAM utilization at higher altitudes

Track / Fusion Service

- Cloud hosted service for fusing all airspace surveillance sensor feeds into a clean airspace picture
- Available for subscription services throughout the state



AIRSPACE MANAGEMENT

ODOT Ops Center

- Centralized management center managed and operated by ODOT for statewide operations

DSS / UTM Network

- Enables operators to share operational intent for deconfliction

DAA Services

- Statewide deconfliction service to ensure UAS do not conflict with manned aircraft

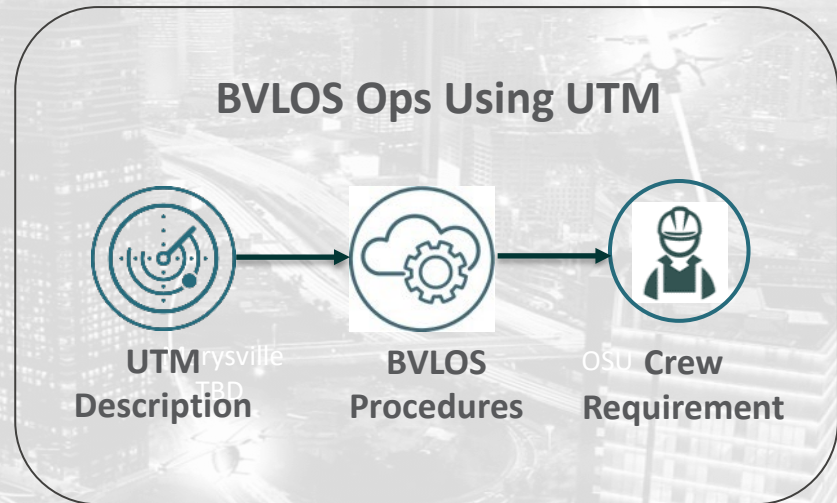
HEALTH AND INTEGRITY

System Wide Safety System

- Ensures that entire ecosystem performance is monitored
- Monitors and provides alerts to off-nominal conditions

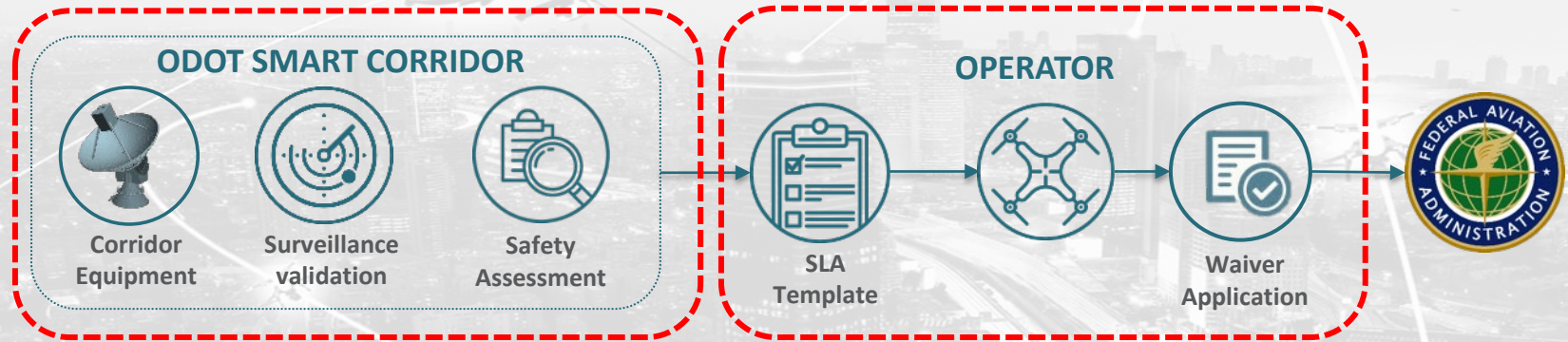
BVLOS ConOps Minimum Criteria

- **Waiver guidance for BVLOS Operations using the Ohio Infrastructure (UTM)**
- **ODOOT / Hilliard Building FAA Waiver Templates**
- **UTM System Description**
 - Operational area and volume
 - UAS Service Supplier (USS)
 - Ops Center
 - Use Case
- **BVLOS ConOps Procedures**
 - Normal operating procedures
 - Contingency procedures
 - Emergency procedures
- **Crew Requirements**
 - Minimum crew
 - Crew qualification/certification
 - Crew training
 - Crew responsibilities



BVLOS Waiver – Developing a Standardized Approach

Working to Develop a Repeatable Regulatory Pathway for approving BVLOS Operations within the State of Ohio.



ODOT Provided Material

Agency Provided Material

***ODOT Supported**

An aerial view of a city with several Unmanned Aircraft Systems (UAS) flying in the sky. The image is overlaid with a network of white lines and arcs, representing communication or data links between the aircraft and various points on the ground, such as buildings and infrastructure. The overall color scheme is a monochromatic teal/blue.

UAS BLVOS Use-Cases

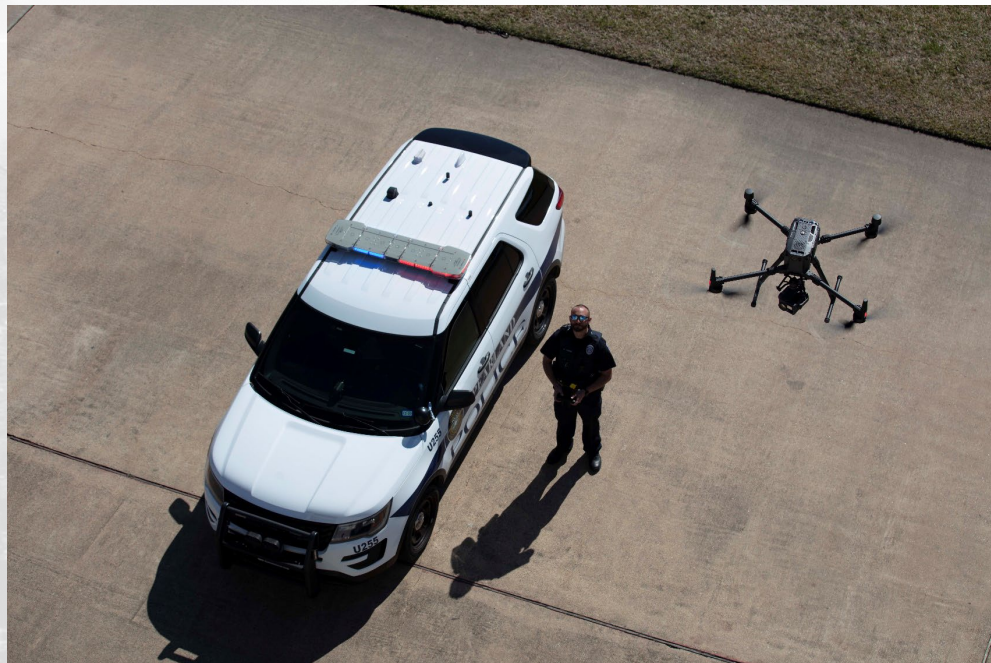
Public Safety

Working with various municipal police departments to enable BVLOS operations as part of a first response capability.

- **Goal:** Automated UAS deployment to get on scene first and provide enhanced situational awareness

Looking to engage law enforcement community to develop procedures to leverage UTM tools to ensure proper airspace deconfliction.

- How law enforcement can push out operational information for all UAS operations



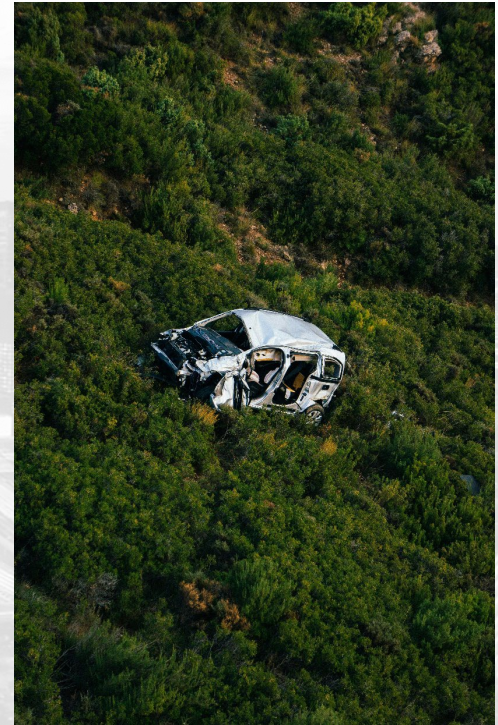
Law Enforcement

- Reliable “actionable” information
- No more rushing into the scene to identify what is occurring
- Identifies and tracks moving incidents and those fleeing before police arrive
- Helps officers make decision, reduces split second decisions on limited information
- Creates a safer community and safer environment for responding officers
- Potentially reduces need for officer response



Fire and EMS

- **Accurate incident location**
- **Direct observation of resources needed**
 - Increased efficiency in critical incidents
 - Reduced wear and tear
 - Reduced out of service time
- **Pre-arrival 360**
 - Second alarm
 - Apparatus placement
 - Exposure assessment
- **Trained eyes of a firefighter / paramedic on scene immediately for assessment response.**



Public Service Applications

- **Paving Analysis**
- **Sidewalk Analysis**
- **Leaf Collection Deployment**
- **Snow Removal Deployment**
- **Traffic Signal Functioning**
- **GIS Base Map Services**
- **Asset inventory with AI (fire hydrants, street signs)**

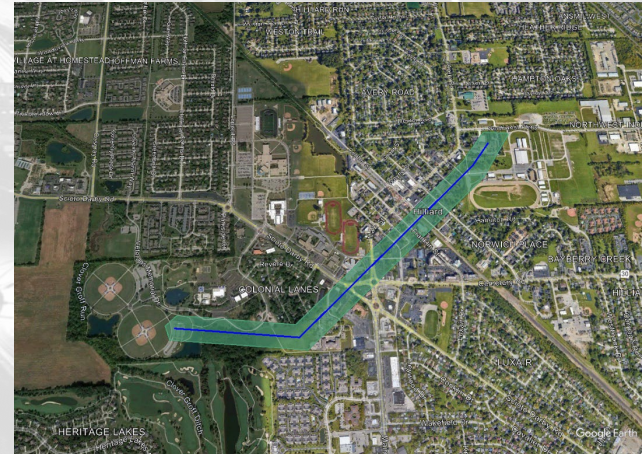


An aerial view of a city skyline with several drones flying in the sky. White lines and arcs connect the drones to various points on the city buildings, suggesting a network or flight paths. The entire image has a blue tint.

Hilliard Police Dept Pilot Program

Hilliard PD DFR Effort

- Hilliard has existing Visual Line of Sight (VLOS) COA
- Has submitted a BVLOS COA (without visual observers) utilizing Ohio's UAS digital infrastructure (airspace surveillance, detect and avoid)
- Plan to operate low-tempo BVLOS operations this Spring
- Defining how to integrate UAS on demand into department operations and share asset with larger Hilliard municipality use-cases



An aerial view of a city with several drones flying in the sky. White lines and arcs connect the drones, suggesting a network or flight paths. The city below is dense with buildings and roads. The entire image has a blue tint.

State-Wide DFR Pilot Program

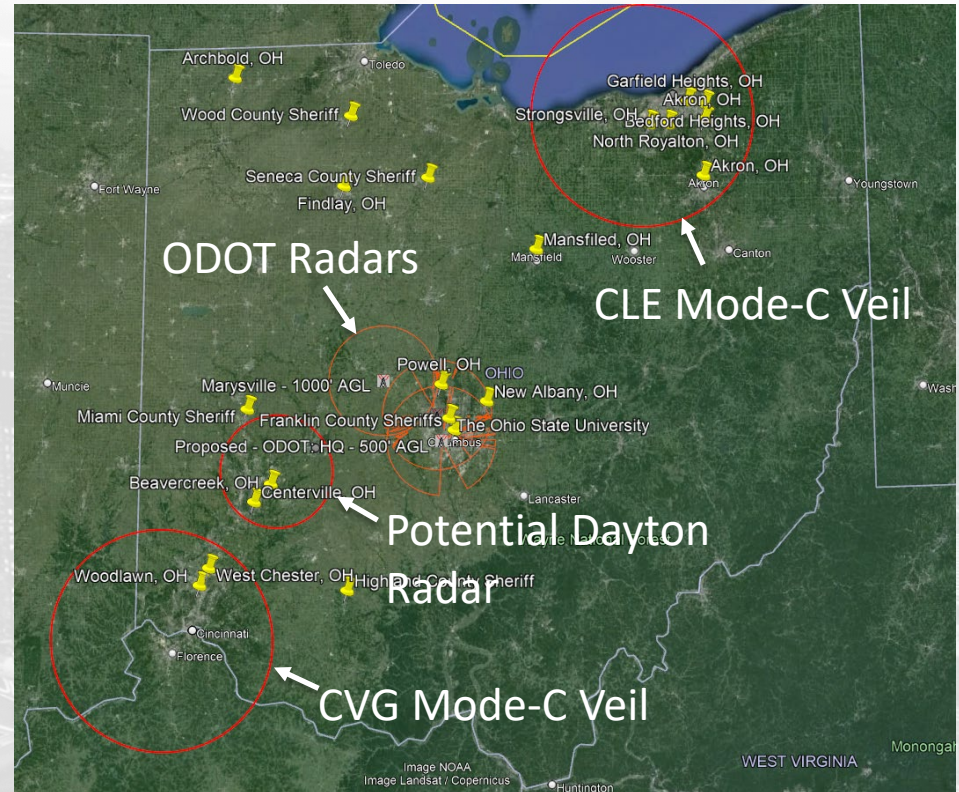
ODOT Activities

- **ODOT just received a UAS BVLOS waiver**
 - Operations over people and vehicles
 - Requires Visual Observers (VOs)
- **ODOT / CAL working with FAA on eliminating need for VOs**
- **Established set of data artifacts to use for subsequent users to gain FAA approval**



Drone for First Responders (DFR)

- We performed a survey of various law enforcement agencies that utilize drones and that would be interested in Beyond Visual Line of Sight (BVLOS) operations
- Focused on departments where new ground-radar would not be required or where existing sensors coverage exists
- Looking for partners across the state to get operators in the air safely
- Goal: Obtain state funding for a state-wide DFR pilot program to evaluate a larger scale adoption



Partnership

- **Identify partner organizations that are interested in participating**
 - Help shape DFR program
 - Provide support to obtain state funding
- **If successful in standing up state-wide DFR program**
 - Leverage state funding (if granted by the state) to acquire UAS asset or use existing department capabilities
 - Obtain FAA Approval with significant support from team
 - Integrate with existing UAS infrastructure for conducting BVLOS operations

DFR Pilot Program Outline

- **Procure Drone assets (and supporting equipment as needed) that support on demand BVLOS capabilities for departments use**
- **Develop, submit and obtain FAA authorization for BVLOS operations for each participating department**
 - This will be based on existing Ohio UAS services and validated through ODOT/Hilliard approvals
- **Provide necessary training to departments (as needed)**
- **Develop and refine (over time) standard operating procedures for departments**



Next Steps

- **Let us know if you are interested in participating in state-wide DFR program**
 - Will be pulling together support letters
 - Support finalizing DFR Plan
 - Brief Ohio House Aviation and Aerospace Committee
 - Brief Ohio Senate Transportation Committee
 - Follow-up brief with Governor's Office
- **Even if not interested in participating in DFR Pilot Program, but are interested in learning more about UAS activities in Ohio, let us know!**

Contact Information

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An aerial view of a city with several drones flying in the sky. White lines connect the drones to various buildings and points on the ground, suggesting a network or data flow. The entire image has a blue tint.

Thank you!