Government & Public Safety sUAS Commercial Pilot Program

Jason Warzinik, GISP
Boone County GIS Manager
jwarzinik@boonecountymo.org

Participants

- Boone County Government
- Boone County Fire Protection District / Missouri Task Force 1
- Boone Electric Cooperative
- Missouri SEMA

Primary Missions

- Boone Fire Protection District / Mo Task Force 1
  - Urban Search & Rescue*
  - Swiftwater Rescue*
  - Helicopter Search & Rescue*
  - Situation Assessment Team ⇦ sUAS, GPS, & GIS
- Boone County
  - Project Specific 2D & 3D Imagery and Topo
  - Disaster Planning and Response
  - Crime & Accident Scene Reconstruction, Crowd Monitoring, Search & Rescue, and SWAT
  - Real Estate and Personal Property Tax Assessment
- Boone Electric Cooperative
  - Asset Inspections
  - Vegetation Management

Missouri Army National Guard

- UH-72A Lakota helicopter - S&S Mission Equipment Package (MEP)
  - Turreted Electro-optical/Infrared Sensor & Laser Pointer
  - 30-million-candlepower searchlight

sUAS Local History

SOARING INTO SUMMER

Emil Lippe • Missourian

Brodie Moreland, 6, outruns his dad's drone Wednesday in a f

THE KANSAS CITY STAR.

LOCAL

August 23, 2013 6:43 PM

FAA grounds journalism school drones at MU and Nebraska

HIGHLIGHTS

Researchers were using the airborne robots to shoot aerial photos and video from difficult-to-reach news scenes, but the Federal Aviation Administration said they must stop flying outdoors until they obtain government permission.

COLUMBIA — The Federal Aviation Administration has temporarily grounded newsgathering drones used by the journalism schools in Missouri and Nebraska.

Researchers at the University of Missouri and the University of Nebraska-Lincoln were using the airborne robots to shoot aerial photos and video from difficult-to-reach news scenes.

The Columbia Daily Tribune reported Thursday that the

MISSOURIAN

72°

HOME NEWS SPORTS OPINION OBITUARIES VOX FROM READERS VISUALS SPECIAL SECTI

Home / News

Ashland looks to regulate drones

MAGGIE STANWOOD Nov 30, 2015 (...)

MORE INFORMATION

Ashland passes new drone rules

The town board anticipates soaring popularity of the devices.

COLUMBIA — A popular gift hitting the shelves this holiday season might be the next fly to swat for local governments across the United States.

The Ashland Board of Aldermen is attempting to be a step ahead by regulating model aircraft drones, which can be

13 KRCG

RECEIVED

BY:

March 31, 2017

Hello community leader!

You are cordially invited and highly encouraged to attend an informational meeting to learn about new state-of-the-art news gathering technology that KRCG-TV will be implementing in our area very soon. KRCG 13 is thrilled to announce we have invested in a UAV (unmanned aerial vehicle), more commonly referred to as a drone. We've also invested in extensive training and FAA certification for two of our employees as licensed pilots for the aircraft. The drone will be equipped with the latest generation HDTV miniature camera lens with the ability to cover live and taped news events.

The purpose of our meeting is to provide local law enforcement, emergency services, government officials and other community public safety leaders with an understanding of our approach to safely and responsibly deploying this technology, and how and when we plan to use it. Above all else, public safety is our utmost priority. We will have our company's lead FAA certified UAV pilot presenting our plan and he will be available to answer your questions.

We wanted to offer you a proper introduction and clear understanding of our UAV program, which we plan to roll out in our area this month.

Please plan to attend this important meeting:

Agreed to Standardize

- DJI as sUAS
- 2-Day FAA Part 107 Prep Training
- Jointly Develop Flight Skills Training
- Standard Operating Procedures
- Pix4D Capture and ESRI Drone2Map for Processing

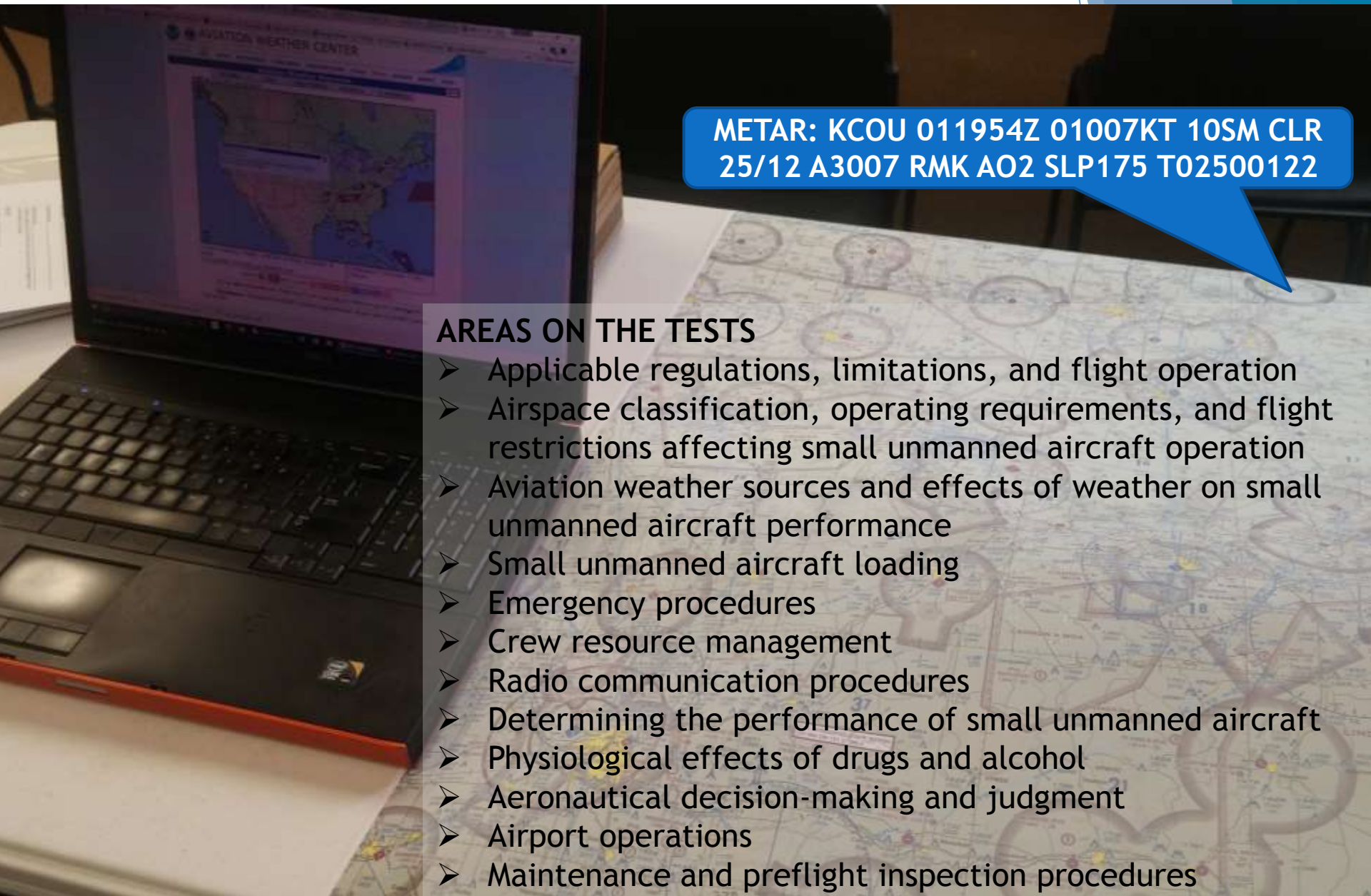
Flying for Work or Business (non-recreational)

- Phase 1 - Part 107 - FAA Remote Pilots Exam
  - Waivers for Nighttime Missions
  - Controlled Airspace
  - Fly Over People
- Phase 2 - Section 333 Exemption - Certificate of Authorization (COA)
  - Blanket
  - Jurisdictional

SKYFIRE CONSULTING

Public Safety Training Course

Remote Pilot Test Prep

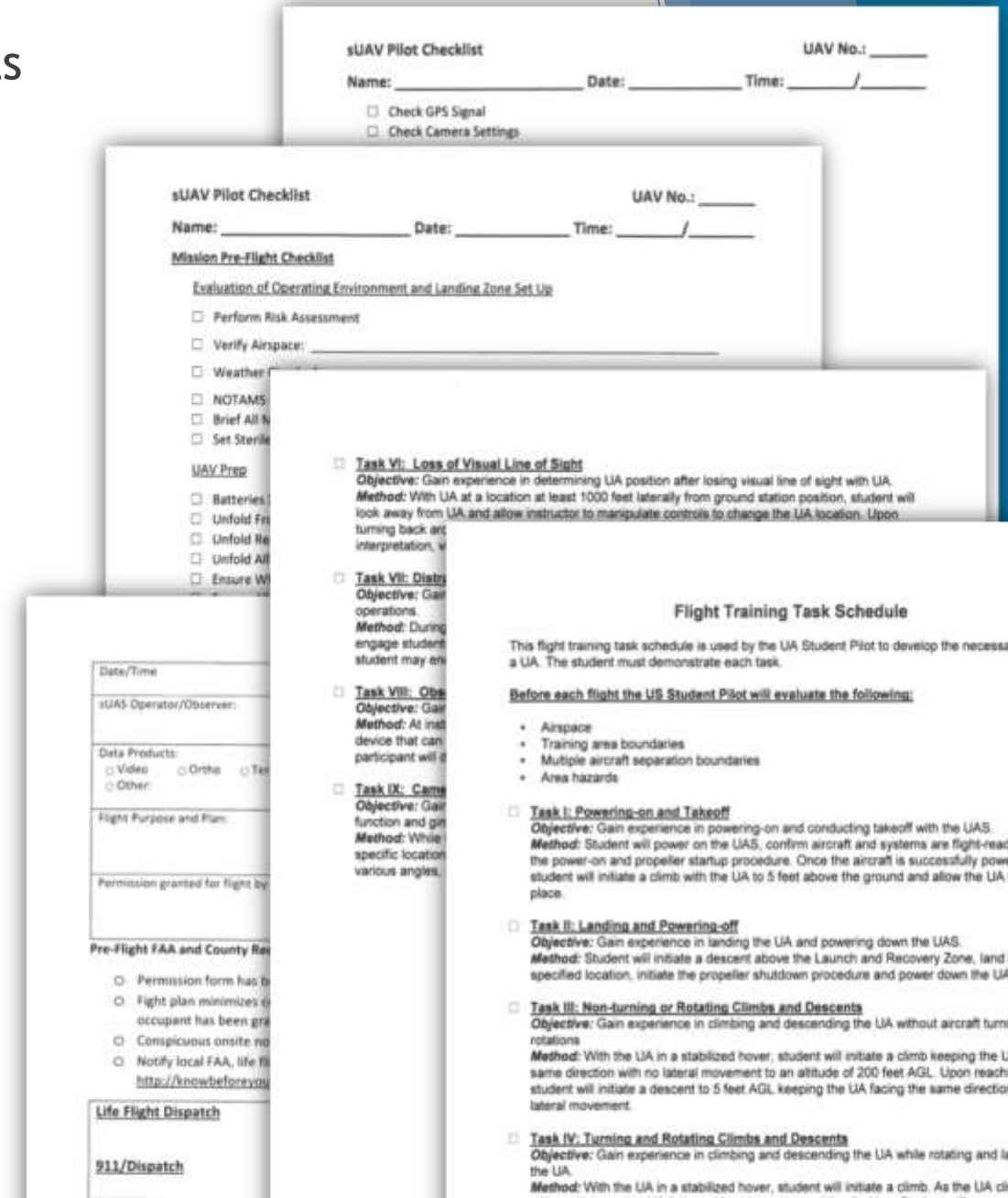


AREAS ON THE TESTS

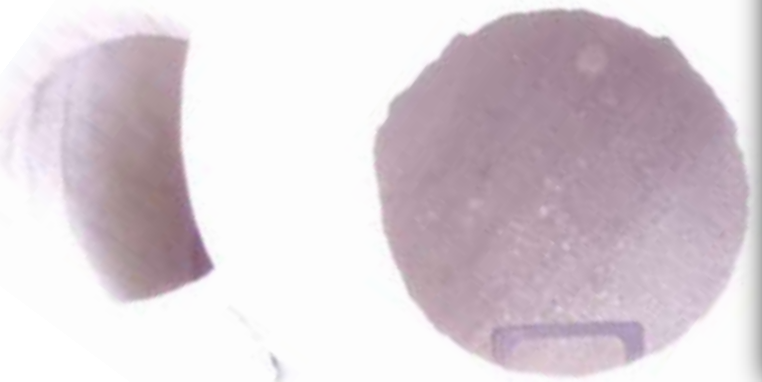
- Applicable regulations, limitations, and flight operation
- Airspace classification, operating requirements, and flight restrictions affecting small unmanned aircraft operation
- Aviation weather sources and effects of weather on small unmanned aircraft performance
- Small unmanned aircraft loading
- Emergency procedures
- Crew resource management
- Radio communication procedures
- Determining the performance of small unmanned aircraft
- Physiological effects of drugs and alcohol
- Aeronautical decision-making and judgment
- Airport operations
- Maintenance and preflight inspection procedures

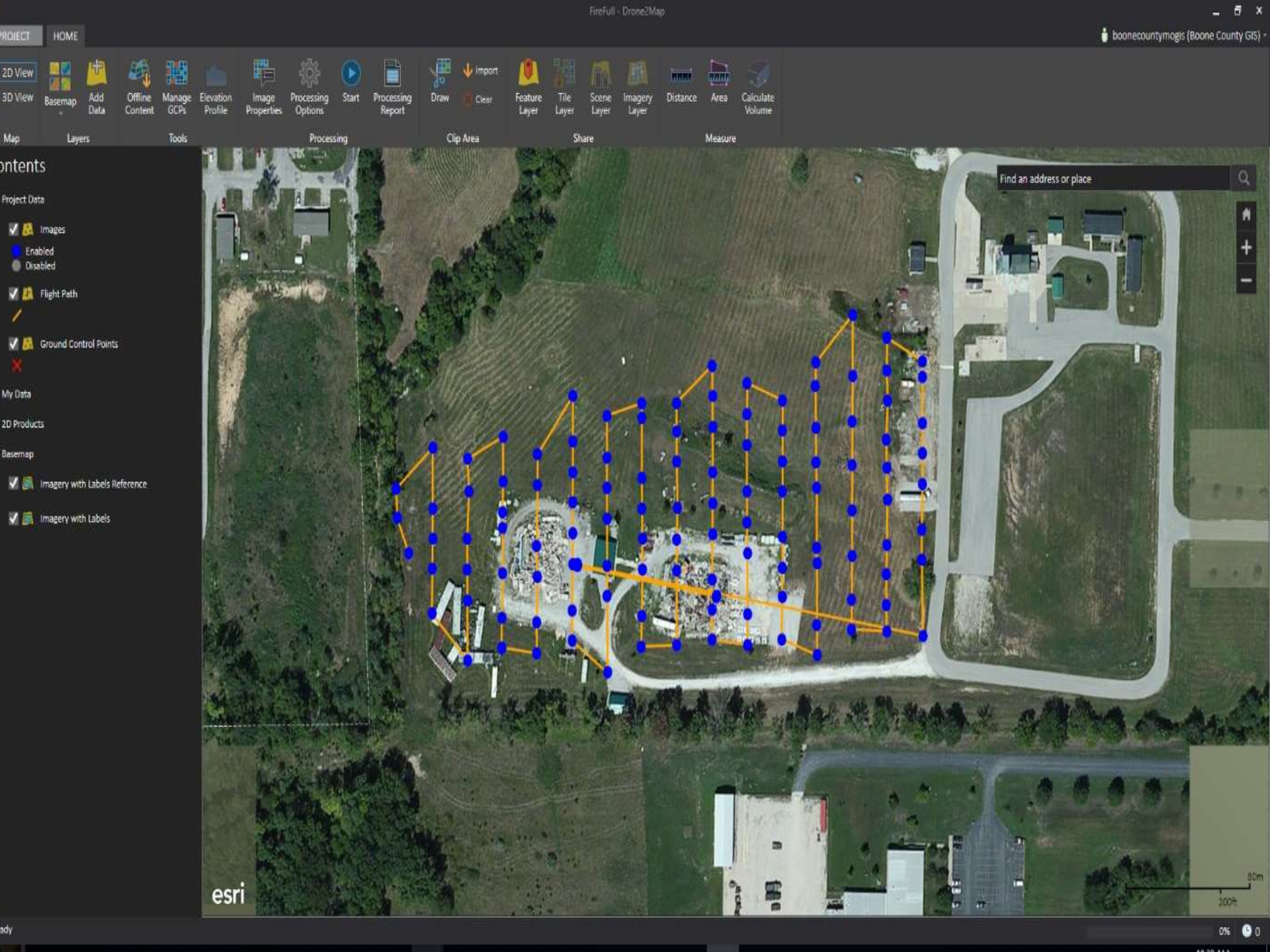
Standard Operating Procedures

- Pre and Post Flight Checklists
- Skills Training
  - Basic-to-Advanced
  - Manual and Autonomous
  - Mission Specific
- 3-Months Flight Skills Currency Requirement
- Owner/Occupant Permission
- Conspicuous Onsite Notice



First 5 Minutes

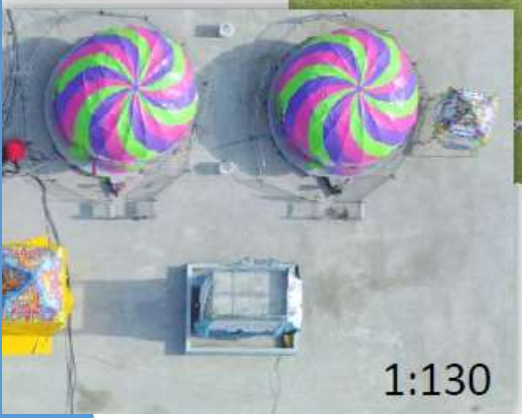



FireFull - Drone2Map
PROJECT
HOME
boonecountymogis (Boone County GIS)
2D View
3D View
Basemap
Add Data
Offline Content
Manage GCPs
Elevation Profile
Image Properties
Processing Options
Start
Processing Report
Draw
Import
Clear
Feature Layer
Tile Layer
Scene Layer
Imagery Layer
Distance
Area
Calculate Volume
Map
Layers
Tools
Processing
Clip Area
Share
Measure
ontents
Project Data
Images
Enabled
Disabled
Flight Path
Ground Control Points
My Data
2D Products
Basemap
Imagery with Labels Reference
Imagery with Labels
Find an address or place
esri
80m
200ft
0%
0

3D Triangle Mesh from ~34,000,000 Colorized Point LAS Cloud

Boone County Fairgrounds

2.67” Resolution



1:130

1:1,700

Secure | https://bcfpdgis.org/arcgis/home/webmap/viewer.html?webmap=e3f1b800206e4406a546b57aa7fc424e

Home ▾ VA_TF1_TC

Modify Map | Sign In

Details | Basemap | Share | Print | Measure | Find address or place

Secure | https://bcfpdgis.org/arcgis/home/webmap/viewer.html?webmap=e3f1b800206e4406a546b57aa7fc424e

GIS Response Vehicle

- Hardware
  - Honda EU3000iS Generator & UPS Power
  - DesignJet T120 24” Plotter
  - LaserJet Multifunction 8.5”x11” Printer
  - CradlePoint (Wifi/Satellite/Cell/LAN) Internet Access
  - Mavic Pro sUAS (x4)
  - iPad Mini Tablets (x12)
  - Icom IC-A6 FAA Communications Radio (x2)
  - Garmin GPSMAP 64st Handheld GPS (x25)
  - GIS Server/Workstation & Dual Monitors
  - GIS Mobile Laptop
  - 37” HDTV with MicroPC - Map Viewer
  - Tailgate Shelter Canopy
  - Fire Extinguisher (x4)
- GIS Software
  - Drone2Map (x2)
  - ArcGIS Desktop Standard (x2)
  - Collector for ArcGIS
  - Portal for ArcGIS
  - ArcGIS Server Workgroup
  - Google Earth

County sUAS Go-Kit

- FAA Remote Pilot License
- sUAS backpack - Sun-hood, Tablet & Mount, Cables, SD Cards, Laptop, sUAS, and Controller
- Flight Checklists and Forms
- Citizen Alert Signage
- Fire Extinguisher
- GNSS for Ground Control
- Bear Spray?

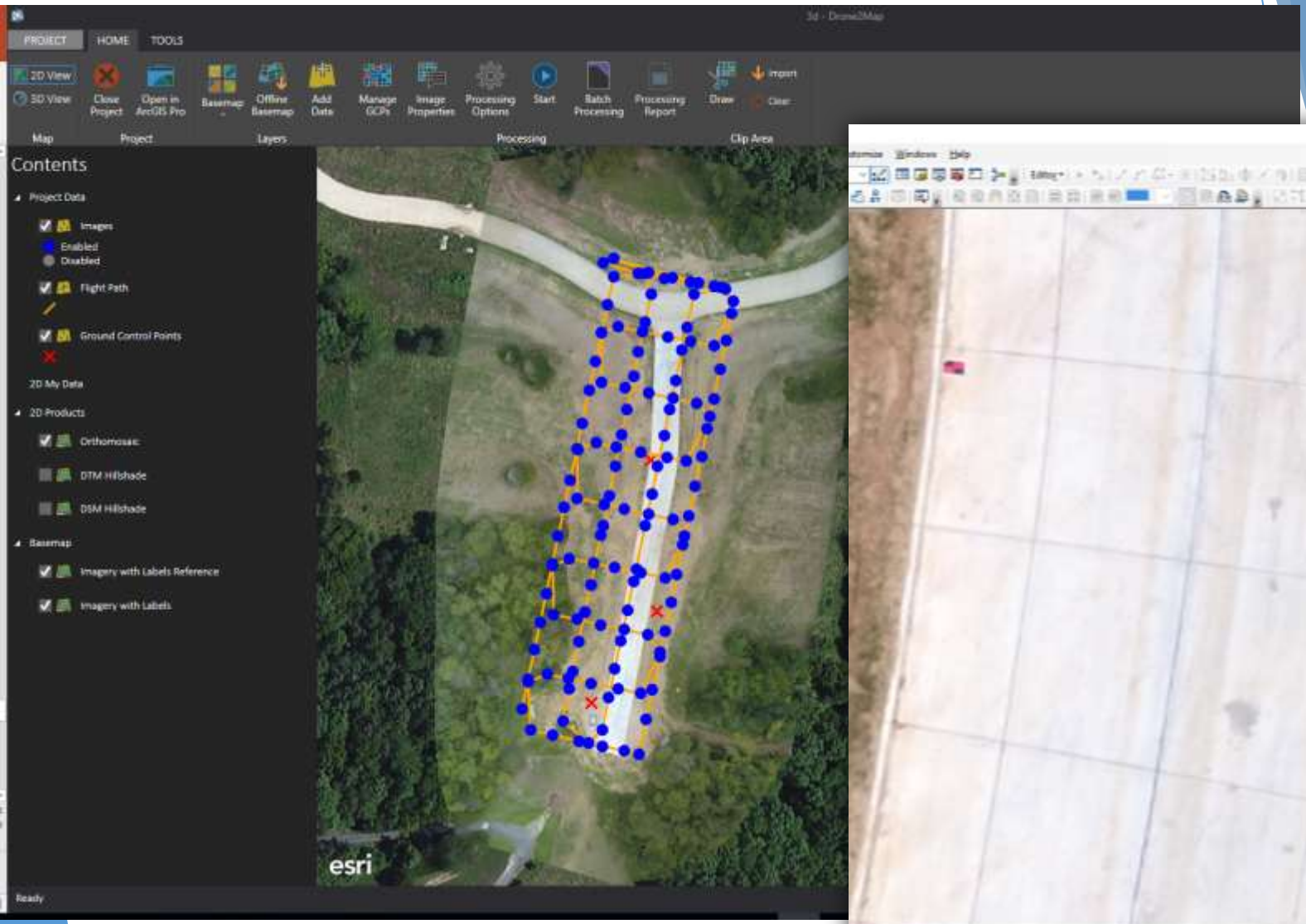
Crime Scene

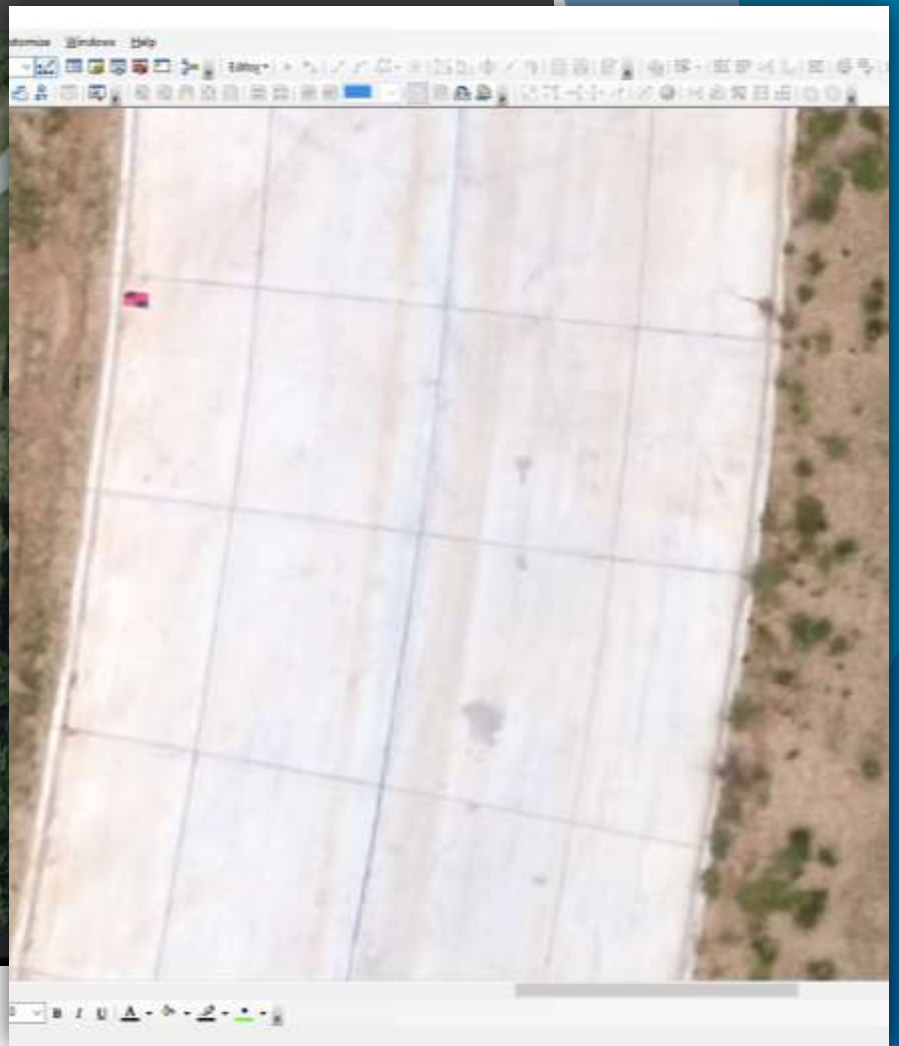
- Hasty Wide Area Search & Ortho

DJI Mavic Pro Flight 18:21-18:29 7/6/2017
15.8771 acres - 1.83 cm Orthomosaic
4 GCPs (4 3D) mean RMS error 0.007 m
Flown at 180' AGL

Asset Inventory/Inspections

- Concrete Pavement Panels





Asset Inventory/Inspections

- Bridges

Camera Resolution

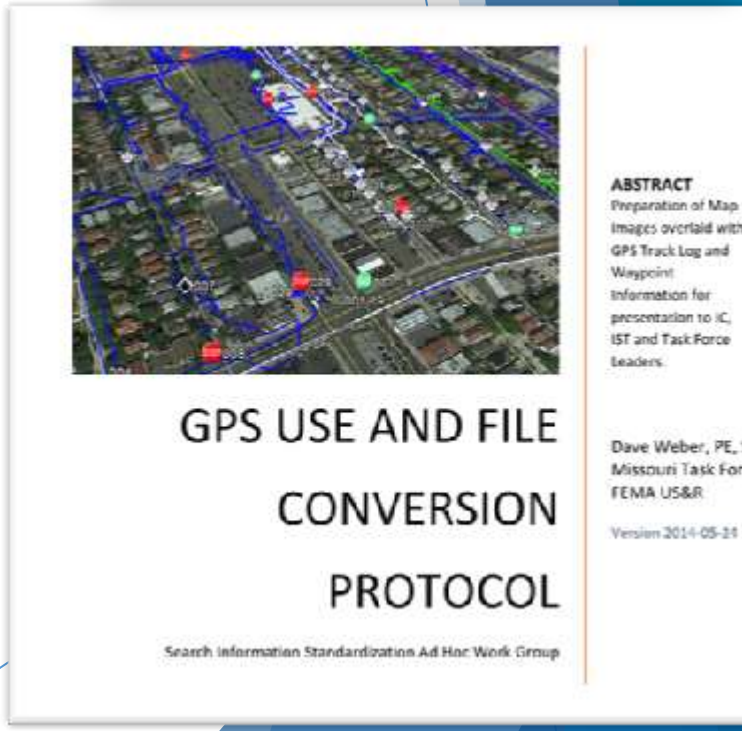
400’ AGL

Tax Assessment

- Real Estate
- Personal Property

Work Continues

- Situation Assessment Team/Truck - Operational Unit of Missouri Task Force 1
- Continue to Build ICS and Field User Support for Technology
- Add Professional sUAS with Thermal and Zoom Cameras
- Portal-to-Portal Sharing between County, State, & Federal



Questions?

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