

Confessions of a Part 107 UAS Pilot

Lessons learned while building, implementing,
and maintaining an unmanned aerial capability
for the State Land Bank Authority of Michigan

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Property Analyst
State Land Bank Authority
29 April 2021

My background

- : Love of aviation since childhood
- : Air Force family (grandfather, father, uncles)
- : 16 years of various flight line operations in Austin TX and Grand Rapids MI





Tower tour
KGRR



Gulfstream 5 departure

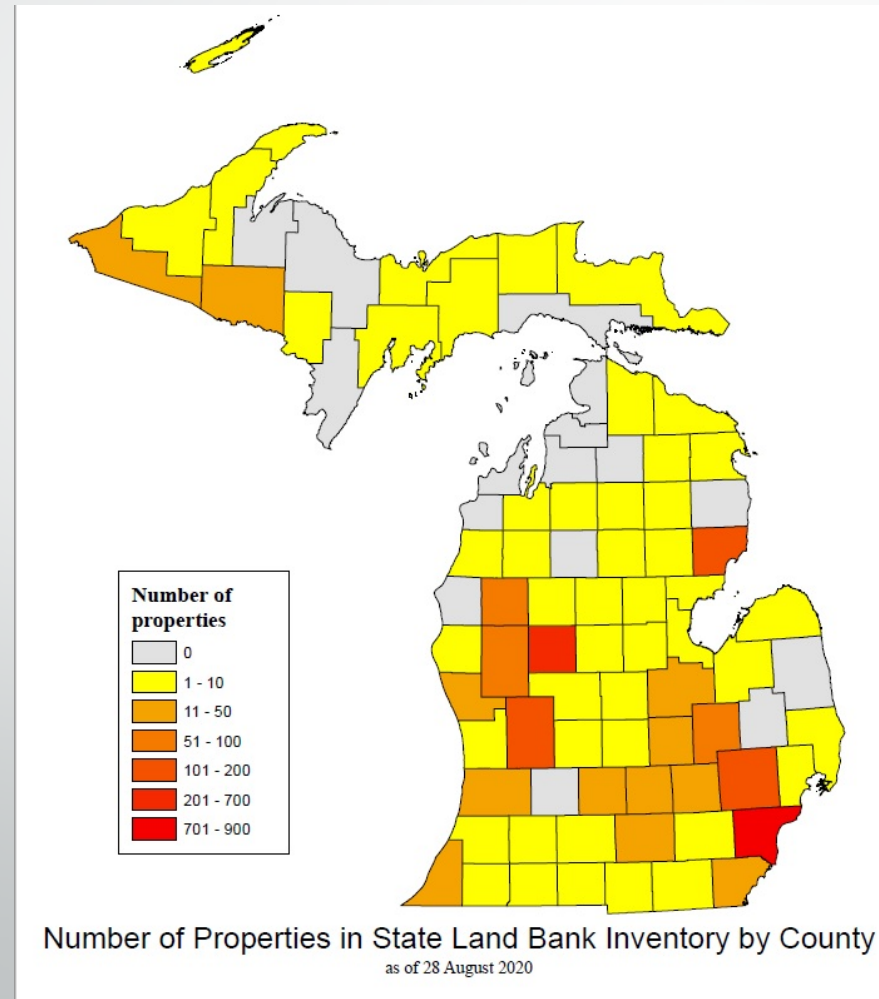


B-17 "Aluminum Overcast"



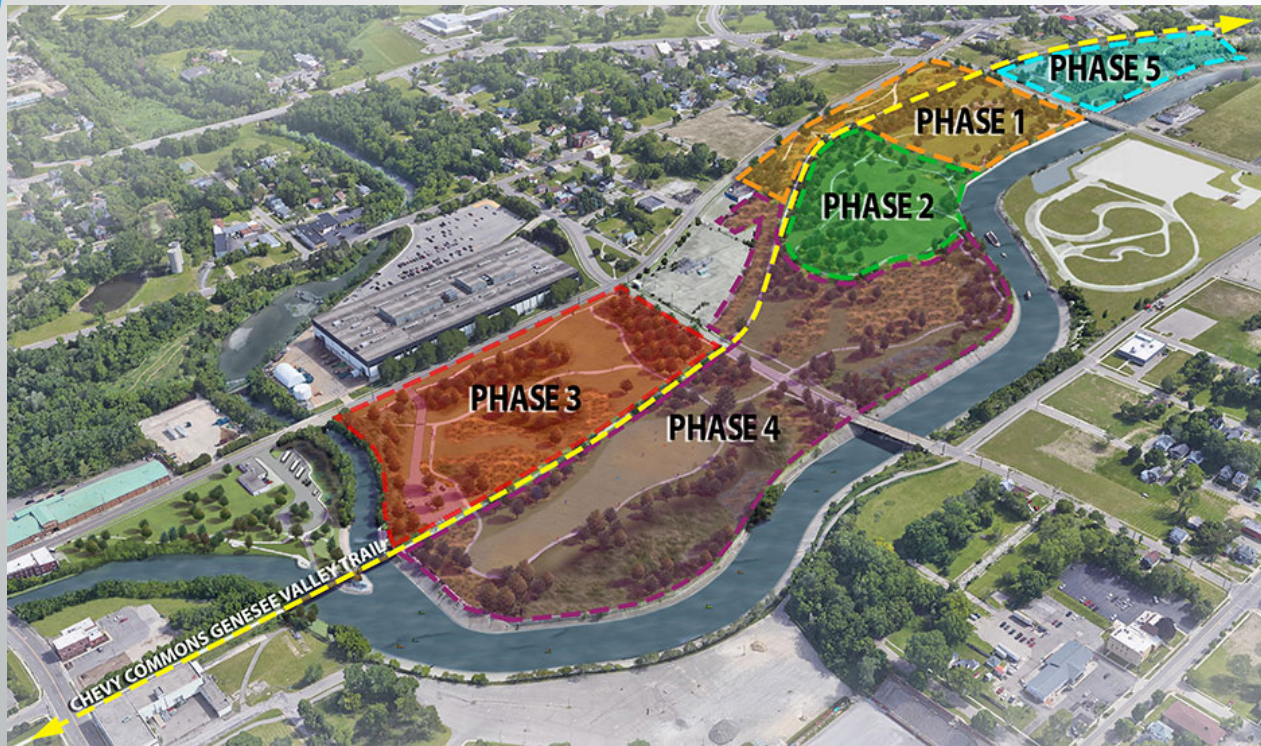
State Land Bank Authority of Michigan

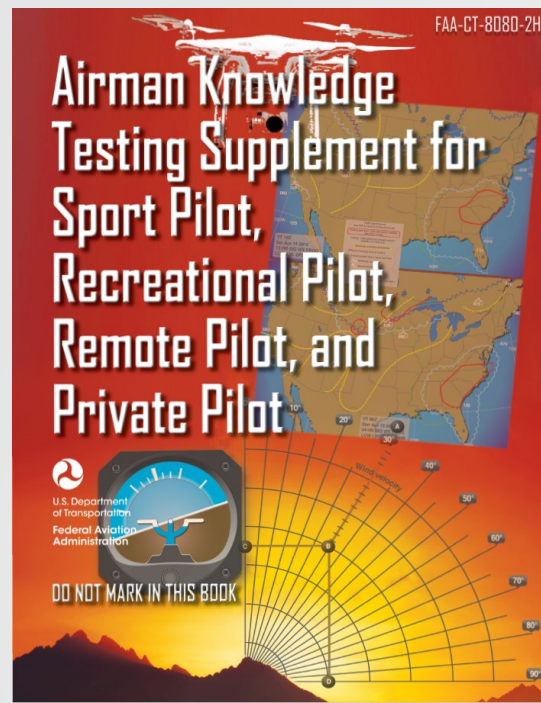
- Created by Public Act 258 of 2003
- Mission: To create positive economic impact in Michigan communities by recycling land to productive use



Genesis of our program (early 2018)

- : site visit to unbuilt condo units in Grand Blanc
- : Chevy Commons redevelopment (“Chevy in the Hole”)
- : outdated imagery overall, especially lacked detail on larger sites





Building a UAS program

- : FAA Part 107 vs Certificate of Waiver of Authorization
- : Preparing for Part 107 test (cost and no cost options)
- : Taking the test (\$160 at FAA approved location)
- : License renewal (no-cost online training every 2 years)
- : Ongoing training (AOPA, FAA, etc.)

Federal Aviation Administration

IACRA
Integrated Airman Certification and Rating Application (IACRA)

IACRA is the web-based certification/rating application that guides the user through the FAA's airman application process. IACRA helps ensure applicants meet regulatory and policy requirements through the use of extensive data validation. It also uses electronic signatures to protect the information's integrity, eliminates paper forms, and prints temporary certificates.

Need Help?
Download the latest version of the [IACRA Instruction Manual \(8.7\)](#) for help on login, registration, new screen layouts, consoles, and ATP CFR 61, 121, 141 and 135 certifications.
— or download the previous version of the [IACRA Instruction Manual \(7.6\)](#) for all other IACRA functionality.
— or visit our [Training and Documentation](#) page for more information.

What's new in IACRA
IACRA Version 10.3.0.1
This release corrects the following issues:

- The system was incorrectly requiring hours if an applicant was applying for an Added Category class airplane rating or type rating and already held an airplane rating at the ATP level.
- If an invalid identification expiration date was manually entered, the user could not continue but the validation error message was not being displayed.
- If a newly registered applicant selects the Start New application link, they were not being properly redirected to their user profile to complete registration.
- In some situations, the system was not sending email notifications.

[read more](#)

Frequently Asked Questions
Q. Can I access IACRA using Internet Explorer 11?
A. Yes, but you should [add FAA.gov to the Compatibility View list](#) to use IACRA. If using IE 11 on an FAA computer, you should turn on Enterprise Mode, in the Tools menu.
[Next Question and Answer](#) | [See All Questions and Answers](#)

Paperwork Reduction Act

AOPA
your freedom to fly

TRAINING & SAFETY

Whether it's prepping for a checkride, perfecting an instrument approach, or just going out for a proficiency flight, a good pilot is always learning. To make that easier, AOPA and the Air Safety Institute offer a wide variety of resources specifically tailored to your flying life.

CHOOSE YOUR PATH

Learn to Fly
For Prospective Pilots and Student Pilots
[READ MORE >](#)

Active Pilots
Advance your skillset and keep flying
[READ MORE >](#)

Lapsed Pilots
Refresh your skills and get back into the swing of it
[LAPPED PILOTS >](#)

TRAINING & SAFETY

- Flight Training Magazine
- Technique
- Knowledge
- Advanced Training
- Career
- Students
- Fun
- Air Safety Institute
- Online Learning
- CFI Refresher

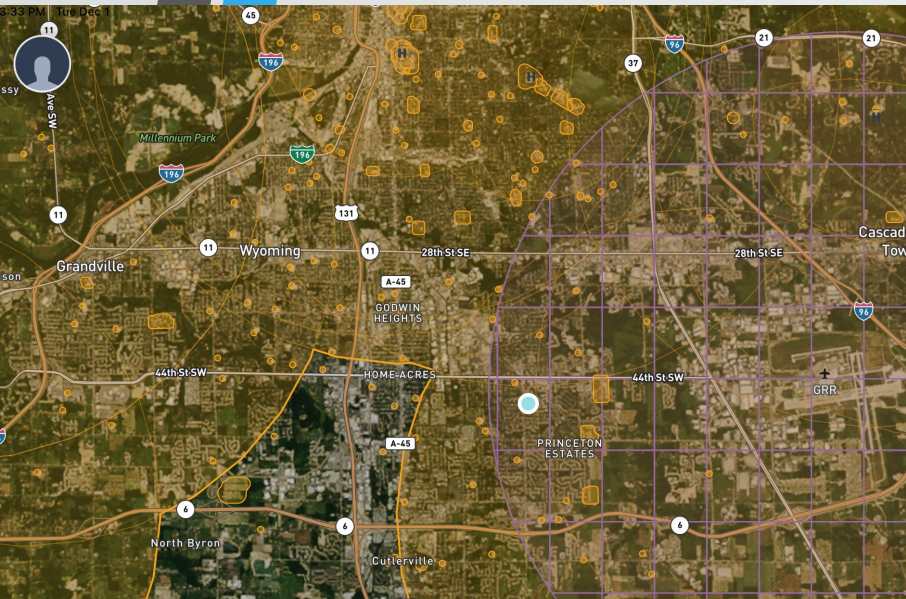
Building a UAS program

- : Making the financial case
 - return on investment, safety, efficiency, etc
- : Choosing the platform that meets your needs
 - match capabilities with your typical mission
 - seek input from current operators
- : Registering the airframe with FAA Drone Zone (\$5)
- : Choosing software (image processing and flight ops)
 - test drive different products
- : Safety culture from day one
 - Standard Operating Procedures and best practices
 - set and observe personal minimums
 - utilize checklists



Operations

Pre-flight planning



Aerial operations



Post-mission debrief and creating product



The most important safety feature of any UAS? You!

IMSAFE

Illness

Medication

Stress

Alcohol

Fatigue

Emotion

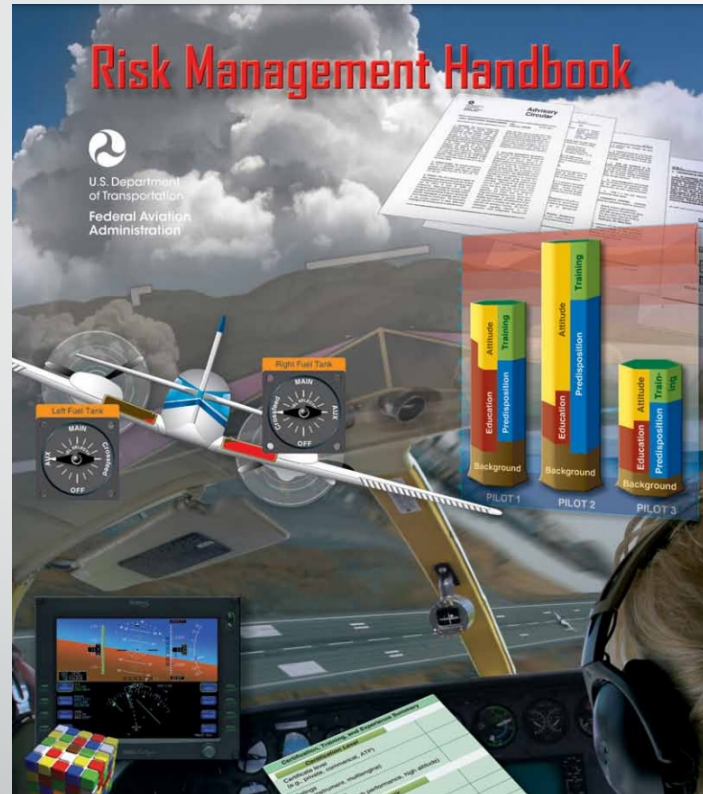
PAVE

Pilot

Aircraft

enVironment

External pressure



Hazardous Attitude

Anti-authority: Don't tell me.

Impulsivity: Do something quicky.

Invulnerability: It won't happen to me.

Macho: I can do it.

Resignation: What's the use?

Antidote

Follow the rules. They are usually right.

Not so fast. Think first.

It could happen to me.

Taking chances is foolish.

I'm not helpless. I can make a difference.

5 Hazardous attitudes

Pre-flight Weather

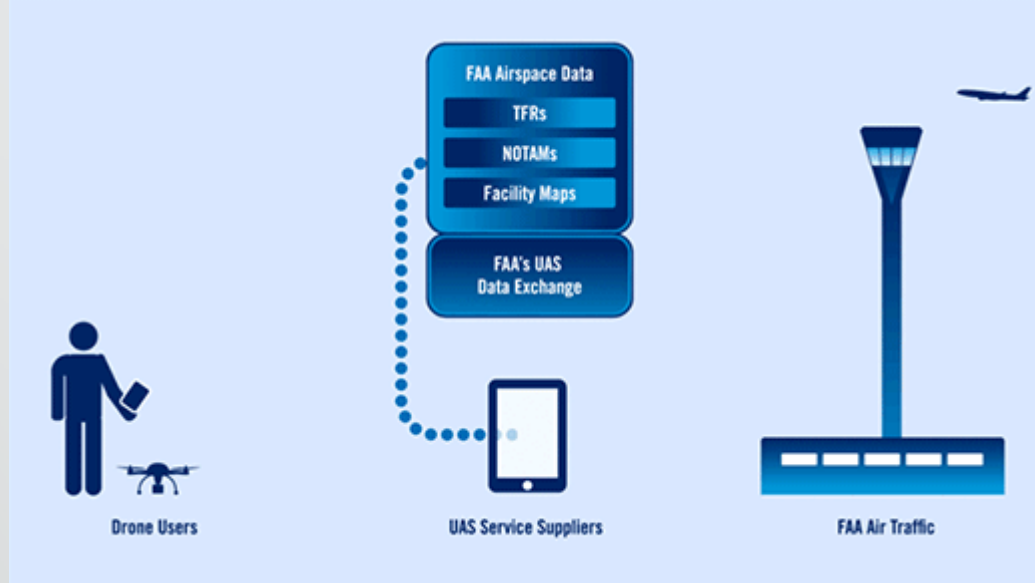
The screenshot displays the FlightService 1800wxbrief interface. At the top, the logo and tagline "Better Briefings, Safer Flights" are visible. The navigation bar includes links for Home, Pilot Dashboard, Map & Wx Charts, Flight Planning & Briefing, Airports, UAS, Account, Links, Help, and Login. A search bar is located on the left. The main map area shows a weather map of the Grand Rapids region with various weather symbols and a radar overlay. A popup window for "KGRR - Grand Rapids" is open, displaying the following information:

KGRR - Grand Rapids

METAR reported 9 minutes ago.
KGRR 301853Z 35015G23KT 10SM OVC028
02/M04 A2980 RMK AO2 PKWND 34029/1803
SLP098 T00171039 =

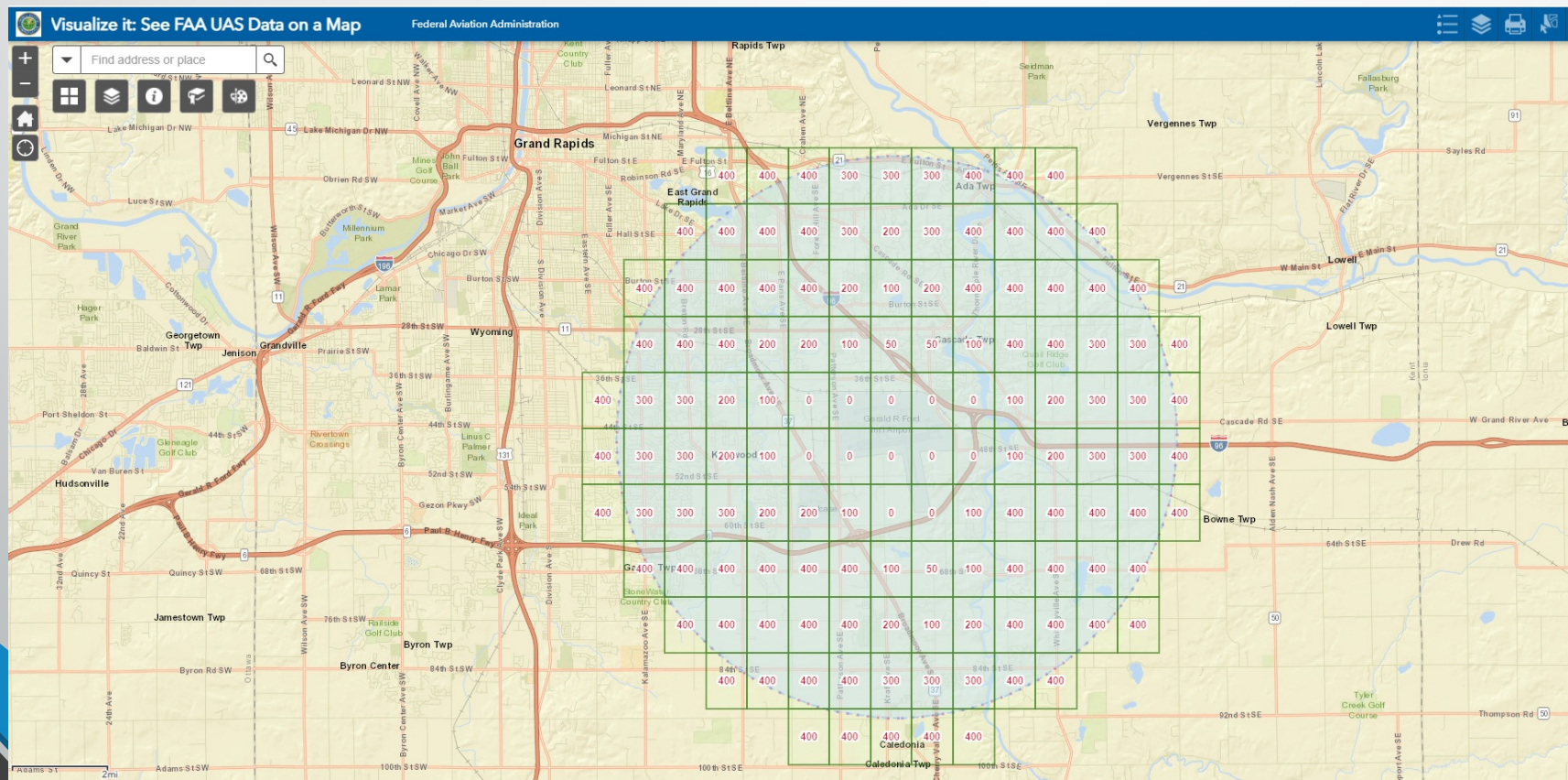
TAF issued 1 hour 37 minutes ago.
TAF KGRR 301725Z 3018/0118 36015G24KT P6SM
BKN020
FM010400 34012G20KT P6SM BKN025 =

The map also features a "Detroit Sectional" button and several "Enroute" buttons (L-28, H-5, H-10). The map is set to "Basic" view, with other options like "IFR High", "IFR Low", "VFR", "Aerial", and "Street". The map shows a radar overlay with green and blue colors, indicating precipitation. The bottom of the screen includes a "Privacy Statement", "User Disclaimer", "Contact Us", "1-800-WX-BRIEF", "Feedback & Suggestions", and "Updated just now" button. The copyright notice "©2020 Leidos" is in the bottom right corner.



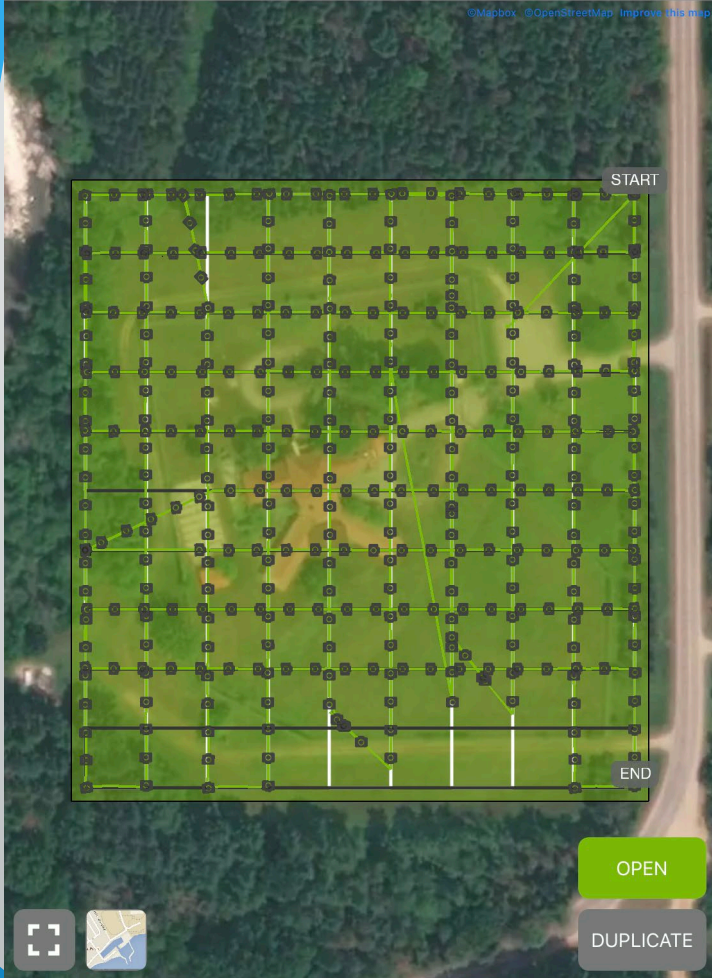
Pre-flight planning

- : Low Altitude Authorization and Notification Capability
 - AirMap, AirSpace Link, etc
- : FAA facility map
 - (faa.gov/uas/commercial_operators/uas_facility_maps)
- : Visualize the area of operations
 - (identify possible hazards before arriving on site)
- : Notify/brief other personnel
- : Inspect all equipment



< Project List

Project 00024



Phantom 4 Pro

 DOWNLOAD IMAGES

0 / 398 images

Mission
Open mission

OPEN

DUPLICATE

Plan like you fly and fly like you plan





- Trees
- Power lines
- Birds
- Site conditions

During flight

- Maintain situational awareness
- Monitor software and airframe
- Communication



Post-mission (on site)

- field check imagery/data (did you get what you need?)
- secure the UAS and ancillary equipment
- debrief: what went right and what went wrong

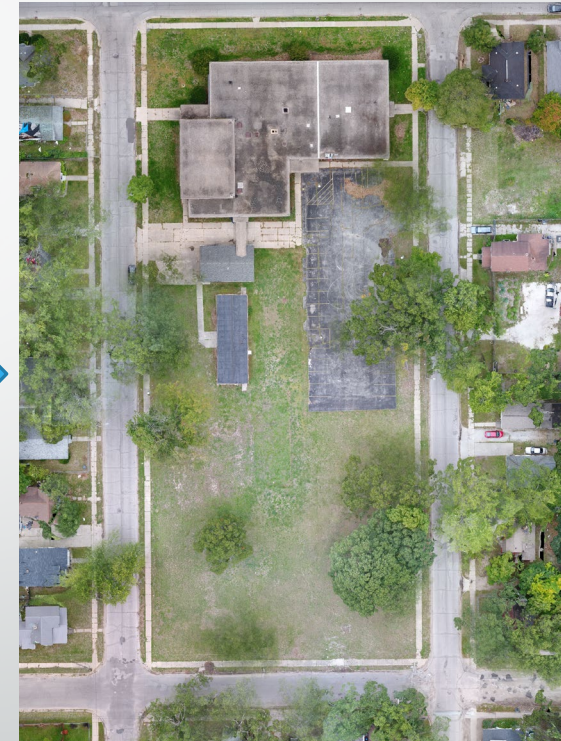
Post-mission (office)

- create the maps, videos, images, etc for your end-user
- log flight data and personal observations

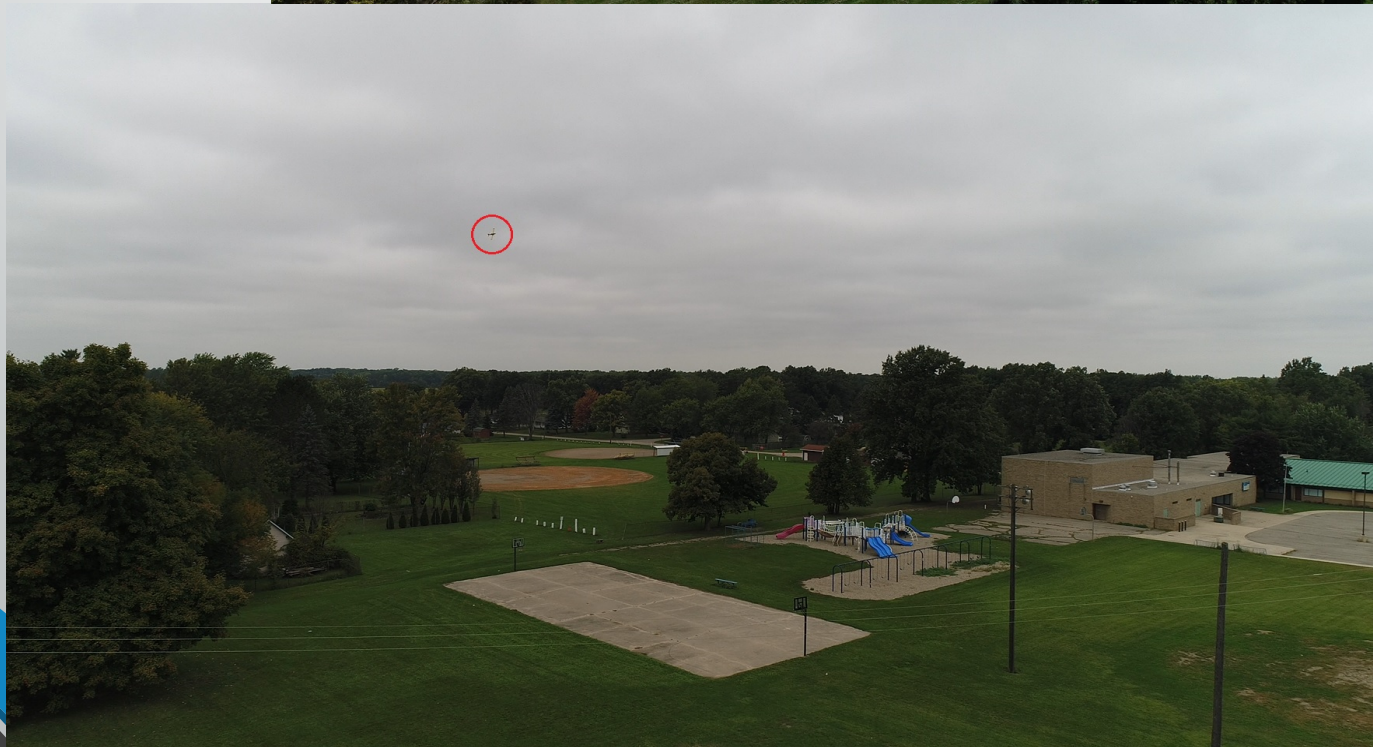
Three dimensional

Unprocessed images

Orthomosaic



Former Riverside Correctional Facility



- Lessons learned
from atypical situations**
- : Weather (Marquette)
 - : Airspace (Ionia)
 - : Manned traffic (Lennon)

UAS Community

: sharing what works (and what doesn't!)

- SoM meetings and fly-ins
- conferences
- websites and newsletters
- no shortage of resources



A screenshot of the FAA UAS Symposium website. The page has a blue header with the FAA UAS Symposium logo and navigation links for Home, Program, and Networking. The main content area is divided into several sections: 'Upcoming Events' (no events at the moment), 'Partners' (Mannarino and Iris Automation), and 'Episode I Program' and 'Episode II Program' (both with 'Click here to learn' buttons). On the right side, there is a 'Complete Your Profile' section with progress indicators for Details, Profile Photo, and Cover Photo, and a 'Platform How To Videos' section with links for various topics. A 'Show Guide' section is also visible at the bottom right.

Staying current

Recent FAA changes to Part 107:

Remote ID (*not* ADS-B)

Night operations (proper equipment and training)

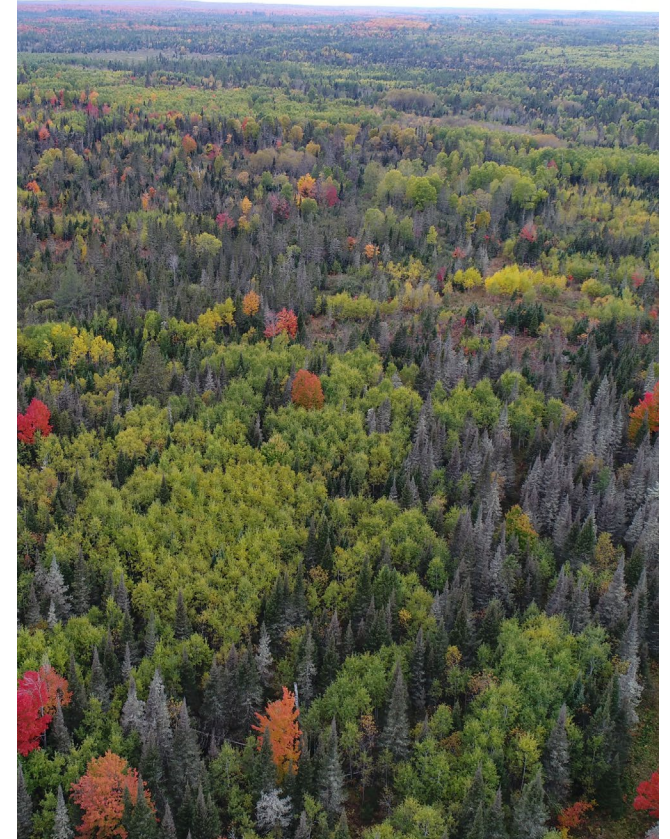
Operations over people or moving vehicles (with restrictions)

Must always have pilot certificate and paperwork with you



Conclusion

- : While there are many steps, the path is relatively straight-forward
- : Abundance of resources, seek and ye shall find
- : Have fun!



Questions?



Federal Aviation Administration

faa.gov/uas

faasafety.gov

faadronezone.faa.gov

faa.gov/regulations_policies/handbooks_manuals/aviation/media/remote_pilot_study_guide.pdf

Aircraft Owners and Pilots Association

aopa.org

Other sites

michigan.gov/landbank

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