# Saturday Morning Coffee and WINGS Drones Are For Manned Aircraft Pilots Too August 10, 2024

By Greg Schulz – MN FAASTeam Drone Pro

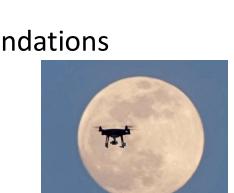




# Our Agenda For Todays Discussion



- Introductions Drones and Manned Aircraft Pilots
- Wide Wide World of Drones and Operators
- Drone Regulations Certification, Airspace, Operations
- Emerging Topics and Trends Regulations & Technologies
- Real-world Experiences Cautionary Tales, Tips & Recommendations
- Resources and Links Additional Information
- Q&A Discussion



Flying Smart, Flying Safe – FAA Safety Site: <a href="https://www.faasafety.gov/">https://www.faasafety.gov/</a>





# Introductions - Getting Started and Why We Are Having This Discussion

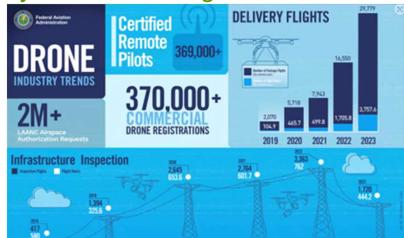


- Our discussion today is to increase awareness and safety of drones, including FAA regulations for hobby/recreational and beyond (e.g. part 107 and others).
- Do you or someone you know have or want to get a small Unmanned Aerial System (sUAS) also known as an Unmanned Aerial Vehicle (UAV) aka a Drone?
- Are you aware of drone regulations such as operating over people (OOP),
   operating at night, visual line of sight (VLOS) and visual observers (VO)?
- How about DROTAMS (Drone NOTAMS), altitude, weather, airspace, registration and certification topics?
- Did you know if you are a "current" part 61 you can take the FAA part 107 test online for free via the faasafety.gov site?

Introductions - Getting Started and Why We Are Having This Discussion





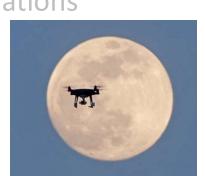


- Drones (e.g. aircraft) and manned aircraft have some things in common including:
  - Sharing the national airspace (NAS) managed by the FAA
  - Having trained certificated operators who operate different aircraft types
  - Have various levels of training, certification, experiences and focus
  - Some drone operators (remote pilots) are not manned aircraft pilots (or students)
  - Some manned aircraft pilots and students are not remote pilots
  - Some manned aircraft pilots and students are also remote pilots

# Continuing With Todays Discussion Agenda

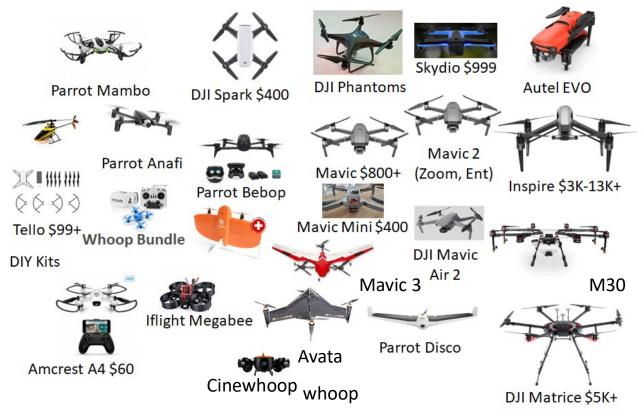


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## Wide Wide World of Drones

## Sampling of Various Aircraft (Drones) for Different Needs and Uses



FAA Considers Drones To Be Aircraft (RC and other un-manned aircraft are considered sUAV/sUAS)

#### Wide World of Drones

- Unmanned, Remote Operated
- Fixed Wing and Rotor
- Single, Dual, Quad, Octa
- Most have cameras
- Some carry payloads
- DIY and Turnkey
- Various functionality
- Different performance
- Some customizable
- Indoor, Outdoor
- FPV racing
- Hobby or commercial
- What do you need to do?

8/10/2024

Types of Remote Pilots In Command (RPIC)

# **National Airspace**

Various Types of Pilots for Manned and Un-Manned Aircraft Examples of Un-Manned e.g. Remote Pilots

Aircraft 0 < 55 Pounds

Part 107
FAA Considers Drones To Be Aircraft

Heavier Drones
55 pounds & greater
Part 135, 137, etc.

"Carve Out" Hobby/Recreational 44809

CBO Based Certification
(Following FAA Guidelines)
The Recreational UAS Safety Test (TRUST)
Basic Drone Safety and Awareness
Registration for aircraft > .55lbs (>.249g)

Additional Training FAA Administered Test Recurrency every 2 yrs

Additional flight rights
Waivable Regulations

All Aircraft Registered

\* COA for LEOs

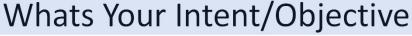
Additional Qualifications
For operating larger aircraft
Aerial Spraying/Dusting
Certain Delivery/Transport
Other special considerations

Greg Schulz – greg@picturesoverstillwater.com MN FAASTeam Drone Pro 6128109890

Types of Remote Pilots In Command (RPIC)



RC and other un-manned aircraft are considered sUAV/sUAS





**FAA Considers Drones** To Be Aircraft



# Hobbyist/Recreational

(e.g. TRUST cert & CBO Fly just for fun, not for work or anyone else or betterment)

# Registration

No < 250g (.55lbs)

Yes >= 250g

RID = Yes if registered

# Non-Hobby

(Part 107, Commercial & Fun For others & Betterment Ability for waivers & privs. MnDOT License/Reg in MN)

**Operating** Registration Regulations

Yes 0 to 55lbs

RID = Yes

Where to Fly

Airspace - UAS Regs, TFRs - FAA

Ground – Private, City, Cty, State, Fed



What & Where

Is Your Subject

Weather Conditions

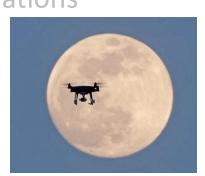
Day, Night, Wind

Clouds, Visibility

# Continuing With Todays Discussion Agenda

Faderal Aviation Administration SAFETY TEAM
Faasafety.gov

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# License (Certification), Registration, Insurance



License/Certification TRUST for Recreational/Hobbyist (Its Free via AMA and others)

Part 107 (Fee for Initial, recurrence free via faasafety.gov)

Part 107 initial is free for "current" part 61 (via faasafety.gov)

**Question**: We are a non-profit and only capture images for our

website, do we need to be part 107? If the imagery provides

betterment for your organization Yes.

**Question**: Do we need to have your license or certification with us

when we fly? Yes, especially for part 107 and if asked by LEO provide

your license/cert card and picture ID.

**Question**: Does this Drone stuff apply if flying indoors? Outdoors

Aircraft Registration

FAA required for all Part 107 aircraft (some states require reg)

Also required for Hobbyist aircraft > 249 grams

**Question**: Does Mavic Mini (249g) need registration? Yes for part 107

Insurance

Liability needed for Minnesota (e.g. MnDOT requirement)

# Basic sUAS Reminders – Authorizations, See, Been Seen and Avoidance



B4UFLY Free app and links to other useful apps for drone flight planning and operation including Low Altitude Authorization Notification

Capability (LAANC) for airspace authorizations.

Recurrency TRUST is Lifetime (Unless you lose your card)

Part 107 every two years retest (its free at FAASafety.gov)

Bright Strobe Lights For night flights, bright strobe light visible 3nm away. Suggest

using white as blue tends to blend in with night sky.

Don't Interfere With manned aircraft, or emergency first responders

Don't call airport Don't Call the Tower for airspace authorization unless explicitly

told to do so as part of a waiver or special authorization. Use

LAANC based app (Aloft, UASidekick, others) or FAA Drone Zone

website for airspace authorizations <a href="https://faadronezone-">https://faadronezone-</a>

access.faa.gov/#/ (Also use Drone Zone for registration & waivers)

# Watch The Weather – See and Be Seen, Fly Safe



#### **UAV Forecast App**



Keep an eye on the weather before and during flights Rain, sleet, snow, fog, Air Quality Index (AQI), haze, smoke Temperature – Absolute and heat index/wind chill Wind – Surface and at altitude, steady and gusts, direction

Also <u>1800wxbrief.com</u> & <u>aviationweather.gov</u>

**Drone Weather Reminders:** 

Ask yourself is it safe to fly, see and be seen?

Use visual references & various apps, watch KP factor & sat coverage.

Stay 500' below clouds, 2000' horizontal from clouds,

3 statue mile visibility, e.g. basic Visual Flight Rules (VFR)

**Question**: Can you fly drones at night? Qualified Yes

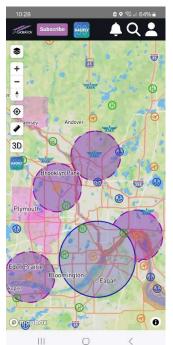
**Question**: Can you fly during rain & snow? Remember 500' below clouds, with 2000' horizontal distance from clouds and 3 sm visibility.

# Altitude, Airspace Authorizations and UAS Facility Map Grids



#### Altitude





400AGL absolute or published altitude for given airspace (Refer to UAS Facility Map Grids for absolute altitudes)

**Question**: Can Hobby drones fly in controlled airspace? With Authorization

**Question**: What about part 107 flying higher? With a waiver, **OR**, if within 400' of structure **AND** no higher than 400' above structure **AND** only for part 107 **AND** only in uncontrolled airspace).

**Question**: What if you need to go higher than published altitude in given location? Request via LAANC or DroneZone which might take longer.

Question: Can TRUST/Hobby Rec operator fly above 400' AGL? No

Question: Can other operators see if a LAANC is in same area? No

**Question**: Can multiple people have LAANC for same area? Yes

Question: Does a LAANC authorization trigger a DROTAM? No

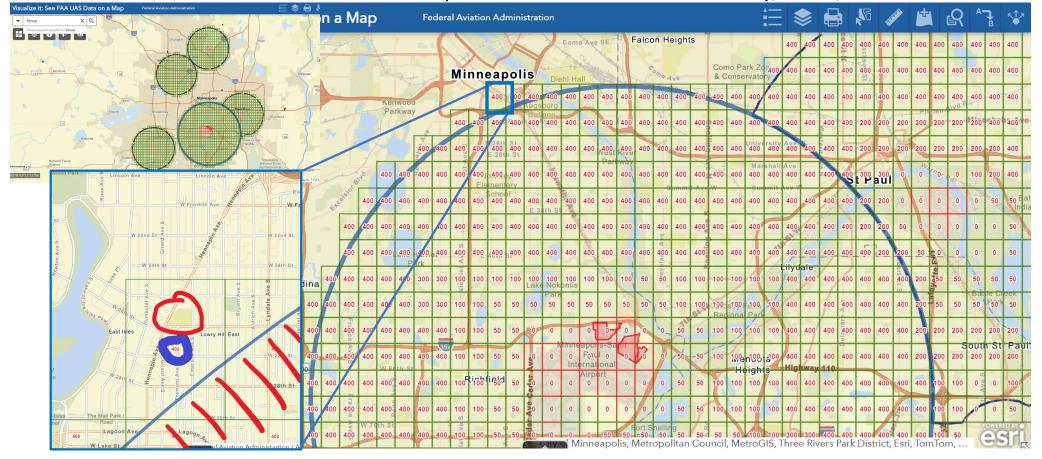
Question: Does a DROTAM infer a LAANC authorization? No

 $Greg\ Schulz-\underline{greg@picturesoverstillwater.com}\ MN\ FAASTeam\ Drone\ Pro\ 6128109890$ 

# Altitude, Airspace Authorizations and UAS Facility Map Grids



Via FAA Visualize It – To Get LAANC Airspace Authorization Use B4UFly, Aloft, & Others

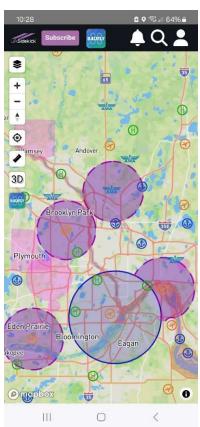


Greg Schulz – greg@picturesoverstillwater.com MN FAASTeam Drone Pro 6128109890

## Altitude, Airspace Authorizations and UAS Facility Map Grids



#### Airspace



Authorization is needed for Drone operation within controlled airspace (e.g. use LAANC provider [Aloft Aircontrol, UASidekick, many others] or DroneZone. Note you might also need an DJI Unlock code (a special code to allow aircraft (Drone) to fly in a given area).

**Question**: How long does it take to get airspace authorization? Seconds unless continuing (extra special) authorization required.

**Question**: Can Drones Operate near airports? Depends upon airspace

**Question**: Do TFRs apply to Hobby/Recreational & FPV Drones? Yes

**Question**: Do FPV drones need airspace authorizations? Yes if operating outside a FRIA in controlled airspace.

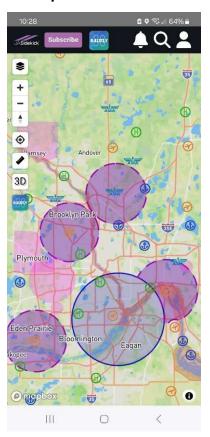
**Question**: Do Drones broadcast ADSB? No, however some can receive ADSB-In on their remote control stations.

**Question**: Whats a FRIA? FAA Recognized Identification Area where hobby recreationalist can fly without RID.

# Altitude, Airspace Authorizations and UAS Facility Map Grids



#### Airspace



Note: Drones tend to be affected by more TFRS

**Question**: Whats a TFR, how do I find them? Temporary Flight Restrictions appear on various apps as well as FAA TFR sight (See resources). TFRs are for security (POTUS/VPOTUS), safety as well as events. Some examples of non-security TFRs include NFL, MLB, NCAA Football games, NASCAR races. Other examples include some gatherings, emergency situations (e.g. train derailment, major crash, fire, wild fires among others). Expect many TFRS now through fall 2024.

**Question**: Do Drones need to issue a NOTAM/DROTAM? Only if there is a waiver requirement to do so. However it is a good best practice to do so to help manned aircraft awareness.

**Question**: What if I see something that does not look right? Contact LEO or FSDO or use NASA ASRS <a href="https://asrs.arc.nasa.gov/uassafety.html">https://asrs.arc.nasa.gov/uassafety.html</a>

# Drone NOTAM (DROTRAM) Example

Via Skyvector.com















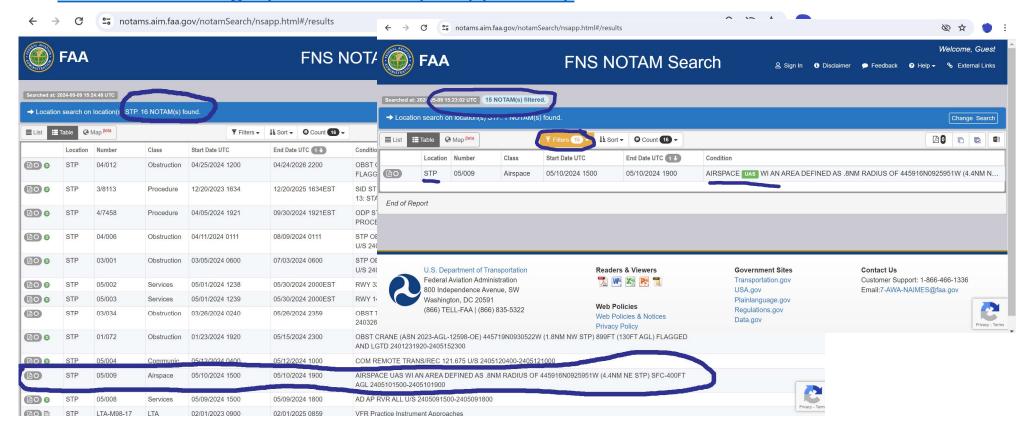
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Basic sUAS Reminders – TFRs, NOTAMS and DROTAMS (Drone NOTAMS)

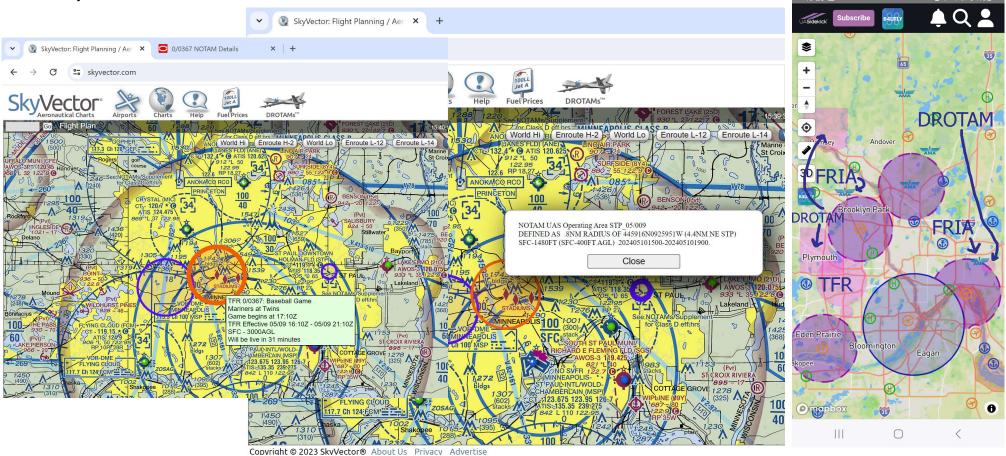
Via notams.aim.faa.gov/notamSearch/nsapp.html#/

Also see tfr.faa.gov/tfr2/list.html



Basic sUAS Reminders – TFRs, NOTAMS and DROTAMS (Drone NOTAMS)

Via Skyvector and UASidekick



Greg Schulz – greg@picturesoverstillwater.com MN FAASTeam Drone Pro 6128109890

#### Basic sUAS Reminders



Visual Line of Sight VLOS is required by the operator and/or Visual Observer (VO)

**Question**: How far can you fly a drone? As far as you or your VO can directly and safely see the aircraft (attitude, direction, altitude, etc).

Question: Does FPV flown outside a FRIA need a VO? Yes

Remote ID (RID)



**DB120 RID Module** 

Is required for all part 107 operators and their aircraft either standard (built-in) or using an add on module. RID is a "Digital License Plate" for Drones, its not ADSB, its signal is not recorded.

**Question**: Is RID required for hobbyist/recreationalist? Yes if their aircraft is registered (e.g. weighs more than 259g e.g. about .55 lbs.) and not flying in a FRIA.

**Question**: Are there tools to see RID information? Yes, Dronetag, Drone Observer, OpenDrone ID and others.

**Question**: Could a Manned Aircraft Pilot use an RID tracking App to monitor for Drones? Maybe if close enough, not reliably

# Continuing With Todays Discussion Agenda



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- Visualize it: See FAA UAS Data on a Map

  \*\*More A UAS Data
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# New, Emerging Topics and Trends

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Faasafety.gov

OOMV Operating Over Moving Vehicle (OOMV) requires a waiver

OOP Operating Over People (OOP) can be done under certain conditions:

- 1. With a waiver for part 107, or, based on CBO rules if TRUST
- 2. Or, Meet Category 1 requirements for part 107
  - ✓ Standard RID enabled, on and functioning
  - ✓ No exposed rotating parts (e.g. need prop guards)
  - ✓ Aircraft takeoff weight <= 249 grams including all attached items
  - ✓ No hovering over groups of people or moving vehicles
  - ✓ Maintain VLOS (you need a VO if flying FPV)
- 3. Or, Meet one of three other categories for part 107

**Question**: Can I fly an FPV drone over people? See above conditions

Question: Can DJI Mavic Mini OOP? Adding prop guards would exceed weight limits

**Question**: Can a DJI Avata cinewhoop OOP? Not without a waiver

Question: Can you operate a drone from another aircraft? Not without a waiver

Greg Schulz – greg@picturesoverstillwater.com MN FAASTeam Drone Pro 6128109890

# New, Emerging Topics and Trends



FAA Re-Auth Bill The signed bill contains many things affecting all of us. Stay tuned.

Possible DJI Ban The Proposed Legislation Is In Congress

"<u>Might"</u> (TBD) apply to new drones manufactured after a date If concerned, don't enable uploads via DJI (or other manufacture) Use 3<sup>rd</sup> party platforms such as Airdata for logs with direct uploads Reach out to congress person and state senators to voice concerns

Local Regulations Remember, only the FAA manages the airspace

Individuals, entities, cities, counties, states can regulate the ground

Some parks with regulations also have permit process

Also remember "ground" means where you stand, park, or on water

There are other local regulations around privacy, recklessness, etc.

Don't drone over jails and prisons (there are state and federal laws)

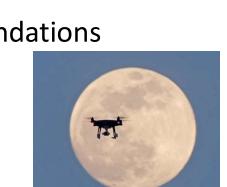
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# Real World Experiences, Tips and Recommendations



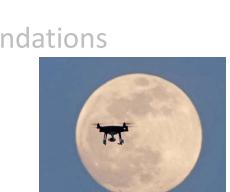
- Remote pilots are responsible for knowing rules, regulations...
- Remote Pilots stay heads up or have a VO to watch aircraft and watch out for others.
- Remote Pilots yield to aircraft, don't interfere with first responders.
- Help us (remote pilots) help you (manned pilots)...
  - Get your TRUST and/or Part 107 to help generate awareness about safety.
    - ✓ If you are "current" part 61 its free at faasafety.gov
  - Spread the word for others to learn about sUAS, TRUST, Part 107 safety.
  - Remote Pilots should be watching for you (manned pilots).
  - When below 400' we are in the same airspace, we should watch for each other.
  - At events, when flying manned aircraft below 400' assume Drones could be present.
  - o Pay attention to NOTAMS & DROTAMS. If you are going to be operating manned aircraft at or below 400' post a NOTAM or DROTAM so remote pilots can keep eyes and ears open watching for you. Call FAA LEIDOS (8774876867) to file Drone DROTAM.



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# Flying Smart, Flying Safe – Various Drone Related Resources



#### Some Drone Sites and Resources

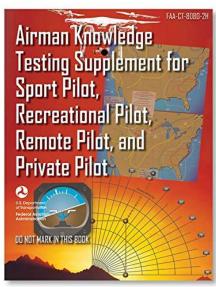
- FAA Safety Site <a href="https://faasafety.gov">https://faasafety.gov</a>
- Federal Aviation Administration (FAA) Drone sites <u>Faa.gov/uas</u> & <u>faasafety.gov</u>
- NASA Aviation Safety Reporting System (ASRS) <a href="https://asrs.arc.nasa.gov/uassafety.html">https://asrs.arc.nasa.gov/uassafety.html</a>
- Drone registration for Hobby (> .55lbs) and part 107 (anything under 55 lbs.)
   <a href="https://faadronezone.faa.gov/#/">https://faadronezone.faa.gov/#/</a> (Watch out for fake or over priced sites)
- Rec/hobby 44809 TRUST test (online, its free, follow the links)
   <a href="https://www.faa.gov/uas/recreational-fliers/knowledge-test-updates/">https://www.faa.gov/uas/recreational-fliers/knowledge-test-updates/</a>
- B4UFLY (FAA Free App, Info, LAANC authorizations) <u>faa.gov/uas/getting\_started/b4ufly</u>
- DJI Virtual Flight Simulator (Free) <a href="mailto:dji.com/downloads/djiapp/dji-virtual-flight">dji.com/downloads/djiapp/dji-virtual-flight</a>
- MnDOT Aviation (Commercial Drone License & Registration dot.state.mn.us/aero/drones
- Facebook: The Mighty Drones FPV Drone Racing <u>facebook.com/groups/themightydrones</u>
- Facebook: MN sUAS facebook.com/groups/1860070477555048

Flying Smart, Flying Safe – Various Drone Related Resources









# Additional Tools, Apps & Links:

- ✓ B4UFly and UAV Forecast and FAA Visualize It
- ✓ Aloft App (Air Control) LAANC
- ✓ FAA TFR Map tfr.faa.gov/tfr2/list.html
- ✓ FAA The Recreational UAS Test (Trust)
- ✓ Skyvector.com & vfrmap.com
- ✓ <a href="https://faadronezone-access.faa.gov/#/">https://faadronezone-access.faa.gov/#/</a>
- √ <a href="https://faasafety.gov">https://faasafety.gov</a>
- ✓ <u>PicturesOverStillwater.com/links</u>

ASA 2024 Test Prep - Via Amazon <a href="http://tinyurl.com/msxv3ws7">http://tinyurl.com/msxv3ws7</a> Part 107 Small Unmanned Aircraft Systems (small UAS) Recurrent <a href="https://www.faasafety.gov/gslac/ALC/CourseLanding.aspx?cID=515">https://www.faasafety.gov/gslac/ALC/CourseLanding.aspx?cID=515</a>

Part 107 Small Unmanned Aircraft Systems (small UAS) Initial <a href="https://www.faasafety.gov/gslac/ALC/CourseLanding.aspx?cID=451">https://www.faasafety.gov/gslac/ALC/CourseLanding.aspx?cID=451</a>

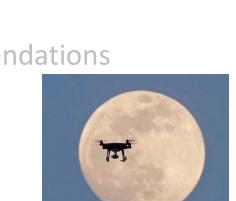


Greg Schulz – greg@picturesoverstillwater.com MN FAASTeam Drone Pro 6128109890

# Wrapping Up With Todays Discussion Agenda



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# Saturday Morning Coffee and WINGS Drones Are For Manned Aircraft Pilots Too August 10, 2024

# Thank You For Attending



