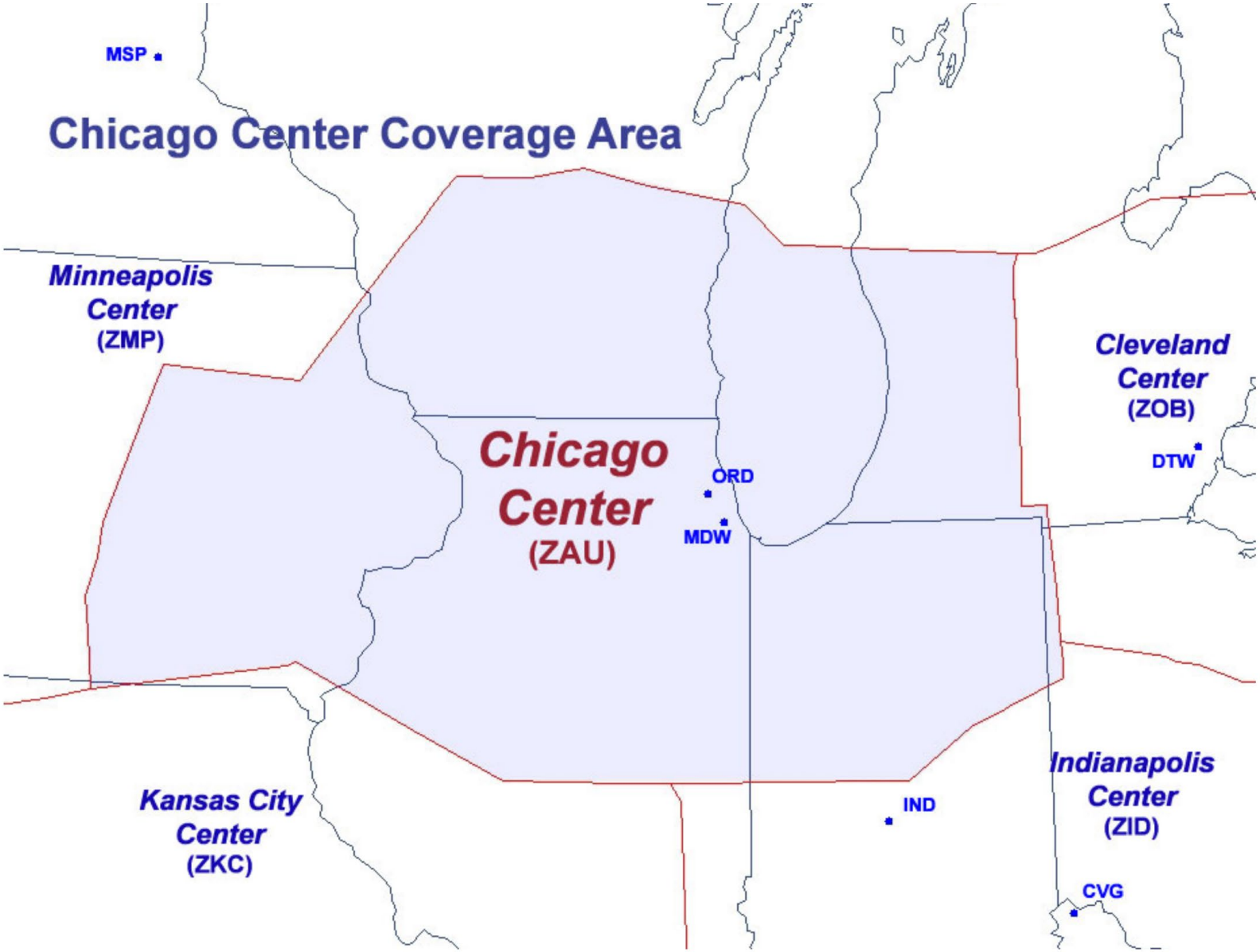
Intro to Small Unmanned Aircraft Systems & Recreational Drones

EN-ROUTE CENTERS

Air Route Traffic Control Center (ARTCC) or EN-ROUTE CENTERS… 24 centers across the country in locations away from airports. They control traffic above 17,000 feet over several states. These controllers give aircraft instructions, air traffic clearances and flight conditions during the en-route portions of flights.

Air Route Traffic Control Center (ARTCC)



TERMINAL RADAR APPROACH CONTROL (TRACON)

TERMINAL RADAR APPROACH CONTROL (TRACON)…the radar rooms, usually in airport towers. Controllers are responsible for the safe separation and movement of aircraft departing, landing, and maneuvering in the airport environment. Working in radar rooms, these controllers use radar to direct aircraft until they reach the edge of the facility's airspace, usually about 20 to 50 miles from the airport and below 17,000 feet.

AIR TRAFFIC CONTROL TOWER (ATC)

AIR TRAFFIC CONTROL TOWER (ATC)… the glassed-in towers at airports. ATC controllers manage traffic from the airport to a radius of 3 to 30 miles out. They give pilots taxiing and take off instructions, and air traffic clearance. They provide separation between landing and departing aircraft, transfer control of aircraft to the TRACON or En-Route center controllers when the aircraft leave their airspace and receive control of aircraft on flights coming into their airspace.

Air Traffic Control Tower (ATC)

A tower controller's primary responsibility is to separate traffic on the runway. Aircraft in the air must not rely on controllers for separation. Pilots are always responsible to see-and-avoid other aircraft. The smaller the aircraft is, the harder it is to see.

Drones, because of their extremely small size are nearly impossible for pilots in the air to see-and-avoid.

Low Altitude Authorization and Notification Capability (LAANC)

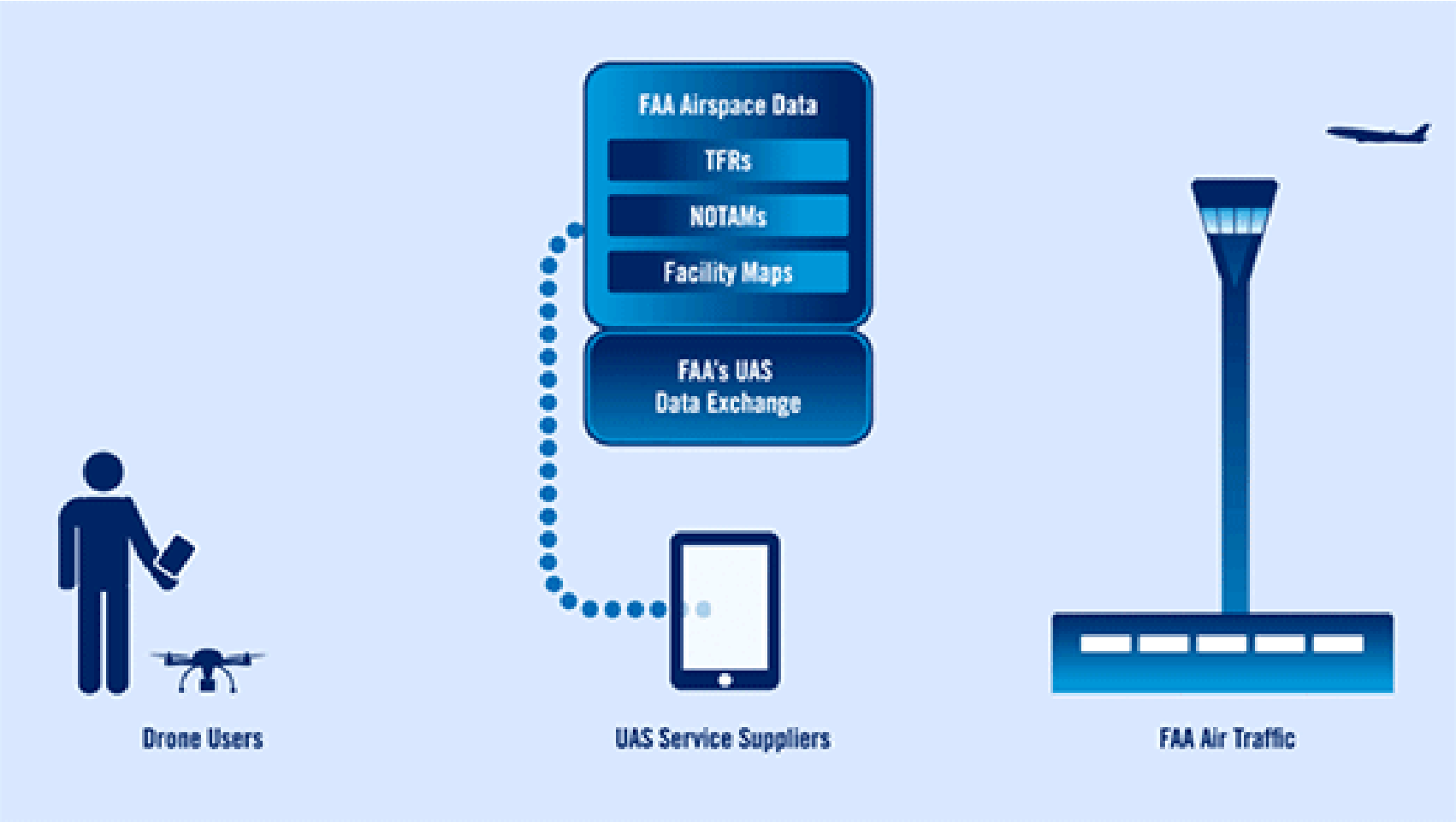
LAANC (pronounced “LANCE”) enables drone pilots to fly in controlled airspace near airports through real-time processing of **airspace authorizations** below approved maximum altitudes in controlled airspace.

FAA approved UAS Service Suppliers (USS) provide access to the LAANC capability.

Airspace Authorization

An **airspace authorization** grants a recreational or Part 107 pilot permission to fly in controlled airspace at a specific time and location.

LAANC Process



Unmanned air traffic management (UTM or U-space)

The FAA rolled out the LAANC system in 2018, in partnership with commercial UAS service suppliers.

LAANC is now available at 732 airports.

LAANC is available to both Recreational and Part 107 commercial drone pilots.

The LAANC authorizations are usually processed in less than a minute.

LAANC Authorizations

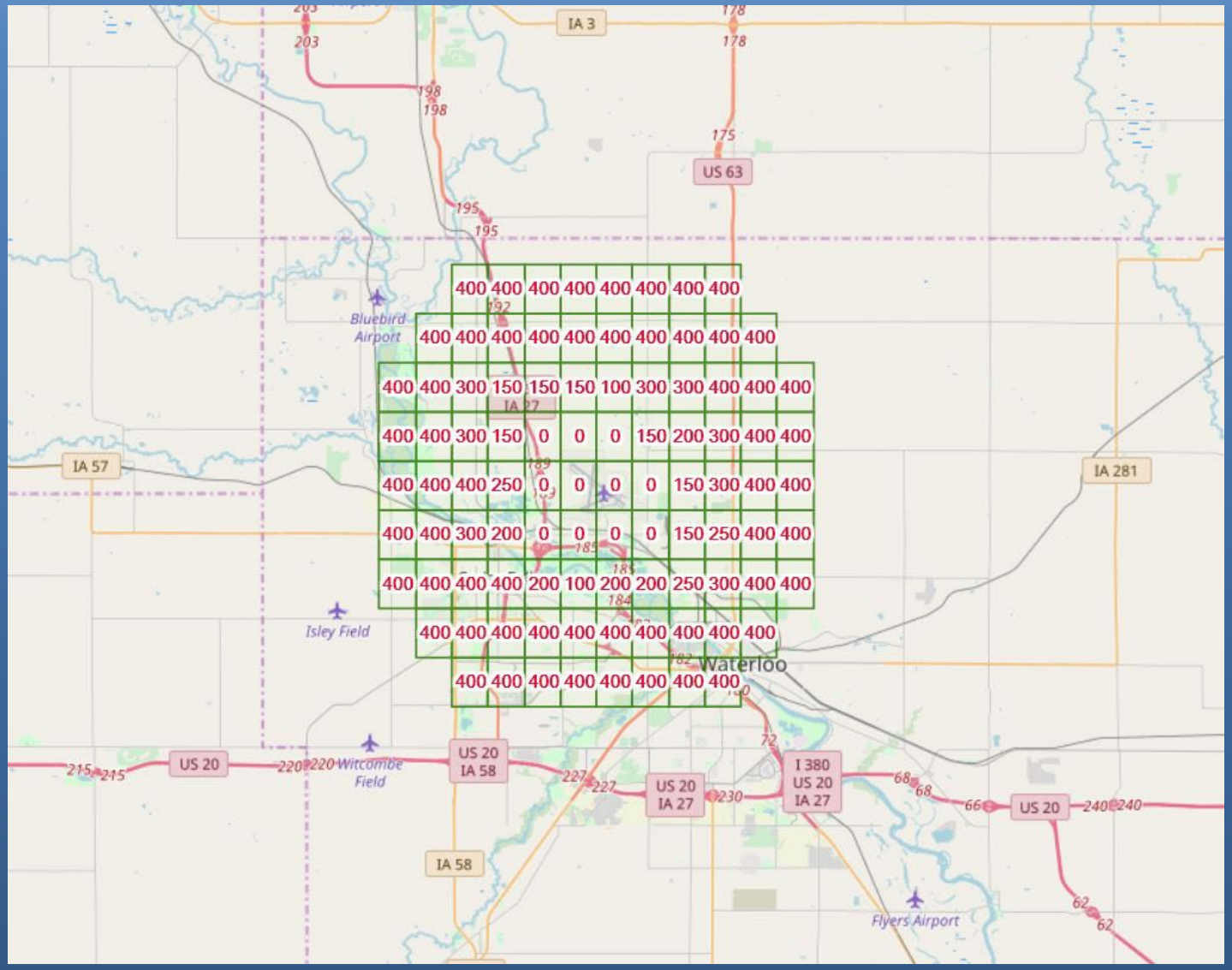
Both **Part 107 Pilots** and **Recreational Flyers** can receive a real-time authorization for operations up to 400 feet in controlled airspace around airports. Unless specifically requested in an authorization, drone pilots do not need to notify the tower before they fly.

- **Recreational Flyers** cannot request airspace authorizations that exceed the normal limits.
- **Part 107 Pilots** – can submit a "further coordination request" if you need to fly above the designated altitude ceiling in a UAS Facility Map, but not above 400 feet. You can apply up to 90 days in advance of a flight and the approval is coordinated manually through the FAA.

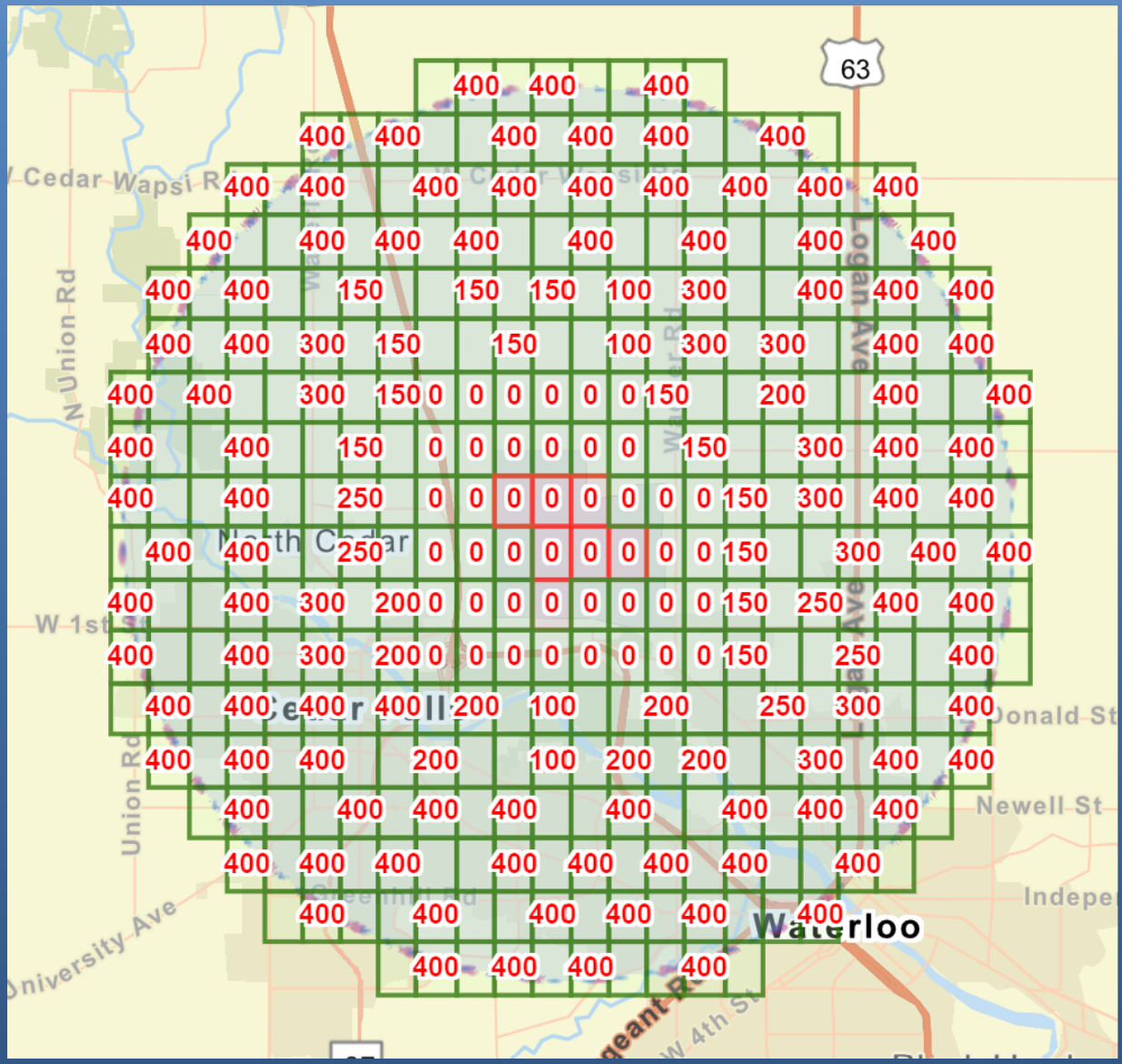
Companies Providing Public LAANC Services

Approved Service Supplier	Part 107 Near — Real Time Authorization	Part 107 Further Coordination	Exception for Recreational Flying/Section 44809	App on IOS	App on Android	Desktop
AirMatrix	✓	✓	✓			✓
Airspace Link	✓	✓	✓	✓	✓	✓
Aloft	✓	✓	✓	✓	✓	✓
AstraUTM	✓	✓	✓	✓	✓	
AutoPylot	✓		✓	✓	✓	✓
Avision	✓	✓	✓	✓	✓	✓
eTT Aviation	✓	✓	✓			✓
FlightReady	✓	✓	✓	✓		
UASidekick	✓	✓	✓	✓	✓	✓
Wing	✓		✓	✓	✓	

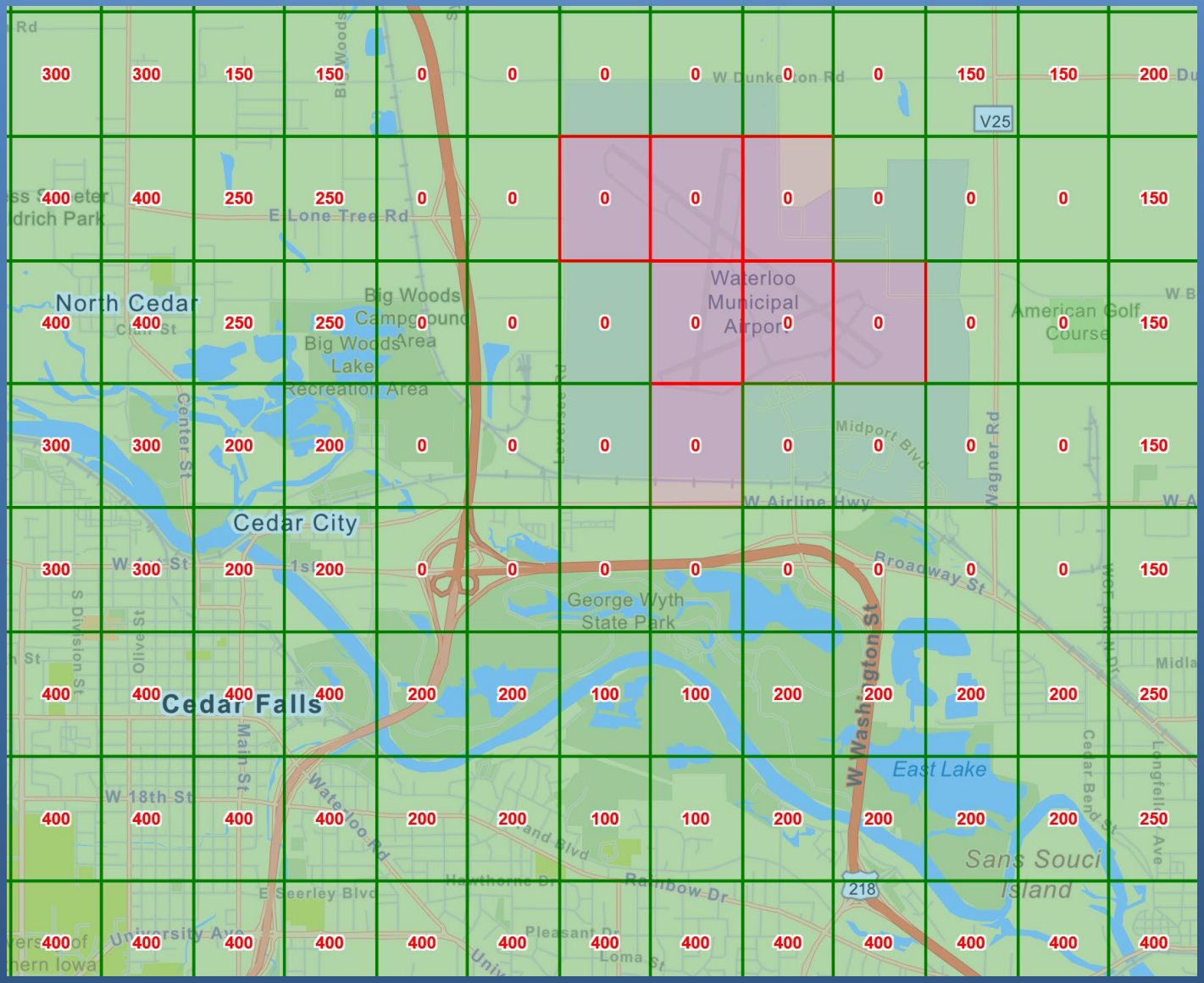
Waterloo LAANC Area



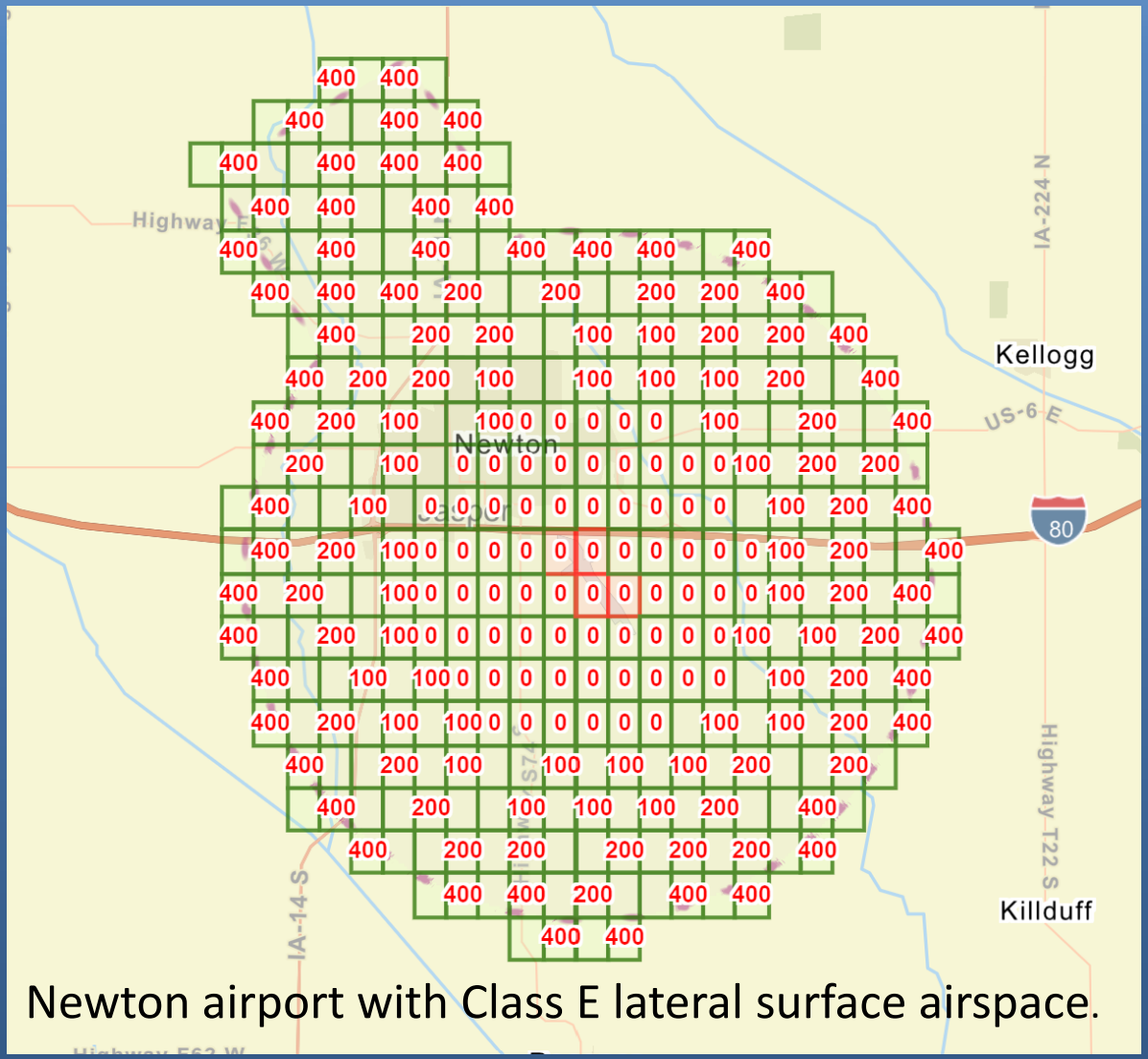
Waterloo LAANC Grid



Waterloo LAANC Grid

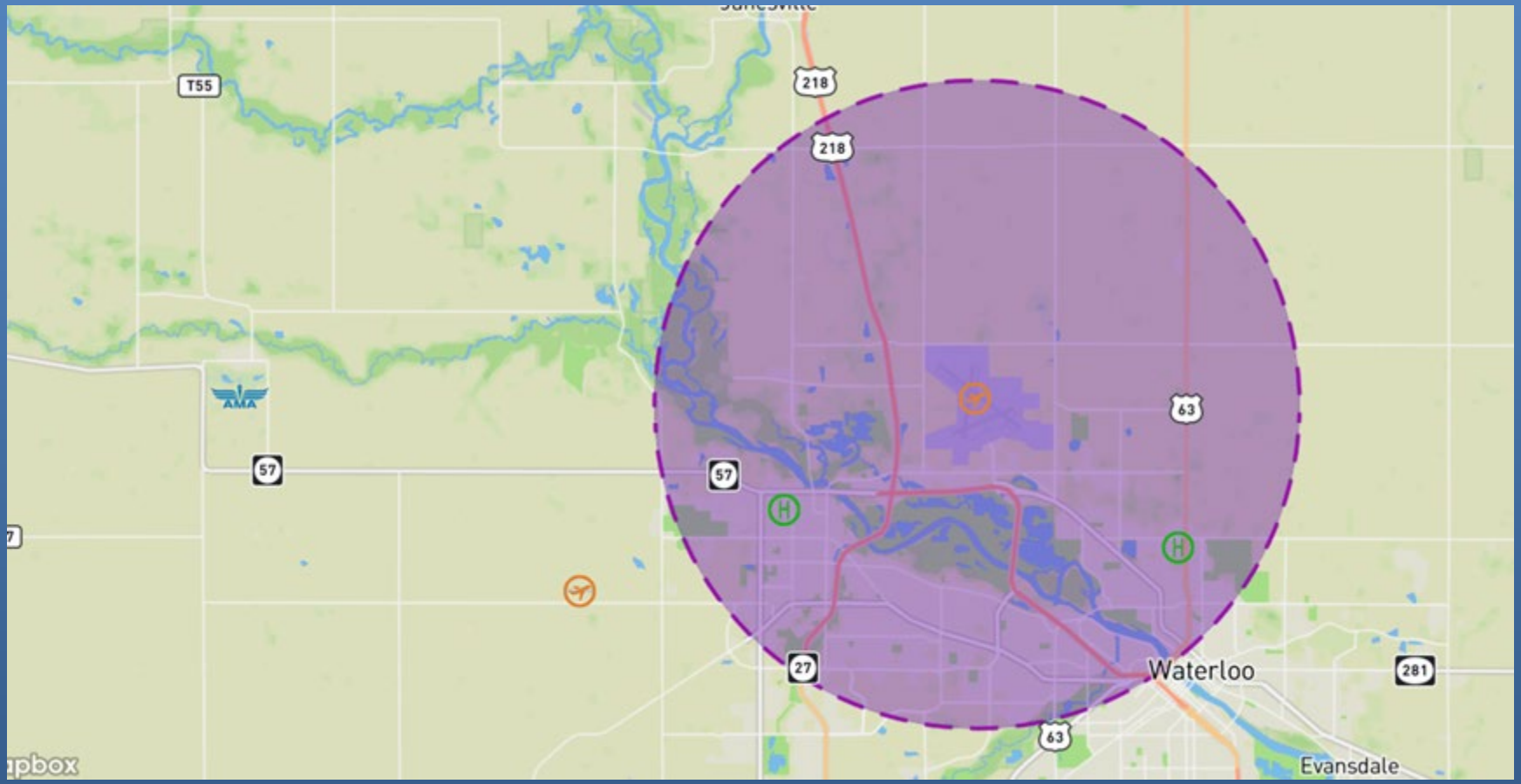


Newton LAANC Grid

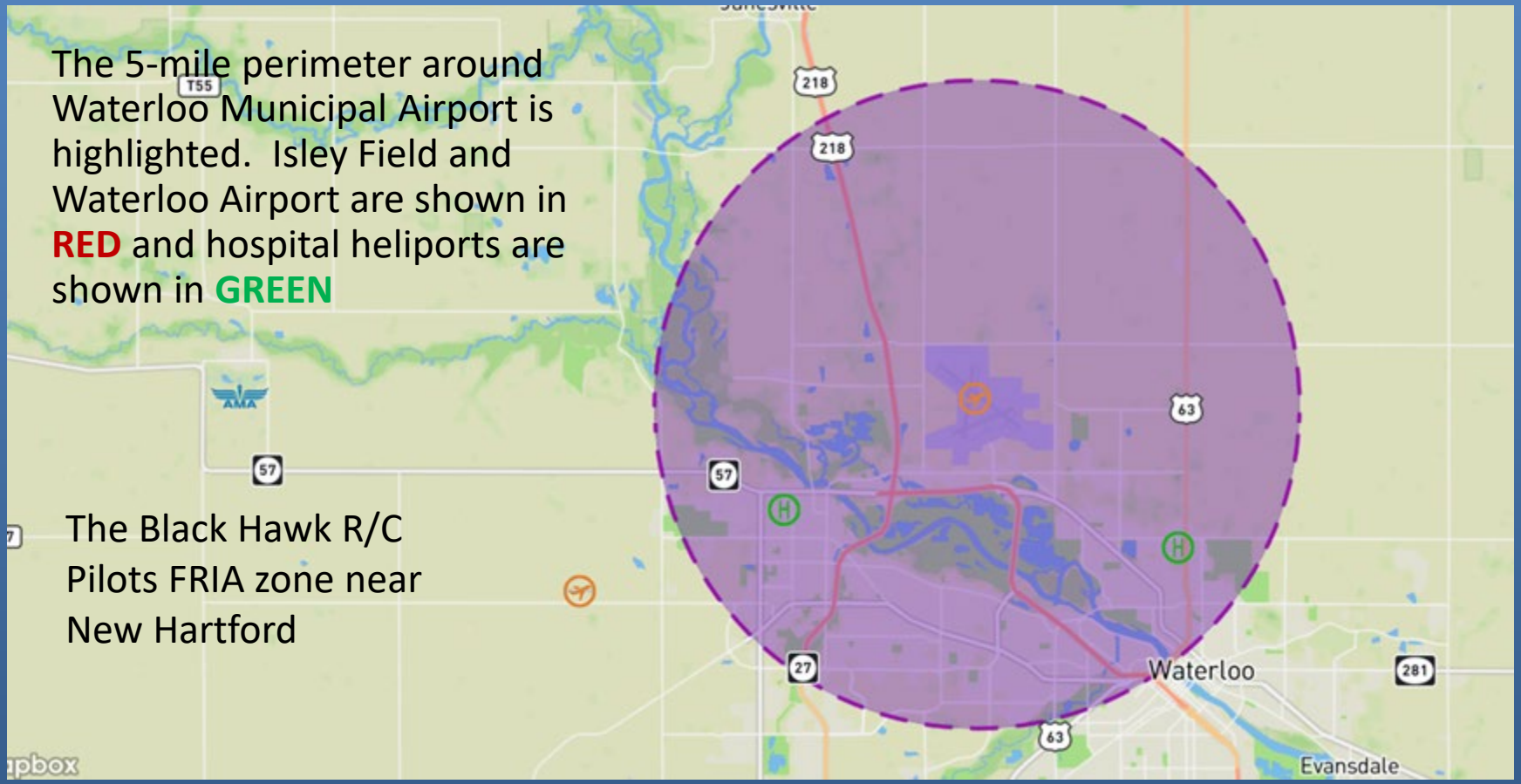


Newton airport with Class E lateral surface airspace.

Waterloo Airspace



Waterloo Airspace



B4UFLY desktop link

https://b4ufly.aloft.ai/

https://www.uasidekick.app/

LAANC Rules for Recreational Pilots

- Follow all 49 USC §44809 rules for Recreational flyers.
- Check the airspace prior to flying and comply with all restrictions.
- Comply with all Notice to Air Missions (NOTAMs)
- Authorization does not constitute a waiver of any state law or local ordinance.
- Each authorization corresponds to a single operator controlling at most one aircraft at a time.

49 USC §44809 rules for Recreational flyers

(USC §44809) is the law that describes how, when, and where you can fly drones for recreational purpose

- Fly only for recreational purposes (personal enjoyment).
- Follow the safety guidelines of an FAA-recognized Community Based Organization (CBO) such as the Academy of Model Aeronautics
- Keep your drone within the visual line of sight (VLOS) or use a visual observer (VO) who is co-located (physically next to) and in direct communication with you.
- Give way to and do not interfere with manned aircraft.
- Fly at or below FAA-authorized altitudes in controlled airspace (Class B, C, D and surface Class E designated for an airport) only with prior FAA authorization by using LAANC. Authorized altitudes are absolute and shall not increased when flying over structures.

49 USC §44809 rules for Recreational flyers

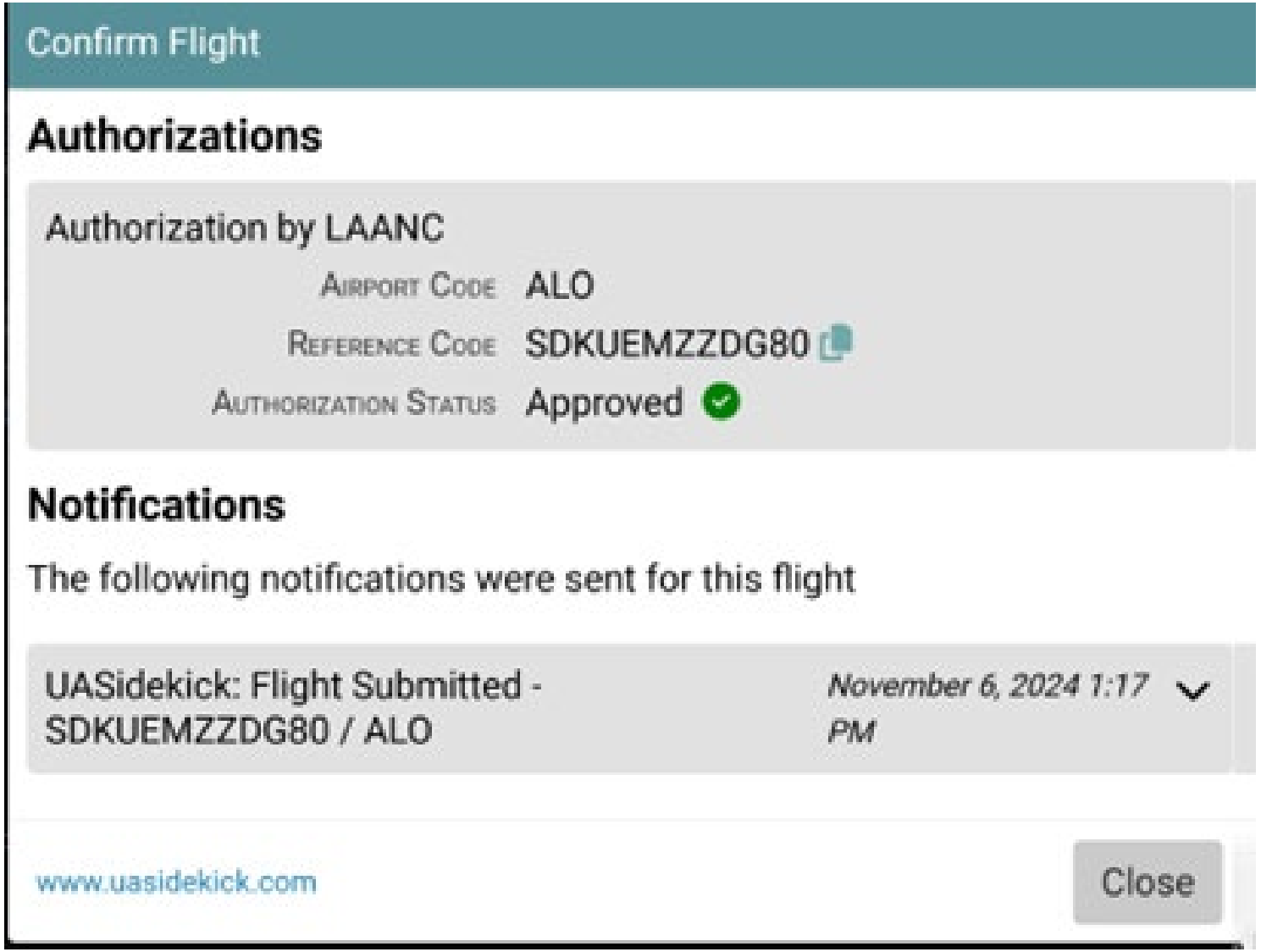
(USC §44809) is the law that describes how, when, and where you can fly drones for recreational purpose

- Fly at or below 400 feet in Class G (uncontrolled) airspace. *Note: Anyone flying a drone in the U.S. National Airspace System (NAS) is responsible for flying within the FAA guidelines and regulations. That means it is up to you as a drone pilot to know the rules.*
- Take The Recreational UAS Safety Test (TRUST) and carry proof of test passage when flying.
- Carry your current FAA registration card and mark your drones on the outside with the registration number. Broadcast Remote ID information (unless flown within a FRIA).
- Do not operate your drone in a manner that endangers the safety of the national airspace system.

LAANC Authorization

- Submit your request for Authorization online.
- Pilot will be available at listed cell phone during the flight per FAA regulations.
- Prior to the flight, the Pilot will check for any NOTAM and TFR restrictions for the flight area and check for Special Use Areas (SUA).
- Pilot has read and understands the FAA data collection, privacy statement, and submission requirements.
- By submitting a request, you are agreeing to the Terms and Conditions as well as the Privacy Policy of your UAS Service Supplier (USS).

Authorization Confirmation



Outlook

UASidekick: Flight Submitted - SDKUEMZZDG80 / ALO

From UASidekick NOTICE <NOTICE@UASidekick.com>
Date Wed 11/6/2024 1:17 PM
To nealleeper@gmail.com <nealleeper@gmail.com>

Recreational LAANC Application

§44809

Status: Approved (authorized to fly)

FAA Reference Code: **SDKUEMZZDG80 (ALO)**

NOTICE

Check for any NOTAM and TFR restrictions for your flight area prior to flight operations. Search NOTAMs at https://notams.aim.faa.gov/notamSearch/. For the latest TFR information, go to https://tfr.faa.gov. For the latest SUA schedule information, go to https://sua.faa.gov

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Pilot: Neal Leeper
Email: nealleeper@gmail.com
Phone: 3198302338
Flight Type: Recreational
Maximum Altitude: 400'
Start: 2024-11-06T19:20:00Z
Duration: 15 minutes
End: 2024-11-06T19:35:00Z
Notes: Test flight

Warnings

No warnings

AUTHORIZATION TERMS

SDKUEMZZDG80 / ALO, START: 2024-11-06T19:20:00Z, END: 2024-11-06T19:35:00Z, MAX ALT: 400: In accordance with 49 U.S.C. § 44809(a)(5), your operation is authorized within the designated airspace and timeframe constraints. Altitude limits are absolute values above ground level which shall not be added to the height of any structures. This Authorization is subject to cancellation at any time upon notice by the FAA Administrator or his/her authorized representative. This Authorization does not constitute a waiver of any State law or local ordinance. Neal Leeper (nealleeper@gmail.com, 3198302338) is the person designated as responsible for the overall safety of UAS operations under this Authorization. During UAS operations for on-site communication/recall, Neal Leeper (nealleeper@gmail.com, 3198302338) shall be continuously available for direct contact at 3198302338 by Air Traffic. Neal Leeper (nealleeper@gmail.com, 3198302338) is responsible to check the airspace in which the UAS will be operated and comply with all restrictions that may be present in accordance with § 44809(a)(5), such as restricted and prohibited airspace, night operations, temporary flight restrictions, etc. This authorization is subject to the following conditions: (1) operations are not authorized in Class E surface area airspace when there is a weather ceiling less than 1,000 feet AGL; (2) if the UAS loses communications or loses its GPS signal, it must return to a predetermined location within the operating area and land; (3) night operations are only permitted if the operator has completed FAA training/testing and lighted their sUAS with anticollision lighting visible for at least 3 statute miles that has a flash rate sufficient to avoid a collision. and (4) the person manipulating the controls of the UAS must abort the flight in the event of unpredicted obstacles or emergencies. This certificate shall be presented for inspection upon the request of any authorized representative of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations.

NOTE

Only portions of the flight time that are within active class airspace are submitted to LAANC for authorization. If part of your flight time is outside of time when an airspace is active, that portion of the flight time was not submitted to LAANC for authorization.

Airport Authorities/Class Airspace/Facility Maps

Waterloo Rgnl (KALO): Eligible for automatic approval, Class: D; LAANC ready, Effective 10/31/2024, Last edited 10/11/2017, Ceiling: 400' (UASFM FAA ID c929cce4-c1e5-4996-99b1-194b55d009bb)
Eligible for automatic approval, Class: D; LAANC ready, Effective 10/31/2024, Last edited 10/11/2017, Ceiling: 400' (UASFM FAA ID 4fa14edc-34f1-4383-96dc-be70e6d5ba0c)
Eligible for automatic approval, Class: D; LAANC ready, Effective 10/31/2024, Last edited 10/11/2017, Ceiling: 400' (UASFM FAA ID 16855b56-957a-48fc-aee6-c200da8545f0)
Eligible for automatic approval, Class: D; LAANC ready, Effective 10/31/2024, Last edited 10/11/2017, Ceiling: 400' (UASFM FAA ID 83916bf5-0fc7-4725-943c-9f80b2e6b4b3)

UASidekick is a provider of UAS services within the FAA's Low-Altitude Authorization and Notification Capability (LAANC). LAANC may be used to satisfy compliance with Air Traffic authorization. Information provided here is based on real-time and available projected information on airspace status

and airport-specific maps, and that information is subject to change. Planning tools should be checked prior to flight for any changes that could impact the operation.

Map Layers:

Notify and Fly

This layer displays active flight volumes of other recreational, commercial, and government / law enforcement drone pilots who have shared their flight intent to aid in the total situational awareness of all pilots in the area.

Temporary Flight Restrictions

This layer displays TFRs for areas restricted to flight due to a hazardous condition, a special event, or a general warning for the airspace.

This layer will display a yellow (warning) state for upcoming TFRs, and switch to a red (restricted) state for active TFRs.

Special Use Airspace

This layer displays areas where drones and other aircraft are not permitted to fly without special permission.

National Security UAS Flight Restrictions

This layer displays security-sensitive restrictions that prohibit drones from flying over designated national security-sensitive facilities.

Special Air Traffic Rules

Part 93 sites, including the Washington DC Special Flight Rules Area (SFRA) and Flight Restriction Zone (FRZ), where drone flights are prohibited.

Stadiums

This layer displays the corresponding radius of stadiums where flights would be restricted during Major League Baseball, National Football League,
NCAA, and motor speedway events.

Note: TFRs will also be in effect for these areas when events are active.

Controlled Airspace

This layer displays different classifications of airspace and defined dimensions within which air traffic control (ATC) service is provided in accordance with the airspace classification.

Note: Operations in Class B, C, D, and E airspace are allowed with the required permission/ authorization such as LAANC.

Airports

This layer displays areas on land or water intended to be used either wholly or in part for the arrival, departure, and surface movement of aircraft/ helicopters.

Note: Not all airports are controlled or towered, but extreme caution should be used in these areas.

National Parks

This layer displays National Parks that have been classified as “no drone” zones after 2014. Flying here could incur stiff fines and penalties.

Note: Local or state parks and such may have their own takeoff/landing restrictions, regardless of the airspace above.

Local Advisories

This layer provides localized situational awareness to aid in a safe and compliant flight with information about local regulations, operational advisories, and airspace activity.

Geo Portal Advisories

This layer provides localized situational awareness to aid in a safe and compliant flight with information about local regulations, operational advisories, and airspace activity.

Map Styles:

Restore defaults

Air Control Light

Offers the greatest contrast for airspace planning.

Air Control Terrain

Features elevation and contour details for flight planning

Satellite

Map style displayed in satellite view

Iowa Airports with LAANC Service

CODE	AIRPORT	CITY
ALO	Waterloo Regional	WATERLOO
AMW	Ames Muni	AMES
BRL	Southeast Iowa Regional	BURLINGTON
CID	The Eastern Iowa	CEDAR RAPIDS
CWI	Clinton Muni	CLINTON
DSM	Des Moines Intl	DES MOINES
DVN	Davenport Muni	DAVENPORT
FOD	Fort Dodge Regional	FORT DODGE
IKV	Ankeny Regional	ANKENY
MCW	Mason City Muni E	MASON CITY
MUT	Muscatine Muni	MUSCATINE
OTM	Ottumwa Regional	OTTUMWA
SLB	Storm Lake Muni	STORM LAKE
SPW	Spencer Muni	SPENCER
SUX	Sioux Gateway/Col Bud Day Fld	SIOUX CITY
TNU	Newton Muni-Earl Johnson Fld	NEWTON

Sample Test Question

A drone can fly near airports in Class G airspace if this rule is followed:

1) No permission is required, but you cannot interfere with the airport operations.
2) The local airport operator must be contacted.
3) The local airport operator must give permission to fly nearby.

Sample Test Question

A drone can fly near airports in Class G airspace if this rule is followed:

1) **No permission is required, but you cannot interfere with the airport operations.**
2) The local airport operator must be contacted.
3) The local airport operator must give permission to fly nearby.

Authorization vs Waiver

The difference between an FAA authorization and a waiver is that an authorization is associated with controlled airspace, while a waiver is associated with operations.

- An **airspace authorization** grants a recreational or Part 107 pilot permission to fly in controlled airspace at a specific time and location.
- A **waiver** grants a Part 107 pilot permission to deviate from the rules at a specific time and location.


Any
Questions