
A2Z DRONE DELIVERY

WHITEPAPER

# Drone Delivery Reality Check:

## Current US Allowances and Preparing for The Next Level of BVLOS Deliveries

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Whether for food deliveries, cargo and parcel payloads, or life-saving medical supplies, the promise of drone delivery has captured the imagination of consumers and logistics operators worldwide. The speed, efficiency, and emissions savings that delivery drones offer can improve your business' bottom line, excite your end customers, and potentially save lives. While we'd love to say deploying delivery drones is simply a matter of raising the capital to launch a drone fleet, the current day reality of drone delivery in the United States is a little more complicated than that.

So, as 2024 comes to a close, let's take a look at where the US currently stands in terms of drone delivery regulations, what types of deliveries you could launch today, and how anticipated regulatory changes may supercharge any drone delivery business.

## The Current Regulatory Framework

The Federal Aviation Administration (FAA) is responsible for regulating the entire aviation industry, including the integration of drones into the National Air Space, and has promulgated multiple levels of regulation governing all sizes of unmanned aerial vehicles (UAV) and related operations. Anyone considering launching a drone delivery operation, either as an extension of your current drone service offerings or as a division of your enterprise operations, will need to become fluent in the full breadth and intricacies of these regulations. To help understand what is currently feasible for drone delivery in the US, though, the various regulatory levels boil down to some basic criteria.

### Part 107 (Visual Line of Sight operations)

Originally established in the nascent days of consumer drone adoption, Part 107 was originally crafted when drones were mainly limited to aerial photography, mapping, and targeted site inspection missions. While drone operations under Part 107 are limited, the regulation is still the standard bearer for most safe and legal drone operations. To conduct flights under Part 107, the total take-off weight of the drone and any onboard payload cannot exceed 55 pounds. The drone's flight path must stay under 400 feet above ground level (AGL), and drones are prohibited from flying over people or active roadways (though operators can file for waivers from the FAA after evaluating ground risks, air risks, as well as the safety and reliability of the UAV).

Most importantly, the drone must remain within visual line of sight of the operator (VLOS) or a visual observer (VO). Visual line of sight doesn't mean the Remote Pilot in Command (RPIC) sees a dot in the sky they believe is the UAV - it means the RPIC sees all aspects of flight of the UAV, like attitude, pitch, direction, etc. Carrying other people's property (package delivery) may be conducted under Part 107 in VLOS, but operators cannot conduct package delivery for hire beyond visual line of sight under Part 107. Package delivery for hire beyond visual line of sight can only be conducted under Part 135. It is expected that forthcoming Part 108 rules will also allow this in the future, but we'll touch on this highly-anticipated rule shortly.

## Part 107 with Waivers

To extend drone delivery operations in VLOS or even BVLOS for non-package delivery for hire operations, operators need to secure one or more Part 107 waivers from the FAA. In more populated areas, operators may apply for an Operations Over People (OOP) waiver to conduct operations over people or moving vehicles. This is the criteria under which most of the well-publicized trials are being conducted in the United States. The FAA will take into account the category as well as the safety and reliability of the UAV, and evaluate the ground (population density, speed limits and congestion on roadways, etc.) alongside air risks (complexity of the air space, nearby airports or helicopter operations, no fly zones, detection of manned aircraft, etc.). Securing such a waiver can be time consuming and intimidating for new operators. However, here at A2Z, we can connect operators with our regulatory experts to assist in the waiver process. Less complex missions, such as shore-to-ship missions over water, linear inspection missions, and flights in rural areas are generally easier for which to secure a waiver compared to more complex missions such as home package delivery missions in urban areas with routes crossing congested roads or freeways.

## Part 135 Air Carrier Certificate

The top tier of regulatory provisions with the broadest scope is the Standard Part 135 Air Carrier Certificate. There is no limit to the size (number of aircraft and pilots) or scope (on-demand or scheduled flights, BVLOS UAS operations) of operations. This is the same level of approval that any airline carrying more than 10 people or more than 7,500 pounds of cargo for hire is required to secure. While there are varying levels of restrictions depending on the planned operation, Part 135 certification always requires more stringent safety protocols than Part 107 operations, including airworthiness standards and crew certifications. Aircraft must be type certified by the FAA or exempt under the agency's Criteria for Making 44807 Determinations (CMD) which allows takeoff weights to exceed the 55-pound limit under Part 107. Also, Part 135 certification requires the operator to develop operation, maintenance, safety and training manuals, and fill required management positions (under Part 119). Even with a Part 135 certificate in hand, there may be conditions and limitations set for the operator, for instance, BVLOS operations may still require waivers.

However, some precedent has been set for BVLOS waivers. The operator will have to detect and avoid (DAA) other aircraft.  Wing received a BVLOS waiver to operate in Mode C Veil (where aircraft are required to be cooperative) and UPS Flight Forward received a BVLOS waiver utilizing ground-based radar for DAA.

# Evolving BVLOS Allowances – The Much Anticipated Coming of Part 108

As demand for farther reaching drone operations continues to grow rapidly, proposed mission parameters continue to push the very edges of what is currently possible under the limitations of Part 107. First published in 2016, Part 107 has simply been outpaced by the drone industry's rapidly advancing technology and the acceptance of drone delivery by the public, leaving operators having to apply for waivers to operate in more densely populated areas and for longer distances. As a result, the FAA has been developing new regulations (potentially called Part 108) to expand package delivery operations in BVLOS without a requirement to become a certified airline. These new regulations will govern BVLOS drone flights for aircraft potentially up to 1,320 pounds (light sport aircraft limit). The implementation of Part 108 is expected to be a major driver of drone adoption and expansion with ever increasing pent-up demand for BVLOS use cases.

So, when will these new regulations go into effect? That's currently the million-dollar (more likely multi-billion dollar) question. The FAA has spent years working with drone industry stakeholders as it fleshes out the new Part 108 details. Earlier this year, federal lawmakers, in an attempt to push the new regulations into practice as soon as possible, set a September 2024 deadline for the regulators to issue a Notice of Proposed Rulemaking (NPRM), the first step in the adoption of new regulations. Unfortunately, that deadline has been missed, and the agency has most-recently noted that it anticipates the first step towards publication and public comment are now planned for early 2025. The original Part 107 regulation took about 18 months to go through public comment and debate, modification, and into full effect from the date of its NPRM issuance, so one can now anticipate operations under the new Part 108 will not be happening until well into 2026, at least.


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## A2Z Drone Delivery is Preparing for Part 108

While the future of drone delivery under Part 108 has been slightly delayed, there are still many drone delivery use cases which can be conducted under existing regulations.

To ensure A2Z Drone Delivery customers will be able to navigate the transition to operations under Part 108 as seamlessly as possible, we have been extensively testing our commercial delivery and patrol drones under BVLOS conditions and in extreme weather and wind conditions at our Ground Zero Test Facility. With Part 108 expected to place additional scrutiny on both drone hardware and their operators as compared to Part 107, we are proving the reliability and safety of our airframes in advance of this anticipated need and gathering the necessary data to support those applications.

By the time Part 108 goes into effect, A2Z Drone Delivery also anticipates offering customers a tested Part 107/108-certified platform as well as an option that will have completed the CMD process allowing it to be operated by Part 135 drone airlines. Also, A2Z will develop a Part 108 regulatory framework for operators (based on current Part 135 regulations and the upcoming Part 108 NPRM).

## What Drone Delivery Operations Are Possible Under Part 107?

While the upcoming Part 108 regulations will undoubtedly unlock the cost-saving efficiency of BVLOS drone delivery, even under current regulatory allowances, drone delivery offers massive speed, efficiency, and environmental benefits over terrestrial delivery standards. Here at A2Z Drone Delivery, we recommend that those just entering the drone delivery industry, whether drone service providers, enterprise, or governmental entities, start out with missions that can be conducted under these least restrictive criteria.

The use cases that can be conducted under Part 107 will require operators to maintain visual line of sight with the drone either by the operator or visual observers staged along flight paths. It will also require those flight paths to avoid flying over people and active roadways (unless a waiver is approved by the FAA). The regulation also requires each aircraft in a delivery fleet to be operated by a dedicated pilot in command. While these restrictions mean slightly more manpower is needed to conduct drone deliveries, and limits their range, these are also the key criteria that are likely to be addressed under delivery routes will quickly become far more profitable because less labor will be needed.

For drone service providers, enterprise, and governmental entities looking to take advantage of drone delivery NOW, there are a few areas where these flights can take to the American skies immediately. Most importantly, these use cases can start simply, grow under existing regulatory waiver processes, and be positioned for rapid scalability as the new Part 108 regulations go into effect. Some of those use cases include:

## Flight Paths Over Water

Conducting drone delivery over waterways, lakes, and oceans is entirely possible under Part 107. The long-range visibility over water with little to no people means operations can reach farther than over land while still maintaining visual line of sight (VLOS). These missions can be extended with visual observers stationed beyond the pilot's line of sight, and BVLOS waivers for missions over water tend to be more accessible through the FAA because they present less ground risk. The relative safety of such missions is also a good path for new operators to gain experience with drone delivery missions under Part 107 rules. Deliveries to near-shore energy platforms, shore-to-ship deliveries, and barrier islands are perfect examples of how over-water missions can be profit generators.

## Confined to Private Property

Part 107 regulations also make drone deliveries over large private properties entirely actionable right now, so long as VLOS is maintained and operations are not conducted over people. Limiting flights to the constraints of a large private property such as delivering tools across a mining operation, real estate photography, crop field scanning, linear utility inspection, perimeter patrol missions, medical deliveries throughout a hospital campus, and large maintenance or manufacturing complexes allows for regular and repeatable operations.

### Remote Area Operations

Drone deliveries servicing remote regions can also be conducted under Part 107 where airspace is less complex, and flight paths can be planned to avoid population zones and busy roads and highways. The delivery speeds drones afford can already present cost-saving opportunities for small parcel deliveries and rapid deployment of medical supplies that benefit underserved communities. Getting started with daisy-chained visual observers along flight paths is a readily deployable model already, and as operations continue to expand, operators can elect to apply for a Part 107 BVLOS waiver as business grows.

## Contact A2Z Drone Delivery for Regulatory Assistance

Hopefully, this primer has helped you better understand what commercial drone delivery use cases are currently possible under the existing regulatory structure here in the United States, and has whet your entrepreneurial appetite for what the near-future holds for a drone delivery business.

If you are considering launching a standalone drone delivery business, offering your customers food delivered by drone, or adding drone delivery to your enterprise or governmental operations, please reach out to us for further assistance in navigating the FAA's regulatory process. We can connect you with our regulatory experts to assist in the waiver process, setting up an aviation department, or preparing you for Part 108 or Part 135 operations. We have the necessary data at hand, and resources on staff, to educate and advise your team on this entire process. Whether you need assistance applying for waivers, planning drone delivery operations, or developing operation, maintenance, safety, or training manuals, we have experts with years of experience working with the FAA and the industry to create drone programs and standing up drone operations from ground zero.

## Contact A2Z Drone Delivery
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