New federal rules would let drones fly at night and over crowds



Enlarge / A drone is flown during a property inspection following Hurricane Harvey in Houston in 2017.

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The Federal Aviation Administration proposed Monday to relax rules governing commercial drone operations. Since 2016, the FAA has allowed the commercial operation of unmanned aerial vehicles weighing less than 55 pounds under certain limited circumstances. New rules proposed this week would relax two of the restrictions in the 2016 rules: drones will now be allowed

to operate at night, and they'll be able to operate over people.

The agency already allows some nighttime flights, but only on a case-by-case basis. The agency says that since 2016, it has received thousands of requests for waivers for nighttime operations and granted 1,233 of those requests. The FAA says that it hasn't had any reports of accidents due to these nighttime operations. So the new FAA proposal would allow people to operate drones at night without special permission from the agency—provided the operator gets extra training and that the drone has lights that are visible from three miles away.

Current rules prohibit commercial drone operations over people who aren't directly involved in operating the vehicle. The new rules would allow drones to fly over people if the drone manufacturer certifies that doing so is safe. Specifically, manufacturers would need to demonstrate that in the event of a malfunction, the drone won't fall with more than an FAA-defined maximum of kinetic energy (either 11 or 25 foot-pounds, depending on the situation).

One way to comply with this requirement would be to make a drone out of light-enough materials that the device doesn't reach a very high speed in freefall. But drone manufacturers have the option of developing other mechanisms to prevent bystander injuries and submit these to the FAA for approval.

The new rules would also require that drones flown over people would not have exposed propeller blades capable of causing injuries.

The new rules also come with one other big caveat: the FAA says it won't finalize them until it has completed work on a drone identification system. Law enforcement agencies worry that drones could be used for terrorism or other nefarious purposes, so they've pressed for a mechanism to automatically

identify the owner and purpose of drones in a particular area.

Ordinarily, it takes 12 to 18 months for an initial rule to become a final rule. But the FAA's promise to develop a drone identification system first could delay these rules for months more. That means the rules may not be finalized until 2021 or later.

New rules could open up significant new applications

The development of drone technology has far outpaced the evolution of FAA rules. As a result, a lot of people are waiting for the rules to change to enable new uses of drone technology.

Michael McKisson, a University of Arizona journalism professor, points to drone journalism as one example. News organizations have long used airplanes and helicopters to capture footage of newsworthy events like protests, traffic jams, and natural disasters. But traditional aviation is expensive. "Any time they wanted aerial footage, they had to hire or own a helicopter," McKisson points out.

Drones bring down costs dramatically, putting aerial photography within reach for many more news organizations. And relaxing the rule against operating over people could make a big difference, because many newsworthy events—protests, festivals, crime scenes—involve large numbers of people.

Brendan Schulman, a policy expert at leading drone maker DJI, points to search-and-rescue operations as another significant application for drones. "Flying at night is beneficial, because that's a time of day when it can be very important to try to find missing people or in a disaster zone," Schulman told Ars.

While the FAA is proposing to relax two of its rules, there

are still significant limits on drone operations. Each drone must have a dedicated operator who supervises the flight from the ground. And this operator must have a direct line of sight to the drone.

These restrictions preclude some of the drone applications that could have the biggest economic impact. Way back in 2013, for example, Amazon predicted that it would begin delivering packages using drones within five years. More than five years later, that hasn’t happened, and the FAA rules are one reason why.

To be useful, a drone delivery service needs to fly beyond its operator’s line of sight, and the FAA doesn’t allow that yet. Moreover, to be economically viable, a drone delivery service would likely need to be semi-automated, with one operator supervising multiple delivery drones. But again, that would be contrary to current FAA rules.

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