



August 4, 2025

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United States Department of Transportation
1200 New Jersey Avenue, SE
West Building Ground Floor, Room W12-140
Washington, DC 20590

Re: CDA Comments in Response to “Hazardous Materials: Mandatory Regulatory Reviews to Unleash American Energy and Improve Government Efficiency” (Docket No. PHMSA-2025-0032)

To Whom It May Concern:

The Commercial Drone Alliance (CDA)¹ appreciates the opportunity to submit comments in response to the Pipeline and Hazardous Materials Safety Administration’s (PHMSA) advance notice of proposed rulemaking (ANPRM) titled “Hazardous Materials: Mandatory Regulatory Reviews to Unleash American Energy and Improve Government Efficiency.”² The commercial unmanned aircraft systems (UAS or drones) industry has long been plagued by an overly burdensome regulatory framework, including for transport of hazardous materials (hazmat), which does not account for the lower risk profile of commercial drones carrying limited quantities of hazmat. The result has been a stifling of innovation and progress while international peers and competitors forge ahead in benefiting from commercial drone delivery operations.

Commercial drone operations stretch across several industries, from commercial package delivery to inspections of critical infrastructure and utilities, generating millions of dollars in revenue and creating thousands of high-quality American jobs. The drone industry is projected to contribute billions of dollars to the global economy over the next decade, with some projections as high as \$90 billion by 2030.³ Drone delivery

¹ The CDA is an independent non-profit organization led by key leaders in the commercial drone industry. The CDA has actively participated in rulemakings and policy efforts to facilitate the safe and secure development and expansion of commercial drone operations. The CDA works with all levels of government to collaborate on policies for industry growth and seeks to educate the public on the safe and responsible use of commercial drones to achieve economic benefits and humanitarian gains. We bring together commercial drone end-users, manufacturers, service providers, advanced air mobility companies, drone security companies, and vertical markets including oil and gas, precision agriculture, construction, security, communications technology, infrastructure, newsgathering, filmmaking, and more. Learn more at <https://www.commercialdronealliance.org/>.

² Hazardous Materials: Mandatory Regulatory Reviews to Unleash American Energy and Improve Government Efficiency, 90 Fed. Reg. 23656 (Jun. 4, 2025).

³ Levitate Capital, *The Future of the Drone Economy: A Comprehensive Analysis of the Economic Potential, Market Opportunities, and Strategic Considerations in the Drone Economy 1* (Dec. 2020), <https://levitatecap.com/levitate/wp-content/uploads/2020/12/Levitate-Capital-White-Paper.pdf>.

is transforming the way consumers receive products and expand businesses' capacity to market and distribute their goods. By accelerating economic growth, reshaping logistics and last-mile transportation, and restoring national leadership in advanced aviation, commercial drone operations—including commercial drone delivery—play a key role in energy dominance and transportation modernization. Yet to fully achieve the economic and safety benefits of commercial drone operations, it is essential to update the outdated regulatory framework currently governing these operations.

The current Hazardous Materials Regulations (HMR) inadequately address the differing risks and policy objectives between drones and large, crewed aircraft. The result is a regulatory framework that does not consider the different operating environment in which drones fly, leading to illogical outcomes that fail to enhance safety. As an example, a drone may be equipped with (and carry) a lithium battery-powered camera used in flight without triggering additional regulatory burden, but current regulations do not provide for the drone to *transport* that same battery-powered camera in its original packaging as cargo. Such an outcome may actually have an adverse impact on safety by relegating last-mile deliveries to traditional ground methods.⁴

The FAA Reauthorization Act of 2024 identified this challenge and appropriately mandated that, within 180 days of enactment, the Secretary of the Department of Transportation (DOT), in conjunction with the Administrators of PHMSA and the Federal Aviation Administration (FAA), begin using a tailored, risk-based approach to establish the operational requirements, standards, or special permits necessary to enhance transport of hazardous materials by commercial package delivery UAS.⁵ In a similar spirit, the White House recently called via Executive Order for the streamlining of approval processes for the delivery of consumer goods.⁶

In support of these initiatives and in response to this ANPRM, CDA offers suggestions for amending the HMR to enable beneficial commercial drone operations while ensuring an equivalent level of safety. In line with PHMSA's effort to reduce unnecessary regulations that impose undue costs, "improve government efficiency," and "eliminate undue burdens on the identification, development, and use of domestic energy resources,"⁷ the CDA urges PHMSA to regulate commercial UAS transport of consumer goods in a manner that accounts for the specific risk profile of commercial drone delivery operations. This includes adopting a risk-based regulatory framework that accounts for the low-risk types and quantities of hazmat being transported.

⁴ See Sarah Lyon-Hill, et. al., *Measuring the Effects of Drone Delivery in the United States*, Virginia Tech Office of Economic Development and the Grado Department of Industrial & Systems Engineering, vi (Sept. 2020), https://cece.vt.edu/content/dam/econdev_vt_edu/projects/technology/Virginia%20Tech%20%20Measuring%20the%20Effects%20of%20Drone%20Delivery%20in%20the%20United%20States_September%202020.pdf (finding that implementing drone delivery in a single metropolitan area could reduce road usage by up to 294 million miles and the number of vehicle accidents by 580 crashes annually).

⁵ See FAA Reauthorization Act of 2024, Pub. L. No. 118-63, § 933, 138 Stat. 1025, 1368–69 (2024).

⁶ See Exec. Order. No. 14307, *Unleashing American Drone Dominance*, 90 Fed. Reg. 24727 (Jun. 6, 2025).

⁷ Hazardous Materials: Mandatory Regulatory Reviews to Unleash American Energy and Improve Government Efficiency, 90 Fed. Reg. 23656, 23656 (Jun. 4, 2025).

I. The Risks Associated with Transport of Hazmat by Drones Are More Analogous to Highway Transport than Traditional Air Transportation, Warranting a Tailored Drone-Specific Exception

Hazmat regulations and quantity restrictions for air transport are often more strict than other modes due to the higher risks associated with large, crewed jets carrying huge quantities of hazmat over people and property. PHMSA has focused on factors such as pressure differentials, vibrations, ground handling characteristics, temperature changes, and other environmental concerns unique to manned aircraft operating at altitudes of between 30,000 and 40,000 feet above mean sea level (MSL).⁸ Doing so has been cited as necessary to prevent “irreversible, possibly catastrophic, consequences.”⁹

Drone delivery operations differ substantially from traditionally manned aviation operations in several aspects relevant for hazmat risk evaluation. Unlike traditional manned aircraft, drones typically operate at or below 400 feet above ground level (AGL)—where pressure differentials and temperature changes are not an issue. Flight duration is another consideration when assessing risk. Most drone package delivery flights last only minutes, further minimizing certain environmental considerations and significantly reducing the risk profile if a hazmat incident does occur. Given these important differences, the risk considerations analyzed by PHMSA for air transport are generally not applicable to drone package delivery operations.

Commercial drone operations are more akin to transport by motor vehicle over domestic highways in that they operate in unpressurized environments and are not subject to the same weather and environmental conditions as traditional, higher-altitude air transport. Additionally, package handling characteristics are also more aligned with ground transport, whereby products transported via drone move from origin to destination without passing through layers of ground handlers and without needing to withstand the wear and tear typically associated with cargo passing through one or more airports. Furthermore, should an incident occur during drone delivery operations, it will essentially be addressed on the ground, and therefore in the same manner as a ground incident, because there is no crew on board and the programmed flight will cease.

Accordingly, it is appropriate for the HMR to reflect the low-risk environment in which package delivery drones operate. The CDA urges PHMSA to develop a specific exception for commercial drone delivery that would allow for greatly reduced packaging, marking, labeling, shipping paper, and training requirements. In addition, such an exception should provide relief from 49 C.F.R. § 173.27 and Part 175, including the requirement to inspect for damaged shipments after unloading.¹⁰ PHMSA has precedent for examining a specific set of operations or activities, such as requirements and exceptions for reverse logistics operations under 49 C.F.R. § 173.157, and thereby developing a streamlined set of hazmat requirements that align with the risk profile of the transport operations. PHMSA should take a similar approach for drone package delivery operations.

In addition, PHMSA could review the exceptions set forth in 49 C.F.R. §§ 173.150 through 173.156 and distinguish transport by drone from other air transportation where appropriate, such that these exceptions would be applicable to drone transport even where they are otherwise inapplicable to air transport. By aligning hazmat regulations with the low-risk environment in which drone delivery operations occur, PHMSA can enhance safety and increase competition by reducing the regulatory burden on drone delivery operators.

⁸ See Hazardous Materials; Packages Intended for Transport by Aircraft, 77 Fed. Reg. 22504, 22506 (Apr. 16, 2012).

⁹ Hazardous Materials; Combination Packages Containing Liquids Intended for Transport by Aircraft, 73 Fed. Reg. 38361, 38365 (Jul. 7, 2008).

¹⁰ See 49 C.F.R. § 175.90 (2025).

II. PHMSA Must Reduce Barriers to the Delivery of ‘Limited Quantities’ of Household Goods and Healthcare Items by Drone

The CDA also urges PHMSA to consider amendments to the HMR that would reduce barriers to the delivery of limited quantities of household goods and healthcare items by drone. In addition to the environmental and operating conditions of commercial delivery drones, it is important to consider the types and quantities of goods being transported. Commercial delivery drones generally deliver consumer goods, medications and healthcare related products, substances, and specimens. Some of these consumer goods are classified by regulation as “dangerous goods,” but in small quantities and in their normal commercial packaging have extremely low risk profiles—e.g., nail polish, hand sanitizer, Sharpie markers, dry ice used to cool medical samples or refrigerated products, and small consumer electronics containing or packaged with small lithium batteries. In fact, as one of the listed materials covered under 49 CFR § 175.10 for transport in crewed aircraft, lithium batteries not only have been flagged as safe to transport for those aboard crewed aircraft, but also are components of many federally approved UAS. Given this federally recognized approval for safe aircraft carriage, PHMSA should scope its regulations to remove currently unnecessary hurdles for UAS to transport lithium batteries and other similar low-risk items in small quantities.

PHMSA and its predecessors have previously recognized the low risk posed by household/consumer goods when transported in limited quantities. As early as 1976—when the HMR was consolidated into Title 49 of the Code of Federal Regulations—the DOT recognized that typical packaging for “consumer commodities” provided an adequate level of safety for transportation of these types of products except for increased identification requirements when transported by aircraft.¹¹ This same reasoning prevails today, as seen by PHMSA’s recent Special Permit issued to Walmart which excepts last-mile, ground delivery of retail hazmat items from HMR requirements, essentially allowing these consumer commodities to be transported as non-hazmat.¹²

The heightened risks associated with air transport versus other modes are reflected in the HMR limited quantity exceptions. PHMSA has long differentiated hazmat regulations for small quantities moved by highway and rail from those pertaining to products moved by air.¹³ Similarly, current regulations allow for certain Division 6.2 materials (infectious substances) to be transported by private or contract motor carrier, but not by air.¹⁴ Currently, limited quantity ground shipments enjoy the most expansive scope of relief from the HMR as compared to other modes. Given the similarities in risk profile, commercial drone delivery of limited quantity hazmat should be afforded the same scope of relief that is extended to ground transportation of the same commodities.

When shipped by ground, limited quantity hazmat shipments are generally excepted from: hazard class labeling, using specification packaging, completing shipping papers and emergency response information, and placarding. The HMR only requires that the package:

- Is a “combination packaging” that also is a “strong outer packaging” such that it meets the general packaging requirements in 49 C.F.R. § 173, Subpart B;

¹¹ Consolidation of Hazardous Materials Regulations, 41 Fed. Reg. 15972, 15973 (Apr. 15, 1976).

¹² See Pipeline and Hazardous Materials Safety Administration, DOT-SP 21427 (Jul. 2, 2025), <https://www.phmsa.dot.gov/hazmat/documents/offer/SP21427.pdf/offerserver/SP21427>.

¹³ Compare 49 C.F.R. § 173.4 (2025), with 49 C.F.R. § 173.4a (2025); see also 49 C.F.R. §§ 173.150–156 (2025).

¹⁴ See 49 C.F.R. § 173.134(b)(10) (2025).

- Cannot exceed a gross weight of 30kg (66lbs);
- Is typically limited to 1 to 5 liters or kilograms capacity for inner packaging; and,
- Is marked with the generic limited quantity diamond marking (and sometimes orientation arrows if required).¹⁵

In contrast, air shipments of limited quantity hazardous materials must feature the "Y" limited quantity air marking, in addition to complying with standard markings, hazard labels, and shipping paper requirements.¹⁶ By grouping commercial drone delivery in with traditional air transport, PHMSA regulations impose undue burden on drone delivery operations.

For this reason, the CDA recommends that PHMSA develop a tailored exception for drones for the delivery of limited quantities of hazmat items to close the gap between drone delivery and ground transportation. In particular, PHMSA should assess the type and quantity of hazmat transported and ease restrictions on certain household items in their original packaging when carried by unmanned drones. By adopting this approach, PHMSA can enable more Americans to benefit from the societal and economic advantages of commercial drone operations without compromising safety.

In addition, removing or modifying the regulations CDA identifies below would eliminate unnecessary, redundant, and inefficient requirements for UAS transport, further reducing the barriers to scaled commercial drone delivery.

- **Shipping Papers.** If a UAS is making a delivery of a specific customer order, there should not be a requirement to include shipping papers with the product being delivered. In addition to the product itself serving as a verification, records also can be sought if needed through customer service, and the catalogue from which the customer ordered already lists the product information for the ordered item.
- **“Cargo Only Label.”** For the transport of materials that are not permitted aboard passenger-carrying aircraft, UAS should not be required to include a “Cargo Aircraft Only” label, given that the very nature of this type of aircraft renders it incapable of carrying passengers.
- **Inspection for Damaged Shipments.** 49 C.F.R. § 175.90 stipulates that packages containing hazardous materials must be inspected for damage or leakage immediately after being unloaded from an aircraft. Such an inspection requirement imposed on the operator is not realistic or feasible in a UAS package delivery business model. In practice, consumers make this inspection when they open the package to examine what was delivered and whether their items arrived intact. Furthermore, it would be a poor use of time, resources, and logistics to arrange for a qualified inspector or the operator to evaluate each delivery. There are other means by which customers can alert vendors and operators in the event that a package is damaged.

¹⁵ 49 C.F.R. § 173.150 (2025).

¹⁶ See 49 C.F.R. § 172.315 (2025).

III. PHMSA Should Adopt More Categorical Exclusions for UAS when Conducting National Environmental Policy Act Reviews

In response to PHMSA's questions regarding PHMSA's National Environmental Policy Act (NEPA) compliance practices (Question No. 6), CDA supports UAS-specific categorical exclusions and a nationwide approach to environmental assessment whenever appropriate to streamline the review process. Given the low-risk nature of UAS transport of items labeled as dangerous goods, the stepwise approach to this NEPA review process has not been an efficient use of time and governmental resources and has delayed the more widespread deployment of these beneficial UAS operations. Prior FAA NEPA reviews all resulted in Findings of No Significant Impact (FONSI), and the delays inherent in this fragmented and sporadic manner of conducting reviews ironically have hindered the realization of the environmental benefits the UAS industry offers in comparison to other modes of transportation. In order to successfully scale operations, the UAS industry needs greater certainty and clarity from regulators without being held up by excessive NEPA review. UAS-specific categorical exclusions and a nationwide approach to environmental assessment offer the best means to provide certainty and expedite agency decision making. The environmental impact of UAS aircraft transporting these items does not necessitate an intensive and costly environmental analysis (EA) review for each individual agency approval. To the extent PHMSA is consulted during the FAA's environmental review process, we urge PHMSA support a nationwide approach to environmental review of these low-risk operations.

To the extent PHMSA must perform environmental assessments for UAS operations in connection with the special permit process or its own rulemakings, we would urge the agency to also take a nationwide programmatic approach, given that the risk profile of these operations and the goods being transported would not vary in different locations. If there are consistent and nearly identical FONSI evaluations of a variety of areas on the local and state level, as has been the case with the FAA's environmental review of UAS operations, then PHMSA's NEPA implementing procedures must recognize the effect of these FONSI as it relates to CATEXs.

IV. Additional Considerations

Historically, PHMSA has sought to harmonize U.S. hazmat regulations with international hazmat frameworks. To accomplish PHMSA's deregulatory goals and to act in accordance with the policy priorities of this Administration, the CDA urges PHMSA to prioritize its effort to refine domestic drone hazmat regulations to ensure safety, support the growth of the U.S. drone industry, and position the United States as a leader in developing risk-based, practical hazmat standards for commercial drones. In the future, PHMSA and the FAA should collaborate with international counterparts to create a harmonized global regulatory framework that reflects this balanced approach to commercial drone delivery requirements.

Additionally, we urge PHMSA to consider preparing and publishing a list of active special permits that it would be willing to extend to drone delivery so that drone delivery companies and their partners can apply for party status. Doing so would allow the drone industry to scale operations as it awaits a rulemaking in this area.

Finally, as part of this tailored regulatory framework for UAS operations, PHMSA should consider extending the exceptions, both regarding content and quantity, of the items permitted for transport via crewed aircraft under 49 CFR § 175.10 to UAS aircraft operated by a certified air carrier. The amount and type of these low-risk materials have been labeled as safe for transport, and allowing UAS operations to transport such items more easily would lead to greater efficiency and maximize the potential of UAS technology and operations.

V. Conclusion

Commercial drone package delivery represents the future of logistics and will revolutionize the way critical goods and supplies are delivered to millions of Americans. Hazmat regulations should reflect the lower risk profile and unique nature of drone delivery operations, moving away from a one-size-fits-all approach that equates them with traditional manned aircraft operations. We urge PHMSA to act swiftly to make the requisite changes to the HMR to streamline drone hazmat regulations, and reduce or eliminate unnecessary regulatory burdens which do not enhance safety and inhibit the public benefits of drone delivery operations.

Thank you again for the opportunity to provide input on this important matter. We look forward to working with PHMSA, the FAA, and other agencies to reduce red tape and unnecessary regulatory burdens on the commercial drone industry, and unlock the enormous benefits of large-scale commercial drone operations for all Americans.

Sincerely,

A handwritten signature in blue ink that reads "Lisa Ellman". The signature is fluid and cursive, with a long horizontal stroke at the end.

Lisa Ellman
Chief Executive Officer
Commercial Drone Alliance