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*Submitted electronically via email to [TDI-Strategy-RFI@dot.gov](mailto:TDI-Strategy-RFI@dot.gov)*

Michael A. Halem  
Acting Assistant Secretary for Research and Technology (OST-R)  
United States Department of Transportation  
1200 New Jersey Avenue, SE  
Washington, D.C. 20590

**Re: Comments in Response to “Request for Information: Research to Support Establishing a National Strategy for Transportation Digital Infrastructure” [Docket No. DOT-OST-2026-0430]**

Dear Acting Assistant Secretary Halem:

The Commercial Drone Alliance (CDA) appreciates the opportunity to respond to the U.S. Department of Transportation’s (DOT) Request for Information (RFI) on research to support the establishment of a National Strategy for Transportation Digital Infrastructure (TDI). The CDA applauds DOT for recognizing that the future of transportation is inherently multi-modal and for seeking to break down long-standing stovepipes across modal administrations, including the Federal Aviation Administration (FAA), National Highway Traffic Safety Administration (NHTSA), Pipeline and Hazardous Materials Safety Administration (PHMSA), and others. A coordinated, enterprise-level approach to digital infrastructure is essential to ensuring safety, efficiency, and resilience across the transportation system, particularly as physical and digital infrastructure become increasingly interconnected.

As transportation infrastructure becomes more digitized, unmanned aircraft systems (UAS or drones) must be treated as a core component of TDI—not only as airspace users, but as critical tools for informing the development, construction, maintenance, monitoring, and modernization of physical infrastructure across all modes. Commercial drones are already delivering real-world safety, efficiency, and cost benefits by enabling high-fidelity data collection for roads, bridges, rail, pipelines, and other assets. Especially key to the Department’s enterprise-level approach is recognizing that state and local transportation agencies, transportation construction companies, and transportation design companies are increasingly relying on drones to inspect critical infrastructure, including with drones based in network-connected docking stations that can be managed by remotely sited operators. Furthermore, as the low-altitude aviation ecosystem rapidly

transitions from research and pilot programs to scaled deployment, DOT's TDI efforts should prioritize interoperability, machine-readable data, and operational integration that seamlessly integrates mature drone capabilities into the National Airspace System (NAS).

Below, the CDA responds to specific questions in the RFI with a particular focus on research and development (R&D), artificial intelligence and automation, and data governance, privacy, and cybersecurity.

## **I. About the Commercial Drone Alliance (CDA)**

The CDA is the leading U.S. non-profit organization focused on U.S. leadership in drone technology and the integration of commercial drones into the NAS. The CDA consists of key leaders in the commercial drone industry and actively participates in regulatory and policy efforts to facilitate the safe and secure development and expansion of domestic commercial drone operations. The CDA collaborates with all levels of government on policies for industry growth and educates 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, drone security companies, and vertical markets including oil and gas, precision agriculture, construction, security, communications technology, infrastructure, utilities, filmmaking, package delivery and logistics, and more.<sup>1</sup>

## **II. Comments and Recommendations**

The CDA's specific comments regarding DOT's RFI are as follows:

### Topic Area A: Research, Development, and Deployment (Questions 2, 4, 5, and 6)

#### *Priority Applications for TDI Deployment*

The CDA encourages DOT to advance TDI by accelerating, through both policy changes and grant opportunities, the routine integration of UAS to modernize physical transportation infrastructure across all modes of transportation. Drones have become a proven, high-value digital tool for modernizing infrastructure management by enabling data-rich inspection, real-time condition assessment, and the development of digital twins for roads, bridges, railways, and related

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<sup>1</sup> Learn more at <https://www.commercialdronealliance.org>. Board members include: Amazon Prime Air, Choctaw Nation of Oklahoma, DoorDash, Florida Power & Light, Hidden Level, NUAIR, Ondas, Percepto Robotics, Skydio, SkySafe, Southern Company, uAvionix, Wing, Xelevate Solutions, and Zipline International, Inc. General members include: Aerolane, Airborne Response Corp., Airspace Defense, Inc., Airspace Link, Inc., American Fuel & Petrochemical Manufacturers (AFPM), ANRA Technologies, Ascent AeroSystems, AT&T, Aura Network Systems, Inc., AX Enterprises, Brinc Drones, Inc., Dedrone by Axon, DefendUAS, DEXA, Dominion Energy, Drone Service Providers Alliance, DRONERESPONDERS, DroneShield, LLC, Edison Electric Institute (EEI), End State Solutions LLC, Flock Safety, Flying Lion, Inc., GroWings Robotx, Halo, Honeywell, Kelly Hills Unmanned Systems, Lumenier, Matternet, Merlin Labs, Mid Atlantic Aviation Partnership (MAAP), Mitsubishi Electric Innovation Center, New York Power Authority, Pilot Institute, Pyka, Inc., Qualcomm Incorporated, Rainmaker Technology Corporation, Skyways, Sustainable Skylines, Syracuse Regional Airport Authority, USI, Verge Aero, Virginia Innovation Partnership Corporation (VIPIC), and Wingtra.

assets. These capabilities support preventative maintenance, improve asset lifecycle planning, and enhance safety while reducing costs and operational disruptions.

The integration of UAS into transportation infrastructure inspection is already widespread and delivering measurable benefits. Federal, state, local, tribal, and territorial agencies consistently report improved efficiency, reduced inspection timelines, lower operational costs, and enhanced worker safety. According to surveys conducted by the American Association of State Highway and Transportation Officials (AASHTO), state DOT adoption of UAS grew from 72% in 2019 to 93% in 2023.<sup>2</sup> As of 2023, all surveyed state DOTs used drones for surveying, 84 percent used them for bridge inspection and construction or maintenance activities, 64% used them for pavement inspection, and 20% used them for rail line inspection.<sup>3</sup> Agencies reported substantial returns on investment, including savings of up to \$2 million annually and an average reduction of more than 2,700 staff hours per year, driven by lower equipment costs, improved labor efficiency, enhanced worker safety, and reduced insurance exposure.<sup>4</sup> These numbers could grow significantly if the FAA reduces regulatory impediments to adoption in line with the CDA’s comments to FAA and TSA’s notice of proposed rulemaking (NPRM) titled “Normalizing Unmanned Aircraft Systems Beyond Visual Line of Sight Operations (BVLOS).”<sup>5</sup>

Drones also enable immediate georeferenced, timestamped documentation suitable for federal reimbursement and audit defensibility. Repeat inspections can be conducted without incremental travel expenditure, improving transparency and reducing post-event documentation disputes. This capability aligns directly with emerging digital twin objectives, which emphasize lifecycle tracking, real-time decision making, and historical infrastructure record retention. Further, in geographically remote environments, digital twin development is not an academic exercise, it is a mechanism for preserving institutional knowledge, enabling predictive maintenance, and supporting resilient infrastructure management.

Funding remains a persistent structural constraint. Agencies report difficulty securing initial capital for digital twin and drone program build-out despite recognizing long term operational savings. The first deployment of a telepresence system may avoid a single thirty thousand dollar mobilization, but scaling distributed infrastructure across corridors requires upfront investment. Federal pooled funds, matching grants, and pilots focused on telepresence infrastructure architecture would accelerate adoption and ensure equitable deployment in rural and disaster-prone regions.

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<sup>2</sup> American Association of State Highway and Transportation Officials, *2024 AASHTO Quick Snapshot UAS Survey* at 2, <https://acrobat.adobe.com/id/urn:aaid:sc:va6c2:42edb7d3-b6a8-4b5f-90ec-e7a483a1aef3>.

<sup>3</sup> *Id.* at 3.

<sup>4</sup> *Id.* at 5.

<sup>5</sup> Normalizing Unmanned Aircraft Systems Beyond Visual Line of Sight Operations, 90 Fed. Reg. 38212 (proposed Aug. 7, 2025); Commercial Drone Alliance, *Comment on Normalizing Unmanned Aircraft Systems Beyond Visual Line of Sight Operations*, Docket No. FAA-2025-1908, Comment ID No. FAA-2025-1908-2675 (Oct 6, 2026).

To advance TDI development and deployment, DOT should leverage and expand existing programs and authorities. CDA supports rapid implementation and enhanced funding for efforts such as the Drone Infrastructure Inspection Grant (DIIG) Act, which would provide targeted resources to help agencies deploy secure UAS for infrastructure inspection while supporting workforce development.

### *TDI Research and Existing Testbeds, Pilots, and Demonstrations*

The CDA supports all efforts to advance the commercial drone industry and modernize the NAS. However, DOT should remain mindful of the current maturity of the drone sector relative to other emerging transportation technologies. Commercial drone operations have existed in the NAS for more than a decade and have established a safety record unmatched by other transportation modes. Moreover, real-world integration of unmanned traffic management (UTM) services—such as operations in the Dallas–Fort Worth Metroplex—demonstrates that the technology necessary to support large-scale, low-altitude drone operations already exists.

Unlike advanced air mobility (AAM), drones are not certified aircraft and operate at the lower end of the risk continuum. At this stage of industry development, the emphasis should therefore shift from exploratory research to the operationalization of scalable drone operations. Continued or duplicative research risks slowing industry growth or producing outcomes that are not readily adoptable in practice. Recent FAA ground surveillance expansions at federal facilities and contract towers, including the Surface Awareness Initiative (SAI) and Airborne Position Reference Tool (APRT), are examples of TDI-relevant infrastructure that is already enhancing safety outcomes for manned aviation as well as offering foundational safety data for deconfliction in shared airspace. The CDA encourages DOT to build on lessons learned from other existing initiatives, including the FAA’s BEYOND Program and the Near-Term Approval Process (NTAP) for UTM services, to appropriately balance future research needs with the urgent imperative to rapidly integrate UAS technology into the broader transportation ecosystem.

### Topic Area C: Artificial Intelligence and Automation (Question 2)

TDI can most effectively accelerate autonomous and semi-autonomous systems—particularly drones—by prioritizing the digitization and modernization of the NAS so that it is truly machine-readable and interoperable. The ATC modernization effort is a once-in-a-generation opportunity to build a domestic foundation that maintains the United States as the global leader in aviation. TDI should be used to ensure that the future NAS is designed for software-defined navigation, autonomy, and high-tempo low-altitude operations, and not just incremental upgrades to cumbersome legacy systems. In practice, this means the creation of digital infrastructure layers that allow manned and unmanned aircraft to operate safely at scale and facilitate low-latency data exchange and real-time operational awareness across users and systems.

As a threshold matter, TDI should drive universal electronic conspicuity so that all aircraft are digitally visible—an essential prerequisite for autonomy and a truly modern airspace. Digitally invisible aircraft are inconsistent with modern safety expectations. TDI investments can help

operationalize this through near-term integration pathways that recognize fit-for-purpose, non-traditional equipage where appropriate. This includes opportunities for non-Technical Standard Order (TSO) equipment, as well as performance-based pathways for mature, spectrum-efficient cooperative technologies on existing frequencies (such as 978 MHz UAT), to incentivize rapid development and cost-effective adoption.<sup>6</sup> Striking a balance between interoperability needs and equipage costs is also key.

Second, TDI must prioritize broader digitization of airspace data. NOTAMs, TFRs, and other restrictions must be published in real-time, machine-readable formats that can be easily ingested into navigation platforms and displayed on graphical user interfaces.<sup>6</sup> Without this foundation, autonomy will be artificially constrained and compliance will remain uneven. Digitized airspace data enables more dynamic flight restrictions while also allowing for more effective use of drone security measures such as counter-UAS equipment in a way that distinguishes compliant operators from the clueless, careless, and criminal.

Finally, TDI should enable a federated UTM ecosystem built on federally regulated third-party services, rather than attempting to centralize drone traffic management inside the traditional ATC construct. The CDA generally supports the proposals made in the BVLOS NPRM with respect to the regulation of Automated Data Service Providers (ADSPs) under proposed part 146.<sup>7</sup> The federal government's resources should remain focused on safely separating manned aircraft and overseeing standards, certification, and compliance, while interoperable UTM service providers deliver deconfliction services and digital coordination between drones at low altitudes. If implemented properly, this method is not "privatization" or "delegation" of airspace management; rather, it is the most effective way to create a resilient and innovative drone ecosystem while transforming ATC into a digital platform that can support autonomy throughout the aviation ecosystem.

#### Topic Area D: Data Governance, Privacy, and Cybersecurity (Questions 4 and 6)

The CDA recognizes the critical role of recordkeeping and reporting requirements in fostering transparency between industry and government while mitigating TDI cybersecurity risks. However, these requirements must be carefully tailored to enhance the security and resiliency of transportation infrastructure. To that end, the CDA offers two key recommendations. First, DOT should, whenever possible, leverage established data governance, privacy, and cybersecurity standards and frameworks. These comprehensive frameworks have proven effective in addressing

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<sup>6</sup> For example, the FAA has yet to provide real-time shape files for restricted airspace over major league sporting events, leading to systemic noncompliance with these TFRs. By not implementing these simple digital upgrades, the FAA is unnecessarily constraining the safety and efficiency of all operators in the NAS.

<sup>7</sup> See Commercial Drone Alliance, *Comment on Normalizing Unmanned Aircraft Systems Beyond Visual Line of Sight Operations*, Docket No. FAA-2025-1908, Comment ID No. FAA-2025-1908-2675 (Oct 6, 2026).

cybersecurity risks, and mandating new standards would only hinder the development of a robust TDI and slow DOT's modernization efforts.

Second, reporting and data retention requirements related to TDI should be proportional to the intended use of information. Standards and reporting processes must be performance-driven and targeted, employing an exception-based approach that avoids unnecessary retention of large datasets without clear plans for processing and analysis. All requirements should be tied to specific, definable goals that support DOT's objectives. Doing so will prevent industry from being required to spend time and money to retain data and abide by governance principles that do nothing to enhance the safety of the transportation ecosystem.

### **III. Conclusion**

The CDA appreciates the opportunity to provide feedback on DOT's efforts to modernize TDI and to develop a coordinated, multi-modal strategy supportive of American leadership in transportation. A successful TDI framework must recognize UAS as both operational airspace users and as critical digital tools for maintaining, monitoring, and transportation infrastructure. By prioritizing the digitization and modernization of the NAS, DOT can accelerate safe autonomy, strengthen infrastructure resilience, and deliver real-world benefits to the aviation community and the American public.

Our members look forward to continuing our engagement with DOT in support of its TDI modernization efforts. Please do not hesitate to reach out with any questions.

Sincerely,



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