

Texas Department of Transportation



Texas Department of Transportation

2026 Flight Operations Manual

Contents

1. Program Scope & Governance	3
2. Compliance & Policy Baseline	4
3. Pilot Qualifications & Currency	5
4. Flight Planning & Approvals.....	5
5. Operating Rules Near Roads, Rails & Infrastructure	7
6. On-Site Operations & Crew Management	8
7. General Aircraft Emergency & Incident Response	9
8. Reporting Requirements (TxDOT, FAA, NTSB)	10
9. Maintenance, Registration & Records	11
Appendix A – Glossary & Acronyms	12

Internal Use Only - This Flight Operations Manual (FOM) edition applies to TxDOT employees conducting UAS operations in support of TxDOT projects. Guidance for consultants, vendors, and other external providers is intentionally excluded and will be published separately as the "TxDOT UAS External Operations & Contractor Guide." All publications and documents necessary for TxDOT UAS operations will be located at <https://www.txdot.gov/business/aviation/uas-services.html>. For all questions or concerns, contact Emerging Aviation Technology Section (EATS) Coordinators by email at TxDOT-UASCoord@txdot.gov or by listed phone contact information.

New Changes to Flight Operations Manual 2023

- TxDOT will utilize Fleet Management System (FMS) as the integrated fleet, airspace, and compliance platform. All planning, approvals, checklists, risk assessments, LAANC authorizations, flight logging, maintenance scheduling, reporting, and incident documentation shall be utilized and recorded in FMS. If FMS is unavailable, use the TxDOT.gov webform at <https://www.txdot.gov/content/forms/af/txdot-gov/adopt-a-highway/uas-flight-plan.html>, then upload records to FMS when service is restored.
- Qualifications & currency streamlined: The Remote Pilot in Command (RPIC) must have completed at least three takeoffs and landings and a minimum of 30 minutes of flight time within the previous 30 days in the specific aircraft to be used for the mission. All hours and training must be documented to demonstrate proficiency.
- Visual Observer (VO) is a TxDOT employee who will be briefed and able to provide visual assistance during the mission.

- VO will not pilot aircraft without approved training and aircraft qualification.
- Aircraft-specific emergency procedures/checklists published separately.
- Scope narrowed to TxDOT employees; contractors governed by a separate manual.

1. Program Scope & Governance

Applicability - This manual governs all UAS activities conducted by TxDOT employees, using TxDOT aircraft or equipment assigned to TxDOT. It does not cover emergency/critical incident response or any contractor/external operations.

Program Organization - The UAS Program is managed by the Emerging Aviation Technology Section (EATS) within the Aviation Division (AVN). The EATS Director delegates day-to-day program management and flight approval authority to EATS Coordinators.

Roles & Responsibilities:

EATS Coordinators - Program managers and approval authority for TxDOT UAS flights; maintain program standards, records, and safety oversight.

District/Division UAS Coordinators - Assigned by each District/Division that operates aircraft; track aircraft location, storage, sharing, pilot currency, and maintenance; serve as local subject-matter experts.

Remote Pilot in Command (RPIC) - A current and qualified TxDOT pilot responsible for safe operation, compliance, and crew briefings.

Visual Observer (VO) - A TxDOT employee designated by the RPIC to assist with see-and-avoid requirements, maintaining situational awareness and ensuring the aircraft remains clear of hazards and other aircraft. VO will not assemble or fly the mission aircraft unless the RPIC requests approval for limited training or exposure to aircraft operations. VO will not conduct mission and RPIC will remain within reach to take control of aircraft. The personnel selected to be VOs are highly encouraged to take the Visual Observer course, (**sUAS Visual Observer AVN107**) on PeopleSoft.

2. Compliance & Policy Baseline

Federal Aviation Administration (FAA) Part 107 - All TxDOT UAS operations shall comply with 14 CFR Part 107 and any applicable waivers or authorizations. TxDOT does not grant deviations from Part 107; where required, pilots will obtain LAANC authorizations, waivers, or Certificates of Authorization (COA) through standard FAA processes.

Texas Government Code Chapter 423 (Use of Unmanned Aircraft) - TxDOT flight crews will respect privacy boundaries and only collect data consistent with agency mission, minimizing incidental capture and managing sensitive data appropriately.

Prohibited Technologies - TxDOT staff will comply with statewide guidance on prohibited technologies and TxDOT IT security policy. Do not use prohibited software/applications/firmware/hardware without a documented exemption approved through TxDOT processes.

Insurance/Indemnification - TxDOT aircraft are covered under TxDOT aviation insurance coordinated by EATS. This manual does not address contractor/vendor indemnification as this is covered in a separate external guide.

Emergency/Critical Incident Response - Operations in support of emergency response are out of scope for this manual and must follow the controlling agency's rules and approvals.

Safety Management System (SMS) - TxDOT UAS operations follow a simple SMS framework: identify hazards, assess risk, mitigate, and continuously improve. Core SMS documents: Flight Plan, Project Risk Assessment (PRA) decision, Health & Safety Plan considerations, In-Flight Emergency Plan, and Downed Aircraft Recovery Plan (DARP).

3. Pilot Qualifications & Currency

Baseline Requirements (RPIC).

- a. Current FAA Remote Pilot Certificate (Part 107).
- b. TxDOT AVN101 graduation (initial qualification).
- c. TxDOT annual refresher training, plus FAA recurrent training per Part 107.
- d. Competency in the flight mode(s) to be used (manual, automated, GPS-denied, confined space, etc.).

Aircraft-Specific Currency.

- a. Training on specific aircraft to be used.
- b. Within 30 days prior to the mission: at least 3 takeoffs/landings and 30 minutes of flight on that aircraft type (or documented equivalent proficiency event).

4. Flight Planning & Approvals

Pilot Judgment - TxDOT relies on the professional judgment of qualified RPICs to identify hazards, assess risk, and determine when pre-approval is appropriate.

RPICs are expected to use SMS principles, conduct on-site hazard walk-throughs, consult coordinators when unsure, and document risk decisions in the Flight Plan.

Flight Plan Required - Submit a Flight Plan for every mission using the TxDOT UAS Flight Plan located in FMS. The Flight Plan serves as the official record of UAS activity. If FMS is not working correctly, submit using the original Webform method and notify EATS Coordinators.

Operations that always require Pre-Approval: (Submit before flying)

- a. Operations in controlled airspace (Class B/C/D or Class E to surface) or requiring LAANC/COA/NOTAM.
- b. Within 2 NM of an airport or heliport with a paved surface.
- c. Any operation requiring a deviation from the operating rules in Section 5.
- d. Traffic control beyond warning signs (e.g., cones, speed reduction, or lane closure).
- e. Operations inside or over a railroad right-of-way (defined here as 50 ft from the edge of the railway to the centerline)
- f. Heightened privacy considerations (Section 5 – Privacy).
- g. Dense urban environments (urban canyons).
- h. Missions near industrial facilities, airports without paved surfaces, ports, or energy corridors.
- i. Heavy construction zones, constrained ROWs, or obstructions limiting maneuvering.
- j. High-risk environmental conditions (gusty winds, turbulence channels, thermals near pavement or structures).
- k. Confined or GPS-denied environments.

Operations that do not require Pre-Approval (Standard Flight) -

Standard operations that remain within Part 107, follow Section 5 rules, and present no identified elevated hazards may be flown without pre-approval, provided a Flight Plan is submitted in FMS.

5. Operating Rules Near Roads, Rails & Infrastructure

- a. Minimum crew: RPIC + VO (both TxDOT employees).
- b. Takeoff/Landing standoff from highways: ≥ 20 ft from outer edge of travel lane where posted speed ≥ 40 mph; otherwise ≥ 10 ft.
- c. Rail standoff: ≥ 50 ft from the edge of railway for takeoff/landing; entry into railroad ROW requires pre-approval.
- d. Road crossings: comply with 14 CFR §107.145 (operations over moving vehicles). For posted speeds > 40 mph, cross at ≥ 50 ft AGL, linger no longer than necessary, avoid having a vehicle directly beneath when feasible.
- e. No takeoff/landing between lanes of a divided highway.
- f. No operations under an overpass with traffic on a lower roadway without an approved traffic control plan.

Privacy. Collect only data relevant to TxDOT's mission.

- a. Limit incidental capture outside the project area whenever practical.
- b. All data collected for TxDOT projects will be considered TxDOT property and should be saved, filed, and maintained in accordance with TxDOT records policy.

6. On-Site Operations & Crew Management

RPIC Authority and Crew Duty Day Limits

The Remote Pilot in Command (RPIC) is responsible for managing all onsite UAS operations and retains operational authority unless the TxDOT UAS Coordinator is present. To reduce cumulative fatigue and ensure safe decision making, all flight crews will adhere to the following duty and flight time limitations:

- a. Maximum flight time: 6 hours of actual stick time within any 24 hour period.
- b. Maximum duty day: 12 hours total work time per calendar day (including setup, transit, breaks, and post flight tasks).
- c. Minimum rest: At least 48 consecutive hours off within any 14 day period.

These limits help prevent fatigue related risk during planning, flight operations, and post flight tasks.

Crew Fitness for Duty

All crew members will self-assess using the IMSAFE checklist (Illness, Medication, Stress, Alcohol, Fatigue, Emotion).

Any concern must be reported to the RPIC.

The RPIC makes the final decision to conduct operations based on crew fitness and operational risk.

Preflight Safety & Weather Briefing

Before beginning operations, the RPIC will conduct a safety and weather briefing that includes:

- a. Traffic: Ground vehicles, pedestrian flow, other aircraft.
- b. Environmental hazards: Obstacles, terrain, power lines, wildlife activity.

c. Weather considerations:

- Current and forecast wind, temperature, visibility, and ceiling. Density altitude effects for fixed wing systems
- Potential weather changes during mission duration
- Weather triggers for “knock it off” or early landing

d. Safety equipment: PPE requirements, first aid kit, fire extinguisher location.

On-Location Hazard Walk-Through

Upon arrival, the crew will perform a physical site walk-through to identify any hazards not captured during planning.

The RPIC will update the flight plan, risk mitigations, and documentation as needed.

Communications Check

Establish and verify communication methods between RPIC and VO (radio or phone). Confirm all operational callouts, emergency procedures, and the aircraft’s Return to Home (RTH) location and altitude.

Preflight Execution and Post Flight Closeout

Complete the preflight checklist, announce the start of operations, and maintain continuous RPIC VO communication.

Announce landing, conduct a post flight debrief, document lessons learned, and secure the site.

7. General Aircraft Emergency & Incident Response

Activation - When an in-flight emergency occurs, the RPIC announces the emergency, prioritizes safety of people first, prevents chain reactions, and lands/ditches promptly as conditions dictate. After stabilization, notify the appropriate AVN/EATS contacts per current SharePoint contact card and complete required reporting (Section 8).

8. Reporting Requirements (TxDOT, FAA, NTSB)

Public/Media - Only the TxDOT Chief Communications Officer (or designee) may respond to media/public inquiries regarding a UAS incident.

TxDOT Reporting - UAS Accident Report required when:

- a. Any In-Flight Emergency Plan or DARP activation.
- b. Unplanned proximity within 20 ft of another vehicle (UAS, roadway vehicle, watercraft, or rail).
- c. Unplanned proximity within 10 ft of a fixed object (building, pole, utility line, tree, bridge, dam, etc.).
- d. Any injury, property damage, fire, or hazardous condition caused by the UAS.
- e. Submit the UAS Accident Report to the designated EATS/AVN mailbox and notify your District/Division UAS Coordinator.

FAA & NTSB Notifications - The RPIC will communicate with EATS Director/Coordinators when able - (*handle emergencies first*) and determine notifications requirements based on current FAA/NTSB criteria. If thresholds are met (e.g., severe injury/loss of consciousness or significant property damage for FAA; certain serious incidents for NTSB), EATS personnel and pilot will assist in making timely reports via the appropriate channels.

FAA Reportable Criteria:

- a. Serious injury to any person or any person experiences loss of consciousness.
- b. Damage to property that exceeds \$500, or the fair market value of the property exceeds \$500 in the event of total loss.

NTSB Reportable Criteria

- a. A person suffers severe injury or death.
- b. UAS weighs at least 300 pounds and sustains substantial damage.
- c. Any listed incident under 49 CFR §830.5 occurs - Flight control system failure, in-flight fire, mid-air collision

9. Maintenance, Registration & Records

- a. Maintain aircraft and control systems per manufacturer recommendations; document all scheduled and unscheduled maintenance in a maintenance log.
- b. After maintenance, firmware, or software updates, perform a functional test and verify airworthiness before mission use.
- c. All aircraft will be registered with the FAA and display the registration number on the aircraft per FAA requirements. Pilot will verify aircraft registration.
- d. Pilot Logs: record date(s), aircraft model and registration, total flight minutes, and mission type for each project, and be able to provide to EATS on request.
- e. Record Retention: follow TxDOT records management policies for all UAS records (plans, approvals, logs, data, reports).

Appendix A — Glossary & Acronyms

- **AVN** — Aviation Division
- **EATS** — Emerging Aviation Technology Section
- **IMSAFE** — Illness, Medication, Stress, Alcohol, Fatigue, Emotion
- **LAANC** — Low Altitude Authorization and Notification Capability
- **NAS** — National Airspace System
- **NOTAM** — Notice to Air Missions
- **RPIC** — Remote Pilot in Command
- **RTH** — Return to Home
- **SMS** — Safety Management System
- **UAS** — Uncrewed Aircraft System
- **VO** — Visual Observer