Unmanned Aircraft System (UAS) Policy

Version 2.0 – September 2021

pennsylvania
DEPARTMENT OF TRANSPORTATION
www.penndot.gov

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ACRONYMS

AGL	Above Ground Level
ATC	Air Traffic Control
BOA	PennDOT Bureau of Aviation
COA	Certificate of Waiver or Authorization
FAA	Federal Aviation Administration
MA	Mission Assistant
NAS	National Airspace System
NOTAM	Notice to Airmen
NM	Nautical Mile
Remote PIC	Remote Pilot in Command
TFR	Temporary Flight Restriction
UAS	Unmanned Aircraft System, also known as a “Drone”
UASC	UAS Coordinator' - District or Bureau
VLOS	Visual Line of Sight
VO	Visual Observer

1. POLICY STATEMENT

1.1 SCOPE: The Pennsylvania Department of Transportation (PennDOT) Unmanned Aircraft Systems (UAS) policy pertains to the conduct of UAS operations by PennDOT employees and by contractors providing UAS services to PennDOT.

1.2 PREAMBLE: PennDOT supports and will advance the deployment of UAS by PennDOT personnel and contractors to improve the quality, speed, safety and cost-effectiveness of PennDOT's work and recognizes the potential for UAS utilization to advance road surveys, geotechnical investigations, traffic modeling, bridge inspections and other PennDOT projects.

1.3 SAFETY: Safety will be the primary consideration with the operation of UAS.

1.4 COMPLIANCE: All users operating a UAS on behalf of PennDOT are required to comply with all current federal, state, and local laws and regulations pertaining to UAS operation. Information related to Federal UAS regulations is available at www.faa.gov/uas. If a discrepancy exists between the conditions and requirements in this Policy and the other operating documents (as referenced in Chapter 6), the most conservative, or strict, condition or requirement takes precedence, so long as not in violation of federal, state or local law or regulations.

1.5 PROTECTION OF PRIVACY: PennDOT shall only collect, use and disseminate information obtained from UAS for conducting PennDOT business. PennDOT shall not retain information collected using UAS containing personally identifiable information for more than 180 days unless the retention of the information is determined to be necessary for conducting PennDOT business or is maintained in a system of records covered by the Privacy Act. Data collected by UAS that is retained by PennDOT or its contractors will be safeguarded in accordance with applicable Federal and State laws, orders, directives, policies, regulations, standards, and guidance.

1.6 PRIVACY ACT STATEMENT: Authority: The authority for collecting this information is 6 U.S.C. § 1140, 46 U.S.C. § 70105; 49 U.S.C. §§ 106, 114, 5103a, 40103(b)(3), 40113, 44903, 44935-44936, 44939, and 46105; the Implementing Recommendations of the 9/11 Commission Act of 2007, § 1520 (121 Stat. 444, Public Law 110-52, August 3, 2007); and Executive Order 9397, as amended.

1.7 TRANSPARENCY: Enhancing transparency about agency operations, including how PennDOT operates UAS, creates an informed citizenry and insight into PennDOT's decision-making process. Education of the public enhances PennDOT's ability to serve the Commonwealth. On an ongoing basis, PennDOT will update its website to reflect its current policy UAS policy and provide a general summary of UAS operations conducted by PennDOT during the previous year, including a brief description of missions flown and the number of times PennDOT provided assistance to other state or local entities.

1.8 WORD DISTINCTIONS: Will, Must, Shall, Should, and May. These words distinguish between mandatory, preferred, and acceptable methods of accomplishment.

i. Will, Must, and Shall indicates a mandatory requirement.
ii. Should indicates a preferred, but not mandatory, method of accomplishment.
iii. May indicates an acceptable method of accomplishment.

2. ROLES AND RESPONSIBILITIES

2.1 BUREAU OF AVIATION (BOA)

2.1.1 Central coordinating office for the Department's UAS program.

2.1.2 Conduct and oversight of PennDOT and third-party UAS training and certification.

2.1.3 Tracking all PennDOT and third-party UAS operators and equipment certified to conduct UAS missions for PennDOT.

2.1.4 Assisting PennDOT Districts and Bureaus conducting or contracting UAS activities.

2.1.5 Assisting with review and approval of PennDOT contractor UAS contracts and operations, as necessary.

2.1.6 Facilitating PennDOT UAS workshops and information sharing.

2.1.7 Overseeing program compliance, recordkeeping, and reporting.

2.1.8 Coordinating all PennDOT waiver applications with the FAA.

2.1.9 Coordinating requests for non-emergency and emergency UAS operations.

2.1.10 Providing assistance to and collaborating with other Commonwealth agencies seeking to deploy UAS.

2.1.11 Providing annual and/or periodic UAS program reports or updates.

2.1.12 Updating PennDOT's website with current UAS Policy and summarizing PennDOT's UAS activities.

2.1.13 Coordinating with PennDOT's Press Office to issue periodic press releases on PennDOT UAS activities.

2.2 OFFICE OF CHIEF COUNSEL (OCC)

2.2.1 Assisting with interpretation of federal regulatory issues.

2.2.2 Jointly reviewing and providing advice regarding PennDOT's UAS policy and risk management tools to PennDOT.

2.2.3 Jointly reviewing and assisting PennDOT with Certificate of Authorization (COA) or COA waiver applications.

2.2.4 Assisting BOA with UAS related issues as necessary.

2.2.5 Reviewing PennDOT contracts relating to UAS operations.

2.3 PRESS OFFICE

2.3.1 Providing media coordination for each UAS project/mission, as necessary, to ensure clear and consistent public announcements and messages.

2.4 LEGISLATIVE AFFAIRS

2.4.1 Providing updates on PennDOT UAS usage to the Governor and legislature.

2.4.2 Providing timely updates to the BOA, including but not limited to proposed bills in the General Assembly, pertaining to UAS.

2.5 DISTRICT EXECUTIVES AND BUREAU DIRECTORS

2.5.1 Identifying a UAS Coordinator to manage the District/Bureau UAS program and operations.

2.5.2 Ensuring their District Office or Bureau UAS operators are certified by PennDOT's BOA, trained and proficient in the intended UAS, and operating in compliance with PennDOT policy.

2.5.3 Ensuring District/Bureau UAS equipment is registered with the FAA and PennDOT's BOA.

2.5.4 Ensuring contracted third-party UAS pilots operating on PennDOT's behalf are registered with PennDOT's BOA and compliant with this policy.

2.5.5 Reviewing and approving District/Bureau, or contracted third-party, high risk UAS flight requests, as necessary.

2.5.6 Issuing PennDOT Notices of Intent to Enter (RW-983D) (Appendix C), as appropriate, for overflights of private property. This includes taking off from private property or flying over private property.

2.5.7 Ensuring all District/Bureau UAS operations by employees and third party operators is tracked and recorded.

2.5.8 Providing annual and/or periodic UAS program reports or updates.

2.6 REMOTE PILOT IN COMMAND (PIC)

2.6.1 Under all situations, the Remote Pilot in Command has overall responsibility for the safety of flight operations and has the final decision on whether to initiate or terminate any flight.

2.6.2 Operating the UAS in compliance with the FAA requirements set forth in Part 107, applicable COAs, waivers, and in compliance with PennDOT UAS Policy.

2.6.3 Briefing the Mission Assistant (MA), Visual Observer (VO), and other flight personnel on the mission and risk assessment, and assuring they can perform their required duties safely and effectively.

2.6.4 Obtaining approval from originating District Office or Bureau on PennDOT's UAS Flight Request Form (Appendix D), prior to flying.

2.6.5 Preparing risk assessment worksheets and mitigating operational risk to safeguard mission personnel and the general public.

2.6.6 Coordinating with private property owners and ensuring Notices of Intent to Enter (RW- 983D) are issued, as necessary, for the overflight of, or operating on, private property.

2.6.7 Coordinating with municipal officials and other relevant parties as necessary for proposed mission plans.

2.6.8 Obtaining information on national airspace and Notices to Airmen (NOTAMs) for the intended operations area and obtaining approvals for entering controlled airspace.

2.6.9 Coordinating with airports and hospital heliports and posting NOTAMs as necessary.

2.6.10 Tracking and reporting UAS flight information using PennDOT's flight tracking software.

2.6.11 Performing preflight and post-flight inspections of the UAS in accordance with the manufacturer's recommendations and assuring the aircraft is in an airworthy condition.

2.6.12 Flying in accordance with the manufacturer's operating documents, safety bulletins, pre-flight precautions, inspection requirements, maintenance schedules, specifications, and established PennDOT policy.

2.6.13 Discontinuing or not initiating any flight in which the airworthiness of the UAS or system is in question.

2.6.14 Making available to the FAA, or other authorized official upon request, the UAS, or operational documentation for inspection.

2.7 UAS COORDINATOR (UASC)

2.7.1 The UAS Coordinator is the primary point of contact for the District or Bureau's UAS program. An FAA Part 107 Remote Pilot Certificate is not required for this position.

2.7.2 The UASC will be trained and certified by PennDOT's BOA.

2.7.3 Reviewing and approving UAS flight plans for assigned UAS pilots and third-party contractors flying mission on PennDOT projects.

2.7.4 Conducting and overseeing District/Bureau employee UAS training, proficiency, and certification.

2.7.5 Tracking of all UAS activities and reporting annually or as necessary summaries of District/Bureau program activities.

2.7.6 Coordinating with the District Press Office or central office Press Office for press releases prior to UAS operations, as necessary.

2.7.7 Managing the purchase and maintenance of District/Bureau UAS equipment.

2.7.8 Recommending and implementing District/Bureau specific operating procedures and policies.

2.7.9 Overseeing the conduct of District/Bureau UAS accident/incident investigations.

2.7.10 Assisting with UAS media and outreach efforts.

2.8 CHIEF UAS PILOT

The District/Bureau may identify a PennDOT Remote PIC to serve as the Chief UAS Pilot. The Chief UAS Pilot should hold a current FAA Part 107 certificate, be trained on UASC duties, and be in a managerial or supervisory position.

2.8.1 Conducting or assisting with UAS flights and mission planning.

2.8.2 Reviewing and approving UAS Flight Plans.

2.8.3 Management and training of District/Bureau UAS pilots.

2.8.4 Maintaining UAS equipment.

2.8.5 UAS accident/incident investigations and reporting.

2.9 MISSION ASSISTANT (MA)

2.9.1 All UAS operations for PennDOT will include a Mission Assistant unless exempted by the UASC.

2.9.2 Assisting the Remote PIC with Pre- and Post-flight activities as necessary.

2.9.3 Providing site security of the takeoff and landing zones, and pertinent areas identified by the Remote PIC, clear of people and obstructions while the Remote PIC conducts flight operations.

2.9.4 Preventing interference or distraction of any crewmember from the performance of their duties.

2.9.5 Monitoring flight operations and communicating unforeseen flight hazards to the Remote PIC.

2.9.6 Assist with monitoring VHF radio traffic and communicating with airports or aircraft as necessary.

2.10 VISUAL OBSERVER (VO)

2.10.1 Visual Observers may be required for missions of higher risk or complexity to ensure visual line of sight at all times. More than one VO may be necessary for certain missions. The VO is responsible for assisting the Remote PIC by observing the UAS and providing situational awareness to the Remote PIC during flight.

2.10.2 The VO must be able to discern the direction and altitude of the UAS at all times.

2.10.3 VO must be able to communicate clearly to the Remote PIC at all times during the flight and relay any information required to remain:

- within mission parameters
- clear of conflicting traffic or obstructions
- within proper cloud clearances
- and to provide navigational awareness.

2.10.4 The VO will not have any conflicting or distracting collateral duties during the flight.

3. EQUIPMENT PURCHASE AND REGISTRATION

3.1 ACQUISITION OF UAS:

3.1.1 PennDOT Districts or Bureaus wishing to purchase a UAS or equipment, or employ UAS contract services, will follow procurement procedures in accordance with the Commonwealth Procurement Code, the Department of General Services' Procurement Handbook, and other related policies.

3.1.2 Prior to purchasing UAS equipment, the District/Bureau should contact BOA for a list of recommended UAS equipment.

3.1.3 Employees responsible for writing, awarding, negotiating, and managing contracts for UAS services, including contract administrators, project managers, project engineers, consultant administrators, will follow PennDOT's procedures to manage and monitor the execution of contracts throughout the life of the contract.

3.2 EQUIPMENT REGISTRATION

3.2.1 UAS purchased by PennDOT will be registered in accordance with FAA policy, and have its registration number displayed externally on the UAS.

3.2.2 Each District Office or Bureau is responsible for registering their UAS with the FAA.

3.2.3 A copy of PennDOT FAA registrations will be forwarded to BOA.

4. UAS OPERATING REQUIREMENTS

4.1 POLICY AND REGULATIONS

4.1.1 PennDOT employees and third party UAS operators will comply with current FAA regulations and policy outlined in 14 CFR Part 107 and FAA Order 8900.1, Volume 16, Unmanned Aircraft Systems (UAS); and applicable PennDOT COAs, and FAA waivers thereof.

4.1.2 All PennDOT UAS flight operations require pre-approval using the Department's UAS Flight Plan (Form AV-14).

4.1.3 All UAS missions over PennDOT projects should be coordinated through the respective UAS Coordinator and Project Manager.

4.1.4 Remote PIC's serving as UAS Coordinator or Chief UAS Pilot cannot approve their own flight plans. Flight plans from UASC's must be approved by another UAS Coordinator, Chief UAS Pilot, or designated and trained PennDOT Remote PIC.

4.1.5 All PennDOT UAS flight operations require the use of a MA unless exempted by the UASC.

4.1.6 Individuals directly participating in the intended purpose, but not the operation, of the UAS flight are considered as observers. Prior to the UAS operation, the Remote PIC should direct observers to an observation point that minimizes mission distraction and observer risk of injury. The Remote PIC shall provide a safety briefing to observers that addresses the mission intent, safety precautions, non-interference requirements with UAS flight personnel, and procedures in the event of an incident/accident.

4.1.7 After a UAS operation is started, the Remote PIC cannot be replaced unless approved by the respective UAS Coordinator.

4.1.8 During UAS operations, participating flight personnel will wear high visibility vests and any other safety apparel in accordance with the PennDOT Employee Safety Handbook.

4.1.9 For missions involving higher risk, a practice mission under similar conditions may be appropriate.

4.1.10 No participant, regardless of their involvement with the UAS operation, shall make any statements to news-gathering agencies concerning the UAS activity. All media inquiries shall be referred to the PennDOT Press Office.

4.1.11 PennDOT equipment is for official business only and will not be used for personal use.

4.1.12 The Remote PIC has the authority to deviate from this policy and any established procedures in order to protect the safety of persons or property. Deviation may be needed in order to address emergencies with aircraft control or deteriorating weather condition. Deviation will be limited to the extent required to meet the emergency and not compromise safety. Any deviation from policy will be reported to the District Office or Bureau and the Bureau of Aviation.

4.2 UAS FLIGHT PLAN/APPROVAL FORM (AV-14)

4.2.1 A PennDOT UAS Flight Request Form will be completed by the Remote PIC and approved by PennDOT prior to flight. The applicable PennDOT District/Bureau office will review and approve all flight plans as appropriate.

4.2.2 A single UAS Flight Plan may apply to multiple flights and/or days for a specific project provided the overall mission profile and flight conditions do not change. Additional risk assessments may be necessary depending upon the complexity of the mission and should be attached to the UAS Flight Plan when necessary.

4.2.3 UAS risk assessment worksheets should include a review of all mission parameters, flight hazards, potential safety issues, and hazard mitigation actions. After all mitigating measures are considered, an overall mission risk level will be determined and annotated on the worksheet.

4.2.4 PennDOT will not fly UAS missions identified with a residual risk of 'HIGH' unless approved by a Department Deputy Secretary (or designee).

4.3 PREFLIGHT COORDINATION

4.3.1 For any prolonged or sustained flight over private property, UAS Remote PICs should attempt to notify the landowners, as appropriate, of the purpose of the flight, the anticipated periods of

operation, and the contact information for the responsible unit should questions or issues arise. If necessary, the Remote PIC will coordinate the issuance of a Notice of Intent to Enter (RW-983D). Notification actions, or attempts of notification, shall be annotated on the AV-14 and archived in the project files of the originating District Office, Bureau, or third-party UAS operator office.

4.3.2 Coordinate with all correctional institutions when operating within one (1) nautical mile (NM) of the facility.

4.3.3 Contact local municipalities and law enforcement offices when appropriate (i.e., operating near high traffic areas or near large groups of people).

4.3.4 District Offices and Bureaus are responsible for coordinating with each other for UAS operations over lands owned or managed by PennDOT.

4.4 AIRSPACE AND AIRPORTS COORDINATION

4.4.1 PennDOT and third-party UAS operators will not fly in FAA controlled airspace unless the Remote PIC has received prior authorization from the FAA.

4.4.2 Remote PICs will coordinate with all airports and heliports when operating within one (1) nautical mile (NM) of the facility.

4.4.3 When appropriate, a Notice to Airman (NOTAM) will be published with the FAA 24 hours in advance of any flights within one (1) NM of a public airport by either the affected airport or by the Remote PIC.

4.4.4 The Remote PIC will become familiar with nearby airport traffic patterns and monitor appropriate VHF radio frequencies when operating within one (1) NM of a public airport as necessary.

4.5 WEATHER

4.5.1 Remote PICs will obtain current weather observations and forecasts for the operating areas the day of the flight, and monitor weather conditions during flight activities. Copies of the weather observations will be maintained for flights involving moderate risk until mission completion.

5. PENNDOT UAS OPERATOR TRAINING AND CERTIFICATION

5.1 PennDOT REMOTE PICs:

5.1.1 PennDOT Remote PICs will meet the following knowledge and flight proficiency requirements prior to operating a UAS on PennDOT's behalf:

5.1.1.1 Obtain an FAA Part 107 certification prior to certifying with PennDOT BOA.

5.1.1.2 Obtain a PennDOT Remote PIC certification by demonstrating an understanding of FAA guidelines, PennDOT's UAS policy, and an appropriate level of flight skill on the intended aircraft of use.

5.1.1.3 New operators shall receive UAS flight training in type of aircraft (multi-rotor or fixed-wing), as necessary, to achieve the minimum five (5) hours of qualifying flight time, and 20 take-offs and landings reaching 50 feet above ground level (AGL) and achieving a typical cruising airspeed.

5.2 REMOTE PIC REFRESHER TRAINING

5.2.1 Remote PICs are expected to comply with FAA refresher training requirements following receipt of the FAA Remote Pilot certificate.

5.2.2 PennDOT operators will complete refresher proficiency training prior to conducting PennDOT UAS missions after three (3) months of operator inactivity flying PennDOT projects.

5.2.3 Refresher training involves:

5.2.3.1 Completing an oral review of the PennDOT UAS policy, FAA guidelines, flight procedures, and equipment emergency procedures.

5.2.3.2 Demonstrating flight proficiency by conducting three (3) takeoffs and landings and performing various flight procedures each reaching an altitude of 100 feet and maneuvering over 100 feet laterally using the designated aircraft.

5.3 MISSION ASSISTANTS/VISUAL OBSERVERS:

5.3.1 MA's and VO's do not require PennDOT certification; however, when employed, both MA's and VO's should be familiar with PennDOT's UAS policy and briefed prior to each mission on their responsibilities, the mission requirements and parameters, operational hazards and emergency procedures.

6. DOCUMENTATION

6.1 TRACKING OF UAS FLIGHT OPERATIONS

6.1.1 All PennDOT UAS ground training, flight time and equipment maintenance will be tracked using the Department's UAS tracking software and reported as necessary.

6.1.2 UAS flight time will be tracked to the tenth of an hour.

6.1.3 UAS flight time conducted by third-party operators on PennDOT projects will be tracked by the respective District/Bureau UASC.

6.2 COMPLIANCE WITH UAS OPERATING DOCUMENTS

6.2.1 All UAS operations must be performed in compliance with the conditions and limitations contained in the following "operating documents," as applicable:

- 14 CFR Part 107 – Small Unmanned Aircraft Systems;
- FAA COA and Certificates of Waiver issued to public operators for specific UAS activities;
- Relevant state or local laws, regulations, or ordinances pertaining to the operation of UAS;
- Remote Pilot Certificate of the person acting as the Remote PIC for the operation;
- Latest version of PennDOT UAS Policy (this Policy);
- UAS Insurance policy;
- Latest version of the UAS manufacturer's user manual(s);
- The approved PennDOT UAS Flight Request Form and approval conditions;
- Any PennDOT approved scope of work, and any relevant information created as part of planning for the UAS operation; and
- Any other relevant governmental publications or guidance associated with the safe and responsible conduct of UAS activities.

6.3 DOCUMENTS REQUIRED DURING UAS OPERATIONS

6.3.1 The following operating documents will be accessible for viewing during all UAS operations:

- FAA Part 107 Remote Pilot Certificate
- FAA COA or Certificates of Waiver (if applicable)
- The approved PennDOT UAS Flight Plan / Approval Form (AV-14)

6.3.2 The required documents will be made available upon request by authorized officials.

6.4 UAS INCIDENT OR ACCIDENT REPORTING AND DOCUMENTATION

6.4.1 The Remote PIC will immediately report any incident or accident involving injury or property damage to the District Executive or Bureau Director, the PennDOT Safety Office, and the Bureau of Aviation. A written report will be prepared and forwarded to the District/Bureau office by the Remote PIC within 10 days of the incident/accident.

6.4.2 Per 14 CFR § 107.9, within 10 days of any incident or accident that results in serious injury, loss of consciousness, or damage to any property, other than the UAS, of at least $500, the Remote PIC will report to the FAA details of such accident. Forward copies of all FAA submissions to the BOA.

6.4.3 Maintain accident/incident reports in accordance with PennDOT's records retention policy.

7. THIRD-PARTY UAS REQUIREMENTS

7.1 THIRD-PARTY UAS OPERATOR REQUIREMENTS

7.1.1 Third-party UAS operations will be performed with strict adherence to the rules and regulations set forth in this Policy and 14 CFR Part 107 – Small Unmanned Aircraft Systems.

7.1.2 UAS operators performing missions for PennDOT will possess an FAA Part 107 Remote Pilot Certificate and be certified by PennDOT's Bureau of Aviation.

7.1.3 Remote PIC's are expected to be trained and proficient with the intended aircraft and type mission.

7.1.4 Obtain pre-approval from originating District Office or Bureau using PennDOT's UAS Flight Plan/Approval (Form AV-14) prior to flying.

7.1.5 Register all UAS equipment used in support of PennDOT operations with both the FAA and PennDOT BOA.

7.1.6 Coordinate with private property owners, local municipal officials, and relevant parties as necessary for proposed mission plans.

7.1.7 Coordinate with PennDOT to ensure Notices of Intent to Enter (RW-983D) are issued, as necessary, for sustained operation over or on, private property.

7.1.8 Coordinate with airports, heliports, and correctional institutions when operating within one (1) nm of the facility.

7.1.9 Employ a MA on all missions unless exempted by the UASC.

7.1.10 Provide UAS mission specific information to the District Office or Bureau after each mission or project, recording flight time to the tenth of an hour.

7.1.11 Notify PennDOT District/Bureau UASC of any incident, accident, malfunction, damage, or repairs to the UAS that occurred during a PennDOT mission. Provide PennDOT with copies of all documentation submitted to the FAA pertaining to a PennDOT related UAS incident.

7.1.12 Store and safeguard all UAS photography according to PennDOT's data management policy.

7.2 THIRD-PARTY CONTRACT REQUIREMENTS

7.2.1 The third-party UAS operator will have an insurance policy that covers UAS operations with limits and conditions as set forth in Section 7.3 of this Policy.

7.2.2 The third-party UAS contractor will indemnify, protect, defend (by reimbursement of attorneys' fees and defense costs upon a determination that third-party UAS operator is required to provide indemnification under this clause, such reimbursement shall be on a proportional basis as set forth below), save and hold harmless PennDOT and its employees, agents, servants, representatives from and against any and all claims, losses, demands, actions, penalties, judgments, fines, liabilities, damages, costs and expenses (including reasonable defense costs and attorneys' fees) relating to personal injuries (including death) and property damage of any nature whatsoever that arises out of, results from, or is caused by the third-party's UAS operator's operation and use of the UAS on behalf of PennDOT on, over and within PennDOT's right-of-way, property, or private property, but only to the extent caused by, and in proportion to, the negligence or violation of applicable law, including FAA regulations, by the third-party UAS operator.

7.2.3 When the third-party UAS operator is performing UAS operations as a service to PennDOT, such services will be within the scope of the contract and an executed contract between the third-party UAS operator and PennDOT must be in place prior to the date of planned UAS operations. No UAS operation may be performed as a service to PennDOT without an executed contract between PennDOT and the third-party UAS operator.

7.3 THIRD-PARTY UAS INSURANCE SPECIFICATIONS

The third-party UAS operator shall provide PennDOT with Certificates of Insurance, evidencing the insurance coverages listed below prior to operation of the UAS on PennDOT's behalf and thereafter upon renewal or replacement of coverage. The third- party UAS operator shall not begin any work until PennDOT has reviewed and approved the Certificate of Insurance.

7.3.1 Provide coverage for bodily injury, property damage, aviation premises and personal and advertising injury arising out of any owned, leased, hired, or borrowed aircraft including Unmanned Aircraft Systems.

7.3.2 For general liability, procure only occurrence-based insurance coverage in the minimum amounts of $250,000 per person and $1,000,000 per occurrence for bodily injury, including death, and $250,000 per person and $1,000,000 per occurrence for property damage, with any general aggregate limits on a per project basis.

7.3.3 Additional Insured on Liability Coverages: The Commonwealth of Pennsylvania and the Pennsylvania Department of Transportation and their agents and consultants shall be listed as additional insureds on the coverage.

7.3.4 Professional liability (errors and omissions) coverage. Liability assumed under contract should not be excluded.

7.3.5 Notice of Cancellation: For the duration of the third-party UAS operator contract, PennDOT shall receive 30 days advance notice of any change or cancellation from the third party UAS operator of the applicable coverage for any reason other than non-payment. In the event of cancellation for non-payment, PennDOT shall receive 15 days advance notice.

APPENDIX A. DEFINITIONS

Flight	A flight is an individual operation of the UAS from takeoff to landing. Each flight will have established parameters for a specific area of operation, on a specific date.
Mission	A mission constitutes one or more flights to accomplish a specific task. A mission is oriented on a specific location and could extend over several days to obtain the necessary imagery. A single Flight Plan may cover an entire mission depending on scope of work and duration.
Project	A project may involve several missions, at various locations, over extended periods of time. Several UAS Flight Plans may be required to complete a project.
Part 107	A standardized set of FAA aviation regulations applied to small UAS operating in the National Airspace System. Part 107 also establishes the FAA's Remote Pilot Certificate, specifically designed for small UAS operators.
Third-Party	Consultant or contractor conducting UAS missions for the Department of Transportation.

APPENDIX B. NOTICE OF INTENT TO ENTER TEMPLATE

RW-983D (4/17)

pennsylvania
DEPARTMENT OF TRANSPORTATION

COUNTY	
S.R. – SECTION	
MUNICIPALITY	
PROJECT LOCAL NAME	
NOTICE OF INTENT TO ENTER – INCLUDING DRONE OVERFLIGHTS	

Date:

Dear :

In line with the Department of Transportation's responsibility to develop plans for highway improvements in your area, Department employees or our consultants or contractors may need to enter your land to conduct surveys, engineering studies, soil exploration, or tests and/or soundings to gather information. This entry is authorized by the Pennsylvania Eminent Domain Code and may include the use of core drilling rigs and/or other equipment, including drone overflights.

The Department will notify you personally, if possible, prior to any entry. Please be assured that our entry to conduct these studies DOES NOT MEAN that your property has been selected for transportation improvements. If a transportation improvement does affect your property, you will be contacted personally by a Department representative.

Our studies will be performed as courteously and as quickly as possible. Our employees or agents will correct any disturbances to your property upon completion of their work.

Should you have any concerns about workers' entry, please notify at telephone number ; or feel free to discuss any concerns with on-site personnel. If you do not wish drones to be used in these studies, please call the number provided and notify the Department. Should no such notice be received the Department will consider that you have granted your permission for such overflights.

We appreciate your cooperation and assistance in our task of planning and designing better transportation facilities for the citizens of Pennsylvania.

Sincerely,

District Executive
Engineering District

APPENDIX C. EXAMPLE PENNDOT UAS FLIGHT PLAN/APPROVAL FORM

AV-14 (8-21)

pennsylvania
DEPARTMENT OF TRANSPORTATION
www.penndot.gov

UAS FLIGHT PLAN / APPROVAL FORM

FLIGHT PERSONNEL & EQUIPMENT			
Remote PIC:		UAS Make:	
PennDOT Cert. #:		Model:	
Mission Assistant: ☐ YES ☐ NO	Observer: ☐ YES ☐ NO	Addl Aircraft:	
IF THIRD PARTY			
Organization Name:		PennDOT Requestor:	

FLIGHT INFORMATION			
Date(s):		Project Name:	
Location:		Purpose of Flt:	
Municipality:		Projected # Flts:	

RISK ASSESSMENT

Pilot Experience/Msn Readiness		**Controlled Airspace**		**Nearby Airport/Heliport**	
Experienced w/> 50 hours	L	Class G	L	None nearby > 3 mile	L
Some exp. w/< 50 hours	M	Restr/Prohibited < 1 mile	M	Nearby 1-3 miles	M
< 25 hours	M	Class B-E	H	Close Proximity < 1 mile	H
Wires/Trees/Structures		**Proximity to Roads**		**Proximity to People/Workers**	
Not present	L	Not over open roads	L	Not present	L
Nearby > 100'	M	Open roadway < 40'	M	> 50' away	L
Present	M	Over open roads	H	< 50' or overflight	M
Drone Distance from Operator		**Private Property**		**Over Water**	
Vertical Dist < 300'	L	N/A or Permission	L	Not over water	L
Vertical Dist > 300'	M	Nearby > 50'	L	< 25' over water	L
Hor Dist. > 800 feet	M	Over or < 10 feet	M	> 25' over water	M
Take off/Landing Area Safety		**Daylight**		**RF or Magnetic Interference**	
No issues	L	Daytime only	L	Unlikely	L
Limited space	M	During Dawn / Dusk	M	Possible	M
Congested or w/obstructions	H	Nighttime	H	Likely	H
Winds		**Visibility**		**Loss of GPS or RF Signal**	
Winds < 15 mph	L	Greater than 5 miles	L	Unlikely	L
Winds 15-25 mph	M	Between 3-5 miles	M	Possible	M
Winds > 25 mph	H	Forecast < 3 miles	H	Likely	H

Private Property Coordination Rqd?	☐ YES	☐ NO
Airport/Heliport Coordination Rqd?	☐ YES	☐ NO
On-site Pre-visit Review Made?	☐ YES	☐ NO

Fill in highest rating from above

Overall Risk	

CERTIFICATION

UAS Remote PIC Signature:		Title:	
PennDOT Signature:		Title:	

Instructions: Remote PIC is responsible for obtaining PennDOT approval and coordinating flight activities as appropriate before flight.
Include sketches or diagrams as necessary to detail area of operation and proposed flight path(s).
Sketch should include launch and recovery points, observation points, applicable right of ways and property lines, and known hazard areas.
Enter mitigation measures on page 2 for all 'Moderate' and 'High' risks listed above. Enter Residual Risk level after controls.
Assess forecast winds/precip/visibility/cloud base above, and again with updated forecast immediately prior to each mission.

PennDOT UAS FLIGHT PLAN / APPROVAL FORM - Page 2

Mitigation measures should be explained for each 'Moderate' to 'High' risk listed on page 1. Use additional pages as necessary.

HAZARD MITIGATION MEASURES

Hazard	Action	Residual Risk
	Overall Residual Risk	

Notes/Comments/Coordination Measures

List all participating mission personnel and coordination activities with private property, businesses, and airports/heliports.