

**Pennsylvania
Department of Transportation**



**Unmanned Aircraft System (UAS)
Policy**

Version 1.0 – April 2019

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1. POLICY STATEMENT

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.

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.

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

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.

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 must be safeguarded in accordance with applicable Federal and State laws, orders, directives, policies, regulations, standards, and guidance.

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.

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.

2. ROLES AND RESPONSIBILITIES

2.1 BUREAU OF AVIATION (BOA)

BOA is PennDOT’s lead UAS office and is responsible for:

- The development and oversight of the PennDOT UAS policy.
- The management of PennDOT and third-party UAS operator training and certification.
- The tracking all PennDOT and third-party UAS operators and equipment certified to conduct UAS missions for PennDOT.
- Assisting PennDOT Districts and Bureaus conducting or contracting UAS activities.
- Assisting with review and approval of PennDOT contractor UAS contracts and operations, as necessary.
- Facilitate PennDOT UAS workshops and information sharing.
- Oversight compliance, recordkeeping, and reporting as required by the Federal Aviation Administration (FAA).
- Coordinating all PennDOT waiver applications with the FAA.
- Coordinating requests for non-emergency and emergency UAS operations.
- Providing assistance to and collaborating with other Commonwealth agencies seeking to deploy UAS.
- Reporting to the Secretary on PennDOT UAS activities, and other UAS issues as requested.
- Updating PennDOT’s website with current UAS Policy and summarizing PennDOT’s UAS activities.
- Consulting with PennDOT’s Policy Office on a periodic basis to identify and address emerging issues in UAS trends and deployment to develop appropriate strategies.

2.2 CHIEF COUNSEL

PennDOT’s Office of Chief Counsel will be responsible for:

- Assisting with interpretation of federal regulatory issues.
- Jointly reviewing and providing advice regarding PennDOT’s UAS policy and risk management tools to PennDOT.
- Jointly reviewing and assisting PennDOT with Certificate of Authorization (COA) or COA waiver applications.
- Assisting BOA with UAS related issues as necessary.
- Reviewing PennDOT contracts relating to UAS operations.

2.3 PRESS OFFICE

PennDOT’s Press Office will be responsible for:

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

2.4 LEGISLATIVE AFFAIRS

PennDOT’s Legislative Affairs Office will be responsible for:

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

PennDOT District Executives and Bureau Directors will be responsible for:

- 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.
- Ensuring District Office or Bureau UAS equipment is registered with the FAA and PennDOT’s BOA.
- Ensuring contracted third-party UAS operators operating on PennDOT’s behalf are registered with PennDOT BOA, and are competent in UAS operations, and are aware of and compliant with this policy.
- Reviewing and approving District, Bureau, or contracted third-party UAS flight requests.
- 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.
- Notifying the District Press Office or central office Press Office prior to each UAS operation, as necessary.
- Ensuring UAS flight information is collected and entered in PennDOT BOA’s SharePoint site.
- Storing and safeguarding all UAS photography according to PennDOT data management policy.

2.6 REMOTE PILOT IN COMMAND (PIC)

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. The Remote PIC shall be responsible for:

- Operating the UAS in compliance with the FAA requirements set forth in Part 107, applicable COAs, waivers, and in compliance with PennDOT UAS Policy.
- Ensuring the Mission Assistant (MA), Visual Observer (VO), and other flight personnel are briefed on the mission and risk assessment, and can perform their required duties safely and effectively.
- Obtaining approval from originating District Office or Bureau on PennDOT’s UAS Flight Request Form (Appendix D), prior to flying.
- Preparing risk assessment worksheets and mitigating operational risk to safeguard personnel and the general public.
- Coordinating with local municipal officials and other relevant parties as necessary for proposed mission plans.
- Obtaining information of controlled airspace and Notices to Airmen (NOTAMs) for the operational area.
- Coordinating with airports and hospital heliports for UAS flights and posting NOTAMs as necessary.
- 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.
- Tracking and reporting UAS flight information in PennDOT BOA’s SharePoint.
- 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.

- Flying in accordance with the manufacturer's specifications and established PennDOT policy.
- Discontinuing or not initiating any flight in which the airworthiness of the UAS or system is in question.
- Making available to the FAA, or other authorized official upon request, the UAS, or operational documentation for inspection.

2.7 MISSION ASSISTANT (MA)

All UAS operations for PennDOT will include a mission assistant unless approved by the mission approving authority. The MA is responsible for assisting the Remote PIC in the conduct of a UAS mission.

Specific responsibilities of the MA include:

- The MA is responsible for keeping the takeoff and landing zones, and pertinent areas identified by the Remote PIC, clear of people and obstacles.
- Providing site security while the Remote PIC conducts flight operations.
- Monitoring flight operations and communicating unforeseen flight hazards to the Remote PIC.
- Assisting the Remote PIC with Pre- and Post-flight activities as necessary.
- Assist with monitoring VHF radio traffic and communicating with airports or aircraft as necessary.

2.8 VISUAL OBSERVER (VO)

Visual Observers are required for missions of higher risk or complexity to assure 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.

Specific responsibilities and considerations of the VO are listed below:

- The VO must be able to communicate clearly to the Remote PIC at all times during the flight and relay any information required to remain:
 - o within mission parameters
 - o clear of conflicting traffic or obstructions
 - o within proper cloud clearances
 - o and to provide navigational awareness.
- The VO must be able to discern the direction and altitude of the UAS at all times.
- The VO must not have any conflicting or distracting collateral duties during the flight.
- VO's may not act as a Remote PIC unless certified as a Remote PIC by BOA.

2.9 THIRD-PARTY UAS OPERATORS

Third-party UAS operators will be responsible for:

- Reading, understanding and complying with the PennDOT's UAS Policy.
- Registering with BOA by submitting the names and FAA Part 107 certification numbers of all participating UAS operators, and the FAA registration numbers of all participating UAS's.
- Ensuring operators performing missions for PennDOT are certified by PennDOT's Bureau of Aviation and are trained and proficient with the intended aircraft for the type mission.

- Obtaining approval from originating District Office or Bureau using PennDOT’s Flight Request Form prior to flying.
- Operating the UAS in compliance with the FAA requirements set forth in Part 107, applicable COAs, waivers.
- Coordinating with local municipal officials and relevant parties as necessary for proposed mission plans.
- 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.
- Preparing and submitting reports and documentation to the FAA, BOA and other agencies as requested concerning UAS operations in support of PennDOT (i.e. usage reports and/or accident reports).
- Providing UAS mission specific information to the District Office or Bureau responsible for entering flight information into PennDOT BOA’s SharePoint, or identified flight tracking software.
- Storing and safeguarding all UAS photography according to PennDOT’s data management policy.

3. EQUIPMENT PURCHASE AND REGISTRATION

3.1 ACQUISITION OF UAS:

- PennDOT Districts or Bureaus wishing to purchase a UAS, or employ UAS contract services, must follow procurement procedures in accordance with the Commonwealth Procurement Code, the Department of General Services’ Procurement Handbook, and other related policies.
- Prior to purchasing UAS equipment, the District Office or Bureau should contact BOA for a list of recommended UAS equipment.
- Employees responsible for writing, awarding, negotiating, and managing contracts for UAS services, including contract administrators, project managers, project engineers, consultant administrators, must follow PennDOT’s procedures to manage and monitor the execution of contracts throughout the life of the contract.

3.2 EQUIPMENT REGISTRATION

- UAS purchased by PennDOT will be registered in accordance with FAA policy, and have its registration number displayed externally on the UAS. A copy of the FAA registration must be on file with BOA.
- Each District Office or Bureau is responsible for registering their UAS with the FAA.
- PennDOT third-party UAS operators will register all UAS equipment used in support of PennDOT operations with both the FAA and PennDOT BOA.

4. UAS OPERATING REQUIREMENTS

4.1 POLICY AND REGULATIONS

- PennDOT employees and Third Parties 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.
- Prior to participating in a UAS operation, all flight personnel must read and understand the UAS manufacturer operating documents, safety bulletins, pre-flight precautions, inspection requirements, maintenance schedules, and life limit requirements for the UAS and UAS components.
- All PennDOT UAS flight operations require the use of a MA. If the VO is employed then at least one other person is required to provide site control and security.
- Planning of UAS operations should include precautions to prevent interference or distraction of any crewmember from the performance of their duties.
- 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 operator distraction and observer risk of injury. The Remote PIC is responsible to provide observers a safety briefing that addresses the mission intent, safety precautions, non-interference requirements with UAS flight personnel, and emergency procedures in the event of an incident/accident.
- The UAS must be operated within visual line of sight (VLOS) of the Remote PIC or VO at all times. VLOS must be achieved using human vision unaided by any device other than corrective lenses.
- Remote PIC must ensure sufficient operating distance between manned aviation activities and unmanned aircraft at all times. The Remote PIC must give way to all manned aviation operations at all times.
- After a UAS operation is started, the Remote PIC cannot be replaced and the Remote PIC cannot transfer their responsibilities to another person during the flight.
- During UAS operations, participating flight personnel must wear high visibility vests and any other safety apparel in accordance with the PennDOT Employee Safety Handbook.
- For missions involving higher risk, a practice mission under similar conditions may be appropriate.
- No participant, regardless of their involvement with the UAS operation, shall make any statements to news-gathering agencies concerning the UAS activity. All inquiries by the news agencies should be referred to the PennDOT Press Office.
- PennDOT equipment is for official business only and will not be used for personal use.

- 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 REQUEST FORM

- A PennDOT UAS Flight Request Form must be completed by the Remote PIC and approved by PennDOT prior to flight. The applicable PennDOT District Office or Bureau will review and approve all flight requests, and risk assessments as appropriate.
- A single UAS Flight Request Form 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 assessment worksheets may be necessary depending upon the complexity of the mission and should be attached to the UAS Flight Request Form when necessary.

NOTE: A UAS “flight” is defined as a single takeoff and landing. A “mission” constitutes multiple flights to accomplish a specific task. A “project” may involve several missions.

- UAS risk assessment worksheets should include a review of all mission parameters, flight hazards, potential safety issues, and hazard mitigation actions. An overall mission risk level will be determined and annotated on the worksheet.
- Missions of moderate risk must be approved by District Executive (or designee), or Bureau Director (or designee). UAS missions identified as high risk must be approved by a Deputy Secretary (or designee).

4.3 OPERATIONAL LIMITATIONS

Unless otherwise approved by the FAA, the UAS **may not operate**:

- Over any person or moving vehicles not directly involved in the operation;
- The unmanned aircraft must remain within visual line of sight of the Remote PIC or VO.
- During nighttime operations (official sunset to sunrise), or within 30 minutes after official sunset or 30 minutes before official sunrise without anti-collision lighting;
- Over a maximum speed of 87 Knots (100 MPH);
- Over an altitude of 400 Ft above ground level (AGL); unless flown within a 400-foot radius of a structure and does not fly higher than 400 feet above the structure’s immediate uppermost limit;
- In controlled airspace without FAA Air Traffic Control (ATC) approval; or
- In a careless or reckless manner.

4.4 FLIGHT COORDINATION

- Remote PIC will coordinate with private property owners and ensure Notices of Intent to Enter (RW-983D), are issued, as necessary, for the overflight of, or operation on, private property. Notices shall be documented in the project files of the originating District Office or Bureau or third-party UAS operator office.

- For flights over private property, UAS Remote PICs should attempt to notify the landowners, as appropriate, of the anticipated periods of operation, purpose of the flights, and contact information for the responsible unit should questions or issues arise. Notification actions, or attempts of notification, shall be documented in the project files of the originating District Office, Bureau, or third-party UAS operator office.
- Contact local municipalities and law enforcement offices when appropriate (i.e., operating near high traffic areas or near large groups of people).
- District Offices and Bureaus are responsible for coordinating with each other for UAS operations over lands owned or managed by PennDOT.

4.5 NATIONAL AIRSPACE COORDINATION

- PennDOT and third-party UAS operators will not fly in Controlled Airspace (Class B, Class C, or Class D Airspace, or within the lateral boundaries of the surface area of Class E Airspace designated for an airport), unless the Remote PIC has received prior authorization from FAA ATC.
- Remote PICs will coordinate with all airports and hospital heliports within one (1) nautical mile (NM) of the flight activity.
- 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.
- The Remote PIC will become familiar with nearby air traffic patterns and monitor appropriate VHF radio frequencies when within 1 NM of a public airport to communicate with manned air traffic if necessary.
- The UAS must yield the right of way to all aircraft, airborne vehicles, and launch and reentry vehicles, which means that the UAS must give way to the aircraft or vehicle and may not pass over, under, or ahead of the aircraft or vehicle unless the UAS is well clear.
- The UAS may not be operated so close to another aircraft that it creates a collision hazard.

4.6 WEATHER

- Remote PICs will obtain current weather observations and forecasts for the operations area 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.
- The UAS may not be operated at less than 500 feet below or less than 2,000 feet horizontally from a cloud.
- The UAS may not be operated when flight visibility is less than 3 statute miles at the flight location.

5. PENNDOT UAS OPERATOR TRAINING AND CERTIFICATION

- All personnel operating a UAS for PennDOT must be registered with, and certified by, PennDOT's Bureau of Aviation.

5.1 PennDOT REMOTE PICs:

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

- Obtain an FAA Part 107 certification prior to certifying with PennDOT Bureau of Aviation.
- All operators shall demonstrate an understanding of the PennDOT UAS policy, flight planning, and completing risk assessment worksheets by passing PennDOT's UAS written exam.
- 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.
- All operators shall demonstrate UAS proficiency by performing the following flight maneuvers:
- Successful take-off and landing;
 - o Maneuver vertically and horizontally around an object;
 - o Maintain camera orientation on object while flying 360° around the object;
 - o Fly a figure eight while maintaining camera forward;
 - o Perform flight maneuvers at high altitude and at extended distances; and
 - o Perform evasive and emergency recovery maneuvers.

5.2 REMOTE PIC REFRESHER TRAINING

- Remote PICs are expected to comply with FAA refresher training requirements following receipt of the FAA Remote Pilot certificate.
- PennDOT operators must complete refresher proficiency training prior to conducting PennDOT UAS missions after three (3) months of operator flight inactivity. The appropriate District Office or Bureau will administer and document the refresher training.
- Refresher training involves:
 - o Completing an oral review of the PennDOT UAS policy and equipment emergency procedures.
 - o Conducting three (3) takeoffs and landings, each reaching an altitude of 100 feet and maneuvering over 100 feet using the UAS the Remote PIC is certified with.
 - o For missions of higher risk, conducting a practice mission under similar conditions.

5.3 MISSION ASSISTANTS/VISUAL OBSERVERS:

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

6. DOCUMENTATION

6.1 TRACKING OF UAS FLIGHT OPERATIONS

- All PennDOT UAS ground training, flight time and equipment maintenance will be recorded and tracked by the owning District Office or Bureau.
- UAS flight time (internal and third-party) will be tracked to the tenth of an hour, by Remote PIC, VO, UAS, and non-flight lesson time. Additional tracking may be required or requested by FAA.
- Originating District Office or Bureau will enter all UAS mission information into BOA's SharePoint. This will enable PennDOT to query information for executive level reports.

6.2 COMPLIANCE WITH UAS OPERATING DOCUMENTS

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

- The following operating documents must be accessible for viewing during all UAS operations:
 - o COA or Certificates of Waiver;
 - o Remote Pilot Certificate;
 - o The approved UAS Flight Plan Request and RA Worksheet.
- These documents must be made available upon request by authorized officials.

6.4 UAS INCIDENT OR ACCIDENT REPORTING AND DOCUMENTATION

- The Remote PIC must 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.

- 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. Copies of all FAA submissions will be forwarded to BOA.
- BOA will maintain accident/incident reports in accordance with PennDOT's records retention policy.

7. THIRD-PARTY UAS REQUIREMENTS

- All third-party UAS operations must 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 THIRD-PARTY UAS OPERATOR REQUIREMENTS

A third-party UAS operator conducting UAS Flight Services for PennDOT must:

- Possess and maintain a FAA Remote Pilot Certificate as required by the FAA.
- Register all UAS operators and UAS equipment with BOA.
- Obtain PennDOT Bureau of Aviation certification by passing the PennDOT UAS written examination.
- Obtain approval by the applicable PennDOT District Office or Bureau using PennDOT's UAS Flight Request Form, and risk assessments as appropriate, prior to all UAS missions.
- Employ a MA on all missions.
- Utilize a VO to maintain visual contact with the UAS when necessary.
- Serve as final authority regarding the hands-on operation of the UAS.
- Perform preflight and post flight inspections of the UAS in accordance with the manufacturer's recommendations, and ensure the UAS is in an airworthy condition.
- Comply with the operational requirements of Chapter 4 of this policy.
- Discontinue or not initiate any flight in which the airworthiness of the UAS is in question.
- Record UAS flight time to the tenth of an hour and report all flight time to PennDOT after each project or mission.
- Notify PennDOT of any incident, accident, malfunction, damage, or repairs to UAS. Provide PennDOT with copies of all documentation submitted to the FAA pertaining to a PennDOT related UAS incident.

7.2 THIRD-PARTY CONTRACT REQUIREMENTS

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

- When the third-party UAS operator is performing UAS operations as a service to PennDOT, such services must 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 must validate to the appropriate PennDOT District Office or Bureau that their insurance policy covers UAS operations with limits and conditions as follows:

- a) 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 (UAS);
- b) Minimum Limits of Coverage (including Personal Injury and Advertising): \$1,000,000 Per Occurrence;
- c) 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;
- d) Liability assumed under contract should not be excluded;
- e) Notice of Cancellation: For the duration of the third-party UAS operator contract, PennDOT shall receive 30 days advance notice of 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 10 days advance notice of cancellation; and
- f) The third-party UAS operator shall provide PennDOT with Certificates of Insurance, evidencing the insurance coverages listed above 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.

APPENDIX A. ACRONYMS

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

APPENDIX B. 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. A PennDOT Flight Request Form is required prior to each flight.
Mission	A mission constitutes multiple 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. Flight plans and Risk Assessments may apply to missions of limited scope and duration.
Project	A project may involve several missions, at various locations, over extended periods of time. A single PennDOT UAS Flight Request Form is not applicable to an overall 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 C. NOTICE OF INTENT TO ENTER TEMPLATE

RW-983D (4/17)



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 D. PENNDOT UAS FLIGHT REQUEST FORM

		<h2 style="margin: 0;">UAS FLIGHT REQUEST FORM</h2>	
FLIGHT PERSONNEL & EQUIPMENT			
Remote PIC		UAS Make	
	PennDOT Cert. #	Model	
Mission Assistant			
Visual Observer			
IF THIRD PARTY			
Organization Name			
FLIGHT INFORMATION			
Date(s):		Project Name	
Location:		Purpose of Fit	
Municipality:		Projected # Flts	
RISK ASSESSMENT			
<u>Complexity of Mission</u>		<u>Controlled Airspace</u>	
Simple	L	Class G	L
Moderate	M	Class E	L
Complex	H	Class B-D	M
<u>Wires/Trees/Structures</u>		<u>Proximity to Roads</u>	
Not present	L	Not over open roads	L
Nearby > 100'	M	Open roadway < 40'	M
Present	M	Over open roads	H
<u>Drone Distance from Operator</u>		<u>Private Property</u>	
Vertical Dist < 300'	L	N/A or Permission	L
Vertical Dist > 300'	M	Nearby > 50'	L
Hor Dist. > 400 yards	M	Over or < 10 feet	M
<u>Winds</u>		<u>Daylight</u>	
Winds < 15 knots	L	Daytime only	L
Winds 15-25 knots	M	During Dawn / Dusk	M
Winds > 25 knots	H	Nighttime	H
<u>Chance of Precipitation</u>		<u>Visibility</u>	
None	L	Greater than 3 mile	L
< 50%	L	Chance of low vis	M
> 50%	M	Forecast < 3 mile	H
		<u>Nearby Airport/Heliport</u>	
		None nearby > 3 mile	L
		Nearby 1-3 miles	M
		Close Proximity < 1 mile	M
		<u>Pedestrians/distraction</u>	
		Not present	L
		Nearby uncontrolled	L
		Close Proximity	M
		<u>Over Water</u>	
		Not over water	L
		Near water	L
		Over water	M
		<u>RF Dead Spots</u>	
		Unlikely	L
		Possible	M
		Likely	H
		<u>Cloud Base</u>	
		> 1,000' AGL	L
		Chance of < 1,000'	M
		< 700' AGL	H
Private Property Coordination Rqd?		YES	NO
Notice of Intent to Enter Rqd?		YES	NO
Airport/Heliport Coordination Rqd?		YES	NO
Fill in highest rating from above			Overall Risk
CERTIFICATION			
UAS Remote PIC Signature		Title	
PennDOT Signature		Title	
<p>Instructions: Remote PIC is responsible for coordinating flight plan in advance of flight and obtain PennDOT approval as appropriate.</p> <p>As necessary, include sketch or diagram showing the planned UAS flight path or area of operations.</p> <p>Sketch should include launch and recovery points, observation points, applicable right of ways and property lines, and known hazard areas.</p> <p>Mitigation measures should be explained on page 2 for all 'medium' and 'high' risks.</p> <p>Obtain weather report and forecast prior to each days activities.</p>			

