Operating Guideline # 1419

Remote Pilot In Command Training

June 13, 2020

PURPOSE:
Of the nearly 579 calls for service the Fire Department responds to annually, 424 would directly benefit from the use of a remote piloted aircraft system or RPAS. These are CO calls and medical services calls. These high frequency, low risk call types often take place in a private residence and neither require the establishment nor development of the Incident Command System (ICS). There is not likely a scenario under which a Fire Department RPAS would be requested to deploy in these circumstances.
Fourteen percent of Department responses - usually structure fires - pose some risk to the public, property and firefighters, requiring the establishment and development of the ICS. Such significant incidents pose a great challenge to Department members, resources and pose a considerable safety threat to all involved, including the affected community. By their nature, these low-frequency, high-risk incidents require every available means of gathering information to increase firefighter safety and increase situational awareness. Emergencies where the complexity or scope of the incident require critical decision making on the part of the incident commander and or pose a significant risk to firefighter safety require the use of resources to increase situational awareness.
Those calls would include, but are not limited to: Hazardous materials incidents, confined space rescues, search and rescue on land, ice water rescues, swift water rescues or any other expanded or extended incident.

OBJECTIVES:
To clearly define the conditions and parameters under which the Fire Department will operate and deploy a RPAS within the Township of Muskoka Lakes limits and mutual aid communities as a supplement to pre-planning, training, incident assessment, and incident command operations. The primary role of the RPAS is insertion into emergent or ongoing events that pose a risk to public safety or threats to the Township's infrastructure by providing "real time" hazard assessment utilizing High Resolution (zoom capable) cameras and Infrared/Thermal Sensors.
As stated, these deployments will not be part of the typical Fire Department response. Information garnered from a Fire Department RPAS will be used for informational and/or training purposes.

MISSION SPECIFIC DEPLOYMENT:
As an all risk response agency, the Muskoka Lakes Fire Department responds to all calls for help. Although not meant to be "all inclusive" or exclusive of any emergent incident type, the following are primary scenarios under which the Department RPAS can be requested, deployed and utilized:

Structure Fires – Deployment of RPAS's to structure fires, in particular, buildings suspected of structural compromise; i.e. roof, walls or floors related to and during the initial action phase and final mitigation of an incident. RPAS can be used to see thermal imbalances to better direct firefighters. Identification of external hazards such as propane tanks, terrain features and exposures on arrival. Personnel tracking, victim location, and monitoring

atmospheric conditions are other uses of the technology. Providing illumintation, identification of fuel types and confirming extinguishment are key uses for firefighter safety.

Hiker (Hi/Low Angle Rescue) Incidents – Deployment of RPAS in wilderness areas to
(1). Verify the existence and location of lost or injured persons who have called 911 for assistance while in hiking, camping or climbing.
(2). Confirm the safest and most effective means of dispatching Fire Department rescue team members to make contact with such persons.
(3) Monitoring victim condition and delivering messages via speaker.
(4) Searching faster using heat signature to locate and strobe to assist.

Water and Ice Incidents – Deployment of RPAS over large bodies of water for the purpose of verifying the existence of and identifying the location of trapped or injured persons.

Extended/Expanded Incidents – Deployment of RPAS to incidents lasting more than 12 hours in duration, where an overhead view will assist the Incident Commander.

Wildfire Mitigation – Deployment of RPAS's for the purpose of GPS topographic mapping, planning and implementing control objectives. For developing hazard mitigation strategies; i.e., structure defense, perimeter control (hot spots) and containment assessment. **Under NO circumstances will a RPAS be operated while manned aircraft are in operation.**

Natural Disaster Response and Assessment – Deployment of RPAS to accelerate situational awareness necessary to begin the recovery process. To collect and disseminate information through visual images sent back to the incident command post or EOC for various agencies to have a collective viewpoint of a disastrous event and strengthens the assessment process by capturing community vulnerabilities.

Hazardous Material Mitigation – Deployment of RPAS with high resolution camera and infrared thermal cameras to identify containment areas and amount of content for liquid spills and gas releases.

Wide Area Search and Rescue – utilizing Infrared (IR) sensors to locate a lost person in low light tracking and deploying resources in areas where radio or cellular communication is impacted, diminished or unavailable.

Structure Collapse/Confined Space Search and Rescue – Deployment of RPAS utilizing IR sensors to track heat signatures of bodies, pinpointing the locations of survivors, and providing hazard assessment for rescuers access and egress.

Planned Training Events – Use of RPAS for training exercises intended to simulate any of the

above mentioned “real” scenarios. Use of RPAS for training purposes shall be limited to events that take place on Fire Department property.

The Department’s primary intention for integrating RPAS technology into its initial action hazard mitigation and response matrix is to increase the incident commanders “situational awareness” to fully understand the challenges of a given incident in “real time” thereby providing critical information necessary to guide decision-making. Ultimately, those decisions impact the amount of risk the incident commander is willing to assume with firefighters lives. Appendix A attached is the Checklist that is used by the RPIC task team at various incident types.

GUIDELINE:

1. The RPAS is an operational tool to be used by certain authorized Department personnel in response to “all hazard” scenarios, which include: active structure fires; post-extinguishment phases of a structure fire; brush (wild land) fires and natural disaster damage assessment; hazardous material identifications; and confined area search operations, such as “ice/water rescue” and “hiker” incidents. The RPAS is also intended to be used for training exercises, such as operational pre-planning training (drills) and related video production.

2. The Department’s RPAS **will not** be used to monitor members of the public or provide surveillance for law enforcement purposes. Its intended use is to provide greater situational awareness to incident commanders thereby enhancing firefighter safety in response to and mitigation of emergent situations and incident types unrelated to citizen monitoring or surveillance.

3. The Department UAS will only be operated by trained, certified Basic Operations pilots, registered with the Fire Department insurer, and members of the Fire Department.

4. The RPAS will be used for Fire Department- related purposes only. The Fire Department might, as part of Mutual Aid or Automatic Aid agreements, operate the RPAS outside of “municipal” boundaries when dispatched to assist another regional Fire Department.

5. The RPAS will **NOT** be lent to any other fire department or agency. However, if dispatched or properly requested, the RPAS, operated by a Fire Department RPAS member(s), can be utilized in accordance with the provisions of the Department RPAS Guidelines.

6. For Fire Department RPAS flights, including pilot certification and training or In-Service Training production, the “pilot in charge” SHALL document the flight in notes.

7. For Fire Department RPAS flights during live incidents, the “pilot in charge” SHALL ensure or request the RPAS be added to the existing Incident on the radio using the defined

identification of “Muskoka Lakes Air 1” for the Mavic 2 Enterprise dual and “Muskoka Lakes Air 2” for the Mavic Mini. In all cases flight information SHALL include: launch time, exact location, pilot in charge, mission type and RPAS identification.

8. Upon request of the Fire Department Incident Commander or Fire Department Representative, when the Department is an assisting agency, the RPAS flight team (RPIC and a visual observer) will deploy to the designated location within the Department fire protection area, as well as its surrounding Automatic Aid, Mutual Aid, Mutual Threat Zones and regional response areas.

9. The RPAS flight team will conduct a pre-flight assessment of the incident environment to ensure the proposed operation is within Department RPAS guidelines.

10.

RESPONSIBILITY:
It is the responsibility of all firefighting staff to comply with the provisions of this Operating Guideline.

DEFINITIONS:

REFERENCES:

Firefighting
Uses of RPAS in a fire-fighting environment can include but are not limited to the following:
(1) Assessing thermal conditions
(2) Hazard identification
(3) Personnel tracking
(4) Victim location
(5) Atmospheric condition monitoring
(6) Providing temporary illumination
(7) Assessing structural status
(8) Identification of urban interface
(9) Identification of fuel types
(10) Identification of shelter locations

(11) Identification of evacuation or escape routes
(12) Identification of fuel load

Rescue
Uses of RPAS in a rescue environment include but are not limited to the following:
(1) Missing person search
(2) Confirming victim locations
(3) Delivery of messages
(4) Monitoring condition of victim(s)
(5) As a visual beacon
(6) Radio direction finding
(7) To help locate access routes for ground teams
(8) 3D imaging a search area or incident site
(9) Assessing structural integrity
(10) Providing illumination

Hazardous Materials Response
Uses of RPAS in hazardous materials response include but are not limited to the following:
(1) Site survey
(2) Material identification
(3) Container identification and condition
(4) Monitoring hazardous product migration
(5) Delivery of supplies or equipment
(6) Help to identify safe ingress and egress routes
(7) Providing temporary illumination
(8) Monitoring personnel accountability
(9) Monitoring mass decontamination operations
(10) Atmospheric monitoring, if properly equipped

Medical Call Response
Uses of RPAS in emergency medical intervention include but are not limited to the following:
(1) Telemedicine
(2) Site Access and Size Up
(3) Equipment or recovery support
(4) Remote consultation of treatment and management

Other
Uses of RPAS for other ancillary public safety operations (non-emergency) can include:
(1) Training/exercises
(2) Flight demonstrations for Public Education
(3) Survey
(4) Pre-incident planning

(5) Visual screening
(6) Risk/vulnerability assessments
(7) Cartography
(8) Scene Investigations
(9) Recovery operations
(10) Safety assessments
(11) Damage assessments
(12) Test flights
(13) Documentation
(14) Communications
(15) Critical Infrastructure Inspection