Training & Certification – What you need to know

Doug Hanna
General Manager
Foremost UAS Test Range

Types of Flight Operations

VLOS – Visual Line-of-Sight
• Special Flight Operations Certificate required (prior to 1 Jun 2019)
• Comply with new RPS regulations (1 Jun 2019)

BVLOS – Beyond Visual Line-of-Sight
• Special Flight Operations Certificate required
• Roadmap TBD
New Regulations – Effective 1 Jun 2019

- 250 g to 25 kg
- Operated VLOS
- Recreation or commercial
- RPAS registration required
- Pilot exam required – Basic or Advanced
- Pilot Certification required – Basic or Advanced
- 2 categories of operations – Basic or Advanced
- Read and follow CARs Part IX – Remotely Piloted Aircraft Systems
### Pilot Training/Certification

<table>
<thead>
<tr>
<th>REQUIREMENT</th>
<th>BASIC</th>
<th>ADVANCED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Exam</td>
<td>sRPAS – Basic Operations or sRPAS – Advanced Operations</td>
<td>sRPAS – Advanced Operations and completed Flight Review</td>
</tr>
<tr>
<td>Pilot Certificate</td>
<td>Basic Operations or Advanced Operations</td>
<td>Advanced Operations</td>
</tr>
<tr>
<td>Recency</td>
<td>Within past 24 months - issued pilot certificate or completed exam or completed flight review</td>
<td>Within past 24 months - issued pilot certificate or completed exam or completed flight review</td>
</tr>
<tr>
<td>Records</td>
<td>24 months</td>
<td>24 months</td>
</tr>
<tr>
<td>Access to Certificate</td>
<td>Easily accessible to pilot during flight operation</td>
<td>Easily accessible to pilot during operation</td>
</tr>
<tr>
<td>Evidence of Recency</td>
<td>Document demonstrating recency easily accessible to pilot during flight operation</td>
<td>Document demonstrating recency easily accessible to pilot during flight operation</td>
</tr>
</tbody>
</table>

### Drone Certification – Manufacturer RPAS Safety Assurance

<table>
<thead>
<tr>
<th>TYPE OF OPERATION REQUIREMENT</th>
<th>BASIC</th>
<th>ADVANCED – CONTROLLED AIRSPACE</th>
<th>ADVANCED – NEAR PEOPLE</th>
<th>ADVANCED – OVER PEOPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Marked</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Pilot Certificate</td>
<td>Basic</td>
<td>Advanced</td>
<td>Advanced</td>
<td>Advanced</td>
</tr>
<tr>
<td>Class of Airspace</td>
<td>Class G</td>
<td>Advanced</td>
<td>Advanced</td>
<td>Advanced</td>
</tr>
<tr>
<td>Proximity to People</td>
<td>30 m</td>
<td>30 m</td>
<td>5 m</td>
<td>0 m</td>
</tr>
<tr>
<td>Manufacturer RPAS Safety Assurance Required</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
## Flight Operations

<table>
<thead>
<tr>
<th>REQUIREMENT</th>
<th>BASIC</th>
<th>ADVANCED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controlled Airspace</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>&lt; 3 NM airport</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>&lt; 1 NM heliport</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>5 m&lt; people &lt; 30 m</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>&lt; 5 m or over people</td>
<td>No</td>
<td>Yes, extra conditions</td>
</tr>
<tr>
<td>Altitude</td>
<td>400 ft</td>
<td>400 ft</td>
</tr>
<tr>
<td>Altitude around buildings</td>
<td>100 ft vertical, 200 ft horizontal</td>
<td>100 ft vertical, 200 ft horizontal</td>
</tr>
<tr>
<td>Multiple RPAS control</td>
<td>Up to 5 RPAS from 1 GCS</td>
<td>Up to 5 RPAS from 1 GCS</td>
</tr>
<tr>
<td>Moving vehicles</td>
<td>No VO or pilot driving</td>
<td>No VO or pilot driving</td>
</tr>
<tr>
<td>Alcohol</td>
<td>12 hours</td>
<td>12 hours</td>
</tr>
<tr>
<td>Any drug that impairs</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

### From VLOS to BVLOS –

- **VLOS**
  - 500 – 700 meters max
  - Routine approvals now
  - Regulations – 1 Jun 2019
  - Applications are limited
    - Site inspection
    - Small scale ag
    - Small area survey
- **BVLOS**
  - Long distances & large areas
  - Approvals are rare
  - BVLOS Regulations? Crawl, walk, run...
  - Applications include –
    - Pipeline inspection
    - Large scale agriculture
    - Wildlife monitoring
    - Forestry
Foremost UAS Test Range - Location

- 330 km from Calgary, AB International Airport
- 110 km from Medicine Hat, AB
- 110 km from Lethbridge, AB
- 185 miles from Great Falls, MT

Foremost UAS Test Range - Initiatives

In Progress
1. UAS Operator Accreditation
2. AI micro Voucher for BVLOS FTM

Planned
1. FTM – BVLOS Flight Test Matrix
2. DAA – Detect & Avoid
3. UTM – UAS Traffic Management
   * Oil to Tidewater
   * Drone Threat Defence
   * Forest Fire Ops
**Foremost UAS Test Range - Features**

**Airspace**
- 700 NM² (2400 km², ~80 km x 30 km)
- Up to 18,000 ft ASL
- BVLOS operations permitted

**Weather**
- 300+ VFR days/year.
- 279.9 mm rainfall/year average,
- 7.8 knots average wind speed
- Four season climate

**Infrastructure**
- 3000’ x 75’ Asphalt Runway
- 4000’ x 100’ Turf Runway
- Hangar – accommodate MALE UAV
- ROC – mobile Remote Operations Centre for flight ops from selected locations within airspace

**Surface Features**
- Crops/Grassland/Water Features
- Livestock/Wildlife
- Oil & Gas Infrastructure
- Power Distribution Lines
- Road Network

**Foremost UAS Test Range – Ops Centres**

**HOC (Hangar Ops Centre)**
- Accommodates up to MALE sized UAVs
- Door - 60 ft x 18 ft
- Floor Space = ~ 3000 ft²
- Ops Centre on Mezzanine overlooks airspace
- Electronics Lab, Mtg Room

**ROC (Remote Ops Centre)**
- 14+ ft Ops Centre at rear
- Meeting/Debrief Room
- 30 ft mast for Electronics/Radar/UTM
- 7 day Standalone Ops Capacity
Alberta Companies using UAS —

2016 Estimate –
• 500+

Alberta leads all provinces –
• 40% of all companies in Canada
• 1 of 2 Test Ranges in Canada

Foremost UAS Range