




# TRAINING & CERTIFICATION – WHAT YOU NEED TO KNOW

*Doug Hanna*  
*General Manager*  
*Foremost UAS Test Range*

**FOREMOST UAS 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

**FOREMOST UAS RANGE**



**KNOW BEFORE YOU GO!**

## FIND YOUR DRONE CATEGORY

**YOU NEED A PILOT CERTIFICATE – BASIC OPERATIONS TO:**

- Fly **+30 m** from bystanders
- Fly in uncontrolled airspace (where no air traffic control is provided)

**YOU NEED A PILOT CERTIFICATE – ADVANCED OPERATIONS TO:**

- Fly less than **30 m over** from bystanders
- Fly in controlled airspace with air traffic control approval

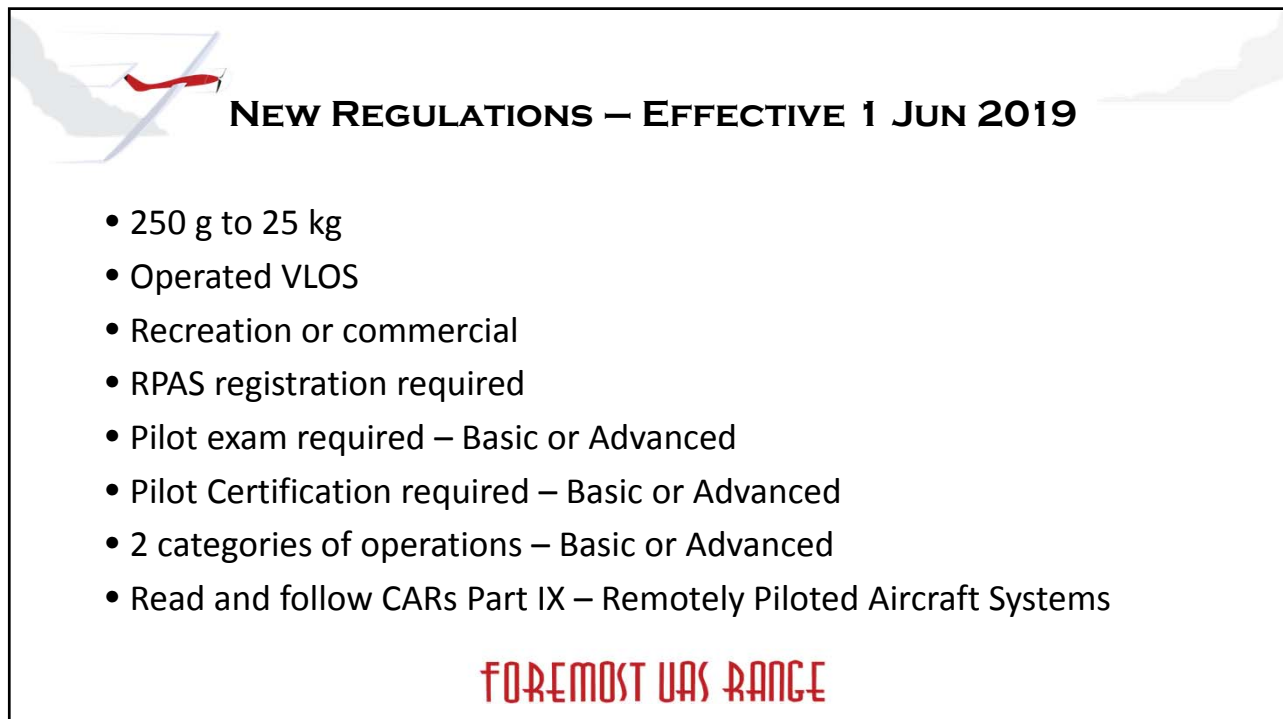
**YOU NEED A SPECIAL FLIGHT OPERATIONS CERTIFICATE TO FLY:**

- At an advertised event
- A drone over **25 kg+**
- Above **122 metres (400 feet)** (approximately a 30-storey building)

[Canada.ca/drone-safety](http://Canada.ca/drone-safety)

Transport Canada / Transports Canada


Canada



## 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


**FOREMOST WAS RANGE**



## PILOT TRAINING / CERTIFICATION

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


**FOREMOST UAV RANGE**



## DRONE CERTIFICATION – MANUFACTURER RPAS SAFETY ASSURANCE

TYPE OF OPERATION REQUIREMENT	BASIC	ADVANCED – CONTROLLED AIRSPACE	ADVANCED – NEAR PEOPLE	ADVANCED – OVER PEOPLE
Registered	Yes	Yes	Yes	Yes
Marked	Yes	Yes	Yes	Yes
Pilot Certificate	Basic	Advanced	Advanced	Advanced
Class of Airspace	Class G	Class A – F		
Proximity to People	30 m	30 m	5 m	0 m
Manufacturer RPAS Safety Assurance Required	No	Yes	Yes	Yes


**FOREMOST UAV RANGE**



## FLIGHT OPERATIONS

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

**FOREMOST UAV RANGE**

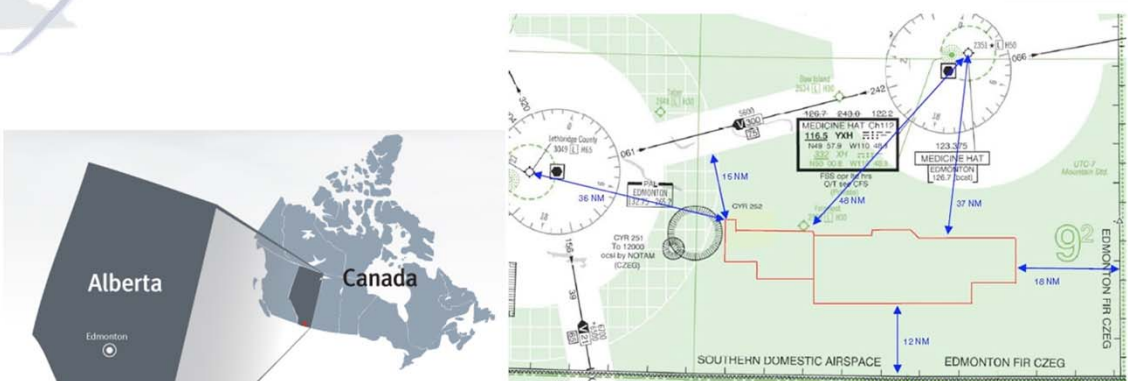


## FROM VLOS TO BVLOS –

<p><b><u>VLOS</u></b></p> <ul style="list-style-type: none"> <li>• 500 – 700 meters max</li> <li>• Routine approvals now</li> <li>• Regulations – 1 Jun 2019</li> <li>• Applications are limited               <ul style="list-style-type: none"> <li>• Site inspection</li> <li>• Small scale ag</li> <li>• Small area survey</li> </ul> </li> </ul>	<p><b><u>BVLOS</u></b></p> <ul style="list-style-type: none"> <li>• Long distances &amp; large areas</li> <li>• Approvals are rare</li> <li>• BVLOS Regulations? Crawl, walk, run...</li> <li>• Applications include –               <ul style="list-style-type: none"> <li>• Pipeline inspection</li> <li>• Large scale agriculture</li> <li>• Wildlife monitoring</li> <li>• Forestry</li> </ul> </li> </ul>
---	--

**FOREMOST UAV RANGE**

## FOREMOST UAS TEST RANGE - LOCATION



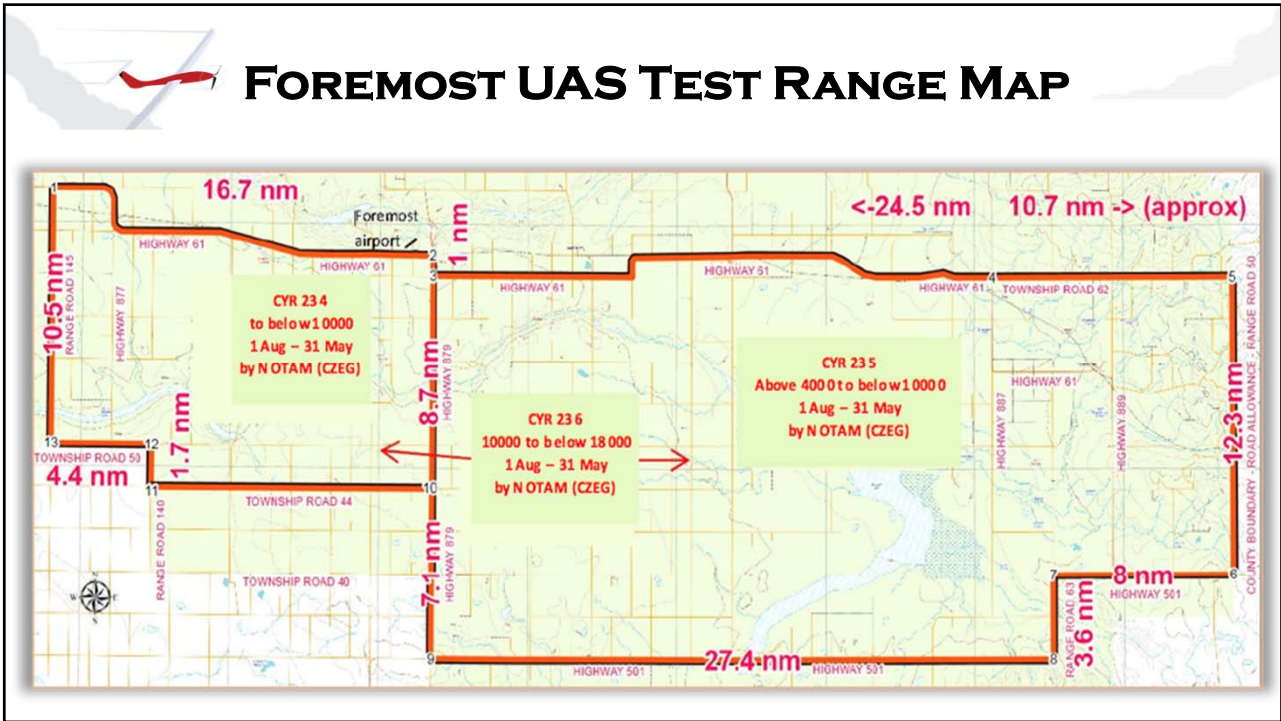
- 330 km from Calgary, AB International Airport
- 110 km from Medicine Hat, AB
- 110 km from Lethbridge, AB
- 185 miles from Great Falls, MT

FOREMOST UAS RANGE

## FOREMOST UAS TEST RANGE - INITIATIVES

<u>In Progress</u>	<u>Planned</u>
<ol style="list-style-type: none"> <li>1. UAS Operator Accreditation</li> <li>2. AI micro Voucher for BVLOS FTM</li> </ol>	<ol style="list-style-type: none"> <li>1. FTM – BVLOS Flight Test Matrix</li> <li>2. DAA – Detect &amp; Avoid</li> <li>3. UTM – UAS Traffic Management               <ul style="list-style-type: none"> <li>* Oil to Tidewater</li> <li>* Drone Threat Defence</li> <li>* Forest Fire Ops</li> </ul> </li> </ol>

FOREMOST UAS RANGE





## FOREMOST UAS TEST RANGE - FEATURES

**Airspace –**  
 700 NM<sup>2</sup> (2400 km<sup>2</sup>, ~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

**HOV (HANGAR OPS CENTRE)**

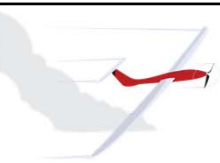
- Accommodates up to MALE sized UAVs
- Door - 60 ft x 18 ft
- Floor Space = ~ 3000 ft<sup>2</sup>
- Ops Centre on Mezzanine overlooks airspace
- Electronics Lab, Mtg Room





**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**