CCUVS Concept for the Development of UAS VBLOS Airspace Foremost Alberta

ACAMP
11 March 2014

Background

- In Canada civil government and commercial businesses fly UAS under exception procedures known as Special Flight Operation Certificates (SFOC).
- SFOCs are issued on an individual basis to a particular operator for a particular operation.
- These certificates are for operations in which the unmanned aircraft (UA) is continuously under direct visual control of the UA Pilot.

Current State of the industry

- Explosion of growth in Small UAS activity (18 months)
  - System Availability
  - Price reduction
  - Market demand
    - Geomatics sector and Industry
    - First Responders
- CCUVS is currently receiving 4-5 enquiries per week about start up and general information on;
  - Training
  - SFOC's
  - General questions etc.

Visual Beyond Line of Sight (VBLOS) Operations (the next step)

- Currently there are no regulations, standards and procedures exist to enable this type of operation.
- Lack of regulations for unmanned systems is a major obstacle to technology commercialization.
- The forum to develop these regulations, standards and procedures within Canada will be accomplished through the TC CARAC UAV Systems Program Design Working Group.
- *Airspace should be made available to permit TC to work with industry in the **development**, **evaluation** and **flight crew training** for civil and commercial applications.*

Current Regulations

- Limited to line of sight only 25 Kg or less for commercial purposes
  - Line of sight defined for small UAS usually 500m or less
  - 400 AGL

- VBLOS flights in Canada have been flown in the high Arctic and in military CYR's and other regions?
- This information is not shared or made public by TC. Limited and highly isolated activity

Canadian UAS Sites

- Happy Valley Goose Bay Nfld
- Alma Quebec
- Portage LaPrairie Man

- Currently there are no **CYR's** in North America that are solely dedicated to Commercial and Civil UAS VBLOS Training or Development.

- **Foremost will be the first**

Industry Demand

- Initial discussions with industry, nationally and internationally, clearly identify a significant desire to commercialize UVS.
- With the exception of military scenarios it is acknowledged the lack of standards and procedures have been the regulatory road block.
- Government and industry agree that Airspace should be made available for civil and commercial application development, test, evaluation and flight crew training.

Objective-Concept

- ***Concept*** is to define the parameters within which industry, in step with R&D organizations and Academia, can work with TC and NAVCAN to develop, train, refine and produce the required regulations, standards and procedures to permit VBLOS operations for purely civil applications.
- ***Process*** has been phased and has adopted a step-by-step approach, and will remain controlled by the existing SFOC methodology.

Objective-Concept

- CCUVS has the insight and expertise to grow a commercial and civil UAS flight area.
- ***CCUVS will take the lead*** in facilitating the process and be the single point of contact for all regulatory bodies and all participants.
- ***CCUVS will***:
  - Operate and manage the CYR Restricted Airspace;
  - Coordinate all logistic and administrative requirements;
  - Coordinate/assist in the development of all SFOC requirements and frequency clearances; and
  - Coordinate/assist the owner/operator of the UAV for submission of their SFOCs for review/approval of TC Regional Inspector.

Restricted Airspace

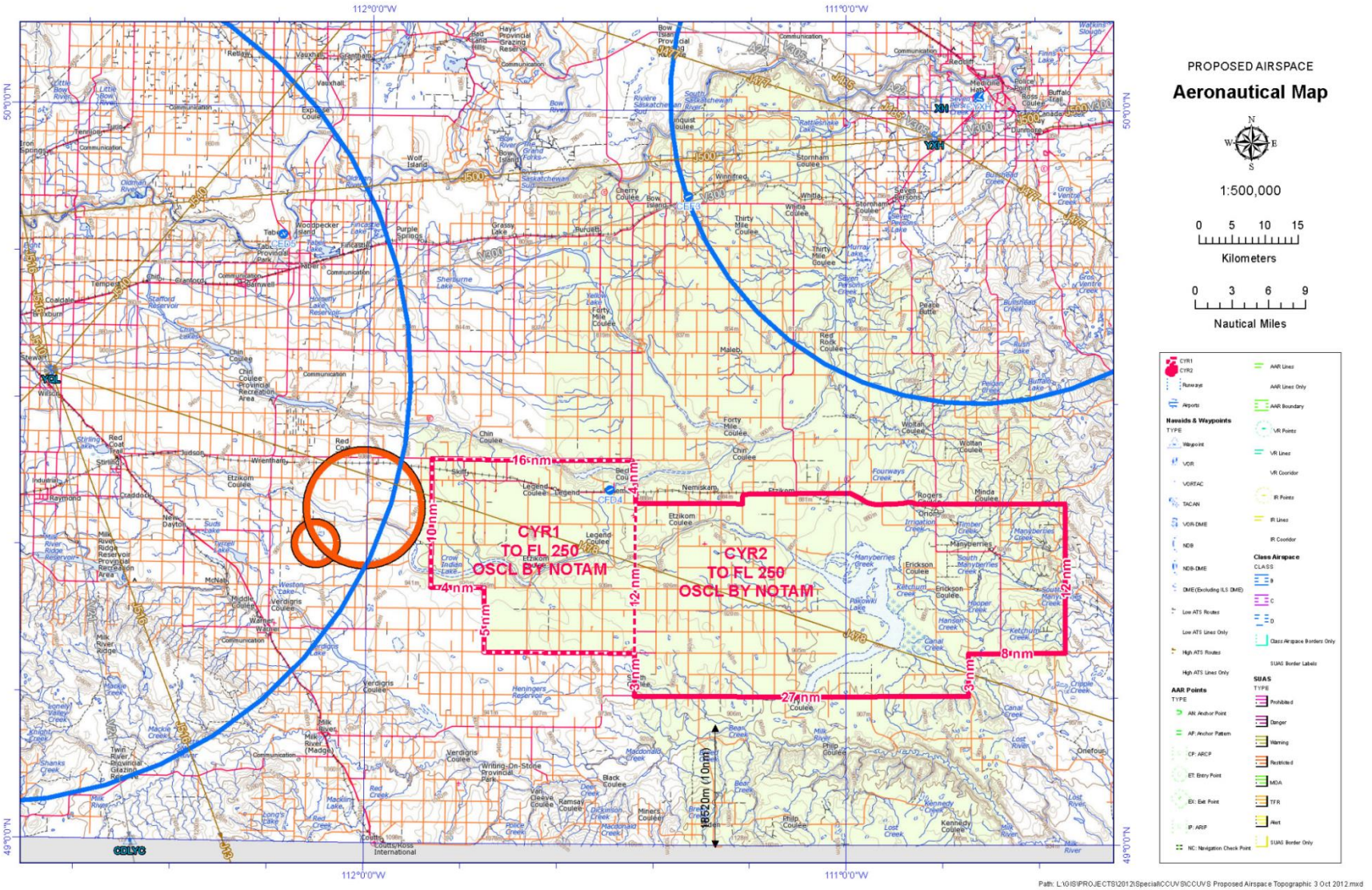
CYR Restricted Airspace : definition

"Airspace of Defined Dimensions above the land areas or territorial waters within which the flight of aircraft is restricted in accordance with certain specified conditions. Restricted airspace is designated for ***safety purposes*** *when the level or type of aerial activity, surface activity, or the protection of a ground installation requires the application of restrictions within that airspace."*

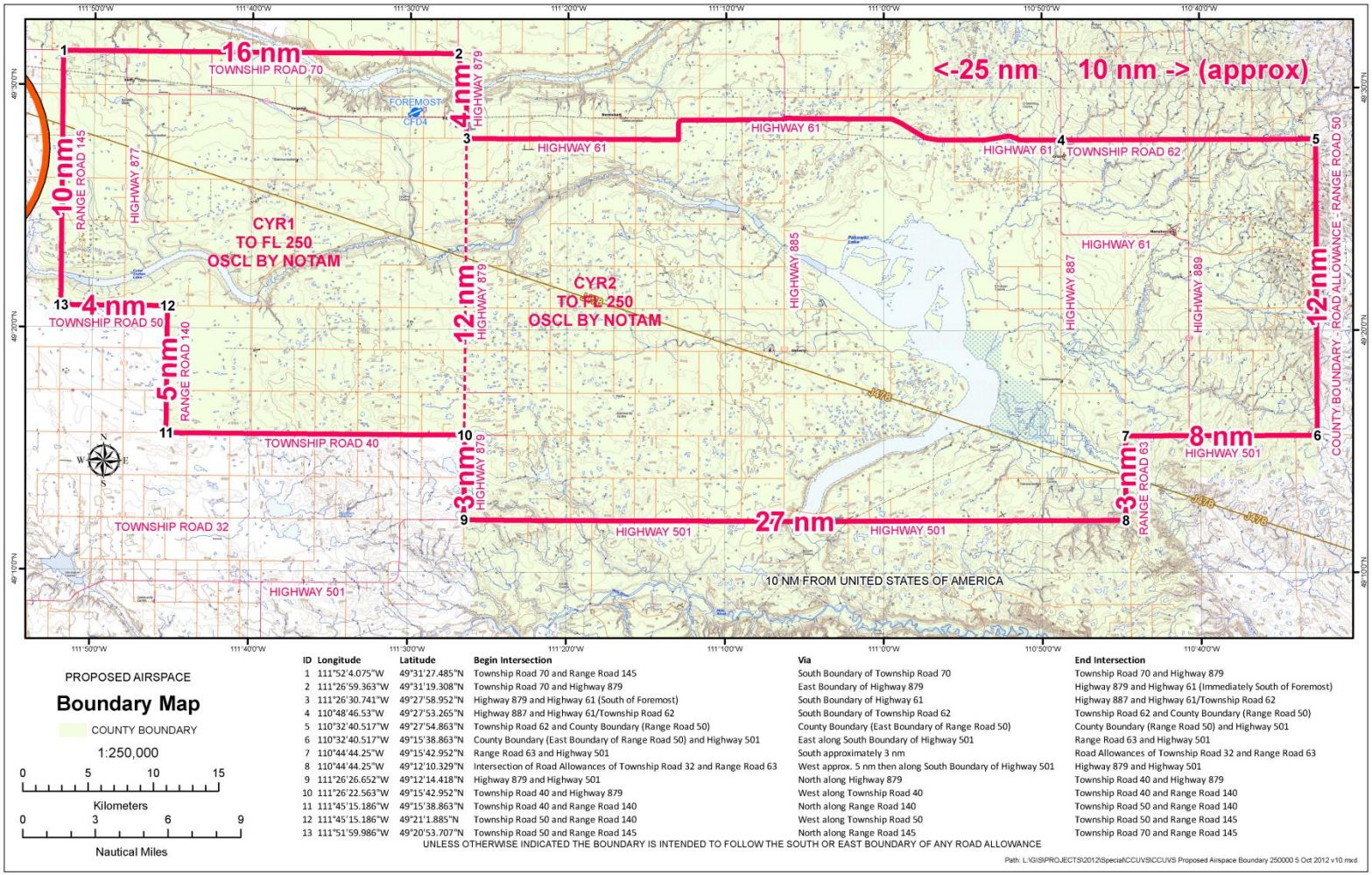
CYR based in Foremost

- Will allow for wide spread participation from civil and commercial companies that are in need of safe, managed and segregated air space.
- Will provide a large meaningful and focused area of development for the UAS industry.
- Will open the door to ***safe*** and advanced systems development.
- Will permit TC to develop, prove and establish **safe** and structured procedures in concert with Industry.

Proposed Foremost Restricted Airspace



Proposed Foremost UAS Restricted Airspace



PROPOSED AIRSPACE

Boundary Map

COUNTY BOUNDARY

1:250,000

0 5 10 15 Kilometers

0 3 6 9 Nautical Miles

ID	Longitude	Latitude	Begin Intersection	Via	End Intersection
1	111°52'4.075"W	49°31'27.485"N	Township Road 70 and Range Road 145	South Boundary of Township Road 70	Township Road 70 and Highway 879
2	111°26'59.363"W	49°31'19.308"N	Township Road 70 and Highway 879	East Boundary of Highway 879	Highway 879 and Highway 61 (Immediately South of Foremost)
3	111°26'30.741"W	49°27'58.952"N	Highway 879 and Highway 61 (South of Foremost)	South Boundary of Highway 61	Highway 887 and Highway 61/Township Road 62
4	110°48'46.53"W	49°27'53.265"N	Highway 887 and Highway 61/Township Road 62	South Boundary of Township Road 62	Township Road 62 and County Boundary (Range Road 50)
5	110°32'40.517"W	49°27'54.863"N	Township Road 62 and County Boundary (Range Road 50)	County Boundary (East Boundary of Range Road 50)	County Boundary (Range Road 50) and Highway 501
6	110°32'40.517"W	49°15'38.863"N	County Boundary (East Boundary of Range Road 50) and Highway 501	East along South Boundary of Highway 501	Range Road 63 and Highway 501
7	110°44'44.25"W	49°15'42.952"N	Range Road 63 and Highway 501	South approximately 3 nm	Road Allowances of Township Road 32 and Range Road 63
8	110°44'44.25"W	49°12'10.329"N	Intersection of Road Allowances of Township Road 32 and Range Road 63	West approx. 5 nm then along South Boundary of Highway 501	Highway 879 and Highway 501
9	111°26'26.652"W	49°12'14.418"N	Highway 879 and Highway 501	North along Highway 879	Township Road 40 and Highway 879
10	111°26'22.563"W	49°15'42.952"N	Township Road 40 and Highway 879	West along Township Road 40	Township Road 40 and Range Road 140
11	111°45'15.186"W	49°15'38.863"N	Township Road 40 and Range Road 140	North along Range Road 140	Township Road 50 and Range Road 140
12	111°45'15.186"W	49°21'1.885"N	Township Road 50 and Range Road 140	West along Township Road 50	Township Road 50 and Range Road 145
13	111°51'59.986"W	49°20'53.707"N	Township Road 50 and Range Road 145	North along Range Road 145	Township Road 70 and Range Road 145

UNLESS OTHERWISE INDICATED THE BOUNDARY IS INTENDED TO FOLLOW THE SOUTH OR EAST BOUNDARY OF ANY ROAD ALLOWANCE

Path: L:\GIS\PROJECTS\2012\Special\CCUVS\CCUVS Proposed Airspace Boundary 250000 5 Oct 2012 v10.mxd

Foremost Airspace Statistics

- Area roughly 40 X 18 NM 720 sqnm / 1864sqkm
- Population 2011 census
  - Etzikom 45
  - Orion 15
  - Foremost 500
  - Manyberries 250
  - Colonies (2) 135

- Total Population 945 + 448 outlying 448 /1864 = .24
- Population ratio: .24 persons per Sq Km

Milestones

- **TRANSPORT CANADA:**
- Jun 12, 2012 - **Approved** the Concept and Process in principle.
  - Directed CCUVS to initiate the airspace change process with NAV CANADA.

- **NAVCAN:**
  - Initiate airspace change process with NAV CANADA. First meeting held 22 June 2012.
  - 25 Sept 2012 Follow up – with NAVCAN.
  - 5 Oct 2012 - Dimensions of the airspace has been defined and is with NAVCAN. An Aeronautical Study has now commenced with the goal to create the CYR and establish the required safety control measures.
  - 31 Jan 2014 – Airspace Assessment complete Submitted to TC.
  - 31 April 2014 anticipate Airspace announcement

Next Steps

- Continue to work the airspace change process with NAV CANADA
- Continue to network and solicit industry participation for investment and infrastructure.
- Coordinate academia involvement
- Continue with the Needs Assessment for the airfield at Foremost
  - Improve on site infrastructure in the interim
  - Continue with LOS RPAS Activities

Ask of Industry

- Expression of Interest/Commitment to participate
- Forming of partnerships to develop the Training & Development programs
- Inputs to identify site requirements
    - Airspace must come first

FOREMOST

Summary

- This project has been on the books since 2008
- Traction in the past 18 months AA essentially complete
- CCUVS and has invested close to **one million dollars** in the development process since 2008. (6 Years)
- The technology will not go away only grow
- Government has to step up to the plate with the leadership and monetary investment to create this global opportunity for Canada.
- The fate of this airspace and advancement ultimately lie with Transport Canada for positive approval

Contacts

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