

Open Call for Proposals

Unmanned Aerial Systems BVLOS Capability Development

Program Description

LOOKNorth and Unmanned Systems Canada are partnering to build a national cluster of industry and academia to develop the Unmanned Aerial Systems (UAS) industry in Canada, with a focus on accelerating the commercialization of UAS-based beyond visual line of sight (BVLOS) remote sensing applications. The overall objective of the national industry cluster is to create a risk-based process to assess concepts of operation through a Transport Canada approved risk model. LOOKNorth/USC have established a national testbed to collect relevant performance data from flight trials and to evaluate these data using a common risk assessment tool.

This national testbed is intended to promote collaboration amongst Canadian companies to create and utilize a common risk model for all flight trials. Over time, the aggregation of data collected during these flight trials as well as the resulting analyses will support evidence-based recommendations to Transport Canada to support development of BVLOS regulations. Ultimately, the process will drive the development of new markets, attract investment and improve the competitive position of Canadian companies in a global marketplace.

Scope and Intent

LOOKNorth is soliciting proposals from Canadian-based small and medium sized enterprises (SMEs) with interest in advancing Unmanned Aerial Vehicles and Systems (UAV / UAS) into BVLOS operations and applications.

In February 2018, Transport Canada announced a call for proposals for Canadian companies to submit concepts of operations leading to the approval of BVLOS demonstration projects in 2018. Four successful proposals were selected by Transport Canada in June 2018 and approved for LOOKNorth funding in October 2018. Five additional projects were approved by LOOKNorth in December 2018. The objective of these projects is threefold:

- to provide regulators and other industry stakeholders with operating experience and resulting data to model and profile risk associated with BVLOS operations across a range of application scenarios;
- to validate and demonstrate new technologies that enable safe BVLOS operations; and
- to inform stakeholders regarding the development of BVLOS regulations in Canada.

LOOKNorth/USC have selected Periculum Labs to develop the common risk model and are currently partnering with the approved Canadian UAV operators to conduct flights for a range of end user applications. Currently, application trials have been approved to validate operation and collect performance data in the following operational scenarios:

- Oil and gas pipeline and facilities inspection
- Mineral surveying and exploration
- Atmospheric / meteorology
- Commercial parcel and emergency supply delivery
- Search and rescue
- Wildlife surveying
- Ice monitoring during freeze-up and breakup conditions
- Highway and infrastructure inspection

Proposals are requested for flight trials addressing these and other operational scenarios that demonstrate a solid business case. Priority will be given to support for those proposals that were not successful in the Transport Canada 2018 Call for Concept of Operations demonstrating BVLOS. Those projects may benefit from simulating BVLOS by adding resources to operate under VLOS.

Additionally, LOOKNorth is interested in partnering opportunities for the development and commercialization of innovative remote sensing technologies and services that demonstrate high social, environmental and economic impact to Canada and with potential for export abroad. Interested proponents are encouraged to contact LOOKNorth to discuss their project prior to submitting a proposal.

Eligibility

Proposals will be accepted from project teams led by Canadian SMEs to help rapidly advance the commercialization of BVLOS operations. All proposed projects considered for funding must demonstrate a strong commercialization component. BVLOS application trials target technology solutions at a technology readiness level (TRL) in the range of TRL 5 - 7 (http://esto.nasa.gov/files/trl_definitions.pdf).

For projects to be considered for funding under this call for proposals, the proposal must demonstrate interest and support from an end user partner with interest in BVLOS. The industry partner should recognize the information gap and the need for the proposed solution as well as commit to supporting the proposed field validation with a combination of cash and support in kind. Preference will be given to projects where the end user partner indicates interest and willingness to adopt the technology within their operations and where LOOKNorth can play a role in commercializing the technology.

Successful proposals should address “benchmarks” for expected and desired outcomes. This should include but not be limited to new products/services, incremental revenue, new employment and investment potential from a successful demonstration.

For **BVLOS concepts of operations** projects, the following conditions apply:

- LOOKNorth will fund up to 50% of eligible costs, to a maximum of \$50,000 of LOOKNorth funds per project.
- Projects should be no more than 12 months duration.
- Successful proposals must demonstrate a confirmed commitment of interest and support from an end user industry partner. Industry support can be a combination of end user and SME cash and in-kind contributions. Preference will be given to projects with strong end user support, as this indicates end-user interest and commercialization potential.
- All proposed projects considered for funding must demonstrate a strong commercialization component.

General Instructions

Data and Intellectual Property

Any intellectual property developed as a result of a funded project shall belong exclusively to the Proponent. There is however an explicit requirement to share safety case data for the collective benefit of developing evidence-based recommendations to Transport Canada for BVLOS regulations.

- All applicants must agree to make their pre-flight profiling data as well as results of their flight tests, including operational missions, available for input into the testbed and risk evaluation tools.
- All applicants must agree that their results may be shared among Transport Canada and industry cluster participants.
- Proprietary and commercially sensitive information will remain protected.

Submission Instructions

Interested proponents must complete the proposal template, located here:

https://www.looknorth.org/cms_content/files/files/Investment%20Proposal%20Template%20-%20FIN.pdf

Proponents who have previously applied to the Transport Canada 2018 Call for Concept of Operations demonstrating BVLOS are asked to include a copy of the proposal with their application. Full instructions for completing the application are included with the Proposal template.

As well, proponents must complete a preliminary Environmental Assessment Checklist, located here:

https://www.looknorth.org/cms_content/files/files/LN-EAP&Checklist-Fillable.pdf on the LOOKNorth website.

Proponents are asked to note the following important dates:

- Announcement Date for Call for Proposals – December 21, 2019
- Submission Deadline - February 1st, 2019
- Expected Decision Date - March 12th, 2019

Questions or Clarifications

Please submit enquiries and requests for clarifications to

Neil Cater - Operations email: neil.cater@c-core.ca Tel: (709) 864-7808

About LOOKNorth

LOOKNorth is a Centre of Excellence for Commercialization and Research (under Canada's Networks of Centres of Excellence program), hosted by C-CORE. LOOKNorth's Investment Program fosters and supports innovation in remote sensing technologies and applications, assists Canadian satellite SMEs to define and successfully execute missions relevant to industry and communities, fosters advances in Canada's UAS sector - particularly Beyond Visual Line of Sight (BVLOS) operations, and helps build capacity in remote sensing technologies and services in Canada's North.

About Unmanned Services Canada

Unmanned Systems Canada is a federally registered not-for-profit association established in 2003 which represents the Canadian unmanned systems community. With over 500 members, USC has played a pivotal role in establishing the Canadian Unmanned Aerial Systems (UAS) industrial sector in Canada. Since 2007 when USC initiated UAS regulatory development with Transport Canada, as the co-chair of the regulatory working group, it has promulgated best practices which have been in use by Canadian industry for the past four years. During those years, operating only within Visual Line of Sight, approximately 1000 new businesses have been created, developing and leveraging UAS technology for a wide range of applications.