Level of Service

Terms of Reference

Review of Surveillance Requirements

Exploring Future ADS-B Requirements in Canadian Airspace

NAV CANADA
Level of Service
151 Slater Street
Ottawa, ON K1P 5H3

September 2025

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1.Purpose

The objective of these Terms of Reference is to initiate an Aeronautical Study (the "Study") to evaluate the requirements for extending the use of Automatic Dependent Surveillance–Broadcast (ADS-B) in Canadian airspace below 12,500 feet above sea level (ASL) and above Flight Level 600 (FL600).

The Study will examine whether additional ADS-B required airspace is operationally and technically justified, identifying both potential benefits and drawbacks. It will also consider the impacts on airspace users and provide recommendations that reflect NAV CANADA's safety, efficiency, and infrastructure modernization objectives.

2.Scope of Study

The Study will:

- Evaluate whether requiring aircraft to be equipped with ADS-B Out in low-level controlled airspace (below 12,500 feet ASL) is operationally and technically justified, considering both benefits and drawbacks.
- Assess the role of space-based ADS-B in low-level airspace, including its limitations in higher-density traffic environments, and the potential use of ground-based ADS-B receivers to mitigate these limitations.
- Examine impacts to airspace users, including the challenges for non-equipped aircraft to access ADS-B airspace and consequences to accessibility, safety, and efficiency.
- Review options for targeted ADS-B requirement in selected Class D and E airspaces, where traffic levels or operational complexity may justify surveillance.
- Consider stakeholder perspectives — particularly those of smaller commercial and general aviation operators — with respect to the requirement for antenna diversity, technical feasibility, and operational impacts.
- Define implementation timelines for previously approved high-level airspace (above FL600).
- Explore the potential of supporting the provision of information broadcast services.
- Explore the role of electronic conspicuity (EC) devices in supporting the principle of "See, Be Seen, and Avoid."

3.Background

ADS-B surveillance has already been implemented in Canada's Class A and B airspace, providing surveillance coverage that supports reduced separation standards, improved efficiency, and enhanced safety across large domestic and oceanic areas. These benefits reflect a significant change in how airspace can be managed and how aircraft are separated.

The next phase is to determine what is required in the remaining classes of airspace in Canada, particularly low-level controlled airspace classes C, D, and E. Unlike in higher-level airspace, many

users operate smaller aircraft that operate primarily or exclusively in low-level airspace. These smaller aircraft may have physical limitations in their ability to be equipped with ADS-B Out, and the costs of equipping or modifying them can be material. At the same time, extending surveillance requirements has potential implications for access, safety, and overall operational efficiency.

Many ground-based surveillance systems installed in the 1990s are now nearing the end of their useful lifespan. This highlights the need to examine how ADS-B technology can help maintain resilient surveillance and ensure the continuity of service delivery.

This Study is therefore intended to provide an evidence-based assessment of the operational, technical, and economic factors involved. By gathering feedback from various stakeholders, the study aims to weigh both the benefits and the challenges, ensuring that multiple perspectives are considered.

NAV CANADA continues to promote antenna diversity as the preferred technical solution for meeting ADS-B performance requirements. However, the study will consider the feasibility of alternatives to antenna diversity and associated infrastructure requirements, such as the installation of ground-based ADS-B receivers.

4. Methodology

The Study will identify, assess, and analyze information gathered through data collection and consultation with users and stakeholders. The Study will:

1) Identify and document stakeholder requirements related to potential ADS-B requirements in airspace below 12,500 feet ASL,
2) Gather and assess stakeholder perspectives on potential benefits, challenges, and impacts of additional ADS-B requirements,
3) Conduct a Hazard Identification and Risk Assessment on issues, as required,
4) Present recommendations for Executive Management and Board of Directors approval,
5) Coordinate with the appropriate managers who would be involved with the technical and operational implementation of any proposed service change, and,
6) Coordinate with Transport Canada.

A business case may be developed to validate the recommendations as needed.

5. Human Resources

The Study team will be multidisciplinary, with representation as required from crucial operational, technical and support areas.

The Study team will ensure that consultation with affected or interested stakeholders is sufficient before making recommendations to senior management.

The Study team will conduct a risk analysis and may call upon stakeholders to contribute to assessing some risk scenarios.

Team Leader: Manager, Level of Service

Contributors:

- Specialist, Level of Service,
- Managers/Staff in all Flight Information Regions,
- Aeronautical Information Management,
- NAV CANADA Technology Group,
- NAV CANADA Corporate Performance,
- NAV CANADA Stakeholder and Industry Relations and,
- Others as required.

6. Work Management Plan

Terms of Reference approval: October 2025

When conducting the Study*, the following will be undertaken:

1) Develop a Communication and Consultation Plan – Fall 2025
2) Study commencement – Fall 2025
3) Consultation – Fall 2025/Winter2026
4) Assess consultation input – Winter/Spring 2026
5) Conduct Issues Hazard Identification and Risk Assessment – Spring 2026
6) Finalize Aeronautical Study report – Summer 2026
7) Executive Management and Board of Directors approval – Summer 2026

If a change proposal is approved:

8) Issue a Notice of Proposal – Summer 2026
9) Circulate the concluded assessment to Transport Canada for safety review – Fall 2026

Following Transport Canada concurrence:

10) Coordinate implementation plan and dates with appropriate departments – TBD
11) Prepare the Aeronautical Information Management submission – TBD
12) Prepare and publish an Aeronautical Information Circular – TBD
13) Prepare and publish Notice – TBD
14) Implement – Not before 2028
15) Monitoring / Post-Implementation Reviews – TBD

* Study timelines may be subject to adjustment.

7. Materiality of the changes

Some proposed service delivery options may represent a material change for a substantial group of users. If this is the case, formal notifications, as per the Civil Air Navigation Services Commercialization Act, will apply.

8. Finance Resources

Service design changes may generate an engineering support requirement. These requirements will be identified as the study progresses, supporting the initiation of project planning for implementing engineering-related recommendations from the study.

9. Consultations

An appropriate consultation plan will be prepared. It will include formal stakeholder consultations to determine if any issues exist and to identify potential mitigations that may be required if changes are recommended to provide air traffic services and airspace classification or structure.

Aviation organizations representing airports, general aviation, business aviation and others, as appropriate, will be consulted during the Study. A list of users and stakeholders consulted will be attached to the Study.

Should you have any questions or wish to provide input to the Study, you may do so by emailing studies.etudes@navcanada.ca or by writing to:

Courier/Civic Address	Mailing Address
NAV CANADA Level of Service 151 Slater Street Ottawa, ON K1P 5H3	NAV CANADA Level of Service PO Box 3411, Station T Ottawa, ON K1P 5L6

10. Safety Management Plan

NAV CANADA will prepare a project safety management plan that identifies implementation responsibilities resulting from the Study, including mitigation and monitoring actions to implement any service change.

11. Authority

This document has been issued under the authority of the Assistant Vice President, Stakeholder and Industry Relations.