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Independent Audit Report

REPORT 6

Civil Aviation Infrastructure in the North—Transport Canada

Office of the Auditor General of Canada

Bureau du vérificateur général du Canada

Performance audit reports

This report presents the results of a performance audit conducted by the Office of the Auditor General of Canada under the authority of the *Auditor General Act*.

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- gather the evidence necessary to assess performance against the criteria,
- report both positive and negative findings,
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Introduction

Background

Civil aviation infrastructure in the north

6.1 For Canada's northern communities, air transportation is essential for supplying fresh food, medicine, and other goods; delivering health care services; providing medical emergency evacuations; and supporting tourism and travel outside of the community—many things that Canadians in the south take for granted. Air transportation is particularly important for remote northern communities, where it is the only reliable, year-round mode of transportation.

6.2 The north presents inherent challenges and risks to air transportation because the northern population is spread out in small communities over vast stretches of inhospitable terrain. Air operations are subject to extreme weather, including cold temperatures, and to extended periods of darkness. Low and sporadic passenger volumes, along with harsh operating conditions, create a difficult and costly operating environment for the air transportation industry.

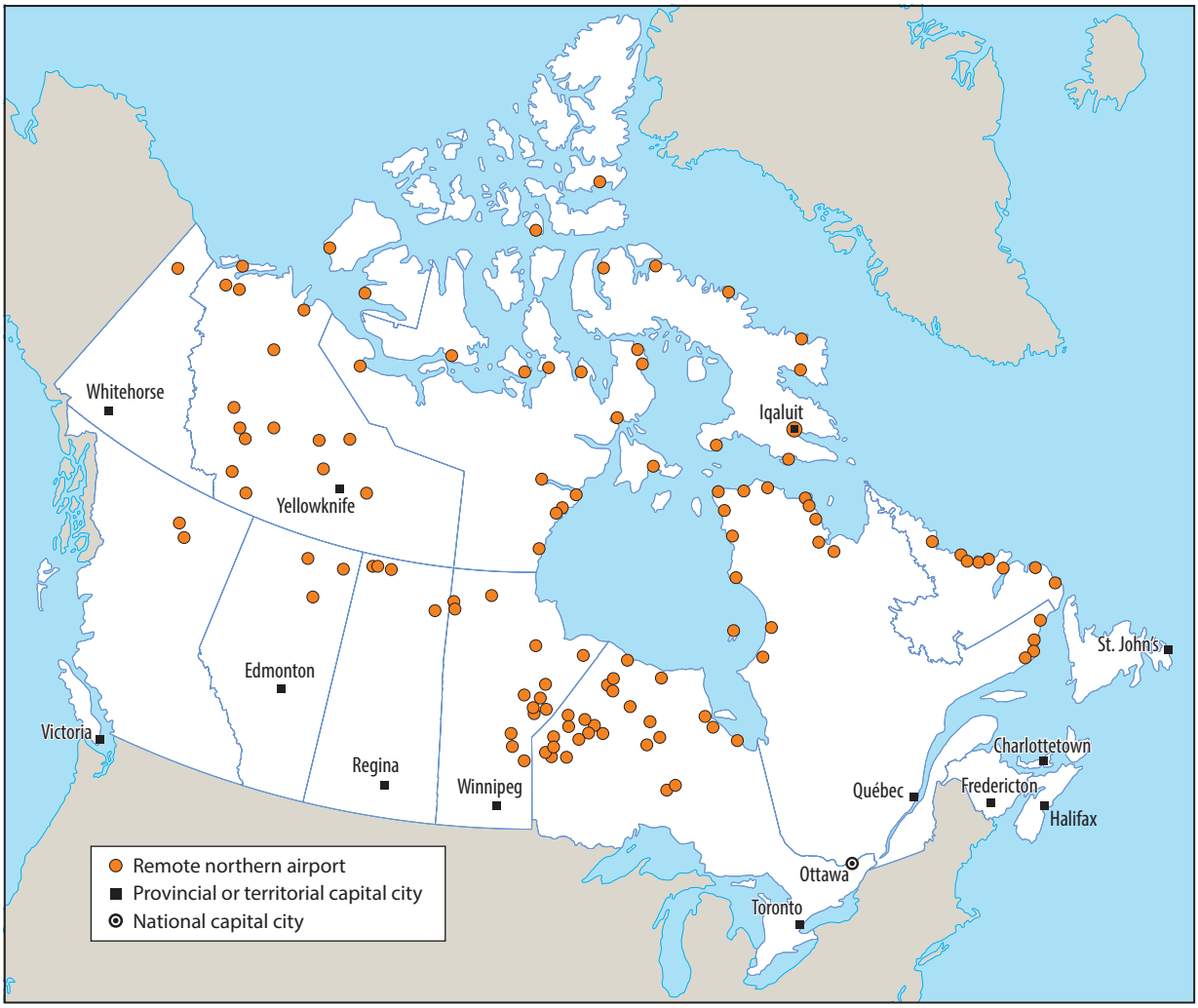
6.3 For the purposes of this audit, we defined remote northern communities as those communities for which the only reliable year-round mode of transportation was by air. This definition includes many communities in the territories and northern parts of the provinces. Using this definition, we identified 117 remote northern airports that service these communities (Exhibit 6.1). This definition included the airport in Iqaluit, Nunavut, but it excluded the airports in Whitehorse, Yukon, and Yellowknife, Northwest Territories, as these communities are accessible by road.

Responsibility for civil aviation

6.4 Transport Canada is responsible for promoting safe and secure transportation systems for three modes of transportation: civil aviation, marine, and surface (rail and roads). The Department also conducts transportation oversight through legislative, regulatory, surveillance, and enforcement activities for all three modes of transportation.

6.5 According to Transport Canada, it plays a leadership role in ensuring that all parts of the transportation system across Canada (and worldwide) work together effectively and efficiently. The Department uses strategic funding and partnerships to promote the safe, efficient, and environmentally responsible movement of people and goods. The Department's vision is a transportation system in Canada that is recognized worldwide as safe and secure, efficient, and environmentally responsible.

Exhibit 6.1 Distribution of 117 remote northern airports



6.6 Transport Canada establishes the regulatory framework for the safety of airports and related air transportation infrastructure. The Department certifies airport operations and performs inspections to assess compliance with regulations. Airport operators are responsible for ensuring that their airports comply with Transport Canada regulations. Municipalities; federal, provincial, and territorial governments; local authorities; and private entities own or operate airports in Canada.

6.7 NAV CANADA is a private, not-for-profit organization that operates Canada's civil air navigation system. The organization provides a range of services to aircraft owners and airport operators, such as air navigation and aviation weather information services. Transport Canada regulates NAV CANADA's civil aviation services according to the *Canadian Aviation Regulations*.

Airports Capital Assistance Program

6.8 Transport Canada established the Airports Capital Assistance Program in 1995 because the Department recognized that Canada's smaller airports may not be able to earn sufficient revenue to finance operating and capital costs to maintain the required level of safety. The program provides funding for the following types of safety-related capital projects:

- rehabilitating runways, runway lighting, and visual aids;
- acquiring heavy mobile equipment, such as runway snow plows and blowers; and
- installing sprinkler systems in terminal buildings.

6.9 In Canada, there are certified airports and registered aerodromes. Certified airports have regularly scheduled passenger service. Operators of certified airports are required to maintain and operate the airport in accordance with applicable Transport Canada regulations and safety standards. Transport Canada staff conduct regular inspections to ensure compliance. Registered aerodromes do not have regularly scheduled passenger service, and they are subject to Transport Canada inspections only when safety issues are raised. For the purposes of this report, we use the term "airports" to represent certified airports and registered aerodromes. Of the 117 remote northern airports we examined, 107 were certified and 10 were registered as of September 2016.

Focus of the audit

6.10 This audit focused on whether Transport Canada assessed and addressed civil aviation infrastructure needs in Canada's north to ensure a safe and efficient civil aviation system.

6.11 This audit is important because air travel was the only reliable, year-round mode of transportation available to the 117 remote northern communities served by the airports we examined. Adequate infrastructure is vital to safe and efficient air travel.

6.12 We did not examine military aviation, private-use aviation, or airports owned by the federal government.

6.13 More details about the audit objective, scope, approach, and criteria are in **About the Audit** at the end of this report (see pages 16–18).

Findings, Recommendations, and Responses

Support for the infrastructure needs of remote northern airports

Overall message

6.14 Overall, we found that Transport Canada was aware of information documented since 2005 about remote northern airports' safety- and efficiency-related infrastructure needs, such as the need for improved runway lighting and navigational aids. However, the Department had not taken a leadership role in addressing these needs by leading efforts and working collaboratively with its provincial, territorial, and industry partners to enhance the safety and improve the accessibility and efficiency of remote northern airports.

6.15 We found that remote northern airports received some funding to address their safety-related infrastructure needs through Transport Canada's Airports Capital Assistance Program. This program provides $38 million per year in safety-related infrastructure funding to smaller airports across the country. In 2016, 41 of the 117 remote northern airports we examined estimated that they needed $101 million over the next three years to fund the safety projects they identified. Over the 2014–15 to 2016–17 fiscal years, the Airports Capital Assistance Program funded about $15 million in projects at remote northern airports.

6.16 In late 2016, Transport Canada announced that it intended to take a more active role in addressing transportation infrastructure needs in the north. However, we found that the Department did not clarify what this would involve. According to Transport Canada, it was working on details at the time of the audit.

6.17 These findings matter because stakeholders have identified significant costs to maintain and improve infrastructure at remote northern airports. Deferring infrastructure maintenance and improvements increases costs while opportunities to enhance the safety and improve the accessibility and efficiency of air travel to remote northern communities are missed. Not addressing the infrastructure needs of remote northern airports also increases risks to an accessible and efficient transportation system in the north.

The infrastructure needs of remote northern airports have been a long-standing issue

What we found

6.18 We found that since 2005, provincial and territorial governments, the Senate of Canada, the 2016 *Canada Transportation Act* Review, and Transport Canada identified the need to invest in infrastructure at northern airports. The needs identified included what was required to enhance safety and improve accessibility and efficiency at these airports. Moreover, the stakeholders we interviewed told us that improvements were needed to lighting, navigational aids, runways, and information on weather and runway conditions.

6.19 Our analysis supporting this finding presents what we examined and discusses the following topics:

- Identified infrastructure needs and estimated costs
- Stakeholders' views on infrastructure improvements

Why this finding matters

6.20 This finding matters because airport infrastructure in the north is expensive to build, operate, and maintain. If the infrastructure is not maintained, it becomes more costly to repair and upgrade. Not addressing infrastructure needs at remote northern airports, which support the only reliable year-round mode of transportation for remote northern communities, also affects the timely delivery of essential goods and public services, such as medical emergency evacuations.

Recommendations

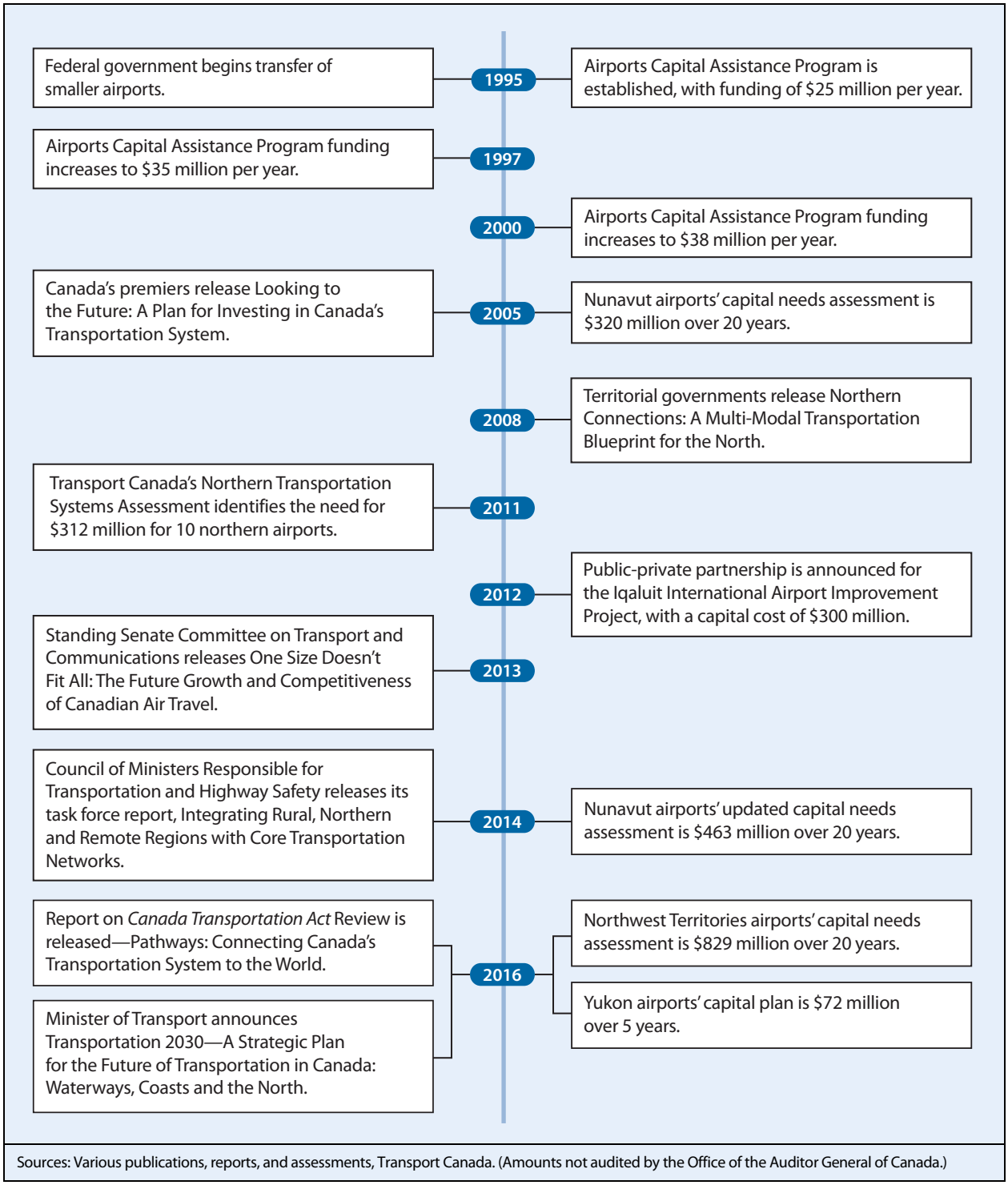
6.21 We made no recommendations in this area of examination.

Analysis to support this finding

6.22 **What we examined.** We examined remote northern airports' infrastructure needs and the estimated costs of meeting these needs. We interviewed selected stakeholders and reviewed documentation on infrastructure needs and the capital investment required.

6.23 **Identified infrastructure needs and estimated costs.** Several assessments and reports over the past 12 years have identified the challenges facing northern airport infrastructure, including airports in remote communities. Exhibit 6.2 presents a timeline of significant milestones, publications, and assessments regarding airport infrastructure needs in the north.

Exhibit 6.2 Northern airport infrastructure needs have been well documented



Sources: Various publications, reports, and assessments, Transport Canada. (Amounts not audited by the Office of the Auditor General of Canada.)

6.24 In 2005, Canada's premiers released Looking to the Future: A Plan for Investing in Canada's Transportation System, which noted that the territories in particular could not realistically fund infrastructure needs alone. In 2008, the territories released Northern Connections: A Multi-Modal Transportation Blueprint for the North, which highlighted inadequate and aging airport infrastructure, especially in Nunavut. It also noted the territories' limited abilities to assume the financial burden required to address infrastructure needs.

6.25 In Nunavut, all airports are remote. According to a 20-year needs assessment prepared for the Government of Nunavut in 2014, the estimated costs to address the infrastructure needs of its 24 owned and operated airports (excluding Iqaluit) were $463 million (2014 dollar value). These costs included $76 million to relocate two airports, which would enhance the airports' safety and improve accessibility and efficiency, and allow them to meet current Transport Canada regulations. The report noted that the ongoing rehabilitation of airports is imperative to avoiding infrastructure assets deteriorating to the point where they would be too costly to maintain. According to its 20-year needs assessment, the Government of Northwest Territories estimated the infrastructure needs of all of its airports at $829 million (2016 dollar value). In its five-year capital plan, the Government of Yukon estimated the initial infrastructure needs of all of its airports at approximately $72 million (2016 dollar value). These assessments included a range of projects, such as runway resurfacing, lighting, mobile equipment, and terminal and storage buildings.

6.26 The Standing Senate Committee on Transport and Communications' report issued in April 2013 and the results of the *Canada Transportation Act* Review released in February 2016 also highlighted funding challenges. In particular, both reported on the need for increased and stable funding to address inadequate and aging infrastructure in the north, such as short runways and the lack of reliable weather information.

6.27 We found that these reports and assessments provided ample evidence that Transport Canada knew about long-standing civil aviation infrastructure needs in the north, including those of remote northern airports.

6.28 **Stakeholders' views on infrastructure improvements.** Airport operators and users, including air carriers and medical emergency evacuation providers, told us that the following improvements could enhance safety and improve accessibility and efficiency:

- enhanced runway lighting;
- enhanced navigational aids;
- improvements to runways, such as paving gravel runways or extending runways; and
- more reliable and complete information on weather and runway conditions.

6.29 Runway lighting is vital at northern airports for landing during periods of reduced visibility such as darkness and adverse weather conditions. Pilots need to visually determine the airport's location before attempting to land. We reviewed the Canada Flight Supplement, a handbook for pilots published by NAV CANADA. The handbook identifies key features at each Canadian airport. We found that more than half of the 117 remote northern airports we examined did not have key visual aids that pilots typically use to identify an airport and to land aircraft during periods of reduced visibility. Of the 117 remote northern airports we examined,

- 44 percent did not have an approach lighting system, which guides pilots on approach to the runway;
- 26 percent did not have any lighting or had low-intensity lighting for pilots to identify the runway; and
- 21 percent did not have precision approach path indicators, which provide pilots with visual information on whether they are too high or too low when landing.

6.30 Improvements to lighting could enhance airport accessibility and efficiency by helping pilots to better see the runway and land, which could result in fewer cancelled or missed approaches at some airports, especially during periods of reduced visibility.

6.31 In addition, satellite-based navigation has improved the efficiency of air transportation. These navigation systems allow more direct flight paths, and they allow pilots with aircraft appropriately equipped for satellite-based navigation to land aircraft under conditions with lower cloud bases. Visual aids are important to maximizing the benefits of satellite-based navigation, as they improve a pilot's ability to see the runway on approach, particularly during periods of reduced visibility.

6.32 NAV CANADA increased the number of satellite-based instrument procedures available to pilots flying into remote northern airports. We found that, based on information NAV CANADA provided, 91 of the 117 remote northern airports we examined had satellite-based instrument procedures. However, at 49 of these 91 airports, visual aids (approach lighting and precision approach path indicators) were not available or were low-intensity, which could limit the full potential and benefits of existing satellite-based instrument procedures.

6.33 Representatives from one air carrier informed us that the carrier cancelled nine percent of its flights over a two-year period due to weather conditions. While weather conditions could still permit the safe operation of an aircraft while in the air, the air carrier noted that pilots could not land due to the limited navigation systems and visual approach lighting at certain airports.

6.34 Stakeholders also told us about the limitations of gravel runways. These runways reduce the efficiency of air transportation, as they limit the types of aircraft that can land without special modifications (gravel kits). We found that of the 117 remote northern airports, 94 had gravel runways; 16 had runways with other non-paved surfaces, such as crushed rock; while the remaining 7 had paved runways. Stakeholders told us that newer aircraft do not come equipped with gravel kits, which can be costly for air carriers to install. Furthermore, gravel runways require aircraft to carry 15 percent less weight (cargo and passengers) than paved runways, and aircraft components need to be repaired or replaced more often due to damage from gravel.

6.35 Some stakeholders told us that paved runways could address some of the issues associated with gravel runways. However, stakeholders also noted that paved runways would be costly for remote northern airports to install, operate, and maintain. Paved runways also require equipment and skills that may not be available in these communities.

6.36 Several stakeholders noted runway length as an issue, remarking that short runways at certain airports limit the types of aircraft and the takeoff weight of aircraft that service the community. For example, an air carrier noted that the short runway at the airport in Pangnirtung, Nunavut, limits the type and size of plane that can land there. This air carrier informed us that it would be modernizing its fleet, and its newer, more powerful and efficient aircraft would not be able to land in Pangnirtung because the aircraft requires a longer runway.

6.37 Stakeholders also raised concerns about

- the need for new or replacement mobile equipment, such as snow blowers, to keep airports open during adverse weather conditions; and
- the effects of climate change on airport infrastructure, particularly runways. We noted that Transport Canada's Northern Transportation Adaptation Initiative had funded research projects on the potential effects of climate change on northern airports.

6.38 Stakeholders further stated that obtaining reliable local information in the north, such as information on weather and runway conditions, was challenging. Pilots need reliable and complete information, or they may have to delay or cancel flights. We examined Transport Canada's publicly available data on aviation events at Canadian airports from the Civil Aviation Daily Occurrence Reporting System. We found that in 2015, 42 territorial airports were unable to report on current local conditions during parts of the day for an average of 25 days. This included 1 airport in Nunavut that was unable to report on local conditions during all or part of 96 different days over the year. As a result, unless other sources of information were available, such as automated weather information systems, pilots lacked key information on local conditions. This lack of information could have affected scheduled flights and medical

emergency evacuation services in the communities. In addition, an air carrier that provided medical emergency evacuations to two of the territories stated that in one territory, it delayed or cancelled approximately 360 of 1,250 (29 percent) medical emergency evacuations annually due to the lack of reliable weather reporting.

Transport Canada did not take the lead in addressing the infrastructure needs of remote northern airports

What we found

6.39 We found that while Transport Canada knew about the infrastructure needs of remote northern airports, it did not lead coordinated efforts to address the unique challenges these airports faced. In 2016, the Department released Transportation 2030—A Strategic Plan for the Future of Transportation in Canada, which sets out the federal government's intention to invest in the north. Transportation 2030 gives the Department an opportunity to take the lead in developing a different approach to addressing these infrastructure needs. Furthermore, we found that the Department's program to fund the safety infrastructure needs of small airports—the Airports Capital Assistance Program—provided some funding. However, based on the infrastructure needs identified by eligible airports for the next three years, such as the rehabilitation of runways and lighting systems, this program's funding will not be sufficient.

6.40 Our analysis supporting this finding presents what we examined and discusses the following topics:

- Transport Canada's leadership role
- Airports Capital Assistance Program

Why this finding matters

6.41 This finding matters because without changing the way remote northern airport infrastructure is supported—through leadership and funding—this infrastructure will continue to age and degrade, and airport accessibility and efficiency may be threatened.

Recommendations

6.42 Our recommendations in these areas of examination appear at paragraphs 6.51 and 6.60.

Analysis to support the finding

6.43 **What we examined.** We examined how Transport Canada responded to previously released studies and assessments on the state of northern airport infrastructure. We also examined the funding available for remote northern airports—in particular, the Department's Airports Capital Assistance Program.

6.44 **Transport Canada's leadership role.** While Transport Canada was aware of remote northern airports' infrastructure needs, we found that it did not lead efforts to address these needs. The following are examples:

- Transport Canada's 2011 study, Northern Transportation Systems Assessment, noted an anticipated need of approximately $312 million to support priority infrastructure projects at 10 northern airports. This estimate included about $71 million for 4 remote northern airports and at least $200 million for the Iqaluit airport. Transport Canada publicly stated that it would use the study to inform the Government of Canada's approach to northern transportation. However, the Department did not follow up or use the report to collaborate with territorial and industry partners in developing a plan to address the infrastructure needs of the remote northern airports covered in the study.
- In the 2013–14 fiscal year, Transport Canada participated in a multi-jurisdictional, inter-ministerial task force that collaborated on access and connectivity issues affecting rural, northern, and remote regions. The task force's 2014 report, Integrating Rural, Northern and Remote Regions with Core Transportation Networks, outlined deficiencies and challenges, most notably the lack of funding sources to address infrastructure needs. The report stated that federal, provincial, and territorial officials needed to determine how to use the report to link these regions to core national transportation networks. We found that Transport Canada did not follow up, and according to the Department, it played an observer role.
- We found that, in 2013, NAV CANADA proposed a co-funding arrangement with Transport Canada to install 40 automated weather observation systems in the territories, as it was too costly to fund the installations itself. Transport Canada responded that it would follow up on the proposal. When funding did not come through, NAV CANADA funded limited weather information systems at northern airports. Limited weather information systems provide access to temperature, dew point, wind, and altimeter information 24 hours a day, seven days a week. However, these systems do not provide a full aviation weather report (which includes other factors, such as precipitation and visibility). According to NAV CANADA, it made progress, but it recognized that more could be done to improve the availability of weather information in the north.

6.45 Despite having a leadership role, Transport Canada officials told us that the Department was not responsible for assessing and addressing airport infrastructure needs. Officials told us that individual airport owners and operators were responsible for assessing and addressing these needs.

6.46 In November 2016, the Minister of Transport announced Transportation 2030—A Strategic Plan for the Future of Transportation in Canada: Waterways, Coasts and the North. Transportation 2030 responded to the findings from the *Canada Transportation Act* Review and the Minister's consultations with a range of northern stakeholders undertaken earlier in 2016.

6.47 Transportation 2030 set out the federal government's intention to invest in infrastructure in the north, which the Minister described as limited and, in some cases, antiquated. Transportation 2030 noted that Transport Canada would work with territorial governments, Indigenous people, and communities in the north to address their basic transportation infrastructure needs. However, Transport Canada had not yet announced concrete information, such as the role that it would play, timeframes, specific actions to be taken, and the role and involvement of other federal departments. Transportation 2030 also did not provide any details specifically on airport infrastructure. According to Transport Canada, it was working on details at the time of the audit.

6.48 We also noted that the report on the *Canada Transportation Act* Review stated that "an entirely new approach is needed to ensure the safety and development of northern and remote aviation." We concur.

6.49 In our opinion, agreeing on infrastructure needs is critical to developing a new approach to northern and remote aviation. This approach would include determining

- which airports and what types of infrastructure (for example, lighting) should be a priority;
- what are the costs and benefits of investing in infrastructure;
- how these projects will be funded and by whom; and
- how to use available information, such as data on flight cancellations, delays, and missed approaches, to understand how infrastructure investment could affect the accessibility and efficiency of airports serving remote northern communities.

6.50 A long-term strategy is needed to guide actions and track progress. This strategy should outline actions to be taken, timelines, expected results, and performance measures. Given the number of stakeholders involved in remote northern airport infrastructure issues, identifying the stakeholders, including Transport Canada, and their roles would be important. In developing the strategy, consideration needs to be given to stakeholders' strategic plans, such as those of northern airport owners, operators, air carriers, and NAV CANADA. In our opinion, given its recent commitment to help address basic infrastructure needs in the north, Transport Canada is best positioned to lead the development of such a strategy.

6.51 **Recommendation.** Transport Canada, in collaboration with stakeholders, should lead the development of a long-term strategy for northern airport infrastructure. The strategy should clearly outline the role that Transport Canada will play in addressing the infrastructure needs of remote northern airports.

The Department's response. *Agreed. To address northern community needs, Transport Canada will work with territorial governments and other federal government departments and stakeholders to identify shared priorities for northern transportation infrastructure, including, but not limited to, northern airports.*

6.52 **Airports Capital Assistance Program.** Transport Canada established the national Airports Capital Assistance Program in 1995, when the federal government began transferring ownership of smaller airports to local authorities, municipalities, and provincial and territorial governments. Recognizing that smaller airports could have limited financial resources to meet safety requirements, the program contributes capital funding to maintain the safety level of these airports. The program's annual budget has remained at $38 million for the past 17 years. For 2016, 200 small airports were eligible for program funding, including 105 of the remote northern airports we identified (Exhibit 6.3).

Exhibit 6.3 Airports must meet eligibility requirements for funding from the Airports Capital Assistance Program

Eligibility for funding from the Airports Capital Assistance Program is limited to airports that

- are not owned or operated by the federal government;
- have been certified by Transport Canada; and
- offer year-round, regularly scheduled passenger flights, requiring the airport to handle at least 1,000 passengers a year for three consecutive years.

The number of airports eligible for program funding may fluctuate from year to year for reasons such as passenger volumes. During the years 2014 to 2016, the number of eligible airports increased from 194 to 200.

Transport Canada may consider a registered airport for funding if the airport is reasonably close to certification and the proposed project will bring it up to certification. Transport Canada assesses eligibility for program funding on a case-by-case basis.

Source: Transport Canada

6.53 We found that since 1995, Transport Canada approved 67 remote northern airports for funding representing about 19 percent ($140 million) of all program funding ($737 million). Furthermore, over the 2014–15 to 2016–17 fiscal years, Transport Canada approved 10 remote northern airports for funding representing about 12 percent ($15 million) of the $128 million approved.

6.54 According to the airport operators we interviewed, some of the barriers to applying for funding were

- the costs of submitting a proposal,
- the capacity and availability of staff and contractors to prepare and submit a proposal,
- the belief that Transport Canada would not approve funding for selected projects in a particular year due to a lack of available funds to meet all needs, and
- the restrictive eligibility criteria.

6.55 In 2016, Transport Canada asked all 200 airports eligible for program funding to identify their safety-related projects over the next three years. Of these airports, 67 percent responded and identified projects totalling $792 million. Of the 105 eligible remote northern airports, 41 responded with an estimated total of $101 million for safety-related projects, including the rehabilitation of runways and lighting systems. Given that this is a national program, we found that the available funding would not be sufficient to meet the needs identified by remote northern airports, as the demand significantly exceeds the program's annual funding of $38 million.

6.56 The program funds safety-related projects that allow airports to remain open. However, unless the airport operator can justify the project based on safety concerns, projects that would improve an airport's accessibility and efficiency, such as extending runways, are not eligible.

6.57 We further found that the program did not recognize the important role that airports play in remote northern communities. For instance, registered airports were not eligible for program funding unless the proposed project was to bring the airport from registered to certified status. In addition, for 2016, 3 certified remote northern airports were not eligible for program funding due to low passenger volumes. However, these airports are the only means of reliable, year-round transportation for their remote northern communities. Furthermore, both certified and registered airports, regardless of passenger volumes, support the delivery of essential services to their communities, such as community resupply of fresh food and medicine, medical emergency evacuations, and charter operations that support local economic activity.

6.58 We found that while other sources of funding for infrastructure projects were available, they did not offer reliable, consistent funding for remote northern airports:

- Infrastructure Canada provided federal funding for infrastructure projects through the 2007 Building Canada Fund. Eligible projects included improvements to the efficiency and accessibility of regional and local airports and improvements to maintain high levels of safety and security. Between 2009 and 2011, Infrastructure Canada allocated approximately $82 million for 15 remote northern airports

for projects involving lighting, runways, airport equipment shelters, and air terminal buildings. During 2009, Infrastructure Canada, through Canada's Economic Action Plan, also provided approximately $2 million to replace terminal buildings at three remote northern airports.

- Provinces and territories also contributed to airport infrastructure projects. For example, the Government of Ontario worked with NAV CANADA to fund and install automated weather observation systems at several of the province's northern airports. The Government of Northwest Territories worked with NAV CANADA to install weather information systems. The governments of Manitoba, Newfoundland and Labrador, Ontario, Saskatchewan, and Nunavut also provided funding to some of their remote northern airports for infrastructure needs.

6.59 Despite these various funding sources, there continued to be unique needs and challenges to be addressed at remote northern airports. As it proceeds with Transportation 2030, Transport Canada needs to take the lead in collaborating with the various stakeholders to develop a different funding approach for these airports in the north.

6.60 **Recommendation.** Transport Canada should work with stakeholders to determine what sources of funding would meet the infrastructure needs of remote northern airports.

The Department's response. *Agreed. Transport Canada will continue to work with the territories and provinces to determine the priority investments that address the infrastructure needs of remote northern airports. Budget 2017 identified areas for infrastructure investments that could align with these priorities.*

Conclusion

6.61 We concluded that Transport Canada had the information it needed to assess the infrastructure challenges remote northern airports face. However, the Department did not take the lead by working with others to address these infrastructure challenges. The Department's role in addressing infrastructure needs centred on the Airports Capital Assistance Program, which provided funding for safety-related projects at remote northern airports. However, the funding available through the program will not be sufficient to meet remote northern airports' needs.

About the Audit

This independent assurance report was prepared by the Office of the Auditor General of Canada on civil aviation infrastructure in the north. Our responsibility was to provide objective information, advice, and assurance to assist Parliament in its scrutiny of the government's management of resources and programs, and to conclude on whether Transport Canada's support for civil aviation infrastructure needs in Canada's north complies in all significant respects with the applicable criteria.

All work in this audit was performed to a reasonable level of assurance in accordance with the Canadian Standard for Assurance Engagements (CSAE) 3001—Direct Engagements set out by the Chartered Professional Accountants of Canada (CPA Canada) in the CPA Canada Handbook—Assurance.

The Office applies Canadian Standard on Quality Control 1 and, accordingly, maintains a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

In conducting the audit work, we have complied with the independence and other ethical requirements of the Rules of Professional Conduct of Chartered Professional Accountants of Ontario and the Code of Values, Ethics and Professional Conduct of the Office of the Auditor General of Canada. Both the Rules of Professional Conduct and the Code are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behaviour.

In accordance with our regular audit process, we obtained the following from management:

- confirmation of management's responsibility for the subject under audit;
- acknowledgement of the suitability of the criteria used in the audit;
- confirmation that all known information that has been requested, or that could affect the findings or audit conclusion, has been provided; and
- confirmation that the findings in this report are factually based.

Audit objective

The objective of this audit was to determine whether Transport Canada assessed and addressed civil aviation infrastructure needs in Canada's north to ensure a safe and efficient civil aviation system.

Scope and approach

The audit examined Transport Canada's support for civil aviation infrastructure in the north, including its collaborative efforts with stakeholders to identify needs and determine the investment required to meet those needs. We used the issues and concerns raised in previous reports and other documentation as a starting point to determine how Transport Canada developed a comprehensive understanding of the north's unique needs. Our approach aligned with the Treasury Board of Canada Secretariat's Guide to Integrated Risk Management, which outlines principles to strengthen an organization's overall integrated risk management practices and to embed risk management as a critical element in all areas of work.

We interviewed Transport Canada officials and stakeholders and reviewed documents from a variety of sources. For the purposes of this audit, we defined remote northern communities as those communities in which the only reliable year-round mode of transportation was by air. This definition included many communities in the territories and northern parts of the provinces, as there are communities in the provinces that rely on air transportation and face similar operating and infrastructure challenges as those in the territories.

With regard to the Airports Capital Assistance Program, the audit also examined whether Transport Canada delivered the Program in accordance with selected requirements of the Treasury Board's Policy on Transfer Payments.

The audit did not examine military aviation, private-use aviation, or airports owned by the federal government.

Criteria

Criteria	Sources
To determine whether Transport Canada assessed and addressed civil aviation infrastructure needs in Canada's north to ensure a safe and efficient civil aviation system, we used the following criteria:	
Transport Canada collaborates with stakeholders to identify the infrastructure needs and related investment required for safe and efficient civil aviation in the north.	• *Canada Transportation Act* • 2015–16 Report on Plans and Priorities, Transport Canada • 2016–17 Report on Plans and Priorities, Transport Canada • Policy on Transfer Payments, Treasury Board • Framework for the Management of Risk, Treasury Board • Guide to Integrated Risk Management, Treasury Board of Canada Secretariat
Transport Canada delivers its Airports Capital Assistance Program in accordance with selected requirements of the Policy on Transfer Payments.	• Policy on Transfer Payments, Treasury Board

Period covered by the audit

The audit covered the period between 1 April 2013 and 30 November 2016. This is the period to which the audit conclusion applies. However, to gain a more complete understanding of the subject matter of the audit, we also examined certain matters that preceded the starting date of the audit.

Date of the report

We obtained sufficient and appropriate audit evidence on which to base our conclusion on 10 March 2017, in Ottawa, Ontario.

Audit team

Principal: James McKenzie
Director: Marianne Avarello

Françoise Bessette
Meaghan Burnham
Sophia Khan
John McGrath
Kathryn Nelson

List of Recommendations

The following table lists the recommendations and responses found in this report. The paragraph number preceding the recommendation indicates the location of the recommendation in the report, and the numbers in parentheses indicate the location of the related discussion.

Recommendation	Response
Support for the infrastructure needs of remote northern airports	
6.51 Transport Canada, in collaboration with stakeholders, should lead the development of a long-term strategy for northern airport infrastructure. The strategy should clearly outline the role that Transport Canada will play in addressing the infrastructure needs of remote northern airports. **(6.44–6.50)**	**The Department's response.** Agreed. To address northern community needs, Transport Canada will work with territorial governments and other federal government departments and stakeholders to identify shared priorities for northern transportation infrastructure, including, but not limited to, northern airports.
6.60 Transport Canada should work with stakeholders to determine what sources of funding would meet the infrastructure needs of remote northern airports. **(6.52–6.59)**	**The Department's response.** Agreed. Transport Canada will continue to work with the territories and provinces to determine the priority investments that address the infrastructure needs of remote northern airports. Budget 2017 identified areas for infrastructure investments that could align with these priorities.