POLICY PRIMER

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Arctic Airports and Aerodromes as Critical Infrastructure

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Critical Infrastructure in Canada's Arctic Territories

Key Considerations

Many Arctic communities were formed as coastal settlements and continue to rely heavily on air or naval transportation modes. Notably, the territory of Nunavut (NU) includes island communities where air infrastructure plays a critical role in community resupply in the absence of a highway system.

It is anticipated that the rapid advancement of climate change will result in permafrost melt, sea ice melt and changing weather patterns. The ground upon which runways, buildings and other infrastructure are constructed will shift and move as the permafrost melts. Capital planning studies have also identified shortfalls with runway lighting systems and power supply, critical for safety where visibility is challenging. Both the extended periods of darkness in the North and the increasing prevalence of severe wind and weather events heighten the need for modern lighting systems.

In addition to climate change considerations, the 2020 emergence of the novel COVID-19 virus has also drawn attention to the essential nature of airports in Nunavut for medical flights[1]. Private companies providing air services, have experienced pressures following the emergence of the virus. The pandemic circumstances of COVID-19 exposed, and brought to question, underlying systemic assumptions about the profitability of providing medically critical air travel services to remote locations.

Purpose

This policy primer describes the state of existing and planned Arctic aeronautical facilities. The overarching challenge of *remoteness* faced by many northern communities is discussed to understand the critical nature of air travel infrastructure in remote communities.

Background

The Arctic and Northern Policy Framework (ANPF) visioning statement identifies nurturing healthy families and communities and investing in transportation infrastructure as being needed by northern communities[2]. The stated purpose of the ANPF framework is to guide federal investments and activities through 2030. This policy framework is now at the stage where measures and recommendations surrounding implementation may be considered.

To this end, analysis is undertaken with the application of a measure of the remoteness of communities, developed by Statistics Canada[3]. The Index of Remoteness is determined by the distance that separates a community from all the population centres in a travel radius, as well as the population size of these centres. The proximity of a given community to centres of economic activity and population agglomerations are important determinants of local socioeconomic outcomes. The application of the remoteness index is relevant to the analysis of aeronautical infrastructure, including how these infrastructure assets enable policies and programs for their respective communities.

The index is applied here as a quantitative measure which may be used to discuss both the importance of existing infrastructure assets as well as the significance of future investments. The first version of methodologies, geospatial concepts and indicators was developed by Statistics Canada in collaboration with Indigenous Services Canada but has not yet undergone broad public consultations.[4]

Understanding the condition of airport infrastructure and the remoteness of the communities served is significant not only for community resupply, but for medical evacuation (medevac) functions as well as domestic and international search and rescue operations (SAR).

Summary of Existing Airports and Aerodromes

Runways that facilitate the take-off and landing of aircraft vary in their type and quality. Aside from their geographic location, two key considerations for the function of these infrastructure assets are their surface type and length. These qualities impact the type of planes able to use them. Shorter runways with a gravel, sand, clay or turf surface may only facilitate the movements of smaller planes.

There are currently 11 airports with paved runways operating in Canada's northern territories. Each of these airports is operated by their respective territorial governments and serves as an important hub for both passenger and cargo movements.

Exhibit 1 - Airports in Canada's Northern Territories with Paved Runways

Yukon Territory	Northwest Territory		Nunavut
Whitehorse, YT	Yellowknife, NT	Fort Smith, NT	Iqaluit, NU
Dawson City, YT	Hay River, NT	Fort Simpson, NT	Rankin Inlet, NU
Watson Lake, YT	Inuvik, NT	Norman Wells, NT	

Source: NAV Canada (2020) Canada Flight Supplement – Yukon, Northwest Territories, Nunavut Terminal and Endroute Data.

In addition to these paved runways Canada's northern territories also host 75 runways made of more permeable gravel surfaces. However, it should be noted that most aeroplanes are only designed and certified for operations on smooth paved hard-surfaced runways. Aircraft are thus limited to those that can be outfitted with protective systems which may include various shields, deflectors, filters, engine intake vortex dissipators and abrasion resistant finishes[5]. In practice, this creates a barrier for carriers who wish to incorporate newer, more efficient aircraft into their fleets.

Gravel runways and taxiways also present unique challenges for aviation in Northern Canada, as they can become significantly weaker following periods of heavy precipitation or spring thaw[6]. These pre-existing challenges will increase, as where the advancement of climate change results in more severe storms and irregular, less predictable seasonal weather. We may foresee significant climate change impacts to the system of airports, since the majority (87%) of the existing airports serving the Arctic territories will be affected.

Exhibit 2 - Summary of All Aeronautical Infrastructure in Canada's Northern Territories

Aeronautical Infrastructure Types	Yukon	Northwest Territories	Nunavut
Locations with Asphalt Paved Runway(s)	3	5	2
Locations with unpaved (Gravel, Sand, Clay, Dirt) Runway(s)	27	39	32
Locations with Ice Runway(s)	0	0	2
Locations with Seaplane Base(s)	8	26	3
Locations with Helipad(s)	0	5	0
Total Locations with Aeronautical Assets in Each Territory*	**32**	**56**	**36**

*N.B. Due to some sites hosting multiple asset types, the total number of sites may be less than the sum of each of the asset types listed above
Table Assembled by Author. Data Sources: NAV Canada (2020) Canada Flight Supplement – Yukon, Northwest Territories, Nunavut Terminal and Endroute Data. With private runway counts augmented by open source data posted by northern pilots.

Designated aircraft landing areas also include water aerodromes. Notably, in the Northwest Territories the number of locations with water aerodromes is nearly equal to land-based landing sites. Across all Arctic territories, some of the seaplane bases operate as stand-alone facilities, but most operate adjacent to nearby publicly operated aerodromes with gravel runways. An overview of these assets is provided in Exhibit 2 - Summary of All Aeronautical Infrastructure in Canada's Northern Territories. For more comprehensive descriptions of all assets in each territory, please see the appendices of this policy primer.

In addition to landing strips of various denominations, aeronautical infrastructure also includes area control centres (ACC), airport control towers, flight service stations (FSS), flight information centres (FIC) and Community Aerodrome Radio Stations (CARS). To varying degrees, these infrastructure assets facilitate support services such as air traffic control, flight information, weather briefings, aeronautical information services, airport advisory services and electronic aids to navigation.

Recognizing the increasing frequency of intense storms due to climate change, it is important to note that navigation system upgrades may facilitate safer landings in difficult weather. For many northern airports and aerodromes 24-hour weather reporting is not yet available. Runway lighting is absent at many smaller gravel-surface airports and NAV Canada lists many of these same runways as having clearing/surface maintenance concerns. As storms worsen and community pressures grow, investments in technologies to ensure the safe operation of existing air transportation patterns are is prudent.

Runway Maintenance Operations Cycles[7]

The typical cycle for major maintenance of Arctic gravel runways is 15 years. Transport Canada Advisory Circular AC300-004 has provided a description of the typical defects encountered on gravel surfaces as the loss of material, segregation, rutting, poor surface drainage, poor sub-surface drainage and frost action.

During years 1-7 and 9-15 of a gravel runway's life, Operations and Maintenance (O&M) work is carried out filling holes and grading the surface with small quantities of gravel from the airport's stockpile. This annual maintenance typically includes filling holes and minor damage repair to maintain the aircraft manoeuvring surfaces. This annual maintenance is carried out under an Operations and Maintenance (O&M) Budget rather than the Capital Budget. A mid-life gravel overlay of 75 to 100 mm is applied to reshape and compacted the surface. This minor overlay is typically funded by a Capital Budget in year 8 of the runway's life. By year 15, the stockpile is usually exhausted, and the cycle begins again.

The life cycle of Arctic asphalt airport runway pavement ranges typically from 10 to 15 years between overlays, depending on many different conditions and use factors. The asphalt-paved runways, aprons and taxiways at Iqaluit and Rankin Inlet Airports are maintained on an annual basis with Operations & Maintenance (O&M) funds. The O&M work typically includes crack sealing, removal of any weed growth and maintaining lateral support by shoulder maintenance. Crack sealing significantly extends the life of asphalt paving if carried out on an annual basis.

Field Electrical Centres and Lighting Replacement Cycles

The major replacement and rehabilitation schedules are based on an assumed Field Electrical Centre (FEC) life cycle of 25 years. There has been an ongoing program in the past to replace original Field Electrical Centres as they have aged. By 2020 the original FECs installed when the airports were first constructed by Transport Canada are scheduled to have been replaced.

The major replacement and rehabilitation schedules for aerodrome lighting are also based on an assumed life cycle of 25 years. The airfield lighting system is an important component of the visual aids to navigation. Key components of the system include approach lighting, precision approach path indicators, runway edge lights, runway threshold lights, runway end lights, taxi and apron edge lights and apron flood lighting.

Northern Travel and Remoteness

When considering critical infrastructure needs and future investments to serve northern communities, the concept of *remoteness* is useful to situate the significance of both air and marine travel. Rail or road transportation requires continuous linear facilities between origins and destinations. Conversely, marine and air travel link origins and destinations using relatively little infrastructure between these two points.

Statistics Canada has developed a 'Remoteness Index' presented here using a scale from 0 to 100. Major population centres (such as Toronto, ON) have a "0" remoteness score. On the opposite end of the scale unpopulated areas that are difficult to travel to (such as Grise Fiord, NU) are described by a maximum value of 100. The higher the remoteness index rating, the more difficult it is for a community to be reached because of both its geographic distance from other populations and the absence of road or rail infrastructure connecting it to other places. The underlying methodological approach to the index ranking is based on the principle of a gravity model, in which both the proximity to and the size of the population (or service) agglomerations are accounted for[8].

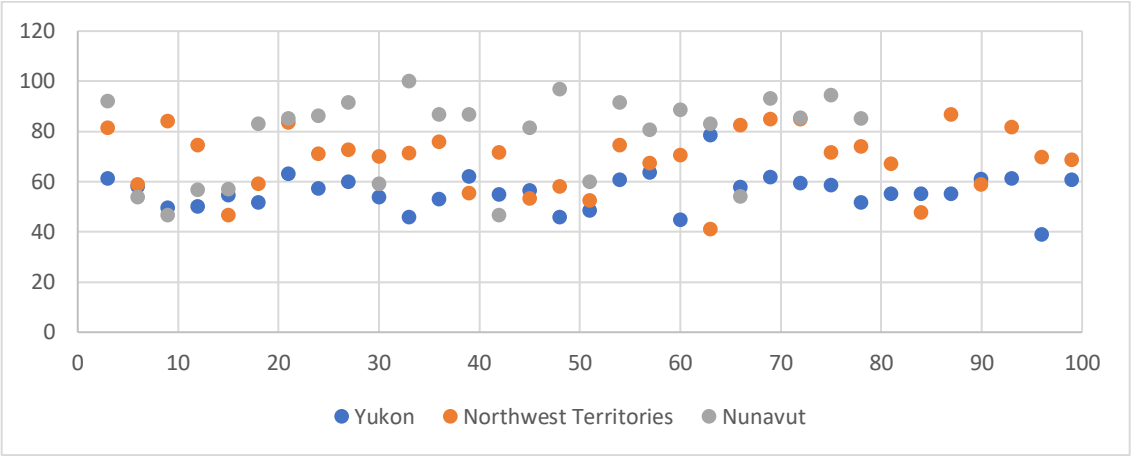
Exhibit 3 - Location and Remoteness of Airports with Paved Runways

Asphalt Runway	Local Population	Latitude	Longitude	Index of Remoteness
Whitehorse, YT	25,085	60.709	-135.067	38.9
Dawson City, YT	1,375	64.043	-139.128	63.1
Watson Lake, YT	790	60.116	-128.822	61.3
Yellowknife, NT	19,569	62.463	-114.440	39.9
Hay River, NT	3,528	68.304	-115.782	53.3
Inuvik, NT	3,243	68.304	-133.483	52.3
Fort Smith, NT	2,542	60.202	-111.961	55.3
Fort Simpson, NT	1,202	61.760	-121.236	75.9
Norman Wells, NT	778	65.282	-126.797	84.7
Iqaluit, NU	7,740	63.756	-68.555	46.7
Rankin Inlet, NU	2,842	62.811	-92.115	54.1

Data Source: Statistics Canada

Looking at the remoteness of all communities within the Arctic territories reveals broad trends reflective of settlement and the availability of transportation infrastructure. Nunavut includes several island-coastal settlements, making the development of a territorially-connected road network particularly challenging.

Exhibit 4 - Remoteness of Communities in all Arctic Territories (2020)



Data Source: Statistics Canada Index of Remoteness. Scatterplot rendered by author.

Nunavut hosts many remote and air-dependent communities. Accordingly, information that follows in this policy primer highlights considerations of critical importance for this territory. While many communities in Yukon and the Northwest Territories are also remote, their road networks are more developed to provide an alternative to air travel.

Governance of Airports and Aerodromes

In 1992, Transport Canada began to transfer and devolve the operations of major Canadian airports. By March 2003, 22 major provincial airports had been transferred to self-governing airport authorities. In the northern territories, 3 airports (Iqaluit, Yellowknife and Whitehorse) were transferred to their respective territorial governments[9]. The devolution of these National Airport System (NAS) facilities was set up as a 60-year lease[10].

The commercialization of most of Canada's major airports[11] has taken place alongside the privatization of many critical infrastructure assets that are necessary for their operation. The majority of Canada's civil air navigation service (ANS) infrastructure is now owned privately by NAV Canada. In the southern provinces, NAV Canada's function is monopolistic, maintaining a network of more than 1,000 ground-based navigation aids across Canada[12].

Looking beyond the territorial capitals noted above, it may be noted that many smaller airports are critically important to the supply chains for their communities. It may be noted also that most of these aerodromes are public, operated by their respective territorial governments. This operator's role may be attributed both to the financial pressures posed by maintaining aeronautical assets in remote northern communities and their significance to those communities.

Aeronautic System Hubs

Much of Canada's air travel infrastructure was established according to linear transportation planning models, with direct routes and point-to-point system designs. However, following the marketization of Canada's

airports in the 1990s the provision of air travel now operates according to "hub-and-spoke" type systems. These market-based operational design practices hold true both for airports located in both the provinces and Canada's northern territories.

Understanding the hub function of paved airstrips is significant both for passenger and cargo transportation. Airports with paved runways may receive cargo which is then distributed using smaller planes or boats to territorial communities in their region. A review of flight availability (charter and scheduled) highlights the paved airports that are the most significant hubs from a community supply perspective. Exhibit 5 summarizes the network function of paved runways in Canada's northern territories.

Exhibit 5 - Communities Served by Paved Runways (2020)

Asphalt Runway	Provincial and International Flights	Territorial Flights
Whitehorse, YT	Calgary, Edmonton, Juneau, Kelowna, Ottawa, Vancouver, Victoria, (International, Seasonal; Frankfurt)	Dawson City, Inuvik, Mayo, Watson Lake
Dawson City, YT	n/a	Inuvik, Mayo, Old Crow, Whitehorse
Watson Lake, YT	n/a	Whitehorse
Fort Simpson, NT	n/a	Yellowknife
Fort Smith, NT	Edmonton, Fort Chipewyan, High Level	Hay River, Yellowknife
Hay River, NT	Edmonton, High Level	Fort Smith, Hay River, Yellowknife
Inuvik, NT	Edmonton	Aklavik, Dawson City, Fort Good Hope, Fort McPherson, Norman Wells, Old Crow, Paulatuk, Sachs Harbour, Ulukhaktok, Whitehorse, Yellowknife
Norman Wells, NT	n/a	Yellowknife
Yellowknife, NT	Calgary, Edmonton, Ottawa, Vancouver	Cambridge Bay, Délįnę, Fort Simpson, Fort Smith, Gamètì, Gjoa Haven, Hay River, Inuvik, Iqaluit, Kugaaruk, Kugluktuk, Łutselk'e, Mary River, Norman Wells, Rankin Inlet, Taloyoak, Tulita, Ulukhaktok, Wekweètì, Whatì
Iqaluit, NU	Edmonton, Montreal–Trudeau, Ottawa	Arctic Bay, Cape Dorset, Clyde River, Hall Beach, Igloolik, Kimmirut, Kuujjuaq, Pangnirtung, Pond Inlet, Qikiqtarjuaq, Rankin Inlet, Resolute Bay, Yellowknife
Rankin Inlet, NU	Edmonton, Winnipeg	Arviat, Baker Lake, Chesterfield Inlet, Churchill, Coral Harbour, Iqaluit, Repulse Bay, Whale Cove, Yellowknife

Table Assembled by Author. Data Sources: NAV Canada, Flight Operator websites and Google flight search tool

As established earlier in this policy primer, Yukon has the most well-developed road network of the three territories. The flight patterns to Whitehorse Airport reflect this connectivity, with many inbound flights from across Canada. Conversely, many territorial communities in Nunavut are not connected by a road or rail network. Accordingly, the flight traffic originating from Iqaluit and Inuvik airports includes many smaller craft, flying to gravel runways within the territory. In the Northwest Territories, Yellowknife similarly acts as a hub serving both scheduled and chartered flights to many territorial destinations.

Provision of Essential Services

Medical Travel and Medical Evacuation

Beyond travel and community resupply, air transportation infrastructure plays an important role in supporting medically related travel. Even in the Yukon, where the road network is the most developed of the three territories, the Canadian Medical Association has identified a 175-km radius as the outer limit for the efficient provision of ambulance services to Whitehorse General Hospital[13]. In all three territories, trips for greater distances may be routinely necessary for a variety of medical needs, such as accessing a pediatrician, general surgeon, obstetrician-gynecologist, radiologist, cardiologist, orthopedic surgeon or CT-scan.

Health & Social Services departments work with patients and health care providers in the south to coordinate patient appointments and travel. For example, in Nunavut, services have been dedicated around the provision of scheduled flights three times a week to accommodate regular appointments[14]. This service frequency is optimal to accommodate patient appointments while avoiding delays and overnight stays.

The need to travel over long distances for regularly scheduled procedures should be distinguished from the use of air ambulances for medical evacuations. Medical evacuation, or 'medevac' for short, refers to the transportation of persons to medical facilities under emergency circumstances. There have been significant advances in the provision of air ambulance services since the 1990s. However, as recently as 2017 a survey of territorial doctors and nurses identified increases to staffing levels as desirable to enhance medevac operations[15].

In each of the Arctic territories, the provision of medevac services will typically be tendered for each region individually for a 3-5-year term. There have been competition and lawsuits between carriers vying for government air ambulance services contracts. Since 2018 the Yukon services are provided by local airline Alkan Air. On a full-time basis, Alkan Air operates 3 aircraft for the exclusive use of medevac flights[16]. The services cost the territory approximately $6.25 million annually[17].

In the Northwest Territories Air Tindi operates in partnership with Aklak Air. Air Tindi previously also held contracts for medevac services for regions within Nunavut but was displaced by Keewatin Air in 2017. Critics of Air Tindi claimed that too few aircraft in their fleet were reserved for dedicated medical use. The emergence of COVID-19 in March 2020 led to the layoff or repurposing of a third of its staff, refocusing resources to the medevac needs of the territory[18]. Between 2008-2014 approximately 1,000 medevac flights were required each year, costing the territory approximately $12 million each year[19].

In Nunavut, Keewatin Air now operates 'Nunavut Lifeline' medevac services in all 3 territorial regions[20]. Keewatin Air uses 8 planes for its medevac operations, based primarily out of Rankin Inlet and Iqaluit, travelling to Churchill and Ottawa. Persons not enrolled in the Nunavut Health Care Plan (including visitors to Nunavut) may be billed up to $40,000 depending on their location, the location of the nearest medevac plane and the location of the nearest centre where treatment is available[21]. With approximately 1,500 medevacs in the territory in 2013-2014 the number has now increased to 2,400 just 5 years later. This represents a growth rate of more than 8% annually. This growth in medevac trips is separate from 33,000 planned medical travel trips planned for the year[22]. Budgetary expenditures on all medical travel in Nunavut (planned and medevac) are approximately $92.3 million annually[23].

Search and Rescue (SAR)

The Arctic Search and Rescue Agreement was ratified by the members of the Arctic Council in 2013. This treaty coordinates international Search and Rescue (SAR) coverage and response while establishing the area of SAR responsibility of each state party. The treaty provides that "the delimitation of search and rescue regions is not related to and shall not prejudice the delimitation of any boundary between States or their sovereignty, sovereign rights or jurisdiction"[24]. The Government of Canada is the depositary for the treaty.

Canada must strategically and progressively build our ability to fulfill our international SAR obligations, as recognized by the Arctic Council. The Arctic is an important international stage, where SAR mission capabilities will be observed by other nations. Critics have noted opportunities for improvement in the provision of Canada's SAR coverage for regions within its jurisdiction. In 2010, nearly all of the country's search and rescue technicians were stationed in Canadian Forces bases in the southern provinces[25]. At this time, the military personnel primarily responsible for SAR operated out of the Canadian Forces Base in Trenton, Ontario, Comox in British Columbia and Greenwood in Nova Scotia.

By 2018 the responsibility for SAR was moved from the oversight of the Department of National Defence to Public Safety Canada and Emergency Preparedness Canada. Public Safety Canada describes Canada's new approach to SAR as a "Canada-wide horizontal program that integrates organization and resources"[26]. The National Search and Rescue Secretariat serves as a central coordinator for the National SAR Program. Coordination efforts include both federal, provincial and territorial governments as well several air, ground and marine volunteer SAR organizations involved in search and rescue activities.

These changes put a greater emphasis on local governments, coast guards and volunteer organizations. From a transportation planning standpoint, there is merit in developing the capabilities of northern SAR responders located in major northern centres. Where SAR operations may reasonably be staged from airports in the northern territories, responders will start their journey 2,000 km closer to their destinations.

However, as discussed in the 'Governance of Airports and Aerodromes' section of this policy primer, it must be noted that deregulation and devolution are well documented tendencies of neoliberal governance. With the very lives of northerners and Canada's reputation on the international stage at stake the "horizontal" promises of networked approaches to governance must be carefully planned and developed. There is a need for Public Safety Canada to carefully analyze and report upon the actual capabilities of the northern

organizations now being tasked with SAR responsibilities, previously under the chain-of-command within National Defence.

Taking a Critical Infrastructure perspective, if there is to be a greater emphasis on local SAR responses, which airports, aircraft and expertise will be used and to what extent? In the 'Aeronautic Systems Hubs' section of this policy primer, it was established that the design of airport operations was deregulated. The investment in airports by government now follows market signals. However, the provision of SAR expertise is not one that should be primarily market-driven. The neoliberal tendency to deregulate functions of government and wait for private sector actors and price signals to fill the void left behind presents credibility risks when applied to SAR operations.

From a geopolitical relations standpoint a mapping of the accountability chain between anticipated SAR activities and ministerial oversight should be undertaken. From an infrastructure planning and investment standpoint a careful review of existing northern facilities should be undertaken, to understand the actual potential they have to support SAR functions.

This policy primer highlights the need for Public Safety Canada to consolidate data elucidating the number of SAR operations which implicated air travel, in order to better understand upcoming pressures upon northern infrastructure assets. The extent to which SAR operations were undertaken near either specific communities or naval passages should be used strategically to plan for future needs. Such analysis would help inform the extent to which the burdens of SAR service delivery may increase according to known measures, such as residential population sizes or maritime channel travel movements.

It is anticipated that both marine and air traffic will increase in the Arctic as the thaw of polar ice advances. The availability and coordination of trained search and rescue technicians in the North will pose a growing challenge as northern communities and economies grow. The growing prevalence of extreme weather events as climate change advances is likely to result in an increasing number of SAR operations undertaken annually.

Infrastructure Improvement Projects

A number of joint federal-territorial projects are currently underway to improve airport infrastructure in Canada's Arctic territories. The federal government is contributing $7.4 million to the assessment of 61 aerodromes in the territories. The private for-profit company NAV Canada will identify sites where improvements to instrument procedures are possible with survey information or runway certification.

Recent Changes to Transport Canada Regulations

Transport Canada regulations regarding new take-off weight limitations for aircraft took effect in 2010. These new requirements including the requirement for runway end safety areas were the first of a number of recent regulatory changes, necessary for northern airports to comply with international aeronautical standards. In December 2014 Transport Canada regulations governing airport planning, design and operations in document TP 312 – Aerodrome Standards and Recommended Practices 5th Edition came into effect.

Ongoing Infrastructure Investments

In Iqaluit Nunavut, the federal government has allocated $12.8 million for the construction of an expanded airport cargo warehouse[27]. The replacement of 5 undersized and outdated airport terminal buildings within the territory is scheduled to begin in summer 2019 the federal government will contribute $22.5 million. A further $195,500 has been allotted to update and replace passenger boarding ramps at airport terminals in 7 Nunavut communities[28].

The main gateway airports of Rankin Inlet and Cambridge Bay have both seen an increase in traffic and passenger growth and so buildings are being expanded to accommodate the current and future passenger volumes. A sizeable expansion to the Rankin Inlet Airport Terminal Building is scheduled to begin in 2024 at an estimated cost of $60 million.

In the Northwest Territories, the Inuvik Airport Surface Structures Adaptation for Climate Change Resilience is being undertaken. Delivered through the Disaster Mitigation and Adaptation Fund, this project will increase the territory's capacity to adapt to climate change impacts, natural disasters, and extreme weather events. The $22 million project will receive a $16.5 million federal commitment and is scheduled to begin in autumn 2020.

In 2016 the Provincial-Territorial Infrastructure Component of the Small Communities Fund was used to finance the Dawson Airport Runway Resurfacing. The federal government contributed $201,150 of the $268,200 required. This investment provides an interesting snapshot regarding the potential impact which runway paving potentially represents for similar northern communities.

Concluding Remarks

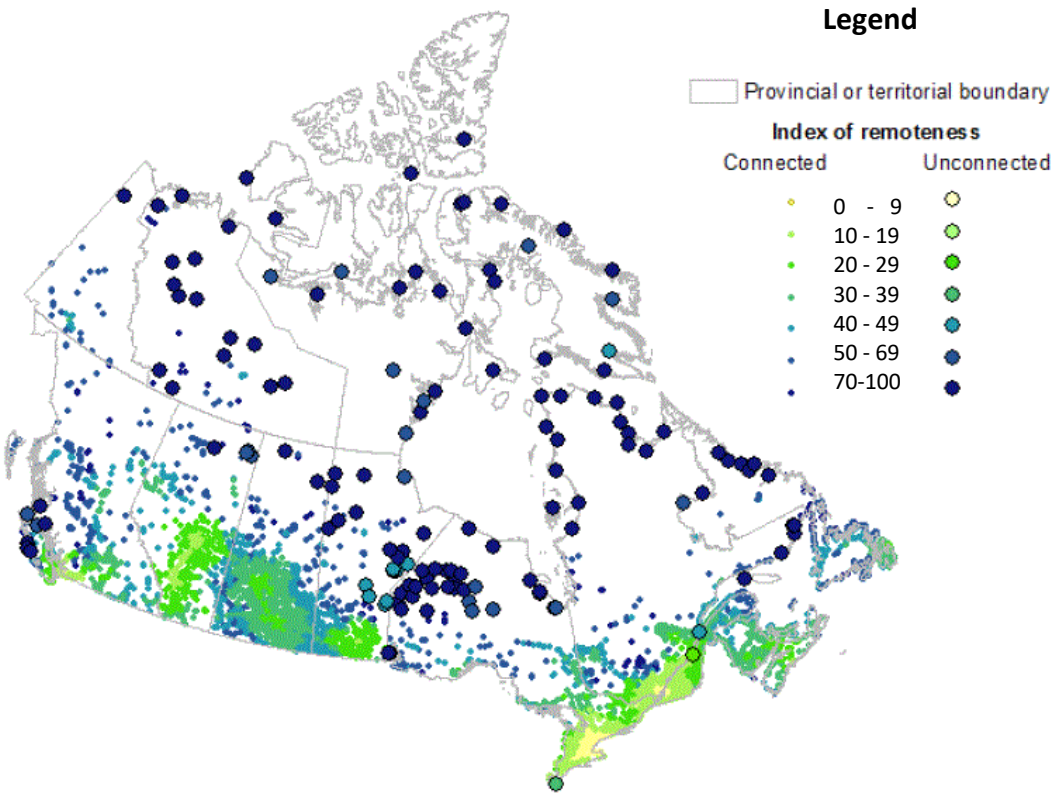
The Canadian North is warming at about 3 times the global average rate and technology continues to make the Arctic more accessible[29]. Canada's Arctic and Northern Policy Framework recognizes "the region has become an important crossroad where issues of climate change, international trade and global security meet. Increased interest in the north also brings increased safety and security challenges that include search and rescue and human-created disasters"[30].

The remote and disconnected nature of northern communities predicates itself to air and marine travel. Recognizing the pressures of climate change includes acknowledging air travel vulnerabilities such as high wind speeds and the effects of extreme temperatures on air travel. Investments in weather monitoring capabilities will be essential as climate change advances.

"In the North — where many communities are far from roads — entire families sometimes travel between communities by snowmobile"[31]. As the prevalence of extreme or unpredictable weather conditions increase, there is a growing urgency for the thoughtful planning of medical, medevac and search and rescue operations in the North. Beyond anecdotal accounts of air-travel needs and operations, new tools are emerging to enhance our ability to proactively plan critical infrastructure.

The remoteness index developed by Statistics Canada has been applied to all airports and aerodromes in Canada's northern territories, in order to better understand the significance of these infrastructure assets.

Exhibit 6 - Index of Remoteness Map (2020)



Map Source: Statistics Canada*
N.B. Each dot is a representative point of a CSD *This policy primer applies the index values as whole numbers.

This policy primer has highlighted existing northern assets, their governance and investments being made to maintain or upgrade their capabilities. As population growth and the advancement of climate change heighten pressures upon existing infrastructure assets, the remoteness of northern communities may help us to understand their reliance upon aeronautical infrastructure. Beyond standard measures of cargo transport for community resupply, thoughtful analyses of medical travel and SAR operations represent important considerations for the planning of aeronautical infrastructure.

The adoption of a horizontal approach to governance, relying heavily upon local jurisdictions for SAR operations, presents risks not only to residents, but Canada's international credibility. For Public Safety Canada to meaningfully oversee SAR operations, a clear reporting and accountability framework is needed. The establishment of such an accountability framework and careful forecasts to anticipate regional SAR needs will help to ensure Canada meets its Arctic Search and Rescue Agreement obligations, as ratified by the Arctic Council.

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Appendix 1 – Civilian Aeronautical Infrastructure, Nunavut CA (2020)

Census Municipal Subdivisions	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Asset	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
Arctic Bay (Hamlet)	868	91.0	Arctic Bay	Arctic Bay Airport	1,199	Gravel	Private - Gov't of Nunavut	yes	73.006	-85.043
Arviat (Hamlet)	2,657	53.0	Arviat	Arviat Airport	1,219	Gravel	Public - Gov't of Nunavut	yes	61.094	-94.071
				Arviat Water Aerodrome	seaplane base	Water	Private - Joe Savikataaq	no	61.147	-94.116
Baffin, Unorganized (Unorganized)	62	45.7	Alert	Alert Airport	1,676	Gravel	Military - DND	no	82.518	-62.281
			Arctic Watch Lodge	Arctic Watch Lodge Aerodrome	1,082	Gravel	Private - Canadian Arctic Holidays Ltd.	no		
			Eureka	Eureka Airport	1,464	Gravel	Environment Canada	no	79.995	-85.814
				George Lake Aerodrome	1,597	Ice	Private - Sabina Gold and Silver Corp.	no	65.928	-102.462
			Hope Bay	Hope Bay Aerodrome	1,525	Gravel	Private - TMAC Resources Inc.	no	68.156	-106.618
				Mary River Aerodrome	1,983	Gravel	Private - Baffinland Iron Ore Mines	no	71.324	-79.357
			Tanquary Fiord	Tanquary Fiord Airport	1,128	Gravel	Private - Parks Canada	no	81.409	-76.882
Baker Lake	2,069	55.6	Baker Lake	Baker Lake Airport	1,279	Gravel	Public - Gov't of Nunavut	yes	64.299	-96.078

Census Municipal Subdivisions	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Asset	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
(Hamlet)				Baker Lake Seaplane Base	seaplane base	Water	Private - Avn Fuel Enterprises	no	64.317	-96.017
Bathurst Inlet (Settlement)	0			NONE	NONE					
Cambridge Bay (Hamlet)	1,766	55.9	Cambridge Bay	Cambridge Bay Airport	1,547	Gravel	Public - Gov't of Nunavut	yes	69.108	-105.138
			Cambridge Bay	Cambridge Bay Seaplane Base	seaplane base	Water	Public - Hamlet of Cambridge Bay	no	69.122	-105.021
Cape Dorset (Hamlet)	1,441	81.9	Cape Dorset	Cape Dorset Airport	1,216	Gravel	Public - Gov't of Nunavut	yes	64.230	-76.527
Chesterfield Inlet (Hamlet)	437	84.2	Chesterfield Inlet	Chesterfield Inlet Airport	1,097	Gravel	Public - Gov't of Nunavut	yes	63.347	-90.731
Clyde River (Hamlet)	1,053	85.1	Clyde River	Clyde River Airport	1,067	Gravel	Public - Gov't of Nunavut	yes	70.486	-68.517
Coral Harbour (Hamlet)	891	90.4	Coral Harbour	Coral Harbour Airport	1,526	Gravel	Public - Gov't of Nunavut	yes	64.193	-83.359
Gjoa Haven (Hamlet)	1,324	58.0	Gjoa Haven	Gjoa Haven Airport	1,341	Gravel	Public - Gov't of Nunavut	yes	68.636	-95.850
Grise Fiord (Hamlet)	129	99.0	Grise Fiord	Grise Fiord Airport	511	Gravel	Public - Gov't of Nunavut	yes	76.426	-82.909
Hall Beach (Hamlet)	848	85.8	Hall Beach	Hall Beach Airport	1,649	Gravel	Public - Gov't of Nunavut	yes	68.776	-81.243

Census Municipal Subdivisions	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Asset	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
Igloolik (Hamlet)	1,682	85.8	Igloolik	Igloolik Airport	1,248	Gravel	Public - Gov't of Nunavut	yes	69.365	-81.816
Iqaluit (City)	7,740	45.7	Iqaluit	Iqaluit Airport	2,623	Asphalt	Public - Gov't of Nunavut	yes	63.756	-68.556
Keewatin, Unorganized (Unorganized)	n/a		Agnico-Eagle Meadowbank Gold Mine	Meadowbank Airport	1,633	Gravel	Private - Agnico-Eagle (Division Meadowbank)	no	65.025	-96.069
			Sandspit Lake	Hayes Camp Aerodrome	1,632	Ice	Private - North Country Gold	no	66.656	-91.545
Kimmirut (Hamlet)	389	80.3	Kimmirut	Kimmirut Airport	578	Gravel	Public - Gov't of Nunavut	yes	62.850	-69.883
Kitikmeot, Unorganized (Unorganized)			Ennadai	Ennadai Lake Airport	914	Gravel		no	61.133	-100.900
			Goose Lake	Goose Lake Aerodrome	1,524	Gravel	Private - Sabina Gold and Silver Co.	no	65.553	-106.434
Kugaaruk (Hamlet)	933	95.8	Kugaaruk	Kugaaruk Airport	1,524	Gravel	Public - Gov't of Nunavut	yes	68.534	-89.808
Kugluktuk (Hamlet)	1,491	58.8	Kugluktuk	Kugluktuk Airport	1,677	Gravel	Public - Gov't of Nunavut	yes	67.817	-115.144
Nanisivik (Settlement)	0			NONE	NONE					
Naujaat (Hamlet)	1,082	90.4	Repulse Bay	Naujaat Airport	1,036	Gravel	Public - Gov't of Nunavut	yes	66.521	-86.225
Pangnirtung (Hamlet)	1,481	79.7	Pangnirtung	Pangnirtung Airport	890	Gravel	Public - Gov't of Nunavut	yes	66.145	-65.714
Pond Inlet (Hamlet)	1,617	87.5	Pond Inlet	Pond Inlet Airport	1,221	Gravel	Public - Gov't of Nunavut	yes	72.683	-77.967

Census Municipal Subdivisions	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Asset	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
Qikiqtarjuaq (Hamlet)	598	81.9	Qikiqtarjuaq	Qikiqtarjuaq Airport	1,159	Gravel	Public - Gov't of Nunavut	yes	67.546	-64.031
Rankin Inlet (Hamlet)	2,842	53.1	Rankin Inlet	Rankin Inlet Airport	1,829	Asphalt	Public - Gov't of Nunavut	yes	62.811	-92.116
Resolute (Hamlet)	198	92.1	Resolute Bay	Resolute Bay Airport	1,982	Gravel	Public - Gov't of Nunavut	yes	74.717	-94.969
Sanikiluaq (Hamlet)	882	84.4	Sanikiluaq	Sanikiluaq Airport	1,160	Gravel	Public - Gov't of Nunavut	yes	56.538	-79.247
Taloyoak (Hamlet)	1,029	93.4	Taloyoak	Taloyoak Airport	1,222	Gravel	Public - Gov't of Nunavut	yes	69.547	-93.577
Umingmaktok (Settlement)				NONE	NONE					
Whale Cove (Hamlet)	435	84.2	Whale Cove	Whale Cove Airport	1,200	Gravel	Public - Gov't of Nunavut	yes	62.240	-92.598

Table Complied by Author. Data Sources: Statistics Canada, 2016 Census. NAV Canada Flight Supplement.
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Appendix 2 – Civilian Aeronautical Infrastructure, Northwest Territoires CA (2020)

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Assets	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
Aklavik (Hamlet)	591	81.5	Aklavik	Aklavik/Freddie Carmichael Airport	915	Gravel	Public - Gov't of Northwest Territories	yes	68.223	-135.006
				Aklavik Seaplane Base		Water		no	68.223	-134.992
Behchokò	1,874	58.9	Behchokò	Frank Channel (Forestry) Heliport		Gravel	Dept of Environment & Natural Resources, Gov't of Northwest Territories	no	62.786	-115.946
			Rae Lakes	Edzo Airport	1,028	Gravel	Private - Tli Cho Construction	no	62.767	-116.084
				Gahcho Kué Diamond Mine	1,619	Gravel	Private - De Beers Canada	no	63.435	-109.145
Colville Lake (Settlement)	129	84.0	Colville Lake	Tommy Kochon Airport	1,199	Gravel	Public - Gov't of Northwest Territories	yes	67.020	-126.126

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Assets	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
Déline (Chartered community)	533	74.5	Déline	Déline Airport Déline Seaplane Base	1,199	Gravel	Public - Gov't of Northwest Territories	yes no	65.211 65.183	-123.436 -123.417
Detah (Settlement)	219	46.7		NONE						
Enterprise (Hamlet)	106	59.1		NONE						
Fort Good Hope (Chartered community)	516	83.6	Fort Good Hope	Fort Good Hope Airport	1,351	Gravel	Public - Gov't of Northwest Territories	yes	66.241	-128.651
Fort Liard (Hamlet)	500	71.1	Fort Liard	Fort Liard Airport	898	Gravel	Public - Gov't of Northwest Territories	no	60.236	-123.469
Fort McPherson (Hamlet)	700	72.6	Fort McPherson	Fort McPherson Airport	1,199	Gravel	Public - Gov't of Northwest Territories	yes	67.408	-134.861
Fort Providence (Hamlet)	695	70.0	Fort Providence	Fort Providence Airport	914	Gravel	Public - Fort Providence Department of Transportation	no	61.319	-117.606
Fort Resolution (Hamlet)	470	71.3	Fort Resolution	Fort Resolution Airport Fort Resolution Water Aerodrome	1,220 seaplane base	Gravel	Public - Gov't of Northwest Territories	no no	61.181 61.164	-113.690 -113.678

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Assets	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
Fort Simpson (Village)	1,202	75.9	Fort Simpson	Fort Simpson Airport	1,829	Asphalt	Public - Gov't of Northwest Territories	yes	61.760	-121.237
				Fort Simpson (Great Slave No. 1) Heliport		Concrete	Private - Great Slave Helicopters	no	61.838	-121.328
				Fort Simpson (Great Slave No. 2) Heliport		Concrete	Private - Great Slave Helicopters	no	61.837	-121.326
			Fort Simpson Island	Fort Simpson Island Airport	914	Gravel/Snow	Private - Airports North Ltd.	no	61.867	-121.366
				Fort Simpson Island Seaplane Base				no	61.869	-121.361
Fort Smith (Town)	2,542	55.3	Fort Smith	Fort Smith Airport	1,829	Asphalt	Public - Gov't of Northwest Territories	yes	60.020	-111.962
				Fort Smith Water Aerodrome				no	60.020	-111.890
				Fort Smith (District) Heliport		Concrete	Dept of Environment & Natural Resources, NWT	no	60.003	-111.909
				Kasba Lake Seaplane Base				no	60.283	-102.517

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Assets	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
Gamètì (Community government)	278	71.6	Gamètì	Rae Lakes Airport	914	Gravel	Public - Gov't of Northwest Territories	yes	64.116	-117.310
Hay River (Town)	3,528	53.3	Hay River	Hay River / Merlyn Carter Airport	1,829	Asphalt	Public - Gov't of Northwest Territories	yes	60.840	-115.783
				Hay River (District) Heliport		Unknown	Private - Gov't of NWT Department of Environment & Natural Resources	no	60.784	-115.826
				Hay River Seaplane Base				no	60.852	-115.730
Hay River Dene 1 (Indian Reserve)	309	58.0		NONE – may be served by adjacent Hay River airport						
Inuvik (Town)	3,243	52.3	Inuvik	Inuvik Mike Zubko Airport	1,829	Asphalt	Public - Gov't of Northwest Territories	yes	68.304	-133.483
				Inuvik / Shell Lake Seaplane Base				no	68.317	-133.617
Jean Marie River (Settlement)	77	74.5	Jean Marie River	Jean Marie River Airport	766	Gravel	Public - Gov't of Northwest Territories	no	61.517	-120.617

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Assets	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
			Kasba Lake	Kasba Lake Airport	1,876	Clay/Gravel	Private - Kasba Lake Lodge	no	60.292	-102.502
Kakisa (Settlement)	36	67.3		NONE						
Łutselk'e (Settlement)	303	70.4	Łutselk'e	Łutselk'e Airport	915	Gravel	Public - Gov't of Northwest Territories	yes	62.418	-110.682
			Déline	Åutselk'e/ Łutselk'e Seaplane Base				no	62.400	-110.750
Nahanni Butte (Settlement)	87	82.4	Nahanni Butte	Nahanni Butte Airport	778	Gravel/Dirt	Public - Gov't of Northwest Territories	no	61.030	-123.389
				Nahanni Butte Seaplane Base				no	61.033	-123.350
				Virginia Falls Seaplane Base				no	61.608	-125.756
Norman Wells (Town)	778	84.7	Norman Wells	Norman Wells Airport	1,828	Concrete/Asphalt	Public - Gov't of Northwest Territories	yes	65.282	-126.798
				Norman Wells Seaplane Base				no	65.257	-126.685
			Obre Lake	North of Sixty Airport	1,839	Clay/Gravel/Sand	Private - North of Sixty Fishing Camps	no	60.316	-103.129

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Assets	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
				Obre Lake/North of Sixty Seaplane Base	seaplane base	Water		no	60.320	-103.127
Paulatuk (Hamlet)	265	84.9	Paulatuk	Paulatuk (Nora Aliqatchialuk Ruben) Airport	1,220	Gravel	Public - Gov't of Northwest Territories	yes	69.361	-124.075
				Paulatuk Seaplane Base				no	69.350	-124.067
Region 1 (Unorganized)	5	71.6		NONE	0					
Region 2 (Unorganized)	0		Ford Bay	Ford Bay Airport	1,097	Sand	Trophy Lodge 204-774-5775	no	66.037	-124.715
				Ford Bay Seaplane Base				no	66.030	-124.687
			Great Bear Lake	Great Bear Lake Airport	1,584	Gravel	Private - Plummer's Great Bear Lake Lodge	no	66.703	-119.707
				Great Bear Lake Seaplane Base				no	66.708	-119.683
			Cameron Bay	Cameron Bay Water Aerodrome				no	66.060	-117.890
Region 3 (Unorganized)	0			NONE						
Region 4 (Unorganized)	47	74.0	Pointed Mountain	Pointed Mountain Airport			Private - Unknown	no	60.331	-123.813

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Assets	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
			Prairie Creek	Prairie Creek Airport	914	Gravel	Private - Canadian Zinc Corp	no	61.565	-124.815
			Tungsten	Tungsten (Cantung) Airport	1,258	Gravel	Private - North American Tungsten Corp.	no	61.957	-128.203
Region 5 (Unorganized)	31	67.0	Rocher River	Rocher River Water Aerodrome	0			no	61.379	-112.744
			Taltson River	Taltson River Airport	1,156	Gravel/Sand	Private - Northwest Territories Power Corp	no	60.394	-111.348
Region 6 (Unorganized)	302	47.5			0					
			Diavik	Diavik Airport	1,595	Gravel	Private - Diavik Diamond Mines	no	64.511	-110.289
			Ekati	Ekati Airport	1,954	Gravel	Public - Gov't of Northwest Territories	no	64.699	-110.615
			Snap Lake Mine	Snap Lake Airport	1,610	Gravel	Private - De Beers Canada	no	63.594	-110.906

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Assets	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
			Snare River	Snare River Airport	914	Sand	Private - Northwest Territories Power Corp (Yellowknife)	no	63.433	-116.183
			Taltheilei Narrows	Taltheilei Narrows Airport	1,720	Gravel	Private - Plummer's Great Slave Lodge	no	62.598	-111.543
				Taltheilei Narrows Seaplane Base		Water		no	62.600	-111.517
				Thor Lake Airport		Water		no	62.101	-112.624
			Tundra and Salamita Mines	Tundra Mine/Salamita Mine Aerodrome	989	Gravel	Private - Indigenous and Northern Affairs Canada	no	64.073	-111.158
Reliance (Settlement)	1,515		Fort Reliance	Fort Reliance Seaplane Base				no	62.700	-109.167
Sachs Harbour (Hamlet)	103	86.6	Sachs Harbour	Sachs Harbour (David Nasogaluak Jr. Saaryuaq) Airport	1,220	Gravel	Public - Gov't of Northwest Territories	yes	71.994	-125.243
Salt Plains 195 (Indian Reserve)		58.8		NONE						

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Assets	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
Sambaa K'e (Settlement)	88	81.7	Trout Lake (Sambaa K'e)	Trout Lake Airport Trout Lake Seaplane Base	1,067	Gravel	Public - Gov't of Northwest Territories	no no	60.439 60.433	-121.237 -121.250
Tsiigehtchic (Chartered community)	172	69.8	Tsiigehtchic	Arctic Red River Seaplane Base				no	67.450	-133.750
Tuktoyaktuk (Hamlet)	898	68.6	Tuktoyaktuk	Tuktoyaktuk Airport	1,402	Gravel	Public - Gov't of Northwest Territories	yes	69.433	-133.026
Tulita (Hamlet)	477	75.8	Tulita	Tulita Airport	1,199	Gravel	Public - Gov't of Northwest Territories	yes	64.910	-125.573
Ulukhaktok (Hamlet)	396	91.8	Ulukhaktok	Ulukhaktok/ Holman Airport	1,311	Gravel	Public - Gov't of Northwest Territories (Inuvik)	yes	70.763	-117.806
Wekweètì (Community government)	129	70.4	Wekweètì (Tłı̨chǫ Community)	Wekweètì Airport	914	Gravel	Public - Gov't of Northwest Territories (Yellowknife)	yes	64.191	-114.077
Whatì (Community government)	470	42.5	Whatì	Whatì Airport Whatì Seaplane Base	912	Gravel	Public - Gov't of Northwest Territories	yes no	63.132 63.142	-117.246 -117.276

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Assets	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
				Whatì Airport				no	63.132	-117.259
				Seaplane Base						
Wrigley (Settlement)	119	69.1	Wrigley	Wrigley Airport	1,067	Gravel	Public - Gov't of Northwest Territories	no	63.209	-123.437
Yellowknife (City)	19,569	40.0	Yellowknife	Yellowknife Airport	2,287	Asphalt	Public - Gov't of Northwest Territories	yes	62.463	-114.440
				Yellowknife Seaplane Base				no	62.467	-114.350
				Namushka Lodge Seaplane Base				no	62.417	-113.350

Table Complied by Author. Data Sources: Statistics Canada, 2016 Census. NAV Canada Flight Supplement.
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NAADSN
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Appendix 3 – Civilian Aeronautical Infrastructure, Yukon Territory CA (2020)

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Asset	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
Beaver Creek (Settlement)	93	61.3	Beaver Creek	Beaver Creek Airport	1,141	Gravel	Public - Gov't of Yukon	no	62.41	-140.867
Burwash Landing (Settlement)	72	57.9	Burwash	Burwash Airport	1,526	Gravel	Public - Gov't of Yukon	no	61.371	-139.041
Carcross (Settlement)	301	49.6	Carcross	Carcross Airport	671	Gravel	Public - Gov't of Yukon	no	60.174	-134.698
Carcross 4 (Self-government)	35	50.1		Carcross Seaplane Base		Water		no	60.183	-134.7
Carmacks (Village)	493	54.6	Carmacks	Carmacks Airport	1,524	Gravel	Public - Gov't of Yukon	no	62.111	-136.18
Champagne Landing 10 (Indian Settlement)	20	51.7			0					
Dawson (Town)	1,375	63.1	Dawson City	Dawson City Airport	1,525	Asphalt	Public - Gov't of Yukon	yes	64.043	-139.128

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Asset	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
				Dawson City Seaplane Base		Water		no	64.067	-139.433
Destruction Bay (Settlement)	55	57.3	Silver City	Silver City Airport	914	Sand/Gravel	Public - Gov't of Yukon	no	61.029	-138.408
Faro (Town)	348	59.8	Faro	Faro Airport	1,218	Gravel	Public - Gov't of Yukon	no	62.208	-133.376
				Faro/Johnson Lake Seaplane Base		Water		no	62.203	-133.393
Haines Junction (Village)	613	53.9	Haines Junction	Haines Junction Airport	1,525	Gravel	Public - Gov't of Yukon	no	60.789	-137.546
				Haines Junction/Pine Lake Seaplane Base		Water		no	60.803	-137.491
Ibex Valley (Hamlet)	411	45.7		NONE						
Johnsons Crossing (Settlement)	10	53		NONE						
Keno Hill (Settlement)	20	62.1		NONE						
Kloo Lake (Indian Settlement)	0	54.9		NONE						

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Asset	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
Klukshu (Indian Settlement)	0	56.5		NONE						
Lake Laberge 1 (Self-government)	25	45.7		NONE						
Macpherson-Grizzly Valley (Unorganized)	1,515	60.7	Braeburn	Braeburn Airport	914	Gravel	Public - Gov't of Yukon	no	61.484	-135.776
Marsh Lake (Unorganized)	696	48.5		NONE						
Mayo (Village)	200	60.7	Mayo	Mayo Airport	1,476	Gravel	Public - Gov't of Yukon	no	63.616	-135.868
Moosehide Creek 2 (Self-government)	0	63.5		NONE						
Mt. Lorne (Hamlet)	437	44.8		NONE						
Old Crow (Settlement)	221	78.6	Old Crow	Old Crow Airport	1,530	Gravel	Public - Gov't of Yukon	yes	67.571	-139.839
Pelly Crossing (Settlement)	353	57.6		NONE						

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Asset	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
Ross River (Settlement)	293	61.8	Ross River	Ross River Airport	1,558	Gravel	Public - Gov't of Yukon	no	61.971	-132.423
Stewart Crossing (Settlement)	17	59.3		NONE						
Swift River (Settlement)	0	58.6		NONE						
Tagish (Settlement)	249	51.7		NONE						
Teslin (Teslin land)	0	55.1		NONE						
Teslin (Village)	124	55.1	Teslin	Teslin Airport	1,522	Gravel	Public - Gov't of Yukon	no	60.173	-132.743
Teslin Post 13 (Self-government)	139	55.1		NONE						
Two Mile and Two and One-Half Mile Village (Indian Settlement)	188	61		NONE						
Upper Liard (Settlement)	125	61		NONE						
Watson Lake (Town)	790	61.3	Watson Lake	Watson Lake Airport	1,678	Asphalt	Public - Gov't of Yukon	no	60.116	-128.822
			Watson Lake Seaplane Base	Watson Lake Seaplane Base		Water		no	60.117	-128.783

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Asset	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
Whitehorse (City)	25,085	39	Whitehorse	Whitehorse / Erik Nielsen International Airport	2,896	Asphalt	Public - Gov't of Yukon	yes	60.71	-135.067
Whitehorse, Unorganized (Unorganized)	25,085		Whitehorse	Whitehorse / Cousins Airport	914	Gravel	Public - Gov't of Yukon	no	60.812	-135.182
				Whitehorse Seaplane Base		Water		no	60.691	-135.037
Yukon, Unorganized (Unorganized)	1,515	60.7								
			Chapman Lake	Chapman Lake Airport	774	Gravel	Public - Gov't of Yukon	no	64.904	-138.277
			Finlayson Lake	Finlayson Lake Airport	563	Gravel	Public - Gov't of Yukon	no	61.691	-130.774
			Eagle Plains	Wiley Airport	822	Gravel	Public - Gov't of Yukon	no	66.491	-136.573
			Fort Selkirk	Fort Selkirk Airport	610	Gravel	Public - Gov't of Yukon	no	62.768	-137.385

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Asset	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
			Hyland	Hyland Airport	1,005	Gravel	Public - Gov't of Yukon	no	61.524	-128.269
			Ivvavik National Park	Clarence Lagoon Water Aerodrome		Water		no	69.62	-140.81
			La Biche River	La Biche River Airport	914	Turf/Gravel	EFLO Energy Yukon Ltd	no	60.129	-124.049
			Macmillan Pass	Macmillan Pass Airport	457	Gravel	Public - Gov't of Yukon	no	63.181	-130.202
			Minto	Minto	1,370	Gravel	Minto Explorations Ltd.	no	62.605	-137.222
			Minto Landing	Minto Landing	1,092	Turf/Gravel	Public - Gov't of Yukon		62.354	-136.523
			McQuesten	McQuesten Airport	861	Gravel/Turf	Public - Gov't of Yukon	no	63.6	-137.567

Census Municipal Subdivision	Population (2016)	Remoteness Index	Communities	Aeronautical Infrastructure Asset	Runway Length (m)	Surface	Operator	Scheduled	Latitude	Longitude
			Ogilvie River	Ogilvie River Airport	762	Gravel	Public - Gov't of Yukon	no	65.667	-138.117
			Pelly Crossing	Pelly Crossing Airport	1,007	Gravel	Public - Gov't of Yukon	no	62.837	-136.535
			Pine Lake	Pine Lake	914	Gravel	Public - Gov't of Yukon	no	60.103	-130.934
			Tincup Lake	Tincup Lake Seaplane Base		Water		no	61.749	-139.246
			Twin Creeks	Twin Creeks Airport	884	Gravel	Public - Gov't of Yukon	no	62.619	-131.27

Table Complied by Author. Data Sources: Statistics Canada, 2016 Census. NAV Canada Flight Supplement.
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Notes

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