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AIR SERVICES
FOR ALL MANITOBANS

Assessing the Rationale for Privatizing Manitoba Government Air Services

July 26, 2018

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Introduction

Why do governments privatize? This is a question that has become an increasingly important issue for Manitobans. One high profile privatization that has recently had devastating impacts in Manitoba is the privatization of the port of Churchill and the rail line from Churchill to The Pas. The private company Omnitrax, who owns the rail line, decided not to repair it after a section was washed out in spring of 2017, because the company determined it would not be profitable. This has caused significant damage to the local economy and the community is still awaiting restoration of service, while governments negotiate with the company to have another group of owners take over the line (Kavanagh, 2017a).

While the rail line to Churchill was a federal government-owned asset, it is at the provincial level where most of the current activity around privatization in Manitoba is taking place. After 16 years of relative calm, the election of the Progressive Conservative government has led to a flurry of privatization activities in a number of provincial service areas such as home care, road and bridge maintenance, and social services, including the sale of public housing assets and public private partnerships through social impact bonds. This report examines a proposal by the Government of Manitoba to privatize the Manitoba Government Air Services (MGAS), which includes fire suppression, emergency air ambulance, and general transport services for Manitoba Hydro and other government entities.

> While empirical evidence regarding the cost savings of privatization have always been contested, more recent academic reviews of the effectiveness of privatization through contracting out have shown a decline in the cost advantage of private sector delivery over time, with more recent studies showing small or no cost advantages.

The provincial government is defending the proposal to privatize MGAS as necessary to reduce spending, and claim that a move to privatization could provide value for money. Infrastructure Minister Ron Schuler was quoted as saying the government "would only privatize if [private companies] would maintain the quality of service at a lower cost and under the assumption that they would buy our aircraft" (Martin, 2018). It is unclear, however, why privatization would be expected to generate savings and how quality of

service would be maintained under a privatization scheme while still leading to cost efficiencies.

While empirical evidence regarding the cost savings of privatization have always been contested, more recent academic reviews of the effectiveness of privatization through contracting out have shown a decline in the cost advantage of private sector delivery over time, with more recent studies showing small or no cost advantages (Bel, Fageda & Warner, 2010; Petersen, Hjelmar & Vrangbæk, 2018)[1].

In practice many challenges have arisen when the public sector has given up control over public service delivery, including deterioration of service quality, more precarious working conditions, and a lack of responsiveness to the needs of users of the service (Hermann & Flecker, 2013; Warner, 2012). Over time, as the benefits of privatization have become increasingly underwhelming or failed to materialize, some governments have begun to reverse course, with numerous examples of the contracting back in of services and the development of hybrid models (Hefetz & Warner, 2004; Warner, 2008), and some studies showing that inter-governmental cooperation is superior to privatization for achieving cost effectiveness (Dijkgraaf & Gradus, 2013).

There are also risks involved in the privatization transaction itself. There can be extensive transaction costs involved in contracting out public services, depending on the nature of the service, and studies noting cost advantages for privatization have often failed to take these into account, along with the sometimes time-limited nature of savings. The history of privatization has a long track record of selling assets with overly generous concessions for private providers, at the public's expense (Stiglitz, 2008). Studies have unfortunately demonstrated that value for money has often not been the driving factor in privatization schemes (Sundell & Lapunte, 2012), suggesting that transparency and public vigilance is required.

Based on a review of publicly available data and interviews with MGAS staff, this report outlines potential impacts of the proposed privatization. We examine the nature of the services provided by MGAS, characteristics of the market for services, and apply current thinking on under what conditions privatization is likely to generate improvements or reductions in efficiency. This analysis would complement, and is not a substitute for, a full cost-benefit analysis that we would expect a government genuinely prioritizing value-for-money would

[1] Petersen et al. for example find that studies published between 2010 and 2014 found on average a cost difference of 0.4 percent.

undertake, which would be privy to the detailed cost structure of current operations and would solicit and critically examine proposals from potential private suppliers to determine the relative cost and quality implications of privatization. As noted in the government's request for proposals, the technical nature and wide scope of services necessitate a context-specific analysis based on this information and a technical expertise in the industry. Our report relies primarily on a qualitative analysis of the current operations of MGAS and industry characteristics, due to a lack of access to such data. We do report operational cost data as conveyed through the interview process and found in secondary sources, but emphasize that we were not able to independently verify most of these figures and these are often difficult to accurately compare. Our conclusions related to the potential efficiencies of privatization rest on characterizing the nature of the services, the structure of the industry, and applying findings from studies of trends in the effectiveness of contracting out more generally.

In addition to potential efficiencies from privatization, given the current enthusiasm for privatization at the provincial level, this report takes care to examine issues that may not be considered explicitly in a more limited cost-focused analysis, and discusses some of the positive externalities associated with the current public delivery structure and the longer-term challenges that may result from privatization. Of particular importance is the changing nature of cost advantages over time, as companies entrench themselves in the market, while governments divest themselves of the capacity to deliver services directly, leaving then vulnerable to be 'held-up' by suppliers (Brown & Potoski, 2005; Dijkgraaf & Gradus, 2013).

> The current model allows the government to benefit from economies of scale where private services providers are numerous and market structure is more competitive…

Based on our analysis and above noted methodology, we find it unlikely that significant efficiencies will be achieved through any additional privatization of Manitoba's air services, which currently contracts extensively for general transport and basic air ambulance services. In the case of air service provision, where demand for pilots is currently high, the public-private wage gap appears minimal, and MGAS appears to enjoy a position as an employer of choice, meaningful cost savings on wages is unlikely. Manitoba currently employs a mixed model of contracting that allows significant integration of private market information and access to private contracting on an as-needed basis. The current model allows the government to

benefit from economies of scale where private service providers are numerous and market structure is more competitive (i.e. in general transport and basic air ambulance) while maintaining a significant presence where more cost-effective quality service is a challenge to obtain and maintain through the existing commercial market (i.e. Manitoba hydro) and monopolistic market conditions exist (i.e. Lifeflight, Fire Protection). These latter emergency services, delivered primarily by government, have historically also been able to tap into economies of scale in periods of low local demand by delivering services to other governments, generating revenue for government. These services also benefit from preferential regulations available to government as a non-commercial carrier, a clear technical advantage unavailable to commercial for-profit carriers.

While MGAS has faced some challenges recently with respect to being unable to meet cost recovery expectations, these appear to be due to the compromised staff contingent at MGAS and a lack of hiring for vacant positions. This has resulted in valuable aircraft assets going unutilized and MGAS being unable to respond to out-of-province requests that could have generated net revenue for the province. It has also resulted in an increasing reliance by MGAS on more expensive private provision in less competitive sectors. The hiring vacancies have also reduced the capacity of the public service to act as a counterbalance on private contractors in more competitive sectors, which have not met expected quality standards in the past, and has grounded the Southern Air Ambulance inter-facility transfer service, putting additional pressure on ground ambulance services and reducing quality of service.

This report proceeds as follows. Section 1 provides an overview of the current service operations delivered directly by MGAS and its current human resource complement. Section 2 examines the comparable services offered by private providers. Section 3 provides a brief background of the government announced privatization plans and the companies that are expected to be positioning to take over services. Section 4 briefly reviews the evolution of both the theory and empirical evidence on the privatization of public services more generally. Section 5 analyses the anticipated potential impacts of the privatization of MGAS based on this literature and local market conditions. Section 6 concludes.

Overview of current Manitoba Government Air Services

MGAS is a branch of Manitoba Infrastructure. It was formed in 1932 and has a legislated mandate by the Air Services Act which includes: protection, inspection, supervision, administration and conservation of forests and other natural resources and emergency or other services supplied in remote areas of the province. MGAS provides speciality aviation transportation services including: basic air ambulance service for non-emergency transport for stable patients, the Lifeflight critical care emergency air ambulance service; the Southern Inter-Facility Air Ambulance Program (SAAP); forest fire suppression and aerial surveillance; general transportation of personnel and cargo for departments, agencies and Crown corporations, including transportation for Manitoba Hydro operations; and the coordination and certification of government flights in private sector aircraft.

In the Essential Services Act (1996) air ambulance and water bombing are both listed as essential public services. For these essential services, MGAS provides the primary means of air transport. However, for basic air ambulance and non-Hydro general transport services, a large portion of flights are contracted out to private companies.

The Manitoba Government and General Employees' Union (MGEU) represents the 70 workers employed through MGAS. The Department of Health provides the medical teams for Lifeflight which include six critical care flight nurses, a Chief Flight nurse and contracts approximately 30 highly trained emergency room doctors. MGAS operates on a cost recovery basis for the services it provides to or through other government entities. In 2016/17 the total expenditures for MGAS was $15.294 Million with a total recovery of $14.195 Million (Manitoba Infrastructure, 2017a, p.21).

MGAS is governed by Transport Canada's private operators registration process and operates under the Canadian Aviation Regulation Part VI, Sub Part 4 as a private operator, not for hire or reward. As we shall review in more detail below, these regulations provide advantages to MGAS that are unavailable to commercial carriers that operate under Transport Canada's commercial air operator's certification process. MGAS pilots noted they generally mirror commercial standards, however, as a private operator operating not for hire or reward, they are able take advantage of operating under less restrictive conditions when deemed safe to do so.

a) Services provided by MGAS

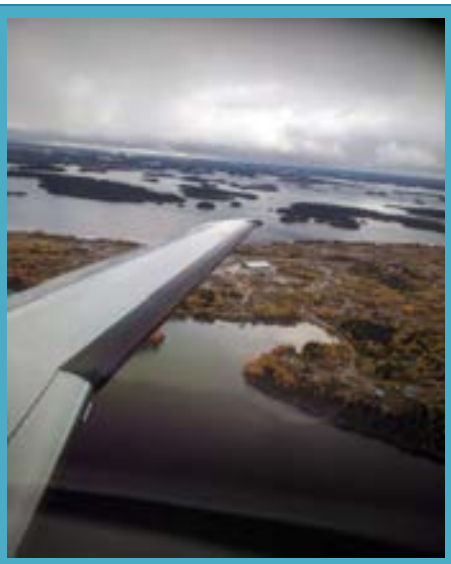
i. Lifeflight

Through a joint initiative with Manitoba Health, MGAS provides Lifeflight air services within and outside the province, using two Cessna Citation V jets (Manitoba 2017a, p.19). Lifeflight Air Ambulance service, which started in 1985, transports high-risk patients from rural and northern areas into Winnipeg and provides transport to patients requiring care outside the province. Lifeflight operates out of the Government Air Services hanger in Winnipeg on a twenty-four hour, seven-day per week basis. MGAS bills Manitoba Health at a rate of $6.51/mile for service provision. In 2016/17 Lifeflight accounted for 21% of the total flight hours for MGAS (Government of Manitoba, 2017a, p.21).

Manitoba Health provides medical support for Lifeflight including medical teams such as neo-natal, child health and extracorporeal membrane oxygenation (ECMO) teams. There are also six critical care flight nurses, a chief flight nurse and approximately 30 highly trained emergency room physicians who work with Lifeflight. The Lifeflight jet is equipped with all the necessary critical care equipment and is specially designed to provide a high level of care similar to what would be provided in a Winnipeg tertiary centre during all phases of transport (Toews, 2013, p.35).

Manitoba's geography creates unique challenges for air ambulance services.

With Manitoba's only critical care centre, Winnipeg, located in the southeast corner of the province and the population distributed to the far north and west part of the province, some patients have to travel great distances to get required medical attention if critically ill or injured. The flying time between Winnipeg and Churchill in the Cessna Citation V jet is approximately 1.5 hours one-way, facilitating expedited medical attention in a fully pressurized cabin, which according to medical staff interviewed, is critical to providing proper patient care.



Manitoba's geography creates unique challenges for air ambulance services.

Critical-care/emergency medical evacuation pilots work under unique and demanding circumstances. Critical care is time sensitive and many calls are

for small, remote communities with gravel runways. Staff interviewed noted that pilots may also need to fly in severe weather conditions with the lives of the patient relying on the completion of tasks quickly and safely. In order to acquire the Aeromedical Licence from Manitoba Health, the First Officer is required to have 500 total hours (among other requirements), and Captains require 500 multi-engine hours in command. According to staff interviewed, MGAS pilots generally exceed these requirements when they are first hired. They also noted that due to the stability and long tenure of MGAS pilots they have also gained the experience and knowledge of the unusual logistics required for medical teams and emergency patients.

MGAS staff also highlighted how under private operator regulations, MGAS is entrusted to safely operate under less restrictive conditions than for-profit operators. These regulations provide Lifeflight with optimal flying regulations given the unique circumstances of the service they provide. Many of Manitoba's communities that rely on Lifeflight have shorter gravel runways. Under private operator regulations, MGAS pilots are allowed to land the Lifeflight jet using 100% of the available distance on the runway, meaning, they can land the jet in many communities that non-government carriers could not within current federal regulatory requirements. The advanced training of MGAS pilots and equipment utilized also permit ¼ mile take-offs and category II approaches, with low visibility manoeuvres that are permitted based on the utilization of advanced equipment and training[2].

ii. Southern Air Ambulance Inter-Facility Transport Program

The Southern Air Ambulance Inter-Facility Transport Program (SAAP) started as a pilot project in 2011 to provide inter-facility air ambulance service, that would have otherwise been provided by ground ambulance service, to patients who would have experienced one-way ambulance trips of greater than 2.5 hours. MGAS provides one De Havilland Twin Otter and flight crew while the primary care

> The program relieves the stress put on a patient and paramedics who would, without this service, experience long transport times of up to eight to ten hours, freeing up ground ambulances that would otherwise be unavailable.

[2] A category II approach is a precision instrument approach and landing with decision height lower than 200 ft but not lower than 100 ft and a runway visual range not less than 300m.

paramedics are seconded from the Regional Health Authority. As of 2012, the program started operating on a permanent basis. The program relieves the stress put on a patient and paramedics who would, without this service, experience long transport times of up to eight to ten hours, freeing up ground ambulances that would otherwise be unavailable (Kavanagh, 2017b).

The SAAP was also identified in the Toews (2013, p.38) report as an important resource for improving inter-facility transport, particularly for the Parkland Regional Health Authority, where roundtrip transport from Dauphin to Winnipeg, including drop-off times, can be as high 14 hours. In 2016/17 SAAP accounted for 17% of the total flight hours for MGAS (Manitoba 2017a, p.21) with costs for SAAP recovered from the Regional Health Authority that requested the services.

iii. Fire Suppression & Aerial Surveillance

Over 45% of MGAS's flight hour utilization in 2016/17 was for forest fire suppression and aerial surveillance. A total of 13 aircraft are used for this activity: six (6) Bombardier CL-215/415 waterbombers, three (3) Cessna 310, one (1) backup Piper Navajo Birddog aircraft and three (3) turbine powered De Havilland Single Otter aircraft (Manitoba 2017a, p.19). The CL-215 waterbomber, originally manufactured in Quebec, is the only aircraft designed specifically for forest fire activities and is widely utilized. The first CL-215 went into production in 1969 with the Series 1 machine, which Manitoba was still operating until recently when four of the fleet were replaced with two CL-415's, at a cost of $32 million each. The new model is equipped with turbo-prop engines, which provide more efficient, faster and safer operating paradigms including updated computerized bomb systems and avionics. According to one MGAS pilot, with an average use of 150-200 hours per year per machine the aircraft are expected to be operational for 40 years.

Presently Manitoba Conservation receives 165 days of coverage by MGAS, longer than typical private contracts, ensuring spring and fall fires are covered at a fixed cost.

At MGAS, fire suppression pilots start their annual employment on April 1st and continue seven days a week, twelve hours a day until at least September 15th. During this time, they may be relocated in Canada or the northern

United States for undetermined lengths of time. Operating under the private operator's state regulation certificate allows MGAS pilots to fly a greater number of consecutive days without taking prescribed days off. Pilots noted this is advantageous for the fire suppression activities due to the short, intense season allowing MGAS to employ fewer pilots to cover the fire season.

Pilots interviewed emphasized a number of advantageous characteristics of the current public delivery model for fire suppression and aerial surveillance services. Presently Manitoba Conservation receives 165 days of coverage by MGAS, longer than typical private contracts, ensuring spring and fall fires are covered at a fixed cost. Given the local contingent of aircraft and pilots, timely service is provided, which is crucial to containing forest fires. MGAS' quick strike ability was demonstrated in their response to a fire at Belair in October of 2017, mobilizing within two hours, during the off-season, thus minimizing costs in both property damage and suppression efforts.

iv. Manitoba Hydro Transportation Services and General Transport/Charter Services

Based on pilot accounts, in 2013, after concerns regarding quality of service, particularly with respect to safety with private carriers, Manitoba Hydro approached MGAS requesting they provide aviation support, including transporting supplies and personnel, into MB Hydro sites. Today, MGAS services the Kelsey, Laurier River and Missy Falls generating stations utilizing one Thompson-based De Havilland Twin Otter aircraft (Manitoba Infrastructure, 2017a, p.19). One full-time pilot based in Thompson, backed up by two southern-based pilots, provide the service for Hydro. The Manitoba Hydro Program accounted for 14% of the total flight hour utilization in 2016/17. When the aircraft is not being utilized for servicing the generating stations, MGAS ensures this aircraft is available for use by other departments and agencies, for limited general transport of governmental personnel and cargo. Flights between the various departments are combined whenever possible. General air transportation accounted for 3% of total flight hour utilization in 2016/17.

v. Co-ordination of Government Charter Flights

In addition to the air services provided, MGAS also coordinates charters and audits and certifies the charter billings for all clients flying in private sector aircraft to ensure that appropriate rates, aircraft and coordination of routes are provided. In 2016/17, 929 government charters with private sector carriers were arranged by MGAS. This figure does not include coordination activity related to the Lifeflight and SAAP programs (Manitoba Infrastructure, 2017a, p.21). The largest user of these services is the Department of Justice, Court Division.

Flight Coordinators provide the central coordinating role as well as administrative support to the pilots. Included in their regular duties is: maintaining technical records such as auditing journey logs and regulation documents for Transport Canada, assisting the chief pilot with scheduling and monitoring pilot hours to ensure regulation compliance. They also procure the most economical flights, verify invoices before they are submitted to the department, coordinate logistical arrangements for medical teams, and handle logistics of privately contracted Lifeflight flights.

The flight coordinators have unique knowledge of the province in terms of aerodromes and airports, features of the runways, and familiarity with the capacity of local private carriers with a strong understanding of carrier capabilities and aircraft specifications regarding services offered and landing requirements at airports. MGAS staff noted how this unique and specialized knowledge supports the most economical transportation and value for money while also minimizing misjudgement of logistical requirements that compromise service quality. Staff noted negative outcomes in some exceptional cases where private carriers attempted to direct coordination of provincial flights outside of standard process.

b) Human Resources, Training & Safety

MGAS has approximately 90 positions in various roles ranging from administrative functions such as accounting clerks, finance officers, flight coordinators and storekeepers, to more specialized roles such as pilots and aircraft maintenance engineers. Appendix 1 lists the total number of staff by position as of March of 2018.

> MGAS appears to be a leader in the field and other provinces, countries, and federal government staff have visited MGAS and pursued training under them to learn how to use aircraft under the conditions and restrictions found in Manitoba.

According to pilots interviewed, the recruitment process for pilots at MGAS is very competitive and MGAS is seen as an employer of choice, with most pilots coming to MGAS typically having 10+ years of experience when they apply, and application processes lead to a minimum of 3500 hours of flight time to even be considered for an interview. Pilots also noted minimal turnover in their positions at MGAS with several pilots spending 25-30 years with the organization and retiring from the profession when they leave MGAS.

Staff interviewed identified MGAS's training and mentorship program as an example of an industry best practice, with MGAS pilots receiving simulator training backed up by long tenured

trainers employed by MGAS. Pilots trained on simulators were noted as considered to be the safest and best trained pilots, due to the specialized and technical manoeuvres they can attempt on a simulator, without risk of harm, before trying it in an aircraft. According to one pilot: "You can do things in the simulator that you would not want to try in an airplane but now that you have done it in a simulator you have the comfort level of things that would be very dangerous to train in the air. Things that killed people decades ago are now very routine because you can do it in simulator training".

MGAS appears to be a leader in the field and other provinces, countries, and federal government staff have visited MGAS and pursued training under them to learn how to use aircraft under the conditions and restrictions found in Manitoba. According to a 2018 Manitoba Infrastructure department briefing note:

"Air Services aviation expertise has been used to train Transport Canada Inspectors (Pilots) and assist other countries (Israel and Japan) for special aviation projects. These projects include but are not limited to testing new fire fighting technology with the CL-215/415 aircraft and training foreign flight crews on techniques for winter Citation operations while meeting regulatory limitations (p.1)."

MGAS staff suggested that this high level of training and technical operation has led to a number of innovations produced within the organization, including: leading the industry in Enhanced Vision Systems/Infrared Camera's, with Transport Canada having approached MGAS for guidance using this technology; developing a custom air ambulance design that has been adopted across North America; and developing an angle of attack flight display for water bombers, enhancing safety, and cabin and turbine modifications for DeHavilland Twin Otter's. The rigorous training program employed by MGAS combined with the long tenure of pilots and limited numbers of utilized aircraft were noted as all contributing factors to the near perfect safety record enjoyed by MGAS[3].

Several staff interviewed identified MGAS as an employer of choice. This is in part due to the advanced training provided at MGAS, but several pilots, without prompting, spoke to the pride they felt in helping Manitobans in times of need and how the high-quality standards of MGAS attracted them to the position, despite sometimes facing

[3] In our review of the Transportation Safety Board of Canada (2018) incident report archive, only one incident was identified involving MGAS, where the specified required distance between an MGAS airplane and another aircraft was not maintained. No collision or injuries occurred as a result and the incident was attributed to an error of air traffic control staff.

lower compensation[4]. Pilots also report that they have "invested their careers into doing [public service] work" and they are very proud of their service to Manitoba and the people of Manitoba. According to Manitoba budgetary estimates, financial resources for staffing have been frozen for six years, while other resources for the MGAS have dropped by 8% since 2013/14. Overall, the number of pilot positions has fallen from 35 Pilots in 2011 to 30 positions, with only 75% of positions currently filled. MGAS staff noted understaffing in a number of service areas. According to data obtaining through a freedom of information request, over a 1.5-year period between May of 2016 and November of 2017, the number of vacancies at MGAS increased from 12 to 22.5, and the number of employees fell from 83 to 73.

...over a 1.5-year period between May of 2016 and November of 2017, the number of vacancies at MGAS increased from 12 to 22.5, and the number of employees fell from 83 to 73.

If fully staffed, Lifeflight would have 12 full-time pilots plus backup staff to cover vacation, sick time, and other absences, but it was noted that currently there are only nine Lifeflight pilots on staff. Pilots indicated that fire suppression services are down one crew and there are only two full-time flight coordinators, where based on MGAS's asset holdings four full-time coordinators and a supervisor would be appropriate. Staff interviewed also indicated that up until just recently two of three Single Otters were not operational due to staffing shortages, which in addition to fire suppression support are used by Sustainable Development to check on hunters and fishers to enforce harvesting laws[5]. Similarly, the Twin Otter program requires eight pilots to fully utilize equipment, but only has three due to hiring policies, leading to the grounding of one of the fleet's De Havilland Twin Otters.

As a result of the staffing shortages MGAS has not been able to operate at full capacity, with direct consequences for revenue generation, leading to a

[4] Staff noted that for well over a decade the pilots at MGAS were underpaid compared to industry standards, until approximately seven years ago a review process was initiated and eventually which addressed the wage gap.

[5] According to MGAS pilots, in late may one pilot position was filled reducing the number of Single Otter's going unutilized from one to two.

shortfall on recoveries in 2016/17 and a deficit of $1 million. Without a full complement of Lifeflight pilots, the second jet has been grounded leading to an inability of MGAS to respond to organ and neo-natal transport requests from other provinces, which according to staff would have generated over $1 million of revenue, the extent of the deficit. According to staff, the lack of staff leading to the grounding of the second jet has also resulted in Manitoba having to contract costly private services. In one specific instance noted, Lifeflight was unable to respond to a transplant request requiring a flight to Toronto. The cost for Lifeflight to complete this flight would have been approximately $27,000, however the cost ended up being $50,000 as a private charter company was used. With regards to fire suppression, the recent early outbreak of wildfires in Manitoba combined with the staff shortage has required Sustainable Development to bring in water bombers from Quebec, according to MGAS staff. This has led to the provincial water bombers purchased for $32 million sitting while contracting private crews and aircraft at $55,000/day. The privatization plans for MGAS generated further staffing challenges as early as July 2017, leading to the grounding of the SAAP (Kavanagh, 2017b) and taking ground ambulances out of service for communities as they transport patients to Winnipeg, reinstating the increased stress on patient and paramedic resources noted by Toews (2013).

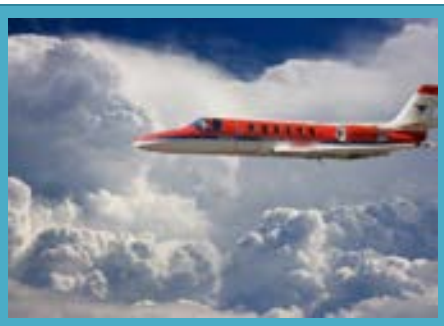
Overview of Private Sector Commercial Air Carriers

Currently a number of private sector commercial carriers are used as back-up resources for Lifeflight and fire suppression. Private sector carriers currently provide the majority of general transport for the province as well as all basic air ambulance service. Transport Canada's commercial air service licencing framework governs the operations of private carriers.

a) Services

i. Basic Air Ambulance and Lifeflight backup

Due to regulations passed in 2006 allowing air ambulance operators to be licensed by the province, numerous companies have come to provide this service including: Calm Air, FastAir, Fox Flight, Keewatin Air, Keystone Air Service, Missinippi Airways, Perimeter Aviation, Sky Care Charters, SkyMedical, SkyNorth Air, Wings Over Kississing, and Vanguard Air Care (Toews, 2015, p.35). These companies use either King Air or Merlin aircraft for basic air ambulance service. They have a captain and a first officer plus a registered nurse, who is a graduate of a recognized critical care or emergency nursing program with related aeromedical training, or an advanced care paramedic with aeromedical training. The patients transported on basic air ambulances are typically stable, requiring medical monitoring by an aeromedical attendant, and a stretcher for their comfort (Toews 2013, p.36). Most basic air ambulance transports originate in the north providing service for the First Nations Inuit Health Branch or the Northern Patient Transport Program. Private carriers are also contracted to back up the Lifeflight services as required. Based on information received from a freedom of information request, in 2016/17 private carriers provided 130 Lifeflight responses; in 2017/18 that number was up to 219 flights.



King Air is a turbo prop aircraft that is ideal for short trips and short runways, but in comparison to the Lifeflight jet (above), is limited in speed and flight length and is less effective at achieving pressurization.

Most private carriers use a King Air aircraft for air ambulance service.

Interviewed staff noted that the King Air is a turbo prop aircraft that is ideal for short trips and short runways, but in comparison to the Lifeflight jet, is limited in speed and flight length and is less effective at achieving pressurization. For example, a medical evacuation from Lac Brochet, one of Manitoba's most northern remote communities with a gravel runway, on a turbo prop would take a total of 4 hours and 50 minutes of flight time (2:25 each way). In a jet, this is reduced to just over 3 hours (1:35 each way), saving almost 2 hours for critically ill or injured patients[6]. Staff also noted the speed of the jet also supports successful organ transplants, as when the jet is available the patient or organ can be flown across the country without a fuel stop. However, staff noted when a charter is used from a private company, they often have to stop for fuel which delays transport and delays the surgery putting the patient at risk and compromising the integrity of the organ.

Undesirable features of the King Air relative to the Lifeflight jet were also highlighted. The configuration of the King Air requires that if medical staff need additional supplies, which is common in critical care situations, they have to unbuckle and leave their seat to retrieve their supplies, which are secured at the back of the plane behind netting. They then return to their seat to attend to the patient. Furthermore, during loading and unloading, the medical attendants are unable to stay by the patient's side. Flying time for the King Air between Winnipeg and Churchill is 2 hours 20 min one way. Staff estimated that the cost for the King Air is between $8.00 - $9.00/mile for out of province trips and about $12.85 for in-province transports, and to have the King Air on stand-by for dedicated services can cost up to $15,000 for 12 hours. As noted above, through MGAS, given the availability of provincially owned assets, Manitoba Health is charged $6.51/mile for Lifelight service provision, with no standby charges.

ii. Fire Suppression & Aerial Surveillance

Currently Manitoba Sustainable Development contracts their own private sector aircraft and helicopters for the fire suppression season to support MGAS activities. Conair, Air Spray and Westman Aerial Services have contracts with Manitoba for fire suppression and aerial surveillance. Under a privatized structure, private carriers contract with the government to provide fire suppression services for a set timeframe for a set price. Staff noted that most contracts are between 90 to 120 days with the longest contract known being 130 days, and that if services are required outside of this contract period, the costs are high. Currently the cost per day outside of the contract includes a stipend of $750/day, per diems of $200/day, and billing for flying time at $138/hour.

[6] Pilots noted that Lac Brochet, Brochet, Churchill, and Tadoule Lake are similar distance from Winnipeg with similar flight time reductions.

Besides the water bombers used by MGAS, including the CL-214 and CL-415, other fire suppression aircraft that may be used by private carriers are the Fire Boss aircraft, single engine Birddogs and single engine fire bombers. Pilots interviewed noted the challenges involved in working with these less capable aircraft and the higher margin for error when managing multiple aircraft types for the same service.

iii. General Transport

In 2016/17 Manitoba entered into private contracts for 820 general transport flights. This number fell to 792 in 2017/18. The following private carriers are used for general transport services: Adventure Air, Bestland Air, Buffalo Airways, Cranberry Air, Execaire Toronto, Fox Flight, Gogal Air Services, Keewatin Air, Missinippi Airways, Perimeter Aviation, Progressive Air, Rivers Air Spray, Sky NorthAir, Skycare Charters, Taiga Air Services, Vanguard Air Care Inc (Fast Air), and Wings of Kississing.

b) Human Resources, Training & Safety

There is currently a global pilot shortage, with a high demand for English-speaking pilots. This shortage has significantly impacted regional carriers as pilots are moving up the industry job ladder to large commercial carriers with much less experience than previously required leaving significant vacancy challenges (Bakx, 2018b). The Air Transport Association of Canada has predicted that "a shortage of 6,000 pilots over the next 20 years, due to low wages for new pilots and the high cost of training" (Thomson, 2017).

Pilots interviewed indicated that this shortage has detrimentally affected companies who provide air taxi, commuter, charter and air ambulance services across Canada and has led to modified hiring practices and training standards at these companies. In the recent past, pilots working for these types of carriers would stay in the same job for several years or more before moving on to other types of work. Now the duration in the job is much shorter, resulting in less experience in the field of commercial carrier transport and ongoing vacancies. MGAS staff interviewed indicated that the high demand for pilots and high turnover in smaller commercial carriers has resulted in increased costs for training and insurance due to a higher risk of incidents caused by inexperienced personnel.

According to pilots interviewed, some companies, in an effort to retain their pilots, have raised their wages to levels above Captains at MGAS when the retention and productivity bonuses are considered[7]. It appears that there is market failure in the system, as entry level pilots are paid low wages, sometimes near minimum wage, while training programs cost between $55,000 and $75,000, although there are some signs that airlines are intervening with training partnerships and financial support (Bakx, 2018a). Pilots however have complained that the deteriorating real wages over recent decades have been insufficient to reasonably compensate pilots for both the cost of training and the level of responsibility (Bakx, 2018a).

The lack of job tenure leads to a reduced return on investment and lower incentive to train pilots as private companies do not want to invest in pilot training if pilots are likely to move on to other carriers. For example, pilots interviewed suggested that unlike MGAS pilots, private general transport and basic air ambulance companies rarely train pilots on full simulators due to cost, and some private carriers are flying aircraft for which there are no simulators. One pilot noted that MGAS, on the other hand, uses fully-functioning duplicates of actual aircraft and aircraft-specific devices in its training simulators[8]. Market conditions and high competition for pilots have also led to private carriers reducing qualification requirements and new industry practices to compensate, such as cancelling flights at any sign of any inclement weather (Bakx, 2018b).

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[7] A recent posting for a Government of Manitoba Pilot 3 position had a starting wage range of $39.47 to $47.92 per hour, while the Government of Canada's job site reported the median wage of pilots to be $37.10 and the 90th wage percentile to be $59.30. We reviewed recent postings for Fast Air and Mississippi Air for similar positions to the pilot 3 position, and qualification requirements were significantly lower. For example, required flight hour experience were 50% and 33% lower respectively. Salaries for private air carriers were not publicly disclosed. Several pilots interviewed noted that compensation was tightly matched between private and public providers.

[8] The pilot also noted that since simulators did not exist for the CL215 or Cessna 310 (Birddog), MGAS build their own flight training devices and won innovation awards for doing so. The CL-215 is a partial duplication and the Cessna 310 a full duplication, but are not full simulators in that they are not on jacks and do not provide movement sensation.

Staff interviewed noted that private air ambulance providers in Manitoba are similarly adapting standards and practices. According to staff interviewed, all private basic air ambulance carriers are facing staffing and retention challenges. Pilots noted that due to being unable to meet the required hours to obtain an aeromedical carrier requirement, industry requested, and Manitoba Health implemented, alternative regulations with reduced standards[9].

Pilots interviewed suggested that the high turnover rate, resulting training challenges, and the use of multiple types and models of aircraft likely contribute to a number of critical incidents amongst private carriers who currently provide or have provided services to the Government of Manitoba. We undertook a search of the Transportation Safety Board of Canada Aviation Safety Reports Archives for incident reports involving MGAS or private carriers that MGAS staff had identified as current or previous service providers contracted by the Government of Manitoba. Full results are presented in Appendix 2. One incident was identified involving MGAS, where the specified required distance between an MGAS airplane and another aircraft was not maintained. No collision or injuries occurred as a result and the incident was attributed to an error of air traffic control. In contrast, the private carriers in total had 29 incident reports, with a total of 23 fatalities in addition to 31 seriously injured. There were numerous references to inadequate training, supervision and equipment maintenance issues. MGAS pilots, however, qualified these findings by noting that the volume of service undertaken by MGAS is small relative to commercial carriers, in particular those providing general transport services.

Pilots interviewed suggested that the high turnover rate, resulting training challenges, and the use of multiple types and models of aircraft likely contribute to a number of critical incidents amongst private carriers who currently provide or have provided services to the Government of Manitoba.

[9] In 2006, a previous requirement for captains to have 1000 hours of flight experience total flight time including 500 hours multi engine was repealed and replaced with only the 500 hours of multi-engine experience requirement. See Manitoba Regulation 133/96, repealed on April 1st, 2006 and replaced by Manitoba Regulation 22/2006. One pilot interviewed noted that recent job advertisements for Air Ambulance pilots were asking for experience levels 100 hours less than the published requirements.

Background on MGAS Privatization Proposal and Potential Bidders

The first public indication that the Manitoba government was looking at privatizing the MGAS was in April of 2017 when CBC reported the plans based on access to an internal government document. This report indicated that the provincial government was examining fully contracting out the four main areas currently serviced by MGAS: emergency air ambulance, fire suppression, general transport and Manitoba Hydro service, and was currently consulting with potential private providers (Marcoux, 2017). The government document anticipated contract duration of five years with the option to renew for another five years (Government of Manitoba, 2017b, p.7). In response, MGEU expressed concern, highlighting how privatization may jeopardize quality of service – including response times, and safety. The union also noted how the government appeared to be in violation of a collectively bargained right of workers through their unions to be consulted on the privatization of any public service and the opportunity to have alternative proposals put forward and considered.

In March of 2018, the government issued a Request for Proposals (RFP) for an aviation services procurement consultant, with the Minister responsible stating that MGAS was "not an essential service" and six private companies had expressed interest in response to the government's 2017 consultation (Martin, 2018a). WSP Global Inc. was selected as the successful consultant, a corporation with international experience in privatizing public services and the development of public-private partnerships. This new consultant has been hired to develop a subsequent RFP to solicit interest from private aviation service providers, to be issued by the end of May 2018, with the process to be completed by August of 2018. Proposals for privatization being sought involve "an outright sale of aircraft, a long-term outsourcing arrangement for services, and/or a sale-service leaseback arrangement" (Manitoba Infrastructure, 2018), with the proposed take over to occur in 2019, coinciding with the expiry of the no-layoff clause in the collective agreement (Martin, 2018b). In July of 2018, a RFP was released by the Government of Manitoba seeking bids to take over operations of wildfire suppression, air ambulance and general transport air services, based on the sale of all aircraft with the exception of six waterbomber aircraft, four CL-415 and two CL-215.

While six companies were said to respond to the initial consultation, we were only able to identify three companies who have publicly expressed interest or who appear to have been

engaged. Exchange Income Corp (EIC), a Manitoba based income trust chaired by former Manitoba Premier Gary Filmon, has publicly expressed interest in bidding on the air ambulance services if Manitoba privatizes MGAS services, given its interests in a number of private carriers including Perimeter Aviation, Calm Air, Bearskin Airlines and Keewatin Air (Martin, 2018b). MGAS staff noted that currently EIC does not have the 703-designation required to do any aerial work such as firefighting and suggested it can take up to two years to acquire a 703 designation.

EIC has been successful at delivering high dividend yields to investors and saw a significant run up in its share price in the lead up to and after the 2016 provincial election, with its stock more than doubling in value. In early 2017, EIC was the target of rumours followed by the release of a report, by an investor who was short-selling EIC stock. The report accused the corporation of various transgressions including misrepresentation of financials, a lack of investment in its aircraft maintenance resulting in several fatalities, and a conflict of interest surrounding business dealings between the company and a law firm at which the brother of the chair, David Filmon, was a partner (Cash, 2017; Corcoran, 2017)[10]. EIC shares fell substantially over the first nine months of 2017 in response, despite analysts such as Corcoran (2017) suggesting these claims were a misrepresentation and exaggerated. Shares have since partially rebounded and fluctuated at levels well above their pre-2016 values.

Two other companies appear to be actively pursuing opportunities through proposed privatization, and according to the Manitoba Lobbyist Registry, have engaged Marni Larkin, a veteran Progressive Conservative campaign manager, to arrange meetings with provincial government officials on their behalf. Missinippi Airways has sought meetings with "Treasury Board and various Ministers associated with Air Ambulance Privatization RFP"; while "Conair Aerial Firefighting" has sought meetings with eight separate officials including the Minister and Deputy Minister of Sustainable Development, their staff, and the Premier's principal secretary "to discuss firefighting fleet issues" (Office of the Lobbyist Registrar, 2018).

[10] In addition to the incidents documented in Appendix 2, Perimeter in 2016, after a Transportation Safety Board of Canada investigation, undertook a voluntary shutdown of its fleet resulting in a series of cancelled flights and significant delays for travellers (Redekop, 2016). According to APTN reporting on the incident, "Transport Canada … did not ground any of Perimeter's aircraft… [but] added any safety deficiencies identified requires immediate attention to protect the public" (Fiddler, 2016).

According to the Transportation Safety Board of Canada (2015) Conair provides specialty aircraft operations both domestically and internationally, with a focus in firefighting services, with approximately 250 employees, including 80 pilots, with primarily a Fire Boss fleet. MGAS Pilots interviewed identified Conair as a reputable international company working out of Abbotsford, B.C. with a long-standing relationship with the BC government to provide fire suppression aircraft and crews[11]. Pilots noted they also revamp aircraft, recently purchased a large fire suppression operation in the US, operating CL-415s in the US 12 months a year. Conair provides 90 and 121-day contracts for their fire suppression pilots. While Conair has had several fatalities (see Appendix 2), pilots interviewed noted they operate in a potentially more dangerous environment, in the mountains of BC, relative to those encountered in Manitoba.

Missinippi Airways is the only fully First Nations owned air service in Northern Manitoba, according to the company's website, and is one of the oldest First Nations air services in Canada, in operation since 1989. The company operates out of The Pas, and services First Nations communities in Northern Manitoba, Saskatchewan, Ontario and Nunavut, providing private charter and air ambulance services. The airline also operates regular flight service to and from Mathias Colomb Cree Nation, the First Nation owner of the airline. Missinippi has one documented incident with one associated fatality in the Transportation Safety Board online archive.

[11] They also noted that Conair is a large multi-national company that provides services in France using their Firecat aircraft and in the United States, and also operate 10 Donvair 580 large turbo prop aircraft delivering retardant, an Electra turboprop aircraft, and two jet aircraft deploying fire retardant.

Theory and Evidence on Privatization

a) Efficiency, Cost and Quality

While there can be many motives for privatization, the stated objectives by government is generally to reduce costs and improve efficiency of service delivery (Auger, 1998, p.440; Bel, & Fageda, 2007). The arguments underlying the effectiveness of privatization rely on economic theories that emphasize the importance of competition as a disciplining force on the providers of service and the importance of property rights to encourage efficiency and innovation[12]. In the private sector where it is presumed there are many potential providers, purchasers of these services have choice and there is competition for market share, keeping prices that service providers charge to a level that is sufficient to cover the costs of production, and a reasonable profit to compensate operators for time, effort and risk. These competitive forces put pressure on companies to innovate and adopt new technology that makes delivery more efficient and reduces costs. Purchasers may benefit from access to proprietary technologies generated by this innovation and cost savings from economies of scale due to serving multiple customers (Rowthorn & Chang, 1992). Private delivery may also, however, reduce costs through reductions in wages and inferior working conditions, relying on more precarious working arrangements in a relatively less unionized workforce (Hermann & Flecker, 2013; Petersen et al., 2018).

These theories that support privatization emphasize that when a public provider provides a service directly and does not submit it to open competition by private firms, they will provide the service inefficiently due to weak incentives and will generally oversupply the service. These theories based on the *Public Choice* approach, also make strong and often disparaging assumptions regarding the motivations of public sector workers, while idealizing the ability of markets to generate efficient outcomes. Specifically, they rely on the assumption that people will, for the most part, only work to improve services if they could personally profit from it.

Based on these theories, in the 1980s and 1990s, Canada, the US and many other countries engaged in extensive privatization programs (Letza, Smallman, & Sun, 2004, pp.165-166; Shaoul, 1997, p.481). Early reviews of these privatizations found that on average privatization did lead to cost savings and efficiency improvements, although the results were mixed and

[12] For summaries, see (Bel, Fageda, & Warner, 2010; Petersen, Hjelmar & Vrangbæk, 2017; Vickers & Yarrow, 1988, pp. 9-44).

dependant on the degree of competition in the private market (Vickers and Yarrow,1988, pp.39-43; 1991, pp.117-118; Boardman & Vining, 1989). These mixed results, on average in favour of privatization, continued with a study in 2000 noting that 104 of 168 studies to date had concluded privatized delivery was more efficient (Villalonga, 2000, pp.5-9). Studies released around this time looking specifically at contracting out for service delivery found similar results, with contracting leading to cost savings in a majority of cases (Boyne, 1998). Hodge's (2000) study for example found significant cost reductions on average in the range of 8% to 14% (pp. 123-128).

There was however a number of qualifications on these results. First, results were highly variable between studies and between sectors. Hodge (2000), for example found that savings results in his review were driven by contracting out of cleaning services, maintenance, engineering and refuse collection sectors, while in areas such as fire, health, police/security, training and transport, the impact of privatization on costs was statistically insignificant (pp.116-117)[13]. With respect to the efficiency of contracting out overall, he concluded that "a massive distribution of findings is available …. Literally we can find what we wish to find and quote from dozens of studies justifying our own predetermined beliefs about contracting" (p.155).

…in areas such as fire, health, police/security, training and transport, the impact of privatization on costs was statistically insignificant.

Secondly, while the evidence on balance did point to cost savings, several case studies highlighted that cost savings often came at the expense of quality, a factor that often was not quantified or systematically considered (Boyne, 1998; Hart, Shleifer & Vishny, 1997, p.1127). Many examples of declining service quality due to contracting out have been documented in both Manitoba (Antony et al., 2007) and Canada (CCPA-SK, 2015) with many requiring remedial action by government including contracting back in the service.

Thirdly, some studies emphasized the distinction between the contracting method, which could include contracting within the public service between agencies or municipalities for example, and privatization. Hodge's (2000) study for example found that benefits were similar for contracting to public and private providers.
This suggests that it may not be privatization driving cost reductions but

[13] With the exception of engineering, these sectors that experience cost reductions are for the most part low wage non-unionized sectors, such that privatization simply lead to wage reductions for already generally low wage work.

access to partnerships, economies of scale, and the costing rigour involved with contracted services that are leading to cost control. Cooperation between public service providers then can and has been used as an alternative to privatization, particularly in the presence of monopolistic markets (Bel & Costas, 2006). For example, by adopting a contracting model between government agencies and departments and contracting between different municipal or regional governments, governments have benefited from the economies of scale and information on trends in technology. Governments have also selectively engaged in mixed models where service was contracted on an exceptional or limited basis to access market information regarding private sector service prices and quality (Bel and Fageda, 2010; Warner & Hefetz, 2008). More generally it has been suggested that in the context of greater private sector delivery, publicly delivered services that have survived to date are increasingly efficient and responsive to industry standards (Petersen et al., 2018).

Fourthly, most studies neglect to examine the transaction costs and ongoing incremental monitoring of contractors that is required once services are privatized (Hodge, 2000). Empirical studies have found that high transaction costs lead to governments choosing to deliver services publicly (Bel & Fageda, 2008; Brown & Pototski, 2005). Once management and administrative costs associated with privatization are considered, some researchers have suggested savings may be minimal (Globerman & Vining, 1996).

A fifth qualification was that savings estimates were made based on one-time cross-sectional estimates. Some studies that have examined savings over time found savings being eroded in the long term (Dijkgraaf & Gradus, 2008; Hefetz, Warner & Vigoda-Gadot, 2012). This may be due to public services increasing in efficiency over time due to exposure to contracting, overly optimistic bids by the private sector that are corrected in subsequent rounds of negotiations, or the private sector taking advantage of its position as the existing delivery agent and the displacement of a public alternative. More generally, public enterprises for the most part have arisen in response to market failures (Pitelis & Clarke, 1993, pp.4-6) and dynamic efficiency considerations have often been neglected in the analysis of privatization (Rowthorn & Chang, 1992).

A sixth challenge is that studies examining public and private enterprises competing in the same sector may not account for the fact that private providers often have discretion over their service output and could avoid higher cost assignments, where public services providers generally had mandated service provision requirements with uniform and universal obligations. For example, in healthcare and emergency services, private providers may have the ability to determine the specific procedures they specialize in and have some choice over

which patients they serve. In a parallel public-private system, this can lead to the private sector taking on the most profitable service while the public sector is left to deal with more costly cases (Shaoul, 1997, p.481).

In general studies examining the efficiency of privatization have been accused of severe methodological challenges that leave the reliability of their findings questionable (Boyne, 1998; Letza, Smallman, & Sun, 2004, pp.166-167), a problem that still causes challenges in more recent studies (Bel, Fageda & Warner, 2010; Petersen et al., 2018) and often biases results in favor of privatization. Since the 1990s some researchers have attempted to address these issues and have generated results that further question the findings and continued relevance of these early studies. A number of studies and reviews now indicate little to no advantage of private sector efficiency gains through contracting out or a declining advantage over time (Bel, Fageda, & Warner, 2010; Bel & Warner, 2006 & 2008; Petersen et al., 2018). These studies emphasize the various factors noted above that have led to a diminishing differential between private and public service provision.

Parallel to the rise of these findings have been theoretical developments that have challenged and qualified optimistic predictions of privatization from a number of perspectives. These include examining the role of public service motivation, a reemphasis on competition, information asymmetry and challenges in observing service quality, the role of asset specificity and the importance of direct control in fundamentally uncertain operational environments. While the early theories above predicted that the private sector would be more efficient, these later approaches focus on examining the conditions under which private provision would be more or less likely to support efficiencies.

A number of studies and reviews now indicate little to no advantage of private sector efficiency gains through contracting out or a declining advantage over time.

First, some have pointed out that many public-sector workers appear to be motivated to deliver high-quality services and self-select into public service jobs based on a desire to participate and contribute to socially beneficial work that advances the broader public interest (François, 2000; Heinrich & Marschke, 2010, pp.186-187; Perry & Vandenabeele, 2015). Over time, public service motivation combined with longer job tenure in the public service can lead to workers adopting a stewardship mentality, intrinsically valuing the delivery of high-quality service. Public-sector motivation may lead to high levels of work effort that may not be forthcoming in private companies if such efforts are captured

and withdrawn by private firm owners as profit. This runs counter to the public choice argument that only private financial gain is an effective motivator.

Secondly, as noted above, economists have reemphasized that market structure and the type of service that is being provided will impact the ability of markets to generate efficiencies relative to government delivery. If there are very few companies that can provide the service, markets may not provide much benefit in terms of competition and innovation leading to reduced costs. Also, in practice, many of the services government contract for are only procured by government and therefore governments need to play a role in creating and monitoring the market, which increases administration and transaction costs (Bel, Fageda, & Warner, 2010). These costs and those associated with switching service provision methods, including the development of new management regimes, can be significant (Brown, Potoski & Van Slyke, 2008). Additionally, if specialized capital assets need to be acquired, and government is the only customer, private contractors may require a long term exclusive contract to ensure a return on investment, the successful service provider is effectively given a monopoly on delivering the service. Often the rationale for the initial delivery of these services by government was that they were natural monopolies with high asset specificity and were challenging to effectively regulate (Warner & Bel, 2007)[14]. These factors limit the opportunities for efficiency gains by negating the benefits of competition.

Privatization gives private service providers focussed on profit an incentive to take advantage of these monitoring and enforcement challenges, reducing costs and increasing profits by compromising on service quality.

A third challenge with contracting out is that it makes it more difficult for government to observe and enforce the quality of the service being delivered by an entity separate and outside its authority. Privatization gives private service providers focussed on profit an incentive to take advantage of these monitoring and enforcement challenges, reducing costs and increasing profits by compromising on service quality.

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[14] Asset specificity refers to the idea that some equipment, infrastructure or other investment required for production of a service is very specific to a particular service and cannot be easily repurposed to alternative use. An exemplar is water and waste water treatment infrastructure.

Governments can try to write more extensive contracts to specify service quality in detail and invest in monitoring regimes, but these measures also increase administration and transaction costs, eroding potential savings (Hart, Shleifer, & Vishny, 1997)[15].

A fourth and related challenge with privatization is the loss of control and authority by government when it transfers the assets used and responsibility for delivering a service to the private sector. The government now needs to negotiate with the company to get access to the assets and/or service in contingencies that were not clearly specified in the service contract. The government may be prohibited or face penalties if public provision is resumed, and the reacquisition of assets and talent at a reasonable cost after privatization may be prohibitive. Government then needs to spend resources on making sure that the contract between the two parties is as complete as possible and covers an array of contingencies, including unlikely ones. The more specific and exclusive the assets are to government service delivery the greater likelihood that privatization will create challenges and be costly to administer.

b) Non-efficiency related drivers and other considerations

While cost and efficiency are often the stated reasons for governments pursuing privatization, many other driving factors behind privatization efforts and contracting out have been observed. These include ideological or politically motivated objectives by right-leaning governments to lower reported measures of deficits, reduce the government workforce, lower unionization rates, and reward the business community (Bel and Fageda, 2009; Hodge, 2000, pp.18-24, 154-156; Sundell & Lapunte, 2012; Vickers & Yarrow, 1988, p.157).

With respect to deficit reduction, privatization may help realize net revenues for government if the book value of assets is below their market value. Such revenue generation through privatizations are generally suboptimal as a sole reason for privatization given the associated transaction costs relative to simply managing the deficit through the issuance of additional government bonds (Vickers and Yarrow, 1991, pp.118-119). Right-leaning governments may benefit from a transfer of activity from the public to private sector as it may reward a politically sympathetic and supportive business community with additional opportunities to generate profits. This payoff can be significant since privatization generates a large one-time payoff that effectively captures the net

[15] A related but distinct issue that arises in more practical applications is with respect to the publicly available information differential between public and private delivery options, with private sector information often being less accessible due to commercial confidentiality constraints.

present value of enterprise operations (Vickers and Yarrow, 1991, p.118), creating large potential windfall gains for investors (Stiglitz, 2008). Also, by eliminating unionized positions, reducing the size of the government workforce, increasing the private sector workforce, and potentially generating new shareholders whose interests better align with private business, right-wing governments can further reshape the political landscape and vested interests in their favour and undermine opposition to this agenda (Sundell & Lapunte, 2012). Finally, privatization may provide political cover for service reductions, in turn making the privatized service less responsive to citizen demand and need (Warner, 2008).

Many governments also engage in public service delivery for reasons in addition to or other than direct efficiency considerations within the specific service being delivered. These can include employment and regional economic development considerations, developing economies of scope and/or scale within government, generating knowledge, and reducing income inequality (Rowthorn & Chang, 1992). Given that private markets can under-invest in training and quality (Acemoglu, 1997), public service delivery can also be used to set a higher industry standard through demonstration, creating job ladders and an incentive for workers to invest in training. Privatizing public services eliminates a tool to achieve broader efficiencies within government and to meet these social and economic policy objectives.

Impact of Privatization on MGAS Services

The above review of studies of privatization suggest a number of factors to consider when assessing the potential impacts of privatization and contracting out of MGAS on cost, quality and overall value for money for government in air service provision. The first set of factors focus directly on the efficiency of air service provision, based on the cost of operations and the likelihood of maintaining service quality with private relative to public delivery. This will depend on any advantages of public versus private delivery, including workplace and industry labour market conditions, differential access to efficient technologies and economies of scale, and the degree of competition in the private market. The second set of factors are potential impacts beyond the efficiency of air service provision, including the opportunity to achieve broader government priorities, agendas and obligations, under competing service models. This would include the realization of immediate cash flows for deficit reduction, the potential to support external stakeholder groups, and economic development and other socio-economic considerations.

a) Efficiency, Cost and Quality

i. Wages, Training, Recruitment and Motivations

Cost savings generated through privatization are often based on the replacement of higher-waged workers by more precarious, lower-wage workers. In the case of air services, any cost savings or improved quality of service promised by privatization will not likely be gained through a reduction in wages. According to staff interviewed, and the limited data we were able to access, wages appear to be similar in MGAS and private commercial air services.

With the current shortage of pilots and the expectation that this trend will continue, pilots are able to demand better salaries and working conditions. It is primarily smaller private carriers, such as those seeking to provide MGAS services if privatized, which most acutely feel the impacts of this shortage as their pilots move on to preferred employers as soon as they accumulate the hours needed, resulting in these carriers often employing very junior pilots. This short job tenure makes it ineffective from a profitability perspective to invest heavily in providing intensive mentoring and training. It is unlikely that the observed experience and quality gap observed between public and private provision will narrow in the near future. If previous experience is an indicator, the current and projected high demand for pilots may lead to wages being higher for private pilots.

Presently MGAS has an experienced team of pilots, mechanics and other staff who have made commitments to and value the opportunity to contribute to the public service, and when appropriately resourced are able to operate efficiently and safely. Several staff interviewed cited examples of for-profit provider actions that appeared contrary to the public interest and suggested that profitability concerns can come into conflict with executing duties in the most efficient and effective manner. Examples included inexplicably low numbers of water bomber drops relative to MGAS planes when working on the same fire, excessive mark-ups on parts and service, and service practices designed to extract additional fees from government.

Operating for the public good rather than private profits appears to be a strategic advantage for MGAS in attracting and retaining qualified staff, particularly in the context of the current pilot shortage, and generating a high standard of service. This advantage would be lost if remaining services were privatized and contracted out to a for-profit corporation. Privatization, without any additional stipulations regarding maintaining MGAS training and experience standards, and specifying detailed and enforceable quality standards, will likely result in pilot deskilling and service quality reductions.

The most recent RFP released in July 2018 by the province necessitates no such commitments to maintain high training and experience standards and specifies requirements that are below recent government hiring requirements in the case of non-waterbomber operation, and with respect to flight hour requirements in areas such as fixed wing time flight experience and hours of multi-engine pilot-in-command experience. The RFP also provides a mechanism for accepting proposals with even lower experience requirements.

Privatization, without any additional stipulations regarding maintaining MGAS training and experience standards, and specifying detailed and enforceable quality standards, will likely result in pilot deskilling and service quality reductions.

According to one MGAS pilot interviewed, in subsequent correspondence after the release of the July 2018 RFP:

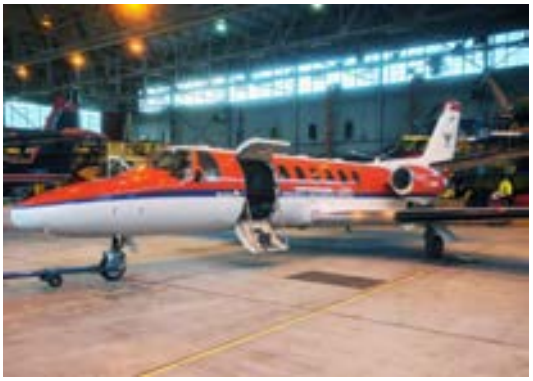
"To my knowledge, we have never hired anyone on any program with experience as low as the RFP specifies. Recent resumes and interviews reveal many applicants who still have multiple times the Captain requirements in the RFP, and they would not act as Captains here at first, they would be First Officers. Lifeflight was the destination for applicants who already built their experience at jobs which required those minima specified in the RFP, they would come here with roughly double the Captain requirements…."

> "To my knowledge, we have never hired anyone on any program with experience as low as the RFP specifies."
> *- MGAS Pilot*

ii. Technology

Another potential advantage of privatization is gaining access to proprietary technologies and operational practices that are found within larger private corporations, with expertise and experience gained from access to private capital investment and operations in many jurisdictions, benefitting from economies of scale.

The Lifeflight program employing the Cessna Citation V jets provides the fastest and most comprehensive medical evacuation service in Manitoba. Increasingly complex health issues require quicker response times by expert health teams; but privatization will likely see the retiring of Cessna Citation V jet service in Manitoba and the higher level of service quality it provides, and at a minimum will see many communities, primarily Indigenous communities, cut off from this service standard. Although it has been proposed that the company taking over Lifeflight services would purchase Cessna Citation V jet aircraft, it is unlikely that any company would be in a position to make this financially viable based out of Manitoba. Since private carriers operate under a Commercial Operators License, they will not be able to land the jet on many of the shorter gravel runways under existing commercial operating requirements. According to pilots interviewed, the commercial operators licence requires that an aircraft be able to land using 60% of the available distance[16]. Gravel runways in rural communities are short and often 100% of the available distance is required to land the jet after accounting for a gravel runway penalty, therefore private carriers would only be able to land the jet on paved Manitoba runways such as Churchill, Thompson, Winnipeg, along with other communities such as Flin Flon, The Pas, and Lynn Lake. Staff interviewed indicated it is unlikely that any carrier would maintain the jet for this limited set of runways and many northern communities would be cut off from jet services.



[16] See 704.49 (1) of the Canadian Aviation Regulations.

Existing physicians and nurses indicated if Lifeflight were privatized they would resign over issues of personal safety.

If the Lifeflight service is privatized, pilots interviewed anticipated that carriers would utilize a turbo prop aircraft such as a King Air for medical evacuations with an associated lower quality of patient care, and the level and experience of medical teams would also likely be diminished. For a time last year, medical teams were forced to use private carriers due to a pilot shortage at MGAS. According to medical staff interviewed, these medical teams expressed their dissatisfaction and inability to provide quality patient care due to the size, condition, pressurization and noise level of the King Air planes and the relative inexperience of pilots. Recruitment of medical staff for LifeFlight flights is already a challenge given the demanding working conditions. Existing physicians and nurses indicated if Lifeflight were privatized they would resign over issues of personal safety.

The latest RFP released by the province validated these concerns of substitution of equipment, with no requirement to commit to jet service within Manitoba and permitting the substitution of turbo prop aircraft. The RFP explicitly notes that jet service will not be available in several communities with short unpaved runways, although it does require a pressurised jet for inter-provincial transport that can make flights without refueling between Winnipeg and Vancouver.

With respect to fire suppression, during interviews pilots expressed similar concerns regarding the potential substitution of inferior technology. MGAS currently primarily relies on the Bombardier CL-215/415 water bomber which according to pilots interviewed is an internationally recognized industry best practice. Fire Boss aircraft are commonly used for fire suppression by private carriers and are less costly to operate than Manitoba water bombers.

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Overall with respect to technology, MGAS appears to be operating with the highest quality equipment in wide use within the industry, which given the severe and often costly implications of inferior service in emergency situations, likely provides value for money for Manitobans. MGAS is recognized as a leader in the field, providing training and technological innovation that is utilized both nationally and internationally. It is unlikely that privatization would provide access to any efficiency gains from access to superior technology, and any cost reductions are likely to be based on reducing the quality and effectiveness of service due to substitution of inferior technology (and less qualified staff). The July 2018 Government of Manitoba RFP is based on the lease of existing government waterbombers and confirms that privatization will not likely lead to any equipment improvements, although secures the continued use of CL-215/415 water bombers.

iii. Economies of Scale

Overall, the current MGAS model allows the government to benefit from economies of scale where private service providers are numerous and market structure is more competitive (i.e. in general transport and basic air ambulance) while maintaining a significant presence where markets face more monopolistic conditions and/or cost-effective quality service is a challenge to obtain (i.e. Lifeflight and Fire Protection)[17]. These latter services, delivered primarily by government, have historically also been able to tap into economies of scale in periods of low local demand by contracting out services to other jurisdictions, generating revenue for the provincial government. While our access to data on costs is incomplete, there is some evidence to support the cost effectiveness of these publicly delivered services. For example, the Office of the Auditor General in 2014 released an assessment of contractor-supplied STARS rotary wing air ambulance service, which had been partially justified by the Department of Health on the grounds of economies of scale. The Auditor General's report found that the "costs per mission for STARS were likely to be 231% to 618% higher than other

> ...any cost reductions are likely to be based on reducing the quality and effectiveness of service due to substitution of inferior technology.

[17] While most general transport work is already done by private carriers, keeping the aircraft and pilots allows for some economies of scope as aircraft can be used by other departments when not needed by Hydro and existing pilots can do this additional work.

province's programs" (p.171) and estimated the cost per mission at $5,250 for the Lifeflight service and $2,250 per mission for the SAAP, although the report did note that comparability between programs was challenging given the different scope of services[18].

Given the mixed model employed by MGAS, it is unlikely then that the current public model is missing out on any significant benefits by being integrated with large private providers. However, this efficiency is contingent on MGAS replenishing its staffing complement to ensure assets are being fully utilized. Given the need for local standby capacity to ensure rapid response time, it does not appear that any of the existing MGAS services would benefit from economies of scale through further integration with a private carrier delivering interprovincial services.

Being integrated into a larger network of service may actually lead to a compromised local capacity. For example, one widely voiced concern by interviewees was that a private operator of water bombers could contract equipment out in winter months to fire-prone parts of the US and it might be more profitable to leave them in California should forest fire seasons overlap (Martin, 2018b). This creates a situation where the equipment is not readily available for quick response in Manitoba. When fire suppression equipment operates through MGAS the resources are always prioritized based on local needs. The RFP released by the province in July 2018 confirms that waterbombers leased from the government by a successful proponent will be available for out-of-province work, but only with government approval outside of the fire season set from April to September. This creates the potential that provincial waterbombers may be out-of-province during an out-of-season fire, such as the Belair Fire in October 2017.

It is also unclear if privatization would include the coordinated dispatch services provided by MGAS staff. This detailed experience and knowledge of Manitoba's network of air service facilities provides specialized local

[18] Shock Trauma Air Rescue Society (STARS) began operating in Manitoba in April 2009, initially for humanitarian efforts related to the 2009 flood in southern Manitoba. In 2011 the province contracted with STARS again to assist with another flood. At the beginning of 2012 the Government of Manitoba entered into a 10-year Service Purchase Agreement with STARS to provide rapid and specialized emergency care on primary responses and urgent inter-facility transports within 250km of Winnipeg. STARS operates as a non-profit/charitable agency, using rotary wing aircrafts. STARS also has operations in Alberta and Saskatchewan. As outlined in the contract with Manitoba Health each year Manitoba Health and STARS negotiate the capital and operating budget for the coming year. The contract does not include a financial ceiling. As part of the contract STARS is to organize/facilitate an ongoing critical and emergent care transport medicine education program for rotary wing air medical providers, fixed wing and ground EMS providers and other rural and critical care providers across the Province, which is part of why the cost is higher. MGAS flight coordinators are not involved in the dispatch of STARS or basic air ambulance. There is a central health ambulatory dispatch system in Brandon that dispatches air ambulance flights to a Basic, STARS or Lifeflight. However, if a flight was dispatched to Lifeflight but the Jet was unavailable, flight coordinators would be involved in procuring the charter.

knowledge that is capable of effectively deploying the fleet to meet the province's needs that may be lost through privatization.

> When fire suppression equipment operates through MGAS the resources are always prioritized based on local needs.

iv. Flexibility of Service and Transactions costs

Privatization of public services have often been associated with high transaction and ongoing contract administration and service monitoring costs. This is especially the case when governments are the only purchasers, there are few private providers, where service quality can be difficult to directly monitor, and when asset composition of the service requires significant dedicated investments to serve the local market leading to the necessity of longer term exclusive contracts for private providers. These characteristics are present in emergency air services and a fully privatized air service would presumably involve significant transaction costs, requiring particularly intensive contract management and the active participation of government in the construction of the market, as suggested by the multi-stage consultant-led process currently underway. Given that government will be undertaking asset sales as part of the proposed privatization, private contractors will require a long-term exclusive contract to ensure a return on investment, with the successful service provider effectively given a monopoly on delivering the service requiring additional oversight. All of these additional administrative and transaction costs will at least partially undermine any purported gains from privatization which generally require competitive markets to be realized.

The current MGAS model, when sufficiently staffed, appears to be providing reliable coverage for emergency services under a relatively predictable cost structure. Given provincial government ownership of the aircraft, services can be mobilized on short notice as needed to meet local demand and respond to support service requests from other jurisdictions and generate revenue for the province. Alternatively, when contracting out these services, in the case of out-of-season fires, governments often need to pay very high rates to access service and private planes may not available due to alternative deployment. Furthermore, if the Government of Manitoba disassembles the MGAS administrative infrastructure and sells all the assets, it will be difficult and costly to resume these services once assets are sold and the expertise imbedded in its staff and institutional structure has dissipated.

b) Non-efficiency related drivers and other considerations

i. Political factors

Governments have been found to privatize for reasons other than, or in addition to, efficiency considerations, including ideological preferences for private delivery or strategic considerations other than value-for-

money. Accounting practices around asset sales can lead to the realization of one-time revenues that can be used to report lower deficits, even if the longer-term implications of privatization result in additional costs to government over time. Based on the valuable asset contingent of MGAS, there is potential risk that privatization could proceed based on a desire to report a lower deficit while reducing overall value for money achieved by government in this service area.

The political circumstances in Manitoba also suggest other observed political drivers of privatization by right-of-centre governments, including rewarding sympathetic business interests, and a hostility towards the civil service and public sector unions, may risk potentially infiltrating the decision making process. The current Progressive Conservative government has been critical of the efficiency of the civil service and has taken an adversarial approach towards public sector unions, who have reciprocated with continued public criticism and mobilization against the government's austerity measures. The government may face challenges with respect to overcoming the perception that alternative motives are driving the process, and transparency around value-for-money calculations will be heavily scrutinized.

ii. Socio-economic Considerations

Public service delivery has a number of advantages beyond efficiency considerations confined to the specific service being delivered, including advancing employment and regional economic development considerations, developing economies of scope and/or scale within government, generating knowledge, and reducing income inequality and addressing other socio-economic disparities.

MGAS provides local employment, provides a predictably costed and reliable service, and does not result in taxpayer-funded profits leaving the province. While MGAS could potentially do more to apprentice and support the development of the industry workforce, MGAS currently sets a high industry standard through demonstration, creating job ladders and an incentive for workers to invest in training. The current model also provides business to local companies, some of them First Nations owned, supporting local employment and community development activities. It is unclear if these opportunities would be maintained under full privatization, which in the case of firefighting services, would likely see a national or multinational company taking over the service, exporting the economic and employment benefits of local provision. The Manitoba government also has a commitment to promoting a diverse workforce, providing incremental employment opportunities for underrepresented groups that may not be maintained by a private provider.

From a socio-economic equality perspective, privatization will likely have an overall negative effect. Manitoba and Canada's healthcare systems are based on the principal of comparable service for residents regardless of place of residence. Given the anticipated reduction in quality that is typical under

privatization more generally, it is expected that the disparity in access to healthcare between residents in and near urban centres and more remote rural and northern residents will be increased. The same would hold true for fire suppression. In Manitoba, a large proportion of northern communities are Indigenous and face disproportionate socio-economic challenges. These communities would again be disproportionally impacted. This directly conflicts with the government's legislated commitment to reconciliation, particularly since it is unclear there are quality neutral cost savings to be achieved.

Conclusion

The Government of Manitoba is pursuing the privatization of the Manitoba Government Air Services and the sale of government aircraft as a way to reduce costs and achieve value for money, but have indicated they will only proceed if quality of service is maintained. Based on an assessment of the nature of air service provision through MGAS and trends in contracting out more broadly, we suggest it is unlikely that meaningful cost reductions can be achieved through any additional privatization of the MGAS while concurrently maintaining existing quality standards.

Demand for pilots is currently high, and the public-private wage gap appears minimal. MGAS also currently enjoys a reputation as an employer of choice, with employees taking pride in their work and seeing their efforts lead to a high quality of service and a safer, healthier Manitoba, as opposed to higher profits for private companies. Meaningful cost savings on wages are then not likely to be significant.

Manitoba currently employs a mixed model of contracting that allows significant integration of private market information and access to private contracting on an as-needed basis. This model allows the government to benefit from economies of scale where private services providers are numerous and market structure is more competitive (i.e. in general transport and air ambulance) while maintaining a significant presence where markets face more monopolistic conditions and/or cost-effective quality service is a challenge to obtain (i.e. Lifeflight and Fire Protection). These latter services, delivered primarily by government, have also historically been able to tap into economies of scale in periods of low local demand by delivering services to other governments, generating revenue for the Manitoba government. These services also benefit from MGAS being entrusted to function under less restrictive conditions due to operating under regulations for private carriers not working for hire or reward, providing public delivery a clear technical advantage unavailable to for-profit private carriers.

The current MGAS mixed model draws on an emerging compromise that aims to take advantage of the benefits of both public provision involving direct control, non-profit production, and public service motivation, as well as the economies of scale and competitive discipline available through contracting. Public sector procurers have come to understand that the proclaimed benefits of privatization of services are hard to realize in service areas where assets are highly task-specific, government is the only purchaser, quasi-markets need to be created and managed, and longer-term service monopolies are often required to broker deals. Under these conditions the public sector, if it has the

capacity, is generally well-positioned to deliver services directly, particularly when it can partner with other governments to achieve scale and optimize asset utilization. MGAS has demonstrated that the Government of Manitoba has this capacity, has developed a reputation as a leader in the field when it comes to innovation and quality, and has contributed both nationally and internationally with respect to training and innovation. MGAS delivers a high standard of service based on the use of well trained and experienced staff, working with quality aircraft assets and technology.

In this scenario, privatization is a risky proposition. The marginal purported gains based on narrow cost efficiencies are unlikely to outweigh the increased transactions costs, ongoing contract administration expenses, and lack of bargaining power and fall-back option once internal delivery capacity has been liquidated. In these scenarios, government is particularly vulnerable to service quality reductions that are hard to measure and address effectively from an arm's length position, as well as being 'held up' upon contract renewal. The associated direct and indirect costs in these scenarios, where service disruption becomes a genuine possibility, can be significantly greater than proclaimed marginal cost reductions, as the Churchill rail line episode referenced in the introduction suggests.

Based on the July 2018 RFP released by the government of Manitoba, concerns

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expressed regarding quality reductions remain. Minimum hiring standards for pilots, according to current staff, are well below current MGAS practice, and proposals for inferior aircraft utilization in some service areas are explicitly being accepted. As summarized by one MGAS pilot: "We were told by Treasury that there will be no privatization unless service is equal to or better than we have now. We see in this RFP that experience, and aircraft performance requirements fall short of what a fully staffed MGAS has provided and could provide again".

MGAS has faced some challenges recently with respect to being unable to

meet cost recovery expectations and take advantage of out of province requests, but these appear to be due to the compromised staff contingent at MGAS arising from a lack of hiring for vacant positions and broader austerity measures. This has resulted in valuable aircraft assets going unutilized and MGAS being unable to respond to out of province requests that could have generated net revenue for the province. These shortages have also led to increasing reliance on more expensive private provision in less competitive sectors. The hiring vacancies have also reduced the capacity of the public service to act as a counterbalance on private contractors in more competitive sectors, which have not always met expected quality standards in the past, and has grounded the SAAP, putting additional pressure on ground ambulance services and reducing quality of service.

Our analysis is based on the nature of the services provided by MGAS, air service industry characteristics, and an assessment based on current trends in the analysis of the contracting out of public services. This is not a substitute for a full cost-benefit analysis as presumably will be undertaken by the Government of Manitoba and would be privy to accurate and relevant cost estimates associated with the various delivery models. The details and assumptions behind such an analysis however should be carefully considered and publicly revealed. We have focussed not only on one-time cost efficiencies that may be available but longer term dynamic implications of privatization. Once these factors are considered, in our framework, the case for privatization of MGAS is particularly weak. The deliberations to proceed with privatization should account for the long-term risk of relative cost inflation, dissipation of local social and economic development benefits, and the possible degradation of quality and responsiveness to local demand (despite contracts assuring otherwise). Once MGAS is fully privatized, it will be particularly difficult to undo, a factor that we suggest should weigh heavily in the government's final decision.

Once MGAS is fully privatized, it will be particularly difficult to undo, a factor that we suggest should weigh heavily in the government's final decision.

Unfortunately, studies of privatization have revealed that efficiency is not always the driving factor when governments aim to privatize. Privatization creates opportunities to reward well-placed private interests at the public's expense, and can be politically advantageous to governments seeking to demonstrate deficit reduction, despite negative long-term value for money implications. The current Manitoba government, despite a clear preference for private sector

solutions, has in at least one case to date reversed course on a proposed privatization scheme for building schools. While the cost case simply wasn't there, a successful counter privatization campaign by labour stakeholders likely played an important role (Pursaga, 2018). Public scrutiny and vigilance may be required to ensure that government air services in Manitoba continue to operate in the public interest.

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Appendix 1

MB Government Air Services MGEU Members as of March 2018

Classifications	Total
Accounting Clerk 1	1
Administrative Officer 2	1
Aircraft Maintenance Engineer 2	17
Aircraft Maintenance Engineer 3	6
Chief Flight Nurse	1
Clerk 3	1
Clerk 5	3
Financial Officer 4	1
Nurse 3	6
Pilot 3	11
Pilot 4	3
Pilot 5	16
Storekeeper 3	2
Storekeeper 4	1
Total	**70**
Source: Manitoba Government Employees Union membership database	

Appendix 2

List of Transportation Safety Board of Canada investigated incidents: Manitoba Government Air Services and private carriers who currently provide or have provided services to the Government of Manitoba

Company	Description	Date	Reported casualties	Findings as to risk, causes	Location	Aviation Investigation Report
Air Spray	Collision with Terrain, Lockheed L-188 Electra	7/16/2003	2 fatalities	Characteristics of the terrain were deceptive	Cranbrook, British Columbia 2.5 nm south	A03P0194
Air Spray	Loss of Control - Collision with Terrain, Cessna T 310Q	5/25/2001	2 fatalities	Stall during low level turning manoeuvre	Red Earth Creek, Alberta, 33 nm NE	A01W0118
Buffalo Airways	Engine failure after takeoff and collision with terrain, Douglas DC-3C	8/19/2013	none	Aircraft weight exceeded its maximum certified take-off weight; operator's safety management system was ineffective	Yellowknife Airport, Northwest Territories	A13W0120
Buffalo Airways	In-Flight Engine Fire, Douglas C-54G-DC (DC-4)	5/1/2006	none	Potentially hazardous fuel line had not been replaced despite Airworthiness Directive	Norman Wells, Northwest Territories	A06W0002
Calm Air	Runway Excursion, Hawker Siddeley HS 748-2A	1/20/1994	none	Equipment failure	No Location Data	A94C0009
Conair	Loss of control and collision with terrain, Air Tractor AT-802A Fire Boss Amphibian	May 22, 2015	1 fatality	Fire behaviour training, flight crew restraint system	Cold Lake, Alberta, 25 nm NW	A15W0069
Conair	Stall at takeoff and collision with water, Air Tractor AT-802A Fire Boss Amphibian	August 14, 2014	none	Operator's standard takeoff procedures, understaffed management structure	Chantslar Lake, British Columbia	A14P0132
Conair	Collision with Terrain, Convair 580	7/31/2010	2 fatalities	Visual illusion	No Location Data	A10P0244
Conair	Fuel Contamination, Bell 206B JetRanger III (Helicopter)	7/26/1994	1 fatality, 2 seriously injured	Water-contaminated fuel	Watson Lake Airport, Yukon 1.8 nm S	A94W0124

Company	Description	Date	Reported casualties	Findings as to risk, causes	Location	Aviation Investigation Report
Gogal Air Services	Loss of control and collision with terrain, Cessna 208B	11/18/ 2012	1 fatality, 7 seriously injured	Departed overweight and with an accumulation of ice, breakdown in the company's operational control	Snow Lake, Manitoba	A12C0154
Gogal Air Services	Engine Failure - Forced Landing, Noorduyn Norseman MK V	7/6/2008	none	Growing age and time in service of cylinders	Snow Lake, Manitoba 15 nm N	A08C0145
Keewatin Air	Controlled Flight into Obstacle and Terrain, Swearingen Merlin II	6/1/1994	2 fatalities, 1 seriously injured	Crew's deviation from a published approach procedure, ineffective in-flight monitoring of the approach, rapidly developing localized fog conditions, and, probably, pilot fatigue	Thompson, Manitoba	A94C0088
Keystone Air	Incorrect fuel type and forced landing, Piper PA-31-350	9/15/2015	8 seriously injured	Fuelling operation was not adequately supervised by the flight crew	Thompson, Manitoba, 1 nm SW	A15C0134
Keystone Air	Loss of control and collision with terrain, Piper PA31-350 Navajo Chieftain	1/10/2012	4 fatalities, 1 seriously injured.	Pilot's inexperience, inadequate awareness of the aircraft's performance in icing conditions and of its de-icing capabilities	North Spirit Lake, Ontario	A12C0005
Keystone Air	Fuel Exhaustion - Collision with Terrain, Piper PA 31-350 Navajo Chieftain	6/11/2002	1 Fatality, 6 Seriously injured.	Company did not provide an adequate level of supervision	Winnipeg, Manitoba	A02C0124
Keystone Air	Collision with Terrain, Piper PA-31-350 Chieftain C-GZFK	11/6/2000	2 seriously injured	No Risk or Causes Data	Winnipeg International Airport, Manitoba, 2 nm S	A00C0260

Company	Description	Date	Reported casualties	Findings as to risk, causes	Location	Aviation Investigation Report
MGAS	Loss of Separation	6/7/1999	None	Arrival and departure controllers did not adequately monitor the flight paths, used non-standard safety-alerting phraseology	Winnipeg International Airport, 5 nm West	A99H0003
Missinippi Airways	Runway Overrun	July 4, 2011	1 fatality	Runway conditions, the pilot's takeoff technique, and possible shifting wind conditions	Pukatawagan, Manitoba	A11C0102
Perimeter Aviation	Low-energy rejected landing and collision with terrain, Aviation LP, Fairchild SA227-AC Metro III	12/22/2012	1 fatality, 3 seriously injured	Lack of required flight documents, Frustration, fatigue, and an increase in workload and stress, Weather conditions	Sanikiluaq, Nunavut	A12Q0216
Perimeter Aviation	Insufficient Fuel, deHavilland DHC-8-102	6/29/2010	none	pilots did not normally supervise fuelling at Winnipeg despite a policy, fuel quantity was not verified	Winnipeg, Manitoba	A10C0104
Perimeter Aviation	Gear-Up Landing, Swearingen SA226-TC Metro II	3/3/2009	none	proper tire size and gear door rigging not ensured	Winnipeg, Manitoba	A09C0028
Perimeter Aviation	Departure from Runway Surface, SA226-TC	11/8/2006	none	left engine fuel control support assembly failed in fatigue	Norway House, Manitoba	A06C0181
Perimeter Aviation	Runway Excursion, Swearingen SA226-TC Metro II	4/16/2002	none	rapidly deteriorating weather conditions	Winnipeg	A02C0072

Company	Description	Date	Reported casualties	Findings as to risk, causes	Location	Aviation Investigation Report
Perimeter Aviation	Controlled Flight into Terrain, Fairchild SA226TC	10/11/2001	2 fatalities, 1 seriously injured	first officer did not monitor the aircraft instruments during a critical stage, absence of approach aids, company standard operating procedures	Shamattawa, Manitoba	A01C0236
Perimeter Aviation	Loss of Control and Collision with Terrain, Beech 95 Travel Air	9/27/2001	2 fatalities	low aircraft speed and encountering wake turbulence	Winnipeg, Manitoba, 2.4 NM North	A01C0230
Perimeter Aviation	Uncommanded Gear Retraction, Swearingen SA226-TC	11/6/1996	none	ambient environmental and runway conditions, the inadequate wiring protection provided by a repair, and the ambiguous procedures in the manufacturer's and operator's inspection programs	Winnipeg, Manitoba	A96C0232
Perimeter Aviation	In-flight Fire, Beech Aircraft Corporation 95-B55 Baron	22 October 1996	1 fatality	mechanical fault	Thunder Bay, Ontario 28.5 nm W	A96C0223
Sky North Air	Loss of Control and Collision with Terrain, Beechcraft A100	January 16, 2009	none	lack of a more-structured training environment and the type of supervisory flying provided increased the risk that deviations from standard operating procedures (SOPs)	Island Lake, Manitoba	A09C0012
Sky North Air	Loss of Control and Collision with Terrain, Beechcraft A100	11/22/2008	none	electrical short circuit, aging wires	Gods Lake Narrows, Manitoba, 5 nm NW	A08C0237

Source: Transportation Safety Board of Canada (2018)