



# Yellowknife Airport Operation & Management

A Strategic Review

Prepared for: Northwest Territories Transportation  
Government of the Northwest Territories

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## Introduction

The Yellowknife Airport (the Airport) is the largest in the Northwest Territories (NWT) in terms of activity. The Government of the Northwest Territories (GNWT) recognizes the importance of the Airport to the economy of the region. The Airport is a critical piece of transportation infrastructure that creates a significant economic impact, but currently represents a potentially unnecessary financial burden to the GNWT.

Thunder Bay Airport Service Inc.(TBAS) is a wholly owned subsidiary of Thunder Bay International Airports Inc., the non share capital corporation responsible for the funding and management of the Thunder Bay International Airport. TBAS was retained by the GNWT to review various aspects of the Airport within the context of identifying potential new and increased revenue opportunities, and operational efficiencies. In addition to the revenue and efficiency review, the TBAS has also been asked to examine potential governance alternatives for the Airport.

### General Philosophy :

In conducting its review and preparing this report, TBAS has been mindful of the following fundamentals:

- The Airport should be operated safely, efficiently and without being a financial burden to NWT Tax-payers. The Airport should contribute to the regional economy in terms of both total economic impact and price competitiveness.
- Financial and other accountabilities should be clear, complete and focused at the airport operator level (currently, determining all capital, operating and other costs associated with the Airport presents a challenge). Where actual costs cannot be obtained (pension cost for example), reasonable, market based apportionments should be used.
- Making the Airport financially self sustaining, should not impose undue and/or inequitable financial burden on Airport users. Cost savings, efficiency gains and new revenue opportunities should be exhausted prior to any greater-than-inflationary price increases.
- The Airport should establish and maintain stakeholder consultation and charging methodologies consistent with internationally accepted recommendations (ICAO).

# Executive Summary

## ***Summary of Recommendations***

1. Two phase expansion of the Airport Terminal Building consisting of relatively small modifications to the existing structure.
  - a. Replace rotating doors at main entrances
  - b. Convert ATB office and non-ATB-relevant usage space to departure, check-in and other primary-use space as demand warrants
2. Addition of one or possibly two passenger loading bridges
3. Modify Apron Parking Plan to improve departure room efficiency and prepare for bridge installation.
4. Expand parking capacity by modifying existing ground transportations system, and eventually moving airline, CATSA and other staff parking to a separate lot.
5. Rethink Glycol Mitigation Strategy
6. Convert to a proactive safety Airport Operations Specialist (AOS) operations methodology
7. Eliminate staffing of restricted area access points by automating the RAIC biometric system.
8. Locate a “Commercial Development Manager” at the Airport to develop and manage all commercial leases and revenue agreements and perform other management functions.
9. Tender the Airport food, beverage and gift shop concessions to a single proponent and bring a name brand like Tim Horton’s to the Airport.
10. Consider establishing an “Airport Commission” wherein the Minister maintains key authorities, but local governance and management are delegated the operations and funding accountability for the Airport.
11. Implement an ICAO-based fees and charges consultation process. Initiate a 3-5 year plan to bring the Airport’s fees and charges close to cost recovery. Stick with the “no-AIF” strategy by adopting a “Airport Capital Fee” methodology, a basic aeronautical fee methodology, or a combination of the two.

## **Airport General**

### **Terminal Building (ATB)**

Current capacity appears to provide good service levels and there are some opportunities to accommodate expected growth, improve service, appearance, functionality, and safety through two phases of modifications.

Phase I (within two years):

- Remove one or both of the rotating doors and associated vestibules in the main part of the ATB and replace with simple double sliding doors with external vestibules.
- Review apron aircraft parking arrival/departure plan with a view to segregating flights and aircraft between screened (CATSA preboard screening) and unscreened. All screened flights should depart from the main departure room and all unscreened flights from the south departure room. Preparations should be initiated to relocate Nav Canada to provide for expansion of the south departure room.
- Add one or two aircraft loading bridges and an external walkway to provide for indoor arrival and departures.
- Reorient the Ground transportation/parking layout to better utilize the space closest to the ATB and provide additional parking.

Phase II (as demand warrants)

- Convert the entire ATB second floor from offices to become the screened departure area. PBS would continue to be performed on the ground floor, but the existing departure room would be reduced in size to allow the expansion of check-in facilities.
- Expand the Parking lot by reclaiming employee/CATSA/airline and other spaces. Build new Employee lot to the north of the ATB entrance road.

### **Airside**

Visual and “seat-of-the-pants” inspection of airside pavement indicates it is in good to excellent condition and well maintained.

Addition of bridges will require redesign of the aircraft parking plan with the objective of creating 3 aircraft parking “stands” within reach of each bridge. The CL65 and B737-600 should be used as the common aircraft types.

A glycol mitigation plan is recommended that includes the use of a vacuum truck to ensure recovered glycol is of the highest possible concentration and therefore presents a smaller disposition challenge.

The airside operations are divided along traditional lines i.e. emergency response, equipment operator/field maintenance and facilities/equipment maintenance. The headcount is therefore high. An important opportunity to improve Airport safety and efficiency exists by combining the Emergency response and field maintenance functions into what is becoming known in the

industry as “Airport Operations Specialists” (AOS) job positions. The opening of the new Combined Service Building (CSB) would be an opportunity to initiate this change in culture and operating philosophy.

### **Ground Transportation System**

Revenue opportunities exist through optimization of the existing facilities. Moving from the current free parking for the first hour will create revenue, and also a greater motivation to try and avoid the parking lot. There are currently many opportunities for “contraband” parking. For example, on returning our vehicle to the rental car parking area there were no available spaces, a quick scan of the vehicles in the lot revealed at least two that were not rentals. A system of controls and policing will have to be implemented to minimize abuse of the several areas of non-public parking in the vicinity of the ATB.

Considerable space is consumed by three lanes of “hotel” shuttle loading/unloading yet shuttles still proceed to the ATB front. This space could be converted to “short term” parking without significantly increasing congestion directly in front of the ATB providing the contemplated traffic control is implemented.

### **Commercial Development**

There is currently no commercial development presence at the Airport. It is recommended that a full time Commercial or Business Development Manager be hired or transferred to the Airport from another GNWT location. This individual can still leverage the resources and expertise within the GNWT, but the Airport will benefit from this manager’s involvement in the day to day operations.

Tasks would include monitoring all existing commercial leases, licenses and revenue agreements. Finding new revenue opportunities, real estate, business and air service development, airport advertising and Airport duty manager functions.

### **Governance**

We believe that for the airport to meet the challenges ahead, a higher degree of separation from the GNWT than currently exists will be required. The objective will be to find the right balance between “control” for the GNWT and autonomy and accountability, both financial and public, for the Airport.

True financial accountability may only be possible by ensuring the Airport receives a scheduled and diminishing amount of public funding.

We are recommending that governance body be established. For the purposes of this report we will refer to this body as the “Airport Commission.” The constituting document for the Airport Commission will be in the form of a law or

regulation (herein after referred to as the Regulation) as appropriate under the GNWT.

Briefly, the Airport Commission will propose the long term vision and direction for the Airport which will require approval by the Minister. The Commission will have the responsibility for all decision-making within the *boundaries* established in the Regulation. The Commission may decide to delegate some or all decisions to the Airport Manager within limitations established by the Commission and consistent with the Regulation. The GNWT will have ex-officio membership on the Commission to ensure direct communications with the Minister.

Commission members will be appointed through an objective appointment process articulated in the Regulation. Selection will be based solely on ensuring the Airport has the best blend of skills and expertise, and no actual or perceived conflict of interest.

### ***Airport Improvement Fees (departure tax)***

Implementing an airport improvement fee (AIF) is an easy way to generate cash for an airport. As is often the case, the easiest solution is not necessarily the best solution and AIF's create inefficiencies, attract additional taxes, unnecessary administrative costs and, to a degree, can compromise the autonomy of the airport operator.

There are other solutions available to the Airport that are far more efficient, flexible, equitable and ultimately better for the people of the NWT. If the financial challenges warrant, we recommend an "Airport Capital Fee" to be charged as a percentage of aeronautical fees as part of the normal billing process for landing and terminal fees. This type of fee can generate the cash necessary to fund capital programs and is transparent to the airlines, equitable, and available at no cost to the Airport.

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## General Observations and Recommendations

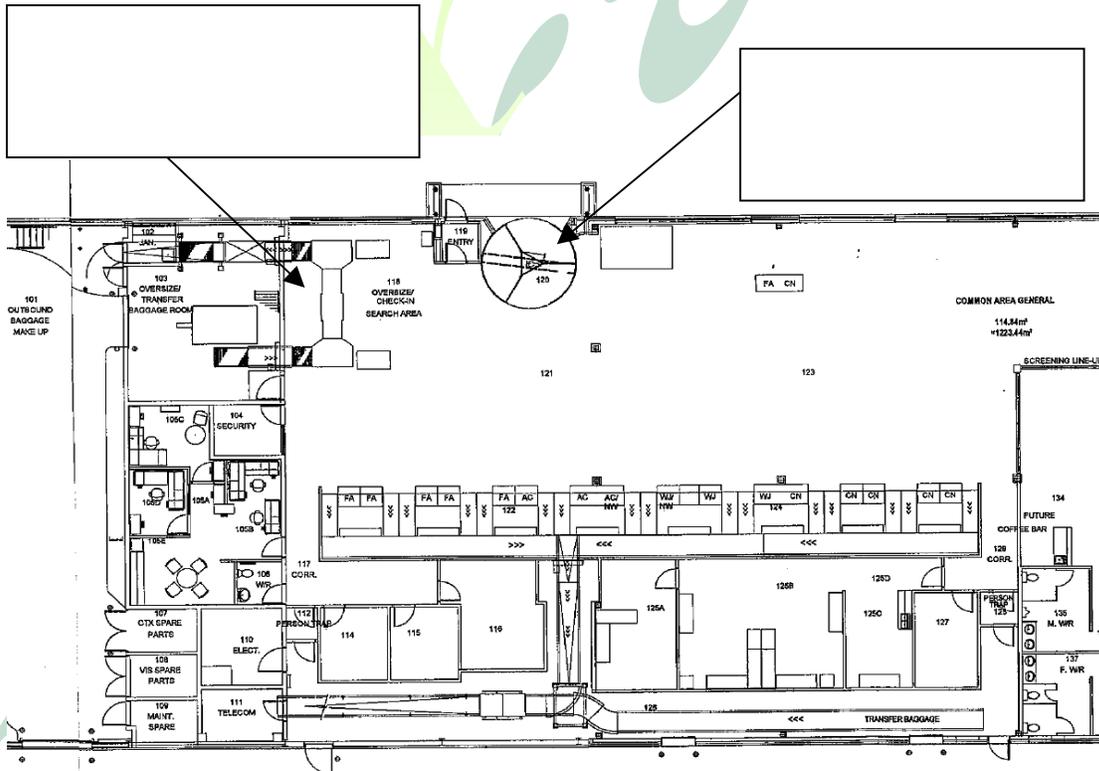
TBAS was provided access to all areas of the Airport and the available Management and employees were both knowledgeable and helpful. In general the Airport appears to be well run and no extraordinary problems were observed.

TBAS recommendations and observations are for the purpose of accommodating growth, improving customer service and safety, increasing revenues and identifying cost effective alternatives that have been proven successful at other airports.

### Terminal Building (ATB)

The ATB is generally in excellent condition, well kept and pleasing to the eye. It provides a good first and last impression for visitors to Yellowknife and the NWT.

TBAS recommends “reclaiming” prime ATB space that is currently being used for non- ATB purposes (Nav Canada technical shop for example). In general, construction of office/commercial space is much less expensive than ATB space, we have therefore considered ways to optimize the current ATB footprint and structure. This may result in the need to construct office and/or commercial

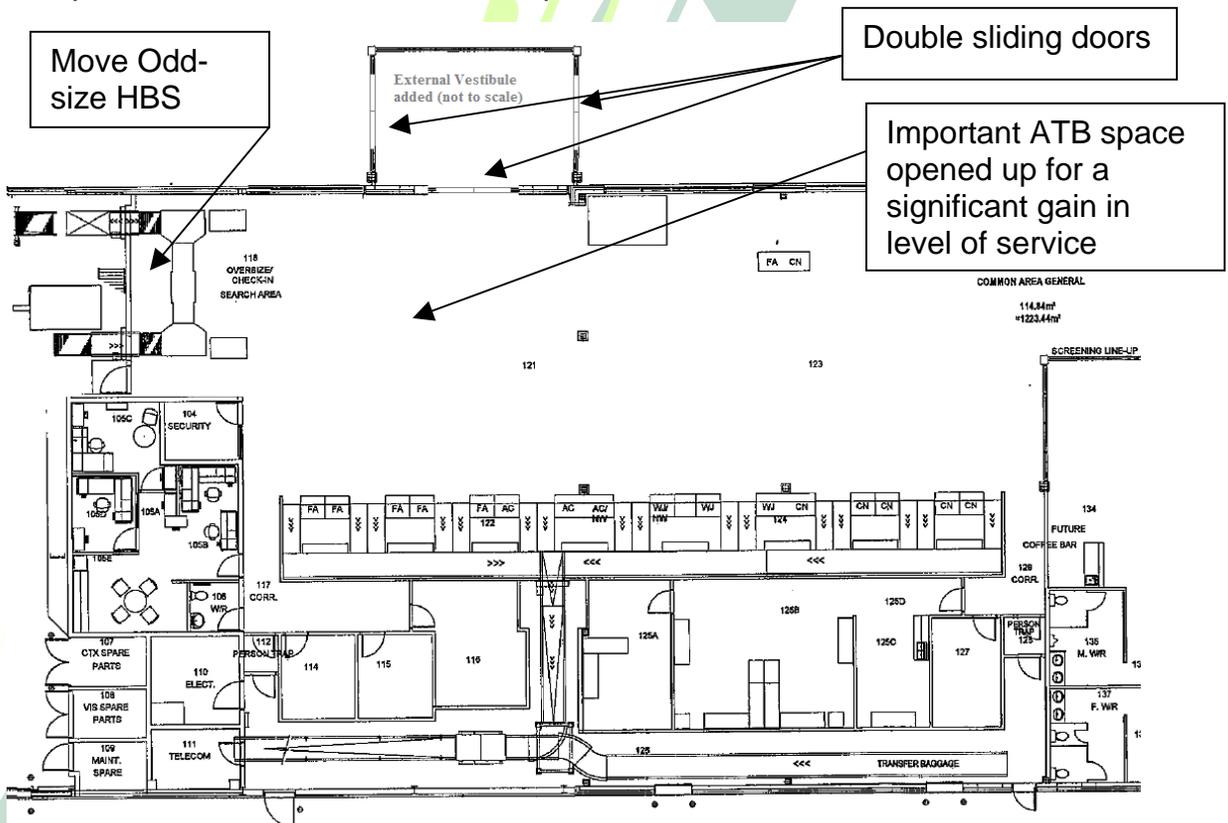


space elsewhere for displaced tenants that have little or no need to be in the ATB.

Current ATB capacity appears to provide good service levels and there are some opportunities to accommodate expected growth, improve service, appearance, functionality, and safety through two phases of modifications.

**Phase I (within two years):**

- Remove one or both of the rotating doors and associated vestibules in the main part of the ATB and replace with simple double sliding doors with external vestibules. These doors consume valuable floor space inside the ATB, are complex and cumbersome in their operation, and do not achieve the desired dampening of outside weather conditions. New external sliding doors should be oriented to maximize wind buffering.
- Remove the surplus baggage conveyance in the southeast corner of the outbound baggage area and move the odd-size baggage screening operations north into the vacated space.



- Review apron aircraft parking arrival/departure plan with a view to segregating flights and aircraft between screened (CATSA preboard screening) and unscreened. All screened flights should depart from the main departure room and all unscreened flights from the south departure room. Preparations should be initiated to relocate Nav Canada to provide for expansion of the south departure room.
- Add one or two aircraft loading bridges and an external walkway to provide for indoor arrival and departures. Walkway will progress from grade to optimal design height (with consideration given to Phase II potential). The addition of the walkway will allow for the demolition of the internal door vestibule in the secure departure area, freeing up more valuable floor space and providing for a better ticket lift desk layout.
- Reorient the Ground transportation/parking layout to better utilize the space closest to the ATB and provide additional parking.

#### **Phase II (as demand warrants)**

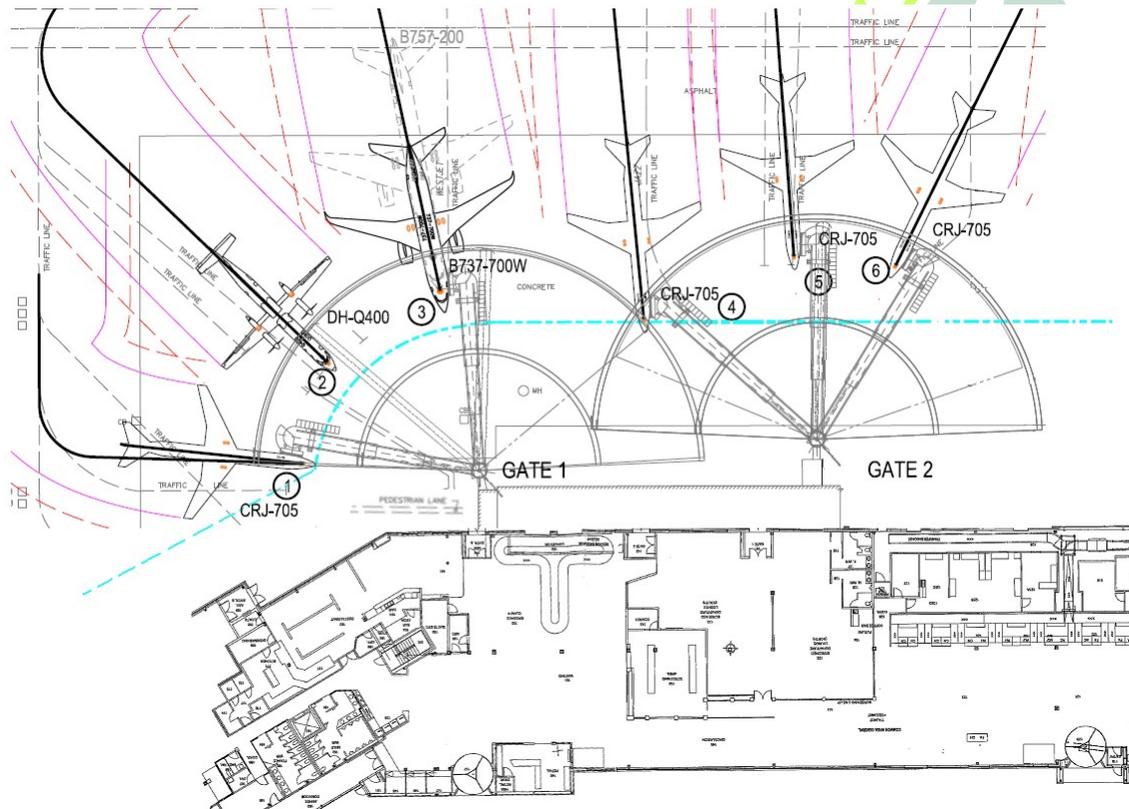
- Convert the entire ATB second floor from offices to become the screened departure area. PBS would continue to be performed on the ground floor, but the existing departure room would be reduced in size to allow the expansion of check-in facilities. Passenger transport to and from the second floor would require the addition of escalators and optimized design to use the existing elevator. This concept is of course subject to design, engineering and structural feasibility.
- Add a second passenger loading bridge if not done in phase I.
- Expand the Parking lot by reclaiming employee/CATSA/airline and other spaces. Build new Employee lot to the north of the ATB entrance road.
- Eliminate the security office and airline exclusive use area from the north end of the check-in area to add additional floor space/check-in desks if required.

#### ***Airside***

As part of Phase I we believe there is revenue available from bridge use fees to support the addition of at least one loading bridge. This would obviously be a big step forward in terms of both customer service and safety and we anticipate the airlines would support the initiative and cost (See analysis in the following section).

The need to redevelop the apron parking plan has already been identified. It is therefore recommended that a plan be developed with the two bridge concept in

mind. Below is a concept only drawing of an apron plan that will allow six parked aircraft of various types to be bridged with two bridges.



*Concept drawing showing two bridge option, connection ramp/walkway and potential apron parking plan. (Conceptual only, not to scale)*

### **Aircraft Loading Bridges**

The percentage of jet traffic at YZF indicates a new revenue and customer service improvement opportunity through loading bridge fees.

Although detailed pricing of a loading bridge installation is beyond the scope of this report, an order of magnitude estimate of \$1million was used for a refurbished mobile (ramp drive) and retractable bridge.

Preliminary analysis of the financial viability of this project indicates a strong income stream generating favourable payback periods.

The assumptions in the analysis are as follows:

Annual inflation: 4.5%

Amortization Period: 10 years

Capital Cost: \$1,000,000                      Bridge Fee: \$80  
 Annual Maintenance Costs: \$10,000 increasing annually by inflation rate  
 Accounting Method: Cash  
 Discount Rate=Inflation Rate

Three scenarios were constructed to build sensitivity into the analysis. A worst, base, and best case was developed based on the assumed number of annual dockings:

	Weekly Dockings	Annual Dockings	Annual Revenue
Worst Case	22	1144	\$ 91,520.00
Base Case	30	1560	\$ 124,800.00
Best Case	40	2080	\$ 166,400.00

These assumptions returned good payback periods and positive net present value (NPV) calculations for both the base and the best case scenarios.

Payback Period	Years
Worst Case	>10 years
Base Case	7.6
Best Case	6.2

NPV	
Worst Case	(\$210,434.74)
Base Case	\$94,320.18
Best Case	\$475,263.84

**Glycol Mitigation Strategy**

TBAS is not supportive of the current or proposed mitigation strategy.

The key to a successful and efficient glycol strategy is to ensure the glycol recovered is of the highest possible concentrations. The current and planned strategies result in high dilution rates resulting in a very large quantity of contaminated liquid to transport or treat.

We recommend the acquisition of a vacuum truck to target glycol soon after application. This will ensure the highest possible concentrations and therefore

the lowest possible transportation and/or disposal costs. A vacuum truck has many other four season uses including groundside and airside surface cleaning, spring cleanup of road sand, clearing drainage catchment areas and sumps. The vehicle and operator can potentially be leased out to other businesses in the community for an additional revenue source. Order of magnitude cost for the vehicle is \$300,000, has an estimated life of 15 years and can be 100% financed through the glycol recovery fees charged to the air carriers.

A sample Glycol Mitigation Plan is attached as Appendix B that lays out the basic concepts of a successful Glycol mitigation strategy.

During some snow conditions, it may not be possible to pick up glycol using the vacuum truck. In this case contaminated snow is pushed (not piled) to a suitable holding area on the apron. At the subsequent storm cleanup operations, the majority of the glycol will have percolated to the bottom. Lightly contaminated snow can be removed from the top and stored/mixed with any other non-contaminated snow for ultimate dilution and evaporation of the remaining glycol. The bottom layer of snow is the only snow to be transported to the Glycol storage reservoir.

Recent research has indicated that pre-treated glycol can benefit sewage/sludge treatment. TBAS recommends initiating discussions with the City of Yellowknife to investigate this potential treatment avenue.

### ***Ground Transportation System***

The current ground transportation system layout can be optimized over time to increase parking capacity and provide more curbside access to more customers. A key component of this will be signage, policing and enforcement of no-stopping requirements. We suggest establishing an agreement with the City of Yellowknife such that Airport Security staff are authorized to issue parking tickets, with the city's existing collection system ensuring the downstream enforcement of the tickets.

The courtesy vehicle lanes, in our view consume too much space and courtesy vehicles were observed disregarding this area in favour of stopping curbside. We recommend allocating an area of the ATB curb to be restricted to courtesy vehicles only. A similar area should be designated, identified and policed as taxis only (space for three taxis). And the remainder designated as passenger loading/unloading private vehicles. The current courtesy vehicle area can then be converted to short term premium parking and priced at a higher rate.

## **Airport Safety & Security**

TBAS is highlighting two opportunities, one in each of the safety and security disciplines.

- Replacing the existing traditional Firefighter and Operations groups with a single Airport Operations Specialist program will enhance safety, reduce risk and increase efficiency.
- Modifications to the airport security procedures will improve efficiency and customer service within the regulated requirements.

### ***AOS Program***

Many airport operators in North America have “dabbled” in the notion of cross-functionality of airport operations personnel. This typically entails training airport firefighters to perform other tasks. This multi-tasking approach can never really achieve the desired outcome because the supplemental tasks will always be viewed as....*supplemental*, the main focus and culture remaining fixated on reactive emergency response and the perceived “status” associated with the firefighter profession.

From a pure risk management perspective, reactive safety measures such as airport emergency response contribute little to improving safety, simply because an accident must have already occurred for the response resources to be use.

For real change to occur a fundamental shift in culture and safety management philosophy is needed and this does not come easily to a segment of aviation that has been entrenched for half a century or more. The Airport Operations Specialist views emergency response as only one component of the job of front line airport operations and safety management.

Yellowknife Airport is currently putting the finishing touches on a new “Combined Services Building.” We recommend taking advantage of this change opportunity to begin the shift in culture. Fundamentally this will involve elimination of real and emotional barriers that are traditionally erected between Emergency response personnel and the rest of the organization.

### **Safety Management Systems**

From Transport Canada: *“Aviation in Canada is growing and the Canadian public is confident that the aviation industry in Canada is safe. We are, however, facing serious challenges. For example, projected growth in aviation means that maintaining the current low accident rate will result in an unacceptable number of*

*accidents. The challenge for Transport Canada and the industry is to find ways to lower the accident rate even further as the industry grows.”*

*“In recent years a great deal of effort has been devoted to understanding how accidents happen in aviation. Since the greatest threats to aviation safety originate in organizational issues, making the system even safer will require action by the organization. After conducting extensive research and consulting with world leaders in safety, Transport Canada Civil Aviation has concluded that the most efficient way to make the Canadian aviation system safer will be to adopt a systems approach to safety management.”*

*“Provision is made within the Safety Management Systems regulation and standard to **ensure that a more proactive approach** is taken.”*

The concept of “safety management” replacing safety compliance/response is the cornerstone of an effective AOS/Safety program.

#### Firefighting is Reactive

By definition, firefighting is reactive. In the early days of aviation and airports, minor engine fires were actually a relatively regular occurrence. Fast-forward to today and engine or any other aircraft fires are exceedingly and increasingly rare.

In addition, over the past 3 decades, the industry has achieved unprecedented improvements in safety performance in terms of lives lost, or virtually any other measure.

The primary role of Emergency Response Services at airports is to prevent fatalities and injuries in aviation accidents and incidents on or near airports. There are few who would dispute this statement. In Canada this translates into the regulated requirement of “.....*providing a fire free egress route for the evacuation of passengers and crew following an aircraft accident.*”

Airport Firefighters have the very best intentions and have delivered emergency response services well. However, for an airport firefighter to actually prevent a fatality or injury, a very specific type of accident must occur in a relatively small geographic area. The probability of this type of accident actually occurring is so small as to be inconsequential from a typical risk management perspective.

In today’s airport environment little or no safety or risk mitigation benefits can be derived from **reactive** emergency response activities (traditional airport firefighting services).

### **Political Acceptability**

Accordingly, eliminating airport emergency response would have little impact on aviation safety or lives saved. In fact there is a legitimate argument that, given our world of finite resources, more lives could be saved if we redirected the resources consumed in building and sustaining airport firefighting capabilities, to areas where lives would almost certainly be saved. For example each year many more people die at uncontrolled railway crossings than have died in the last 20 years at airports (in accidents where airport firefighting services made a difference). In Canada many more people die each year in each of personal watercraft, snow machines, ATV's and certainly on our highways.

But eliminating airport firefighting services is politically difficult. According to Transport Canada "there is a public expectation for emergency response services at airports." The solution therefore is to make the best possible use of airport resources, while satisfying the public expectation.

### **Fire Fighter vs. AOS**

The airport firefighter position, as it is most commonly understood, has evolved through several generations of airport fire halls. There is in fact no training "certification" though the American National Fire Prevention Association (NFPA) accreditation is often erroneously sighted. Instead the Canadian Aviation Regulations (CAR 303), established in the mid 90's provide the training standards (CAR 323) to be met by airport emergency response. However most of the training manuals and procedures have been in existence much longer, having evolved when Transport Canada operated all Canadian airports and little emphasis was placed on innovation or efficiency. In other words airport fire fighter training is generally based on philosophies & practices entrenched over 40 years or more of government run airports. This is not in and of itself a problem, except that the air transportation system has changed dramatically in that time.

An AOS has the primary objective of enhancing safety through preventative activities. The primary responsibility of each AOS is to maintain the airfield through four seasons. The secondary objective is to meet but not exceed the airport's obligations under the CARs (because exceeding the regulatory obligations detracts from proactive safety beneficial activities). This does not mean that response in a legitimate emergency takes a back seat to airport operations, in fact and AOS response is often far more comprehensive. It does mean that preventative airport tasks are to be carried out as a matter of course with the emergency response activities being the exception.

In practical terms this means combining the Airport fire hall with Airport operations. 100% of the front line operations of the airport are conducted through the combined facility. Barriers to communications, a significant organizational and safety issue under the old model, are eliminated and business and operating systems and personnel consolidated into functional teams.

### **Training Fundamentals**

The AOS training program offered by TBAS proprietary to and designed by TBAS. In the most basic terms AOS's are trained to respond to an aircraft accident at the Airport with the objective of providing a fire-free egress for passengers and crew self-extraction. AOS's are not trained as firefighters. The AOS position is structured to meet the regulatory obligations for airside operations, wildlife management, and emergency response and in general ensure all operations are carried out in the safest most effective way possible. Many aspects of Operations and ERS training are already complementary. Refresher training is provided on a periodic and automated basis in accordance with both the regulations and seasonal realities.

### **Recommendation**

Firefighting is an honourable profession and firefighters are justifiably proud of the role they play in the community. Debates on firefighting at airports are always emotionally charged. Airport firefighters have performed their jobs exceptionally well and met or exceeded the objectives established in the traditional emergency response model. The industry however, has moved on. It has reached a point where reactive safety systems cannot provide the improvements in safety demanded by the regulator (and by extension its constituents, the travelling public), and by the industry's risk management aspirations.

In moving toward the safety management system environment the Airport should implement an airport emergency response model designed around the AOS and proactive safety concept. Opportunities for personal development will be created, occupational health and safety will be improved, and service to both aviation and non-aviation customers will improve. Maintenance of the Airport will improve and costs reduced and, perhaps most importantly, aviation safety will benefit in a proactive and efficient way.

### **Security**

Currently the ATB has Restricted Area Information Card (RAIC) biometric access points. These access points are currently manned directly or via remote monitoring and there is a high level of manual activity involved in passing from

the unrestricted areas to the restricted areas and, remarkably, from the restricted areas back to the unrestricted areas.

We believe the procedures can be far more automated while remaining within the intent of the Canadian Security Regulations (CSR) and the Aerodrome Security Measures (ASM).

Reviewing the CSR and the ASM it is possible to make an interpretation that results in the perceived need for security personnel to monitor each access point. The section A1-600 is particularly troublesome as it appears to provide only the three options. However it is necessary to understand the intent of this part of the Security Measures i.e. to render access points "impassable." Note it does not say inoperable. An operator's fundamental obligations under this part of the Security Measures can be met by locking the door (1 of the three options). The question now becomes who is entitled to unlock the door. The answer in our opinion is any person with a RAIC, provided the Airport operator has an access control system that uses an "identity verification system." The RAIC biometric system installed at the airport with the assistance of CATSA is the contemplated identity verification system.

In providing support for this argument, We refer to the Canadian Aviation Security Regulations, starting at paragraph 45 and on, some of the sections here clearly contemplate RAIC-holders entering and exiting restricted areas without supervision, and place the responsibility on the RAIC-holder for ensuring the doors are locked after use and that no unauthorized persons are allowed access.

Paragraph 51 & on requires Airport tenants to ensure their exclusive use access points are controlled, and paragraph 51.2 clearly contemplates the use or control of access points by other than security personnel ("any person who has temporary use or control of a door") and requires that person to ensure there is no unauthorized access (no "piggy-backing") while he/she is using the door.

In our opinion Part A1-600 paragraph 1.(1) is misleading. All this paragraph does is require the airport operator to lock the restricted area access doors (or meet the other two options). It does not limit how or when the operator (or others so authorized) can open them. This is covered under ASM section 6(1)(c).

There is a requirement in the ASM for each Airport operator to assess risk. If the GNWT as the Airport operator has reason to believe the people it issued RAIC clearances to cannot be trusted, have no legitimate need to access the restricted area (security guard has no way of determining if a specific access is legitimate or not beyond confirmation of the RAIC pass), or are incapable of protecting the

access point while they're passing through them, then perhaps more than the regulated requirement is appropriate. We would argue that if this is the case, there is a problem with pass control rather than access control.

The RAIC biometric system was specifically conceived to replace the need for security personnel at access points that can be locked. An example of a door that can't be locked (at some airports) would be passenger arrival doors. Many airports have installed backflow detectors so that these doors are deemed to no longer be restricted area access points and therefore 1.(1) no longer applies. Under the regulations eligibility for issuance of restricted area access is no different for security personnel than any other airport worker. Stated another way, authorized airport workers (RAIC-holders registered in the airport's security access control system) meet the same CSR & ASM qualifications for unlocking restricted area access doors as security staff, and are subject to the same personal and company/tenant regulations to "prevent access by unauthorized persons."

The challenge may be potential arguments with Transport Canada inspectors. The industry often sees different interpretations for various regulations, security and other, in different parts of the country. TBAS recommends taking on this challenge and automating the ATB access points with the RAIC biometric system as it was its intended design.

## **Commercial Development**

### ***Airport Commercial Manager***

Revenue cannot be maximized without a full-time, on-site person responsible for revenue generation. In most cases, incremental revenue comes from understanding the needs of on-site clients and promoting the Airport's products.

There are several "low hanging fruit" opportunities for new revenue that could be realized if tended to on a daily basis. Surplus buildings are an excellent example. The vacant firehall has potential as industrial space. Drawing examples from Thunder Bay, both the old firehall and maintenance garage generate significant rent revenue. Thunder Bay currently generates rent from five different buildings not including the Air Terminal Building. As the rent number is determined from both building and land value, the resulting rent is significantly higher than rent earned from land alone.

Airport advertising is another example available advertising. Almost all advertising is generated locally. Airport advertising was taken back "in house" at Thunder Bay in 2006. Revenues were \$28,500 in 2005 and have increased to \$65,000 by 2009. Efforts on securing local advertisers doubled revenues from this source. Advertisers from out of the local market began to take notice during travels through the terminal building, resulting in the increase of revenues from national contracts as well.

These revenues are only possible through a dedicated staff responsible for marketing and networking firstly in the airport community and secondly, in the community as a whole.

### ***Aeronautical Fees***

An important strategy for the Airport will be to adopt an organized consultation process with air operators. ICAO's Policies on Charges for Airports and Air Navigation Services ( [http://www.icao.int/icaonet/dcs/9082/9082\\_7ed\\_en.pdf](http://www.icao.int/icaonet/dcs/9082/9082_7ed_en.pdf) ) sets out basic criteria for legitimate fees and charges at airports, reasonable consultation timelines and identification of "aeronautical" vs. "non-aeronautical" revenues. Fee increases are possible, with minimum public opposition from airline stakeholders, if a process of consultation and financial justification, including a multi-year financial plan, is implemented. A key prerequisite to this process is being able to demonstrate exactly what the Airport costs (operating and capital) (see section on Financial Accountability Page 19).

YZF has significant “head room” to immediately increase domestic landing fees. Aeronautical fees were compared with YZF, Thunder Bay (YQT) and other airports regularly frequented by YZF customers. Specifically, Calgary (YYC), Edmonton (YEG), Ottawa (YOW) and Montreal (YUL) were included in the analysis due to their importance in route networks of First Air, Canadian North, WestJet and Air Canada.

	<b>Landing</b>	<b>Terminal</b>	<b>Bridge</b>	<b>Aircraft Parking (Daily)</b>	<b>Aircraft Parking (Monthly)</b>
YYC*	\$ 163.84	\$ 460.80	\$ 78.74	\$ 66.37	\$ 1,991.10
YEG	\$ 180.16	\$ 231.49	\$ 81.30	\$ 44.62	\$ 893.24
YUL*	\$ 270.08	\$ 1,084.80	incl. In terminal fee	incl. in landing fee	incl. in landing fee
YOW	\$ 166.08	\$ 297.44	\$ 81.60	\$ 32.28	\$ 653.92
YQT**	\$ 278.08	\$ 230.50	\$ 84.82	\$ 53.62	\$ 1,098.58
YWG	\$ 255.68	\$ 286.37	\$ 80.00	\$ 31.38	\$ 628.74
YZF**	61.76	\$ 290.00	N/A	\$ 31.00	\$ 564.00

\*includes Security Charges  
 \*\*Security Charges do not apply

YZF landing fees clearly offer substantial space to increase revenues. There is room to *triple* landing fees and still be among the lowest cost airport operators. Landing fee revenues for FY08/09 were posted at \$756,396.67. Similar revenues were generated in the following year. A tripling of landing fee revenues would raise another \$1.5million and virtually eliminate the airport’s operating deficit.

Tripling fees in a single increment is clearly not feasible. A long-term, graduated approach to a fees & charges evolution that is reflective of both operating costs and the market is warranted. In 2001, Thunder Bay Airports Services Inc. began operating the Red Lake Airport (YRL). Analysis revealed a similar situation as exists in YZF, with a need for dramatic fee increases. TBAS embarked on consultations with key stakeholders outlining planned operating cost reductions and new revenue targets. Stakeholders were advised, consistent with ICAO recommendations, of a planned, long-term, annual escalation of fees to bring them in line with other airports and the airport’s financial requirements. This process is highly recommended as the single largest opportunity to reduce the airport’s operating deficit.

**Landing Fees for Piston Aircraft**

The fee regime for piston aircraft is a holdover of Transport Canada times. Many municipally operated airports, and growing number of NAS airports charge for piston aircraft landings.

The original rationale for the landing fee exemption resulted from political decisions to support general aviation at its smallest levels. Flying clubs and small charter companies were considered the lifeblood of aviation and, as marginal businesses, worthy of effective subsidization.

Since airport began to transfer, many airports (particularly the smaller municipal airports) began charging for piston aircraft. Larger airports have taken different approaches to increasing the return from this market segment.

Ottawa International Airport does not differentiate fees by power plant. Whether an aircraft is powered by jet, turboprop or piston aircraft, the landing fee is the same.

Airports such as London and the Montreal Airports have instituted a separate pricing regime with annual subscriptions. The subscription maximizes the annual fee at the beginning of the calendar year thereby limiting the cost to regular users of the airport.

Thunder Bay International Airport has incrementally increased the charge to piston aircraft. This has resulted in a nominal increase of 10% in the last 12 years, and has consistently increased aircraft parking fees to capture revenue from all itinerant aircraft including piston power plants.

A review of the air traffic composition by power plant of the airports mentioned reveals that YZF has a relatively small percentage of piston aircraft clients.

	<i>Total</i>	<i>Jet</i>	<i>Turboprop</i>	<i>Piston</i>	<i>Helicopter</i>
Yellowknife	43196	9772	25789	4260	3373
		23%	60%	10%	8%
Thunder Bay	61598	9031	33421	15068	4078
		15%	54%	24%	7%
London	75202	4951	14212	53657	2380
		7%	19%	71%	3%
Montreal-YUL	211999	143221	59839	6242	2695
		68%	28%	3%	1%
Ottawa	132528	66957	29752	31599	4225
		51%	22%	24%	3%

Prior to implementing a landing fee for piston aircraft, consideration should be given to the role played by the relatively small piston segment and whether a fee could result in their permanent departure from the Airport.

GNWT can expect opposition from a piston pricing regime from organizations such as flying clubs, the Canadian Owners and Pilots Association (COPA), and smaller operators.

Should a piston aircraft pricing regime be implemented, the recommended timing would coincide with the implementation of the landing fee increases referenced above.

### **ATB Retail Opportunities**

Because of the relatively low passenger volumes, high margin retail opportunities are limited. To maximize the available market and achieve the greatest level of interest among potential proponents, consolidating all food, beverage and shopping opportunities under one retail partner is the preferred solution and our recommendation.

The volume currently experienced at YZF is not unlike the volume experienced at other airports that were able to strike food concession contracts that included a “Tim Horton’s” franchise. The addition of a nationally recognized brand to the food and beverage mix has a strong stimulating affect on sales. Tim Horton’s arrived in Thunder Bay in 2005. Since its installation, gross revenues from food sales have grown at twice the annualized compounded rate of passenger traffic.

	2004	2005	2006	2007	2008	2009	Annual Growth Rate
Gross Revenue	\$ 689,037.00	838,380.00	721123	798660	835504	847350	4%
%ge Change		22%	-14%	11%	5%	1%	
Passengers	593,129.00	568261	610476	658012	645164	653106	2%
%ge Change		-4%	7%	8%	-2%	1%	

The 2005 Retail Plan correctly identified that YZF benefits from high gross revenues from food and beverage.<sup>1</sup> This may be attributable to the number of patrons visiting the Airport as part of a social outing not connected to air travel. This underscores the opportunity available at YZF from the installation of nationally recognized brands.

<sup>1</sup> Vancouver Airport Services, *Retail Plan, January 2005, p. 1-6*

## **Governance**

Historically there has been an ebb and flow of government ownership/direct involvement in airports in Canada and around the world. A broad array of governance options have been tried with various degrees of success or problems.

### ***United Kingdom***

The United Kingdom employed a for-profit corporate model, transferring control of most major airports to one corporation, but placing restrictions on pricing. While the airports are no longer a financial burden, the government has recently had to act to break up the monopoly that resulted.

### ***United States***

In the US most airports are managed with a high degree of city government involvement. City governments have proven to be susceptible to pressure from airlines and other active groups. Decision-making is slow and compromise often displaces optimum solutions. US airports receive capital funding from the government and, particularly at the small (under 1 million passenger) level, airports are not generally self-sustaining from a long term financial perspective.

### ***Canada***

The Government of Canada created the National Airports Policy in 1994. This eventually resulted in the largest and the provincial capital city airports being managed by non-share capital private corporations (airport authorities). The Federal government maintains ownership of the land and some degree of control is exercised through associated long-term ground leases. This model is generally viewed as being successful but has resulted in some large increases in user costs and arguably not achieved the efficiency gains that were originally contemplated.

The Model has however provided the Government of Canada with a high positive cash flow (from the rent paid by airport authorities) and insulated the government to some degree from the sometimes contentious decisions associated with airports. Concerns have been raised regarding the competitiveness of Canadian airports/air transportation. These concerns are generally related to the high costs associated with add-on fees (including AIF's), taxes and Federal Rent costs.

The remainder of the airports in Canada were transferred (land ownership included) to local and territorial governments as was the case in Yellowknife. Local governments have tried several different approaches in attempts to make their airports viable economic contributors. These range from operating the airport as a municipal or provincial department, to contracting full financial and operational management to specialized for profit firms. Both success stories and frustrations can be found.

### ***Geographically Isolated Communities***

Communities that have few or no transportation options beyond air transportation recognize that airports are critical to the economic well-being and growth in their regions. A high degree of care must be taken to ensure that their airports do not pose restrictions to growth, either through inadequate facilities or high costs.

With respect to the above principle, TBAS believes the Airport must be operated and financed through the most efficient means. To achieve this it will be necessary to transfer financial and other accountabilities directly to the Airport and the individuals charged with its governance and management.

### ***Recommended Governance Option***

We believe that for the Airport to meet the challenges ahead, a higher degree of separation between the Airport and the GNWT than currently exists will be required. The objective will be to find the right balance between “control” for the GNWT and autonomy and accountability, both financial and public, for the Airport.

We are recommending that governance body be established. For the purposes of this report we will refer to this body as the “Airport Commission.” The constituting document for the Airport Commission may be in the form of a law or regulation as appropriate under the GNWT (herein after referred to as the Regulation). The form can be similar to a municipal services board. The GNWT will retain ownership and strategic control of the Airport while delegating local governance, operational management and financial accountability to the Airport Commission.

Briefly, the Airport Commission will propose the long term vision and direction for the Airport which will require approval by the GNWT Minister of Transport. The Commission will have the responsibility for all decision-making within the *boundaries* established in the Regulation. The Commission may decide to delegate some or all decisions to the Airport Manager within limitations

established by the Commission and consistent with the Regulation. The GNWT will have ex-officio non-voting membership on the Commission to ensure direct communications with the Minister.

Commission members will be appointed through an objective appointment process articulated in the Regulation. Selection will be based solely on ensuring the Airport has the best blend of skills and expertise, and no actual or perceived conflict of interest. It is recommended that persons directly involved in air operator businesses and persons doing business with the Airport be specifically excluded from eligibility for appointment to the Airport Commission.

A sample (but by no means complete or proper) Regulation is provided as Appendix A.

### ***Financial Accountability***

Regardless of the governance direction chosen, we believe there is a need to consolidate financial accountability, both operating and capital, to the Airport. We do not propose pricing regulation, however the strategic vision for the Airport should clearly articulate the need for the airport (and therefore the region) to remain competitive.

We believe the Airport should be able to attain financial sustainability within 3-5 years. This would be achieved through a combination of efficiency gains, revenue enhancements and price increases. To achieve progress in each of these three areas, it is important that local management is appropriately motivated and that the Airport can demonstrate clearly the aeronautical costs that can be recovered through legitimate aeronautical fees and charges.

The first step in financial accountability therefore is knowing and accurately tracking all costs and revenues and making this information available to management on a monthly basis. We have experienced difficulty in obtaining comprehensive cost and revenue data for the Airport. We understand that this is, at least in part, due to some financial software issues, however a financially accountable Airport would have no alternative but to repair, audit, and report actual finances on a timely basis.

True financial accountability may only be possible by ensuring the Airport receives a scheduled and diminishing amount of public funding.

## **Airport Charging Methodologies**

TBAS is recommending continuing with the Airport's current no-AIF approach and provides the following rational and alternative methodologies in support of this recommendation.

### ***Airport Improvement Fees (departure tax)***

The Airport Improvement Fee (AIF) originated fundamentally as a means of reducing, or arguably sidestepping, the potentially contentious consultations with airlines necessary to implement increases in landing, terminal and other traditional aeronautical fees. In the AIF model airports effectively achieve fee increases without airline consultations. In the Canadian model the airlines receive a percentage of the AIF fee, a "say" in the airport's capital plan, and the opportunity to maintain a perception that the airline is not increasing fares.

There is no doubt that AIFs achieve the objective of significantly increasing an airport's cash flow and, on the surface at least, appear to be a "no-brainer" for airport operators. Digging a little deeper however, there is at least the potential for unintended consequences. The following are some examples:

- AIF's because they're only imposed on passengers, are inequitable. Airports use AIF revenues to fund projects that benefit all airport users. An equitable solution see users pay based on the facilities and services used. Cargo and other operators for example rely extensively on the airport infrastructure yet under the AIF model pay nothing toward the capital costs.
- 6% "commission" paid to airlines (the alternative; collecting at the airport, is impractical and a public relations faux pas).
- .2% administration fee paid to ATAC.
- GST PST and/or HST costs.
- Up to 12% paid in Federal Rent (at NAS airports).
- Airlines will only commit to remitting AIFs for 95% of passengers (effectively an additional 5% cost).
- Annual auditing costs and the occasional need to hire "forensic" auditor or legal services to get paid.
- History shows airlines are some of the riskiest businesses on the planet, the prudent business person recognizes the risk of "entrusting" airlines with large amounts of cash. Canada 3000, Air Canada, Canadian Airlines, Northwest Airlines, Jetsgo, Delta, United, Sun Wing, Zoom and others went bankrupt owing \$millions in AIFs (AC eventually paid \$8million) Real cost is unknown

- ATAC uses AIF administration revenues to lobby Ottawa often to the potential detriment of airports (e.g. Canada Airports Act).
- Airlines have the right to cause a review of airport capital plans/budget and delay for 2 years.
- Disincentive to travel/economic development.
- AIF's interfere with airline "yield management" and route stimulation... when a \$20 AIF is added to a \$59.00 airfare it becomes a relatively huge disincentive to travel upon which the airlines have no control.

A much less apparent consequence of AIF's are the cost increases that occur almost imperceptively over time due to the perceived availability and apparent ease of implementation of (or increases to) AIF's.

For Example, all key stakeholders are aware of an airport's AIF:

- Employees
- Unions
- Regulators, at all levels
- Contractors, consultants, vendors of all kinds

Airports with AIF's live up to a "cash cow" moniker, costs increase – then AIF increases begin (most Canadian airports have ratcheted up AIFs in addition to fee increases). Economists' term for this phenomenon is "X-inefficiencies... *when an entity has the unrestricted (or restricted) power to raise prices/implement new fees, the real motivation for efficiency is lost.*" Proof that this phenomenon exists readily available and example; a "philosophy" now exists among both airports and airlines when contemplating airport expenditures; The term "AIF eligible" appears to create a high level of relaxation during any expenditure consultation. Almost magic money!

Another important consideration, seldom considered when assessing AIFs, is the "opportunity costs" associated with all of the costs (identified above) incurred with the collection of AIFs. Because AIF revenues are ultimately dollars "earmarked" for airport capital projects, every dollar used to pay overhead costs has an opportunity cost equivalent to the airports cost of capital amortized over the life of the capital asset (at airports normally 15-50 years). Opportunity costs are unseen and unaccounted for in generally accepted accounting practices but real none the less, and are in the tens of \$millions over the course of an airport's capital cycle.

## Alternative Methodologies

We are proposing two methodologies that eliminate or diminishes virtually completely all of the problems and inefficiencies associated with AIFs. Airport Capital Fee and/or straightforward Aeronautical Fees can be used to satisfy all of the Airport financial requirements.

### Airport Capital Fee

A fee structured in the form of a “surcharge” that is applied across all aeronautical fees, for the purposes of this document termed an Airport Capital Surcharge (ACS), and charged as part of the Airport’s normal aeronautical billing process.

An ACS charged in this simple way creates no new costs or administrative burden, can be transparent to airlines, and airlines have the option of passing the cost on to their customers in the form of an “add-on” fee or (preferably) as part of their normal yield management & pricing formulas.

<table border="0"> <tr> <td style="width: 25%;"></td> <td style="text-align: right;"><b>(Annual Budget)</b></td> <td></td> <td colspan="2">Example of invoice for Boeing 737-200 operator</td> </tr> <tr> <td>Aeronautical Revenues</td> <td style="text-align: right;">\$ 1,893,929.00</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Landing Fees</td> <td style="text-align: right;">\$ 1,186,643.00</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Terminal Fees</td> <td style="text-align: right;">\$ 304,665.00</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Bridge Fees</td> <td style="text-align: right;">\$ 44,863.00</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Aircraft Parking Fees</td> <td></td> <td></td> <td colspan="2"></td> </tr> <tr> <td> </td> <td></td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Total Aeronautical</td> <td style="text-align: right;">\$ 3,430,100.00</td> <td></td> <td colspan="2"></td> </tr> <tr> <td> </td> <td></td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Year's Capital cost (Debt service cost and principle on \$10mm)</td> <td style="text-align: right;">\$ 802,425.00</td> <td></td> <td colspan="2"></td> </tr> <tr> <td> </td> <td></td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Capital Fee calculation</td> <td></td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Capital Fee as a Percentage of Budgeted Aeronautical Revenues</td> <td style="text-align: right;">23.39363%</td> <td></td> <td colspan="2"></td> </tr> </table>		<b>(Annual Budget)</b>		Example of invoice for Boeing 737-200 operator		Aeronautical Revenues	\$ 1,893,929.00				Landing Fees	\$ 1,186,643.00				Terminal Fees	\$ 304,665.00				Bridge Fees	\$ 44,863.00				Aircraft Parking Fees					 					Total Aeronautical	\$ 3,430,100.00				 					Year's Capital cost (Debt service cost and principle on \$10mm)	\$ 802,425.00				 					Capital Fee calculation					Capital Fee as a Percentage of Budgeted Aeronautical Revenues	23.39363%				<table border="0"> <tr> <td colspan="4"><b>Yellowknife Airport</b></td> <td style="text-align: right;"></td> </tr> <tr> <td style="border-top: 1px solid black; border-bottom: 1px solid black;">Item</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black;">Description</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black;">Flights</td> <td colspan="2" style="border-top: 1px solid black; border-bottom: 1px solid black;">Amount</td> </tr> <tr> <td>Landing</td> <td>Landing Fees Domestic</td> <td style="text-align: right;">110</td> <td style="text-align: right;">\$</td> <td style="text-align: right;">32,199.00</td> </tr> <tr> <td>Terminal</td> <td>Terminal Fees Domestic</td> <td style="text-align: right;">110</td> <td style="text-align: right;">\$</td> <td style="text-align: right;">18,458.00</td> </tr> <tr> <td>Bridge</td> <td>Loading Bridge Fees Domestic</td> <td style="text-align: right;">110</td> <td style="text-align: right;">\$</td> <td style="text-align: right;">7,920.00</td> </tr> <tr> <td>Aircraft Parking</td> <td></td> <td style="text-align: right;">30</td> <td style="text-align: right;">\$</td> <td style="text-align: right;">500.00</td> </tr> <tr> <td>Capital</td> <td>Yellowknife Airport Capital Fee @</td> <td style="text-align: right;">23.394%</td> <td style="text-align: right;">\$</td> <td style="text-align: right;">13,820.26</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: right;">SUBTOTAL</td> <td style="text-align: right;">\$ 72,897.26</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: right;">GST</td> <td style="text-align: right;">\$ 5,102.81</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: right;">Please Pay This Amount</td> <td style="text-align: right;">\$ 78,000.06</td> </tr> </table>	<b>Yellowknife Airport</b>					Item	Description	Flights	Amount		Landing	Landing Fees Domestic	110	\$	32,199.00	Terminal	Terminal Fees Domestic	110	\$	18,458.00	Bridge	Loading Bridge Fees Domestic	110	\$	7,920.00	Aircraft Parking		30	\$	500.00	Capital	Yellowknife Airport Capital Fee @	23.394%	\$	13,820.26				SUBTOTAL	\$ 72,897.26				GST	\$ 5,102.81				Please Pay This Amount	\$ 78,000.06
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Consistent with ICAO principles, an ACS can be used for both building a capital reserve in preparation for planned capital projects or for funding capital and debt service costs of projects already completed or underway. Included here is an example of the calculation and sample invoice for recovering a \$10million capital expenditure amortized over 20 years. Note that the total cost is about the same as the administrative costs associated with an AIF if it were charged on these same flights.

### **Aeronautical Fee Alternative**

Another efficient alternative methodology, which can be employed in place of or in addition to the ACS methodology, is to recover amortized capital costs as part of the normal aeronautical fees. For example our proposal to install a passenger loading bridge has 100% of the costs recovered through the user fees. Note that depreciation costs are a legitimate cost for the purposes of establishing aeronautical fees (ICAO) but are none-cash costs. This helps ensure that Airport remains in a strong cash flow position.

In a situation where an extension or modification to the terminal building is required for example, an order of magnitude capital cost amortized over 20 years including interest and depreciation would result in an annual expense to the Airport. This annual expense, after consultation with the air carriers would be recovered through a percentage increase in terminal fees.

This simple “cost recovery” approach is both efficient (virtually no additional administrative costs) and equitable i.e. only users of the specific facilities pay for those facilities.

The drawback with this type of charging methodology is that in the short to medium term, aeronautical fees may be relatively high as some may be tempted to compare Yellowknife’s all-inclusive aeronautical prices with others’ AIF-excluded pricing. We note that at least one air carrier however, assesses its airport costs based on the true (AIF included) cost of operating at a particular airport.

Over time, the Airport operator, airlines, the Community, and (the ultimate money-source) passengers will benefit from an efficient non-AIF fee methodology.

### **Conclusion**

The Yellowknife Airport is positioned well to continue to be a catalyst for the economy of the North West Territories. From one perspective the Airport has been left behind by developments in the business of operating airports, but this provides the GNWT with a unique opportunity, that is to learn from a global industry that has gone through the early growing pains of operating as commercially oriented, financially self-sustaining entities.

Not all airport operators have the luxury of implementing strategy that simply places the burden of financial independence on users. Those airports that are geographically more remote with smaller population and economic bases must

ensure that their airports remain efficient to ensure the Community's (even region's) competitiveness in our world of global markets.

TBAS has completed a relatively high level assessment of the Airport and believes the potential exists for it to achieve the objective of being financially self-sustaining, while remaining efficient and competitively priced. Our recommendations constitute changes that are available now to accommodate growth, improve customer service & Safety, recognize efficiencies and increased revenue opportunities.

Appendix A



**GOVERNMENT OF THE NORTH WEST TERRITORIES  
A REGULATION RESPECTING THE MANAGEMENT AND OPERATION OF  
THE YELLOWKNIFE AIRPORT**

A Regulation to establish a Territorial Commission, to be known as “Yellowknife Airport Commission”, to govern, control, maintain, operate and manage the Yellowknife Airport.

Government of the North West Territories

**RECITALS**

1. The Government of the North West Territories Territorial has for ??? years operated the Yellowknife Airport as a department of the Government.
2. The *Territorial Act*, ???? allows Territories to create Territorial Commissions within the jurisdictional sphere of “public infrastructure”, which includes, by definition, Airports.
3. It is considered expedient to establish a Territorial Commission to operate the Government’s largest Airport, herein known as “Yellowknife Airport Commission”.

**NOW THE GOVERNMENT OF THE NORTH WEST TERRITORIES ENACTS AS FOLLOWS:**

**ARTICLE ONE: DEFINITIONS AND INTERPRETATION**

- 1.01 **Definitions:** Wherever a term set out below appears in the text of this Regulation with its initial letters capitalized, the term is intended to have the meaning set out for it in this Section 1.01. Wherever a term below appears in the text of this Regulation in regular case, it is intended to have the meaning ordinarily attributed to it in the English language.
- (a) **Airport** means the Yellowknife Airport.
  - (b) **Commission**, also known as “Yellowknife Airport Commission” means the Commission of Directors of the Territorial Commission established by this Regulation.
  - (c) **Business** means the operation, management, maintenance and control of the Airport, which has, until the passage of this Regulation, operated as the Government’s “Yellowknife Airport Department”.

- (d) **Regulation** means this Regulation, including its recitals and schedules (if any), which form integral parts of it.
- (e) **CEO** means the “chief executive officer” of Yellowknife Airport Commission, and is the person who, on the date of passage of this Regulation, held the title of “General Manager of the Airport.”
- (f) **CFO** means the “chief financial officer” of Yellowknife Airport Commission, and is the person who, on the date of passage of this Regulation, held the title “Manager of Finance & Administration” of the Airport for the Government.
- (g) **Ministerial Liaison** means the non-voting member of the Commission appointed from time to time by the Government to the Yellowknife Airport Commission.
- (h) **Government** means The Government of the North West Territories (GNWT).
- (i) **Member of the Commission (or Commission Member or Member)** means any individual Member of the Commission, including the Chair, whether the person is a voting Member or a non-voting Member.
- (j) **Minister** means the GNWT Minister of Transport or designate.
- (k) **Territorial Commission** means a body corporate as contemplated by the *Territorial Act*.
- (l) **Surplus Revenues** are all revenues of the Business which exceed the operating requirements of Airport, including its requirements to maintain reserve fund accounts at levels established by Commission policy.
- (m) **Yellowknife Airport Commission** is the name of the body corporate established by this Regulation.
- (n) **Yellowknife Airport Commission**, also known as the “Commission”, means the Commission of Directors of the Territorial Commission established by this Regulation.

1.02 **Interpretation Rules:** The captions, article and section names and numbers appearing in this Regulation are for convenience of reference only and have no effect on its interpretation. This Regulation is to be read with all changes of gender or number required by the context. The words “**include**”, “**includes**”, “**including**” and “**included**” are not to be interpreted as restricting or modifying the words or phrases which precede them.

- 1.03 **Citing Legislation:** Each reference to Territorial legislation in this Regulation, unless otherwise specified, is a reference to the Revised Statutes of the Government of the North West Territories, and, in every case, includes all applicable amendments to the legislation, including successor legislation.
- 1.04 **Partial Invalidity:** If any article, section, subsection, paragraph, clause or subclause or any of the words contained in this Regulation is held wholly or partially illegal, invalid or unenforceable by any court or tribunal of competent jurisdiction, the remainder of this Regulation shall not be considered to have been affected by the judicial holding, and shall remain in full force and effect.
- 1.05 **Canadian Business Corporations Act:** To the extent that it is not inconsistent with the *Territorial Act*, and the provisions of this Regulation, the *Canada Business Corporations Act* (R.S.C. 1985, c. C-44, as amended from time to time, including successor legislation) applies to the operation of Yellowknife Airport Commission. In interpreting this statute, any references to “shareholders” are considered references to the Government.

***ARTICLE TWO: ESTABLISHMENT OF YELLOWKNIFE AIRPORT COMMISSION AND ITS COMMISSION***

- 2.01 **Creation of Company:** Yellowknife Airport Commission is established as a body corporate and, subject to the provisions of this Regulation, its Commission is entrusted with the Business.
- 2.02 **Yellowknife Airport Commission Commission:** The Commission shall consist of Ten (10) Members. Eight (8) of the Members of the Commission will have the right to vote at meetings of the Commission. These eight will consist of: one (1) person appointed by Minister as the Commission Chair and seven (7) persons appointed by Minister as Members. A ninth Member of the Commission will be a non-voting Member and will be the CEO of Yellowknife Airport Commission by virtue of office. A maximum of one additional non-voting member may be appointed by the Minister to the Commission as the Ministerial Liaison. Each of the Chair and the voting Members shall meet the qualifications established in this Regulation. The recruitment and selection of voting Members will be consistent with the criteria established by Yellowknife Airport Commission and the Minister so as to provide the Commission with financial, business and airport expertise.

2.03 **Qualifications:** In order to be eligible to be a voting Member of the Commission, a person must meet the following minimum requirements, in addition to any criteria established by the Commission or the Minister from time to time:

- (a) He or she is at least eighteen years of age;
- (b) He or she is not an undischarged bankrupt;
- (c) He or she is not currently employed in the air transportation industry
- (d) He or she is not currently employed by any Government or Territorial department or agency, including Yellowknife Airport;
- (e) He or she is not currently a Member of the board of directors for an entity which operates a aviation business;
- (f) He or she is not currently a majority or significant shareholder of a air transportation-related business;
- (g) He or she is not currently an employee of a Territorial, Provincial or Federal Government;
- (h) He or she will not, as a result of direct or indirect pecuniary interests under the *Territorial Conflict of Interest Act*, as amended, be consistently prevented from participating in the business of the Commission; and
- (i) He or she has demonstrated skills and abilities in one or more of the following areas:
  - i. Business and/or airport industry knowledge;
  - ii. Risk management;
  - iii. Financial literacy;
  - iv. Change management;
  - v. Government relations;
  - vi. Human Resource Management;
  - vii. Governance of a Commission or board; and
  - viii. Strategic planning.

2.03A Qualifications for Some Members: In addition to the criteria set out in Section 2.03 of this Regulation, a minimum of four (4) voting members must be eligible to run for Minister in Yellowknife

- 2.04 **Chair:** The Minister will appoint one Member as Chair based on a recommendation of the Commission once appointed, the Commission shall elect from amongst its Members a Vice-Chair who shall serve as Chair in the absence of the Chair.
- 2.05 **Reappointment:** Any Commission Member is eligible for reappointment on the expiration of his or her term of office, subject to any policies of the Commission within the following parameters:
- (a) Subject to Subsection 2.05(b), no person shall serve as a Member of the Commission for more than nine (9) consecutive years;
  - (b) The nine (9) years referenced in Subsection 2.05(a) may be increased by up to six (6) years where the additional six (6) years are spent as Chair of the Commission.
- 2.06 **Terms of Office:** Subject to automatic vacancies upon such events as death, resignations, and removal from office for cause, the voting Members of the Commission shall hold office for staggered 3 year terms as set out in this Section. After expiration of their terms, each Member shall continue to hold office, with all rights, duties and authorities vested in them, until their successors are appointed to office. The terms of the voting Members, apart from the appointed terms for the Commission in April, 2007, shall expire on June 30<sup>th</sup> and shall be staggered on a three-year basis as follows:
- (a) the Chair shall be appointed for a term of three (3) years;
  - (b) at least two (2) voting Members shall be appointed for terms of three (3) years each, with an expiration date in a year other than the one for the Chair; and
  - (c) at least two (2) voting Members shall be appointed for terms of three (3) years each, with an expiration date in a year other than the one for the Members appointed in (b) above.
- 2.07 **Commission Vacancies:** Where a vacancy occurs in the Membership of the Commission for any cause during the first two years of the term of the Minister that appointed the Commission, Minister shall appoint a qualified person to hold office for the remainder of the term for which his or her predecessor was appointed. Candidates for appointment shall be put forward as set out in Section 2.11 of this Regulation. Where a vacancy occurs in the final year of the term, the vacancy may stand or may be filled in accordance with Yellowknife Airport Commission's policies.
- 2.08 **Meetings:** The Commission shall schedule its regular meetings so that there are at least six regular meetings per year as well as a sufficient number of Commission meetings as required, at the Commission's discretion, for the efficient and effective functioning of the Commission. (It is contemplated that, subject to scheduling issues, one regular meeting will be held in each calendar

month, with allowances for summer and Christmas hiatuses. The policies and procedures required by Section 4.01(a) shall provide as a minimum that:

- (a) notice of all meetings of the Commission, together with the agenda for the meeting, must be provided to the Ministerial Liaison, and the Ministerial Liaison (or his or her authorized delegate) is to be permitted to attend any and all meetings of the Commission; and
- (b) for any item of business on any agenda of any meeting of the Commission, the Commission shall not refuse to hear comments by or on behalf of the Ministerial Liaison.

Where the Commission approves a schedule for a series of meetings in advance, the notice of the schedule can replace the notice for individual meetings required by subsection 2.08(a) above.

2.09 **Remuneration of the Commission:** Each Voting Member of the Commission shall receive an annual stipend of six thousand (\$6,000.00) dollars. The Chair shall receive an additional annual stipend of eighteen hundred (\$1,800.00) dollars. In addition to the annual stipend, Voting Members of the Commission will receive two hundred fifty (\$250.00) dollars per day for each day of service provided to Yellowknife Airport Commission, where a “day” of service for the purposes of this remuneration is defined as each cumulated three and one half (3.5) hours of service.

2.10 **Fiduciary Responsibilities of Commission Members:** Commission Members have a primary fiduciary obligation to Yellowknife Airport Commission. That responsibility includes:

- (a) maintaining in confidence the business of the Commission unless the Commission resolves otherwise;
- (b) avoiding conflicts of interest with the Business, both ethical and financial;
- (c) acting in good faith and in the best interests of Yellowknife Airport Commission;
- (d) complying with all applicable law;
- (e) speaking the truth and making full and fair disclosure and representation when transacting the business of the Commission;
- (f) preparing appropriately for, and participating fully in, meetings of the Commission; and

(g) diligently participating in the Business.

2.11 **Re-Appointment to Yellowknife Airport Commission:** In January or February of each year, the Minister shall establish a recruitment committee for appointments to the Commission to fill the vacancies that will occur upon expiration of Members' terms on June 30<sup>th</sup> that same year. This recruitment committee will be comprised of the following persons:

- (a) the Ministerial Liaison of the Government;
- (b) one (1) representative of the Administration of the Government selected by the Ministerial Liaison;
- (c) the Minister or designate; and
- (d) a representative of the Commission selected by the Chair.

The recruitment Commission shall review the eligibility requirements for voting Members of the Commission and make any recommended changes to the Minister, shall solicit applications for voting Commission Members and shall undertake the interview process associated with the filling of any upcoming vacancies on the Commission. No person seeking an appointment to the Commission is eligible to sit on the recruitment Commission. The recommendations of the recruitment Commission shall be brought to Minister no later than the May following the formation of the recruitment Commission. That recruitment Commission shall be dissolved upon Minister's appointment of Members to the Commission to fill the vacancies.

**ARTICLE THREE: YELLOWKNIFE AIRPORT COMMISSION'S JURISDICTION & FINANCES**

3.01 **Transfer of Jurisdiction:** When this Regulation takes effect, all the powers, rights, authorities and privileges conferred upon the Government by any general or special act with respect to the Business shall be exercised by Yellowknife Airport Commission, and not by the Government. The Commission shall conduct the Business on a commercially prudent basis to provide reliable, effective, competitive and efficient airport service to its customers.

3.02 **Operational Consents:** The Government consents to Yellowknife Airport Commission, through its Commission, exercising any of its powers in any other province or unorganized territories.

3.03 **Corporate Consents Required:** Nothing in this Regulation authorizes the Commission, without the consent of the Government, to:

- (a) Amalgamate with another entity, apply to continue under the laws of another jurisdiction, merge, consolidate or reorganize, or approve or effect any plan of arrangement, in each case, whether statutory or otherwise;

- (b) Take any steps for winding up, arrangement, or dissolution;
  - (c) commit to loans, expenditures or pledges of security to a cumulative value exceeding the Capital Fund Balance of Yellowknife Airport Commission \$12,000,000;
  - (d) amend its corporate policies in a manner inconsistent with this Regulation;
  - (e) operate the Business without and approved Airport Master Plan and 5-year business Strategic Plan
  - (f) enter a new line of business not recognized and approved within the context of Minister's approval of the Yellowknife Airport Commission's Airport Master Plan and/or Business Strategic Plan.
  - (g) provide financial assistance to any person, other than event sponsorships for non-profit agencies;
  - (h) take any steps or make any decisions that would materially adversely affect the tax or regulatory status of Yellowknife Airport Commission; or
  - (i) any matters required by the *Canada Business Governments Act* to be approved by the shareholders of a business Government.
- 3.04 **Properties:** The title to all lands, and buildings of the Airport shall be held in the name of the Government and not in Yellowknife Airport Commission's name or the name of the Airport.
- 3.05 **Debt Financing:** Apart from 3.03 (c) nothing in this Regulation authorizes the Commission to provide for the financing of the Business by means other than fees and charges under Part ?? of the *Territorial Act*.
- 3.06 **Revenue:** The Commission shall use the revenues generated for the operation and maintenance of the Business and for the establishment of reserve funds authorized by the Government for the purposes of the Business.
- 3.07 **Trust:** All assets of Yellowknife Airport Commission that are held and controlled by the Commission are held and controlled in trust for the Government.
- 3.08 **Payment to the Government:** In keeping with its policies and procedures, the Commission shall, unless otherwise directed by the Minister, pay:
- (a) on a quarterly basis, the actual cost for services provided by the Government and for which provision has been made in Yellowknife Airport Commission's approved annual budget; and

- (b) on an annual basis, an amount equal to the reconciliation between the Yellowknife Airport Commission's approved annual budget and the actual costs of services provided to the Airport by the Government.
- 3.09 **Budgets:** The Commission shall submit to Minister through the Government Treasury its estimates for each year
- 3.10 **Annual Financial Statements:** On or before March 31<sup>st</sup> in each year, the Commission shall submit to Minister, a complete audited and certified financial statement of its affairs, with balance sheet and revenue and expenditure statement, for the preceding year. The financial statement shall be prepared by the CFO and submitted to the Government Treasurer and to the Government's auditor.
- 3.11 **Books & Records:** The Government's auditor shall also be the auditor of Yellowknife Airport Commission, and all records of Yellowknife Airport Commission shall, at all times, be open to inspection by the Government's auditor and/or its Government Treasurer.
- 3.12 **Minutes:** The Commission shall provide to Minister on a regular basis, a summary of the topics discussed, rather than detailed minutes, will meet the requirements of this Section.
- 3.13 **Quarterly Reports:** The Commission shall provide to Minister on a quarterly basis, through the office of the Chair, and a report on business objectives and results.
- 3.14 **Strategic Plan:** The Commission shall provide to Minister on an annual basis through the office of the Chair, a summary of its strategic business plans for Yellowknife Airport Commission. The Commission shall approve any changes in service commitments which vary from the service levels identified in the approved strategic business plan.
- 3.15 **Fees and Charges:** Notices by Yellowknife Airport Commission with respect to user fee increases shall be governed by other applicable law and international customs/obligations, and not by the notice provisions prescribed by the Government for its other businesses.
- 3.16 **Joint Meetings:** Joint meetings may be requested by either the Commission or the Government by resolution or by communication of the Chair or the Minister, as appropriate. At least once per calendar year, the Commission and the Minister shall attend a joint meeting to discuss matters of strategic and mutual interest to Yellowknife Airport Commission and the North West Territories.
- 3.17 **Co-Operation Between Administrations:** Notwithstanding the introduction of the Territorial Airport Commission created by this Regulation, administration of

Yellowknife Airport and the Administration of the Government are expected to continue to work together as required from time to time on issues and subjects related to the management of the Airport.

#### **ARTICLE FOUR: YELLOWKNIFE AIRPORT COMMISSION'S REGULATIONS, POLICIES AND PROCEDURES**

- 4.01 **Required Policies:** The Commission shall establish its own policies and procedures as may be required or appropriate for a Federally- regulated enterprise that are consistent with this Regulation, which, at a minimum, must include:
- (a) meeting schedules and procedures;
  - (b) corporate signing authority and jurisdiction;
  - (c) human resources policies;
  - (d) purchasing policies;
  - (e) the maintenance and use of reserve funds; and
  - (f) conflicts of interest between Commission Members and Yellowknife Airport Commission.
- 4.02 **Policies Requiring Minister Approval:** The policy noted in Section 4.01(e) requires the approval of the Minister prior to its becoming effective. Similarly, all future amendments to that policy require the approval of the Minister. None of the other policies or procedures of the Commission require the approval of the Minister.
- 4.03 **Corporate Policies:** The Commission shall establish policies for itself which are consistent with this Regulation, and maintain them, through its corporate secretary, in appropriate minute books.
- 4.04 **Government's Policies:** Wherever the Commission has not established a corporate policy to govern any procedure, issue, matter or event, it shall rely on and apply the Government's policies for that procedure, issue, matter or event should same arise. Where the Commission has issued a corporate policy, its policy takes precedence over the Government's policies on the same subject matter.
- 4.05 **Amendments to this Regulation at Commission's Request:** In the event that the Commission wishes to request that the Government amend this Regulation in any respect, it shall specify its request in writing. Once the Commission has, by recorded vote, passed the resolution requesting the change, it shall provide the

request to the Government in accordance with Section 5.01 of this Regulation. The Government shall, subject to its procedural regulations, place the item on the agenda for the next regularly scheduled legislative meeting of the Minister.

- 4.06 **Amendments to this Regulation at Government's Request:** In the event that the Government proposes to amend this Regulation, it shall provide eight (8) weeks' written notice to the Commission indicating the proposed change. Within the notice period, the Commission may provide comment upon and input into the proposed change.

**ARTICLE FIVE: MISCELLANEOUS PROVISIONS**

- 5.01 **Notice:** Any notice to be given by the Commission to the Government under this Regulation shall be sufficiently given if delivered by hand, or facsimile, or if sent by prepaid first class mail and addressed to the Government at:

The Government of the North West Territories  
Attention: Airports  
4th Floor YK Centre  
4922 48th Street  
P.O. Box 1320  
Yellowknife, NT X1A 2L9  
PH: 867-873-7725  
FAX: 867-873-0297

Any notice to be given by the Government to the Commission under this Regulation shall be sufficiently given if delivered by hand, or facsimile, or if sent by prepaid first class mail and addressed to the Commission at:

Yellowknife Airport Commission  
**Attention: Commission Secretary**  
Yellowknife Airport

Receipt of notice shall be deemed on:

- (a) the date of actual delivery of a hand delivered document; or
- (b) the business day next following the date of facsimile transmission; or
- (c) five (5) days following the date of mailing of the notice;

whichever is applicable. Notice shall not be given by electronic mail.

- 5.02 **Repeals:** Upon enactment of this Regulation, the following regulations of the Government are amended or repealed as noted:

(a) Schedule "B" to the North West Territories Territorial Code is amended to add the following:

Yellowknife Airport Commission	Members - \$9,000 per annum
	Chair - \$10,800 per annum

5.03. **Effective Date:** This Regulation shall come into force and take effect upon its final passing. Notwithstanding the effect of this Regulation, it is recognized that the Commission will take time to become established. Until the Commission has been established and has enacted its corporate Policies, the Yellowknife Airport will continue to operate as it has prior to the date of passage of this Regulation.

Appendix B



# YELLOWKNIFE AIRPORT GLYCOL MITIGATION PLAN

October 1, 2009 to September 30, 2010

## 1.0 GENERAL INFORMATION

The following carriers are active participants in the Yellowknife Airport Glycol Mitigation Plan:

Air Canada Jazz, Canadian North, Kelowna Flightcraft (Purolator), WESTJET.

It is understood that Airlines operating on behalf of charter companies must be signatories to this agreement in order to de-ice at Yellowknife Airport.

Yellowknife Airport directly and through contracted services provides glycol collection services, Inland Technologies Inc. provides waste glycol disposal.

### 1.1 De-icing Operators and De-icing Fluid Disposal Contracts:

#### **Air Canada**

Air Canada Base 026  
Montreal International Airport  
Dorval, Quebec H4Y 1C2

General Manager, Customer Service, Western Canada - Mark Southern -  
604.231.6554

Manager, Station Operations, Don Wall - 204-788-6913 or 204.471.1473  
(C)

Manager, System De-icing & Winter Operations – Denis Gordon -  
902.873.2312

Director, Corporate Safety and Environmental Affairs - Sam Elfassey  
905.676.4706

### **Disposal of Glycol:**

Glycol Collection Services  
**Yellowknife Airport Operations Manager**

Glycol Disposal Services  
**Inland Technologies Inc.**  
9-11 Commercial Street  
Truro, Nova Scotia B2N 5C1  
Operations Manager: William Koncsik: (514)-426-0042 cell (514)-944-4731

#### 1.2 De-icing Season:

Start Date: September 15, 2009  
End Date: May 31, 2010

Total Number of Days: 227

Number of MAJOR De-icing Events: Approx. 5

#### 1.3 Estimated Volume of De-icing Fluid Used

Ethylene Glycol

Type 1 – XL 54 - Based 100,000 Liters  
Type 4 – UCAR EG 106- Based 3,000 Liters

Type 1 E.G. De-icing fluids comes pre mixed at a ratio of 46% Water 54% Glycol.

Type 4 Ultra + comes pre-mixed at a ratio of 35% water 65% Glycol.

## **2.0 SITE SPECIFICATIONS**

### 2.1 De-icing Areas

All de-icing of scheduled passenger aircraft on Apron 1 - frost, light snow or heavy snow will be performed ON GATE. To avoid blocking the aircraft traffic moving to/from gates and taxiways, aircraft on Apron 1 will not push back to de-ice.

Passenger loading bridges are to be fully retracted prior to start of aircraft de-icing on gate. Aircraft de-icing will take place after passengers have boarded and the aircraft is loaded.

Scheduled passenger aircraft on Apron 2 will move north to the line of the concrete/asphalt joint to de-ice. The intention is to minimize the situation where ground board passengers must walk through glycol spray residue to reach and board aircraft. This activity requires the co-operation of all air carriers on and bordering Apron 2.

Fuel frost can be removed at the gate prior to removing the bridge provided the fluid is applied such that it cannot enter the bridge or aircraft cabin and minimal amounts are used to complete the task.

Service companies de-icing cargo and itinerant aircraft on leased aprons are responsible for clean up of spent de-icing fluids. Large volumes such as can be generated when de-icing Convair 580, Dash – 7 and – 8 or similar sized aircraft are usually beyond the capabilities of ground services companies to clean up. If vacuum truck clean up is necessary, ground service company must:

1. advise glycol collection staff prior to application of de-icing fluid;
2. position aircraft so that de-icing takes place no closer than 23m to the apron edge to prevent drainage system inflow.
3. contain the glycol runoff until vacuum truck is available, if de-icing must occur during winter quiet hours (0000 – 0500h daily).

2.2 Apron stand surfaces are asphalt and concrete.

2.3 Detailed Site Plan: See attached drawings.

### **3.0 GLYCOL STORAGE AND HANDLING**

3.1 De-icing Supplier:

**Dow Chemical Canada Inc.**  
109-2001 Ave. Victoria, Unit 197  
Saint-Lambert Q.C. J4S 1H1

Type 1: XL54

Type 4:EG 106

#### **Cryotech De-icing Technology**

34 Rocky Ridge Dr. NW , Calgary, Alta. T3G 4E3

Type 1: Killfrost DF Plus

Type 4: Killfrost ABC-S

3.2 Transported by: Tanker Truck

UNIVAR  
99 Louson Crescent  
Winnipeg, Manitoba R3P OT3

[Cryotech Product]

Trimac  
4066 Ogden Road, SE  
Calgary, AB  
T2C 9Z9

[Dow Chemical Product]

3.3 ????? Airlines stores glycol for some carriers operating into Yellowknife Airport, in a 25,000 litre tank inside of their hanger complex. Other airlines store glycol at their exclusive use facilities. Type 1 propylene glycol fluids in 25,000 litre storage tank, Type 4 propylene glycol fluids held in 250 gal totes.

Air Canada utilizes a double walled, 25,000 litre holding tank for Type 1 fluids located by Air Canada cargo complex. Air Canada will use Union Carbide supplied 275-gallon Forkliftable Tote units for Type 4 fluids.

3.4 For all accidental spills, Airlines or Agencies discovering spill to contact the YELLOWKNIFE AIRPORT for recovery using sweeper vehicle. Point of contact are

Yellowknife Airport Opereration Centre	???
????	
Yellowknife Airport – Snow Desk	???
????	
????-????	Duty Manager (0001-0500hrs)

A spill kit equipped trailer is stored at the Air Terminal Building for immediate use by Airline or Agency staff for initial spill containment.

During Duty Hours: The glycol recovery vehicle will be dispatched immediately to the site for recovery of all spilled glycol. After Hours Response is by staff call-in.

## 4.0 GLYCOL APPLICATION

4.1 See 2.1 as well as attached Airport Plans.

4.2 The following is a list of Air Canada, Bearskin, Maintair Aviation, Northwest and Wasaya De-icing units.

Unit #	Make	Equip Number	De-icing Fluid Cap.	Anti-icing Fluid Cap.	De-icing Fluid Type(s)
<b>Air Canada</b>					
ADL4	Stanray	73T54	1000 Gal	500 Gal	Type 1 & 4
DE 44	Trump	DD 1200	1200 Gal	N/A	Type 1
<b>WestJet</b>					
001	DCF Mfg	6145	1200 litre	N/A	Type 1

4.3 Miscellaneous

- 1) Manual removal of snow from aircraft surfaces using brooms & squeegees.
- 2) De-icing vehicles equipped with adjustable flow nozzles, enabling control of the amount of de-icing fluid dispensed.

4.4 After de-icing operations have been completed, and upon ATC clearance, aircraft will push back and/or taxi off the gate, and then taxi to designated takeoff runway.  
( CL-65, and occasionally B737 and A320 will power out from gate position as per local procedures )

4.5 All de-icing crews are instructed to use only the amount of glycol required to ensure that CARS 602.11 is met in full - clean critical flight control surfaces.

**5.0 CONTAINMENT OF EFFLUENT**

5.1 There is only ???? catch basin inlet point in the area of de-icing fluid application; located on Apron ?????. This catch basin, along with two others

susceptible to inflow (one under bridge #1 and one on apron 2) have been fitted with valved catch basin inserts that are closed for the de-icing season to prevent effluent inflow.

- 5.2 Apron drainage is sheet surface flow to perimeter ditches. Surface flow distance to ditch is a minimum 75m.
- 5.3 Apron surfaces in the approved de-icing fluid application areas are Portland cement concrete, and hot mix asphaltic concrete. Pavement joint /crack sealant was renewed in September 2011. Pavement joints/cracks are regularly inspected and sealed as part of annual joint/crack inspection and sealing works

## 6.0 COLLECTION AND STORAGE OF EFFLUENT

- 6.1 Collection of de-icing effluent from de-icing areas is performed by YELLOWKNIFE AIRPORT Elgin Crosswind “G” vacuum sweeper vehicle. YELLOWKNIFE AIRPORT provides the vacuum sweeper vehicle in support of all air carriers operating into and out of Yellowknife Airport (under contract to Air Canada for billing purposes only).

Collected effluent is deposited in a 22,000 liter holding tank located in a bermed containment area inside gate 2000. Inland Technologies recovers the collected effluents by pump/tanker truck for approved treatment.

- 6.2 When snow accumulations on the apron stands are too great for effective operation of the vacuum sweeper, glycol contaminated snow and slush (pink snow) will be collected by YELLOWKNIFE AIRPORT maintenance staff using surface maintenance equipment. The pink Snow will be plowed into temporary stockpiles on the perimeter of the apron, and subsequently hauled to the designated snow dump area containment berm for disposal.

Number	Type	Make	Model	Capacity	Crew	Reg #
71-9142	Vacuum Sweeper	Elgin	Crosswind Series G	5.73 Cubic M.	1	

## **7.0 DISPOSAL**

### **7.1 Disposal of de-icing effluent.**

The collected liquid de-icing effluent will be deposited in the 22,000L-storage tank in the bermed reservoir at the airport snow dump area located on-site inside security gate 36.

Inland Technologies Inc. on behalf of all air carriers will haul the collected effluent off-site for processing for re-use, or treatment. (under contract to Air Canada for billing purposes only)

### **7.2 Disposal of Pink Snow**

Maintenance staff will haul collected glycol contaminated snow and slush to the snow dump area inside security gate 36.

High viscosity contaminant, i.e. watery slush with non-flowing characteristics, that is collected by the Elgin vacuum truck will be dumped inside the containment berm for dilution and eventual evaporation, or disposal as part of the land farming activities.

Near solid contaminant, i.e. glycol-contaminated snow, collected by piling and hauling, will be dumped in the snow dump pile area, where it will be diluted during spring freshet.

### **7.3 Contingency Plan spills:**

A spill kit equipped trailer is positioned airside on Apron 1A between the Apron arrivals and departures doors.

The trailer is equipped with absorbent materials, containment booms, pads, drain seals; personal protective suits, masks, gloves, and disposal bags barrel, shovels, and broom. Any agency, airline or company employee detecting a spill, or being involved in a spill must report the spill per page 5, Section 3.4 and provide immediate initial response to contain the spill until maintenance forces can arrive and assist in containment and clean up.

YELLOWKNIFE AIRPORT maintenance resources will respond with the Elgin Crosswind vacuum sweeper in response to glycol spills, to collect and transfer the liquid to secure storage. Initial efforts will be to contain the spill, using granulated absorbents, absorbent fiber pads, and drain seals. If necessary, snow dams will be constructed to contain large volume spills.

If absorbent materials are spread to contain a spill these glycol contaminated absorbent materials will be collected either by vacuum sweeper or mechanical means; broom and shovel, or runway sweeper and loader, and hauled to the bermed reservoir at the snow dump area for containment.

## **8.0 Reporting Plan**

Individual Air Carriers through their contractor who supplies de-icing services will report total and types of glycol sprayed, and number of aircraft in a monthly summary within 21 days of the last day of the month. This will be forwarded to the Airport Authority Monthly.

Any unique, out of the normal events will be included as part of the monthly summary.

YELLOWKNIFE AIRPORT as part of mitigation program, will provide regular release of water quality readings from glycol monitoring, to the Air Carriers and De-icing agencies at the airport.

In the case of exceedences, Airport Authorities will provide documentation to the participants of YQT Mitigation Plan, Transport Canada, Environment Canada and The MOEE within 48 hours of knowledge of exceedence.

A year end report will be shared with the Airport Authority at a designated ACC meeting after the de-icing season has come to a close.

8.1 Report generation – see section 1.1 for local management contacts.