



Toronto Pearson January 2014 Operations Disruption: Review and Recommendations



Toronto Pearson

To our passengers and stakeholders:

The operational disruption at Toronto Pearson International Airport between January 5 and 9, 2014 inconvenienced many passengers and their families. Immediately following these disruptions, the Board of Directors of the Greater Toronto Airports Authority (GTAA) established an ad hoc committee to review the impacts of unusual weather and to make recommendations to the Board that will enable the GTAA to take concrete and tangible steps to improve Toronto Pearson's operations, communications and customer service.

Following a substantive and comprehensive review, which included public feedback, stakeholder consultation, and an operations review by GTAA management, as well as independent feedback from industry experts and a Blue Ribbon Panel, the Ad Hoc Committee issued to the Board the report that follows.

The Board has unanimously accepted each of the committee's twelve recommendations and the associated actions as set out in the report and has authorized the report's release to the public. GTAA's management team has already begun to implement the report's recommendations, which, as part of its mandate, the Board will oversee. In November 2014, the Board will update the public on the progress that has been made to improve airport operations, customer service and communications.

I would like to personally thank the members of the Ad Hoc Committee for their tremendous effort in producing a comprehensive and very useful report. I would like to also thank Toronto Pearson's service providers for their cooperation, collaboration and their candid and constructive feedback.

Finally, I would like to thank GTAA's leadership team and employees, and all those who work at Toronto Pearson for their dedication and hard work during what has proven to be a challenging winter.

Sincerely,

A handwritten signature in black ink that reads "Vijay Kanwar". The signature is written in a cursive, flowing style.

Vijay Jeet Kanwar
Chairman, Board of Directors
Greater Toronto Airports Authority

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Committee Chair's Foreword

Toronto Pearson strives to provide visitors with the world-class travel experience they expect and deserve. As Canada's leading transportation hub and a vital economic engine, Toronto Pearson takes great pride in its people and its contribution to the Greater Toronto Area, to Ontario and to Canada.

As the manager, operator and integrator of Toronto Pearson International Airport (Toronto Pearson), the GTAA serves a number of key stakeholders including the travelling public, surrounding communities and airport service providers (e.g., airlines, government agencies, commercial service providers). This is a responsibility we take very seriously. Each of these stakeholders expects Toronto Pearson, as a world-class airport, to meet a high standard of performance.

That starts with ensuring a safe and enjoyable experience for our passengers.

The unusual combination of winter weather conditions experienced at Toronto Pearson between January 5 and 9, 2014 caused numerous unforeseen challenges that significantly inconvenienced many passengers and their families and we fell short of the level of service we strive to provide. For this we take responsibility. We can and will do better and we are taking clear and decisive action. We have used these challenges as an opportunity to improve the services we offer.

To that end, the Board of Directors of the GTAA established an ad hoc committee to study the cold weather challenges we experienced and to propose action items to the Board to enable us to take definitive and expedient action to improve airport operations, communications and customer service. This review has been substantive and comprehensive. It has included public feedback and consultation, an operations review by GTAA management and independent feedback from industry experts.

The goal of our review is to improve the service we offer our visitors. We can do so by improving our operations during unusual winter weather to prevent and mitigate the impacts of disruptions, where possible. When disruptions do occur, we will do a better job of communicating with the public; we will treat our passengers with a high standard of customer service.

This report details the findings of our review. The action items included in this report, many aspects of which have already been implemented, are designed to improve our preparedness and responsiveness when faced with unusual winter weather conditions in the future. However, our responsibility does not end here. In November 2014, the

GTAA will update the public on the progress we have made, and will continue to make, to improve airport operations, customer service and communications during unusual winter weather conditions.

Sincerely,

A handwritten signature in black ink, appearing to read "Shaun Francis". The signature is stylized with a large, sweeping initial "S" and a horizontal line extending to the right.

Shaun Francis
Chair, Ad Hoc Committee
Board of Directors, GTAA

Letter from the Blue Ribbon Panel

April 7, 2014

Shaun Francis
Chair, Ad Hoc Committee
Board of Directors
Greater Toronto Airports Authority
P.O. Box 6031, 3111 Convair Drive
Toronto, ON
Canada L5P 1B2

Dear Mr. Francis:

Blue Ribbon Panel Review on Improving Service and Communication in Unusual Winter Weather Events

As members of the GTAA's Blue Ribbon Panel on improving service and communications in unusual winter weather events, we are presenting our comments on the Committee's report to you.

The Panel confirms to the Ad Hoc Committee of the GTAA Board of Directors that it has independently reviewed and evaluated the relevant submissions and recommendations related to the unusual winter weather disruption experienced at Toronto's Pearson International Airport between January 5 and 9, 2014. We believe our collective expertise in airport operations and corporate communications has allowed us to conduct a comprehensive and thorough review of the Committee's report and its recommendations.

The Panel affirms that each member of GTAA management as well as the Ad Hoc Committee has invested significant time and resources on this review to ensure there is a comprehensive understanding of both what occurred and what is necessary to improve the Pearson International Airport community's readiness for providing the best possible passenger experience during unusual winter weather conditions.

We agree with the opportunities for improvement identified by management and the Ad Hoc Committee, and through our discussions believe that the report — titled the *Toronto Pearson January 2014 Operations Disruption: Review and Recommendations* — accurately reflects our thinking and input. We are confident that with effective implementation of the recommendations in the report, Pearson International Airport will be better positioned to provide the experience its passengers deserve.

It has been an honour for us to serve as members of the Blue Ribbon Panel. We have observed a strong openness and willingness of both management and the Board to critique their respective performances throughout the disruption. At the same time, we

have also witnessed their commitment to use this disruption as a platform for improving future organizational performance.

We look forward to following the progress of the GTAA in the coming months and remain committed to providing any additional support.

Sincerely,



Normand Boivin
Chief Operating Officer
Heathrow International
Airport



Krista Scaldwell
Vice President, Public
Affairs & Communications
The Coca-Cola Company



Murray Sigler
President
Axia North America

About Toronto Pearson Airport

More than 450 organizations provide services at Toronto Pearson, from the largest airline alliances to small, independent retail businesses and a number of federal government agencies. In addition to carrying out its responsibilities, the GTAA coordinates many of the operations between these airlines, other airport service providers and agencies so that the Toronto Pearson community is working together to continuously improve the airport travel experience. Collectively, we strive as a community to provide a high level of customer service.

Figure 1: Overview of Toronto Pearson roles and responsibilities



- Activity is the responsibility of GTAA and is delivered primarily by GTAA
- Activity is the responsibility of Pearson airport service providers and delivered primarily by the Pearson airport service providers
- Activity is the responsibility of the airlines, but some or all of the activities are provided by a third party, depending upon airline
- Activity is the responsibility of GTAA, but some or all of the activities are provided by a third party

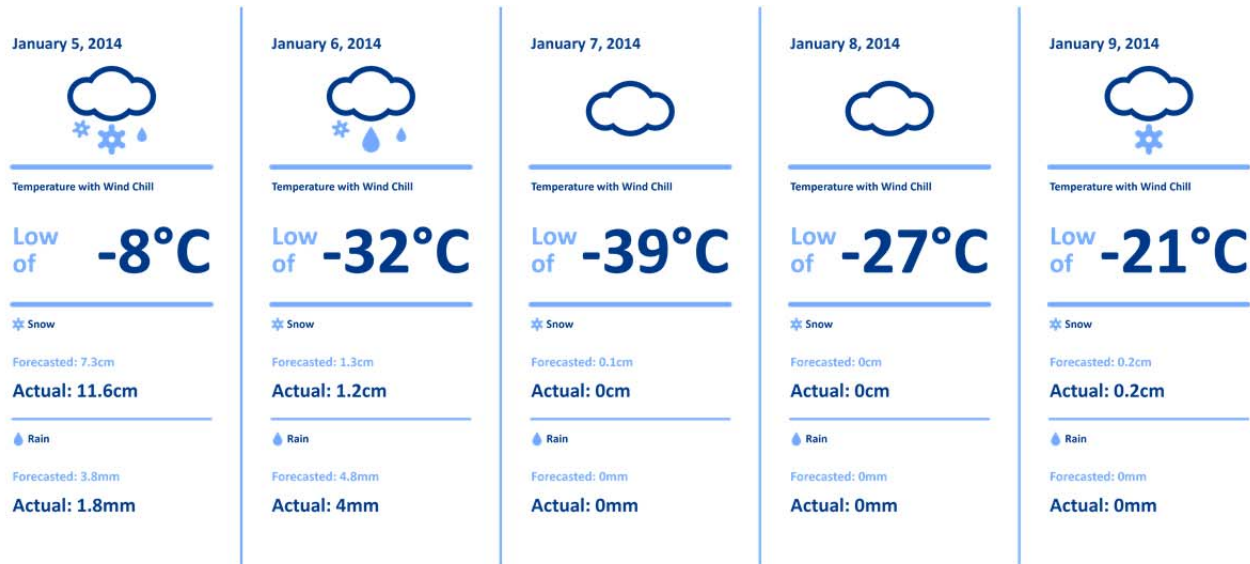


Executive Summary

Background

From January 5 to 9, 2014, much of Canada and the United States experienced an unusual combination of winter weather conditions. Over the period, Toronto Pearson experienced a combination of rain, snow, unexpected snow squalls and wind chills that reached as low as -39 C.

Figure 2: Weather conditions at Toronto Pearson - January 5 to 9, 2014



The weather challenges, which were also experienced by many other airports, resulted in passengers being inconvenienced to an extent that was inconsistent with the level of service we strive to achieve. This report examines why, looks at how to prevent similar levels of disruption in the future, and provides recommendations to minimize the inconvenience to passengers in situations when disruptions are unavoidable.

The combination of unusual winter weather conditions from January 5 to 9, 2014 led to operational challenges at Toronto Pearson that severely disrupted passenger's experiences. Compounding matters, the Toronto Pearson community did not effectively communicate with passengers during the disruption to reduce their inconvenience.

These challenges have presented an opportunity for us to improve our operations and passengers' experience. Implementation of the action items presented in this report will improve the effectiveness of our planning for, and monitoring of, potential disruptions. This will allow the Toronto Pearson community to mobilize the appropriate tools and resources to either avoid or mitigate the impacts of potential disruptions, to the extent possible. When disruptions do occur, communication with our passengers and other audiences must be clear and timely. In keeping with our commitment to provide a high standard of customer service we must seek to make any future disruptions more bearable for passengers.

Following the events of January 5 to 9, the GTAA Board of Directors established an ad hoc Committee (Committee). The Committee was asked to work with management and to independently study the impact of, and operational response to, the unusual combination of winter weather conditions. Further, the Committee evaluated the recommendations of management and recommended action items necessary to improve airport operations, communications and passenger well-being.

Recommendations for Improving our Passengers’ Experience

The Committee’s goal is to improve passengers’ experience during disruptions by avoiding or mitigating the impacts of potential disruptions, where possible. In the aviation industry, some unusual weather and other service disruptions are unavoidable; in these instances, the Toronto Pearson community will improve its operations, communications and guidelines for addressing passenger well-being.

This report includes a number of recommendations that have been develop collaboratively among the Committee, GTAA management and a Blue Ribbon Panel of independent, external experts, taking into consideration the events that occurred and the feedback received from numerous airport stakeholders. The Committee was supported in this effort by Deloitte.

A number of these recommendations will directly benefit passengers; these include improved protocols for communications, a new Toronto Pearson “app,” revised guidelines for addressing the needs of passengers during irregular operations, and improvements to the Toronto Pearson website, WiFi capacity and cellular capacity. While recommendations related to operations may not be noticed in the same way by passengers, they will have important positive impacts on passengers’ experience. The table below highlights the full list of the Committee’s recommendations.

Summary of Recommendations

| Observation | Recommendation | Status | Completion Date |
|---|--|--|-----------------|
| Operations Recommendations | | | |
| Preparation and planning for unusual conditions | <ul style="list-style-type: none"> Recommendation 1: Revise and test the GTAA’s Irregular Operations Plan to harmonize with the operations plans of airport service providers to improve the airport’s response to unusual winter weather and other disruptions. | Working with airport service providers | October 2014 |
| | <ul style="list-style-type: none"> Recommendation 2: Establish clear early-warning criteria and define joint escalation levels and procedures within the GTAA and among key airport service providers to ensure timely, responsive and coordinated decision-making where large-scale service-level disruptions occur or are imminent. | Working with airport service providers | July 2014 |
| | <ul style="list-style-type: none"> Recommendation 3: Expand and better equip the Emergency Operations Centre to allow for improved coordination of airport service providers. | Ongoing | December 2014 |
| | <ul style="list-style-type: none"> Recommendation 4: Secure additional equipment for unusual winter weather operations to improve the resilience of the airport to weather. | Ongoing | November 2014 |

| | | | |
|---|--|--|--------------------------|
| | <ul style="list-style-type: none"> Recommendation 5: Proactively deploy warming stations to protect ground support crews during unusually cold weather. | Complete | January 2014 |
| Traffic management | <ul style="list-style-type: none"> Recommendation 6: Establish a joint traffic management team to improve aircraft arrival and departure metering to allow for active management of potential imbalances during irregular operations. | Working with airport service providers | November 2014 |
| Apron conditions | <ul style="list-style-type: none"> Recommendation 7: Improve the GTAA's Apron Snow and Ice Removal Plan to enable better gate access during weather disruptions. | Working with airport service providers | November 2014 |
| Baggage | <ul style="list-style-type: none"> Recommendation 8: Develop, implement and test an arrival baggage Irregular Operations Plan and identify baggage system and handling escalation criteria to better monitor the inbound baggage process. | Working with airport service providers | November 2014 |
| Communications Recommendations | | | |
| Information sharing | <ul style="list-style-type: none"> Recommendation 9: Improve GTAA internal communication. Improve communication protocols with airlines and other airport service providers to enable a clear, consistent and accurate flow of information among service providers. | Working with airport service providers | September 2014 |
| Passenger, media and employee communication | <ul style="list-style-type: none"> Recommendation 10: Create a passenger-facing app, and enhance joint protocols and develop the necessary processes and other tools for irregular operations communications to passengers, media and Toronto Pearson employees to enable timely and effective communication. | Working with airport service providers | November 2014 |
| Passenger Well-being Recommendations | | | |
| Passenger experience | <ul style="list-style-type: none"> Recommendation 11: Develop and publish GTAA guidelines for responding to the needs of passengers during irregular operations. | Ongoing | September 2014 |
| Communications infrastructure | <ul style="list-style-type: none"> Recommendation 12: Establish an 'Airports Updates' web page that becomes the GTAA website's dominant web page during a service disruption, and improve Toronto Pearson's WiFi and cellular capacity. | Ongoing | Various Completion Dates |

As part of its continuous effort to improve passenger service, the GTAA has already completed a number of key initiatives, both during and since the disruption, that have improved Toronto Pearson's response to unusual weather and addressed key components of the Committee's recommendations, which are discussed in more detail under the heading "Recommendations."

Our Commitment to You

The GTAA sought to understand why the operational challenges occurred, the expectations of the public when travelling through Toronto Pearson during such a disruption, and what the GTAA could do to improve service for travellers during unusual winter weather situations and more generally.

These recommendations range from necessary operational changes to improvements in how Toronto Pearson communicates with passengers and the public and improvements to ensure passenger well-being is a priority.

Our responsibility does not end with proposing these recommendations. The Board is accountable for the efficient implementation of these recommendations by management. As such, we will issue a public progress report in November 2014.

Committee Observations

While the unusual weather conditions were the primary catalyst for the disruption, the Committee has determined there were several factors that contributed to the magnitude of the impact felt by passengers, including the following:

- The severity of the weather conditions between January 5 and 9, 2014 exposed weaknesses in the Airport's preparedness, including equipment underperformance in an unusually cold weather environment and the impact of unusually cold weather on aircraft turnaround times.
- Arriving aircraft far outnumbered departing aircraft, and the difference became unmanageable. The traffic management tools in place for managing this difference proved inadequate in these circumstances.
- The GTAA and the airlines were faced with a choice: they could focus on clearing the backlog of waiting arrivals and get people off arriving planes as quickly as possible, or they could concentrate on measures to ensure gate areas were thoroughly clear of snow and ice. They chose the former. However, this ultimately led to a deterioration of the facility grounds (apron) near the gates, which increased the length of time to turn around aircraft and resulted in even longer delays for passengers waiting on arriving aircraft for a gate.
- The preceding factors caused baggage to arrive late at the baggage carousels. Baggage issues were exacerbated by the decision to allow passengers to deplane but to leave their checked baggage on the aircraft. Once the passengers were off each plane, it was pushed back, another took its place and the same procedure was followed. This allowed passengers to be deplaned much more quickly than if each plane had to wait at the gate until all the checked baggage was removed. However, airport protocols for baggage did not adequately address a situation of this complexity.
- Information was not shared frequently enough and effectively across airport services providers.
- Existing communications protocols and tools did not sufficiently address the information requirements of passengers, the media and employees.
- The GTAA has a number of amenities (water and diapers, for example) on hand during irregular operations. Other than water, these amenities were not proactively offered to passengers, demonstrating a need for clearer guidelines, and greater awareness of those guidelines and of the amenities available during irregular operations.
- The GTAA's website was not configured to provide timely updates on the status of the airport during an irregular operation of this nature. The website ultimately became unstable and could not be updated during the disruption. With the volume of users at Pearson during the disruption, the airport's WiFi and cellular capacities reached their

limits, creating communications issues for passengers and the rest of the Toronto Pearson community.

Notwithstanding the unusual weather event, safe and secure passenger operations and employee work conditions were maintained at Toronto Pearson throughout the event.

The hard work and dedication of GTAA employees and all those who worked at Toronto Pearson during this challenging winter season merit special attention. Their continued support throughout this period is greatly appreciated.

Stakeholder Feedback

The GTAA sought input from three key stakeholder groups: the travelling public, employees and other airport service providers (e.g., airlines, agencies and commercial service providers).

Frequent travellers who took part in small focus groups most often mentioned issues related to the level and quality of communication during the unusual winter weather disruption.

According to the feedback, passengers want communication to be:

- frequent and timely;
- accurate; and
- consistent.

The Review Process

The Committee conducted a fact-based review of the GTAA’s “cold weather operations,” focused on the events of January 5 to 9, 2014 at Toronto Pearson.

Figure 3: Overview of Committee Reporting Structure



Further, the Committee engaged a Blue Ribbon Panel (Panel) of independent, external experts to independently review and evaluate submissions received by the Committee to ensure that the Committee’s recommendations sufficiently addressed the issues and would contribute to improving the service offered to passengers. See Appendix B for biographies of the Panel members.



Toronto Pearson January 2014 Operations Disruption: Review and Recommendations

Committee Observations

Following the review, the Committee made a number of observations as to how the GTAA and airport service providers could improve the performance of Toronto Pearson during unusual winter weather conditions. These observations and their corresponding recommendations address operations, communications and passenger well-being. The recommendations are structured this way to:

- prevent or mitigate, to the extent possible, the impacts of disruptions of this nature;
- enable effective and efficient communication with service providers, passengers, news media and employees in advance of and during disruptions; and
- address passenger needs, to the extent possible, during an actual disruption.

Operations

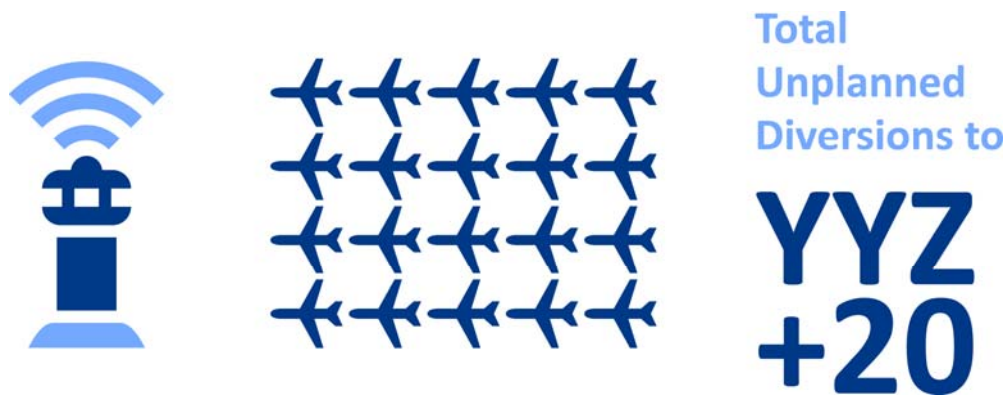
Several airport service providers commented that they had not seen a combination of weather events like those experienced at Toronto Pearson from January 5 to 9, 2014 in over a decade. During this period, the airport experienced several consecutive days of significant weather events, including heavy snowfall, followed by more snow, fog, freezing rain and ice pellets. These conditions, when combined with the unusual cold and two unexpected snow squalls, resulted in significant operational challenges and service disruptions. The safety of passengers and employees was the top priority of the GTAA and the Toronto Pearson community as they responded to these weather events.

The unusual winter weather was a central cause of the service disruption; however it was one of several factors that significantly contributed to the size and scale of the impact felt by passengers. These factors included:

- **Preparation and planning for unusual conditions:** Recent winters in Toronto have been generally mild, with few, if any, cold weather events leading to significant service disruptions. The severity of the weather disruption in January exposed weaknesses in the Airport's preparedness including equipment underperformance in an unusually cold weather environment and the impact of unusually cold weather on aircraft turnaround times. A more proactive approach in future would mitigate the impact of cold weather and other weather-related events on airport operations.
- **Traffic management:** As the January weather disruption unfolded, arriving aircraft far outnumbered departing aircraft to the point that the difference became unmanageable. This was a result of several factors, including a number of diversions from other airports experiencing unusual winter weather, two unexpected snow squalls that delayed departures and inadequate traffic management tools for managing the size of the imbalance. While short-term imbalances occur over the course of each day, an airport

must balance its overall departure and arrival rates, a task that was made more challenging given the impact of the weather at other airports.

Figure 4: *Unplanned diversions to Toronto Pearson*



- **Apron conditions:** With aircraft and service equipment parked at gates, snow-clearing crews had difficulty accessing some areas of the apron (the area where aircraft are parked, unloaded or loaded, refuelled or boarded) to thoroughly clear snow and slush. At the same time, an increasing number of aircraft were holding for gates. Faced with a choice of clearing the backlog of waiting arrivals to get people off aircraft as quickly as possible, or taking proactive measures to ensure gate areas were thoroughly clear of snow and ice, the GTAA and airlines focused primarily on getting passengers off the planes. This course of action, which seemed appropriate at the time, ultimately led to a deterioration of the apron near the gates, which increased the length of time to turn around aircraft, and resulted in even longer delays for passengers on arriving aircraft waiting for a gate.

Potential disruptions in these circumstances would be mitigated by a clear agreement between the GTAA and the airlines (and accompanying action plan) on closing of gates and directing the resources needed to ensure efficient snow-clearing.

- **Baggage:** Due to the apron conditions and increased offloading times, passenger baggage was extremely late arriving at the baggage carousels. The preceding factors caused baggage to arrive late at the baggage carousels. Baggage issues were exacerbated by the decision to allow passengers to deplane but to leave their checked baggage on the aircraft. Once the passengers were off each plane, it was pushed back, another took its place and the same procedure was followed. This allowed passengers to be deplaned much more quickly than if each plane had to wait at the gate until all the checked baggage was removed. Several issues contributed to the scale of the baggage disruption, including the lack of a defined area to store inbound baggage during a disruption of this nature, the absence of a defined process for handling inbound baggage from international flights (in circumstances where passengers would not be in

the terminals to claim their bags), and limited coordination of communications among various members of the Toronto Pearson community.

Communications

The operational factors described above affected passengers in a number of ways. Communications challenges meant passengers, media, employees and service providers received inconsistent, infrequent or, in some cases, no information. These challenges included:

- **Information sharing:** Airport service providers noted that more effective and more frequent communications channels are required during irregular operations. In hindsight, the operations and decisions of the GTAA, airlines and other airport service providers during the unusual winter weather disruption would have benefitted from more effective collaboration, information-sharing and face-to-face meetings, rather than primarily relying on operational conference calls. The sharing of information among operations, communications and customer service employees and other frontline airport employees was not as effective as it could have been during the disruption.
- **Passenger, media and employee communications:** During regular day-to-day operations, airlines are passengers' appropriate primary point of contact. Each airline has its own media relations and employee communications protocols. During irregular operations that affect the entire airport and its visitors, there are insufficiently clear communications protocols to deliver proactive, pertinent information to passengers, media and frontline employees (the primary point of face-to-face interaction with passengers during irregular operations).

The GTAA, airlines and other airport service providers have a number of passenger and communications tools at their disposal. Several tools, including flight information display devices and the public address system, were used to their full technical capacities during the disruption, but even these did not fully address the communications demands of passengers.

Passenger well-being

The experience of passengers who were significantly impacted by the disruptions did not meet the expectations of the Board and the entire GTAA. The key areas of improvement the GTAA should address are:

- **Passenger experience:** The GTAA has a number of amenities (water, diapers, etc.) at its disposal during irregular operations. Other than water, these amenities were not proactively offered to passengers, demonstrating a need for clearer guidelines and greater awareness of those guidelines and the amenities available during irregular operations.
- **Communications infrastructure:** The GTAA's website was not configured to provide timely updates on the status of the airport during irregular operations. The website ultimately became unstable and could not be updated during the disruption.

With the volume of users at Toronto Pearson during the disruption, the airport's WiFi and cellular capacities reached their limits, creating communications issues for passengers and the rest of the Toronto Pearson community.

Recommendations



The Committee, after consulting with GTAA management, the Blue Ribbon Panel and other stakeholders, has made 12 specific recommendations which, when implemented, will improve the Toronto Pearson community's readiness for future unusual winter weather disruptions and improve customer service. Each recommendation includes a timeline for full implementation and an

associated action plan. Certain components of the recommendations already have been implemented, and work on other components is underway. Implementation of several recommendations will require collaboration with airlines, other airport service providers and government agencies, as they involve areas outside of the GTAA's responsibility and control.

As a part of its effort to improve passenger service, the GTAA has already completed a number of key initiatives, both during and since the disruption, that improved Toronto Pearson's response to unusual weather, and have addressed key components of the Committee's recommendations. Initiatives that have been completed are noted in the summary tables at the end of each detailed recommendation.

The Board will oversee GTAA management's performance against the action plan.

Summary of Recommendations

| Observation | Recommendation | Status | Completion Date |
|---|--|--|--------------------------|
| Operations Recommendations | | | |
| Preparation and planning for unusual conditions | <ul style="list-style-type: none"> Recommendation 1: Revise and test the GTAA's Irregular Operations Plan to harmonize with the operations plans of airport service providers to improve the airport's response to unusual winter weather and other disruptions. | Working with airport service providers | October 2014 |
| | <ul style="list-style-type: none"> Recommendation 2: Establish clear early-warning criteria and define joint escalation levels and procedures within the GTAA and among key airport service providers to ensure timely, responsive and coordinated decision-making where large-scale service-level disruptions occur or are imminent. | Working with airport service providers | July 2014 |
| | <ul style="list-style-type: none"> Recommendation 3: Expand and better equip the Emergency Operations Centre to allow for improved coordination of airport service providers. | Ongoing | December 2014 |
| | <ul style="list-style-type: none"> Recommendation 4: Secure additional equipment for unusual winter weather operations to improve the resilience of the airport to weather. | Ongoing | November 2014 |
| | <ul style="list-style-type: none"> Recommendation 5: Proactively deploy warming stations to protect ground support crews during unusually cold weather. | Complete | January 2014 |
| Traffic management | <ul style="list-style-type: none"> Recommendation 6: Establish a joint traffic management team to improve aircraft arrival and departure metering to allow for active management of potential imbalances during irregular operations. | Working with airport service providers | November 2014 |
| Apron conditions | <ul style="list-style-type: none"> Recommendation 7: Improve the GTAA's Apron Snow and Ice Removal Plan to enable better gate access during weather disruptions. | Working with airport service providers | November 2014 |
| Baggage | <ul style="list-style-type: none"> Recommendation 8: Develop, implement and test an arrival baggage Irregular Operations Plan and identify baggage system and handling escalation criteria to better monitor the inbound baggage process. | Working with airport service providers | November 2014 |
| Communications Recommendations | | | |
| Information sharing | <ul style="list-style-type: none"> Recommendation 9: Improve GTAA internal communication. Improve communication protocols with airlines and other airport service providers to enable a clear, consistent and accurate flow of information among service providers. | Working with airport service providers | September 2014 |
| Passenger, media and employee communication | <ul style="list-style-type: none"> Recommendation 10: Create a passenger-facing app, and enhance joint protocols and develop the necessary processes and other tools for irregular operations communications to passengers, media and Toronto Pearson employees to enable timely and effective communication. | Working with airport service providers | November 2014 |
| Passenger Well-being Recommendations | | | |
| Passenger experience | <ul style="list-style-type: none"> Recommendation 11: Develop and publish GTAA guidelines for responding to the needs of passengers during irregular operations. | Ongoing | September 2014 |
| Communications infrastructure | <ul style="list-style-type: none"> Recommendation 12: Establish an 'Airport Updates' web page that becomes the GTAA website's dominant web page during a service disruption, and improve Toronto Pearson's WiFi and cellular capacity. | Ongoing | Various Completion Dates |

Detailed Committee Recommendations

Operations

Preparation and planning for unusual winter weather conditions



Recommendation 1: Revise and test the GTAA's Irregular Operations Plan to harmonize with the operations plans of airport service providers to improve the airport's response to unusual winter weather and other disruptions. (Completion date: October 2014)

The GTAA has an Irregular Operations Plan. Airport service providers also have their own irregular operations plans. The GTAA's plan and the plans of the other airport service providers, including airlines, ground handlers, government agencies and other airport service providers (see Appendix E for a list of relevant airport service providers) will be reviewed to ensure that they are aligned and harmonized so they will all work together effectively during irregular operations. This will explicitly define accountabilities, responsibilities and which groups/individuals will be consulted and informed if irregular operations are going to affect, or might affect, their operations. The GTAA has already started this harmonization process.

To help implement this recommendation, the GTAA has designated the Director of the Integrated Operations Control Centre as the GTAA's Irregular Operations Champion, with accountability for guiding and overseeing Toronto Pearson's preparation for irregular operations. The Irregular Operations Champion will have appropriate resources to ensure the plans are appropriately developed and tested. The Irregular Operations Champion will also make the broader Toronto Pearson community aware of the GTAA's irregular operations plan, and will emphasize the need for regular communications with the Integrated Operations Control Centre.

The Irregular Operations Champion will work with key airport service providers to make sure irregular operations are tested through joint exercises. The GTAA has initiated meetings with some airlines to discuss these joint planning and testing exercises.

The table below summarizes the planned and completed initiatives and activities of GTAA management to support the implementation of this recommendation.

| Supporting Initiative | Status | Initiative Implementation Completion Date | Planned and completed activities |
|--|----------|---|---|
| Revise GTAA's Irregular Operations Plan to integrate and harmonize with the plans of airport service providers | Ongoing | October 2014 | <ul style="list-style-type: none"> Irregular operations contingency plan gap analysis. (Complete) Contact key airlines, other airport service providers and government agencies to discuss their irregular operations plans and planning. (Complete) Review and harmonize the irregular operations and contingency plans with those of key airlines, other airport service providers and government agencies. (October 2014) |
| Identify an Irregular Operations Champion | Complete | March 2014 | <ul style="list-style-type: none"> Designate Integrated Operations Control Centre Director as GTAA Irregular Operations Champion. (Complete) |
| Conduct joint testing exercises of the harmonized Irregular Operations Plans | Pending | October 2014 | <ul style="list-style-type: none"> First exercises will occur Fall 2014 once the harmonized Toronto Pearson Irregular Operations Plans are complete. (October 2014) |



Recommendation 2: Establish clear early-warning criteria and define joint escalation levels and procedures within the GTAA and among key airport service providers to ensure timely, responsive and coordinated decision-making where large-scale service-level disruptions occur or are imminent. *(Completion date: July 2014)*

“Escalation” is the process of bringing a matter to the attention of successively more senior levels of management for their analysis and decision-making.

During the January 5 to 9, 2014 unusual winter weather disruption, the response of the GTAA and airport service providers would have benefitted from greater coordination and earlier escalation of key decisions.

To address this, the GTAA is improving its capabilities for monitoring early-warning and key incident triggers. For example, the GTAA, in coordination with airport service providers, has implemented an automatic trigger to activate the Emergency Operations Centre a minimum of six hours before the forecasted onset of significant weather events. This automatic trigger eliminates the element of subjectivity in escalating events.

The GTAA has established and is leading a joint working team made up of key airport service providers to identify other key incident triggers and additional criteria for escalations. The joint team will then use these criteria to articulate easily understood escalation levels to the Toronto Pearson community. The GTAA has met with representatives from its Customer and Terminal Services, Aviation Services and Baggage Operations to begin identifying the standard operating norms of the group, which will become the foundation for the definition of escalation levels and criteria.

The GTAA has established a protocol with airlines and other airport service providers to ensure that appropriate senior management people are present in the Emergency Operations Centre. The table below summarizes the planned and completed initiatives and activities of GTAA management to support the implementation of this recommendation.

| Supporting Initiative | Status | Initiative Implementation Completion Date | Planned or Completed Activity |
|---|----------|---|---|
| Proactive escalation of the Emergency Operations Centre | Complete | March 2014 | <ul style="list-style-type: none"> Established a protocol for activating the Emergency Operations Centre a minimum of six hours before the forecasted onset of Irregular Operations. (Complete) |
| Establish a joint GTAA-airline escalation response protocol | Complete | March 2014 | <ul style="list-style-type: none"> Existing emergency escalation protocols have been amended for joint escalation during Irregular Operations. (Complete) |
| Establish a joint GTAA-airport service provider escalation response protocol with key non-airline service providers | Ongoing | May 2014 | <ul style="list-style-type: none"> Review emergency escalation protocols for joint escalation during Irregular Operations. (May 2014) |
| Define the appropriate trigger points for automatic escalation | Ongoing | July 2014 | <ul style="list-style-type: none"> Define "normal" operations in Customer and Terminal Services, Aviation Services and Baggage Operations. (April 2014) Develop protocols for monitoring and forecasting cancellation and delay rates. When rates exceed a defined threshold, they will be proactively investigated and appropriate mitigating action will be initiated. (April 2014) Train operations employees on revised escalations. (July 2014) |



Recommendation 3: Expand and better equip the Emergency Operations Centre to allow for improved coordination of airport service providers. *(Completion date: December 2014)*

The GTAA will expand and better equip the Integrated Operations Control Centre to incorporate the Emergency Operations Centre.

During the course of the disruption, the space provided for the Emergency Operations Centre within the Integrated Operations Control Centre proved to be inadequate to house the joint incident command of the GTAA, airlines and other airport service providers. To address this, a project has been initiated to enlarge the Emergency Operations Centre.

The table below summarizes the planned and completed initiatives and activities of GTAA management to support the implementation of this recommendation.

| Supporting Initiative | Status | Initiative Implementation Completion Date | Planned or Completed Activity |
|---|---------|---|---|
| Physically expand the Emergency Operations Centre to address space deficiencies | Ongoing | December 2014 | <ul style="list-style-type: none"> Develop proposed expansion plans (Complete) Complete Emergency Operations Centre expansion (December 2014) |



Recommendation 4: Secure additional equipment for unusual winter weather operations to improve the resilience of the airport to weather.
(Completion date: November 2014)

The GTAA will secure additional specialized equipment to allow it to more effectively operate in unusual winter weather.

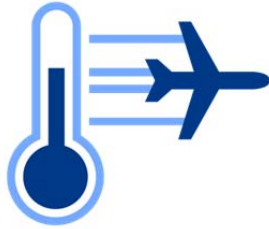
During the 2013/2014 winter, the GTAA was trying out a Raiko icebreaking machine designed to break up compacted snow and ice on airfield surfaces. It proved effective and the GTAA procured a second one during the unusual weather event. The GTAA will be procuring two more of these machines, or similar pieces of equipment, following a functional requirements review.

Conditions during the unusual weather event were such that passengers could not be safely deplaned using available air stairs. A post-event inventory has revealed that covered air stairs would be helpful in unusual cold and other weather conditions, although the condition of the aprons during the January disruption would have prevented their safe use during this particular incident. To supplement the air stairs that ground handling agents currently have available for normal use, the GTAA will procure four sets of covered air stairs for use at Toronto Pearson during irregular operations.

The GTAA benchmarked the use of sand at other airports. The GTAA’s use of sand is consistent with use at other cold-weather airports, except that at certain airports the sand storage buildings are heated. The GTAA is investigating whether this would be effective at Toronto Pearson.

The table below summarizes the planned and completed initiatives and activities of GTAA management to support the implementation of this recommendation.

| Supporting Initiative | Status | Initiative Implementation Completion Date | Planned or Completed Activity |
|---|---------|---|---|
| Secure additional icebreaking equipment | Ongoing | November 2014 | <ul style="list-style-type: none"> Procured second Raiko ice breaker. (January 2014) Procure two additional Raiko ice breakers or two Graders following a functional requirements review. (November 2014) |
| Secure additional covered stairs for remote deplaning in irregular operations | Ongoing | November 2014 | <ul style="list-style-type: none"> Procure four covered stairs to be available in irregular operations to supplement inventory of air stairs owned and used by airlines and other airport service providers. (November 2014) |
| Explore the viability of heated sand storage buildings | Ongoing | November 2014 | <ul style="list-style-type: none"> Evaluate option of heated sand storage and, if viable, install. (November 2014) |



Recommendation 5: Proactively deploy warming stations to protect ground support crews during unusually cold weather.
(✓ Complete)

During the disruption, the unusually cold weather prevented ground-handling crews from operating as productively as expected. The GTAA deployed GTAA airside buses as temporary warming stations to improve working conditions for ground support crews. This practice, which maintained employee safety and improved the efficiency of operations, has been incorporated into the Airport Irregular Operations Plan, and warming stations are now proactively deployed in unusually cold weather.

The table below summarizes the planned and completed initiatives and activities of GTAA management to support the implementation of this recommendation.

| Supporting Initiative | Status | Initiative Implementation Completion Date | Planned or Completed Activity |
|--|----------|---|--|
| Proactively deploy warming stations for ground support crews | Complete | January 2014 | <ul style="list-style-type: none"> Developed protocol for proactively making available warming stations for ground support crew. (Complete) |

Traffic management



Recommendation 6: Establish a joint traffic management team to improve aircraft arrival and departure metering to allow for active management of potential imbalances during irregular operations.
(Completion date: November 2014)

The GTAA has formed a collaborative team with NAV CANADA and airlines to conduct a full review of the current Departure Metering Program and Arrival Metering Program and to make improvements as appropriate. This team is working to put in place the appropriate programs and communications protocols for maintaining a manageable balance between arrival and departure volumes during disruptions, which will minimize wait times on the airport aprons.

This team will have established preliminary procedures by July 2014, which will be trialed and tested, with a target completion date before the next winter season.

The table below summarizes the planned and completed initiatives and activities of GTAA management to support the implementation of this recommendation.

| Supporting Initiative | Status | Initiative Implementation Completion Date | Planned or Completed Activity |
|--|---------|---|---|
| Conduct a full review of the current Departure Metering Program and Arrival Metering Program | Ongoing | November 2014 | <ul style="list-style-type: none"> • Establish joint working team with NAV CANADA and key airlines. (Complete) • Review Departure Metering Program to identify opportunities for further improvement. (April 2014) • Develop and trial a new interim Arrival Metering Program. (July 2014) • Deploy a new Arrival Metering Program. (November 2014) |

Apron conditions



Recommendation 7: Improve the GTAA’s Apron Snow and Ice Removal Plan to enable better gate access during weather disruptions.
(Completion date: November 2014)

During the events of January 5 to 9, 2014 the focus of the GTAA, airlines and ground handlers was to accommodate aircraft at gates to deplane passengers. This focus disrupted snow clearing protocols that require airlines and ground handlers to move their ground service equipment so snow and ice can be removed from around aircraft gates. Together with airlines and ground handlers, the GTAA has implemented disciplined, coordinated removal of ground service equipment so snow can be cleared during weather events.

In collaboration with key apron management service providers, the GTAA will update its Apron Snow and Ice Removal Plan. This will include formalizing procedures for closing gates for cleaning, as well as required training. Joint review exercises to test irregular operations plans will be included as part of the overall plan.

As a part of its update, the GTAA will review the location of its snow melters. The current location of some snow melters means adjacent gates must be closed, something that exacerbates gate hold situations.

The table below summarizes the planned and completed initiatives and activities of GTAA management to support the implementation of this recommendation.

| Supporting Initiative | Status | Initiative Implementation Completion Date | Planned or Completed Activity |
|--|----------|---|---|
| Update the Apron Snow Removal Plan of Operations | Ongoing | November 2014 | <ul style="list-style-type: none"> • Implement disciplined and coordinated removal of ground services equipment to permit the clearing of snow during weather events. (Complete) • Conduct joint testing exercise using winter irregular operations scenarios. (Fall 2014) • Relocate apron snow removal coordination to the Apron Management Unit. (Complete) • Develop protocols with Consolidated Fuelling (aircraft fuelling company) to provide additional maintenance employees to service frozen equipment and fuel hydrants, as required. (Complete) • Review current GTAA Apron Snow Removal techniques and snow melter operations. (Ongoing) |
| Create joint (GTAA /airline/ ground handler) snow removal teams to permit the clearing of snow during weather events | Complete | March 2014 | <ul style="list-style-type: none"> • Created joint snow removal teams. (Complete) |

Baggage



Recommendation 8: Develop, implement and test an arrival baggage Irregular Operations Plan and identify baggage system and handling escalation criteria to better monitor the inbound baggage process.
(Completion date: November 2014)

During the event, the GTAA implemented temporary baggage storage measures. As part of this effort, the GTAA has identified additional storage areas in Terminals 1 and 3 and has initiated projects to augment storage areas as required. The GTAA has also started an initiative to configure the baggage reporting system to enable real-time monitoring of baggage thresholds.

The GTAA is developing further improvements to the revised arrival baggage Irregular Operations Plan in coordination with a joint GTAA /Airline Arrival Baggage Performance Team. This revised plan will include the definition of baggage thresholds, as well as protocols for monitoring the thresholds and for deployment of additional employees to the baggage halls when the number of unclaimed bags reaches the thresholds.

For international arriving baggage, a joint team has been established to streamline and improve that process, where possible.

The table below summarizes the planned and completed initiatives and activities of GTAA management to support the implementation of this recommendation.

| Supporting Initiative | Status | Initiative Implementation Completion Date | Planned or Completed Activity |
|---|---------|---|---|
| Revise and finalize an arrival baggage Irregular Operations Plan | Ongoing | November 2014 | <ul style="list-style-type: none"> Developed temporary measures within the existing plan in consultation with key airlines. (Complete) Review protocols for handling international bags with airlines and government agencies. (Review in progress) |
| Enable proactive monitoring of baggage delivery and establish protocols for escalations | Ongoing | June 2014 | <ul style="list-style-type: none"> Establish criteria and protocols for communicating and escalating when baggage volumes exceed defined thresholds. (June 2014) |
| Establish a baggage storage protocol and identify and fit-out processing areas | Ongoing | October 2014 | <ul style="list-style-type: none"> Identify storage space in Terminals 1 and 3. (Complete) Develop project plans for the augmentation of the physical space (May 2014) and implement. (October 2014) |

Communications

Information sharing



Recommendation 9: Improve GTAA internal communication. Improve communication protocols with airlines and other airport service providers to enable a clear, consistent and accurate flow of information among service providers.
(Completion date: September 2014)

To provide consistent, accurate and relevant information to passengers, particularly in an irregular operation, the GTAA, airlines, government agencies and other airport service providers need to establish agreed channels of communication. The GTAA will:

- Improve its communication protocols;
- Together with airlines, government agencies and other airport service providers, identify, agree, and document the channels and protocols to improve communication;
- Have more frequent briefings with relevant GTAA and Toronto Pearson community service providers during irregular operations; and
- Regularly scheduled collaborative meetings between GTAA senior executives and airport service providers’ senior executives to ensure consistent interaction during and outside of irregular operations.

The table below summarizes the planned and completed initiatives and activities of GTAA management to support the implementation of this recommendation.

| Supporting Initiative | Status | Initiative Implementation Completion Date | Planned or Completed Activity |
|---|----------|---|---|
| Improve Emergency Operations Callout Protocol | Complete | March 2014 | <ul style="list-style-type: none"> Revised protocols to improve communications between Terminal Managers of Operations and Guest Services Representatives during irregular operations. (Complete) |
| Improve information sharing and coordination between the GTAA, airlines, other stakeholders and government agencies | Ongoing | September 2014 | <ul style="list-style-type: none"> Institute regularly scheduled meetings between GTAA senior executives and airport service providers' senior executives (Several meetings have taken place following the disruption, working with key stakeholders to define the appropriate frequency going forward.) Develop improved communications protocols in collaboration with airlines, other airport service providers and government agencies for the sharing of information during irregular operations. (September 2014) |

Passenger, media and employee communications



Recommendation 10: Create a passenger-facing app, and enhance joint protocols and develop the necessary processes and other tools for irregular operations communications to passengers, media and Toronto Pearson employees to enable timely and effective communication. *(Completion date: November 2014)*

Consultations with airport service providers made it clear there is an opportunity to better coordinate and streamline the process for communications with passengers, media and employees.

The public expects and deserves frequent information updates during irregular operations. The GTAA will work with airlines to establish protocols for passenger communications during irregular operations. These improvements will identify who is responsible for communicating with passengers under which circumstances, and when and how information will be communicated. Communications tools and tactics, including use of screens in terminals, public address systems and social media, will be aligned to communicate effectively in a coordinated manner. As a part of this effort, the GTAA will develop a mobile application (app) designed to help ease travel through Toronto Pearson. The GTAA will also improve how it informs passengers and make the information clear and as action-oriented as possible. The GTAA's information will be consistent with and complement communications from airlines and other airport service providers.

The GTAA will be more proactive in providing information to media at defined intervals during irregular operations, even when there is no new information. By providing information at defined intervals, the GTAA will be better able to control the consistency and accuracy of the information. The GTAA has updated its Major Incident Communications Plan to enable it to be more responsive during irregular operations.

For employees at Toronto Pearson, the GTAA will collaborate with airport service providers to use, and develop where necessary, appropriate communications protocols and tools to disseminate information to, and receive information from, frontline employees. As a part of this effort, the GTAA will develop and implement a clear communications framework that outlines responsibilities for communicating escalations and developments to Toronto Pearson employees. This framework will build on Recommendation 2 and ensure that there are defined communications in place for all levels of escalation.

The table below summarizes the planned and completed initiatives and activities of GTAA management to support the implementation of this recommendation.

| Supporting Initiative | Status | Initiative Implementation Completion Date | Planned or Completed Activity |
|--|----------|---|---|
| Develop a joint GTAA-Airline Arriving Passenger Plan | Ongoing | September 2014 | <ul style="list-style-type: none"> Establish a joint GTAA-Airline Arriving Passenger Plan. (September 2014) |
| Identify opportunities to make better use of existing and available technologies | Ongoing | November 2014 | <ul style="list-style-type: none"> Conduct a gap analysis to identify supplemental technologies to improve communications to passengers and frontline employees. (June 2014) Develop and implement protocols for the more effective use of existing technologies. (June 2014) Investigate use of available technologies. (September 2014) Introduce a Toronto Pearson app to enhance information availability to Toronto passengers, service providers, employees and the general public (November 2014) |
| Review and update approach to communicating and quality of information | Ongoing | April 2014 | <ul style="list-style-type: none"> Review existing approach for communicating and quality of information to ensure that the GTAA explains information in a manner that is clear and relevant. (April 2014) |
| Improve message coordination and alignment with media relations employees at airlines, other airport service providers and government agencies | Ongoing | September 2014 | <ul style="list-style-type: none"> Refine and update the communications framework that outlines responsibilities for communicating escalations and developments to the Toronto Pearson community. (Complete) Institute regular meetings among the media communications employees of the GTAA, key airlines and other airport service providers. (April 2014) Create protocols for improved message coordination with airlines, other airport service providers and government agencies during irregular operations. (September 2014) |
| Improve protocols for proactive communications to media in irregular operations | Complete | March 2014 | <ul style="list-style-type: none"> Update Major Incident Communications Plan to include proactive media and scheduled information updates during irregular operations. (Complete) |

Passenger experience



Recommendation 11: Develop and publish GTAA guidelines for responding to the needs of passengers during irregular operations.
(Completion date: September 2014)

While the GTAA has protocols in place and amenities available for passengers affected by irregular operations, these protocols could be improved.

The GTAA is updating and revising its passenger amenity services to include the following:

- Distribution of water at defined intervals;
- Raising awareness of and distributing amenities, such as diapers and personal products, at defined intervals;
- Protocols for queuing of taxi and limousine passengers inside terminals in unusually cold weather; and
- Retail and concessions remaining open while large numbers of passengers are in terminals.

The GTAA will work with airport service providers to harmonize passenger services and amenities during irregular operations.

GTAA will develop a guide that will be available to passengers during an operational disruption to let them know about services that are available. The guide will include information about food and beverage availability, ground transportation, airline rebooking and amenity kits.

The table below summarizes the planned and completed initiatives and activities of GTAA management to support the implementation of this recommendation.

| Supporting Initiative | Status | Initiative Implementation Completion Date | Planned or Completed Activity |
|---|---------|---|--|
| Update and improve GTAA protocols for passengers affected by irregular operations | Ongoing | September 2014 | <ul style="list-style-type: none"> • Undertake a review and increase inventory of passenger amenity kits (including water, diapers, personal care items, etc.) for use during irregular operations. (Complete) • Update retail and concession operating hours protocol for irregular operations. (Complete) • Develop plan for indoor queuing for taxis and limousines in cold weather. (Complete) • Review and update existing protocols for passenger well-being in irregular operations. (June 2014) • Train frontline employees on revised protocols for irregular operations. (June 2014) • Re-establish employee volunteer teams to provide passenger information and amenities during irregular operations. (September 2014) • Develop a Passenger Guide for use during irregular operations to offer information and raise awareness about services available to passengers. (September 2014) |

Communications infrastructure



Recommendation 12: Establish an ‘Airport Updates’ web page that becomes the GTAA website’s dominant web page during a service disruption, and improve Toronto Pearson’s, WiFi and cellular capacity.
(Completion date: Various completion dates)

The GTAA will improve the capacity and resilience of critical pieces of its communications infrastructure.

On January 17, 2014 the GTAA launched an operations status page, called Airport Update on the GTAA’s website. During irregular operations this web page features relevant information and updates. The web page is configured to be the dominant landing page on TorontoPearson.com during irregular operations so the user can immediately find out the operational status of the airport.

The GTAA website has been upgraded to improve its heavy-load capacity and stability, and additional upgrades will be made to expand its capacity. These additional upgrades will be completed by September 2014.

The GTAA is increasing Toronto Pearson’s wireless capacity to ensure coverage of the terminal buildings and to accommodate increasing demand from GTAA tenants and passengers. This will be completed by July 2014.

As well, the GTAA is increasing the cellular capacity of Terminals 1 and 3. The increase in Terminal 1 capacity will be complete by the end of 2014. Terminal 3 capacity will be

progressively improved with the Terminal 3 renovations. The Terminal 3 passenger lounges, the holding area where passengers wait near gate areas for flights, will be complete by December 2014.

The table below summarizes the planned and completed initiatives and activities of GTAA management to support the implementation of this recommendation.

| Supporting Initiative | Status | Initiative Implementation Completion Date | Planned or Completed Activity |
|---|----------|--|---|
| Develop an operational status page on GTAA's website | Complete | January 2014 | <ul style="list-style-type: none"> Develop operations status web page (Airport Updates) that provides operational information during irregular operations. (Complete) |
| Improve effectiveness of GTAA's website | Ongoing | September 2014 | <ul style="list-style-type: none"> Implement corrective measures to improve stability of website at times of heavy traffic. (Complete) Move website servers from GTAA facility to be hosted in the cloud (September 2014) Upgrade website software to increase functionality and improve stability in times of heavy use. (September 2014) |
| Increase terminal WiFi capacity and dependability | Ongoing | July 2014 | <ul style="list-style-type: none"> Double Toronto Pearson's wireless capacity to ensure improved coverage of the terminal buildings. (July 2014) |
| Increase terminal cellular capacity and dependability | Ongoing | Terminal 1: December 2014 Terminal 3 passenger lounges: December 2014 Terminal 3: Completion of Renovation | <ul style="list-style-type: none"> Increase the cellular capacity of Terminal 1. (December 2014) Increase capacity of Terminal 3 passenger lounges (December 2014) The rest of Terminal 3 will be progressively improved along with the Terminal 3 renovations. (Completion of renovations) |

Our Commitment to You



The GTAA sought to understand why operational challenges occurred at Toronto Pearson during the unusual weather from January 5 to 9, 2014. The examination focused on the public's expectations and what actions the GTAA could take to improve service for travellers during unusual winter weather and more generally.

The Committee takes these goals very seriously, and it has made a number of substantive recommendations that will improve the experience of Toronto Pearson passengers. These recommendations target operational changes, improvements in how Toronto Pearson communicates with passengers and the public, and improvements to ensure passenger well-being.

Our responsibility does not end with proposing these recommendations. The Board is accountable for the efficient implementation of these recommendations by management. As such, we will publicly issue a progress report in November 2014. This report will track what has been done, as well as which recommendations remain outstanding and the plans for ensuring they are completed as quickly as possible.

The public expects and deserves the safest and most efficient airport experience possible. Implementation of the Committee's recommendations will help ensure Toronto Pearson's service meets the public's expectations.

Terminal Aéroport 13:12

| Arrivée de | Heure | Vol | Stat |
|--------------|-------|---------|-----------------|
| INDIANAPOLIS | 20:55 | AC 7948 | A l'heure |
| MONCTON | 14:28 | AC 8005 | En retard 14:44 |
| MONCTON | 17:16 | AC 8007 | A l'heure |
| MONCTON | 20:38 | AC 8009 | A l'heure |
| MONTEGO BAY | 18:26 | AC 803 | A l'heure |
| MONTEGO BAY | 18:40 | WG 731 | A l'heure |
| MONTREAL | 13:22 | AC 408 | Arrivé 13:30 |
| MONTREAL | 13:22 | AC 411 | En avance 13:18 |
| MONTREAL | 14:22 | AC 413 | En retard 14:28 |
| MONTREAL | 15:22 | AC 415 | A l'heure |
| MONTREAL | 16:22 | AC 417 | A l'heure |
| MONTREAL | 17:22 | AC 419 | A l'heure |
| MIAMI | 14:40 | AC 847 | En retard 15:12 |
| NASHVILLE | 13:08 | AC 8038 | Arrivé 13:05 |
| NASHVILLE | 20:54 | AC 8032 | A l'heure |
| NASSAU | 15:35 | AC 879 | En retard 15:27 |
| NEW ORLEANS | 20:03 | AC 1902 | A l'heure |
| NEW YORK-JFK | 12:58 | AC 8003 | Arrivé 12:30 |
| NEW YORK-JFK | 18:41 | AC 8005 | A l'heure |
| NEW YORK-LGA | 13:13 | AC 708 | En retard 13:30 |
| NEW YORK-LGA | 14:13 | AC 711 | En avance 14:03 |
| NEW YORK-LGA | 15:13 | AC 713 | A l'heure |
| NEW YORK-LGA | 16:13 | AC 715 | A l'heure |
| NEW YORK-LGA | 17:13 | AC 728 | A l'heure |
| NEWARK | 12:08 | AC 785 | Arrivé 12:15 |

Bienvenue à L'Aéroport 1

Terminal Aéroport 13:12

| Arrivée de | Heure | Vol | Stat |
|--------------|-------|---------|-----------------|
| NEWARK | 14:32 | UA 4903 | A l'heure |
| NEWARK | 16:13 | AC 787 | A l'heure |
| NEWARK | 17:35 | UA 4884 | A l'heure |
| NORTH BAY | 18:28 | AC 7776 | A l'heure |
| NORTH BAY | 21:23 | AC 7778 | A l'heure |
| ORLANDO | 13:00 | AC 1217 | A l'heure |
| ORLANDO | 14:38 | AC 1227 | En retard 14:53 |
| ORLANDO | 17:03 | AC 807 | A l'heure |
| OTTAWA | 13:08 | AC 401 | Arrivé 12:58 |
| OTTAWA | 14:08 | AC 403 | En avance 14:03 |
| OTTAWA | 15:08 | AC 405 | A l'heure |
| OTTAWA | 16:08 | AC 407 | A l'heure |
| OTTAWA | 17:08 | AC 409 | A l'heure |
| PHILADELPHIA | 12:58 | AC 881 | Arrivé 13:13 |
| PHILADELPHIA | 12:58 | AC 7282 | Arrivé 12:59 |
| PHILADELPHIA | 14:28 | US 3880 | A l'heure |
| PHILADELPHIA | 16:38 | AC 345 | A l'heure |
| PHILADELPHIA | 17:24 | US 4200 | A l'heure |
| PHOENIX | 13:40 | AC 1285 | En avance 13:35 |
| PHOENIX | 18:10 | AC 680 | A l'heure |
| PITTSBURGH | 12:58 | AC 8037 | Arrivé 12:18 |
| PITTSBURGH | 16:04 | AC 8039 | A l'heure |
| PUNTA CANA | 20:00 | WG 421 | A l'heure |
| QUEBEC | 12:28 | AC 8915 | Arrivé 12:35 |
| QUEBEC | 14:48 | AC 8917 | En avance 14:42 |

Bienvenue à L'Aéroport 1

Terminal Aéroport 13:12

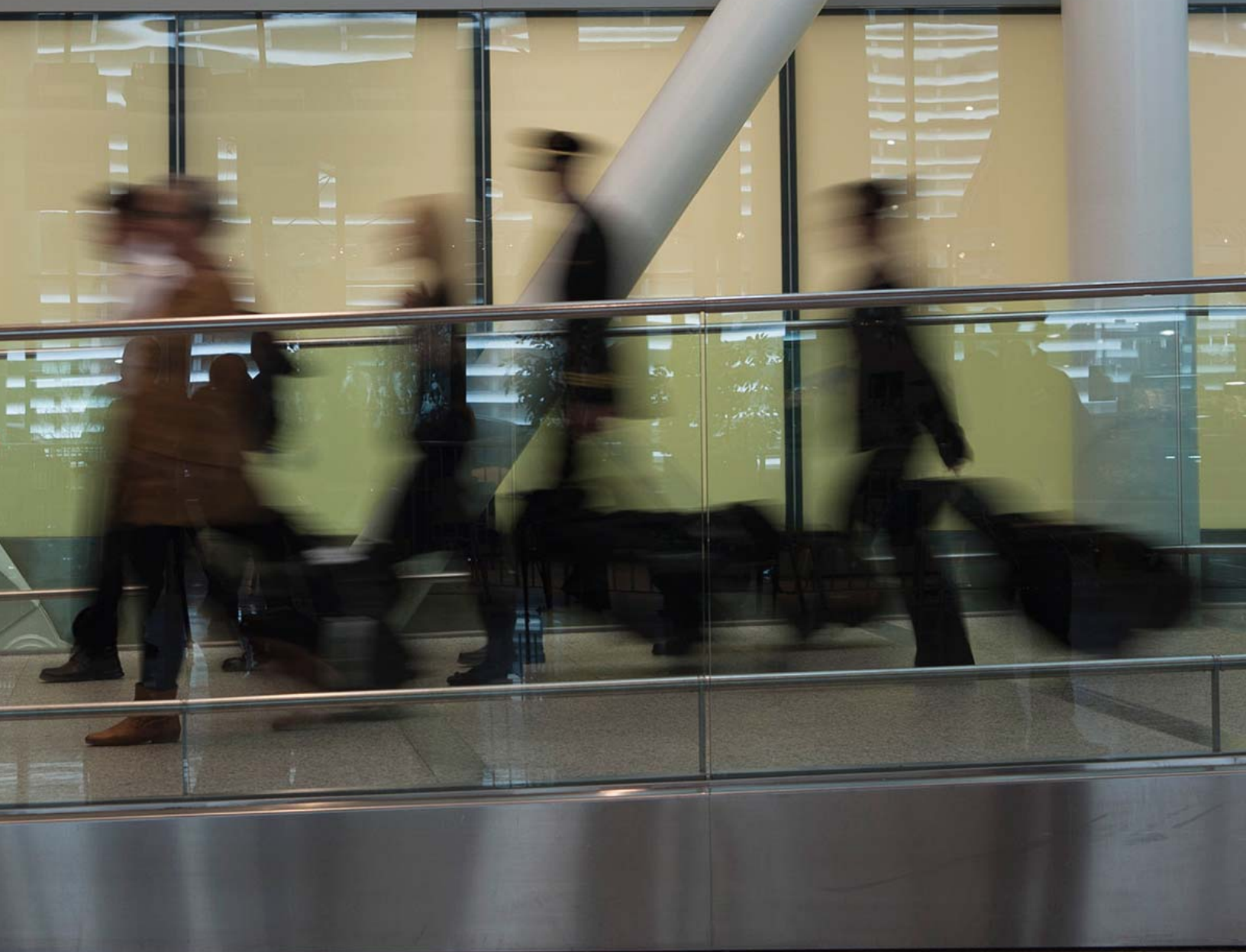
| Arrivée de | Heure | Vol | Stat |
|----------------------------|-------|---------|-----------------|
| QUEBEC | 17:58 | AC 8923 | A l'heure |
| RALEIGH | 13:21 | AC 7977 | En retard 13:31 |
| RALEIGH | 20:16 | AC 7979 | A l'heure |
| REGINA | 15:36 | AC 1114 | En retard 15:43 |
| REGINA | 17:36 | AC 8006 | En retard 17:55 |
| REGINA | 18:47 | AC 7504 | A l'heure |
| RICHMOND | 13:48 | AC 7303 | En retard 14:37 |
| RICHMOND | 21:13 | AC 7305 | A l'heure |
| ROCHESTER NY | 14:14 | AC 7279 | A l'heure |
| ROCHESTER NY | 18:49 | AC 7281 | A l'heure |
| SANT JOHN | 18:40 | AC 8948 | A l'heure |
| SANT JOHN | 21:20 | AC 778 | A l'heure |
| SAN FRANCISCO | 15:55 | AC 798 | En retard 16:05 |
| SAN FRANCISCO | 19:40 | AC 798 | A l'heure |
| SAN FRANCISCO | 23:15 | AC 798 | A l'heure |
| SAN JOSE, CR | 21:55 | AC 889 | A l'heure |
| SAN JOSE, CR | 21:55 | LR 620 | A l'heure |
| SAN SALVADOR | 21:55 | LR 620 | A l'heure |
| SANTIAGO DE LOS CABALLEROS | 18:20 | WG 801 | En retard 18:40 |
| SARASOTA | 21:44 | AC 1229 | A l'heure |
| SARASOTA | 12:14 | AC 7248 | Arrivé 13:03 |
| SARASOTA | 18:09 | AC 7254 | A l'heure |
| SARASOTA | 19:04 | AC 7262 | A l'heure |
| SARASOTA | 18:28 | AC 1122 | En retard 18:30 |
| SARASOTA | 18:48 | AC 8842 | A l'heure |

Bienvenue à L'Aéroport 1

Terminal Aéroport 13:12

| Arrivée de | Heure | Vol | Stat |
|--------------|-------|---------|-----------------|
| SARASOTA | 23:46 | AC 1126 | A l'heure |
| SEATTLE | 15:32 | AC 540 | En avance 15:15 |
| SHANGHAI | 18:55 | AC 688 | En avance 18:31 |
| SS MARIE | 15:14 | AC 7792 | A l'heure |
| SS MARIE | 19:04 | AC 7796 | A l'heure |
| SS MARIE | 21:38 | AC 7798 | A l'heure |
| ST. LOUIS | 13:08 | AC 7986 | Arrivé 13:07 |
| ST. LOUIS | 21:38 | AC 7988 | A l'heure |
| ST. JOHNS | 14:07 | AC 127 | En retard 14:15 |
| ST. JOHNS | 18:13 | AC 695 | A l'heure |
| ST. JOHNS | 21:05 | AC 621 | A l'heure |
| SUBURBY | 12:57 | AC 7808 | Arrivé 12:51 |
| SUBURBY | 16:12 | AC 7809 | A l'heure |
| SUBURBY | 18:57 | AC 7812 | A l'heure |
| SYRACUSE, NY | 18:26 | AC 634 | En retard 18:34 |
| SYRACUSE | 18:26 | AC 7277 | A l'heure |
| TAMPA | 21:37 | AC 1003 | A l'heure |
| TAMPA | 22:45 | AC 805 | A l'heure |
| THUNDER BAY | 12:58 | AC 804 | Arrivé 13:08 |
| THUNDER BAY | 16:38 | AC 806 | En retard 17:21 |
| THUNDER BAY | 18:51 | AC 8040 | A l'heure |
| TIMMINES | 13:44 | AC 7828 | A l'heure 13:45 |
| TIMMINES | 19:40 | AC 7830 | A l'heure |
| TIMMINES | 21:19 | AC 7832 | A l'heure |

Bienvenue à L'Aéroport 1



Appendix A: Committee Terms of Reference, Composition and Objectives

Ad Hoc Review Committee Terms of Reference Excerpt

Approved by the GTAA Board of Directors effective January 16, 2014

Context

Operational disruptions occurred at Toronto Pearson International Airport (the “Airport”) during the first week of January, 2014 due to severe weather events.

Management is conducting a systematic and inclusive review of cold weather operations at the Airport and will be providing the Board of Directors (the “Board”) with its findings and recommendations to improve the Corporation’s (GTAA’s) cold weather operations at the Airport (the “2014 Management Cold Weather Ops Review”).

The 2014 Management Cold Weather Ops Review is comprised of the following:

- a) internal corporate debriefs to develop an action list of improvements, both immediate and longer term;
- b) debriefings with other airport personnel including air carriers, ground handlers, NavCanada, fuel companies and other parties;
- c) meetings with senior executives from those same groups identified in (b) above to examine issues contributing to the North American ground stop;
- d) engagement with the public, travellers and Airport employees; and
- e) the identification by Airports Council International (ACI) of an international expert panel to assess the 2014 Management Cold Weather Ops Review.

The Board wishes to conduct its own independent review of the Corporation’s (GTAA’s) cold weather operations.

Mandate

The Committee will:

- a) review the reports provided by management, including management’s final report issued in connection with the 2014 Management Cold Weather Ops Review;
- b) conduct its own assessment with the assistance of management and/or outside advisors, as it deems appropriate, to make recommendations for consideration by the Board to enhance the Corporation’s (GTAA’s) cold weather operations;
- c) Provide a report to the Board with respect to (a) and (b) above, within ninety (90) days from January 16, 2014 on its findings.

The Committee may retain such experts, advisors, consultants and other third parties and engage with management in such manner and to such extent as the Committee considers necessary or appropriate to discharge its mandate.

The Committee shall provide periodic written or oral reports to the Board on those matters within its mandate.

Technical and operational sections of Terms of Reference omitted for convenience.

Objectives

To carry out its mandate, the Committee set the following objectives:

- Understand the operational challenges that took place January 5 to 9, 2014;
- Understand the public's experience at Toronto Pearson during the disruption and their expectations for Toronto Pearson during irregular operations; and
- Make recommendations to the Board to enhance GTAA's cold weather operations and improve service for passengers during unusual winter weather.

Committee Members

Shaun Francis (Chair of the Committee)

Shaun Francis is Chairman and Chief Executive Officer of Medcan Health Management Inc., a leading health-care services provider.

Mr. Francis was appointed to the 15-member GTAA Board of Directors by the Government of Canada.

Stephen Griggs

Stephen Griggs is the Chief Executive Officer of Smoothwater Capital Corporation, a company focused on activist investing in small to mid-cap Canadian public companies. Mr. Griggs is also the Chair of the board of Genesis Land Development Corp., Vice-Chair of Equity Financial Holdings Inc. and a director of a number of community organizations. Mr. Griggs was previously President and CEO of OPSEU Pension Trust, was the Executive Director of the Canadian Coalition for Good Governance, Canada's leading corporate governance organization representing Canadian institutional investors, and is a member of the Law Society of Upper Canada.

Mr. Griggs was nominated to the GTAA's Board of Directors by the Regional Municipality of Peel.

Kathy Milsom

In addition to serving as a director of the GTAA, Kathy Milsom is the Chair of the Standards Council of Canada. Before focusing on board work, Ms. Milsom held leadership roles with both private- and public-sector organizations, including President and CEO of the Technical Standards and Safety Authority, President and CEO of the Canada Lands Company Limited, and President of Vestar Facility Management. Ms. Milsom has also served on a variety of other boards, is a professional engineer and a graduate of the Institute of Corporate Directors' Director Education Program. She holds a bachelor of applied science and engineering degree, civil discipline, from the University of Toronto.

Ms. Milsom was nominated to the GTAA's Board of Directors by the Professional Engineers of Ontario.

Terry Nord

Terry Nord is President of Terry Nord Consulting Corporation. Mr. Nord is a senior adviser to start-up cargo airlines in Asia (China) and to aircraft leasing companies on aircraft purchase lease contracts. He has held various senior executive positions with DHL Express (Brussels, Belgium), FedEx Express (Memphis, Tenn.), Air Canada, Altius Corporation and Canadian Airlines International.

Mr. Nord was appointed to the GTAA Board of Directors as a member-at-large from names submitted to the GTAA Board of Directors.

Danielle Waters

Danielle Waters is managing director Canada of BCD Travel, a leading global travel management company with more than 11,000 employees and offices in 90 countries, and the principal of Water's Edge Consulting. Ms. Waters has senior operational and management experience in the travel industry.

Ms. Waters was appointed to the GTAA Board of Directors as a member-at-large from names submitted to the GTAA Board of Directors.

Appendix B: Review Methodology

Review Process

The Committee's review was not a legal or judicial review and does not offer legal conclusions.

The review focused on the events of January 5 to 9, 2014, at Toronto Pearson. The Committee based its review on information collected from a number of sources, including customer focus groups, stakeholder interviews, management's analysis of the disruption, an independent communications review, an Airports Council International expert panel review and a detailed document review and analysis.

The Committee welcomed and appreciated the openness of all airport service providers who provided input into the process, and the commitment of the entire Toronto Pearson community to improve the experience of passengers.

Figure 5: Overview of Committee Reporting Structure



Customer Consultation Panel

The Committee engaged Navigator Ltd. to conduct customer focus groups to obtain insights from those affected by the disruption and from other frequent Toronto Pearson passengers.

Stakeholder Interviews

The Project Manager on behalf of the Committee engaged a series of stakeholder interviews that provided participants with an opportunity to provide their perspectives on the events of January 5 to 9, 2014, and to make recommendations for improving the ability of the GTAA and the broader Toronto Pearson community to mitigate the impacts of irregular operations going

forward. For a list of airport service providers interviewed directly on behalf of the Committee, please see Appendix C.

Management's Analysis and Review of the Disruption

GTAA management conducted a review of the facts surrounding the winter storm of January 5 to 9, 2014, and conducted a fact-based investigation into Toronto Pearson's performance during that time. Management's review also put forward recommendations for improvements to enable the GTAA and the Toronto Pearson community to better manage future disruptions caused by unusual winter weather.

While the main focus of management's review was on the timeframe of January 5 to January 9, 2014, the review also included the period leading up to the disruption, as well as the duration of the disruption until the Emergency Operations Centre stood down and the airport was able to return to normal operations. The scope of management's review included the following areas:

- The GTAA's Incident Management System;
- Airside (gates, apron, taxiways and runways) operations;
- Baggage operations;
- Terminal operations (Terminals 1 and 3);
- Airport/airline coordination;
- Passenger well-being and facilities;
- Passenger communications during the disruption;
- Communication with the Toronto Pearson employee community , including GTAA employees; and
- GTAA communications with the general public.

The GTAA management review consisted of five key components:

- An internal review focused on improving Toronto Pearson's operations by examining the factors, information and actions that may have contributed to this major operational disruption; the GTAA's overall management of the disruption; and the effectiveness of internal and external communications.
- Consultation and working sessions with key airport service providers, including but not limited to NAV CANADA, Air Canada, WestJet, other airline customers, ground service providers, fuelling agencies and government agencies. The consultation and working sessions gathered feedback and recommendations for improvement of Toronto Pearson's overall operational performance.
- An executive consultation session held on January 17 to receive feedback and exchange information with senior executive teams from the GTAA, WestJet and Air Canada. There

were also consultations with NAV CANADA, the Airline Consultative Committee, United States Customs and Border Protection (USCBP), Canada Border Services Agency, Canadian Air Transport Security Authority, Consolidated Aviation (fuelling), Servisair and Swissport (ground handling).

- Consultations with members of the public and airport employees to gather insight and suggestions from a wide range of individuals and groups on how Toronto Pearson could better manage and communicate in such circumstances as existed from January 5 to 9, 2014.
- An independent evaluation by an Airports Council International expert panel (see below for details).

GTAA management solicited GTAA employee input into the review process through internal meetings and debriefing sessions. External agency input into the review process, which included airlines, ground handling agencies, aircraft fuelling agencies and other tenants, was provided through external meetings, debriefings and written submissions. Frontline Toronto Pearson employees, union representatives, employee and industry associations, and others were given the opportunity to provide input into the process through meetings and written submissions. The travelling public and public at large were provided an opportunity to provide input through different channels such as TorontoPearson.com.

Independent Communications Review

The Committee engaged Navigator Ltd. to conduct an independent review of the GTAA's communications protocols and how they were implemented during the irregular operations January 5 to 9, 2014. This review included analyzing the conventional and social media landscapes, soliciting feedback from key employees and consulting with GTAA operations, other airport service providers and the GTAA's communications service provider. This independent review was further informed by the public feedback received through TorontoPearson.com/YourAirportYourSay and public consultations through small, face-to-face discussion groups.

Airports Council International (ACI) Expert Panel Review

GTAA management engaged Airports Council International to review the quality and effectiveness of the GTAA's winter operations, including GTAA management's findings and related recommendations for improvement. Under the authority and guidance of Airports Council International, the expert review panel conducted an independent review.

The Airports Council International expert panel had full authority to explore other aspects of the disruption and operation at its discretion, but its review focused on the following three areas:

- The factors that contributed to the major operational disruption experienced from January 5 to January 9, 2014;
- The execution and effectiveness of the Incident Management System and the overall response to the disruption on the airside and within the terminals; and

- The execution and effectiveness of the GTAA’s communications to the general public, passengers and airport employees.

The Project Manager was invited to observe the panel working sessions and the findings and recommendations of the Airports Council International expert panel. The Airports Council International expert panel was composed of experienced North American and European aviation industry professionals with expertise in the areas of airline and airport operations, airport winter operations, customer service and incident management. The Airports Council International expert panel members were:

| Name | Position | Company/Airport |
|---------------|--|---|
| Rose Agnew | Consultant | Transportation Research Board’s Airport Co-operative Research Program |
| Tim Anderson | Consultant | Anderson Airport Consulting |
| Sean Brosnan | Vice-President, Airport Operations and Maintenance | Detroit Metropolitan Wayne County Airport |
| Lisa Hughes | Planning Manager | Dallas/Fort Worth International Airport |
| Jon Hynar | Chief Operating Officer | Detroit Metropolitan Wayne County Airport |
| Paul Martinez | Chief Operating Officer | Dallas/Fort Worth International Airport |
| Jorn Muthmann | Chief Airport Operations | Frankfurt Airport |
| Nic Nilsen | Managing Director | Oslo Airport |
| Chris Oswald | Vice-President, Safety and Regulatory Affairs | Airports Council International – Washington, D.C. |
| Steve Rumley | Vice-President, Operations and Infrastructure | Edmonton International Airport |
| Romy Wilczek | Deputy Chief Airport Operations | Frankfurt Airport |

Detailed Document Review and Analysis

The Committee engaged Deloitte as Project Manager to conduct an independent review of documentation related to the events of January 5 to 9, 2014, and verify the account of events prepared by management. Deloitte supported the Committee’s conducting of interviews and the subsequent analysis and preparation of materials, including this report.

Blue Ribbon Panel

The Committee engaged a Blue Ribbon Panel (Panel) to independently review and evaluate submissions received by the Committee and to ensure that recommendations put forward by the Committee were sufficient to address the issues identified.

Panel members were:

Normand Boivin

Normand Boivin is the Chief Operating Officer of London Heathrow Airport. He brings nearly 30 years' experience in the aviation industry, having previously worked for international airports in both Montreal and Quebec City, including as former Vice-President Operations for Aéroports de Montréal.

Murray Sigler

Murray Sigler is the President of Axia North America. He is the former President and Chief Operating Officer of Canadian Airlines International, as well as former CEO of the Winnipeg Airports Authority.

Krista Scaldwell

Krista Scaldwell is the Vice-President, Public Affairs and Communications at the Coca-Cola Company. She has led and worked with corporate and consumer communications teams for several of Canada's leading brands and companies, including her current role with Coca-Cola, and previously with Johnson & Johnson Group of Consumer Companies and Pfizer Consumer Healthcare.

Appendix C: Individuals Interviewed for the Committee Report

Individuals interviewed by the Project Manager and/or Navigator on behalf of the Committee:

| Name | Position | Company |
|--------------------|--|-------------------------------|
| Scott Armstrong | Manager, Corporate Communications | GTAA |
| Ed Baklor | Vice-President, Guest Services | WestJet |
| Howard Bohan | Vice-President, Aviation Services | GTAA |
| Debbie Ciccotelli | Director, Service Delivery | GTAA |
| Andrea Didone | Associate Director, Below Wing Operations | GTAA |
| Christine Durocher | District Director, Passenger Operations District | CBSA |
| Howard Eng | President and Chief Executive Officer | GTAA |
| Samy Ghobrial | Shift Manager | NAV CANADA |
| Larry Hoffberg | Chief of Operation, Passenger Operations District | CBSA |
| John Horrigan | Winter Operations Committee Representative | Air Canada Pilots Association |
| Tina Karsakis | Chief of Operations, Passenger Operations District | CBSA |
| Kevin Lacey | Associate Director, Airfield Operations | GTAA |
| Toby Lennox | Vice President, Strategy Development and Stakeholder Relations | GTAA |
| Wil MacMillan | Director, Integrated Operations Control Centre | GTAA |
| Marsel Muka | Chief of Operations, Passenger Operations District | CBSA |
| Pat Neville | Vice-President, Airport Planning and Technical Services | GTAA |
| Richard Marinos | Director, Service Delivery, Central Region | CATSA |
| Lorrie McKee | Director, Public Affairs and Stakeholder Relations | GTAA |
| David Powell | General Manager, Toronto Airport | WestJet |
| Sean Smith | Mobilization Co-ordinator, Local 2002 | Unifor |
| Lori Strath | Operations Manager | WestJet |

| Name | Position | Company |
|-------------|---|----------------|
| Nick Careen | Vice-President, Airports, Call Centres and Customer Relations | Air Canada |
| Todd Tripp | Associate Director, Apron Operations | GTAA |
| Ata Ugursoy | Executive Board Member, District Chairperson, Bargaining Representative GTAA | Unifor |

Other individuals appearing before the Project Manager in group presentations or in interviews by the Airports Council International expert panel:

| Name | Position | Company |
|-------------------|--|-------------------------|
| Antonio Alvarez | Station Manager | Swissport International |
| Janik Reigate | Director, Customer Service Development | GTAA |
| Paul Schenk | Manager, Apron Maintenance Facilities | GTAA |
| Marjorie Thompson | Manager Operations, Aviation Services | GTAA |

Appendix D: Input Received from Stakeholders

The GTAA sought input from three key stakeholders groups to better understand the events of January 5 to 9, 2014, the impact those events had on each stakeholder group, and what improvements could make Toronto Pearson's unusual winter weather operations more efficient and effective going forward.

Passengers

Passengers acknowledged that the weather in the GTA was unusual this past winter—from colder-than-average temperatures and greater-than-average snowfall to several unusual winter weather events such as the December ice storm, frost quakes and the polar vortex. In general, however, passengers attributed the disruption in early January to a lack of preparation at Toronto Pearson.

The most common complaints from passengers related to the level and quality of communication during the disruption. Passengers identified three key criteria they believe are necessary for effective and strong communication going forward:

- Increased frequency and timeliness of communications;
- Accuracy; and
- Consistency.

Passengers said that airport service providers did not provide sufficient information concerning flight status, the location of baggage and the process for rebooking flights.

Employees

Individuals employed by the various airport service providers at Toronto Pearson take great pride in the work they do. Employees understand the important role they play in ensuring safe operations at Pearson, particularly during unusual winter weather disruptions.

Going forward, employees would like to see Toronto Pearson community leadership provide more timely, informative and broader communications to frontline employees to allow them to provide a consistent message to passengers.

Other Airport Service Providers

Management from airport service providers across the Toronto Pearson community (including airlines, security service providers and third-party service providers) expressed a strong desire to bolster the level of communication and collaboration among all airport service providers.

Airport service providers said they were willing to participate in the improvement of integrated incident management planning and testing at Pearson recommended in this report.

Appendix E: Overview of Toronto Pearson International Airport

Key Facts about Toronto Pearson

- Toronto Pearson is Canada's largest and busiest airport.
- According to Airports Council International, in 2013, Toronto Pearson was the 35th busiest airport in the world in terms of passenger traffic.
- Toronto Pearson is one of eight Canadian airports with U.S. border pre-clearance.
- Toronto Pearson is a hub airport for Air Canada, the Star Alliance, WestJet and cargo carrier FedEx.
- Toronto Pearson serves as the base of operations for Air Transat, CanJet and Sunwing Airlines.
- In 2013, Toronto Pearson served more than 65 airlines.
- In 2013, Toronto Pearson offered passengers access to all six inhabited continents and to all major and many secondary cities across Canada.

Key Statistics in 2013

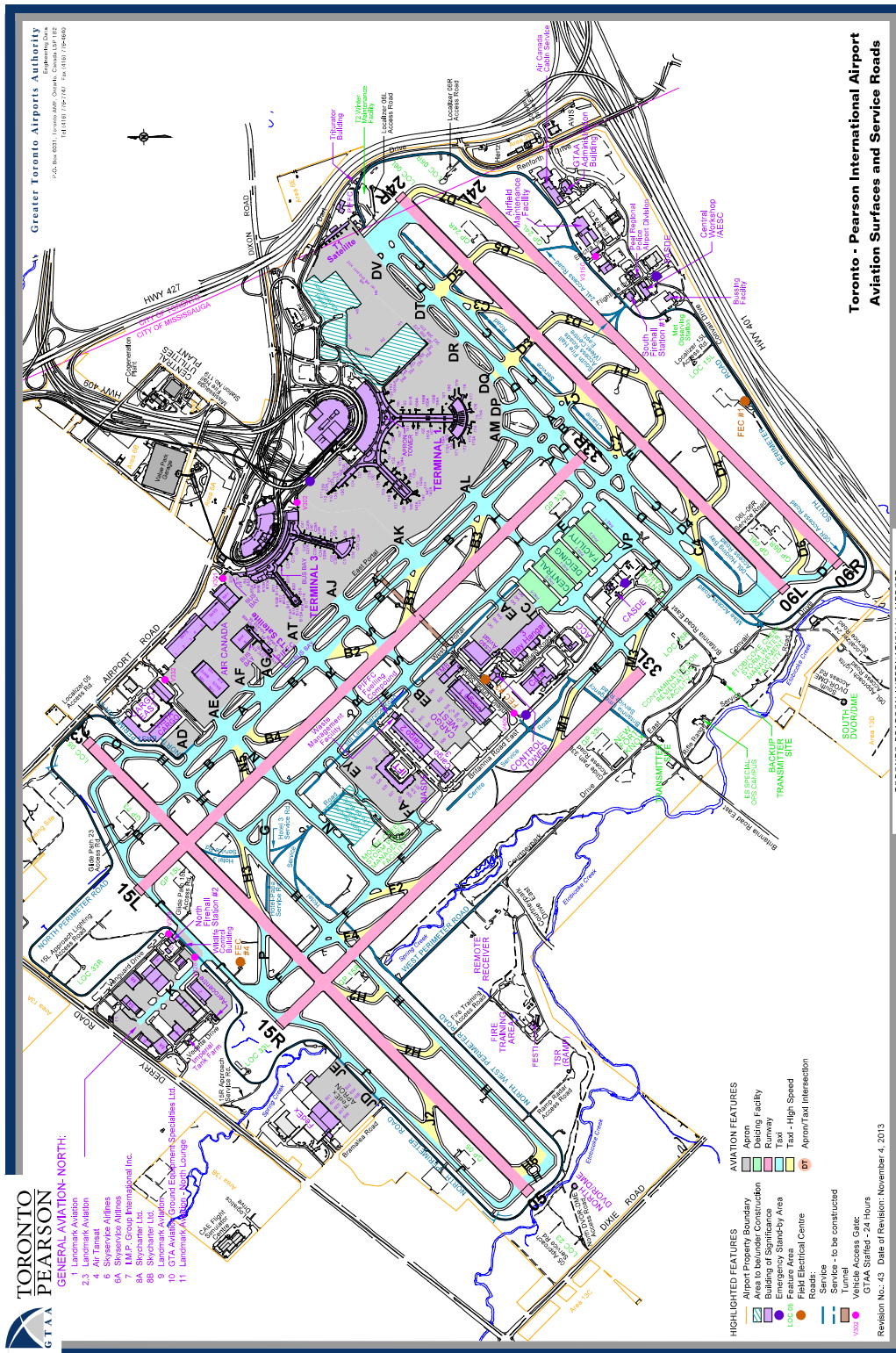
| Passengers Served | |
|---|--------------|
| Annual number of passengers | 36.1 million |
| Average daily passengers | 98,904 |
| Annual domestic passengers | 14.4 million |
| Annual passengers to/from the United States | 9.8 million |
| Annual passengers flying internationally | 11.9 million |
| Annual passengers with connecting flights | 10.8 million |
| Airlines Served | |
| Number of airlines served | 65+ |
| Destinations Served | |
| Number of destinations served | 180+ |
| Aircraft Movements | |
| Annual number of movements | 431,300 |
| Average number of daily movements | 1,182 |
| Cargo Handled | |
| Total tonnes of cargo handled | 414,200 |
| Economic Impact (2012) | |
| Number of GTAA employees | 1,175+ |
| Number of employees at Toronto Pearson | 40,000+ |

Airport Infrastructure

| | |
|---------------------------|---|
| Runways | <p><i>Approximate north-south orientation</i></p> <p>15L-33R—3,368 m (11,050 ft.) long</p> <p>15R-33L—2,770 m (9,088 ft.) long</p> <p><i>Approximate east-west orientation</i></p> <p>05-23—3,389 m (11,120 ft.) long</p> <p>06L-24R—2,956 m (9,697 ft.) long</p> <p>06R-24L—2,743 m (9,000 ft.) long</p> |
| Terminal 1 | <p>Opened: 2004</p> <p>Passengers: 23.2 million annually</p> <p>Airlines: 25</p> <p>Gross floor area: 339,000 m²</p> <p>Gates: 50</p> <p>Aircraft stands: 24</p> |
| Terminal 3 | <p>Opened: 1991</p> <p>Passengers: 11.7 million annually</p> <p>Airlines: 33</p> <p>Gross floor area: 178,000 m²</p> <p>Gates: 30</p> <p>Aircraft stands: 7</p> |
| Infield Terminal (closed) | <p>Opened: 2003</p> <p>Gates: 11</p> |
| Active aircraft stands | 122 |
| Central De-icing Facility | <p>Pads: 6</p> <p>Aircraft accommodated at a time: 12</p> |

* All figures are for 2013 except where noted.

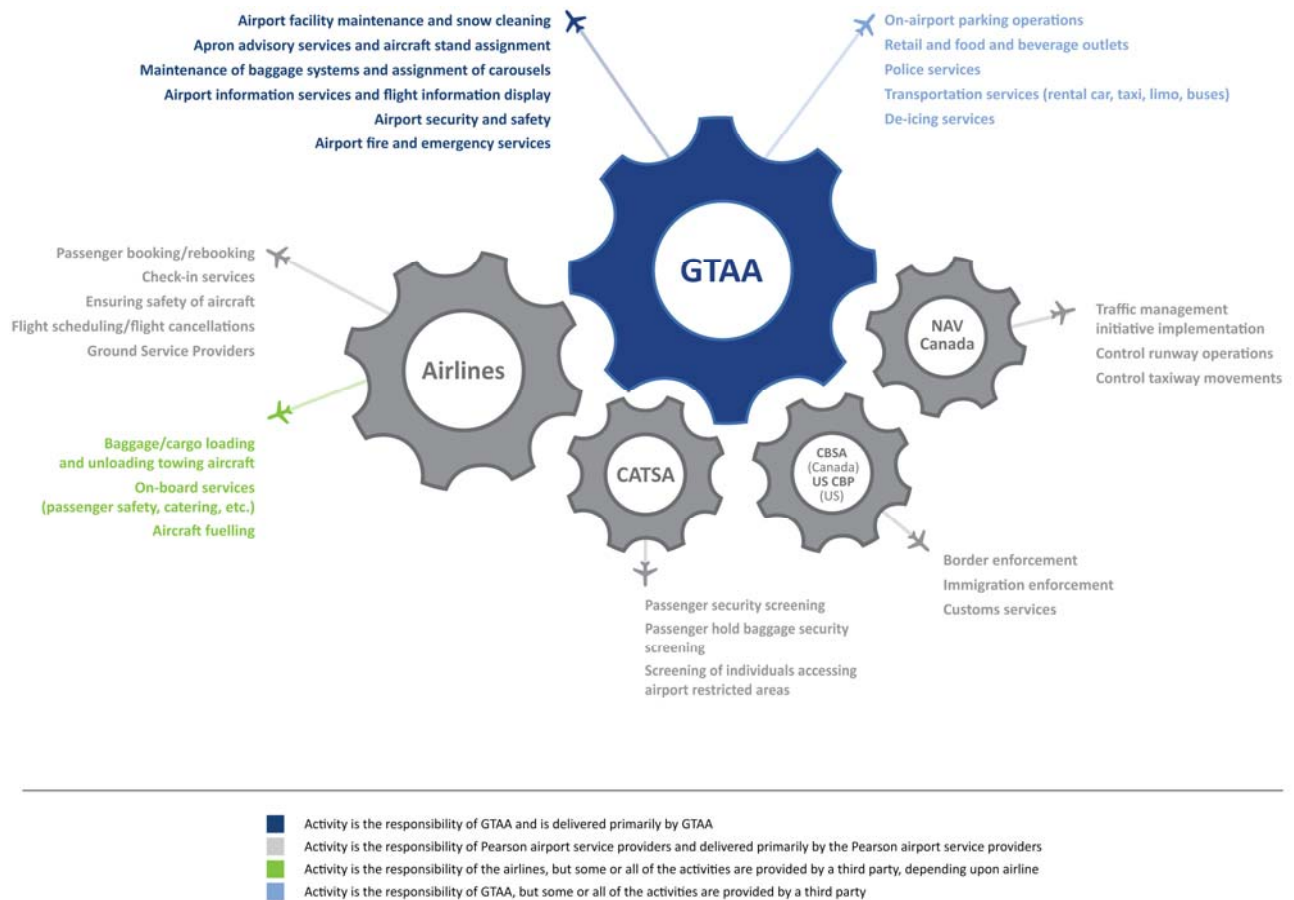
Figure 6: Map of Toronto Pearson



The Pearson Community

More than 450 organizations provide services at Toronto Pearson, from the largest airline alliances to small, independent retail businesses and a number of federal government agencies. In addition to carrying out its responsibilities, the GTAA coordinates many of the operations between these airlines, airport service providers and agencies, so that the Toronto Pearson community is working together to continuously improve the airport travel experience. Collectively, we strive as a community to provide a high level of customer service.

Figure 7: Overview of Toronto Pearson roles and responsibilities



Greater Toronto Airports Authority

Since 1996, the GTAA has had responsibility for management, operation and maintenance of Toronto Pearson when it assumed control from Transport Canada. Transport Canada is responsible for transportation policies and programs. Transport Canada works to serve the public interest through the promotion of a safe and secure, efficient and environmentally responsible transportation system in Canada. The GTAA manages and operates the airport in

accordance with its Ground Lease and applicable legislation, in particular the Aeronautics Act and the Canadian Aviation Regulations.

The GTAA is a private, not-for-profit corporation that manages and operates the airport. The GTAA is licensed by Transport Canada as the aerodrome operator and is responsible for the safe and secure operation of the airport. Entirely self-funding, the GTAA operates on a commercial basis, and reinvests any operating surpluses to expand and develop Toronto Pearson, service any debt and maintain certain reserve requirements.

Specific GTAA accountabilities include:

- Roads: The GTAA maintains the road network in and around Toronto Pearson, which consists of more than 200 kilometres of road carrying more than 65,000 vehicle trips every day.
- Airport utilities: The GTAA manages the provision of electricity, heating, water and other utilities.
- On airport parking garages: The GTAA manages and maintains the public parking garages on airport property.
- The “LINK” Train: The GTAA maintains and operates the automated people mover that connects terminals to the long-term “Value Park” parking garage.
- Terminal facilities: The GTAA maintains and operates the passenger terminal facilities.
- Apron and taxiways: The GTAA maintains the apron and taxiways. In addition, the GTAA provides apron advisory services to guide the aircraft from the taxiway to the aircraft parking positions.
- De-icing facilities: The GTAA maintains and operates the de-icing facilities at Toronto Pearson airport.
- Runways: The GTAA is responsible for safe runway infrastructure, its maintenance (including snow clearing) and runway lighting.
- Fire and emergency services: The GTAA has responsibility for all fire and emergency services at the airport.
- Policing, safety and security: The GTAA’s No. 1 priority is the safety and security of passengers, employees and the public.

Within the passenger terminals the GTAA is responsible for:

- Provision and maintenance of check-in facilities for the airlines;
- Maintenance of the aircraft bridges linking planes to the terminal buildings;
- Provision and maintenance of baggage conveyance systems;

- Planning and development of Toronto Pearson’s concessions program, which includes retail, duty free, retail and food and beverage services;
- Facilitating ground transportation, which includes, but is not limited to rental cars, limousines, taxis and buses; and
- Operation of the flight information display screens in the terminals and online, using airline information.

Airport Service Providers

Airport service providers deliver a number of services at Toronto Pearson. These services include, but are not limited to, those described below.

Airlines

More than 65 airlines currently service Toronto Pearson Airport. While many airlines provide the services listed below themselves, others may engage a commercial service provider to provide some of them.

Airlines have responsibility for:

- Airline flight schedules, including the source of flight schedule information;
- Passenger flight reservation bookings and re-bookings;
- Passenger check-in services, either online or at the airport;
- Passenger boarding and disembarking of aircraft. Airlines are responsible for manoeuvring aircraft bridges to the planes;
- The delivery, loading and unloading of luggage and cargo to and from the aircraft;
- The catering, servicing and maintenance of the aircraft;
- Towing and manoeuvring of the aircraft on the ground;
- Cargo handling at the airport;
- Flight dispatch and operation of the aircraft; and
- The safety and security of the aircraft.

Ground Service Providers

The following summarizes the major ground handling services provided to the airlines at Toronto Pearson Airport:

- **Catering:** In-flight catering and commissary companies provide food services for airlines and other airport customers. Currently there are two catering and commissary companies at Toronto Pearson Airport.
- **Fuel:** Aircraft fuel storage and distribution companies provide fuel for airlines. Currently there is only one aircraft fuel company at Toronto Pearson, Consolidated

Aviation Fueling of Toronto, which is a consortium of airlines that owns and operates the fuelling infrastructure at Pearson. A third party contractor operates the infrastructure on behalf of the consortium.

- Ground Handling: Currently there are in excess of five airline ground handling companies at Toronto Pearson and they provide a combination of check-in services, baggage handling, cargo handling and other services to airlines.

Government Agencies

Canada Border Services Agency (CBSA)

Canada Border Services Agency is the Canadian government agency responsible for Canada's border enforcement, immigration enforcement and customs services within Toronto Pearson, allowing the airport to offer trans-border and international operations.

United States Customs and Border Protection (USCBP)

USCBP is the U.S. government agency responsible for U.S. border enforcement and pre-clearance customs services within Toronto Pearson. The USCBP operates inspection services at both terminals, allowing the airport to offer Canada-U.S. trans-border operations.

Peel Regional Police

Peel Regional Police is the contracted police service responsible for police response and enforcement at and around Toronto Pearson.

NAV CANADA

NAV CANADA is Canada's air navigation service provider, managing aircraft movements in Canadian-controlled air space. Under the Canadian Aviation Regulations, NAV CANADA is the sole provider of air traffic services in Canada and controls runway operations and aircraft movement on the taxiway system. NAV CANADA is responsible for traffic management initiatives that adjust and control aircraft arrival and departure rates into and out of Toronto Pearson as runway capacity changes.

GTAA Unusual Winter Weather Response

As a part of its overall Irregular Operations Contingency Plan, the GTAA has a Severe Weather Response plan that outlines high-risk operational areas and the functions/activities intended to maintain an adequate level of service during "severe winter weather conditions" at Toronto Pearson. The plan is designed to ensure there is strong awareness of local and broad-scale weather conditions and that preparatory action plans are in place to mitigate the impact of unusual winter weather on airport operations.

The plan outlines escalation procedures that identify the actions required of airport employees as weather conditions become more severe. The decision to escalate an incident is made by the Manager of Airport Operations.

Irregular Operations – Severe Weather

Weather-related irregular operations consist of any situation that may have an impact on the normal day-to-day operations at the airport and/or cause a degraded level of service or operation for any facility or segment of the airport, and which therefore requires a special response or action to mitigate the effect. Unusual winter weather requires the consideration and potential implementation of both airside (gates, apron, taxiways, runways) and terminal contingency plans.

The coordination focal point is the Integrated Operations Control Centre, where communication with internal, airport and/or external agencies is conducted. The Manager of Airport Operations oversees the Integrated Operations Control Centre and is in charge of overall daily operations at the airport during the course of regular operations on a 24/7 basis. The Integrated Operations Control Centre is the group that makes the decisions as to whether a situation should be upgraded to a higher response level.

Irregular Operations Level I: Enhanced Monitoring

Increased alertness is the first stage of an irregular operations situation at Toronto Pearson and is typically an enhanced monitoring phase triggered by the potential for disruption to normal airport operations or system service levels. During this stage, standard operating procedures apply, but increased monitoring, vigilance and standby notification may be implemented at the discretion of the Manager of Airport Operations.

Subject to the assessment by the Manager of Airport Operations, decisions are taken to minimize the disruption to airport operations based on observations of the following:

- Air traffic volumes;
- Aircraft parking;
- Key tenant staffing levels;
- System malfunctions;
- Life safety considerations;
- Building flow conditions;
- Customer care considerations (e.g., food and beverage availability);
- Busing considerations;
- Building mechanical or IT system status; and
- Airside safety considerations.

During severe winter weather watches, or severe winter weather warnings, the Integrated Operations Control Centre monitors available meteorological sources at regular intervals and is responsible for coordination and dissemination of information to airport service providers as appropriate.

As required, the Integrated Operations Control Centre will conduct “Weather Update” conference calls with service providers, including airlines, ground handlers, tenants, construction workers and other relevant agencies working at Toronto Pearson.

The Emergency Operations Centre is activated when it becomes evident to the Manager of Airport Operations that additional resources and higher levels of authority are required to manage the airport through a period of irregular operations. When activated, the Emergency Operations Centre has a stand-by Associate Director or Director level employee in charge of the irregular operations and the Manager of Airport Operations remains within the Integrated Operations Control Centre focused on operating the ongoing airport operations.

The Emergency Operations Centre can take full control of an incident (become the Area Command), or it can be used in a supporting role in situations where the Manager of Airport Operations remains in control. During the Emergency Operations Centre activation of January 7 to 9, 2014 the Emergency Operations Centre was the incident lead and was in charge.

Irregular Operations Level II: Activation of Operational Mitigation Plans

The second level of an irregular operations escalation is implemented by the Manager of Airport Operations or Standby Emergency Operations Centre Director. At this time, observation and monitoring indicate that the disruption will require immediate action to minimize the disruption to the functioning of the airport, operational integrity and the Emergency Operations Centre in an Area Command Role, and Incident Management Procedures would be fully implemented.

Subordinate or mitigation plans are to be implemented and airport service providers will be notified of the impact on operations. Senior decision-makers from key agencies will be invited to attend the Emergency Operations Centre to assess the consequence of a significant incident on overall airport operations and to participate in the development of a collaborative plan to mitigate the potential impacts of incidents effectively.

The GTAA also has a Level III (natural disaster) escalation which is not pertinent to this report.

Irregular Operations Communications

In the event of irregular operations or crisis situations, the GTAA Communication group, a sub-unit with the Strategy Development and Stakeholder Relations group, activates its Major Incident Communications Plan. This Crisis Communications Plan is designed to coordinate messaging during a “definitive event,” such as an aircraft crash or a fire, which results in a disruption of airport operations. This Plan was most recently tested in September 2013 as part of the GTAA’s annual emergency planning exercise.

The Communications group uses media, including social media, to advise the public of incidents at Toronto Pearson that may impact travel. Frequently, this involves encouraging passengers to check with the airline to determine whether their flight has been cancelled or delayed. By informing the public of the state of travel at Toronto Pearson, timely communications can assist in minimizing the operational impact of weather.

The GTAA will respond to all requests or inquiries from the media; however, it only speaks to areas over which it has direct responsibility or influence. A member of the Communications group may be reached on a 24/7 basis by the Integrated Operations Control Centre or media outlets. The role of the on-call representative is to interact with the Integrated Operations Control Centre to gather information, coordinate information for the media, website and social media and then distribute that information. Once an operational incident reaches the point that one person cannot handle multiple communications demands, additional resources are deployed.

During times of prolonged operational disruptions, a Communications group employee may be seconded to the Emergency Operations Centre to act as the conduit between Incident Command and GTAA employees who are handling media relations, social media and website updates. This Communications representative will also advise colleagues from Public Affairs and Stakeholder Relations, so that they may keep key government contacts informed and so that information for the Toronto Pearson employee community may be assembled and distributed. Likewise, in a prolonged disruption, a Strategy Development and Stakeholder Relations representative will coordinate information for internal GTAA distribution as required.

Appendix F: Chronology of Events between January 5 and 9, 2014

Events Summary

The weather conditions experienced by Toronto Pearson from January 5 to 7, 2014 are regarded by some as the most unusual weather Toronto has faced in over a decade, since the so-called “snowstorm of the century” that occurred January 2 to 15, 1999¹.

This most recent event created a compounding set of circumstances that resulted in aircraft congestion on the airfield and major disruption to passengers and baggage processing in the terminal buildings.

On January 5 and 6 the airport experienced a mix of rain and snow followed by a sudden drop in temperature that fell below the threshold where chemicals lose their effectiveness in melting ice and snow. Through January 5 and early into January 6 the airport worked to clear a backlog of planes that occurred as a result of weather events on January 5. In doing so, the GTAA missed the normally quiet hours that day that feature fewer planned aircraft movements, which allows for a thorough clearing of apron and gate areas of ice and snow. As the temperature dropped through January 6 and into January 7, aircraft turn times began to increase and the condition of the airport aprons rapidly deteriorated. These factors contributed to the imbalance between arrivals and departures at Toronto Pearson.

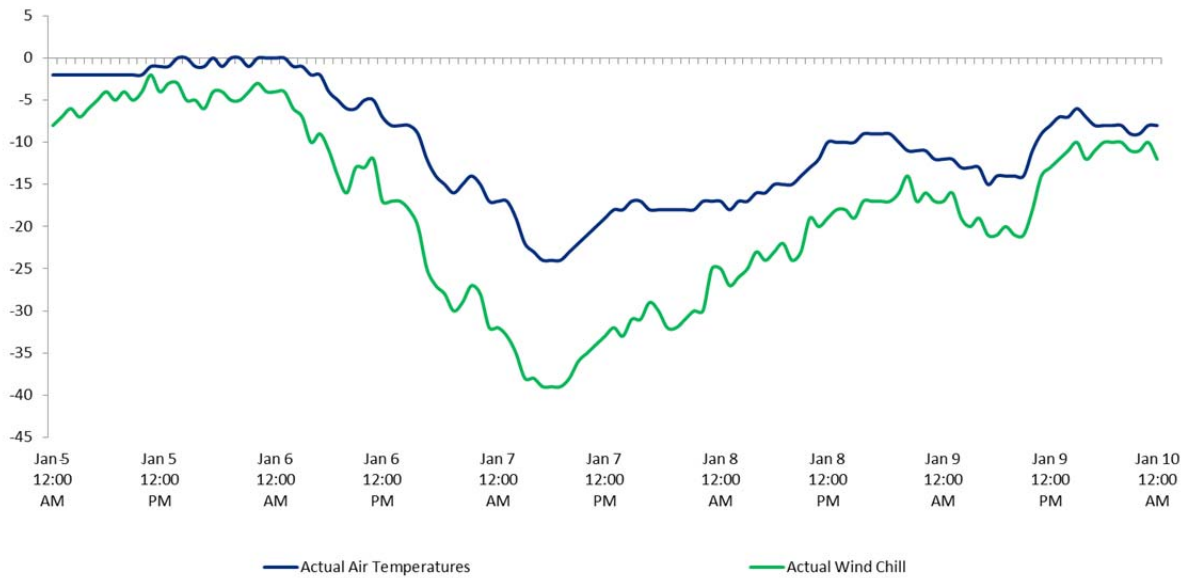
Figure 8: Precipitation overview (January 5 to 9, 2014)

| | January 5 | January 6 | January 7 | January 8 | January 9 |
|----------------------|-----------|-----------|-----------|-----------|-----------|
| Forecasted snow (cm) | 7.3 | 1.3 | 0.1 | 0 | 0.2 |
| Actual snow (cm) | 11.6 | 1.2 | 0 | 0 | 0.2 |
| Forecasted rain (mm) | 3.8 | 4.8 | 0 | 0 | 0 |
| Actual rain (mm) | 1.8 | 4 | 0 | 0 | 0 |

Source: Scotia Weather Services, Environment Canada

¹ “Toronto's Snowstorm of the Century - January 2-15, 1999. A series of storms stalked the city, dumping nearly a year's amount of snow in less than two weeks. In all, the city recorded the greatest January snowfall total ever with 118.4 cm and the greatest snow on the ground at any one time with 65 cm.” (Source Environment Canada)

Figure 9: Air temperature and wind chill overview (January 5 to 9, 2014)



Source: Environment Canada

At this stage, the operational challenges at the airport cascaded into a number of communications and customer services challenges.

The following section provides an overview of the key events that transpired at Toronto Pearson from January 5 to 9, 2014. The chronology provided has been prepared by management and has been confirmed from a review of multiple sources, including logs, call transcripts, media reports and meeting minutes.

Sunday, January 5

| Sunday January 5 th Summary | | |
|--|--|--|
| Key operational details | Temperature: | Between 0 C and -2 C |
| | Precipitation: | Compact snow and ice forming |
| Key operational details | Runways: | Good condition |
| | Taxiways and aprons: | Compact snow and ice forming |
| | Chemical and sand: | Applied |
| | Diversions: | 7 from Montreal and Ottawa |
| | Aircraft that waited for gates: | 178 (0000-2359) |
| | Flight cancellations (arrivals): | 64 |
| | Flight cancellations (departures): | 79 |
| Aircraft flow measures (NAV CANADA) | Airborne holds ² : | From 10 mins to 30 mins |
| | Departure Metering Programs (per hour) ³ : | 46 departures (0800 -1000), 40 departures (1800-2100), 38 departures (2100-2359) |
| | Ground Delay Programs ⁴ : | 1 (1830 -2100) |
| | Ground stops ⁵ : | Multiple |

0000 to 0600

Weather Forecast: 0300 - The GTAA received a weather forecast report from Scotia Weather Services. The report forecast a 50 per cent probability of snow and an additional accumulation of 0.5 cm of snow till 0600 hours.

Light snow and wind conditions existed throughout this time period. The temperature remained steady at -2 C and the temperature felt like -7 C after taking the wind chill factor into account.

Standard command, control and operating protocols were in place between midnight and 0600 hours with the Manager of Airport Operations in the Integrated Operations Control Centre overseeing the airport.

0530 - A Core Planning Group conference call was held. (For the makeup of the Core Planning Group see the Core Planning Group reference in Appendix G.)

² Airborne holds are measures taken when aircraft are en route to an airport and because of capacity problems are required to hold in a pattern for a specified duration of time usually exceeding 10 minutes.

³ Departure Metering Programs are designed to manage the flow of aircraft to the Central De-icing Facility or runway, thereby reducing congestion on the manoeuvring surfaces, eliminating unnecessary fuel burn and reducing inconvenience for the travelling public. This program can also be implemented to manage other capacity issues related to aircraft and departures.

⁴ Ground Delay Programs are traffic management initiatives instituted by NAV CANADA involving aircraft being held on the ground to manage arrival rates into airports to ensure that the capacity of airport facilities and runways is not exceeded by demand.

⁵ Ground stops are a traffic management initiative instituted by NAV CANADA involving a stop on aircraft departures to airports to manage arrival rates into destination airports to ensure that the capacity of destination airport facilities and runways is not exceeded by demand.

During this call, the GTAA, NAV CANADA and the airlines agreed the GTAA would implement a Departure Metering Program rate of 46 aircraft departures per hour from 0800 to 1000 hours and the weather forecast was discussed.

There were 23 aircraft held off gates during this period. The average time for these aircraft to reach the gate was 11 minutes with a maximum time to reach the gate of 23 minutes.

0600 to 1800

The previously mentioned weather forecast report from Scotia Weather Services predicted a 50 per cent probability of snow and an additional accumulation of 3.5 cm of snow until 1800 hours.

Light snow and windy conditions existed throughout this time. The temperature remained between 0 C and -2 C and the temperature felt like -6 C, when the wind chill was taken into account.

1000 - A Core Planning Group conference call was held. During this call the GTAA, NAV CANADA and the airlines agreed the GTAA would implement a Departure Metering Program rate of 40 aircraft departures per hour from 1800 to 2100 and 38 aircraft departures per hour from 2100 to 2359.

1130 - An at-large conference call (see Appendix G) was held. The Departure Metering Program rates set at the 1000 Core Planning Group conference call were confirmed with the airlines and other attendees and the weather forecast for late evening January 5, 2014 and early morning January 6, 2014 was discussed.

1227 - The GTAA issued a Twitter message communicating that, due to weather conditions, passengers should contact their respective airlines for their flight status and give themselves extra time to get to the airport safely.

1600 - The GTAA repeated the Twitter message that, due to weather conditions, passengers should contact their airlines for their flight status and give themselves extra time to get to the airport safely.

1600 - NAV CANADA imposed a ground stop until 1630.⁶ This is a tactic that is normally used by NAV CANADA to control inbound aircraft flow by preventing flights bound for a destination airport from leaving the airport of origin. NAV CANADA uses this tactic to smooth out inbound flows and avoid any potential aircraft gridlock on the surface, allowing all airlines additional time to clear the backlog of waiting aircraft on the ground.

However, aircraft servicing times at gates were much longer than expected, causing flights to run behind schedule. Ground service crews from airlines and third-party service providers were fully occupied trying to keep up with aircraft gating.

⁶ Often these decisions by NAV Canada include consultation with the airlines and airports.

There were 52 aircraft held off gates during this period. The average time for these aircraft to reach the gate was 14 minutes with a maximum time to reach the gate of 42 minutes.

1800 to 2359

1800 - The GTAA received an updated weather forecast from Scotia Weather Services that predicted an 80 per cent to 90 per cent probability of a mix of snow and freezing rain, with an additional accumulation of up to 5.2 cm of snow and freezing rain until 2359 hours.

1800 - A second Departure Metering Program was in effect from 1800 until 2359 with a rate of 40 departures per hour until 2100 and 38 departures per hour until 2359.

Light snow mixed with ice pellets was falling, and the temperature was holding steady between 0 C and -1 C. With the prevalence of light winds, the temperature felt like -5 C with the wind chill. Between 1400 and midnight, 9.6 cm of snow had accumulated at the airport, bringing the total precipitation for the day to 11.6 cm of snow and ice pellets.

1830 - NAV CANADA imposed a Ground Delay Program, which temporarily held or delayed aircraft destined for Toronto at their originating airports, between 1830 and 2100 for Toronto Pearson.

1900 - A Core Planning Group conference call was held. The GTAA, NAV CANADA and the airlines agreed the GTAA would implement a Departure Metering Program of 44 departures per hour on Monday, January 6, from 0800 – 1000. Weather concerns about the impact of flash freezing in the early hours of January 6 were discussed, including the possibility of chemically pre-treating apron surfaces to reduce ice buildup. Such a pre-treatment was discussed and, based on the forecasted snow, it was determined that pre-treatment would not be effective and therefore would not be applied.

Taxi-out times remained within the expected limits throughout Sunday until 2100 hours when average taxi-out times reached 95 minutes.

2100 - NAV CANADA imposed a Tier 2 Approval Request (APREQ), which required that a request be made to NAV CANADA by all aircraft intending flight to Toronto Pearson, until 0300.

Despite the efforts to manage aircraft flow into Toronto Pearson, the number of aircraft arrivals exceeded departures by 67 aircraft between 1800 and 2359 on Sunday, January 5.

2100-2359 - Seven of the excess aircraft arrivals were the result of aircraft diversions from other airports, principally flights originally destined for Montreal and Ottawa. Both of these airports were also experiencing weather-related challenges.

Aircraft diversions by definition are unplanned arrivals. Unless the airport is closed, diverted aircraft must be accepted. These unplanned arrivals would eventually occupy terminal gates and use airline and ground service provider resources normally assigned to scheduled flights into Toronto Pearson.

There were 103 aircraft held off gates during this period. The average time for these aircraft to reach the gate was 33 minutes with a maximum time to reach the gate of 3 hours and 45 minutes.

The deteriorating apron conditions caused increased aircraft turnaround times on the gates. In addition, the difference between the number of departing and arriving aircraft, including the diverted aircraft and aircraft delayed due to weather at originating airports, severely impeded flight operations at Toronto Pearson.

The slowing of airside operations and the resulting missed connections and numerous flight cancellations had an equally negative impact on passengers in both Terminals 1 and 3. In addition, due to the weather, taxis and limousines had difficulty returning to the airport, meaning that arriving passengers had to wait much longer than normal for ground transportation. The overall passenger experience at Toronto Pearson was negatively impacted as a result.

Monday, January 6

| Monday January 6 th Summary | | |
|--|---|--|
| Key operational details | Temperature: | Between 0 C and -17 C Wind chill low of -27 C |
| | Precipitation: | Snow squall, freezing rain, ice pellets |
| Key operational details | Runways: | Good condition |
| | Taxiways and aprons: | Compact ice forming |
| | Chemical and sand: | Applied |
| | Diversions: | 11 from Hamilton, Montreal and Ottawa before 6:00am 2 additional flights after Noon |
| | Aircraft that waited for gates: | 331 (0000-2359) |
| | Flight cancellations (arrivals): | 147 |
| | Flight cancellations (Departures): | 155 |
| Aircraft flow measures (NAV CANADA) | Airborne holds: | - |
| | Departure Metering Programs: (per hour) | 44 departures (0800-1000) |
| | Ground Delay Programs: | None |
| | Ground stops: | 1 (2300 – 2359) |

0000 to 0600

Weather forecast: 0300 - The Scotia Weather Services report received by the GTAA forecast a 50 per cent to 60 per cent probability of snow, freezing rain and an additional accumulation of 0.6 cm of snow until 0600 hours.

Weather conditions deteriorated, and a mix of snow, fog, freezing rain and ice pellets existed throughout this time. In tandem with this mixed precipitation, temperatures dropped from 0 C to -7 C. The temperature felt like -11 C with the wind chill.

A sudden drop in temperatures caused the snow and slush on the taxiways and apron and gate areas to freeze.

0030 –NAV CANADA’s Tier 2 APREQ for Toronto Pearson imposed on the night of January 5 was lifted.

0100 - There were an estimated 2,000 additional passengers in Terminal 1 due in part to the earlier diverted flights from Montreal and Ottawa, on top of flight cancellations.

Inside the terminals, airlines were busy addressing the needs of passengers who required flight rebooking and/or hotel accommodations as a result of flight cancellations or missed connections.

0319 - A situation report was issued by the Integrated Operations Control Centre, which noted that the airline ground handling tow crews were unable to keep up with the demand to move aircraft off and on the gates.

The GTAA provided several cases of bottled water to passengers, with the assistance of three building maintenance employees and a guest service representative.

0530 - A Core Planning Group conference call was held. At least one airline reported having difficulty towing aircraft off the gates required to handle diverted aircraft. In addition, aircraft were holding off empty gates waiting for ground crew. The GTAA, NAV CANADA and the airlines agreed the GTAA would implement a Departure Metering Program of 44 departures per hour from 0800 -1000.

0538 - The GTAA issued a Twitter message that said the airlines and their ground crews were working to move planes off the gates, which would allow arrived aircraft to move onto gates at the terminals.

0539 - The GTAA issued this Twitter message: *“Diversions and icing - winter operations continue this morning after a night of diversions and icing. Airline crews are working to move aircraft safely.”*

An important consequence of the factors faced by the GTAA during the night of January 5 was a significantly increased number of aircraft movements between 0000 and 0600 hours on January 6. This time is normally a low traffic period at the airport.

This level of overnight aircraft activity also had a negative impact on GTAA snow removal operations, particularly in relation to the apron and gate areas. The normal practice for snow removal crews is to access the aprons and gates during the overnight hours. However, during the period in question, terminal gates were routinely occupied by aircraft and ground crews. As a result, snow clearing crews had only limited access to the areas around and at the gates, a situation that would only serve to aggravate conditions on the apron in the hours that followed.

During this time there were 71 aircraft held off gates. The average time for these aircraft to reach the gate was 1 hour and 36 minutes with a maximum time to reach the gate of 4 hours and 28 minutes.

0600 to 1800

The weather forecast report from Scotia Weather Services predicted a 50 per cent to 60 per cent probability of snow and an additional accumulation of 0.7 cm of snow until 1800 hours.

The actual temperature experienced was between -4 C and -14 C during this time, with the temperature feeling like -27 C with the wind chill. In addition, three brief unexpected snow squalls caused near white-out conditions, negatively impacting the normal work routines on the apron.

Due to previously mentioned diverted flights and cancellations, a high volume of baggage was coming through the Terminal 1 baggage system. Airline employees were unable to keep up with the volume in the bag rooms so additional resources were deployed to assist the airlines with organizing baggage, baggage recovery and the clearing of baggage congestion from the carousel.

0733 - GTAA issued a Twitter message suggesting to passengers that the *“best advice if flying today is to double check the status of your flight. Winter weather affecting airline schedules.”*

0743 - The GTAA issued a Twitter message communicating that *“Airlines are working to get all planes safely to the gates. Airline crews worked through the night to move their planes when possible.”*

0800 - The Departure Metering Program was in effect until 1000 at a rate of 44 departures per hour.

0800 - A Core Planning Group conference call was held. Air Canada brought up concerns about ice and snow accumulation on the apron. It also advised that its ground service equipment was having difficulty functioning on such surface conditions.

0948 - The GTAA issued this Twitter message asking passengers to *“Please check your flight status before heading out. Airport crews are working hard to keep the airfield treated for safe operations.”*

1200 - Public address announcements were made throughout Terminal 1 advising passengers of flight cancellations and delays.

1300 - Problems were experienced with the Terminal 3 baggage system due to the cold temperatures.

By 1300 about 20 news media interviews were conducted by the Senior Advisor, Communications and Acting Manager, Corporate Communications regarding the longer-than-normal wait times for arriving flights, who advised that the diversions were the main cause of the wait times for arriving aircraft.

In retrospect, there were several key factors that contributed to this situation, including the following:

- There were more arriving aircraft than departing aircraft.
- Ground handlers and airlines experienced equipment reliability and employee safety issues due to the unusually cold weather.
- Ground handling processes had to be modified to accommodate the unusually cold temperatures, further increasing turnaround times;
- There were problems with moving some passenger boarding bridges as a result of the abnormal buildup of ice and snow in and around the gate areas.
- There were fuelling delays due to equipment freezing, and access to in-ground fuel hydrants was impeded by the ice build-up on the apron.

1345 – Toronto Pearson received a diverted flight from Hamilton International Airport.

There were 134 aircraft held off gate during this period. The average time for these aircraft to reach the gate was 27 minutes with a maximum time to reach the gate of 2 hours and 14 minutes.

1800 to 2359

1800 - The GTAA received an updated weather forecast report from Scotia Weather Services that predicted a 40 per cent probability of snow and an additional accumulation of up to 0.6 cm of snow until 2359 hours.

Temperatures hovered between -14 C and -17 C, and strong winds increased to 30 to 35 knots (55 to 65 km/h) gusting up to 42 knots (78 km/h). Outside workers were experiencing a wind chill of -32 C to -34 C. From 1900 to midnight, there was another snow squall that caused near white-out conditions.

1900 - A Core Planning Group conference call was held. With so many aircraft holding for gates, GTAA Aviation Services reported that NAV CANADA was looking into ways of preventing gridlock on the airfield. NAV CANADA later joined the call and indicated that no airline had scheduled times—arriving or departing—that were reliable. Air Canada stated it was having issues getting aircraft off gates, and as a result it was running about an hour behind schedule, particularly on international flights. WestJet confirmed its operation was running about an hour late. Apron snow removal procedures continued to be hampered because the gates were continuously being used as aircraft stands for live flights. Normally, the apron snow removal procedure involves the closing of some gates that have in-ground snow melting units in advance of weather events. This was not possible on January 6 because most gates continued to be used as aircraft stands for departing flights, which required that snow be relocated to distant dumping locations, increasing the overall time required to clear snow from the apron. During this period, only the aircraft centre lines were properly cleared, with the gate areas getting cleared only sporadically. On the conference call at 1900, Consolidated Fuelling advised that it continued to experience difficulty refuelling aircraft due to the unusually cold temperatures.

Taxi-in times⁷ began to substantially increase during this period due largely to the number of aircraft that were holding off gates.

1917 The Integrated Operations Control Centre sent out an email to airlines and other operating groups that Toronto Pearson would face high winds for the next 24 hours and that apron personnel should exercise caution while operating on the apron areas and should secure equipment that was not in use. Ground handlers were reminded to close potable water cabinet doors in the gate areas to prevent the pipes from freezing, as well as to store ground service equipment in heated areas, especially overnight, to minimize the impact to operations of frozen equipment.

2000 - NAV CANADA imposed an Approval Request (APREQ), which required that a request be made to NAV CANADA by all aircraft intending flight to Toronto Pearson, until 2330 in an attempt to manage aircraft arrival rates into the airport and avoid a potential gridlock on the

⁷ Taxi-in time represents the time from aircraft landing to arrival at a terminal gate.

airfield. In Terminal 3, an estimated 1,500 passengers were in the international baggage hall waiting in excess of one hour for bags to be delivered to the carousels.

2059 - The Integrated Operations Control Centre issued another group email to airlines and other airport service providers stating that aircraft turnarounds were very slow due to slippery conditions on the apron. The reported hold times for aircraft waiting for gates reached up to 90 minutes due to slow refuelling, baggage handling and aircraft servicing. To deal with the conditions, one extra airfield crew was on duty to take care of trouble spots.

2200 - The first reports came in to the Integrated Operations Control Centre that aircraft turn times on terminal gates were now in excess of four hours and that there were more arriving aircraft than departures. Ground service equipment operators were having difficulty safely approaching aircraft at gates due to icy conditions on the apron.

There were baggage delivery delays in Terminal 1 with many airline passengers waiting in excess of three hours for their bags to arrive on the carousels. In some cases, passengers from cancelled flights did not receive their bags that day.

2218 - Toronto Pearson received a diverted flight from Toronto Island Airport.

2245 - The Manager of Airport Operations contacted the Standby Emergency Operations Centre Director and advised of the situation on the airfield, stating that aircraft turnaround times were very slow (approximately three to five hours, versus the norm of one to two hours), and that the situation on the airfield was getting worse.

Concern was raised that passengers would end up stranded on aircraft for hours if remedial action was not taken promptly. To assess the situation and plan for mitigation, a Core Planning Group conference call was planned for 2345.

As indicated earlier, the unusually cold weather forced ground crews to take regular shelter breaks to warm up, required aircraft cargo doors to be closed periodically to prevent aircraft water lines from freezing, and caused ground service equipment to fail to start or to operate intermittently.

The apron conditions further deteriorated to the point where some ground equipment, such as aircraft tractors, could no longer operate on the ice. As ambient temperatures dropped below -18 C, chemical treatment⁸ was ineffective. To improve surface traction, sand was applied to the apron with limited effectiveness.

2300 - NAV CANADA called a ground stop, which prevented aircraft within a defined geographic area destined for Toronto Pearson from departing their originating airport, until 2359.

2345 - At the Core Planning Group conference call at 2345, the GTAA requested that airlines not bring additional flights into the airport and divert those already in the air to their flight-planned

⁸ The GTAA uses the same chemicals as other airport operators (sodium formate and potassium acetate) but these chemicals are not effective at temperatures lower than -18 C. At temperatures colder than this, sand is the only effective material able to provide footing and traction for crews and equipment.

alternates. However, the airlines on the call indicated that the alternate airports were no longer viable destinations and were only suitable for technical stops.⁹ During the call, NAV CANADA said there were up to 40 aircraft in the air destined for Toronto Pearson.

On the call, NAV CANADA extended the ground stop that had been in place since 2300 until 0600 on January 7, when it would institute a Ground Delay Program (GDP) with a rate of 30 departures per hour.

Also on the call, busing operations to bring passengers from some waiting aircraft to the terminals were also discussed, but this solution was discounted due to the poor surface conditions and consequent passenger safety concerns. To mitigate concerns of leaving passengers on aircraft for very long periods, call participants agreed that the best option was to get aircraft to the gates as soon as possible, off-load the passengers and then tow the aircraft off gate with the baggage remaining on the aircraft. Toronto-bound passengers would be advised to go home, and then pick up their baggage at a later date.

The decision made here to mitigate the extremely long waits for gates and to offload passengers without their baggage would eventually contribute to the abnormally high baggage congestion in the arrival halls, with thousands of unclaimed bags remaining in the terminal facilities after their owners had left the airport. In addition to these unclaimed bags, there were already a large number of unclaimed bags left from delayed flights on the night of January 5 and earlier on January 6.

There were 126 aircraft held off gates during this period with a maximum of 32 aircraft holding at any one time. The average time for these aircraft to reach the gate was 1 hour and 8 minutes, with a maximum time to reach the gate of 5 hours and 33 minutes.

⁹ Most of the alternative airports would not have had the facilities or personnel to deplane passengers or properly service aircraft and were only suitable for emergency or technical purposes.

Tuesday January 7

| Tuesday January 7 th Summary | | |
|--|------------------------------------|--|
| Key operational details | Temperature: | Between -17 C and -24 C Wind chill low of -39 C |
| | Precipitation: | Snow |
| Key operational details | Runways: | Good condition |
| | Taxiways and aprons: | Significant compact snow and ice |
| | Chemical and sand: | Applied |
| | Diversions: | - |
| | Aircraft that waited for gates: | 234 (0000-2359) |
| | Flight cancellations (arrivals): | 278 |
| | Flight cancellations (departures): | 263 |
| Aircraft flow measures (NAV CANADA) | Airborne holds: | - |
| | Departure Metering Programs: | - |
| | Ground Delay Programs: | - |
| | Ground stops: | 1 (0000-0900) |

0000 to 0600

0143 - Manager of Airport Operations contacted the Senior Emergency Operations Centre Director to activate the Emergency Operations Centre at 0600. Within the next hour, the remaining Emergency Operations Centre team members were advised that they were required in the Emergency Operations Centre to provide support.

0213 - Consolidated Fuelling reported at 0200 that it was one hour behind schedule due to frozen equipment.

Weather forecast: 0300 - The Scotia Weather Services report forecast a 30 per cent probability of precipitation and no additional accumulation anticipated until 0600 hours.

The ambient temperature was between -17 C and -24 C during this time with the temperature feeling like -32 C with the wind chill.

NAV CANADA's previously imposed ground stop for Toronto Pearson that began at 2300 on January 6 was continued until 0200 January 7.

0300 - At Terminal 1 the GTAA's Tenant Airline Representative met with the Air Canada Sales Manager to discuss passenger congestion and Air Canada's action plan for distributing hotel tokens and for rebooking all its passengers.

0339 - Everbridge¹⁰ notification was sent to all Incident Management System¹¹ members and the senior management team advising them of the Emergency Operations Centre activation at 0600.

¹⁰ Everbridge is a mass communication tool used to support the Incident Management System at the GTAA.

¹¹ Incident Management System refers to the process associated with managing irregular operations at Toronto Pearson and includes the escalation process to engage additional resources and increased decision-making powers to manage an incident or event.

Some passenger boarding bridges' drive train systems and/or wheels did not have enough power or traction to move over the accumulated snow and ice on the apron. With chemicals having little impact on the apron surface, sand was used to improve traction.

There were now an estimated 2,000 passengers waiting in the Terminal 1 international baggage hall.

Air Canada advised that it required additional check-in kiosks to process the rebooking of large numbers of passengers. The GTAA provided Air Canada with additional check-in counters at 0500 on Aisle M to process the long line of passengers waiting to rebook flights. Air Canada also began to bring in additional employees to assist in this effort.

0500 - A Core Planning Group meeting was held. It was discussed that Terminal 1 and Terminal 3 were congested with passengers who had missed their connecting flights and were now trying to rebook flights. The baggage arrival halls were also full, due to the fact that many passengers who arrived at Toronto Pearson and had cleared customs/immigration were unable to find their bags and so left them behind at the airport. The GTAA asked airlines and the baggage handlers to call in more employees to help reduce both the passenger and baggage congestion.

There were 66 aircraft held off gates during this period. The average time for these aircraft to reach the gate was 1 hour and 49 minutes, with a maximum time to reach the gate of 5 hours and 13 minutes.

0600 to 1800

The forecast report from Scotia Weather Services predicted a 30 per cent probability of precipitation and no additional accumulation was anticipated until 1800 hours.

The temperature was between -18 C and -24 C during this time, but it felt like -39 C with the wind chill.

Runways were in good condition but taxiways had many areas with compacted snow and ice, and various removal techniques were in progress. The aprons had snow, compacted snow and significant ice cover. GTAA employees and contractors were on site working to improve these conditions.

0600 - A Tier 2 ground stop¹² at Toronto Pearson was imposed by NAV CANADA, which prevented aircraft within a defined geographic area destined for Pearson from departing their originating airport, until 0900.

0600 - The Emergency Operations Centre was activated and it began directing communications to media and the general public about the situation at Toronto Pearson.

¹² Tier 2 ground stop is a traffic management initiative instituted by NAV CANADA that puts a stop on aircraft departures in North America coming to Toronto Pearson.

The unusually cold conditions caused a number of additional issues within the terminal facilities themselves, including for example, burst water pipes and heating issues in certain Canada Border Services Agency processing areas in Terminal 3.

At 0645, a request was made to update the website to post a travel advisory. Due to a technical difficulty, the website could not be updated. In addition, approximately one-quarter of users trying to access the site were not able to do so due to a problem with one of the servers supporting the website. The technical difficulty was corrected within 90 minutes and the server restarted, at which point the advisory was posted and the website was fully accessible.

At 0710 in Terminal 1, Air Canada rebooking was occurring at Aisle N, including the handling of passengers travelling to Ottawa and Montreal whose flights had been diverted to Toronto Pearson the previous night.

At 0800, the Terminal 3 Manager of Operations met with WestJet, Air Transat, American Airlines and the Canada Border Services Agency supervisor to discuss removing bags from the customs hall as quickly as possible to make room for baggage from incoming flights.

1400 - WestJet queues were lengthy at their domestic check-in counters, as well as at additional counters on the arrivals level. At Gate B26 the GTAA provided two Tenant Airline Representatives to answer passenger questions regarding ground transportation queues and baggage-related concerns. The taxi cab/limousine line was set up inside the Terminal 3 arrivals level by Door B and most of the evening this line contained 30 to 40 passengers.

A total of 12 Twitter messages were sent out by the GTAA Communications Group between 0600 and 1600 hours. These messages informed the public about flights and baggage status at Toronto Pearson. In addition, there were 32 interactions with news media, including interviews, updates and airside tours regarding conditions at Toronto Pearson.

There were 106 aircraft held off gates during this period. The average time for these aircraft to reach the gate was 61 minutes, with a maximum time to reach the gate of 3 hours and 56 minutes.

1800 to 0000

1800 - The GTAA received an updated weather forecast report from Scotia Weather Services that predicted a 20 per cent probability of precipitation and no additional accumulation anticipated until 2359 hours.

The temperature was between -17 C and -18 C, but the temperature felt like -32 C with the wind chill. Snow was falling and drifting across the airfield.

Runways were in good condition, but taxiways had many areas with compacted snow and ice. Various snow removal techniques were in progress. The aprons had snow, compacted snow and significant ice cover, and GTAA employees and contractors were on site working to improve conditions.

1830 - The GTAA Tenant Airline Representative requested that concessions and retail establishments remain open all night in both the public and restricted areas in Terminal 1 and

Terminal 3 as airlines rebooked passengers and other passengers remained in the restricted areas waiting for flights.

At approximately 2100, temporary warming stations (GTAA airside buses) were put in place on the apron at three Terminal 1 gates to provide shelter from the cold to ground crews.

2200 - Air Canada stopped rebooking passengers at check-in aisles and directed its passengers to call in by phone or return to the airport on the morning of Wednesday, January 8.

Four Twitter messages were sent out by the GTAA Communications Group between 1800 and 2300 hours. These messages informed the public with respect to the flights and baggage status.

There were 62 aircraft held off gates during this period. The average time for these aircraft to reach the gate was 35 minutes, with a maximum time to reach the gate of 2 hours and 24 minutes.

Wednesday, January 8

| Wednesday January 8 th Summary | | |
|--|------------------------------------|---|
| Key operational details | Temperature: | Between -9 C and -18 C Wind chill low of -27 C |
| | Precipitation: | - |
| Key operational details | Runways: | Good condition |
| | Taxiways and aprons: | Compacted snow and ice - condition improving with more overnight snow removal |
| | Chemical and sand: | - |
| | Diversions: | - |
| | Aircraft that waited for gates: | 153 (0000-2359) |
| | Flight cancellations (arrivals): | 173 |
| | Flight cancellations (departures): | 150 |
| Aircraft flow measures (NAV CANADA) | Airborne holds: | - |
| | Departure Metering Programs: | - |
| | Ground Delay Programs: | - |
| | Ground stops: | - |

0000 to 0600

Weather forecast: 0300 - The GTAA received a weather forecast report from Scotia Weather Services. The report forecast a 0 per cent probability of precipitation until 0600 hours. The temperature was forecast to remain steady at -18 C.

Temperatures ranged from -15 C to -18 C during this time, but felt as cold as -27 C with the wind chill. There was snow and drifting snow.

The Emergency Operations Centre was still activated and runways were in good condition. However the taxiways had many areas with compacted snow and ice, and the aprons had snow and compacted snow, with ice cover.

0015 - There was a very long line of passengers waiting for taxi and limousine service at Terminal 1, as well as a long line of passengers at Air Canada customer service counters.

0200 - The Integrated Operations Control Centre sent out a Toronto Pearson community wide email indicating that gates remained occupied due to slow aircraft turnarounds. Apron operations remained hampered by icy surface conditions, and gate hold times were as long as three hours, with 35 aircraft waiting for gates. Some passengers who had been waiting for baggage were asked to go home and told that their bags would be sent to them. NAV CANADA issued a full ground stop until 0900 and Consolidated Fuels was reporting up to an hour delay in servicing aircraft.

Terminal 1 was very busy with large queues as Air Canada had cancelled 30 flights. Arriving passengers continued to experience longer-than-normal wait times for their baggage. Terminal 1 gate lounge areas were congested with departing passengers. Retail areas remained open for extended hours based on their individual abilities to sustain operations.

Terminal 3 was busy with passengers. Arriving passengers were experiencing longer than normal wait times for their baggage.

0500 - A Core Planning Group conference call was held. During this call Air Canada raised concerns about slippery areas on the apron. WestJet also stated that the Terminal 3 apron was clean, but that they did notice a sheen reflection and that there would still be slow operations as a result.

0524 - The GTAA issued a Twitter message communicating that the *“morning start up will be slow this morning, but airfield is operational - pls check your flight status with your airline.”*

There were 21 aircraft held off gate during this period. The average time for these aircraft to reach the gate was 26 minutes, with a maximum time to reach the gate of 52 minutes.

0600 to 1800

The previously mentioned weather forecast report from Scotia Weather Services predicted a 0 per cent probability of precipitation until 1800 hours. The temperature was forecast to range from -9 C to -18 C.

Temperatures ranged from -9 C to -15 C, but felt as cold as -24 C with the wind chill. There were periods of snow between 0800 and 1000.

The Emergency Operations Centre remained active. Runways were in good condition. Taxiways had areas with compacted snow and ice.

Average taxi-in times were 49 minutes between 0600 and 0700. There were 64 aircraft held off gates during this period.

1400 - WestJet had 2,000 bags lined up in the domestic baggage hall, sorted by flight. There were about 600 unsorted bags lined up in the international baggage hall.

1750 - Air Canada passengers were provided with free parking if they were picking up bags. This measure continued until midnight.

There were 52 aircraft held off gates during this period. The average time for these aircraft to reach the gate was 23 minutes, with a maximum time to reach the gate of 1 hour and 25 minutes.

1800 to 0000

1800 - The GTAA received an updated weather forecast report from Scotia Weather Services that predicted a 0 per cent probability of precipitation until 2359. The temperature was forecast to range between -8 C to -9 C.

Temperatures ranged from -9 C to -11.5 C and felt as low as -17 C with the wind chill.

The Emergency Operations Centre remained active. The runways were in good condition. The taxiways and apron areas had noticeably improved. There was a strong focus on cleaning in and around passenger boarding bridges.

1800 - Air Canada was assigned check-in aisles to rebook passengers. The Integrated Operations Control Centre was advised that there were 500 bags in storage in Terminal 1.

During Wednesday, January 8, 20 interviews were conducted by GTAA communications representatives with the media, focusing primarily on the operational conditions of the day and following up on baggage issues.

There were 80 aircraft held off gate during this period. The average time for these aircraft to reach the gate was 22 minutes, with a maximum time to reach the gate of 1 hour and 29 minutes.

Thursday, January 9

| Thursday January 9 th Summary | | |
|--|------------------------------------|---|
| Key operational details | Temperature: | Between -6 C and -15 C Wind chill low of -27 C |
| | Precipitation: | Snow |
| Key operational details | Runways: | Good condition |
| | Taxiways and aprons: | Good condition |
| | Chemical and sand: | - |
| | Diversions: | - |
| | Aircraft on hold: | 177 (0000-2359) |
| | Flight cancellations (arrivals): | 22 |
| | Flight cancellations (departures): | 14 |
| Aircraft flow measures (NAV CANADA) | Airborne holds: | - |
| | Departure Metering Programs: | - |
| | Ground Delay Programs: | - |
| | Ground stops: | - |

0000 to 0600

Weather forecast: 0300 - The GTAA received a weather forecast report from Scotia Weather Services that forecast a 0 per cent probability of precipitation until 0600 hours. The temperature was forecast to remain about -12 C or -13 C.

Temperatures ranged from -12 C to -15 C but felt like -21 C with the wind chill.

The Emergency Operations Centre was active. No event communications were issued. Snow removal activities were concentrated in and around passenger boarding bridges and ground service equipment parking locations.

0100 - Terminal 1 inbound baggage service returned to normal wait times. The domestic baggage had approximately 550 bags waiting to be processed or delivered by Air Canada. In Pier E, there were seven carts containing approximately 300 bags. United Airlines and US Airways had approximately 300 bags around carousels 12 and 13. The storage room on the east side of the re-check area had approximately 450 bags.

0130 - Terminal 3 inbound baggage service also returned to normal wait times. WestJet staged approximately 200 bags in the domestic hall and another 200 bags in the international/transborder hall.

There were six aircraft held off gates during this period. The average time for these aircraft to reach the gate was 37 minutes with a maximum time to reach the gate of 1 hour and 29 minutes.

0600 to 1800

The weather forecast report from Scotia Weather Services predicted a 0 per cent probability of precipitation until 1800 hours. The temperature was forecast to range between -8 C to -12 C.

Temperatures ranged from -6 C to -14 C, but felt like -21 C with the wind chill.

The Emergency Operations Centre was active throughout the day until 1800, when it stood down. All airside operational areas had been returned to mostly bare and dry conditions.

Terminal operations and passenger services returned to normal, with the exception of Lounge A9 which remained out of service for ongoing repairs.

0710 - Two teams of GTAA volunteers were deployed to Terminal 1 to assist passengers. Operations were substantially returned to normal and media activity was greatly reduced.

There were 107 aircraft held off gates during this period. The average time for these aircraft to reach the gate was 20 minutes, with a maximum time to reach the gate of 1 hour and 5 minutes.

1800 to 0000

1800 - The GTAA received an updated weather forecast report from Scotia Weather Services that predicted a 40 per cent probability of snow and an additional accumulation of up to 0.2 cm of snow until 2359 hours. The temperature was forecast to range between -8 C to -10 C

Temperatures ranged from -8 C to -9 C but felt as low as -11 C with the wind chill.

There were 64 aircraft held off gates during this period. The average time for these aircraft to reach the gate was 19 minutes with a maximum time to reach the gate of 55 minutes.

Appendix G: Glossary

The following list explains abbreviations and terms used in this report.

| Term | Definition |
|-------------------------------------|---|
| Airborne holds | Measure taken by NAV CANADA when aircraft are en route to an airport and because of capacity problems are required to hold in a pattern for a specified duration usually exceeding 10 minutes. |
| Approval Request (APREQ) | NAV CANADA measure requiring that a request be made by all aircraft intending flight to a destination airport where flow control restrictions are in effect. Source: Transport Canada |
| At-large conference call | Broad stakeholder conference call that includes all airlines and other key airport service providers. |
| Average taxi-out time | Average time during a day of operations required to taxi an aircraft from a gate pushback until the aircraft is airborne. See: taxi-out time. GTAA expects average taxi times of 30 to 35 minutes in light snow, 45 to 60 minutes in moderate snow, and 60 to 75 minutes in heavy snow. |
| Cancellations | Flights cancelled by airlines for a variety of reasons—mechanical issues, service issues (fuel), weather, issues at the airport a flight is departing from or is to arrive at. |
| CATSA | Canadian Air Transport Security Authority |
| CBSA | Canada Border Services Agency |
| Core Planning Group conference call | A planning forum that includes NAV CANADA, Air Canada, WestJet, Scotia Weather Services and the Manager of Airport Operations, supported by apron and airfield maintenance technical inspectors and supervisors, Aviation Services, Standby Emergency Operations Director and Central De-icing Facility representatives, as required. It is primarily used to set aircraft through-put rates through the Central De-icing Facility. It is routinely held in advance of a broader operational briefing to airlines and others. |
| De-icing | Removing snow, ice and other contaminants from aircraft to ensure a clean aircraft prior to takeoff in winter weather. |
| Diversions | Flights redirected from their planned destination airports to other airports in flight. |
| Departure Metering Program (DMP) | Program implemented by GTAA in collaboration with NAV CANADA and airlines that is designed to manage the flow of aircraft to the Central De-icing Facility or runway, thereby reducing congestion on the manoeuvring surfaces, eliminating unnecessary fuel burn and reducing inconvenience for the travelling public. This program can |

| Term | Definition |
|----------------------------|---|
| | also be implemented to manage other capacity issues related to aircraft and departures. |
| Gate hold | An aircraft waiting to approach a terminal gate to deplane passengers and offload baggage and cargo. Aircraft may hold if a gate is occupied or if ground crew is not available to safely marshal the aircraft onto the gate. |
| Ground Delay Program (GDP) | A traffic management initiative instituted by NAV CANADA involving aircraft being held on the ground to manage arrival rates into airports to ensure that the capacity of airport facilities and runways is not exceeded by demand. |
| Ground stop | A traffic management initiative instituted by NAV CANADA involving a stop on aircraft departures to airports to manage arrival rates into destination airports to ensure that the capacity of destination airport facilities and runways is not exceeded by demand. |
| GTAA | Greater Toronto Airports Authority. |
| NAV CANADA | NAV CANADA controls Canadian domestic airspace through regulation, and routinely institutes traffic management initiatives, such as Ground Delay Programs and ground stops to control arrival flow into Canadian airports. |
| Sunwing | International Civil Aviation Organization designator for Sunwing Airlines. |
| Taxi-out time | The time it takes an aircraft to taxi from a gate pushback until airborne. |
| Wind chill | Perceived air temperature felt by the body or exposed skin due to air flow. |