CUPE·SCFP

Full Submission

by the Canadian Union of Public Employees (CUPE)

to

House of Commons,

Standing Committee on Transport, Infrastructure and Communities

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Contents

1. Introduction

CUPE represents approximately 9,000 flight attendants at 7 airlines including Air Canada mainline and rouge, Air Georgian, Air Transat, Calm Air, Canadian North, Cathay Pacific, First Air and SunWing Airlines.

CUPE represents most flight attendants in Canada except for Jazz, which is an independent association, WestJet, Porter and some other small airlines, which remain non-unionized. Other airline unions include the Canadian Airline Pilots Association, UNIFOR representing reservation agents, and the International Association of Machinists (IAM) representing maintenance and ground crew. As a sector, airlines have one of the highest levels of union density in North America and Europe, a factor many believe to be directly responsible for creating hundreds of thousands of safe, well-paid, and secure jobs for aviation workers.

In Canada, flight attendant unions have steadily improved wages, benefits, and working conditions for their members since 1947. The early years of civil aviation were marked by overt sexual discrimination, the gendered devaluation of flight attendant work, insufficient attention toward cabin crew training, and inadequate health and safety protections. Flight attendant unions have been integral to gaining recognition of and respect for the vital role cabin crew perform as safety professionals.

Some of the safety related duties that flight attendants are required to perform before departure include:

- Attend a safety briefing with their entire crew to ensure that they are aware of light conditions, flying time and any other pertinent flight information including safety bulletins or reports.
- Submit reports to the Captain;
- Brief passengers seated at over-wing exits on safety procedures during emergency evacuation and moving those who do not wish to be responsible for open doors or do not speak English or French to another seat;
- Identify and assist, and provide special safety briefings to passengers who are travelling with infants (including checking proper use of infant seats), those who have limited mobility, and passengers who are physically and/or developmentally challenged;
- Ensure luggage is safely stowed under seats and in overhead bins, or if luggage cannot be stowed, notify and assist ground crew to remove luggage;
- Check safety equipment for availability, accessibility and functionality including jump seat, restraints and first aid kits safety demonstration kits;
- Check and update the log book;
- Ensure that resources required for the flight are available (water levels, etc.);
- Check cabin for suspicious items left onboard in the seats, galleys or lavatories;
- Once the equipment is loaded, ensure all trolleys and carts are secure;
- Ensure and continually monitor cabin isles and doorways to ensure they remain clear.

Once flying, flight attendants are responsible for:

- Ensuring passengers follow safety guidelines;
- Periodically checking the lavatories for ill passengers and fire (usually every 15 minutes);
- Monitor ovens or other food preparation equipment.

- Responding to any in-flight incidents or emergencies. This includes fighting onboard fires, decompressions and turbulence, providing first aid, responding to security threats and unruly passengers.

1.1. CUPE's Fight for a Safe Workplace and Industry

In Canada, flight attendant unions have steadily improved wages, benefits, and working conditions for their members since 1947. These same unions have also been leaders in the fight for a robust regulatory regime that ensures cabin crew are well trained and have extensive health and safety protections.

The basis for many of the collectively bargained work-rules flight attendants now enjoy are based on health and safety concerns, such as limiting fatigue by ensuring adequate rest on board and during layovers, restricting the hours of work, and creating penalties to discourage operators from implementing work rules that compromise safety. CUPE has also been a leading proponent with the government for a myriad of safety regulations.

Since the early 1990s, CUPE has consistently opposed any regulatory change to reduce cabin crew. CUPE has submitted numerous briefs and made presentations to Ministers of Transport and their senior officials, Parliamentary Transportation Committees, and Transport Canada officials. We have been active participants in Transport Canada forums including CARAC, and other advisory issue-based working groups.

CUPE cares about its' member's jobs, and is therefore inherently concerned about the financial health of the airlines it represents. **But safety is something that should never be compromised. Doing so is not in the best interest our membership or that of the public.**

2. Exemptions to Regulations despite Decreased Safety Standards

In 2013, Transport Canada provided a regulatory exemption for WestJet Airlines from the 1:40 regulation permitting the carrier to use the 1:50 ratio. A series of exemptions for the other major airlines in Canada quickly followed. These exemptions were granted despite earlier pressure by the airline industry to lower the number of onboard flight attendants that were rejected by Transport Canada.

Going against the clear advice of its own assessment and experts, and using a flawed risk assessment, Transport Canada conducted multiple tests at various airlines to authorize exemptions from the existing 1:40 ratio beginning in 2013. Known by the industry as "regulation by exemption", exemptions contradict the logic of regulations to begin with, and in CUPE's opinion, ought to be reserved to address and resolve very small technicalities. Exempting entire passages of existing legislation undermines the enforcement of regulations and the principles of constitutional democracy.

Regulation by exemption can lead to sloppy decision making including, in our opinion, the case of the 1:50 ratio. Exemptions suggest the original basis for the regulation may no longer exist or conditions have somehow changed; they also provide a justification for a permanent regulatory change. This is a dangerous path to follow however, because it assumes that the exemptions were rooted in the core purpose of promoting safe air travel, properly researched and risk-assessed, supported with proper resources, and adequately evaluated at each carrier prior to implementation.

Documentation obtained by CUPE through an Access to Information Requests (Appendix 5), shows that in 2001, an analysis of the submissions provided to Transport Canada provided no rationale from safety perspective to reduce the number of flight attendants from 1 per 40 passengers to 1 per 50 passenger seats. In fact, the unredacted Transport Canada decision regarding Notice of Proposed Amendment (NPA) 2000-331/2000-332 Flight Attendant Requirements proposing a 1:50 ratio, concluded that:

> *"The arguments and issues raised by those who oppose this measure are persuasive that further reduction in the* ***number of cabin crew can have a negative affect [sic] on safety and certainly will not enhance safety****[1] [emphasis added]."*

Also, in the response to a submission from the Air Transport Association of Canada (ATAC), an employer association, Transport Canada Staff noted:

> *Previous requests for exemptions in this regard were rejected on the grounds of aviation safety and nothing has changed to show that safety is no longer affected[2].*

Transport Canada Chief of Cabin Safety Frances Wokes stated in 2001, e[3] about the decision not to approve NPA 2000-331/2000-332:

> *"I keep hearing that this is not a safety decision, but I disagree and the fact is that if the ratio was changed to the US rule, there* ***ARE definite safety implications and it WOULD BE a lowering of safety standards*** *and that change becomes more and more evident as the aircraft size increases."*
>
> *"…I have been persuaded by the facts and the safety studies and the research and some of the arguments put forward by others that we do have the higher safety standard (1:40) and we should stay there."*
>
> *"****Speaking as your safety expert in this field, I not only do not support complete harmonization of the rule (with the US), I am opposed to it****." [emphasis added]*

Finally, it was noted:

> *"Given the sensitivity of the issue, the risk of lowering public confidence in aviation safety, that it violates one of our operating principles of promoting a shared commitment to enhancing aviation safety in Canada and internationally, and given that it exposes the Minister to the risk of being accused of lowering safety standards and in view of the fact that there is nothing to be gained and much to be lost by further discussion of the matter, it* ***is recommended that CARC direct that no further consideration be given to this issue****. [emphasis added]"[3]*

2.1. Competitiveness Myth

Regrettably, despite continued lobbying from CUPE and related organizations, the last thirty years have seen a steady erosion of safety standards and professional respect for flight attendants. Deregulation, privatization, price wars and hyper-competition – particularly the proliferation of low cost carriers –

[1] Appendix 5 - Transport Canada Uncensored Decision Record and Comments to NPA 2000-331/2000-332 Flight Attendant Requirements pg 2
[2] ibid pg 6
[3] ibid pg 27

have created conditions in which we believe airline profitability has been placed before safety. Industry demands for less regulation in order to be more competitive was a clear factor in the regulatory change, as Transport Canada's own rationale for the change clearly states: :

> *Airline operation costs are high…. In an effort to reduce operating costs and put Canadian operators on a competitive and level playing field with United States (U.S.) and European carriers … TC [concluded] …the net benefit is approximately $288,469,940 over 10 years [by calculating the total reduction in the number of flight attendants across the Canadian fleet of operators over the course of the next 10 years.*[4]

This reasoning clearly contradicts the previous position taken by Transport Canada, who say in internal documents about the Notice of Proposed Amendment 2000-331/2000-332. In that documentation, Transport Canada rejects ATAC's assertion that a change to the ratio would 'enhance the competitiveness of some operators' stating that:

> *Issues related to the cost of air travel are not within the purview of Transport Canada Civil Aviation and TCCA must base their decision on aviation safety. Safety is not only a cost of doing business, but in the long term, a means of saving money*[5].

These glaringly contradictory responses aside, the competitiveness rationale is a false one. Assuming that the figure of approximately 290 million over 10 years is accurate, this works out to about 29 million per year. While 29 million seems significant in the most recent data reported by Transport Canada (2015[6]) 131 million enplaned and deplaned passengers were reported to pass through Canadian airports. Even the most conservative estimates that only 25% of those passengers flew on planes affected by the flight attendant ratio changes, the potential savings that could be passed on to consumers is **less than $1** per passenger flight. Based on this it seems clear that the competitive advantage is not to attract more passengers with lower fares, but to increase the profit margin for the airlines.

3. CUPE Challenges to the 1:50 Ratio

CUPE has consistently rejected the push for the 1:50 ratio. There are many reasons for this, but by far, the most important is to protect the safety of passengers and crew. Fewer cabin crew who must prioritize safety are also unable to deliver the same quality of service and other operations of the aircraft. These observations are supported by multiple studies performed across many jurisdictions**. In fact, there is far too much research to reference all of it in this report. As such, this submission will draw attention only to the more recent and most pertinent evidence.**

Part of CUPE's fight against the 1:50 ratio has been a number of judicial reviews. Following the first exemption granted to SunWing airlines, CUPE immediately filed for a judicial review on the basis of procedural fairness, or more simply, the right to participate in decision-making in which CUPE members

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[4] Regulations Amending the Canadian Aviation Regulations (Parts I, VI and VII — Flight Attendants and Emergency Evacuation) P.C. 2015-754 June 4, 2015, (http://canadagazette.gc.ca/rp-pr/p2/2015/2015-06-17/html/sor-dors127-eng.php)

[5] Appendix 5 - Transport Canada Uncensored Decision Record and Comments to NPA 2000-331/2000-332 Flight Attendant Requirements pg 4

[6] https://www.tc.gc.ca/media/documents/policy/2015_TC_Annual_Report_Overview-EN-Accessible.pdf

have a direct stake. Judicial reviews were also filed for Air Canada mainline and rouge, Air Transat, Canadian North, and CanJet Airlines. CUPE was also preparing to make application on violations to the conditions of the exemption when the regulation was made permanent on August 1, 2015. As a result, the court declared the previous challenges to be moot. CUPE immediately took steps to challenge the regulation itself. This application is now before the courts now.

To prepare for this briefing, CUPE conducted a survey of its members. Over 2500 members participated in the survey. Relevant data are presented throughout this document. Aircraft models and airline names have been removed to maintain confidentiality for the employee or operator. A full summary of statistics can be found in Appendix 2. In summary, the survey showed that the 1:50 ratio:

- Reduced crew ability to perform full safety checks before and during flights;
- Reduce crew ability to monitor passengers who may be in distress;
- Not perform services expected by passengers; and
- Increased the workload and stress on flight attendants.

3.1. Court Challenge of a Flawed Process

CUPE also applied for a judicial review of two decisions made by Transport Canada during a 2013 partial evacuation demonstration test to exempt Sunwing Airline's from the 1:40 ratio. Specifically, CUPE objected to the actions of Transport Canada officials during the test. The test simulates an emergency evacuation. To pass, flight attendants must safely evacuate the aircraft by opening exit doors and deploying slides in 90 seconds or less. After failing the test several times, Inspector Luc Mayne arbitrarily removed a standard safety command used by flight attendants to "block" passengers from exiting the aircraft until it is safe to do so. Removing the command was thought by Mayne to be an unnecessary and outdated, and added to the time required to evacuate. Transport Canada later approved a permanent amendment to the Flight Attendant Manual (FAM) allowing Sunwing to permanently remove the blocking command. CUPE objected to both Mayne's arbitrary decision as well as to the change to the FAM which was made without a comprehensive risk assessment.

On February 3rd, 2016 the Honourable Justice Brown agreed with CUPE, finding Transport Canada's decision to amend the Flight Attendant Manual (FAM) unreasonable and unjustified <u>because it failed to conduct a comprehensive review of the company's risk assessment.[emphasis added]</u> Justice Brown ordered Sunwing Airlines to revert back to the original FAM within thirty days of his decision, stating that:

> *"The failure to conduct the required 'comprehensive review' casts doubt on the integrity of the ultimate decision and has the potential to undermine confidence in the application of Transport Canada's air passenger safety mandate. Specifically, this failure could jeopardize passenger and crew safety in an emergency situation."*

Justice Brown's decision confirms CUPE's long-standing concern with Transport Canada's rule-making, in particular Transport Canada's lack of transparency and consultation in the decision-making process

Canadian air carriers are now permitted to fly under the new 1:50 regulations based on these potentially flawed tests, conducted as part of the previous exemption process.

3.2. Ongoing Secrecy and Lack of Consultation

CUPE has expressed dissatisfaction with Transport Canada's secrecy and lack of transparency. CUPE has filed three requests under the Freedom of Information Act to obtain the full analysis conducted in 2001 concerning the proposed amendment to the 1:40 rule. The first two requests resulted in heavily redacted and further reduced information. In 2016, the union finally obtained a more complete record that clearly confirms the department was persuaded by CUPE in 2001 that the 1:50 was not safe and should not be adopted.

CUPE has also been a vocal critic of the 2002/3 Transport Canada flight attendant ratio risk assessment, which it maintains was deeply flawed due to a lack of transparency and proper consultation with stakeholders, flawed methodology, failure to consider important facts pertaining to passenger aircraft evacuations, as well as the role of cabin crew. A detailed analysis of CUPE's concerns with the risk assessment is annexed to this submission. The full discussion on the topic can be found in Appendix 1.

Aside from being refused access to crucial documents, and forced to engage in conversation based on deeply flawed information (2003 RA), CUPE and other important stakeholders have been repeatedly provided insufficient time to prepare for CARAC sessions into 1:50, had their comments and questions censored, and have seen time allotted for debate reduced to an unreasonable amount.

3.3. **Lack of Participation and Transparency**

The Canada Labour Code Part II provides for active participation of workers, through their policy health and safety committee to 'participate in the planning of the implementation and in the implementation of changes that might affect occupational health and safety, including work processes and procedures'.[7] Despite this requirement **Transport Canada, as well as airline management explicitly excluded the CUPE health and safety representatives from fully participating in planning and conducting the** partial evacuation demonstration tests**. Only two airlines even permitted CUPE representatives to observe the test.**

This lack of transparency and willingness to consult is extremely problematic and undermines the principle of joint health and safety. Front-line workers are uniquely positioned to gauge how policy and procedural changes will actually play out in real life. Without properly informing and engaging employees it is nearly impossible to ensure that regulatory exemptions, and ultimately changes, will work in real-world scenarios. Certification tests do no equate to emergencies situations. Manufacturers are also required to conduct such tests to achieve aircraft certification. But as leading international expert Dr. Edwin Galea (full report found in Appendix 3) argues, simulated tests have limited utility since it is virtually impossible realistically to simulate conditions in an emergency, especially how actual human behaviour will react.

Canadian air carriers were first allowed to fly at the 1:50 based on partial evacuation demonstration tests. This includes demonstrating that dual-exit floor level exits can be unarmed and opened by only 1 flight attendant in an emergency. But as Transport Canada sates in the NPA 2000-331/2000-332 analysis documents,

> *"It is a standard test intended to compare or measure the performance of one [aircraft] against another. It is a measure of the time used to ensure consistency in testing criteria*

[7] Canada Labour Code, Section 134.1 (4)

and a basis for consistent analysis…. It is not a guarantee of safety, nor is it a reflection of what happens during an accident."[8]

In this analysis, Transport Canada is confirming Dr. Galea's contention that every evacuation is different Studies show that in real-world emergencies many factors may affect passenger exit including, but not limited to dislodged aircraft cabin furnishings, luggage that may have come loose, smoke, reduced lighting and visibility, blocked or unusable exits, injured passengers, confused shocked or even intoxicated passengers. [9,10,11,]

While certification tests do attempt to simulate some of these factors, the reality of a real life emergency evacuation is very different for passengers and crew.

As early as 1985, and again in 2001, Transport Canada expressed concerns that even planes certified to fly under the more robust 1:40 ratio would not pass if realistic evacuation tests were required. For example Transport Canada's analysis states:

"If simulated smoke were introduced to the certification demonstration, the likelihood of injuries to the participants will increase, and there is a strong possibility that the 90 second limit would not be able to be achieved."[12]

A recent industry trend towards high-density cabin seating configurations, as well as "pod" designs for premium class cabins is also creating new conditions than those used in initial certifications. Newer high-density cabin layouts increase barriers between passengers and their possible exits, as well as more congested exit areas. As emergency equipment and stowage compartments get pushed closer and closer to the exits, **cabin crew complain that they no longer have space to take their protective position next to exits and are at risk of being pushed out in an evacuation**. The National Transportation Safety Board (NTSB) in the US notes that, "Aisle width, bulkhead width, and seating density are factors in the design of an airplane that can influence passengers' access to exits and, consequently, the success of an emergency evacuation."[13]

Transport Canada has agreed, stating that "…the evacuation demonstration test is not an assurance of operational capability …. it is not a guarantee of safety, nor is it a reflection of what happens during accidents."[14]

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[8] Appendix 5 - Transport Canada Uncensored Decision Record and Comments to NPA 2000-331/2000-332 Flight Attendant Requirements pg 14

[9] NTSB Study: Emergency Evacuation of Commercial Airplanes, page 34 and 39. https://www.ntsb.gov/safety/safety-studies/Documents/SS0001.pdf

[10] Appendix 5 - Transport Canada Uncensored Decision Record and Comments to NPA 2000-331/2000-332 Flight Attendant Requirements pg 18

[11] Transportation Safety Board of Canada, Aviation Safety Study SA9501, Section 2.3 and 3, http://www.bst-tsb.gc.ca/eng/rapports-reports/aviation/etudes-studies/sa9501/sa9501.asp

[12] Appendix 5 - Transport Canada Uncensored Decision Record and Comments to NPA 2000-331/2000-332 Flight Attendant Requirements pg 13

[13] NTSB Study: Emergency Evacuation of Commercial Airplanes, page 32.

[14] Appendix 5 - Transport Canada Uncensored Decision Record and Comments to NPA 2000-331/2000-332 Flight Attendant Requirements pg 5

In their 2001 assessment of the 1:50, ratio Transport Canada further agreed with CUPE that the behaviour of "test" passengers used in evacuation demonstrations has no relation to real-life aircraft emergencies:

> *"ATAC [Air Transport Association of Canada] is incorrect that the behaviour shown by test passengers during certification is realistic. The fact that it is prescriptive relates only to the agility of the participants, not the behaviour that they show. The test does not introduce any elements such as fire, smoke, or urgency."*[15]

Transport Canada also concurred with CUPE's note that evidence from the Transportation Safety Board of Canada (TSB) study found that in most crashes, exit failure is not random, but rather affects the sections (i.e. all exits in the front, or one side) of the aircraft, forcing a significant re-direction of passengers to the remaining exits. In industry evacuation demonstrations, one out of each alternate pair of exits is blocked, up to a total of 50 percent of exits – a completely different scenario[16].

In 1993, the Office of Technology Assessment of the U.S. Congress similarly found that "tests conducted using passenger loads with higher percentages of women and elderly persons, or with children and persons with disabilities, would likely generate longer evacuation times." Transport Canada agreed with this[17] (In fact, the recent review of the Canada Transportation Act places considerable emphasis on our aging, increasingly less mobile population, and the need to take steps to protect their safety and access as airline passengers.)

The 1993 report also states that during a test environment participants "know they face no such danger (fire, impact) in their efforts to quickly exit the aircraft, so panic is not present." A 1995 study titled Safety Study of Evacuation of Large Passenger Carrying Aircraft (Aviation Safety Study SA9501)[18] provides an extensive description of how panic reduces survivability in an accident, noting that passengers do not assist one another, cease being collaborative , even climbing over seats and competing with one another order to reach exits. In other cases, passengers froze in their seats[19].

Dr. Edwin Richard Galea, CUPE's expert witness in the matter of CUPE vs Canada Federal Court File No. T-1175-15, (full report in Appendix 3) notes on page 6 that in evaluating narrow-body aircraft accidents which were deemed survivable, 50% of passengers used the over-wing exits, which are 45% slower to evacuate from than the main cabin doors. He goes on to show that passengers generally converge on the closest exit, which on narrow-body aircraft happens to be in the over-wing area. The report notes that in the more controlled industry evacuation tests, only 28% of passengers elected to use these slower over-wing exits.

Galea also argues that aircraft certification procedures may not properly reflect real-world scenarios.[20] Dr. Galea specifically references an evacuation of a Boeing 737 at Manchester airport in 1986 which resulted in 55 fatalities and 15 serious injuries out of a total of 131 passengers. In this case, passenger confusion led to delays, with 45 seconds needed for the right-side over-wing exit to be opened, and 70 seconds for the right-side front door as a result of mechanical failure. This contrasts with 12 and 8.2

[15] ibid
[16] ibid pg 16
[17] ibid pg 19
[18] Transportation Safety Board of Canada, Aviation Safety Study SA9501
[19] ibid, section 2.6
[20] Appendix 3 - Report of Dr. Edwin Galea on Aircraft Evacuation, page 13

seconds respectively for exit opening in industry certification tests conducted in a controlled environment.

Finally, CUPE contends there is insufficient rigor in the overall testing procedure. Airlines who fail tests are allowed to re-do them until a passing grade is achieved. This was acknowledged by the FAA in 1985, and continues to be the standard as seen in the recent 1:50 evaluations where tests were conducted repeatedly until the carrier was finally granted a pass. The real-world scenario is far less forgiving, allowing for no "re-dos".[21]

The unreliable nature of industry tests, and stark differences in test results from documented crashes results begs the following question: **If partial evacuation tests are based on full-evacuation tests which appear to demonstrate unachievable results in less-than-ideal real-world scenarios, how is it acceptable to use them as a basis for allowing even lower crew ratios onboard aircraft under 1:50?**

3.4. History of Decisions Against Higher Passenger to Crew Ratios

There has been much criticism and resistance within regulatory and government organizations to increase crew to passenger ratios.

The 1981 US House of Representatives Committee on Government Operations issued a report entitled Aircraft Cabin Safety Staffing Standards recommending that the FAA withdraw proposed amendments to allow the 1:50 ratio as the NTSB's chairman, Mr. James King:

> "…told members of the subcommittee that the Board's main concern was the lack of any empirical evidence to show that the FAA's proposed methods for allowing a reduced crew complement would be safe. Based upon the Board's previous studies, the Board's position was that a reduction in the number of flight attendants in most cases would constitute a deterioration in the level of safety currently provided."

Additionally the report found:

1) Rapid evacuation of the airplane is essential in survivable accidents, especially when post-crash fire occurs, since the leading cause of death in such cases is asphyxiation. Thus, an adequate number of flight attendants is necessary to assist with getting passengers to safety.
2) Most passengers are ill-equipped to deal with emergency situations without adequate leadership from flight attendants.
3) The workload of flight attendants is normally heavy and, during emergencies, becomes extremely heavy. A reduction in the number of flight attendants could render this workload impossible.
4) Many aircrafts are operated with less than one flight attendant per exit which results in multiple exit duties imposed on each flight attendant during evacuations. A reduction of cabin crew would further complicate this situation and could lead to otherwise preventable deaths and injuries.
5) The proposed amendments to part 121.391 allowing for a reduction in the number of flight attendants under certain conditions have not been shown to be safe based upon any empirical evidence.

[21] Appendix 5 - Transport Canada Uncensored Decision Record and Comments to NPA 2000-331/2000-332 Flight Attendant Requirements **pg 18**

6) No proof of the crew's ability to conduct a 90-second evacuation of an airplane with a re-configuration of the cabin, a light passenger load, and a reduced cabin crew has been produced, nor is it required by the FAA.

In 1995 the Transportation Safety Board (TSB) of Canada studied Canadian air accidents between 1978 and 1992 when the 1:40 ratio was standard. The TSB found that in 14 out of 21 crashes, many life threatening, the evacuation took longer than 90 seconds and that significant re-direction of passengers is necessary in most evacuations.[22] This clearly demonstrates that safety issues already existed under the higher 1:40 ratio, and therefore must logically be increased when using the 1:50!

Commenting on the proposed amendment, the Air Line Pilots Association noted that in aviation accidents between 1980-2001, the average flight attendant/passenger ratio was closer to a 1:25 ratio, and that even under these ratios there was significant loss of life. ALPA noted that the data indicate that the lower the ratio of FA's to passengers, the lower the fatality rate was. Transport Canada agreed, noting that, **"This is supported by statements made by the NTSB."**[23]

In a much more recent case, The Australian House of Representatives Standing Committee on Infrastructure and Communications reviewed the issue of cabin crew ratios in Australia. This followed a proposed regulatory change by the Civil Aviation Safety Authority (CASA), allowing the 1:50 ratio to replace the Australian 1:36 ratio. The committee issued a report in October 2011 called, *Finding the Right Balance: Cabin Crew Ratios on Australian Aircraft.*

One of the most compelling pieces of evidence in the report is from a retired air safety investigator who had participated in previous 1996/97 attempts to review the flight attendant ratios. She remarked that,

> *"…the previous review… …was extremely comprehensive. When I found out that they had been giving dispensations [exemptions to the 1:36 rule] I was absolutely floored because everyone in the industry was involved in that. Those of us who looked at the one for 50 comparisons did six months of research on it. We went everywhere**. I spoke to all of my colleagues in the States, Canada and everywhere else looking for some sort of justification for us to drop our standards, and we could not find anything."** – [Emphasis added].*[24]

The final report rejected the implementation of the 1:50 ratio and included the following recommendations:

- That the Civil Aviation Safety Authority **cease providing new exemptions to the 1:36** cabin crew ratio currently mandated by Civil Aviation Order 20.16.3, and that **all exemptions to the Order currently in place not be renewed upon expiry**.
- **That the 1:36 ratio be retained until such a time that it can be demonstrated that a change to a 1:50 cabin crew ratio in Australia will not result in reduced levels of safety or security**.

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[22] Transportation Safety Board of Canada, Aviation Safety Study SA9501, Section 6.0,

[23] Appendix 5 - Transport Canada Uncensored Decision Record and Comments to NPA 2000-331/2000-332 Flight Attendant Requirements pg 8

[24] Finding the right balance, Cabin crew ratios on Australian aircraft, section 1.18 http://www.aph.gov.au/Parliamentary_Business/Committees/House_of_Representatives_Committees?url=ic/cabincrew/report/fullreport.pdf

3.5. **Safety Gaps Previous Regulations Increased**

Even under the old 1:40 ratio rules, Transport Canada was aware that full door coverage is a significant safety issue that has also been addressed by the Australian 1:36 ratio. In 2001, Transport Canada's Chief of Cabin Safety Frances Woke, stated in correspondence related to the decision not to approve the proposed 1:50 amendment because:

> *"We still have a large gaping hole in our current regulations that needs to get fixed and that is not having full door coverage… …While it is sort of doable (but still increases the evacuation time) on a narrow-body, it is not appropriate or feasible on a wide body a/c or any aircraft with a twin aisle."*

Based on the above studies, it is clear that having trained professionals positioned at each exit door is essential to a timely evacuation of an aircraft. This issue is extensively described on pages 12-14 of the attached report previously submitted to CARAC in 2014 (Appendix 1). The analysis highlights that even under the 1:40 ratio, there are doors that are not covered by a flight attendant. In the case of an incident requiring evacuation, even if no flight attendants are incapacitated, Transport Canada identified the lack of full door coverage as a potential safety risk. The move to 1:50 does nothing but exacerbate that risk by ensuring that an additional door on the flight will not be covered.

As Transport Canada has stated:

> *The fact is that the NTSB have noted on several occasions that the success of particular evacuations could be attributed to the fact that there were more crew members on board that required by regulation (through staffing levels and with deadheading)*[25]

4. Current Operational Environment

Transport Canada notes that "flight attendants are required on board for a number of reasons. The evacuation of the aircraft in the event of a mishap is one of those reasons, but they have other safety responsibilities as well. These include all the normal safety preparations for take-off and for briefing passengers."[26]

Flight attendants perform a myriad of routine safety duties on all flights, and are also responsible for unexpected events such as medical emergencies, unruly and inebriated passengers, possible security threats, on board fires, decompression, and turbulence. These routine safety issues can and have led to more serious incidents, including crashes.

However, the flight attendants most important safety function occurs during a survivable accident, especially during evacuations that should be completed in 90 seconds or less. During an emergency evacuation, mere seconds can mean the difference between life and death for passengers and crew.

[25] Appendix 5 - Transport Canada Uncensored Decision Record and Comments to NPA 2000-331/2000-332 Flight Attendant Requirements **pg 6**
[26] ibid **pg 16**

4.1. An Exercise in Regulatory Failure

Clearly, the ability to follow a set of standard operating procedures (SOPS) may be affected if even one crew member is removed from the cabin, particularly as reconfigured aircrafts become more cramped, passengers are increasingly irritable, more and more baggage is brought on board to avoid fees, and service changes are made on a continual basis.

In our view, Transport Canada must not only check that SOPS have been established by airline operators, but also ensure these procedures can be reasonably applied onboard aircrafts operating full flights. The Ministry should also ensure that SOPS are rigorously followed. To many flight attendants, it appears that the role of Transport Canada is to verify that SOPS are in place but not critically assess their effectiveness, or adequately enforce their implementation.

The latter has been of utmost concern to CUPE for the last 26 years. The Union has repeatedly questioned whether the regulator has the resources necessary to implement and monitor a change of the magnitude of the 1:50 ratio. In its 2001 decision record[27], Transport Canada repeatedly acknowledged that it would be a challenge to do so with the currently available resources, particularly in a situation where carriers are allowed to operate under both the 1:40 and 1:50 ratios. Since that time, Transport Canada has experienced numerous cutbacks and has reduced the number of safety inspectors, a fact brought up many times at the December 2016 CARAC plenary session by Transport Canada leadership.

Monitoring is extremely important in commercial aviation as operations rarely "go by the book". Flight attendants are exposed daily to a staggering amount of climatological, technical, and behavioural variables that impact operations and safety. The 1:50 ratio has added significantly to these variables. Yet, when flight attendants have identified areas in SOP's that seem to require clarification under revised crew ratios, they are often told that exercising "good judgment" and "situational awareness" is sufficient to mitigating any possible risks.

This, in our view, is a wholly inadequate and irresponsible position for airline operators to take, and by allowing it, for Transport Canada to take. While it is always important for crews to be aware of changing conditions, the exponential increase in reliance on "situational awareness" and the need to "adapt and act" since the 1:50 ratio speaks to the fact that neither operators, nor the regulator have any idea how to bridge new minimum crew ratios with operational realities.

4.2. Refueling with Passengers on Board

The Canadian Aviation Regulations (CARS) 604.83 (1) require that in order to refuel an aircraft with passengers on board, two exits, including the door through which passengers embarked, are free of obstruction and available for immediate exit in the event of an evacuation; and that the escape route from each of the exits must be free of obstruction and available for immediate use by passengers and crew members. However, in some cases approved SOP's require flight attendants to ensure that emergency exits at the front, rear, and over-wing are unobstructed and available for evacuation during refuelling. Cabin crew must remain in the vicinity of these exits during refuelling and are now told to

[27] Appendix 5 - Transport Canada Uncensored Decision Record and Comments to NPA 2000-331/2000-332 Flight Attendant Requirements **pg 12**

“assume” that fuelling is “always taking place” -- in other words, to be constantly vigilant that the three exits are unobstructed and ready for use.

Reducing the number of flight attendants on certain aircraft now requires a single flight attendant to be responsible for, and in the vicinity of both the rear **and** over-wing exits. Ensuring aisles remain unobstructed while passengers place their luggage on the floor, jockey for overhead bin space, or simply wait to take their seats is practically impossible. Increased baggage fees have only exacerbated this problem, with more and more passengers delaying the boarding process and blocking aisles by bringing baggage on board. This leads to a scenario where the crew member is inevitably cut off from one or the other exit.

Flight attendants have told us that airline operators recognize the problem, and that they have been told to simply “use their own good judgement” to manage. However, many fear that if an emergency occurs, the blame will be placed on them though the source of the hazard is something they clearly have no control over.

In the survey conducted by CUPE, 80% of respondents indicated that they felt that the 1:50 ratio impeded their ability to properly monitor their designated fueling emergency exits during boarding either frequently (32%) or almost every flight (48%).

In addition to the raw numbers, some of the flight attendants reported:

> *With "everyone" assigned to the front during boarding and pre-departure ground service, only 1 (one) person in the rear cabins. Monitoring overwing (refueling safety procedure) is impossible and can only be monitored from a distance. An evacuation at that time would suffer because FA is at a distance from those overwing exits and possibly from the assigned door exits as you try to maintain a balance distance from overwing and door exits.*
>
> *Boarding is now a nightmare, especially on the larger aircraft. The company requires most of the crew to be in the front or at the boarding doors, so at times there are only 2 crew to deal with upwards of 300 [passengers]. Luggage issues, seat duplicates, families being separated, special attention passenger briefings, catering checks (because 40% of the time it’s being done during boarding), are they refueling? Our attention is being pulled in a hundred different directions all at once, how are we supposed to notice any suspicious behavior or threats?*
>
> *It's extremely hard to be boarding, be vigilant of the doors and passengers. During refueling sometime have to leave door unattended.*

4.3. **Live Safety Demonstrations**

Safety demonstrations are one of the key safety features required in commercial aviation, ensuring the passengers understand the routine and emergency procedures they must follow. When video demonstrations are inoperative, or not installed flight attendants must perform a live safety demonstration in the cabin. According to current SOPs, live safety demonstrations must be conducted by flight attendants in both French and English. One flight attendant must be stationed at the front of each cabin, with a flight attendant stationed midway in the rear cabin to ensure visibility.

Under the 1:50 ratio, on certain aircraft there simply are not enough flight attendants to cover all positions, so they must alternate between languages. This means passengers in the rear of an aircraft may be unable to see the demonstration and/or may not be able to see it delivered in a language that they comprehend.

One flight attendant noted:

> *On [name of plane] flights, we do live safety demos. We do not have enough crew onboard to cover all sections of the aircraft so that everyone can clearly see the safety demo. Those sitting far away or those who can't see well are at risk for not fully understanding safety procedures or equipment. If they have safety questions, we do not have time to answer them thoroughly or in detail before the Captain's "Flight Attendants take positions for takeoff" PA.*
>
> *Aft exits are left completely unattended during safety demonstration, which lasts over 5 minutes. During this time, if there's an emergency situation where an evacuation is required, the 3LR flight attendant will never be able to make it to the aft exits in order to open the door and inflate slides.*

4.4. **Greater Difficulty Completing Safety-Related Tasks**

As previously noted, flight attendants are responsible for many important safety related duties during the boarding period, which is typically 30 minutes long, and before the embarkation door is closed.

On aircraft operating with the 1:50 ratio there are fewer flight attendants, one of whom is stationed at the front of the aircraft during announcements. Yet this reduced crew must still perform the exact same number of duties. Though equipment checks should occur before the boarding process commences, on routes with very short turnarounds this is not always possible, adding to the number of tasks to be completed.

Meanwhile, as crews have been reduced, the following conditions have remained or have even increased:

- Congestion due to increased passenger luggage makes it more difficult for flight attendants to move about the cabin.
- Pre-departure non-safety related service such as newspapers, complimentary earphones in premium classes, meal orders, pre-departure beverages in premium cabins and some economy services, coat check, etcetera require crew (sometimes the only crew) from economy to come to the front, siphoning precious time for much needed safety duties.

Moreover because flight attendants have no control over when an embarkation door is closed, in some cases crew members report that these duties may occur when an aircraft is taxiing or after the aircraft is aloft. Flight attendants are deeply concerned that safety is being compromised, and data provided at some CUPE airlines show a marked rise in such incidents, while they still remain rare overall.

When asked about their ability to get everything completed, only 25% of respondents indicated that they are 'frequently able' and 33% indicated almost every flight. Many members (37%) indicated that they are only occasionally able to complete their checks while 5% indicate they are never fully able to complete their checks since the 1:50 ratio has been adopted.

In addition, 95% of respondents indicated that the 1:50 change has raised the workload to the point where on board safety monitoring of passengers has become difficult.

4.5. Insufficient Training for Crewing Two Doors

As Professor Galea points out in his appended report, the 1:50 ratio is of particular concern where a single flight attendant is responsible for evacuating two floor level exit doors:

> *In some evacuation situations, it is possible that both exits within an exit pair are viable and should be used during the evacuation. As noted in Key Observation 4, the presence of FAs at each floor level exit is important to maintain exit flow at optimal levels. Failure to have a FA at the exit may result in slower than expected evacuation due to poor [passengers] performance at the exit. This is particularly important in wide body aircraft, where the width of the cabin means that it is not possible for a single FA to efficiently manage the flow through both exits in an exit pair (left and right exits).*
>
> *For narrow body aircraft, both the previous regulation and the [new regulation] provide for at least one FA per pair of floor-level exits in all the cases examined. However, in 11 of the 18 cases, the situation under the previous regulation is superior (safer), because there are more FAs available, and therefore, a greater number of individual exits with a FA controlling the exit flow. Under the previous regulation, it was possible to have one FA per floor-level exit in 8 of the 18 cases (cases involving 4 or 5 FAs), while under the Challenged Regulation, it is possible in only 4 out of 18 cases (cases involving 4 FAs). The reduced number of FAs available to staff each of the floor-level exits will have a negative impact on exit flow in the event of an emergency evacuation*[28].

Shockingly, despite the obvious increase in difficulties and risks associated with dual-exit responsibility, the flight attendant initial and annual training remained largely unchanged until recently for some CUPE members. Flight attendants were only tested for ability to open one door in both unprepared evacuation drills and prepared emergency evacuations. There were references and a demonstration made in training sessions for the potential of opening two doors, however no formal training and testing for this potential requirement was implemented.

Since dual-exit training has begun, CUPE members report that procedures are highly unrealistic, requiring crew to utilize passengers for crowd control while leaving their protected positions to open both exits in a series of largely improvised steps. Moving flight attendants from a protected position at the exit creates the very real danger of being pushed out by panicked passengers. Many CUPE members have expressed that for this reason alone, they would not operate both doors in a real situation. This is the reality of 1:50.

4.6. Two-Person Flight Deck Rule

Following the tragic Germanwings incident in March 2015, Transport Canada implemented a new rule requiring two persons in the flight deck at all times. For example, should a pilot require the lavatory, a flight attendant must enter the flight deck and remain there until the pilot returns.

[28] Appendix 3 - Report of Dr. Edwin Galea on Aircraft Evacuation, page 18

CUPE members have expressed how little sense this rule makes, given the 1:50 ratios in effect on most aircraft. In many cases, **entire cabins are now left completely unattended or staffed well below minimum standards for extended periods of time**, while pilots use the washroom. All this, at a time when carriers are emphasizing the need to remain vigilant for fires due to lithium batteries, and ensure that washroom checks are carried out at intervals as often as every 15 minutes.

In one randomly tested flight, the entire cabin containing up to 76 passengers was left with only one flight attendant for approximately 6.5 minutes and 7 minutes while the pilot and co-pilot used the lavatory.

In short, it simply is not possible to maintain an acceptable level of monitoring under the 1:50 regime. A policy that may look practicable on paper in fact leaves safety largely up to the passengers for long segments of the flight.

In our recent survey 86% of respondents indicated that the 1:50 change has made it difficult to follow the existing procedure in the airline manuals including the dual cockpit rule: entering the flight deck so the flight crew may be able to go to the washroom.

Flight attendants noted:

> *Especially on the [type of plane], when you are alone in the cabin, impossible to monitor back galley, washroom, or anywhere out of your sight.*
>
> *Not to mention having to be two people in flight deck. Essentially when I have to go to flight deck so the pilot can use the lavatory, there is only one flight attendant for the entire aircraft. What if there is turbulence or a medical situation???*
>
> *It's impossible to monitor the cabins appropriately during service and babysit the flight deck.*

4.7. **Galley Safety**

At some CUPE airlines, crew are expected to remain in the vicinity of the galleys while meals are cooking in the ovens. Though this may not be standard procedure at all airlines, there is good reason for it to be, since an onboard fire presents serious safety risks to the passengers and crew.

However CUPE members report that having someone in the galley while meals are cooking simply is not possible under the new ratio. Despite this standard operating procedure (SOP) galleys are often left unattended for extended periods of time. Once again, best-practice procedures are necessarily downgraded to "make things work". In fact, 89% of respondents indicated that their airline did not have a procedure in place to ensure galleys are always attended to when ovens are on to prevent the risk of onboard fire.

When surveyed, 54% of flight attendants responded that they were unable to properly monitor their galleys, lavatories etc. for fire, overall cleanliness and passengers requiring medical assistance on almost every flight, while an additional 33% indicated that they were frequently unable to do so. Finally, almost 83% of respondents indicated that on average, galleys are left unattended for more than 10 minutes.

When asked for additional comments about maintaining a watch over the galleys, several flight attendants remarked:

"If we are in the cabin to assist with boarding, especially on the [type of plane], there is no one monitoring the aft exits. During the flight, we are away from the galleys for extended periods of time, and cabin checks are virtually non-existent."

"I'm so glad you asked this! It concerns me a great deal that passengers can roam freely in the galley as we do our service…. Years ago I was in the aisle when I noticed a child (8years?) go past the washrooms to the galley. I followed him there and he was trying to open the [cabin] door in flight! He said he wanted to use the washroom. Passengers should not have access to our safety equipment, our personal belongings or our galleys."

"Every flight, the galley is left unattended for at least an hour."

4.8. An Ageing and Less Mobile Population

Passengers vary in size, physical and intellectual ability, level of mobility, and behavioral characteristics. As the Canadian population ages, an increasing number of seniors will be flying. These were going concerns of the Ministry twenty five years ago, when it noted that "when passengers with mobility disabilities are on board the evacuation time will be increased." Our population has only gotten older. The department found that with this delay, in addition to the anticipated delay of opening all exits under a reduced crew ratio, "**the cumulative increase in evacuation time is not acceptable**."

Transport Canada further noted the expected increase in in-flight emergency duties that cabin crew should expect as Canadians age, stating that "**any reduction to onboard staffing levels is not justified**."[29]

4.9. Passengers Cannot Act as Flight Attendants

Reducing crew on board aircraft places added responsibility on passengers in an emergency evacuation. In many cases, cabin crews now rely on passengers to open exits in emergencies, or to assist with opening exits where they would previously have had help from a fellow crew member. This is known as dual-exit responsibility.

Passengers do not, and should not be expected to have the same level of awareness as a trained crew member in an emergency evacuation, nor should they be expected to be able to replace one.

In its 1995 study, the TSB noted "passengers' lack of preparedness to act appropriately during an evacuation was evident in several occurrences"[30] and that "passengers might not have perceived the danger they were in and therefore reacted in an inappropriate manner[31]." The study references passengers who, in some cases thought they were waiting for a regular deplaning and returned to their seats. In other cases, the Board notes that passengers were fixated on returning to their entry point (front door) or another exit which was closest to them[32].

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[29] Appendix 5 - Transport Canada Uncensored Decision Record and Comments to NPA 2000-331/2000-332 Flight Attendant Requirements **pg 7**

[30] Transportation Safety Board of Canada, Aviation Safety Study SA9501, Section 6.0, http://www.bst-tsb.gc.ca/eng/rapports-reports/aviation/etudes-studies/sa9501/sa9501.asp

[31] Transportation Safety Board of Canada, Aviation Safety Study SA9501, Section 2.6

[32] ibid, Section 6.0

In its study, the NTSB noted of all evacuations that have been evaluated, there was not a single case of flight attendants opening exits that posed a hazard to passengers. Evaluating an exit for usability and safety is engrained in cabin crew, and that they must accomplish in a split second in an emergency. Interestingly, there were cases where passengers opened exits that were either unprepared for emergency exit or unusable due to smoke, causing delays to evacuations.[33]

In explaining how evacuation efficiency in tests is higher than real crashes, Dr. Galea's notes that "in the certification trial, this lack of understanding of the [passenger] is compensated for by the effectiveness of the Flight Attendants, while in severe accident situations, [passengers] may not be able to hear or see the Flight Attendant or the Flight Attendant may be incapacitated, leaving the [passengers] to deal with the situation as best they can."[34]

His report concluded that "there is good reason to believe that reducing the number of flight attendants, as permitted by [the 1:50 Regulation] will result in the decreased safety of all [passengers] and crew who fly on aircraft affected by these regulation changes."[35]

Transport Canada agreed that since 1 or more flight attendant is incapacitated in 40% of serious accidents, using minimum crew would likely result in situations where some exits do not have sufficient flight attendants to direct the evacuation, slowing it down.[36]

A summary of Dr. Galea's key concerns and detailed analysis, which can be read in full in Appendix 3, include:

- Reduced ability to guide and advise passengers during an evacuation. Unlike flight attendants, passengers do not have highly developed situational awareness, a factor that can prolong the evacuation time and increase the risk of injury or death.
- The risk to passengers is even higher when one or more flight attendant becomes incapacitated due to the nature of the accident.
- Having a single flight attendant responsible for both doors in a floor-level exit pair may prolong the orderly evacuation of passengers.
- On some aircraft, there may be no flight attendant at an exit.
- Increased workload leading to greater fatigue may impair a flight attendant's judgment and efficiency during an emergency evacuation.

CUPE has raised these same concerns in previous submissions to Ministers and Transport Canada officials for well over a decade (see Appendix 1).

4.10. Service Standards and Health

While safety is CUPE's key concern, the internal Transport Canada documents indicate that the Minister is frequently interested in ensuring Canadians have excellent service as part of their flight experience.

[33] NTSB Study: Emergency Evacuation of Commercial Airplanes, page. 21
[34] Appendix 3 - Report of Dr. Edwin Galea on Aircraft Evacuation, page 6
[35] ibid, page 25
[36] Appendix 5 - Transport Canada Uncensored Decision Record and Comments to NPA 2000-331/2000-332 Flight Attendant Requirements **pg 21**

The 1:50 ratio has clearly had a negative impact on service. CUPE's survey results indicate that since the adoption of reduced crew, 38% of respondents have complaints about service on almost every flight, while an additional 41% frequently receive complaints.

The reduction in crew has also negatively affected flight attendants with flight attendant survey respondents reporting increased stress levels about performing both service and safety related duties.

4.11. Operating Procedure Issues

This continued lack of clarity on crucial operating procedures represents a serious oversight in preparing flight attendants to fly with the new ratio. In fact, many flight attendants make the general complaint that the new ratio has been introduced with too little forethought and too much emphasis on achieving on time performance, regardless of the risks. They report that there is confusion about the change and fear of making mistakes, all the while a heightened sense of pressure and stress to meet performance expectations. As one flight attendant has noted, the ratio change is taking place during the worst possible time. With industry competition at its fiercest, safety is increasingly subordinated to the broader goal of profitability and on time performance. As more low cost carriers enter the market, particularly since the Minister has increased foreign ownership thresholds, this pressure will only intensify.

CUPEmembers point out that while the airlines claim that safety is their top priority, they turn a blind eye to SOP violations demonstrated by extremely vague responses to employee concerns, ambiguous SOP changes, or a plain lack of oversight.

Interestingly, the same comments were made by cabin crew represented by the FAAA, a major union representing cabin crew in Australia, when their regulator was exempting airlines to fly with less flight attendants in the late 2000's.[37] In its submissions to the hearings before the Australian Standing Committee on Infrastructure and Communications, the FAAA cited 'numerous reports from cabin crew members of instances in which their safety and security tasks had been rushed or not completed due to low staffing levels and time pressures before takeoff while operating under the 1:50 ratio."

The final report made the ominous comment that "no operator indicated to the committee that they sought exemptions to the 1:36 rule (the Australian ratio) because 1:50 ratio was safer, or had been proven to be safer. They all agreed that the primary reason had been for cost purposes, or to prevent their rivals from gaining any competitive advantage. This was supported by CASA (Australian aviation regulator), who displayed an understanding and acceptance that financial benefits were the key driver for operators to seek exemptions."[38]

Unlike in Australia, where the 1:50 was promoted on the basis of the supposed benefits to industry standardization and safety improvements, Transport Canada boldly stated that 1:50 ratio would represent a cost savings to airlines, which was costed by them to the penny.

It should be noted that **operators certified to operate under 1:50 ratio are not obligated to staff planes at this ratio. CUPE argues that the regulator ought to take into consideration the service-related workload imposed on crews by carriers when evaluating whether the 1:50 ratio is in fact**

[37] Finding the right balance, Cabin crew ratios on Australian aircraft, section 2.4
[38] ibid, section 1.71

viable from a safety standpoint. In fact, as referenced in the Australian report, Qantas elected not to crew some of its flights at the 1:50 ratio under its exemption, purely for this reason[39].

4.12. Public Response

In 2006 CUPE engaged the pollster Pollara to ask members of the public about the airline regulatory change. The results showed that 69% believed that the government should maintain Canada's current regulations for flight attendant requirements, while only 19% thought Canada should harmonize with the US regulations. Also, 72% of Canadians oppose Canadian airlines lowering their safety standards, with 50% strongly opposed. Despite this, the previous government chose to enact regulatory change just before they called an election while publishing the regulatory change straight to Gazette II, bypassing what surely would have been negative public consultation.

Full results and questions of these survey questions can be seen in Appendix 2a.

4.13. Keeping Electoral Commitments

During the 2016 election campaign, CUPE submitted a questionnaire to all the major parties. The full email chain in the election communication can be found in Appendix 4. One of the questions posed was:

> ***A safe number of flight attendants on board – would you support scrapping the new 1:50 regulation, and returning to the safety-proven 1:40 ratio?***

During the election, the liberal parity answered **yes** to this question. They further commented:

> *The Conservative government has jeopardized Canadians by cutting safety budgets at Transport Canada. It is the government's role to make informed decisions based on evidence and data; the Liberal Party of Canada will not make a unilateral decision without appropriate consultation with stakeholders and experts, all the while keeping the safety of all Canadians as a top priority.*

CUPE expects that now that the Liberal Party has become the majority governing body in the House of Commons that they will live up to their answer and start to take steps including full and transparent consultations towards the repeal of the regulatory changes made at the end of the last government's mandate.

4.14. Transparent Consultation and Assessment

In CUPE's view, reductions to cabin crew ratios should never have been made without a comprehensive assessment that included the adequacy of existing SOPs and, if necessary, making modifications. Flight attendants and their representatives should have been consulted prior to the change, and afterwards. Up until today, CUPE has been prevented from giving meaningful input, either through Occupational Health and Safety Committees or other regulatory consultative processes.

While the 1:50 ratio is perhaps the most egregious example of Transport Canada's lack of oversight, flight attendants report a longer-term decline and casualization in safety standards, which has simply been exacerbated by the new ratios. They report changes to SOPs occur much more frequently and

[39] ibid, section 1.59

informally. For example, electronic notices often replace the more formal practice of providing formal inserts to the Flight Attendant Manual. In other cases, major changes to SOP's pertaining to evacuations have been made in training, before any notice of any kind is made to the manual.

Flight attendants view this "casualization" of SOP changes as representative of a broader trend, and a shift in attitude that views the basis of procedures as "being made to work" rather than ensuring that the intended outcomes are met.

CUPE firmly believes that a thorough "paper versus practice" review ought to be conducted by the regulators to verify the viability of existing SOPs under the 1:50 ratio, and evaluate the understanding and adherence to appropriate SOPs at carriers operating under both the 1:50 and 1:40 ratios. The regulator should also have conducted a new risk assessment taking these findings into account, as well as current realities of air travel such as high density cabins, longer flights, and increased workloads, increase in medical emergencies, ageing population with mobility restrictions, a sharp rise in turbulence incidents etc.

The following examples provided by flight attendants illustrate how airline operators have failed to anticipate and adjust SOPS to reflect the new reality of the 1:50 ratio.

> *Service is an "all hands on deck" system because of the 1:50 ratio. This posed a problem when we had to administer oxygen for a passenger in the last row of the [type of plane] before service. We had to monitor the passenger every five minutes to ensure that her oxygen did not fall below 500psi, however we needed to provide beverages/food for the rest of the passengers. We felt that we had to choose between hundreds of unhappy passengers and the well-being of the passenger receiving first aid. If we had an extra crew member they could have easily stayed with the casualty while the rest of the crew continued with regular service*
>
> *… we had a [passenger] unconscious in the back galley for an unknown amount of time as the only 2 flight attendants were in the cabin. We found him slouched in the corner of the galley, which is why we never saw him. We only realized when we went back to refill a water jug. He was badly injured from the fall. Had there been more flight attendants on board we would have noticed this happen immediately and could have begun first aid immediately.*
>
> *The 1:50 ratio has greatly affected my ability to properly follow SOP's and Canadian aviation regulations. The lack of man power has reduced overall safety inflight and has made us an easy target for those who want to do harm to commercial aviation.*

5. Conclusion:

In concluding, CUPE urges the committee to consider the following:

1) Industry pressure to reduce costs by reducing regulations and cutting cabin crew is unacceptable. CUPE's analysis indicates that increasing the competitive advantage does not

mean lower fares or better service, but more profits for the airlines and their shareholders. Profit should never be placed over safety, as the example of Lac Megantic has tragically proven.

2) There has been a lack of empirical evidence showing that 1:50 provides an equivalent level of safety to the 1:44, 1:40 or 1:36 ratios. Acceptable is not equivalent, no matter how often this is said by the regulator and the airlines to justify what is essentially a profit rather than safety driven change to the ratio.
3) The vitally important role that the cabin crew play in evacuations must be recognized. Adequate crew levels is directly related to evacuation efficiency and survivability.
4) Evacuation demonstration tests, particularly partial tests such as those used to exempt airlines from the 1:40 rule, are of questionable value in general and even less so as an argument for reducing cabin crew.
5) The overwhelming criticism of the trend towards reducing airline crews from experts, incident investigation teams such as the TSB and NTSB, other governments and even previous internal Transport Canada staff.

5.1. The Need for an Improved Consultative Process at Transport Canada

In previous submissions CUPE has outlined on-going concerns regarding the general deficiency of the Transport Canada consultative process. We have drawn specific attention to the limitations of the Canadian Aviation Regulation Advisory Council (CARAC) including: An overly bureaucratic internal process to determine the need for more in-depth consultation through stakeholder focus groups (Preliminary Issue and Consultation Assessment).

- A membership model that is too broad-based and diffuse and fails to recognize key stakeholders. While CUPE agrees that an inclusive process should guide public consultation, key stakeholders should be accorded particular recognition and status based upon their breath of representation, expertise and knowledge in the sector.
- Failure to share documents prepared by other stakeholders on key issues.
- Failure to share agendas and supporting documents in a timely manner prior to CARAC meetings. CUPE has outlined its concerns with this matter previously. Most notably, CARAC failed to provide the Notice of Proposed Amendments (NPAs) to Flight Attendant Ratios well in advance of the May 22, 2014 consultative meeting, even though they were to be discussed. This left a very short period of time in which to prepare a response. It is difficult to imagine, given the paucity of these meetings, that agendas and materials cannot be distributed well in advance, leaving the impression of intentional vagueness so stakeholders cannot prepare for discussion in a meaningful way.
- Requests by CUPE to receive the most up to date CARAC charter were also refused, with the Secretariat responding by email that the newest version would be tabled at the meeting. It is obviously impossible to give meaningful input to a charter that stakeholders are unable to preview in advance.

These concerns reflect CUPE's overall frustration at the lack of meaningful consultation afforded by the CARAC process, as well as a more general exclusion from decision-making. CUPE is the leading representative of flight attendants in Canada with a long history of highly developed input and expertise. Flight attendants should be recognized and valued for this contribution, not excluded by obfuscating and unnecessarily bureaucratic processes. It should be noted that the Federal Government

has a tri-partite regulatory consultation process in the Labour Program which meet regularly. Known as the Occupational Health and Safety Advisory Committee (OHSAC), the tri-partite committee provides the Labour Program with strategic advice and recommendations on preventing injuries, illnesses, and accidents in the workplace. **A similar model could be adopted to provide a platform for regulatory concerns to be brought to Transport Canada**.

5.2. A Greater Role for Parliamentary Oversight

The Standing Committee on Transportation, Safety and Infrastructure (SCOTIC) is an important mechanism to ensure public and parliamentary scrutiny of transportation policy. However SCOTIC had no discernable involvement in the decision-making process on flight attendant requirements. CUPE once again asserts the need for the greater study of key issues by parliamentarians and the public through SCOTIC.

5.3. Flight Attendant Consultation

Flight attendant voices are crucial to understanding the effects of 1:50 on safety. CUPE has compiled thousands of testimonials from flight attendants who state they feel the 1:50 ratio compromises safety. They also report greatly increased levels of stress and fatigue, both on and off the job. The following is a small sample of their concerns in addition to the ones already provided on specific topics:

> *I feel on some flights, it is frankly unsafe, that I would not react with the same alertness and speed if a medical or emergency situation arose.*
>
> *Safety related issues are a constant concern. It is a struggle to ensure that everything is being completed upon boarding and before departure. I am afraid of a medical situation on board as I feel we no longer have the manpower to deal with such situations properly. I think about all of these things at work and at home and it translates into my day-to-day life, leaving me feeling stressed and exhausted.*
>
> *[There are] just not enough crew. I feel more rushed during pre-flight checks. [It has affected] service standards and SOPS big time. It's always rushed and we have less time to communicate with passengers. Lots more fatigue among crew.*
>
> *On [some aircraft], there may be no one in the cabin during the safety demo, or if doors have been armed and we're in the cabin, no one is monitoring the doors in the back … I am constantly apologizing and explaining [to passengers] they've cut the crew, so I am alone in the back. We cannot give [special needs passengers] the extra attention they need, or even just regular passengers …*
>
> *You pray nothing happens in flight with fire or medical emergencies because you're it!*

These comments to illustrate the absolute requirement to not only comprehensively review the 1:50 ratio, but to ensure the full participation of CUPE flight attendants.

Despite the above evidence as well as internal warnings at Transport Canada, and multiple previous failed attempts to change the 1:50 ratio, this reduction in safety has somehow become the reality. In order to ensure the continued safety of aviation in Canada, CUPE has a number of recommendations.

6. Recommendations

CUPE is recommending:

1. An immediate reversal of the 1:50 ratio regulatory change to ensure passenger and crew safety. At a minimum, CUPE requests an independent, unbiased, and transparent review of the 1:50 ratio, including a new comprehensive risk assessment with full stakeholder participation, and meaningful remediation.
2. More meaningful forms of consultation that recognize our unique knowledge in our role in the decision-making process.
3. Greater oversight of Transport Canada rule-making by the Standing Committee on Transportation, Infrastructure and Communities (SCOTIC). CUPE has already noted the egregious example of bypassing the Canada Gazette Part I when introducing the 1:50 regulation on flight attendant requirements.

The 1:50 regulation is arguably the most significant change to flight attendant regulations in Canada in decades. Even Transport Canada has acknowledged the ratio cannot provide an equivalent level of safety to the 1:40 ratio. And though the prime argument that the 1:50 ratio is a harmonization to international standards, information about greater protection against fatigue and other superior safety standards existing elsewhere is typically omitted. As Professor Galea, a world expert on aviation safety, points out in his appended report, there are circumstances in which he believes safety is compromised under the new ratio. Furthermore, CUPE maintains that the 2003 risk assessment conducted by Transport Canada was flawed, biased toward industry, and now completely outdated given the numerous changes that have rocked the industry since that time. Some of these include:

- A change from a direct regulatory structure, to a safety management system regulatory structure where air carriers do a large part of regulating themselves through internal audits, and where Transport Canada regulated by auditing whether procedures exist, but not necessarily how they are applied.
- Cabin configuration changes.
- Massive changes to onboard passenger baggage.
- Major changes to security procedures and focus, requiring more time from flight attendants.
- A rise in turbulence and medical events onboard.
- The industry-recognized safety risk posed by onboard lithium ion battery fires.

CUPE emphasizes the need for meaningful change to follow such a review, should it be considered appropriate, up-to-and-including reverting to the 1:50 ratio.

6.1. A Commitment to CUPE's Full Participation and Greater Oversight of CARAC

CUPE is a key stakeholder in commercial aviation, representing the vast majority of unionized flight attendants in Canada. Along with other airline unions, CUPE (and its predecessor unions) have worked tirelessly during the past seventy years to advance healthy and safety and aviation regulations to protect flight attendants and passengers. CUPE Flight attendant representatives should be accorded full participatory rights to decisions that affect their members.

CUPE contends that the CARAC is a flawed mechanism for meaningful consultation. Its processes are overly bureaucratic, and regular meetings appear to be either poorly planned or deliberately intended

to forestall meaningful input. Moreover, no distinction is made to the greater representativeness and depth of expertise and experience CUPE has in compared with other stakeholders. CUPE urges the Minister and his officials to work with us to design more meaningful forms of consultation that recognize CUPE unique perspectives and role in decision-making.

6.2. **Oversight of Transport Canada Rule-Making by SCOTIC.**

CUPE along with many Canadians condemn the Harper government for operating in a manner marked by secrecy and a lack of transparency. CUPE certainly believes this to be true of the previous Transportation Minister, and has already noted the egregious example of bypassing the Canada Gazette Part I when introducing the 1:50 regulation on flight attendant requirements. The public, the clear number of whom travel by air, deserve to be included in discussions that directly affect their safety. CUPE therefore asks that future major regulatory changes be reviewed by the Standing Committee on Transportation, Infrastructure and Communities (SCOTIC).

Appendix 1 - Airline Division Dissent on Transport Canada's Proposed Changes to FA Ratios

CUPE

AIRLINE DIVISION DISSENT

ON

TRANSPORT CANADA'S PROPOSED CHANGES TO FLIGHT ATTENDANT RATIOS

Submitted to CARAC

June 23, 2014

Introduction

On May 22, 2014 over 100 CUPE flight attendants participated in a CARAC Special Technical Committee in Ottawa and 12 other locations via videoconference. During the committee meeting, CUPE reiterated our long-standing opposition to proposed changes to the flight attendant ratio, in particular the proposed "flip flop" rule enabling airlines to change the ratio from 1:40 to 1:50 on 60 days notice, based on their own evaluation of operational requirements.

In this dissent, CUPE maintains the position that any changes to the flight attendant ratio compromises the safety of our members and the travelling public; and must not take place without the highest level of scrutiny by the Standing Committee on Transportation, Infrastructure and Communities (SCOTIC).

CUPE's key concerns include:

1. Transport Canada's continued approach to rule-making that is highly secretive, non-inclusive, has little credible evidence about the safety impacts, and lacks parliamentary oversight;
2. The 1:50 flight attendant to passenger ratio does not provide an equivalent level of safety to 1:40;
3. The "flip flop" rule allowing airline operators to switch ratios based on operational requirements is unprecedented in the world, will not be enforceable, and will create regulatory chaos;
4. The proposed measures to mitigate safety risks are ineffective and require further changes;
5. The NPAs ignore the real world of flight attendant safety responsibilities, which include but are not limited to emergencies and evacuations.

This dissent will focus on on-going concerns with the CARAC rule-making process (#1) and the more general "real world" safety concerns presented by flight attendants on May 22 (#5). A second dissent submitted by the Air Canada Component of CUPE will provide a more detailed analysis of the deficiencies in the revised NPA presented on May 22, 2014, including the ineffectiveness of the "mitigating factors" (#2, #3, and #4).

Transport Canada's efforts to change the ratio from 1:40 to 1:50 continues to be secretive, non-inclusive, lacks credible evidence regarding safety impacts, and avoids parliamentary scrutiny.

In previous submissions, CUPE has argued that Transport Canada's rule making process is deeply flawed. We base this conclusion on the history summarized briefly below, as well as the CARAC Special Technical Committee meeting on flight attendant requirements held May 22, 2014.

In March 2001, Transport Canada denied a request by ATAC and WestJet to expand the use of the 1:50 ratio on aircraft with more than 50 seats. CUPE immediately requested that Transport Canada officials provide information explaining the basis for the decision. Transport Canada denied our request, stating the information was being withheld as "ministerial advice".

However, information received by CUPE under the Access to Information and Privacy Act (ATIP) clearly shows that Transport Canada officials based their decision by analyzing critical factors including:

- Actual evacuation evidence that suggest the 1:50 rule is inadequate in emergency situations.
- The reliability of aircraft certification tests.
- The enforceability of the flip flop rule.
- The economic benefits accruing from the change.
- Inequitable advantages for different carriers.
- The validity of staged evacuation tests.
- The desirability of ministerial exemptions.
- Equivalent safety levels for both ratios.
- An assessment of the criticism that the 1:50 rule is unproven.
- Impact of the change on persons with disabilities.
- Impact on flight attendant workload and stress.

The full report prepared by Chief of Cabin Safety, Frances Wokes continues to be withheld under Section 21 of the Access to Information and Privacy Act. However, email exchanges between Transport Canada officials provided to CUPE under ATIP clearly confirm the report's conclusion that the request for an exemption by ATAC and WestJet had "failed the safety test" and "should not be pursued". In June 2005, members of the Standing Committee on Transport were provided the entire report.

Based on our discussions with a number of MPs who reviewed the document, CUPE

believes the report raised serious concerns about the 1:50 rule, with one member calling it a[1] smoking gun" that could not justifiably be withheld from the public.

Though this initial request for an exemption was rebuffed, in July 2003 Transport Canada inexplicably endorsed a second ATAC request in July 2003, further stating that such a request would be considered prior to any public consultation.

Responding to immediate concerns raised by the Standing Committee on Transport (predecessor to SCOTIC), Transport Canada justified their reversal by arguing that:

- Public safety would not be compromised under the new regime;
- Measures to mitigate risk would be introduced;
- Widespread public consultation would take place; and,
- An independent 2002 risk assessment process had been completed and justified the change.

In 2002, CUPE criticized the risk assessment as biased, lacking in objective scientific evidence and having limited stakeholder involvement. As our critique stated, the risk assessment had "ATAC's fingerprints all over it", and was deficient due to:

- Limited frame of analysis.
- Uncritical reliance on emergency evacuation aircraft certification tests.
- Failure to examine available evacuation data.
- Uncritical acceptance of the 1:50 ratio.
- Failure to examine all flight attendant safety responsibilities.
- Unrealistic risk scenarios.
- Mitigating factors that were not fully explained.
- Limited use of subject matter experts.
- No analysis of changing ratios, or the actual "flip flop" rule allowing airline operators to change ratios based on their self-evaluated operational needs.

We draw your attention once again to these shortcomings in light of NPA 2014-006 permitting the[/1] flip flop" option. The 2002 risk assessment process and results are not only deficient; they are now woefully out-of-date and fail to address a "flip flop" rule that is unprecedented in the world, and cannot be proven enforceable.

The risk assessment process also underscores the lack of public consultation in Transport Canada's regulatory process. CUPE's 2004 dissent on 1:50 provides a detailed summary of how the risk assessment report was approved by the Civil Aviation Regulatory Committee (CARC) in July 2003, and Transport Canada officials were

mandated to draft NPAs including the [11]*flip* flop" rule. The NPAs were then issued for a one time public consultation on April 6-8, 2004.

Despite its emphasis on public consultation process, the April 2004 meeting was neither respectful nor participatory. Attendees were forbidden to ask questions about the validity of the risk assessment, were pressured to finish the consultation as quickly as possible, and had various concerns ruled out of order. CUPE officials were challenged on their right to speak or ask questions, and were told that Transport Canada could not respond to flight attendant safety concerns.

Despite the many objections raised during consultation, the NPAs were passed and members of the public including CUPE had no further opportunity to object beyond written dissents to the same decision-makers who already supported the NPAs.

Based on planning and execution of the May 22, 2014 CARAC special technical committee meeting it appears little has changed in the way Transport Canada does business. Indeed, the one-day meeting was far shorter than the 2004 consultation, and demonstrated many of the same tendencies toward limiting public consultation. For example,

1) Despite CUPE's repeated requests via email and telephone calls, the final agenda, format, and revised NPA were not released until a week before the meeting, allowing a very compressed time period in which to review the documents and prepare a response. While CUPE has considerable historical and
    a. technical expertise to meet such a deadline, it seems obvious that members of the public would have very little time or capacity to meaningfully respond.
2) CUPE asked Transport Canada officials repeatedly via email and telephone calls if we would be permitted to present our concerns at the Ottawa location using audio-visual equipment (a PowerPoint presentation and short video of an Air France 358 passenger speaking about the importance of flight attendants in an emergency evacuation). Officials would not confirm whether or not a presentation could be made.
3) CUPE's request to distribute information at the meeting was rebuffed, with Transport Canada claiming that any such materials had to first be submitted to CARAC in both official languages 30 days prior to the meeting and then circularized to attendees. However, no such requirement had previously existed,

and clearly contradicts Transport Canada's own practice of circulating the agenda and revised NPAs at the last possible moment, and in English only.

1) Two members of SCOTIC, M. Hoang Mai and M. Mike Sullivan attended the May 22 meeting only after learning about it from flight attendants. Both expressed dismay that they had not been invited directly by CARAC. Many of their questions were not answered directly, with TC officials making vague reassurances to refer their comments back to the Minister.

In addition to the many procedural concerns noted above, CUPE has commented on a wide range of technical issues related to the 1:50 rule since 2001. These are summarized below and are also appended. CUPE maintains the position that the NPA presented on May 22, 2014 is flawed, compromises public safety, lacks credible evidence that safety risks have been mitigated, and operates outside parliamentary scrutiny.

Summary of Prior Dissents

2001

CUPE's 2001 dissent presented an overall critique of the NPAs as missing key elements; failing to address which operators and aircraft would be affected by the change; and inability to justify the change on the basis of cost-savings. Other arguments included:

- An overall critique of the NPAs as missing key elements; failing to address which operators and aircraft would be affected by the change; and inability to justify the change on the basis of cost-savings;
- A rejection of the claim that 1:50 is merely harmonizing Canadian and US regulations, and that an equivalent level of safety can be maintained with fewer flight attendants. We substantiated this by criticising the US rule as too lenient, among other factors;
- The unproven enforceability of the "1 flip flop" rule and the potential for different levels of safety and regulatory chaos;
- The inadequacy of the aircraft certification test and the gulf between simulations and real life accidents, as well as increased vulnerability for vulnerable groups such as persons with disabilities, unaccompanied minors, and older adults;
- Concerns with adopting US standards without adequate research, particularly in view of differing health and safety regimes and the criticisms by the NTSB on reductions to cabin crew;
- The need for further study, and greater oversight by elected officials.

2004

CUPE's 2004 Dissent on 1:50 presented an overview of flawed rule-making process by Transport Canada as lacking transparency, based on biased and improper risk assessment evidence, and ineffective and rushed consultation process. The dissent also presented extensive evidence debunking the myths of *11 1* in 50" to demonstrate:

- 1:50 does not provide an equivalent or even acceptable level of safety, is camouflaged with unproven or non-existent mitigating factors, and is based on a selective harmonization rule that is focused on cost-cutting;
- 1:50 is not the proven international standard, has been repeatedly criticized by the NTSB, and has not been properly risk assessed;
- Aircraft certification tests were not critically analyzed in the 2003 risk assessment; and simulations cannot accurately predict actual aircraft condition, passenger reactions, and other human factors;
- Real life accidents show the flight attendant staffing ratios about 1:50 do improve survivability;
- Flight attendants' broader safety responsibilities are not addressed adequately (passengers who are unruly, have limited mobility, experience medical emergencies, and other security issues) and there is excessive focus on evacuations;
- The economic advantage of 1:50 is unproven, and the demand by operators for "international competitiveness" is danger and too narrow;
- The current 1:50 rule has not been properly risk assessed even for small aircraft, and Transport Canada remains unwilling to look at safety issues for these aircraft.

2006

CUPE's 2006 dissent on Flight Attendant Requirements once again criticized Transport Canada officials for:

- Operating in a manner that is secretive, lacks transparency, and does not provide adequate consultation;
- Suppressing information that confirms 1:50 does not provide an equivalent level of safety;
- Provides meaningless mitigations that have not been fully evaluated;
- Failing to do proper research to evaluate hazards related to 1:50, or proof any benefit to passengers such as reduced fares or better service;

- Ignoring polls that show a majority of Canadians oppose any changes that would lower current safety standards.

As these previous dissents demonstrate, CUPE has presented extensive, thorough, and credible information to support our arguments against 1:50. This information addresses both procedural as well as substantive concerns.

CUPE believes the May 22 meeting represents a continuation of Transport Canada's practice of obfuscation, rushed consultation, and lack of parliamentary scrutiny. In fact, the use of the term "Council" is highly misleading: there are no formal members of CARAC; meetings are rare, sporadic, and only called after a laborious process to assess the need for one; and any member of the public who is able to complete the on-line registration is deemed to be a member. While CUPE supports the broadest possible inclusion of the public on matters of safety, it seems patently obvious that as a key stakeholder CUPE should (a) be recognized as having crucial technical and historic expertise; and (b) given proper time to prepare and present comments and materials in written and audio-visual formats.

The "Real World" Concerns of Flight Attendants on the 1:50

CUPE has repeatedly raised concerns about the discrepancy between staged evacuations and real emergency situations in which passenger behaviour cannot be predicted, vulnerable individuals may require added assistance, and flight attendants may become incapacitated. Rather than relying on staged tests, we have demanded that Transport Canada provide evidence from actual evacuation to assess whether 1:50 provides an equivalent level of safety as 1:40. Finally, we have maintained that the safety related duties of flight attendants extend well past emergency evacuations.

On May 22, 2014, CUPE flight attendants presented extensive "real world" experiences, concerns, and questions that have not been meaningfully addressed by Transport Canada. The following examples are organized according to three key areas of concern:

1) The validity of "theoretical evacuations" and staged partial emergency evacuation demonstrations;
2) Insufficient analysis of the impact of cabin crew reductions in emergencies;
3) Failure to recognize the breadth, complexity, and variability of flight attendant safety responsibilities.

1. Validity of Theoretical Models and Staged Evacuations

i. The "90 Second Rule"

Aircraft certification and demonstration tests assume that an aircraft can be evacuated in ninety seconds or less, and cabin crew are trained on this basis. However, theoretical models are frequently contradicted by real-life evidence. On May 22, 2014, CUPE flight attendants presented descriptions of three actual emergencies demonstrating that evacuations can and do take longer than 90 seconds. Such evidence clearly supports CUPE's contention that more rather than fewer flight attendants are required for safe evacuations, and that CARAC's proposed rule to reduce the number of cabin crew will not provide an equivalent level of safety. In fact, reducing flight attendants will increase evacuation times and decrease survivability.

In the following examples the number of cabin crew exceeded the minimum requirements; there were no fatalities; and no flight attendants were incapacitated. Yet even under optimal conditions evacuations still took greater than 90 seconds to complete.

On August 20, 2007, China Airlines Flight 120, a Boeing 737-800 carrying 157 passengers and 6-cabin crew landed uneventfully at Naha Airport, Okinawa, Japan.

However one minute after coming to a stop, leaked fuel caused a fire to break out on the right side of the aircraft. After receiving the evacuation order from the captain, the crew informed passengers that there was a fire. All passengers and crew were evacuated safely. However, even with a flight attendant ratio of 1 :26, the evacuation took 2 minutes and 28 seconds.

On January 17, 2008, British Airways Flight 38, a Boeing 777-200ER, carrying 136 passengers and 13 cabin crew crash landed just short of the runway at Heathrow Airport

. in London. There were no fatalities, though several passengers sustained serious injuries. The flight attendant to passenger ratio was 1:10, and the evacuation took 3 minutes and 40 seconds.

On March 23, 2010, Air Canada Flight 433, an Airbus 320 carrying 98 passengers and 4 cabin crew declared an emergency on the rumoay after detecting an acrid smell on board the aircraft. An evacuation was ordered and no injuries were sustained. The flight attendant to passenger ratio was 1:24, and the evacuation took 2 minutes.

All three of CUPE's above examples were based on facts related from the final accident reports conducted by each of the states' approved investigative authority in Japan, United States and Canada.

ATAC raised the following 3 further examples in an effort to support their arguments that the 1 per 50 is safe: Southwest flight 1455 on March 2, 2000;
USAir flight 1702 on March 13, 2014; and Southwest flight 345 on July 22, 2013. Of these three examples, only Southwest 1455 is documented in an NTSB accident report.

The NTSB Survival Factors Group Chairman's Investigation Report identified that the Southwest 1455 had 137 passengers, 3 flight attendants and 1 off-duty (deadheading) flight attendant seated in the forward cabin. The ratio of on-duty flight attendants to passengers was 1 to 45.6 (lower than the proposed CARAC rule of 1 per 50).

The 2 flight attendants seated on the forward jumpseat (1 inboard and 1 outboard) where unable to conduct their evacuation duties due to the interior inflation of the forward galley slide after impact. The interior slide inflation caused one flight attendant to be pinned to her seat and prevented the other flight attendant from seeing into the cabin.) Luckily a fourth flight attendant off-duty for 2 flight segments seated in rows 4 or 5 of the forward cabin was able to conduct evacuation duties at the front of the
aircraft, by commanding and redirecting passengers away from the blocked forward doors to the aft doors in order to safely evacuate.

In the case of ATAC's two remaining examples, USAir flight 1702 and Southwest flight 345, both accidents are still being investigated by the NTSB and the Survival Factors Group Chairman's Investigation Report has not yet been released. In view of the lack of valid investigative facts to rely on, CUPE contends that ATAC's examples cannot be relied on to support any of their arguments that the 1per 50 rule would provide an equivalent level of safety to the current 1per 40 rule during aircraft accident evacuations.

ii. The Sunwing Airlines Evacuation: Rigging the Test

Another critical concern for flight attendants is evidence of improper and dubious practices by Transport Canada during staged evacuations.

Under the 1:50 ratio, narrow-bodied aircraft can be operated without full exit door coverage by a flight attendant. This represents 25% fewer fight attendants at a full passenger load, and would result in three instead of four flight attendants to cover all four floor level exits. Additionally, if a flight attendant is injured or otherwise incapacitated, the remaining two flight attendants would be responsible for handling an emergency.

Between Nov. 22nd and 27th, 2013, Sunwing Airlines performed a series of staged partial emergency evacuation demonstrations to fulfill the requirement for an exemption to operate at the 1:50 ratio. After learning the staged partial emergency evacuation demonstration would take place, a CUPE health and safety representative asked for and was denied access to the demonstration. When our representative did eventually gain access, he observed three failed attempts to meet the requirement that flight attendants open 50% of floor level exits and deploy 50% of escape slides within the 15 seconds.
This requirement, clearly outline within normal and emergency operating procedures at Sunwing are clearly outlined in the flight attendant manual (FAM).

The first attempt exceeded the 15-second requirement. The second attempt failed when a door marked as blocked (simulating a hazard posed by fire or water) was opened. The third attempt also failed to meet the 15-second requirement, clocking in at 16.44 seconds.

A key requirement to evacuation procedures is that flight attendants command able bodied passengers (ABPs) to "hold people back" in order for flight attendants to ensure that both the exit is safe and the flight attendant is not trampled or pressed against a wall while trying to open the exit.

Following the failed partial emergency evacuation demonstrations, Transport Canada Principle Inspector Luc Mayne concluded the able bodied command unnecessarily delayed flight attendants from opening the door in the quickest possible manner, and permitted Sunwing to omit the command on the fourth staged evacuation attempt. By eliminating this crucial command to passengers, Sunwing passed the fourth and final partial emergency evacuation demonstration in the required timeframe.

Upon questioning Inspector Mayne provided no rationale for omitting this key safety provision other than describing it as[1] old school" and claiming that he had once led an evacuation without the command. He has not provided details of this evacuation, including the type of aircraft, when the evacuation occurred, or the flight attendant ratio.

CUPE contends that the inspector acted unreasonably and recklessly in modifying the Flight Attendant Manual (FAM) during demonstration; did not sufficiently consider the hazards associated with eliminating the command; and behaved in a manner contrary to the inspector's legislated mandate to protect the public interest.

2. Insufficient analysis of the impact of cabin crew reduction in emergencies and evacuations

The proposed 1:50 ratio will increase risk during emergencies on both wide and narrow-bodied aircraft. Further, the proposed rule would allow an airline operator to select the ratio itf eels best satisfies its needs. This raises serious concerns about

operators applying both ratios at one carrier simultaneously. The NPA does not address the dangers caused by operators who would cherry pick the ratio of their choice based on aircraft type, and leading to both ratios being simultaneously applied in one company. This could lead to unstaffed exits on wide-bodied aircraft.

Narrow-bodied aircraft are a particular concern because they make up a significant portion of Canada's major airline operators. Under the current 1:40 rule 4 flight attendants are required on full passenger loads, providing complete floor level exit coverage. The "flip flop" option will allow operators to reduce this number to 3 flight attendants who will be responsible for all four exits.

In a cabin that is almost 120 feet in length, there is no margin for error at this crew level. If a flight attendant becomes injured or incapacitated, or passengers require added assistance due to limited mobility or other factors, two flight attendants will become responsible for the remaining passengers.

i. Reduced Exit Door Coverage

In the event of an evacuation, flight attendants are trained to maintain a protective position at their exit until the evacuation has been completed. This is done in order to prevent passengers from opening an unsafe exit or otherwise obstructing the flow of evacuating passengers. Flight attendants argue that reducing full coverage at aircraft doors will reduce safety and survivability.

On January 15, 2009, US Air Flight 1549 ditched in the Hudson River after a bird strike. Almost immediately the 'Water level outside the aircraft became too high to evacuate through the aft doors. With only three flight attendants in the cabin, the single flight attendant who was responsible for both aft doors 'Was unable to prevent a panicked passenger from opening a door, allowing water to enter the cabin and placing crew and passengers in even greater jeopardy.

As the following example clearly shows, flight attendants who are responsible for two exit doors may be forced to leave their position at the first door to tend to the second door, increasing the risk of being trampled by evacuating passengers. In an emergency involving thick smoke or debris, flight attendants crossing over from one door to another are at even greater risk of injury and have less time to safely evacuate passengers.

Flight attendants also express concern that fewer cabin crew will increase the need for passengers to assist with evacuations. However, passengers are not trained nor should they be expected to deal with emergency situations.

Passengers cannot differentiate between primary, alternate or last resort exits. They would not know that in certain types of emergency evacuations, opening an alternate or last resort exit would impede the evacuation at an adjacent door. They cannot handle situations such as individuals who panic at the door threshold and impede the flow of other evacuees or passengers who attempt to evacuate with their cabin baggage.

Passengers also do not understand the significance of indicator lights on certain doors and would not know for example to look for the barber pole indicating slide inflation. Passengers would not know how to open an armed door correctly; and could not instruct other passengers to use the slide in the correct manner ("jump and slide" rather than sit and slide") or to remain at the bottom to assist other passengers. In situations of slide malfunction, the risk to passengers acting without a flight attendant present is even greater.

Ditchings are also a major concern. Without direct supervision, passengers will not know if and when raft capacity is exceeded; how to release the raft; control passengers in the raft; and retrieve the survival kit and erect the protective canopy. Cabin crew are trained to be raft leaders responsible for delegating tasks, administering first aid, and using survival equipment such as flares, sea dye markers, anchors, de-salting kits, radio beacons and so on. Passengers would not know how to perform these life-saving tasks in a ditching.

ii. Compromising Emergency Response

The ability to respond effectively in-flight emergencies will also be compromised if cabin crew are reduced. For example,

On board medical emergencies require 4 crew members in order to be timely and efficient in preserving life all the while protecting the security of the flight. Each flight attendant has a distinct responsibility for 1) administering first aid; 2) bringing equipment to and assisting the crew member administering aid; 3) communicating with the flight crew to relay and obtain vital information to and from dispatch and medical services; and 4) monitoring and preventing the flight deck door from unlawful interference. With less flight attendants, the cabin cannot be adequately patrolled; other passengers' needs may not be met; service equipment may not be properly stowed; and the cabin may not properly be prepared for an emergency landing.

In flight fires that are not contained quickly can spread rapidly and emit highly toxic fumes. Cabin crew must fight the fire, assist one another with equipment, and maintain constant communication with the flight deck. They also displace oxygen bottles to a safe distance from the fire, close gasper vents, move passengers to safer locations, provide moist towels to aid passengers' breathing and stow service equipment. With a reduction in cabin crews there will be precious time loss and greater difficulty in performing these tasks, increasing an extremely hazardous situation even further.

Unlawful acts including bombs on board require cabin crew to be extremely vigilant and efficient. There truly is no margin for error. In such situations, cabin crew must constantly communicate to the flight deck; may need to search the cabin; displace passengers; ensure passengers do not use electronic devices; stow and secure service equipment and galleys; provide protective materials to those nearest to the bomb; and prepare least risk bomb location (LRBL) and displace the bomb. Fewer flight attendants will be unable to respond in the most efficient and effective possible manner.

In prepared emergency landings cabin crew are vitally important in preparing the cabin and passengers, ensuring specific steps are carried out and completed in the correct order to maximize the success and survivability of a possible evacuation. Fewer cabin crew will make each step longer to complete and fewer steps will be accomplished.

Engine torching can occur on engine start up, with less cabin crew there will be less situational awareness and important visual details such as the length of the torching and the color of the flame(s) may not get relayed nor relayed in a timely manner to the flight crew. Panicked passengers at the sight of the torching may initiate an unnecessary evacuation at an unstaffed exit.

Rapid deplanements require passengers to exit the aircraft quickly, leaving cabin baggage behind and using the aircraft boarding door to exit onto the bridge or air-stairs onto the tarmac. Less cabin crew will mean that unstaffed exits will be unsupervised, increasing the risk that distraught panicked passengers open an unstaffed exit unnecessarily to get out, augmenting the chances of injury to passengers and ground crew.

Accidents can occur any time, and when least expected. However most accidents occur during critical phases of flight: taxing, take off, initial climb to 10,000 feet, approach up to 10,000 feet, and landing. When accidents occur, only cabin crew are trained to take charge. Fewer cabin crew and unstaffed exits will reduce safety.

3. Failure to recognize the breadth, complexity, and variability of flight attendant safety responsibilities

Flight attendants are the first line of defence in emergencies including the ones described above. However, flight attendants are first and foremost safety professionals who are responsible at all times for the safety of passengers and crew from boarding to deplaning. The debate on staffing ratios should not focus exclusively on only one aspect of flight attendants' work, however important. Performing routine as well as emergency safety measures is essential for the safe completion of a flight.

For example, flight attendants routinely deal with unruly or disruptive passengers, sometimes having to subdue individuals who act out violently. It is difficult to imagine how reducing cabin crew will provide an equivalent level of safety in these situations.

Vulnerable populations on flights include persons with disabilities, unaccompanied minors, older adults with limited mobility, and parents travelling with children and

infants. During the May 22 hearing, an air travel assistant expressed her appreciation for flight attendants who support her work escorting passengers with physical and mental disabilities. These passengers can act out verbally and physically, and flight attendants provide a calming presence and aid the assistant in supervising clients. As the assistant noted, disabled adults deserve to travel for recreation just as much as any other non-disabled person. Without adequate support from cabin crew, she believes that travel for her clients would become much more difficult or even impossible.

A mother of two infants who is required to travel frequently for work also expressed gratitude on May 22 for flight attendants who assist her with feeding and other care. This same passenger also experiences flight anxiety when travelling. In both cases, she noted that the flight attendants make the difference in her being able to travel by air.
Without such support, she stated, she would choose rail transportation if it were an option.

As the Canadian population ages, passengers with limited mobility will become increasingly common. They will require added assistance in boarding, deplaning and in flight. In emergencies, flight attendants may mean the difference between survival, injury and death for those with limited mobility.

Do we need another Air France 358 accident to prioritize safety?

At the May 22, 2014 CARAC meeting flight attendants provided many compelling real life examples of emergencies where flight attendants almost certainly made the difference between injuries and even fatalities in emergency situations. One of the most dramatic of these examples is the Air France 358 crash that occurred on August 2, 2005 when the aircraft skidded off the runway in a heavy rain storm. It is widely acknowledged including by crash investigators that the **1**:30 flight attention ratio was a determining factor in the safe and timely evacuation of the aircraft which exploded into flames seconds after the last crew exited. As investigators concluded,

> *The availability of three supplemental cabin crew members on AFR358 undoubtedly contributed to the success of the evacuation, as evidenced by the roles they played during the evacuation. Two were in command of passenger evacuations at emergency exits and the third played a pivotal role in opening an emergency exit and subsequently assisted passengers at the foot of the **R** slide.*

To further investigate whether or not staffing levels were a decisive factor in the safe evacuation of Air France 358, CUPE has conducted in depth interviews with a cabin

crew member and passenger. Both interviews were videotaped, and the interview with the crew member has been transcribed verbatim.

The passenger video, which CARAC refused to allow us to present on May 22, may be viewed at https:/ /www.youtube.com/watch?v=lybCbRsdNko#t=34. CUPE is unable to release the cabin crew member's name for confidentiality reasons, but we have exerpted key quotes that clearly support our arugment that 1:50 does not provide an equivilent level of safety to 1:40.

When Air France 358 first touched down at Toronto Pearson Airport on August 2 11d 2005, the passengers and crew didn't realize anything was wrong. Until a few seconds later, when the aircraft hydroplaned, steered off the runway, violently bounced, and crashed into Etobicoke Creek.

The crew members' first reflex was to grab the PA and tell passengers that they were there, that they would take care of them, that everything was ok, that they should trust them. They wanted to avoid panic in the cabin, because as soon as there's panic, you can't control passengers anymore.

A flight attendant sitting at door 2 was the one iuho realized that there was a fire under the wings, and that they had to evacuate. This critical information was passed along to one of the pilots, who didn't even know the aircraft 1Das on fire.

AF358 had 297 passengers, 10 flight attendants, and two pilots. So a ratio of about 1 flight attendant per 30 passengers. The ratio in France is 1 per 50, but luckily Air France almost always operates with a superior ratio to the regulation. And in this emergency, every crew member was essential.

There were three infants on board, eight children, three passengers in wheelchairs, one blind passenger, one very obese passenger, and a group of 20 teenagers travelling to visit family. Every single person made it off alive in about 90 seconds.

There are 8 emergency exits on the Airbus 340. Each emergency exit door had an assigned flight attendant responsible for the door, and at the back there were four flight attendants for two exits.

The total number of flight attendants was a significant reason why the evacuation went so well. Because an unmanned or abandoned door is a door that's not under control, and if it's opened onto flames or smoke, it's a catastrophe.

Every flight attendant locked down their position, took steps to protect their exits from unauthorized openings, and redirected the passengers since many of the exits were unusable. Doors 3 and 4 on the left had fire on the outside. At door 3 left, flames were licking the hull on

the outside. The windows were already starting to melt. But the flight attendant at that position held her ground, realizing that if she left her position and passengers opened the door, fire would enter the cabin, passengers would panic, and survivability would be compromised. Imagine that

– you see 3-4 meter high flames right under the wings, and you know the plane is probably going to blow up any minute, but all you do is stay there, and protect your exit. That's what flight attendants are trained to do.

A huge part of this evacuation's success was the trust that passengers had towards the flight attendants. This is why there was never a devastating rush of panic during the emergency.

When people are scared, and they don't know what to do, the crew has to take charge, assert their presence and leadership, and communicate the fact that there's a solution. When that happens, when that message is loud and clear, passengers don't need to panic to find their exit, because ·we tell them where those exits are. This is very important. During the Air France emergency, people didn't have time to feel abandoned. 10 flight attendants took charge right away.

In these types of emergencies, passengers have to feel that there's a chain that surrounds them, and that this chain is dedicated towards their safety. And it's imperative that the links of this chain are not too distanced from each other. And if the chain breaks, things can go bad very rapidly.

Our primary purpose is to get people off the airplane if there's an accident. We must have the appropriate number of crew to do this. he more flight attendants we have, the safer the passengers will be in an emergency.

Once everybody had evacuated from Air France 358, creio members went around the cabin with flashlights and megaphones, looking for passengers who were left behind. Once everybody was off, they evacuated themselves. Half of the crew ended up at the front of the plane when it started exploding behind them, so it was a very close call. Let's not mince words here – these flight attendants are heroes.

The main role of a flight attendant is to ensure the safety and the survival of passengers under their care. An airplane is a very peculiar environment. It has its own codes and restrictions, and flight attendants are experts in this environment. We have a particular sensitivity towards the management of on-board situations, whether it's safety, security, medical emergencies, violent passengers, and more ... all of this within a very unique environment.

We act autonomously. In the first few minutes of any airplane emergency, there's usually nobody else to help us. We can only depend on ourselves and our colleagues, so it's evident that having more first responders on airplanes translates to more safety for passengers.

The Air France flight attendants were called upon to react very quickly, in an unexpected emergency, and make life or death decisions. Luckily, they had passengers who trusted them, 'Who accepted to let them take charge. Passengers felt surrounded by a large team of safety professionals. This was a huge element of the evacuation's success. The crew members also had faith in each other's presence at all exits, and in their colleague's ability to prioritize and protect their passengers' safety.

When you see the flight attendant at door 3 *maintain her position while the airplane's windows are melting, when there's smoke coming out of the toilets and when the airplane could explode any second, just because she wants to protect her exit, it's phenomenal. Who else would do this? They risked it all, stayed in the smoke, stood by the burning wings, knowing that they had an incredibly important role to play, that's extraordinary.*

Conclusion

CUPE strongly objects to the any changed to flight attendant ratios without full parliamentary scrutiny. In addition to extensive credible information showing 1:50 has not been properly evaluated and cannot provide an equivilent level of safety CUPE has exposed Transport Canadas practices as secretive, lacking in consultation, and heavily biased toward airline operators. Indeed, since May 22 both Air Canada and Air Transat have applied exemptions and are either currently conducting or plan to conduct evaucation demonstrations. The applications clearly show the operators feel confident that Transport Canada supports their objectives, and will forge ahead with regulatory change free from parlimentary and public scrutiny.

JD/sc/cope491-

June 23, 2014

Appendix 2 – Summary Statistics

How often have you felt that the 1:50 ratio impeded your ability to properly monitor your designated fueling emergency exits during boarding?

Never	3%
Occasionally	16%
Frequently	32%
Almost Every Flight	48%

How often have you been unable to properly monitor your galleys, lavs etc. for fire, overall cleanliness and passengers requiring medical assistance?

Never	2%
Occasionally	11%
Frequently	33%
Almost Every Flight	54%

How often have you have passengers made complaints about the service related to reduced crew ratio?

Never	2%
Occasionally	19%
Frequently	41%
Almost Every Flight	38%

How would you rate your overall stress level (10=maximum stress) at work in terms of how it affects your ability to perform safety-related duties

	Before 1:50 Implementation	After 1:50 Implementation
Average	3.85	8.09
Median	4	8
25th Percentile	3	7
75th Percentile	5	10

How would you rate your overall stress level (10=maximum stress) at work in terms of how it affects your ability to perform service-related duties

	Before 1:50 Implementation	After 1:50 Implementation
Average	3.57	8.48
Median	3	9
25th Percentile	2	8
75th Percentile	5	10

In your view, since the ‘1:50’ change has been made how often are you able to conduct your pre-flight safety checks completely.

Never	5%
Occasionally	37%
Frequently	25%
Almost Every Flight	33%

In your view, since the '1:50' change has been made has the service workload intensified to the level where on board safety monitoring of passengers has become difficult?

Yes	95%
No	5%

In your view, since the '1:50' change has been made has it become difficult to follow the existing procedure in the airline manuals of entering the flight deck so the flight crew may be able to go to the washroom?

Yes	86%
No	14%

In your experience, since the ‘1:50’ change has been made, how long are galleys left unattended (averaging your flight experiences)

Never	0.2%
0-5 minutes	2.9%
5-10 minutes	14.2%
More than 10 minutes	82.7%

Does your airline has a procedure in place to ensure galleys are always attended to when ovens are on to prevent the risk of onboard fire?

Yes	11%
No	89%

Appendix 2a – Pollara Survey Results

Canadians' Opinions on Proposed Flight Attendant Regulations

Presented to:
CUPE

June 2006

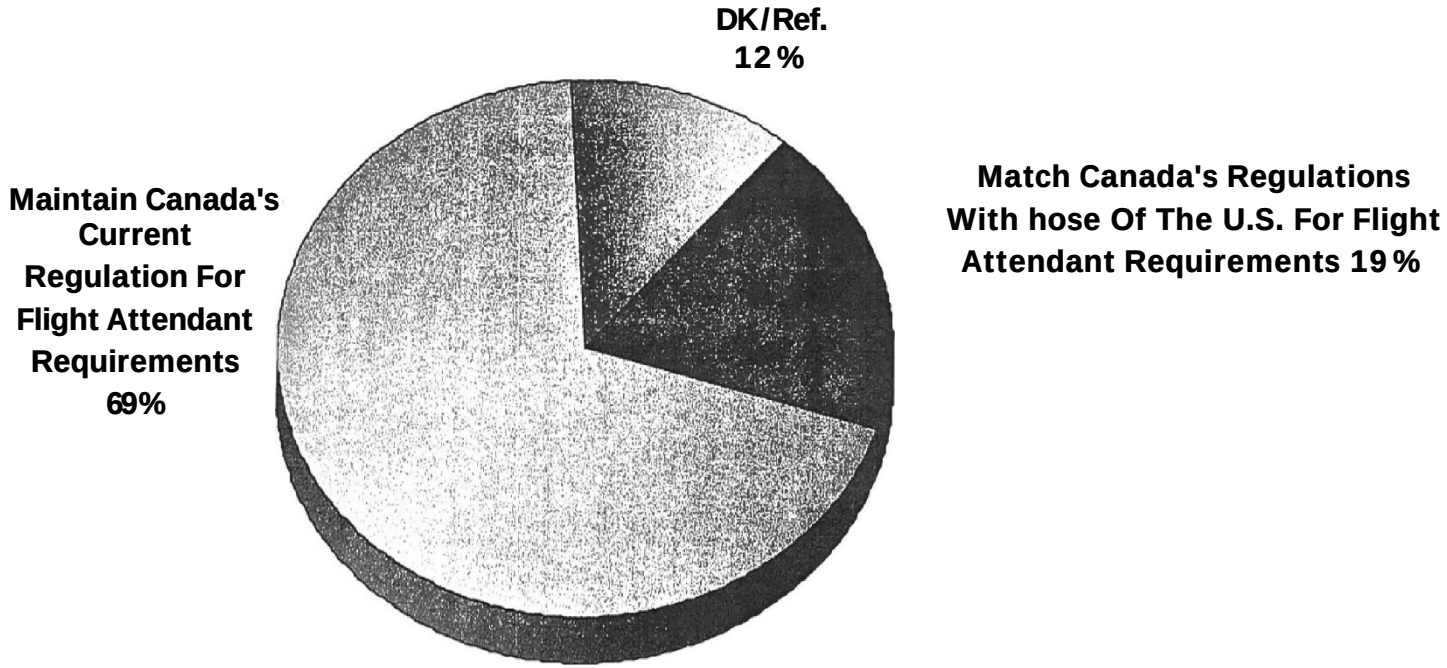
Introduction

- POLLARA is pleased to present the following report of findings from telephone interviews conducted with a representative sample of Canadians.
- The purpose of the survey was to measure Canadians views on flight attendant regulations.
- CUPE added a total of two (2) questions to *POLLARA Perspectives* omnibus survey, interviews were conducted with Canadians aged 18 years or older on May 31st and June 1st, 2006.
- In total, 1011 interviews were completed across the country, resulting in an overall margin of error of ±3.1%, nineteen times out of twenty.

	Unweighted # of interviews	**Weighted # of Interviews**	**Margin of Error (%)**
Atlantic	78	76	±11.2
Quebec	242	241	±6.3
Ontario	384	380	±5.0
Prairies	73	70	±11.6
Alberta	98	98	±10.0
B.C./Territories	136	**135**	±8.5
Total	**1011**	**1000**	**±3.1**

Maintain Canada's Current Regulation for Flight Attendant Requirements or Match Regulations with the U.S..

• A majority (69%) of Canadians believe the Federal Government should maintain Canada's current regulation for flight attendant requirements.



Q1: Now, I'd like to ask you some questions about Canada's airline industry. As you may know, the Government in Ottawa is considering allowing Canada's airlines to fly with up to 25 per cent fewer flight attendants on certain aircraft when they are full. This proposal would mean that Canada's rules on flight attendant requirements are the same as those of the United States. However, two studies conducted by the Canadian Government have found that passenger safely levels would be lower as a result of

Maintain Canada's Current Regulation for Flight AttendantRequirements or Match Regulations with the US.?, b Genderation

- **Men are more likely than women to think Canada's flight attendant regulations should match those of the U.S. (25% vs. 14%, respectively).**

	Match Canada's Regulations With Those Of The U.S. For Flight Attendant Requirements %	Maintain Canada's Current Regulation For Flight Attendant Requirements %	Don't Know / Refused %
Total	**19**	**69**	**12**
Male	**25**	**63**	**12**
18 to 34	27	65	9
35 to 54	26	63	11
55+	22	62	16
Female	**14**	**75**	**11**
18 to 34	18	73	9
35 to 54	13	75	12
55+	14	75	11

Maintain Canada's Current Regulation for Flight Attendant Requirements or Match Regulations with the U.S.,?, by Region

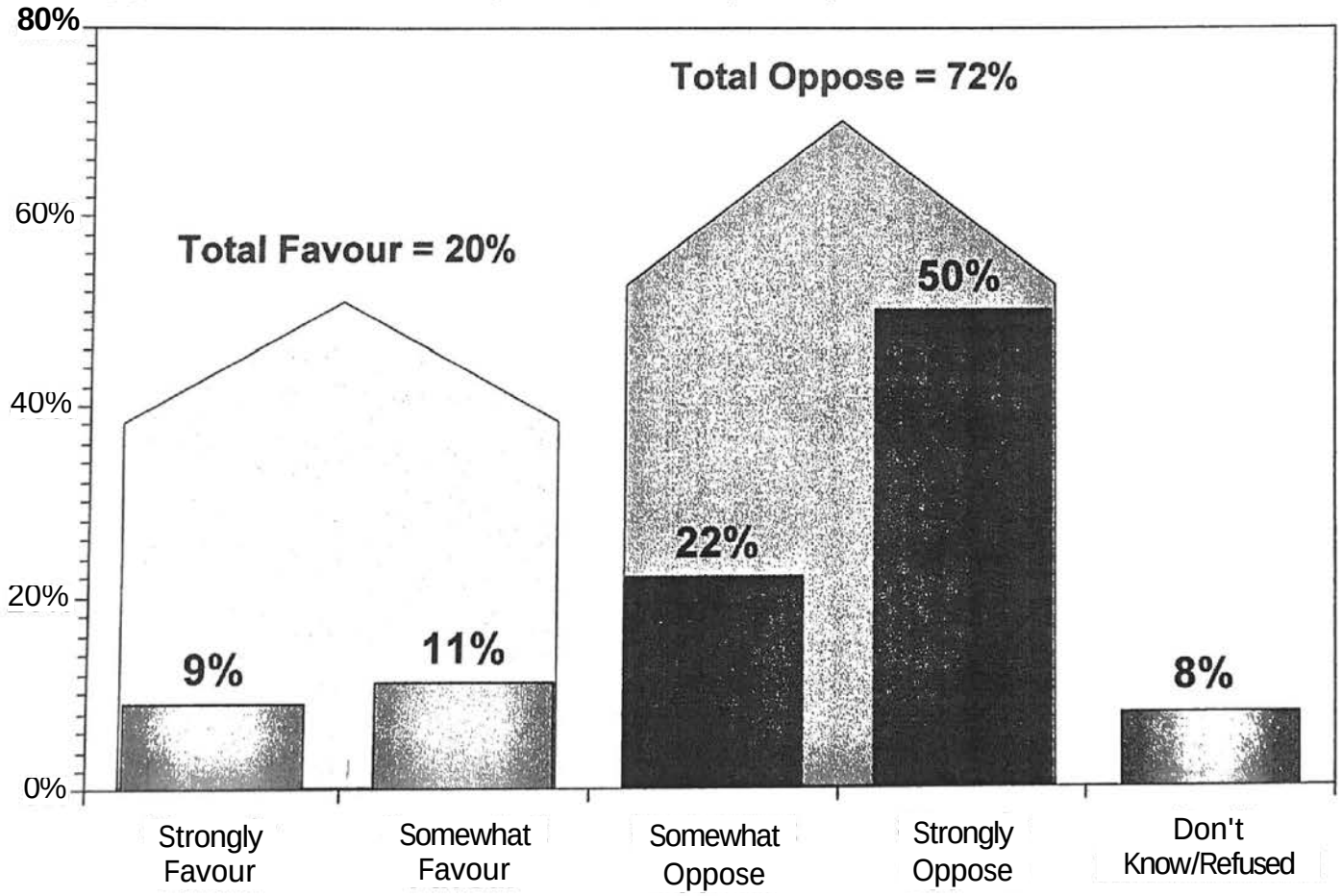
Regionally, residents of Alberta are less likely than those in other regions to think Canada should maintain the current flight attendant regulations (59%).

- Albertans are also the most likely to not know how they feel about this issue (18%).

	Match Canada's Regulations With Those Of The U.S. For Flight Attendant Requirements	Maintain Canada's Current Regulation For light Attendant Requirements	Don't Know/ Refused
Total	**19**	**69**	**12**
Atlantic	17	77	7
Quebec	16	71	13
Ontario	21	69	10
Prairies	21	68	11
Alberta	22	59	18
B.C./Territories	17	71	12

Whether Canadian Airlines Should Lower their Safety Standards to Stay Internationally Competitive

• A majority (72%) of Canadians oppose Canadian airlines lowering their safety standards, including 50% who *strongly oppose* this move to stay internationally competitive.



Q2: (ROTATE) For some, including Air Canada and WestJet, Ottawa's proposal to fly with fewer flight attendants is necessary *because they think it will help them to compete internationally.* Others *think this proposal should be dropped because they believe it will increase risks for passengers when it comes to safety and security in the air.*
Do you favour or oppose Canadian airlines lowering their safety standards to stay internationally competitive? (PROBE: Is that strongly or somewhat?)

Whether Canadian Airlines Should Lower their Safety Standards to Stay Internationally Competitive, by Genderation

Men (26%) are more likely than women (15%) to favour the lowering of safety standards on Canadian airlines, so that they can stay internationally competitive.

	Total Favour	Total Oppose	Don't Know / Refused
Total	**20**	**72**	**8**
Male	**26**	**65**	**9**
18 to 34	26	67	7
35 to 54	28	65	6
55+	24	63	12
Female	**15**	**78**	**7**
18 to 34	22	72	7
35 to 54	13	81	6
55+	15	77	8

Whether Canadian Airlines Should Lower their Safety Standards to Stay Internationally Competitive, by Region

- There are no significant regional differences on this question.

	Total Favour	Total Oppose	Don't Know / Refused
Total	**20**	**72**	**8**
Atlantic	18	76	7
Quebec	19	75	6
Ontario	22	70	8
Prairies	22	65	13
Alberta	19	71	9
B.C. / Territories	19	73	8

Appendix 3 –Report of Dr. Edwin Galea

C.U.P.E vs Canada Federal Court File No. T-1175-15
Report produced by expert witness Professor Dr Edwin Richard Galea

GLOSSARY OF TERMS USED IN THIS DOCUMENT:

1) 1 in 40 ratio: refers to the original requirement in the CAR, which states that one flight attendant is required for every 40 passengers, or portion thereof, on board.
2) 1 in 50 ratio: refers to the requirement in the Challenged Regulation, which states that one flight attendant is required for every 50 passenger seats, or portion, thereof on board.
3) AASK: Aircraft Accident Statistics and Knowledge (aviation accident database dealing with human behaviour during aviation emergencies)
4) ASRS: Aviation Safety Reporting System
5) BA: British Airways
6) CC: Cabin Crew an alternative term for Flight Attendants.
7) CARs: Canadian Aviation Regulations
8) CARAC: Canadian Aviation Regulation Advisory Council
9) CASA: Civil Aviation Safety Authority
10) Cavalluzzo: legal firm, Cavalluzzo Shilton McIntyre Cornish
11) CAO: Civil Aviation Order
12) EU: European Union
13) EASA: European Aviation Safety Agency
14) FA: Flight Attendant
15) FAA: Federal Aviation Administration
16) FSEG: Fire Safety Engineering Group
17) ICAO: International Civil Aviation Organisation
18) JAA: Joint Aviation Authorities
19) Narrow Body Aircraft: passenger aircraft, consisting of a single passenger aisle.
20) NPA: Notice of Proposed Amendment
21) PAX: passenger or passengers
22) PC: Passenger to crew ratio (e.g. 40:1 represents 40 passengers to 1 FA)
23) TC: Transport Canada
24) UK CAA: United Kingdom Civil Aviation Authority
25) UOG: University of Greenwich, London, UK
26) Wide Body Aircraft: passenger aircraft consisting of two passenger aisles.

1) Facts and assumptions on which opinions expressed within the report are based In a letter dated 8 September 2015, Stephen J Moreau of Cavalluzzo requested that Prof Edwin Galea of FSEG UOG provide an expert opinion as specified below:

'Requested Opinion
We request that you provide us with an opinion concerning, generally, the effect, if any, the Challenged Regulation's provisions altering the flight attendant ratios will have on the level of safety associated with flying on aircraft affected by these regulations changes.'

Assumptions relating to scope of requested opinion:

i) Challenged regulation applies to all Canadian registered passenger aircraft with more than 50 pax seats.
ii) Prior to the provision of the Challenged Regulation, CAR 705.104 required that Canadian registered passenger aircraft have FAs on board in the ratio of one FA for every 40 pax, or portion thereof on board.

iii) The Challenged Regulation allows operators of Canadian registered aircraft to operate their aircraft with a ratio of one FA for every 50 pax seats, or portion thereof.

iv) The Challenged Regulation allows operators to select which ratio they wish to operate their aircraft under.

v) It is assumed that the operator will elect to utilise the ratio that minimises the number of FAs on board, thereby minimising the operating cost of the flight.

2) Statement of issues addressed in the report.

The Challenged Regulation's provisions allow operators of Canadian-registered aircraft to effectively operate passenger aircraft based on either:

a) One FA in 40 pax ratio or
b) One FA in 50 pax seat ratio.

The operator is free to elect 'to operate under the flight attendant staffing regime that will best satisfy their needs while protecting the existing safety environment for their passengers' (CARAC Activity Reporting Notice # 2014-006 – REVISED, NPA, page 13). It is assumed by the author that the operator will elect to utilise the ratio that minimises the number of FAs on board the flight in order to minimise the operating costs of the flight.

Thus, under the Challenged Regulation, it may be possible for the operator to operate the flight with fewer FAs on board than would have been the case under the original regulation. The opinion expressed in this report addresses whether or not operating the flight with fewer FAs may impact passenger safety during an emergency evacuation.

3) Description of the qualifications of the expert on the issues addressed in the report.

Prof Edwin R Galea: BSc, Dip.Ed, PhD, CMath, FIMA, CEng, FIFireE
CAA Professor of Mathematical Modelling, University of Greenwich
Director, Fire Safety Engineering Group (FSEG) University of Greenwich
Vice-Chair, International Association of Fire Safety Science
Associate editor of the 'Royal Aeronautical Journal'
Visiting Professor, University of Ghent Belgium
Visiting Professor, Institut Supérieur des Matériaux et Mécaniques Avancés (ISMANS), Le Mans, France.

Professor Galea has worked in fire safety research since 1986, when he joined the University of Greenwich in London. His fire safety research began as a result of the tragic Manchester Airport Boeing 737 fire, which claimed the lives of 55 passengers. Today, his personal research interests include human behaviour in emergency evacuation situations, crowd dynamics, evacuation and crowd dynamics simulation, fire dynamics and CFD fire simulation. His research has applications to the aviation, building, maritime and rail industries.

In 1992, at the age of 34, Professor Galea was made a full professor at the University of Greenwich - the youngest professor to be appointed by the university. In recognition of his contributions to aviation safety, his personal chair was supported by the UK Civil Aviation Authority and is known as the CAA Professor of Mathematical Modelling.

Professor Galea is the founding director of the Fire Safety Engineering Group (FSEG) of the University of Greenwich, where he has worked in the area of fire and evacuation safety for almost 30 years. FSEG are developers of the EXODUS suite of evacuation dynamics simulation software, the SMARTFIRE fire simulation software, (both of which have been used extensively in the aviation industry), the AASK Aircraft Accident Statistics and Knowledge database and the HEED High-rise Evacuation Evaluation Database.

His aviation-based fire and evacuation projects include design and certification analysis for aircraft such as the A380, A340-600, BWB, Mitsubishi Regional Jet, Dash8-400, CS100, CS300, VIP-configured B747 aircraft and novel configurations of the B777. Other projects include four European Union funded Framework projects concerned with aviation safety (Aircraft Fire, NACRE, VELA and VERRES). His UK CAA-funded research projects led to the development of the airEXODUS aircraft evacuation simulation software and the AASK aviation accident database, detailing human behaviour during emergency evacuation. He has also worked on projects funded by the Transportation Safety Board of Canada (SwissAir plane crash), and Transport Canada (SHEBA ship evacuation simulator).

He has worked as a consultant for organisations including Airbus, Bombardier, British Airways, Mitsubishi, Jet Aviation, Zodiac Aerospace, Fujitsui, the Royal Navy, UK Home Office, HSBC, Centre for Protection of National Infrastructure, Arup Transportation, Buro Happold, US Federal Rail Administration, US Dept of Defence, DSTO, Hughes Inc, Battelle Inc.

Professor Galea is the author of over 250 academic and professional publications, including four reports for the UK CAA dealing with fire and evacuation issues. He has successfully supervised to completion 23 PhD students and serves on a number of standards committees concerned with fire and evacuation for organisations including IMO, ISO, BSI and the SFPE Task Group on Human Behaviour in Fire. He has served on several major Inquires and legal cases as an expert in fire and evacuation including the Swiss Air MD11 crash, the Paddington Rail Crash, and the Admiral Duncan Pub bombing.

He has been awarded a number of prestigious national and international honours for his research, including the following:

- In 2015, Mr Rob Brown (one of Professor Galea's doctoral students) and Professor Galea were awarded the U.S. Society of Fire Protection Engineers (SFPE) Foundation Awards First Annual Dr. Guylène Proulx, OC, Scholarship. This award is named in memory of Dr Proulx, a Canadian evacuation specialist and member of the National Research Council Canada (http://blog.sfpe.org/2015/05/sfpe-foundation-awards-first-annual-dr-guyleneproulx-oc-scholarship-to-robert-brown/).
- In 2003, Professor Galea was awarded the 2002 Queen's Anniversary Prize with the citation:

'The University is a recognised world leader in the area of evacuation model development. Use of its software technology by businesses and public authorities greatly enhances public safety and its specialised training offers vital expertise to the user community worldwide.'

Professor Galea's aviation-related research has won a number of awards, including:

- 2011 Royal Aeronautical Society's Bronze Award
- 2006 Royal Aeronautical Society's Gold Award and George Taylor Prize (for his work on the Swissair inflight fire and fatal crash)
- 2003 Royal Aeronautical Society's Hodgson Prize
- 1999 Royal Aeronautical Society's Hodgson Prize

4) Current CV Professor Galea's full CV, including a list of publications, is attached to this document.

5) Methodology used.

The opinions expressed in this report are based on (i) Prof Galea's knowledge and experience of aviation safety, developed from almost 30 years study of aviation and related fire and evacuation issues, (ii) his knowledge of the published research literature relating to these matters, and (iii) the research that he has conducted over the past 30 years. Where appropriate, he has cited specific research work that influenced his opinion and used text from research papers, conference proceedings and reports he has previously published.

Aircraft flown by a selection of Canadian operators – Air Transit, Canadian North, Air Canada, Air Canada Express, Air Canada Rouge, Sun Wing and West Jet – were examined to gauge the impact of the Challenged Regulation on FA numbers for Canadian-registered aircraft with 50 or more pax seats. These operators were selected because their fleets represent a wide variety of aircraft types and seating arrangements – 30 aircraft configurations: 18 narrow body and 12 wide body.

6) Particulars of any aspect of the expert's relationship with a party to the proceeding or the subject matter of his or her proposed evidence that might affect his or her duty to the court.

To best of the authors knowledge, Professor Galea has no relationship with any of the parties concerned that may affect his duty to the court.

7) Expert Opinion

7.1 Introduction:

It is central to this discussion to fully appreciate that safety is the primary role of FAs on board the aircraft. Their safety duties, range from dealing with unruly pax and medical emergencies, to suppressing in-flight cabin fires. Their most important safety function arguably occurs during a survivable crash, when rapid evacuation is essential, and delays of even seconds can mean the difference between life and death for those on board. In these situations, FAs are critical to life safety.

During an evacuation, the role of FAs is to ensure that all the people (both pax and crew) on board the aircraft can evacuate safely within 90 s (as required by international regulation and demonstrated in the industry standard evacuation demonstration – see for example FAR 25.807 [1]). To achieve this, FAs must perform a number of key tasks including: (i) deciding which exits are safe to open, (ii) protection of exits that are considered unsafe (ensuring that pax do not attempt to open these exits), (iii) quickly opening the safe exits and deploying the slides, (iv) assertively driving pax through the exit to maintain a high exit flow, (v) assertively directing pax to appropriate exits, (vi) by-passing pax from an overloaded exit to an under-utilised exit, (vii) ensuring that pax leave

their carry-on luggage behind, and (viii) undertaking a cabin sweep to ensure that all the pax have exited the aircraft. To achieve a rapid and safe evacuation of all those on board is a challenging task requiring a sufficient number of well-trained FAs.

The minimum number of FAs required to ensure that pax can be evacuated safely in the event of an emergency is hotly disputed. Most countries regulate the minimum number of FAs that are required for the safe operation of aircraft.

For European Union member states, the EU-OPS regulation of EASA (previously Joint Aviation Authorities Regulations) stipulates that there should be one FA for every 50 pax seats (or part thereof) [2]. In the United States, the Federal Aviation Administration (FAA) has an identical requirement [3]. For carriers from countries without such a ruling, or from those with a less restrictive requirement, the International Civil Aviation Organisation [4] stipulates that operators must establish to the satisfaction of the state being visited the number of FAs required for safe operation.

Some countries have a more restrictive requirement. For example, in Canada, prior to the introduction of the Challenged Regulation, Transport Canada (TC), through the Canadian Aviation Regulations (CAR), required that there was one FA for every 40 pax on-board [5], and in Australia, the Civil Aviation Safety Authority (CASA) through their Civil Aviation Order (CAO), requires one FA for each 36 pax on-board [6].

This discussion is not focused on the how many FAs are required to achieve a given level of safety, but whether a reduction in the number of active FAs will have an impact on pax safety.

The remainder of this document is set out in several sections:

- Section 7.2 provides a collection of key observations upon which the expert opinion is based,
- Section 7.3 provides the expert opinion with reference to the key observations as justification for those opinions,
- Section 7.4 provides a summary of the opinions,
- Section 7.5 provides a list of caveats associated with the opinions and
- Section 7.6 provides a list of the cited references.

7.2 Background:

This section (section 7.2) lays out several key observations concerning pax behaviour during emergency evacuation situations and the impact FAs have on managing evacuation. Where possible the observations are supported by evidence from the academic literature. These observations are then used in the next section (section 7.3) to support the opinions of the author on the question of the impact of the Challenged Regulation on pax safety.

7.2.1 Passenger lack of situation awareness knowledge

Based on data from the AASK database (including survivable aviation accidents from 04/04/77 – 23/09/99) [7,8], 89% of pax attempt to utilise their nearest exit during evacuation in survivable aircraft accidents, where they have a choice of exits [9]. However, this is not necessarily the most efficient evacuation strategy, especially if there is a significant difference in exit flow capacity, or exit performance, between available exits.

This point is demonstrated with the example of the narrow body (single aisle) aircraft, the most common aircraft type in the world, which is typically used for short haul flights. The most common examples of this aircraft type are the B737 and A320 family of aircraft. These aircraft types typically have three pairs of exits: one pair of floor-level exits in the front, one pair of over-wing exits (in larger variants there may be two pair of over-wing exits), and one pair of floor-level exits in the rear. The front and rear exits are large exits that allow pax to walk through and jump onto a slide. These exits are usually of exit type Type-C and can typically produce an average flow of 64 people/minute. The over-wing exits are smaller exits, which require the passenger to climb through the exit. These smaller exits are of exit type Type-III and typically produce an average flow of 35 people/minute.

In an analysis of survivable aircraft accidents involving narrow body aircraft with three exit pairs [9] (based on data derived from the AASK database [7,8]) over 50% of pax were found to use the over-wing exit. This is not surprising, given that over 89% of pax use their nearest exit, and the central exits are the closest to the majority of pax. However, it leads to sub-optimal evacuation, because the centre Type-III exit is the smallest exit on the aircraft and is 45% slower than the larger Type-C exits in the front and rear.

In contrast, in the aircraft industry standard evacuation certification trial, we find that, on average, only 28% of pax use the over-wing exit. The low usage of the over-wing exit is essential if the aircraft configuration is to produce a quick (sub-90 second) evacuation time, and thus pass the certification requirement. Thus we find that in aircraft accidents, the central small Type-C exits tend to be over-used, while in the industry standard evacuation certification trial, a smaller more appropriate proportion of pax utilise the exit, reflecting its slower flow capability.

The difference between the two situations can be explained by a lack of understanding of the basic cabin layout by even the most experienced of pax. In the certification trial, this lack of understanding of the pax is compensated for by the effectiveness of the FAs, while in severe accident situations, pax may not be able to hear or see the FA or the FA may be incapacitated, leaving the pax to deal with the situation as best they can.

Evidence for the suggested lack of understanding by pax of the basic cabin layout was provided by a study involving 459 participants with varying flight experience [10,11]. The study measured participant exit awareness and possible exit selection in the event of emergency evacuations involving narrow body aircraft. The results from the survey suggest that even the most experienced fliers – recent frequent fliers – have little inherent understanding of aircraft exit configuration: only 27% correctly knew the number, location and relative sizes of exits on narrow body aircraft. Furthermore, irrespective of flight experience, a substantial number (39%) of participants would elect to use a sub-optimal exit in the event of an emergency evacuation. The results of this study support the hypothesis that poor understanding by passengers of aircraft exit location and configuration may be a contributory factor in the resulting poor exit selection decisions made by passengers in emergency situations. The lack of situation awareness knowledge by the pax highlights the importance of having an appropriate number of effective FAs during an emergency evacuation that are able to direct pax to optimal exits.

Key Observation 1
Passengers, even frequent fliers, generally have poor knowledge of aircraft configuration and so, without FA guidance, are likely to make sub-optimal exit choice decisions during an emergency evacuation. It is thus essential to have sufficient FAs available to direct and manage the flow to the exits.

7.2.2 Impact of accident on number of available FAs

In the event of a serious accident, FAs may be killed or seriously injured and, as a result, will not be able to assist in managing the evacuation process. This will have the effect of increasing the effective pax-to-crew-ratio (PC), potentially to unacceptable levels, as measured by current national standards.

This was examined in a paper [12] and report for the UK CAA [7], which utilised the AASK V4.0 database [8] containing information from 105 survivable crashes and over 2000 survivors, including accounts from 155 FAs (covering aviation accidents from 04/04/77 – 23/09/99). The analysis investigated past survivable accidents, and determined the theoretical and actual PC ratio for each of the aircraft involved in the cited accidents. In this analysis, accidents were selected in which the theoretical maximum and actual number of pax and FAs on board were known. This resulted in a set of 87 accidents suitable for analysis (see [7] for a complete listing of these accidents). In some cases, full details of maximum pax loading were not included in the data supplied, so the known loading from an identical model has been used. The key parameter in this analysis is the ratio of pax to crew. Here we define several ratios of interest:

- **Theoretical PC ratio:** this considers the seating capacity of the aircraft to the total number of FAs on board, or, put more simply, the maximum pax (i.e. number of seats on board)/total cabin crew.

- **Actual PC ratio:** this is the number of pax on board to the number of operational FAs. Here we define the operational FAs as those FAs who actually took an active part in managing the evacuation. It has been assumed that FAs not listed as dead or seriously injured took part in managing the evacuation.

- **Worst PC ratio:** this assumes that the maximum pax load is present, while only the effective FAs are available to manage the evacuation.

If these ratios are determined for the 87 accidents, the ***Theoretical Ratio*** varies from just under 30:1 to 50:1, as is to be expected. In the majority of cases, the aircraft involved did not have a full passenger load and all the FAs were available, so that the ***Actual Ratio*** is better (i.e. smaller) than the ***Theoretical Ratio***.

However, the ***Actual Ratio*** varied from 2:1 (BAe 31 JETSTREAM with 2 pax on board and 1 FA) to 139:1 (MD-82 with 139 pax on board and only 1 uninjured FA from the 4 original FAs). Depicted in Figure 1 is a comparison of the ***Theoretical Ratio*** and ***Actual Ratio*** for the 12 accidents in which the ***Actual Ratio*** was greater than the ***Theoretical Ratio***. There were a further six accidents where the two ratios were equal. In these accidents there were a total of 22 FA fatalities or injuries so severe as to leave the FA unable to take any part in the evacuation. Furthermore, we note that nine accidents resulted in the partial loss of FAs. While many accidents involve aircraft with less than a full load of pax – thereby improving the actual PC ratio (assuming this is based on seat

number, rather than actual pax on board), a significant number of accidents occur in which the PC ratio is adversely affected by the nature of the accident, due to loss of FAs.

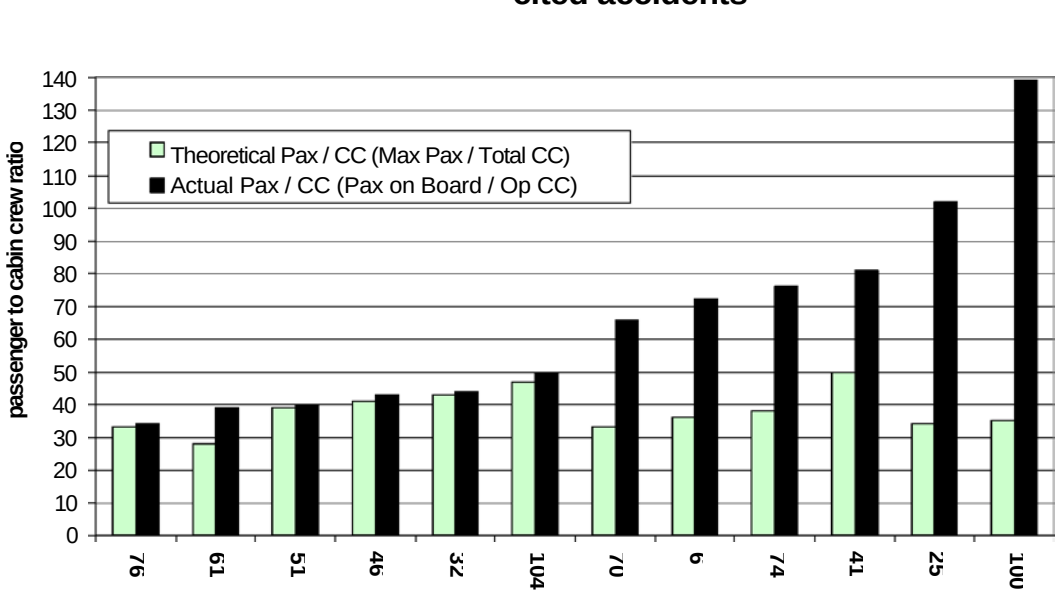


Figure 1: Comparison of Theoretical Ratio and Actual Ratio in the 12 cited accidents in which the Actual Ratio was greater than the Theoretical Ratio.

Assuming a full pax load was present in each aircraft, the ***Theoretical Ratio*** and ***Worst Ratio*** for each of the 87 cited accidents was determined. In 13 of the cases (see Figure 2) the available FAs on board would have been expected to cope with worse than the ***Theoretical Ratio***, and in 11 of the cases, the ratio is in excess of 50:1 – the maximum accepted value for the ratio. In five accidents the ***Worst Ratio*** is twice the size of the ***Theoretical Ratio.***

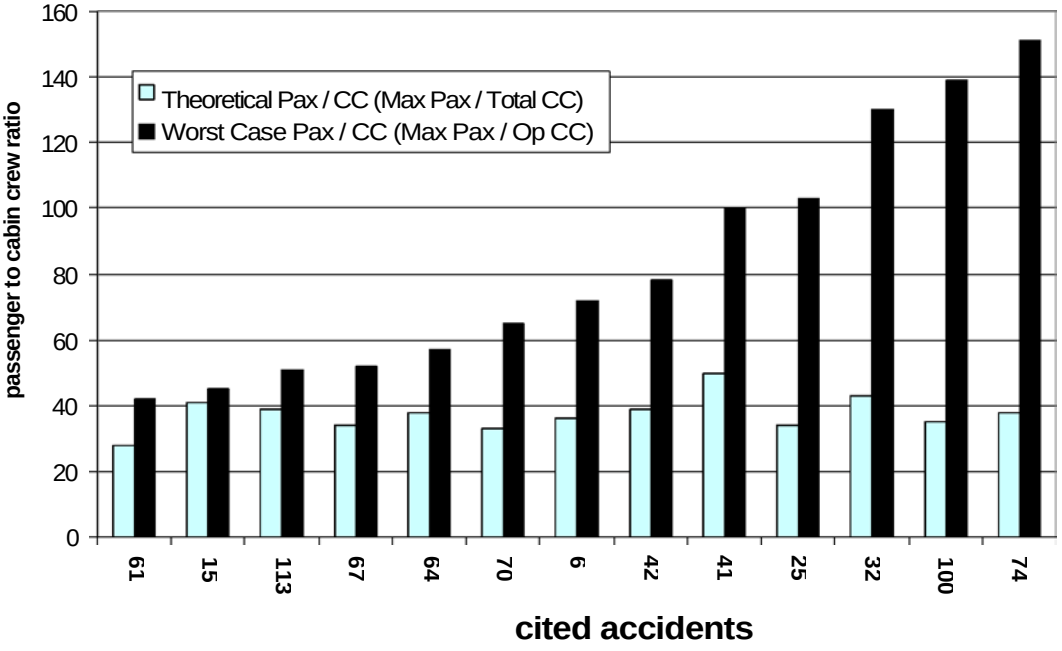


Figure 2: Comparison of Theoretical Ratio and Worst Ratio in the 13 cited accidents in which the Worst Ratio

Key Observation 2
In the event of a serious accident, FAs may be lost or seriously injured and, as a result, will not be able to assist with the evacuation process, thereby greatly increasing the PC ratio to unacceptable levels (as measured by the weakest of today's standards – i.e. 1 FA for every 50 pax seats). The reduction in the number of FAs may have implications for the effectiveness of the evacuation. If so, from a safety viewpoint, it is desirable to maintain a PC ratio that is as low as practical, so that in the event of a serious accident resulting in the loss of active FAs, the PC ratio is kept to acceptable levels.

7.2.3 Evacuation efficiency related to number of active FAs

It is generally agreed that having assertive FAs present during an evacuation will improve overall evacuation efficiency, compared to having unassertive FAs or no FAs. This has been demonstrated in experimental research by, for example, Cranfield University [14]. However, is it possible to relate the number of active FAs present to the overall efficiency of the evacuation? This is relevant to the discussion concerning the Challenged Regulation for two reasons: (i) adopting a higher FA to pax ratio (e.g. 1 FA to 50 pax seats compared to 1 FA to 40 pax) will mean that in some cases there are fewer FAs to manage the evacuation, and (ii) in the event an accident reduces the number of active FAs available, starting with the higher ratio will mean that there are fewer FAs to begin with.

The impact of FA number on evacuation outcome was examined in a paper [12] and a report for the UK CAA [7], which utilised the AASK V4.0 database [8], containing information from 105 survivable crashes and over 2000 survivors, including accounts from 155 FAs (covers survivable aviation accidents from 04/04/77 – 23/09/99). The analysis attempted to investigate the relationship between the number of operational FAs and the efficiency of the evacuation in actual accidents.

A difficulty with any analysis of this type is that there are many ways in which evacuation efficiency can be defined; for example, time required to evacuate, number of injuries/fatalities incurring during evacuation, distance travelled by passengers, exit flows achieved, pax distribution between available exits, etc. Unfortunately, the information required to determine these measures is not always available from the accident investigation, and may be specific to the nature of the accident. In this analysis, the average distance travelled by pax during the evacuation is considered as an indication of the evacuation efficiency. It is assumed that the shorter the average distance travelled by pax, the more efficient the evacuation.

While it is preferable to measure distance travelled using conventional units, such as feet or metres, unfortunately this information is not available for the aircraft involved in these accidents. However, an approximate measure of distance is provided by counting the number of seat rows a pax travels from their starting location to an exit or to their nearest useable exit.

To be able to compare distance travelled between different types of aircraft, two representative distances are defined that take into consideration both the nature of the aircraft and the accident scenario. These distances are then used to determine the evacuation efficiency.

- **TSD (Theoretical Shortest Distance):** this is determined assuming that all pax use their nearest available exit. It is then averaged for each aircraft and identified as the TSD for the aircraft.
- **ADT (Actual Distance Travelled):** this is the average actual distance travelled by each pax in evacuating the aircraft.
- **EE (Evacuation Efficiency):** TSD/ADT * 100%. An EE of 100% indicates that all the pax made use of their nearest viable exits, whereas values less 100% indicate that not all of the pax made use of their nearest viable exits.

To be truly representative, the distance calculations used to determine EE must be based on a sample involving a significant number of pax. Aircraft with small loading numbers, or accidents with poor survey replies, were thus excluded from the analysis. In order to filter out unrepresentative data, the following exclusion criteria were applied to the analysis:

- Aircraft with less than 50% loading
- Accidents with less than 50% pax reply rate
- Small commuter aircraft with a capacity of fewer than 30 pax
- Aircraft with ruptures providing alternative means of escape

Applying these rigorous criteria, only six accidents were found suitable for this analysis. Without exception, all the aircraft involved were narrow body aircraft. Information from 247 pax relating to exit usage was available in AASK. The number of operational FAs was determined by considering, not the number of FAs present on the aircraft, but the number of FAs who could have been actively involved in managing the evacuation. This eliminated FAs who may have been originally counted in the crew contingent, but were killed or severely injured in the accident. Thus, the number of operational FAs was defined as those FAs who were uninjured or who sustained only minor injuries.

It is assumed here that the FAs play a vital role in managing the evacuation of pax. This role includes guiding pax to their exits, as well as speeding their passage through the exit. Therefore, the greater the number of active FAs available to direct the pax, the greater the likelihood of the pax utilising their nearest viable exit.

For these six accidents there is a strong relationship (correlation coefficient is $r = 0.98$) between the number of operational FAs and the EE (see Figure 3). We note that when there are a small number of FAs available to control the evacuation, pax tend to fail to make use of their optimal exits and tend to travel significantly further than is necessary in order to evacuate.

In cases where only a single FA is available, pax have travelled as much as three times further than was theoretically necessary, whereas when three FAs are available, pax travelled on average only 1.1 times further than was theoretically necessary (see Figure 3). Furthermore, as can be seen from Figure 3, as the number of available crew increases, the Evacuation Efficiency – as measured by the average distance travelled – also increases.

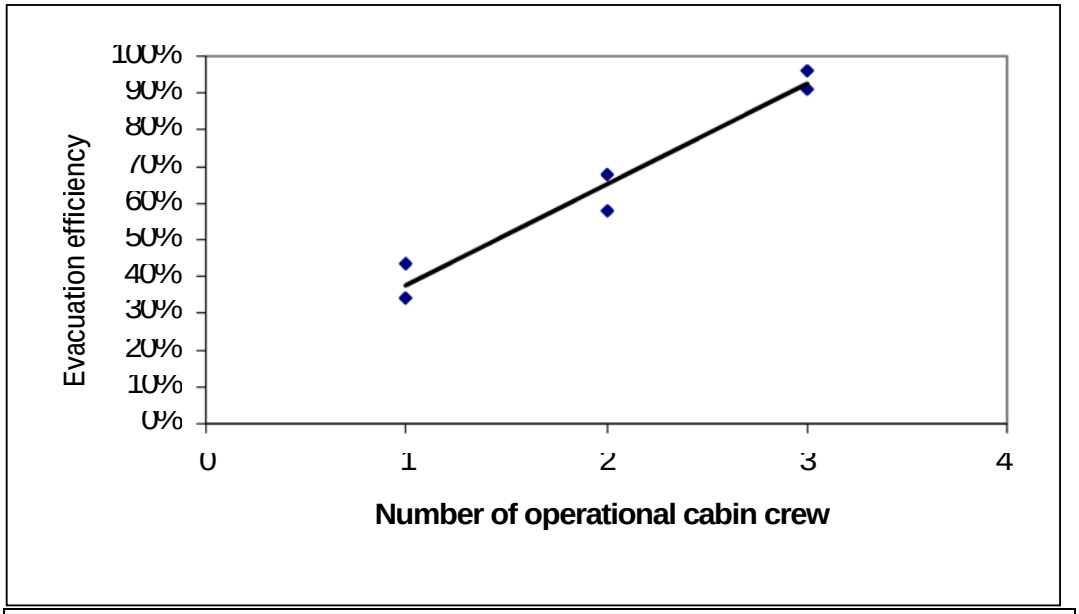


Figure 3: Relationship between Evacuation Efficiency (EE) and the number of operational cabin crew for the six narrow body accidents

Key Observation 3
For narrow body aircraft, there is a strong correlation between the number of active FAs and evacuation efficiency, as measured by the optimal exit used by the paxs during the evacuation. If the relationship between evacuation efficiency and FA numbers can be generalised, then a reduction in the number of FAs by even a single person (due to a change in regulatory crewing ratio, or due to the accident conditions) may have serious implications for pax safety. This will be particularly relevant in evacuation situations where any extra time spent in egress will compromise the survival chances of the pax, such as those involving fire. It is noted that this analysis is based on only six accidents, relates only to narrow body aircraft and only considers distance travelled to exit as a measure of evacuation efficiency.

7.2.4 Evacuation efficiency related to pax exit performance

Unlike in a building, when people pass through an aircraft emergency exit during an evacuation they tend to hesitate momentarily while they transition onto the slide. This hesitation degrades the flow capability of the exit and, if not controlled, can severely impact the overall evacuation efficiency. A parameter used to measure this delay was developed by the author, and is known as 'the passenger exit delay time'. This time represents two stages of the exiting process: (i) the exit hesitation time, where the pax stops and decides how to handle the exit, and (ii) the exit negotiation time, the time required by the pax to descend onto the slide and vacate the exit.

The passenger exit delay time was measured for thousands of pax passing through a variety of exit types by analysing video footage from past FAR25.803 full-scale evacuation demonstrations [13]. Parameters that impact the passenger exit delay time are:

- **Exit type**: the exit type (thus size) causes different kinds of exiting techniques; for example pax tend to crouch and climb out of Type-III exits, and jump out of Type-A exits.

- **Exiting behaviour**: different behaviour traits may be exhibited by different pax, even on the same exit type. For example, some pax jump through Type-A exits, whereas others sit on the sill and push off.

- **Pax physical attributes**: the gender, age and physical size of the pax has also been found to have an impact on exit delay time, with females generally taking longer than males, older people generally taking longer than younger people, and large people taking longer than small people.

- **Presence of FAs** - the presence (or absence) of FAs at exits can influence the behaviour exhibited by pax at exits enormously. Undirected pax tend to take more time deciding how to use the exit, and to use it.

- **Behaviour of FAs** - when FAs are present at an exit, the degree of assertiveness they display influences the delay times. As the level of assertiveness increases, the range of slower hesitation times decreases, thus increasing the overall flow of the exit.

Furthermore, experimental research conducted at Cranfield University, jointly funded by the UK CAA and the US FAA, has demonstrated that the number and performance of FAs significantly influenced evacuation rates and passenger behaviour [14].

Key Observation 4
The presence of a FA at an exit can increase the exiting efficiency of pax significantly, increasing the overall exit flow and potentially decreasing the overall evacuation time for the aircraft. Thus a reduction in the number of FAs by even a single person (due to a change in regulatory crewing ratio, or due to the accident conditions), may result in a given exit not being staffed by a FA, thereby reducing its flow performance, with potentially serious implications for pax safety. This will be particularly relevant in evacuation situations, where any extra time spent in egress will compromise the survival chances of the pax, such as those involving fire.

7.2.5 Impact of delays in getting exits open

The importance of FAs undertaking their duties quickly and efficiently is highlighted by the Manchester Airport accident on the 22nd of August 1985 involving a B737-236. The aircraft suffered an uncontained engine failure and fire during its take-off roll; during the accident, the external fuel fire entered the cabin after burn-through of the fuselage. During the fire incident, two of the four FAs and 53 of the 131 passengers died, and a further 15 passengers were severely injured by the effects of the fire and toxic gases [15].

In total, the aircraft had three pairs of exits. From front to rear they were: (i) Type-I (a floor level exit sufficiently wide to allow one person to pass through at a time) FA-operated exits, (ii) Type-III (small hatch type exit, in which the pax must climb up into the exit and down to the wing) pax-operated over-wing exits, and (iii) Type-I FA operated exits. Of these, only the forward left (L1), forward right (R1) and right over-wing (ROW) exits were utilised during the evacuation.

During the evacuation, the pax and FAs experienced difficulty opening most of the exits; indeed the ROW exit was opened by pax approximately 45 s after the aircraft had

stopped. Due to a malfunctioning R1 exit, the L1 exit was opened by the FA after approximately 25 s, and the R1 exit was eventually opened after 70 s by the FA. In contrast, the average exit opening times from certification trial records are 8.2 s for the Type-I exit and 12 s for the Type-III exit [13]. Although the aft right exit (R2) was opened before the aircraft completely stopped, it was not used by pax due to the heavy smoke accumulated in that area. From the accident report, it is suggested that the delay in opening the exit doors was one of the key factors contributing to the high loss of life in this accident [15].

In an attempt to quantify the impact of the delayed exit opening, the incident was modelled using state-of-the-art fire and evacuation modelling tools (SMARTFIRE and airEXODUS) [16,17]. The software tools were first used to demonstrate that they could produce a reasonable recreation of the actual incident, generating a good approximation to the actual fire damage to the interior of the aircraft, number of fatalities and the approximate location of the fatalities. The simulations recreating the accident produced an average of 56 fatalities, one more than actually occurred, and the other parameters were also in good agreement with the actual accident [16,17]. The success in recreating the actual incident provided confidence that the modelling approach could be used to investigate the impact of the delay in opening the exits.

The two exits with the greatest delay in opening were the R1 exit – a delay of 61.9 s and the over-wing exit, a delay of 33 s over what could be expected in the certification evacuation trial. Through the use of computer simulations it was demonstrated that had either one of these exits been opened within the average certification time, the loss of life would have decreased by 22-33%, saving 12 to 19 lives. If both exits were opened within their certification time, the loss of life would have been reduced by 92% - saving 51 lives [15,16]. This demonstrates the importance of FAs (and pax) being able to quickly open exits in aircraft evacuation situations involving fire.

Key Observation 5
It is essential that FAs are able to perform their duties as quickly as possible in the event of an accident, particularly opening viable exits and commencing evacuation through them. Anything leading to a potential delay in opening and readying an exit, even if only a few seconds, can be the difference between life and death. Reducing the number of FAs by even a single person (due to a change in regulatory crewing ratio or the accident conditions) may have an impact on delaying the opening of an exit and this may have serious implications for pax safety. This will be particularly relevant in evacuation situations where any extra time spent in egress will compromise the survival chances of the pax, such as those involving fire.

7.2.6 Impact of fatigue.

While there is much literature on the impact of fatigue on flight deck crew, there is comparatively little concerning the impact it may have on cabin crew, particularly on the ability of FAs to manage an emergency evacuation. A recent study of fatigue amongst FAs suggested that 27% of surveyed cabin crew reported that fatigue adversely affected their work performance on ‘every’ or ‘most’ duties [18]. Anecdotal information voluntarily reported by FAs into the Aviation Safety Reporting System (ASRS) suggests that there were 17 safety-related incidents between 1999 and 2007, which could be attributed to the impact of fatigue [19]. There is also one NTSB accident report suggesting that FA fatigue contributed to the accident [19].

There are a number of factors that are known to impact FA fatigue, including irregular duty times, sleep loss, number of time zone changes, dietary factors, eastbound or westbound travel, flight duration, flight type, and workload [19]. The FAA reported in a review of literature related to FA fatigue that increased levels of FA fatigue were even associated with cabin occupancy (e.g. greater work load in economy than in business, and hence greater levels of fatigue experienced by FA in economy) [19].

It is well known that fatigue impacts performance by slowing reaction times, and understanding of a situation, reducing situation awareness, and causing poor decisions. All of these factors may have a negative impact on the ability of FAs to undertake their duties during an emergency evacuation efficiently. However, to the best of the author's knowledge, there have been no studies that compare the effectiveness of fatigued FAs and fresh FAs in efficiently managing an emergency evacuation.

Key Observation 6
While it is not clear how influential FA fatigue is in affecting the ability of a FA to undertake their duties during emergency evacuation efficiently, it is clear that work load will impact FA fatigue. Increasing the workload of FAs during a flight will increase their levels of fatigue, which may in turn have a negative impact on evacuation efficiency

7.3 Impact of Challenged Regulation on Passenger Safety

This section (section 7.3) lays out the authors opinions on the question of the impact of the Challenged Regulation on pax safety. The opinions are supported using the key observations presented in the previous section (section 7.2) and other information relating to aircraft configurations currently flown within Canada and subject to the Challenged Regulation. The expressed opinions are then summarised in the next section (section 7.4).

The Challenged Regulation's provisions allow operators of Canadian-registered aircraft to effectively operate passenger aircraft based on either:

a) One FA in 40 pax ratio (or part thereof) or
b) One FA in 50 pax seat ratio (or part thereof).

Thus, under the Challenged Regulation, it may be possible for the operator to operate a flight with fewer crew on board than would have been the case under the original regulation. However, clearly this will depend on the load-factor for the flight. Here the load-factor is defined as percentage of pax on board, compared with the number of pax seats on board the aircraft. Here, it is important to note that the same aircraft type, e.g. B737-800 or A320-200, may be configured with a different number of seats, depending on the operator; even a single operator may have a different number of seats on board different aircraft of a given aircraft type. However, a given aircraft type will have been certified to carry a maximum number of pax, and will hence be certified for a maximum number of seats, which operators are not permitted to exceed.

The Challenged Regulation is based on the pax seat number, and hence is independent of the number of pax on board i.e. the number of FAs required by the aircraft type is constant and independent of the number of pax on board. In contrast, the previous regulation made the number of FAs required by an aircraft type, dependent on the number

of pax on board, so the figure could vary from flight to flight, based on load factor. Thus, depending on the load-factor for a given flight, the Challenged Regulation may provide fewer FAs, an equal number of FAs or a greater number of FAs than the previous regulation (see Table 1).

Table 1: Number of FAs required for typical narrow and wide body aircraft using the Challenged and previous Canadian Regulations

Aircraft	Number of Seats	Number of Pax on board	Load Factor	Number of FAs using 1:40 pax	Number of FAs using 1:50 pax
A321-200	183	80	44%	2	4
	183	121 - 160	66% - 87%	4	4
	183	161 - 183	88+%	5	4
B787-9	298	121 - 160	40% - 54%	4	6
	298	201 - 240	67% - 81%	6	6
	298	281 - 298	94+%	8	6

Airline load-factors vary on a month to month basis and are dependent on a wide variety of factors including, seasonal variations, route, time of day, domestic/international flights, regular/low-cost/charter operator, type of aircraft, etc. Thus general load-factor figures do not provide a good indication of the number of pax that may be expected on a particular flight. Recent load-factor figures reported for Air Canada in August 2015 are 89.6% with a value of 87.7% for domestic operations and 90.9% for European operations [20]. The reported load-factor for West Jet in August 2015 was 84.6% with a year to date figure of 80.9% [21] while in September 2015 this reduced to 77.4% with a year to date figure of 80.5% [22].

However, assuming the aircraft is full (or nearly full), the Challenged Regulation is likely to require an equal number or fewer FAs, compared to the previous regulation. Here we will consider the situation assuming full (or nearly full) loading, as this represents the greatest evacuation challenge, and hence risk to pax safety in the event of an emergency.

To gauge the impact of the Challenged Regulation on FA numbers for Canadian-registered aircraft with 50 or more pax seats, aircraft flown by a selection of Canadian operators were examined: Air Transit [23], Canadian North [24], Air Canada, Air Canada Express, Air Canada Rouge [25], Sun Wing [26] and West Jet [27]. These operators were selected because their fleets include a wide variety of aircraft types and seating arrangements – 30 aircraft configurations: 18 narrow body and 12 wide body. The impact on FA numbers is presented in Table 2 for narrow body aircraft, and Table 3 for wide body aircraft. The data presented in these tables were derived from the operators' own web sites [23, 24, 25, 26, 27].

As can be seen from Table 2 and Table 3, the Challenged Regulation will result in a reduction of FAs on 23 of the 30 identified aircraft configurations, with a reduction of up to 2 FAs in the most severe cases. In 7 of the 30 aircraft configurations, the Challenged Regulation will result in no change in the number of FAs on board the aircraft. Without exception, all the cases examined that will have no change in the number of FAs are narrow body aircraft.

The reduction in FAs is different for wide body and narrow body aircraft: 11 out of the 18 narrow body configurations examined resulting in a reduction of 1 FA, and all 12 of the wide body configurations examined experience a reduction of at least 1 FA, with 6 aircraft configurations experiencing a reduction of up to 2 FAs. It is noted that three of the wide body configurations (B767-300ER – 211 and 280 pax versions, B767-300) have a combination of floor level exits and non-floor level exits. All the other wide body aircraft are equipped only with floor level exits.

Table 2: Impact of Challenged Regulation on FA numbers for a selection of narrow body aircraft types

Aircraft	Number of Seats	Number of FAs using 1:40 pax ratio	Number of FAs using 1:50 pax seat ratio
Dash 8-300[2]	50	2	1
CRJ 100[2]	50	2	1
Q400[2]	74	2	2
Q400[5]	78	2	2
CRJ 705[2]	75	2	2
E175[2]	73	2	2
E190[1]	97	3	2
B737-200[7]	112	3	3
B737-600[5]	119	3	3
A319-100[1]	120	3	3
B737-300[7]	136	4	3
B737-700[5]	136	4	3
A319-100[3]	136	4	3
A320-200[1]	146	4	3
B737-800[5]	174	5	4
A321-200[1]	183	5	4
B737-800[4,6]	189	5	4
A321-200[3]	200	5	4

1: Air Canada, 2: Air Canada Express, 3: Air Canada Rouge, 4: Sun Wing, 5: West Jet, 6: Air Transit and
7: Canadian North

Table 3: Impact of Challenged Regulation on FA numbers for a selection of wide body aircraft types

Aircraft	Number of Seats	Number of FAs using 1:40 pax ratio	Number of FAs using 1:50 pax seat ratio	Number of floor level doors
B767-300ER[1]	211	6	5	4
A310-300[6]	250	7	5	6
B787-8[1]	251	7	6	8
B767-300[5]	262	7	6	4
A300-300[1]	265	7	6	8
B777-200LR[1]	270	7	6	8
B767-300ER[3]	280	7	6	4
B787-9[1]	298	8	6	8
A330-200[6]	345	9	7	8
A330-300[6]	346	9	7	8
B777-300[1]	349	9	7	10
A330-300[6]	375	10	8	8

1: Air Canada, 2: Air Canada Express, 3: Air Canada Rouge, 4: Sun Wing, 5: West Jet and 6: Air Transit

In the remainder of this section the potential impact on pax safety of the reduction in the number of FAs resulting from the Challenged Regulation will be examined in light of the key observations highlighted in the previous section.

- As noted in Key Observation 2, the FA to pax ratio that the aircraft has at take-off does not necessarily reflect the ratio that will be available when the FAs are needed most – during an emergency evacuation. Due to potential incapacitation of FAs, the accident may reduce the number of FAs available to manage the evacuation. Thus reducing the number of FAs, as allowed by the Challenged Regulation, reduces the inherent safety factor built into the previous regulation. Having fewer FAs on board simply means that in the event of a serious accident requiring a rapid evacuation, it is essential that none of the available FAs is incapacitated due to the incident. The greater the number of FAs removed from the aircraft, the more severe the potential impact on safety. This is of greatest concern for wide body aircraft, where the compliment of FAs may be reduced by up to 2 FAs for some configurations by the Challenged Regulation. From a safety viewpoint, it is thus desirable to maintain the FA to pax ratio to as low a ratio as possible to increase the likelihood that more FAs will be available to manage the evacuation in the event of an accident.

  Opinion 1
  Due to potential incapacitation of FAs in severe accidents, and given that in these situations it is likely that rapid evacuation of the pax will be essential for survivability, reducing the number of FAs initially on board the aircraft – as permitted by the Challenged Regulation – has the potential to greatly increase the effective FA to pax ratio beyond what is considered acceptable. This will potentially have a negative impact on pax safety. Furthermore, given that under the Challenged Regulation, the reduction in the number of FAs is greatest for wide body aircraft (reduction of up to 2 FAs), the Challenged Regulation is of greatest concern for this aircraft type.

- As noted in Key Observation 1, pax generally have poor situation awareness within the aircraft, and even frequent fliers have difficulty in understanding the aircraft layout. As a result, in the event of an emergency, pax can make sub-optimal exiting decisions, prolonging evacuation time and, hence, increasing risk of serious injury or death. FAs can assist pax to overcome this poor situation awareness by providing guidance on the optimal exit. It is therefore essential that sufficient numbers of FAs are available throughout the aircraft to guide pax in making these safety-critical decisions. For narrow body aircraft this point is reinforced by Key Observation 3, which demonstrated that evacuation efficiency is related to the number of active FAs. This is of particular concern for narrow body aircraft which have their cabin crew reduced from 3 to 2 FAs and, to a slightly lesser extent, those which are reduced from 4 to 3 FAs by the Challenged Regulation. This is because they cannot afford to lose a single FA arising from the nature of the accident. Having fewer FAs, due to the change in the regulation, and possibly compounded by the loss of FAs due to the nature of the accident, will mean that there are fewer FAs to provide guidance advice to pax, The result is that their evacuation time is potentially prolonged, increasing their risk of serious injury or death.

Opinion 2
Given the generally poor situation awareness of pax, having fewer FAs, due to the Challenged Regulation, and possibly compounded by the loss of FAs due to the nature of the accident, results in fewer FAs to provide guidance advice to pax, potentially unnecessarily prolonging their evacuation time, and thereby increasing their risk of serious injury or death in the event of an emergency evacuation. This is of particular concern for aircraft where a variety of exit types with significantly varying exit capability are available e.g. narrow body aircraft and some wide body aircraft. Thus it is felt that reducing the number of FAs, as permitted by the Challenged Regulation, will have a negative impact on pax safety.

• In some evacuation situations, it is possible that both exits within an exit pair are viable and should be used during the evacuation. As noted in Key Observation 4, the presence of FAs at each floor level exit is important to maintain exit flow at optimal levels. Failure to have a FA at the exit may result in slower than expected evacuation due to poor pax performance at the exit. This is particularly important in wide body aircraft, where the width of the cabin means that it is not possible for a single FA to efficiently manage the flow through both exits in an exit pair (left and right exits).

For narrow body aircraft, both the previous regulation and the Challenged Regulation provide for at least one FA per pair of floor-level exits in all the cases examined. However, in 11 of the 18 cases, the situation under the previous regulation is superior (safer), because there are more FAs available, and therefore, a greater number of individual exits with a FA controlling the exit flow. Under the previous regulation, it was possible to have one FA per floor-level exit in 8 of the 18 cases (cases involving 4 or 5 FAs), while under the Challenged Regulation, it is possible in only 4 out of 18 cases (cases involving 4 FAs). The reduced number of FAs available to staff each of the floor-level exits will have a negative impact on exit flow in the event of an emergency evacuation.

The Challenged Regulation will result in some narrow body aircraft reducing their cabin crew from 2 FAs to 1 FA, 3 FAs to 2 FAs, 4 FAs to 3 FAs and 5 FAs to 4 FAs. The reduction in FA numbers makes the aircraft more vulnerable to the negative effects associated with the potential loss of a FA, due to the nature of the accident. The loss of only one FA arising from the incident may mean that no exits have a FA present (in the case 2 FAs reduced to 1 FA) or that one pair of exits has no FAs (in the case 3 FAs reduced to 2 FAs). Even in the case where 4 FAs are reduced to 3 FAs, it is possible that an exit pair has no FA available, if 1 FA is lost due to the nature of the accident. In cases where an exit is unattended by a FA it is likely that the exit flow will be sub-optimal, and if an exit pair has no FA, the flow through both exits is likely to be severely compromised.

Opinion 3a
In some emergency evacuation situations it is possible, and indeed likely, that both exits within an exit pair will be viable. In an emergency evacuation situation, the exit flow through an individual exit will be greater when it is controlled by a FA. For narrow body aircraft, while the Challenged Regulation provides for at least one FA per floor-level exit pair, under the

previous regulation there are a greater number of situations in which individual floor-level exits have a FA controlling the flow. In situations where a FA controls the flow through an individual exit it is likely to increase flow and reduce the evacuation time, hence increasing the safety of the pax. Thus it is felt that reducing the number of FAs, as permitted by the Challenged Regulation, will in some cases unnecessarily prolong the evacuation by decreasing the exit flow through unattended exits, with a negative impact on pax safety. The situation under the Challenged Regulation is of even greater concern should one of the FAs be incapacitated, due to the nature of the accident. In this situation, it is possible that for some aircraft configurations, some exit pairs may have no FA at all. With a greater initial number of FAs under the previous regulation, the aircraft is considered to be more resilient.

Given the cabin width of wide body aircraft, it is desirable that a FA is positioned at each floor-level exit in order to control the exit flow at the exit. For the wide body configurations examined, both the previous regulation and the Challenged Regulation provides for at least one FA per floor-level exit in configurations that have a mixture of floor level exits and non-floor level exits and in the A330-300 (375 pax configuration).

For configurations in which there are only floor level-exits (of which 9 configurations were examined), the Challenged Regulation only provides a sufficient number of FAs to staff each floor level exit in one case (A330-300, 375 pax) while under the previous regulation five configurations (more than half those examined) provided a sufficient number of FAs to staff each floor level exit. Furthermore, in all 9 cases (involving configurations with only floor level exits) the situation under the previous regulation is superior (safer), as there are more FAs available, and so a greater number of situations in which individual exits have a FA controlling the exit flow. Under the previous regulation, there are only 4 exit pairs on 4 aircraft configurations in which one FA was expected to control the flow through both exits, while under the Challenged Regulation there are 14 exit pairs on 8 aircraft configurations in which one FA is expected to control the flow through both exits.

As with the narrow body case, the reduction in FA numbers under the Challenged Regulation means that these wide body aircraft are more vulnerable to the negative effects associated with the potential loss of a FA due to the nature of the accident. Under the Challenged Regulation, the loss of only one FA due to the nature of the incident is more likely to result in an exit pair being without a single FA than under the previous regulation.

Opinion 3b

In wide body aircraft, it is of even greater importance that each floor level exit is controlled by a FA. Under the Challenged Regulation, there are a greater number of instances in which a floor level exit pair only has a single FA controlling the flow through both exits than under the previous regulation. In situations where there is only a single FA controlling the flow through two exits in an exit pair, it is likely that this will reduce the exit flow through both exits, increasing the evacuation time and decreasing the safety

of the pax. Thus it is felt that reducing the number of FAs, as permitted by the Challenged Regulation, will in some cases unnecessarily prolong the evacuation by decreasing the exit flow through unattended exits, with a negative impact on pax safety. The situation under the Challenged Regulation is of even greater concern, should one of the FAs be incapacitated due to the nature of the accident. In this situation, it is possible that for some aircraft configurations, some exit pairs may have no FA at all. With a greater initial number of FAs under the previous regulation, the aircraft was thus more resilient.

- As noted in Key Observation 5, delaying the opening of an exit, even by a few seconds, can have a catastrophic impact on pax survivability. As discussed above, the reduction in FA numbers under the Challenged Regulation will result in a greater propensity for a single FA to manage both exits within an exit pair. This means that the FA may need to open both exits within an exit pair, should both routes be viable. Requiring a FA to open both exits within an exit pair will by necessity delay the opening of one of the exits and the start of efficient flow through both exits (while opening the second exit, the FA cannot control the flow through the exit already opened). The situation is more severe for wide body aircraft, due to the larger travel distances involved.

  The Challenged Regulation (see CAR SOR/96-433, 705.205) identifies the time required for a FA to open 50% of the floor-level emergency exits that are ***required by the certification basis*** established in respect of the model of aeroplane and that this is achieved with 15 seconds after the transition from the air operator's normal procedure to its emergency procedures. Within the certification procedures, unlike in real accidents, there is always only a single exit within an exit pair opened. Thus the Challenged Regulation only requires the demonstration that the time required to open a single exit within an exit pair be achieved within the specified time. There are no provisions within the Challenged Regulation on how quickly both exits within an exit pair should be opened as these situations are never tested within the certification process. However, real accidents in which only 50% of the available exits are considered viable could include situations in which both exits within an exit pair are viable. In this situation it is unlikely that a single FA would be able to open both exits within the pair and safely deploy the slides within 15 seconds.

  Furthermore, in situations where there is only a single FA to operate both exits within an exit pair, the aircraft is more vulnerable to the negative effects associated with the potential loss of a FA due to the nature of the accident. Under the Challenged Regulation, the loss of only one FA due to the nature of the incident is more likely to result in an exit pair being without a single FA than under the previous regulation. Under these circumstances, the opening of a floor level exit would require the intervention of a pax, with greater associated risk of delayed opening, opening of a non-viable exit, or failure to correctly deploy the slide.

  Opinion 4
  Under the Challenged Regulation, there are a greater number of instances in which a floor level exit pair will be controlled by a single FA. In emergency

situations in which both exits within an exit pair are considered viable, only having a single FA available to open them both is likely to delay the opening of one of the two exits and the establishment of efficient flow through both exits. This may have serious implications for pax safety. This will be particularly relevant in evacuation situations where any extra time spent in egress will compromise the survival chances of the pax, such as situations involving fire. Thus it is felt that reducing the number of FAs, as permitted by the Challenged Regulation, will, in some cases, unnecessarily delay exit opening, with a negative impact on pax safety. The situation under the Challenged Regulation is of even greater concern, should one of the FAs be incapacitated due to the nature of the accident. In this situation it is possible that for some aircraft configurations some exit pairs may have no FA at all, relying on a pax to open the exit. With a greater initial number of FAs under the previous regulation, the aircraft was thus more resilient.

• As noted in Key Observation 6, there are many factors that impact FA fatigue. It is also noted that it is currently uncertain whether fatigue would impact a FA's ability to quickly and efficiently undertake their duties during an emergency evacuation, and if so, to what extent. Furthermore, most of the factors that impact FA fatigue are unaffected by the Challenged Regulation, with the exception of workload. The influence of FA fatigue on evacuation, if any, is likely to be dependent on the type of aircraft and the nature of the flight.

For narrow body aircraft, under the Challenged Regulation, 11 of the 18 aircraft considered will have one less FA than under the previous regulation, while for the wide body aircraft considered, all 12 of the aircraft will have at least one less FA. With the reduction in FA numbers under the Challenged Regulation, it is expected that the workload of the remaining FAs will be increased.

Emergency evacuation situations most frequently occur during the take-off and landing flight phases. For long-haul flights (generally undertaken by wide body aircraft) an emergency situation requiring the evacuation of pax during the landing phase is more likely to be effected by FA fatigue than the take-off phase, as the FAs are more likely to be impacted by workload fatigue at the end of the flight. For short-haul flights (generally undertaken by narrow body aircraft) emergency evacuations during take-off or landing phases are both likely to be affected by FA fatigue, as the incident may occur well into the FAs working day, after they have experienced several flight legs.

There are several possible ways fatigue may negatively impact evacuation efficiency, for example, by (i) increasing FA reaction times and so delaying exit opening times; the FA may also (ii) forget how to correctly open the exit and deploy the slide, (iii) be less assertive while controlling an exit flow, and (iv) make poor decisions, such as opening a non-viable exit, failing to open a viable exit or incorrectly directing pax towards or away from an exit.

However, it is noted that it is not known if current levels of FA fatigue may be influential in FA performance during emergency evacuation situations let alone increased levels of fatigue that may result due to the Challenged Regulation.

Indeed, critical levels of fatigue required to impact FA performance during evacuation are not currently known.

Opinion 5
Under the Challenged Regulation the number of FAs on board 23 of the 30 aircraft configurations considered will be reduced. The reduction in the number of FAs will increase the workload for those remaining, which in turn is likely to increase FA fatigue. If FA fatigue is an issue in evacuation safety, and it is not clear that it is, long-haul flights are potentially more vulnerable during the landing phase while short-haul flights are potentially equally vulnerable during take-off and landing phases. It is thus possible that under the Challenged Regulation, reduced FA numbers may result in increased levels of FA fatigue which may have a detrimental impact on evacuation efficiency, decreasing pax safety.

A recent aircraft emergency evacuation incident involving a British Airways (BA) B777-200ER at Las Vegas airport on the 8 September 2015 supports Key Observations 4 and 5 and Opinions 3 and 4, in particular the need to have FAs at each floor level exit. The B777-200ER was on its take-off roll when a fire started in the left engine. The aircraft aborted take-off and the pax were evacuated from the aircraft. The aircraft is assumed to have been equipped with 275 seats and was carrying 157 pax (57% load factor) with 13 crew [28].

Under the Challenged Regulation this aircraft would have been required to carry 6 FAs but the BA aircraft is believed to have had 10 FAs (and 3 flight deck crew). The aircraft has 8 floor level exits (Type-A) of which 6 were believed to have been opened and slides deployed during the evacuation by FAs. The exits that were opened and slides deployed were; both exits in the first exit pair (L1 and R1), the right exit in the second exit pair (R2), the right exit in the third exit pair (R3) and both exits in the fourth exit pair (L4 and R4).

This accident demonstrates that it is possible to have both exits in an exit pair operating during an accident – in this case the front are rear pair. If there are insufficient FAs to staff all the floor level exits there will be a delay in opening the exits which may have serious implications for survivability. In this accident, 6 exits were opened and under the Challenged Regulation 6 FAs would have been required, but as it is not known prior to the accident which exits will be viable, it is possible that FAs would not have been stationed at each of the viable exits and so it is reasonable to assume that there would have been a delay in getting the exits opened. Furthermore, with only 6 FAs available under the Challenged Regulation, it is possible that the two non-viable exits would have had no FAs stationed by them and so it is possible that pax may have attempted to open these exits.

The impact of poor pax situation awareness (see Opinion 2) is demonstrated in pictures and video footage of the evacuation published on various news web sites [29]. These show a number of pax with their carry-on luggage after the evacuation – in complete disregard to the instructions of the FAs and potentially jeopardising their own safety and the safety of others. Under the Challenged Regulation, with fewer FAs on board the aircraft it is possible that an even greater number of pax would have attempted to retrieve carry-on luggage.

7.4 Summary of opinions expressed

FAs have a number of safety roles to perform on board aircraft, but probably their most important safety function occurs during a survivable accident, were rapid evacuation is essential, and delays of even seconds can mean the difference between life and death for those on board. For this reason, the opinions expressed in this report are based on the role of the FA during emergency evacuation.

The Challenged Regulation is based on pax seat number, and hence is independent of the number of pax on board. Under the previous regulation, the number of FAs required by an aircraft configuration was dependent on the number of pax on board, and so could vary from flight to flight, based on load factor. Thus depending on the load-factor for a given flight, the Challenged Regulation may provide fewer FAs, an equal number of FAs or a greater number of FAs than the previous regulation.

However, if the aircraft is full (or nearly full), the Challenged Regulation is likely to require an equal number, or fewer FAs, compared to the previous regulation. The opinions expressed in this report consider the situation when the aircraft is full (or nearly full), because this represents the greatest evacuation challenge, and hence the most significant risk to pax safety in the event of an emergency.

The opinions expressed in this report address whether or not operating a flight with fewer FAs may impact pax safety during an emergency evacuation. Thus the expressed opinions do not address how many FAs are required to achieve a given level of safety, but on whether a reduction in the number of active FAs will have an impact on pax safety.

To gauge the impact of the Challenged Regulation on FA numbers for Canadian registered aircraft with 50 or more pax seats, aircraft flown by the following Canadian operators were examined: Air Transit, Canadian North, Air Canada, Air Canada Express, Air Canada Rouge, Sun Wing and West Jet. These operators were selected because of the wide variety of aircraft types and seating arrangements in their fleets – 30 aircraft configurations, 18 narrow body and 12 wide body.

Opinion 1: due to potential incapacitation of FAs in severe accidents, under the Challenged Regulation, there is the potential to greatly increase the effective FA to pax ratio beyond what is considered acceptable. Furthermore, given that under the Challenged Regulation, the reduction in the number of FAs is greatest for wide body aircraft (reduction of up to 2 FAs), the Challenged Regulation is of greatest concern for this type of aircraft.

Opinion 2: the availability of fewer FAs, allowed by the Challenged Regulation, reduces the guidance advice to pax which is needed to compensate for their generally poor situational awareness. Reduced guidance advice potentially prolongs the evacuation time and increases the risk of serious injury or death in the event of an emergency evacuation. The risk is compounded in situations where FAs are incapacitated due to the nature of the accident. Having fewer FAs is of particular concern for aircraft where a variety of exit types with significantly varying exit capability are available e.g. narrow body aircraft, and some wide body aircraft.

Opinion 3a: in evacuation situations in which both exits within an exit pair are viable, the exit flow through each exit will be greatest when it is controlled by a FA. For narrow body aircraft, under the previous regulation, there are a greater number of situations in which individual floor-level exits have a FA controlling the flow, with the result that evacuation time is reduced and the safety of the pax is increased. Under the Challenged Regulation, there will be an increased risk of prolonging the evacuation by decreasing the exit flow through unattended exits, negatively impacting on pax safety.

Opinion 3b: in wide body aircraft, it is of even greater importance that a FA controls each floor-level exit. Under the Challenged Regulation, there are a greater number of instances than under the previous regulation in which a floor-level exit pair has only a single FA controlling the flow through both exits.

Opinion 4: under the Challenged Regulation, there are a greater number of instances in which a single FA will control a floor-level exit pair. In emergency situations in which both exits within an exit pair are considered viable, only having a single FA available to open both is likely to delay the opening of one of the two exits and is likely to delay the establishment of efficient flow through both exits. This may have serious implications for pax safety in evacuation situations where any extra time spent in egress will compromise the survival chances of the pax.

The impact that the Challenged Regulation has on exit flow efficiency (described in **Opinion 3**) and exit opening time (described in **Opinion 4**) is of even greater concern should one of the FAs be incapacitated due to the nature of the accident. In this situation it is possible that for some aircraft configurations, some exit pairs may have no FA at all, greatly decreasing exit efficiency and exit opening time. With a greater initial number of FAs under the previous regulation, the aircraft is considered to be more resilient to potential incapacitation of FAs.

Opinion 5: under the Challenged Regulation, the reduction in FA numbers increases the workload for the remaining FAs, which is likely to increase FA fatigue. If FA fatigue is an issue in evacuation safety, and it is not clear that it is, under the Challenged Regulation, potential increased levels of FA fatigue may have a detrimental impact on evacuation efficiency, decreasing pax safety.

It is the conclusion of this report that the Challenged Regulation will result in a reduction in the number of FAs on some aircraft configurations. In the event of an emergency evacuation, the reduction in the number of FAs, will result in increased likelihood that:

- **Pax will make poor exit choices due to lack of situation awareness (Opinion 2).**
- **Two floor-level exits within an exit pair will be opened by a single FA, thereby increasing the opening time of one of the exits (Opinion 4).**
- **Two floor level exits within an exit pair will be controlled by a single FA, thereby decreasing exit flow through one or both exits (Opinion 3).**
- **The aircraft will have lower resilience to cope with incapacitation of FAs resulting from the nature of the accident (Opinions 1-4).**

In addition, while the relationship between FA fatigue and efficiency of evacuation performance has not been demonstrated, it is possible that the likely increase in FA fatigue resulting from the reduction in the number of FAs may negatively impact their performance during emergency evacuation situations (Opinion 5).

Taking these observations together it is the overall conclusion of this report that there is good reason to believe that reducing the number of FAs, as permitted by the Challenged Regulation, will result in the decreased safety of all pax and crew who fly on aircraft affected by these regulation changes.

7.5 Caveats

The opinions expressed in the previous section are subject to the following caveats.

7.5.1 Load-Factor

The Challenged Regulation is based on pax seat number, and hence is independent of the number of pax on board – the number of FAs required by the aircraft type is constant and independent of the number of pax on board. However, with the previous regulation the number of FAs required by an aircraft type was dependent on the number of pax on board and so could vary from flight to flight based on load-factor. Thus depending on the load-factor for a given flight, the Challenged Regulation may provide fewer FAs, an equal number of FAs or a greater number of FAs than under the previous regulation.

Airline load-factors vary on a month to month basis and are dependent on a wide variety of factors including, seasonal variations, route, time of day, domestic/international flights, regular/low cost/charter operator, type of aircraft, etc. For Air Canada and West Jet, annual load-factors are typically greater than 80%. However, assuming the aircraft is full (or nearly full), the Challenged Regulation is likely to require an equal number or fewer FAs compared to the previous regulation. In the analysis conducted for this report we have considered the situation assuming that the aircraft is full (or nearly full), as this represents the greatest evacuation challenge and hence the greatest risk to pax safety in the event of an emergency.

7.5.2 The AASK Database

The AASK V4.0 (Aircraft Accident Statistics and Knowledge) database [7] contains human behaviour data relating to aircraft evacuation, and was developed under contract for the UK CAA. It contains information from 105 survivable accidents and over 2000 survivors, including accounts from 155 FAs. The data is derived from survivable aviation accidents from 04/04/77 – 23/09/99. Some of the opinions expressed in this report are partially based on analysis of data derived from this report and published in the peer-reviewed literature [8,9,12]. While it is the most comprehensive database of human behaviour in aviation accidents, it does not contain data concerning aviation incidents after 1999.

7.5.3 Passenger situation awareness data

The evidence for the suggested lack of understanding by pax of the basic cabin layout was generated using a questionnaire study involving 459 participants with varying flight experience [10,11]. The data was collected in 2007. The sample

consisted of 61% (280) males and 39% (179) females, with 25% (115) in the 18-30 year age bracket, 52% (240) in the 31-50 age bracket and 23% (104) in the over 50 age bracket. Over 93% of the sample had flown at least once in the past three years. Results were analysed as a function of age, gender, flight experience and aircraft knowledge. The study was restricted to public knowledge of narrow body aircraft and is based on public data from 2007.

7.5.4 Aircraft configurations used in the analysis

To gauge the impact of the Challenged Regulation on FA numbers for Canadian registered aircraft with 50 or more pax seats, aircraft flown by the following Canadian operators were examined: Air Transit, Canadian North, Air Canada, Air Canada Express, Air Canada Rouge, Sun Wing and West Jet. These operators were selected because of the wide variety of aircraft types and seating arrangements in their fleets – 30 aircraft configurations, 18 narrow body and 12 wide body. The sample is not intended to be definitive, but indicative of the type of aircraft configurations flown in Canada by Canadian operators. It provides a means to gauge the impact of the Challenged Regulation on affected aircraft configurations. While there are likely to be other passenger aircraft configurations flown by Canadian Operators, the key point of the analysis is that under the Challenged Regulation the number of FAs required can be equal to or less than that required under the previous regulation. The study sample suggested that the reduction in the number of FAs can be 1 FA or 2 FAs, with the higher number occurring on wide body aircraft. These findings are not expected to be affected by the size of the sample.

7.5.5 Fatigue data

While there is much literature on the impact of fatigue on flight deck crew, there is comparatively little concerning the impact fatigue may have on cabin crew, particularly on FAs' ability to manage an emergency evacuation. It is well known that fatigue impacts performance by slowing reaction times and understanding of a situation, reducing situation awareness and producing poor decisions. All of these factors may have a negative impact on the ability of FAs to efficiently undertake their duties during an emergency evacuation.

However, it is noted that it is not known if current levels of FA fatigue may be influential in FA performance during emergency evacuation situations let alone increased levels of fatigue that may result due to the Challenged Regulation. Indeed, critical levels of fatigue required to impact FA performance during evacuation are not currently known.

To the best of the author's knowledge, there have been no studies that compare the effectiveness of fatigued FAs and fresh FAs in efficiently managing an emergency evacuation. While he has attempted to undertake such research, unfortunately there has been a lack of interest in funding this type of work.

7.5.6 Manchester Simulation

In an attempt to quantify the impact of delayed exit opening, the Manchester Airport B737 fire and evacuation was modelled using state-of-the-art fire and evacuation modelling tools (SMARTFIRE and airEXODUS) [16,17]. The analysis

was conducted in 2012, and is currently being repeated with a more sophisticated representation of the fire within the SMARTFIRE fire simulation software. While the main conclusions concerning the impact of the opening times on survivability are not expected to change significantly, this work was not completed at the time of writing this report.

7.5.7 Evacuation efficiency related to number of active FAs

The correlation between evacuation efficiency, as measured by the optimal exit used by the pax during the evacuation is based on only six accidents, relates only to narrow body aircraft and only considers distance travelled to exit as a measure of evacuation efficiency.

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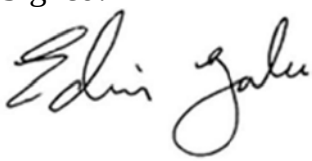
7.7 Signature

- This report, including the signature page, consists of 30 pages.
- It was prepared by Prof Edwin Galea who has been retained by legal firm, Cavalluzzo Shilton McIntyre Cornish to act as an expert witness in the dispute known as: **C.U.P.E vs Canada Federal Court File No. T-1175-15**

Signed:



Prof Edwin Galea

Oct 2015

Date: 1 2
Contact details: .r.galea@gre.ac.uk
Email: e +44 2083318730
Phone:

Appendix 4 –Election Survey Email Chain

From: Ashley Wright [mailto:awright@liberal.ca]
Sent: Monday, August 17, 2015 6:09 PM
To: Archana Rampure <arampure@cupe.ca>
Subject: LIBERAL PARTY OF CANADA RESPOSNE - CUPE's Airline Division Election Survey
Importance: High

Good evening Ms. Rampure,

You spoke with my colleague, Eleanore Catenaro, earlier today about your survey on priority election issues for *CUPE's Airline Division*.

Please find the Liberal Party of Canada's responses below. We have provided a YES or NO as requested, however we have also provided a few short lines for each with context on how we would achieve your priorities.

I apologize that the responses are English-only. May I follow up with you in a couple days with translations of our explanations for your website?

Please let me know if I can help with anything else. Could you please confirm that you have received our response.

Best,

Ashley Wright
Liberal Party of Campaign

1. A safe number of flight attendants on board – would you support scrapping the new 1:50 regulation, and returning to the safety-proven 1:40 ratio? — YES

The Conservative government has jeopardized Canadians by cutting safety budgets at Transport Canada. It is the government's role to make informed decisions based on evidence and data; the Liberal Party of Canada will not make a unilateral decision without appropriate consultation with stakeholders and experts, all the while keeping the safety of all Canadians as a top priority.

2. Stronger health and safety protection – would you support scrapping Bill C-4 and strengthening health and safety regulations for all federal employees? — YES

The Liberal Party of Canada opposed Bill C-4, including the amendments made to the Canada Labour Code which narrow the definition of "danger" within a working environment. It is anti-democratic for the Conservatives to have used this omnibus budget bill to limit debate and ram unrelated measures through Parliament. The Liberal Party of Canada is committed to supporting unionized workers in

Canada's public service and their right to strong health and safety standards.

3. Air quality on board – do you support measures to ensure air quality is monitored, and a healthy air supply is maintained? — YES

The Liberal Party of Canada is committed to ensuring that all Canadians have a safe and healthy working environment through evidence-based measures and proper consultation with stakeholders and experts.

4. Retirement security – would you support legislation to protect and extend defined benefit plans, and expand the CPP? — YES

A Liberal government will work with the provinces and territories to enhance the Canada Pension Plan to help ensure retirement security for all Canadians. A fully-funded and gradually phased-in enhancement of the CPP is the best way to help ensure that today's working Canadians can retire with a secure public pension. We are firmly on the record stating that should a defined benefit plan be changed to a target or defined contribution plan, the existing benefits that have already been accrued by workers should remain defined benefit.

5. Affordable child-care – do you support a publicly-funded, national child-care program? – YES

Affordable, high-quality child care is essential for the success of middle-class families and the Canadian economy as a whole. The Liberal Party of Canada will exercise national leadership to ensure that Canadians are able to access affordable, high-quality child care spaces in every region of the country. A Liberal government will also build on and improve the Canada Child Tax Benefit and the National Child Benefit Supplement and create a means-tested, automatic, monthly Canada Child Benefit that is worth up to $533 tax-free a month per child.

6. Respect for workers' rights – would you support the scrapping of Bill C-525, and commit to defending the right to free collective bargaining without interference? — YES

The Liberal Party of Canada respects the right of workers to collectively bargain and unionize. We have committed to repealing Bill C-525 as it does not serve the best interests and needs of employers, workers, nor the Canadian economy in the long term.

Appendix 5 –Transport Canada Analysis of Comments on Change to FA Ratio

NPA 2000-331 & 2000-332 – Flight Attendant Requirements

Issue:
The number of flight attendants that should be on board a passenger carrying aircraft for safety reasons.

Background/History:

The issue of the number of flight attendants required on board was the subject of a Working Group during the CARs development. CARC accepted the recommendations of the Working Group Leader in 1996 and the current CARs are the end result.

The CARs (and the Air Navigation Order Series VII, No. 2 before the CARs) require that there be one flight attendant for every 40 passengers (1:40 pax) or portion thereof on board an aircraft. There are additional requirements that in effect dictate a minimum level (i.e. a "can't go below line") based on the aircraft type/configuration and the number of exits and any special considerations arising from the certification evacuation test. There is also a special provision for certain eligible aircraft (aircraft type approved to FAR 25 at Amendment 51; this includes the CL-65, ATR 42 and the DASH 8-300) configured with only 50 seats to operate with a reduced number of flight attendants.

The U.S. FARs require that there be one flight attendant for every 50 passenger seats (1:50 seats) or portion thereof installed in the aircraft and there are additional requirements if there were any special considerations arising from the certification evacuation test.

The Australian CAOs require that there be one flight attendant for every 36 passengers (1:36 pax) or portion thereof on board and for aircraft with more than 216 seats or that have twin aisles, the minimum cannot be less than the number of floor level exits. There may also be special considerations arising from the certification evacuation test. Australia has recently completed a review of their requirements and have decided to stay with the current ratio.

The main difference in the various jurisdictions is that the Canadian and Australian requirements are based on the number of passengers actually on board whereas the U.S. requirements are based upon the number of seats installed in the aircraft, whether occupied or not.

Westjet Airlines operates the Boeing 737-200 aircraft with 125 passenger seats. Under the existing CARs, Westjet can operate this aircraft with 3 flight attendants as long as the passenger load stays at or below 120. Once the 121st passenger is boarded, a fourth flight attendant is required.

Westjet has previously informally (at least three times) and formally (twice) requested an exemption from the CARs to operate with only 3 flight attendants with up to 125 passengers. Given that a Working Group had only recently thoroughly examined the issue and that Westjet was bringing forth no new arguments or data to support their request, the requests were denied on all occasions as a result of failing to ensure an equivalent level of safety. The last denial was reiterated to Westjet in correspondence from Mrs. Bloodworth.

In December 1999, Mr. Bill Clark representing Westjet raised a proposal at CASO to change the CARs in favour of allowing an air operator to either adopt the U.S. regulation or maintain the current Canadian regulation according to their choice . The proposal was expressed as a general concept rather than with specific text or wording.

Pursuing a regulatory change in this area will require significant effort on the part of scarce CBA resources; therefore it was considered prudent to seek a decision from CARC on whether to proceed with this considering the impossibility of achieving CASO consensus on a change and the fact that higher priority tasks would need to be put aside if effort was expended in this area.

CASO recommended that an issue paper be prepared for CARC with aim of obtaining a decision to initiate the regulatory change process and if so, to assign a suitable priority to this project.

An issue paper was developed, however, in the interim, ATAC undertook to develop a NPA in lieu of the Issue Paper in order to expedite a more detailed examination of the proposal.

The NPA would permit an air operator to choose to operate to either the Canadian or the U.S. regulation. This proposed amendment (NPAs2000-331 & 2000-332) was tabled at the December 2000 CASO where it was strongly opposed by unions, passenger safety & consumer groups.

Given the opposition to the proposal, it was decided that prior to any further discussion at CASO on the technical merits of the proposal, a decision would be made by CARC whether or not to proceed any further on this issue. The stakeholders were requested to provide TC with their positions and rationale with supporting justification.

This paper will summarize the input received from the stakeholders and will provide recommendations to CARC.

Nature of comments:

There were six organizations that have provided comments in response to the proposal.

- ATAC is an association that represents air operators.
- ACAT is the Minister's (of Transport) Advisory Committee on Accessible Transportation and includes numerous groups that represent passengers with disabilities as well as seniors.
- ALPA is an association that represents many of the pilots in North America.
- ACPA is an association that represents the Air Canada Pilots.
- APSG is an association that represents airline passengers.
- CUPE is an association that represents the majority of flight attendants in Canada.

ATAC who developed and proposed this amendment supports it. ACAT is provisionally opposed to it and ALPA, ACPA, ASPG and CUPE are opposed to it.

A summary of comments and a detailed analysis of the specific comments are detailed on the attachments to this paper.

Position and Staff Recommendation:

Westjet and ATAC have not provided any compelling reason for the regulatory change nor have they provided any supporting data to their proposal that was not already looked at by the original working group.

This change does not improve or enhance safety; therefore should be given low, if any, priority.

Referral of this issue to a Working Group or back to CASO is not recommended as any direction to proceed with further discussion of the NPA will be seen by the aviation industry as tacit support of the request. As it is highly unlikely that consensus would be reached on this issue, any direction to proceed further will also entail considerable workload with no net safety benefit, is not an efficient use of scarce resources and violates our operating principle of creating an environment that fosters continuous improvement within the Civil Aviation program and the aviation community.

The arguments and issues raised by those who oppose this measure are persuasive that further reduction in the number of cabin crew can have a negative affect on safety and certainly will not enhance safety.

Given the sensitivity of the issue, the risk of lowering public confidence in aviation safety, that it violates one of our operating principles of promoting a shared commitment to enhancing aviation safety in Canada and internationally, and given that it exposes the Minister to the risk of being accused of lowering safety standards and in view of the fact that there is nothing to be gained and much to be lost by further discussion of the matter, it is recommended that CARC direct that no further consideration be given to this issue.

Commentor	Comments provided	TC REMARKS
ATAC	Principally, this association and its members do not believe that the option of electing to a 1:50 standard from the current 1:40 rule would erode the safety of Canadian operations. .	No data or facts provided to support this assertion.
	Most of the international community, with the exception of Canada and Australia operate to a 1:50 standard, and there is little evidence to suggest that our evacuation experience is any better, or worse than other countries currently operating to 1:50.	This statement is not supported as the lack of total number of aircraft accidents requiring evacuation cannot be seen as evidence of an appropriate staffing level. On the contrary, the majority of aircraft accidents in Canada and the US were conducted with either less than a full load of passengers and/or more flight attendants than required by regulation. Three quick examples of evacuations are: PWA B737 Calgary - 114 pax and 3 F/As (less than full load - a/c is certified to carry 136); CAIL DC-10 Vancouver 243 pax and 8 F/As (less than full load - a/c is certified to carry 380 AND 1 extra F/A than required); AC DC-9 Cincinnati - 41 pax and 3 F/A (less than full load - a/c is certified to carry 109).
	The proposed new regulation has the potential to increase the competitiveness of some Canadian operators in transborder, domestic and international operations. It is important to appreciate that while the "election" concept was raised first by Westjet, that other members of ATAC have indicated an interest in seeing the proposal move forward. The uncertain status of the regulation, and a cautious approach to labour relations have prevented some operators from openly supporting the principle. In any case, the Westjet employees association (PACT – Proactive Communication Teams - their Flight Attendant and Pilots divisions) and ATAC have provided their unqualified support for the initiative.	We would be quite surprised if Westjet employees did not support this proposal, after all, the more employees, the less profit sharing to each.
	CUPE has offered the most vocal opposition to these NPAs, and we will attempt to address the issues raised by them during the December meeting.	CUPE has indeed advanced the greatest number of arguments against this proposal - most of them are valid.
	CUPE made it clear that they felt the Canadian exception to the existing 1:40 rule that allows for operations with one less flight attendant (owing to illness, for example) would erode the proposed 1:50 standard below the number of flight attendants required pursuant to the proposal. ATAC stated during the meeting that we appreciate that the exception to current rule could not be applied by operators electing to use the proposed 1:50 standard.	Concur.

	This is not an issue for operators like Westjet since they are able to use personnel who are cross-trained to function as flight attendants in the event that there is an operational requirement to replace an incapacitated crew member on short notice.	The original arguments put forward by Westjet were based on the scarce occasions that the flight would b[redacted] full - Mr. Clive Beddoe quoted 3.4% of the flights went over 120 in his correspondence to Mrs. Bloodworth of November 2, 1998. If Westjet can use personnel who are cross trained as flight attendants if there was an incapacitated employee, then it seems that their obvious solution would be to do that when the load goes over 120.
	CUPE claims that the proposed standard may not enhance the efficiency of Canadian operations for those carriers who elect to operate pursuant to a 1:50 standard. With respect, this is an evaluation that only Canadian operators can make. Certainly the opportunity to elect to the 1:50 standard is likely to favour operators using a relatively uniform fleet composition. We believe that the opportunity to elect to use a 1:50 standard will likely enhance the competitiveness of some operators, because it has the potential to allow them to reduce their costs without eroding safety. At a time when the Minister is focusing on enhancing domestic competition, and keeping the cost of air travel down for Canadians the initiative is timely.	Issues relating to the cost of air travel are not within the purview of Transport Canada Civil Aviation and TCCA must base their decision on aviation safety. Safety is not only a cost of doing business, but in the long term a means of saving money. Note that one of the other concerns of the Minister is also good service to Canadians and reducing the number of on-board staff is not likely to positively influence that.
	CUPE claims that the reference to "continuously operate all aircraft" in the proposed 705.104 (1) was too vague to be applied consistently across carriers, and that there was a risk that operators would "flip-flop" between the two optional standards thereby eroding the rule. The concept that an operator would have to make an election to operate an aircraft, or a fleet of aircraft to one regulatory standard or another is not foreign to our regulatory framework. For a number of different aircraft types that could straddle Part 703 or 704 operations, operators elect to operate the aircraft to one standard or the other with the attendant regulatory limitations. This does not mean that the election is forever. It does mean that they cannot elect to operate the aircraft according to one standard or the other based on the passenger load for that segment or that day. While we appreciate that "continuously" is somewhat ambiguous, we did not feel that an operator should be limited to one election for the life of the Operating Certificate. This is a system that has worked quite successfully for a number of years under the CARs, and in any case according the terms of the proposal the "election" and the attendant changes to the Operations Manual would have to be "approved" by the Minister.	The proposal to allow flip-flopping is of concern to TC CBA due to the increased workload and control issues that it raises. Administration of these provisions will be problematical and will require considerable coordination if it were to take place.

	CUPE raised concerns about "Fuelling with Passengers on Board" with a lower ratio of flight attendants however, our review of CAR 725.40 (2) does not indicate that the proposed standard would compromise the requirements of that section.	CUPE was identifying a difference between the US and Cdn requirements whereby in the US, the qualified personnel that must be on board must be trained flight attendants. The Fuelling with Pax on Board standard will have to be revisited before proceeding further if this proposal is accepted.
	CUPE raised concerns about "unrealistic passenger behavior" during the certification process that we cannot agree with. The evacuation process conducted as part of the type certification process would ensure that passenger behavior is realistic, since it is very prescriptive with respect to age and description of the individuals used during the demonstration.	ATAC is incorrect that the behaviour shown by test passengers during a certification is realistic. The fact that it is prescriptive relates only to the agility of the participants, not the behaviour that they show. The test does not introduce any elements such as fire, smoke, or urgency.
	We believe that in many ways an evacuation demonstration is the acid test of the evacuation geometry.	The evacuation certification test is not an acid test, it s a standard test intended to compare or measure the performance of one a/c against another. It is a measure of time used to ensure consistency in testing criteria and a basis for consistent analysis. It is not a guarantee of safety, nor is it a reflection of what happens during accidents.
	In any case, where the certified evacuation geometry may be affected in any material way the Minister may request an evacuation demonstration from the carrier under the terms of the proposal.	What is more likely is that the air operators will oppose such requests and will likely argue against demonstrating their own procedures once they realize the effort and costs involved in conducting a demonstration.
	CUPE raised concerns over the proposed NPA's omission of a Water Evacuation section. We accept that the water evacuation aspect of the NPA should be addressed. For the convenience of the Regulatory Committee, we have set out below, amendments to the original Notices of Proposed Amendments which we believe, address the essential elements of the Appendix D to FAR 121 dealing with water evacuation.	*(Note: The additions were not included in this summary as they will need to be reviewed and analysed by staff and CASO before incorporation in any case)*

	The amendment to the rule set out below could be accepted by the CARC, and interested stakeholders would still have the option of commenting on the complete revision when it is published in Gazette I.	This statement is contrary to the understanding the other participants have of the process. If CARC directs that this proceed, then it is expected that the proposal will actually be reviewed in detail, which it wasn't at the last meeting.
	In the alternative, if the CARC decides in favour of accepting the original NPA as drafted, and limits its application to operations *not* conducted over water, the amendment to the rule with respect to the over-water evacuation demonstration could be placed before the Part VII Technical committee in December of 2001.	Also an incorrect understanding of the process. The proposal was not reviewed in detail and the comments provided at the meeting were general in nature, opposing the concept.
	In either case, if the concept is approved by the CARC, Transport Canada could be in a position to publish an exemption pending promulgation of the rule.	This would not be wise, considering an exemption must be shown to not affect aviation safety. Previous requests for exemptions in this regard were rejected on the grounds of aviation safety and nothing has changed to show that safety is no longer affected.
	If the Regulatory Committee agrees that these amendments should move forward, we urge the CARC to accept one of the two alternatives described above, rather than sending the issue back to the Part VII Technical Committee where a heated and exhaustive debate of the issues that relate to the concept has already taken place. We do not believe that further debate on this subject with CUPE at Part VII, or in a Working Group on this subject is likely to be productive.	While a debate did take place on the proposal, it was limited to the concept and not the technical merits or drafting of the proposal. The members of CASO were advised that if CARC directs that this proceed, then the subject would be brought back for a discussion on the technical aspects.
	CUPE suggested that the 1:50 standard is under review by the FAA and the UK. We are unaware of any serious examination of the issue by the CAA, or the FAA and the American industry, and certainly the safety statistics in the United States with respect to passenger evacuations do not bear out the requirement for this issue to be revisited. The issue is not open for comment through the American NPRM process, and a review of this issue is certainly not on the NTSB's *Most Wanted Transportation Safety Improvements List*, nor has it been on that list since it was established in 1990. The issue has never been the subject of an NTSB Safety Study. Most recently, the *Safety Study of Emergency Evacuation of Commercial Airplanes*, adopted by the NTSB on June 20, 2000 contains a number of recommendations to enhance evacuation however, it does not raise any safety recommendations with respect to any modifications to the existing 1:50 standard.	There are a number of studies underway and more that will be commencing this summer regarding evacuations. While none of them are focused on determining the optimum number of cabin crew, they will be used in the further development of computer modeling which eventually will be able to be used to answer questions such as these. The fact is that the NTSB have noted on several occasions that the success of particular evacuations could be attributed to the fact that there were more crew members on board than required by regulation (through staffing levels and with deadheading).

	In the December Part VII meeting there was some discussion concerning the possibility that the proposed rule could apply only to new generation aircraft however, ATAC has reflected on the prospect of limited applicability for the rule, and we have decided to retreat from that suggestion since there is no reason in principle to distinguish the two categories of aircraft, and the available seating configurations in some of the older aircraft offer significant enhancements to efficiency when examined against a 1:50 standard. More importantly however, through certification tests, the evacuation process for both old and new generation aircraft have been approved against the 1:50 standard.	Noted.
	In conclusion, this association believes that the proposal has the potential to enhance domestic and international competition without eroding the safety of the traveling public. The proposed regulation will allow some operators to reduce their costs of operation and will ensure that the cost of travel to the public is kept low at a time when enhancing domestic competition has been identified as a departmental priority.	No data has been provided to support the contention that safety would not be eroded, and no data has been provided that supports the contention that this proposal would enhance competition.
ACAT	At the last ACAT meeting held in January, the Committee passed a resolution with respect to ATAC's proposed amendment. This committee was concerned that such an amendment could be detrimental to the number of non-ambulatory passengers or other persons with disabilities that could be carried on a flight.	Noted. The amendment, if it moves forward, will require that the numbers of non-ambulatory passengers carried on board be revisited as the guidelines are partially based on the number of cabin crew. These guidelines were developed in the 80s based on data from evacuations and tests.
	The committee has requested that Transport Canada review the proposed amendment focusing on: The impact of establishing the number of flight attendants based upon the number of passenger seats installed respecting the effectiveness of emergency and evacuation procedures; and	Pertinent points raised at the same meeting included the above and also, the time available for individual safety briefings, the capability to evacuate the aircraft. If the number of cabin crew is reduced and there aren't enough cabin crew for each door exit then there could be delays in getting the exits available. When pax with mobility disabilities are on board the evacuation time will be increased. When this increase is added to the increase as a result of the delay in opening exits, the cumulative increase in evacuation time is not acceptable. Add to that the increased incidence of medical emergencies due to cardiac arrest and deep vein thrombosis and the rapidly aging population any reduction on board staffing levels is not justified.
	Whether any change could lead to a restriction of the number of passengers with disabilities, particularly non-ambulatory, that can be carried as a result.	See above. The potential does exist.
	If this were to have a negative impact on the number of passengers with disabilities, the Committee then wishes to file their objection to this proposed amendment.	Noted.

ALPA-C	The Air Line Pilots Association is opposed to the proposal for two very basic reasons. First the Association is of the opinion that the requested change is driven by pure economics. Secondly the proposal would, in our opinion, lower the level of safety provided to both the travelling public and our crews.	Noted.
	Background to the proposal states that Canadian Carriers are operating an economic disadvantage due to the lesser requirements of the FAA and JAA. By that yardstick, the air carriers of Australia, who work under a 1:36 must be the most economically disadvantaged group around.	That is correct. The Australians just recently finished a review of their levels and deemed it prudent – given their expressed desire to have a safe transportation system – to maintain existing levels and also incorporated a exit door coverage rule.
	The statement is made under "Benefits and Cost Impact": "Movement by an individual carrier to the 1:50 standard....provides an equivalent level of safety and would not erode the high level of passenger safety for Canadians." While ALPA agrees that Canadians have enjoyed an enviable safety record, there is little data to indicate that raising the ratio to 1:50 would continue that level of safety.	Agreed.
	While the United States is currently at 50 installed seats per flight attendant, the FAA is embarking on a massive test program in the spring of 2001, to examine the issue of emergency evacuations and whether the current regulations need to be changed. While not specifically targeted at flight attendant numbers, the program is the largest study to date and should provide large amounts of data on evacuation problems.	Noted. We are aware that much of the data generated will hopefully be able to be used in the validation of computer evacuation modeling.
	A number of factors will influence the success of evacuations. Among them are the increasing age of our flying population, the easier access to flight as a transportation mode for disabled persons, the higher load factors currently being experienced by the majority of Canadian air carriers, just to name three. These factors will serve to reduce the effectiveness of the evacuation by increasing reliance on the flight attendants to provide assistance.	Agreed.
	In researching a number of evacuations from 1980 to present, we noted that the average flight attendant/passenger ratio was considerably below 1:50. In fact, the ratio was more in the neighbourhood of 1:25 passengers. Evacuations undertaken for a variety of reasons under these ratios were not without significant loss of life. As might be expected, in our unscientific look at these accidents, the lower the ratio of flight attendants to passengers, the lower the fatality rate was.	This is supported by statements made by the NTSB.
	One must also consider that the flight attendant is not immune to injury in accidents or evacuation situations. Reducing the number of flight attendants on board will only serve to hinder a successful evacuation should one or more of the attendants become incapacitated.	Agreed.
	The argument has been advanced that when lesser numbers of passengers are carried, then a lesser number of flight attendants may be required. While that is currently the regulatory situation in Canada, it is not normally practiced and a situation whereby a lesser number of passengers are spread out in a large cabin area with fewer flight attendants on board, generates a new set of evacuation problems.	Noted, however, based on the fact that Canada has a more favorable ratio than the US, there has historically been a certain level of comfort in allowing the reduced numbers of cabin crew with reduced passenger loads. We are aware that this ratio has never been proven nor disproven.

	While no definitive conclusions can be drawn from this data, there is certainly the trend that would indicate a move in the ratio of flight attendants to passengers would do nothing to enhance, and could lower the excellent safety level we now enjoy.	Agreed.
	The stated position of the Air Line Pilots Association is: *"The number of flight attendants for a flight should be enough to put a flight attendant at each primary exit area for takeoff and landing."* SOURCE – Executive Board September 1998. For these reasons the Air Line Pilots Association cannot support these proposals.	Noted. This will be addressed as time permits.
ACPA	Following up on some of the issues coming out of the recent CASO, for the record, the Air Canada pilots would not support the idea proposed by WestJet of allowing an option to staff flight attendants to a 1:50 seat rule. To quote from the ACPA policy on the carriage of flight attendants: "The Association shall seek to revise the current regulations (CARs 705.104) to ensure the provision that at least one Flight Attendant be seated adjacent to each primary exit during takeoff and landing. Notwithstanding the stated exception in the regulations (CARs Standard 725.104-2) allowing one Flight Attendant per 50 passengers on the CL-65 or similar aircraft, the Association will oppose any attempt to reduce the number of Flight Attendants below the regulated norm of one Flight Attendant per 40 passengers."	Noted. See above.
APSG	By telcon: A further point of interest raised by Mike Murphy was that ATAC is being inconsistent in this area. On the one hand, they have argued that AFF is not required because the FAs will handle the problem while on the other hand they have argued that fewer FAs are required in total.	Noted.
CUPE Part 1 General Criticisms of ATAC Proposal	There is skimpy justification for the ATAC proposal contained in the two NPAs. The "justification" is pretty much a re-statement of the original Bill Clarke letter presented as item 99-12-15 at CASO in December 1999, the substance of which has already been rejected by Transport Canada on at least one previous occasion.	Noted.
	The "justification" for the two very different NPAs that appeared for the December 2000 meeting is identical. There is no explanation of what these two different NPAs mean however and certain key elements were therefore missing as a result.	ATAC provided one NPA, staff members divided up the same info into the NPA for the Regulation and the NPA for the accompanying standard. CUPE has not identified what key elements are missing as a result.
	There is not a whisper of the impact of the proposal. There is no data from the industry, particularly who would be willing to use the proposal, despite ATAC's claims that there is "considerable" operator interest in the proposal. Who will stay with 1 in 40? Who will go to 1 in 50, other than WestJet? Who wants the change? What aircraft will be affected? The reality is that, other than WestJet, most other air operators where CUPE has members have advised us privately they disagree with the ATAC proposal and simply want it to "go away". (Interestingly, many of these airline representatives ensured they had left the room after the CUPE presentation on December 7 to avoid the spectre of public disagreement with ATAC if	Noted.

	questioned.)	
	There is no analysis of the impact of moving to a "flip-flop" 1 in 40/50 rule, other than vague references to potential cost savings and the preservation of safety. When asked specifically to clarify their assertion on page 2, last paragraph that "some carriers cannot compete" because of the current 1 in 40 rule, ATAC could not cite any examples of routes where service had been discontinued because of this alleged uncompetitiveness. Instead, ATAC stated that it was the best judge of whether there would be cost-savings or efficiencies to be gained and that assertion alone was sufficient to "bring it to the table". CUPE disagrees that any cost-benefit analysis can proceed in this one-sided fashion.	Agreed. ATAC has not provided any evidence of competition or costs.
	The NPAs sponsored by ATAC do not realize the discussion from the December 1999 CASO meeting asking that all issues related to flight attendant requirements be canvassed in any final NPA. There are still outstanding issues from the last Working Group report, e.g. minimum crew on wide body aircraft as promised by Don Spruston in his July 9, 1996 letter: "Thank you for your May 16, 1996 letter regarding the draft report of the flight attendants requirements working group. The subject matter, along with your union's official dissent was tabled at our April 3, 1995 Regulatory Committee meeting. I would like to assure you that your carefully researched paper was taken into full consideration during our deliberations. After careful deliberation and discussion of the matter, the Regulatory Committee has decided to accept the recommendations of the working group leader. Accordingly, the content of the current exemption is being incorporated into the Commercial Air Service Standards and the second recommendation of the working group leader, which was to re-examine the formula for determining minimum crew for wide-body aircraft will be actioned once the Canadian Aviation Regulations are in place." (emphasis added)	It should be noted that no group stepped up to the plate here other than ATAC. All members were asked to provide their issues to F. Wokes who received no correspondence on this matter. Agreed that the issue of minimum crew on wide body aircraft is still outstanding. This will be addressed as time permits.
CUPE Part 2. ATAC "Selective Harmonization"	There is a central false premise of the ATAC proposal: that the current Canadian 1 in 40 passengers rule and the 1 in 50 seats rule ATAC is proposing in the Canadian context provide "an equivalent level of safety and would not erode the high level of passenger safety for Canadians".	
	We disagree that the 1 in 40 passengers rule and the 1 in 50 seats U.S. style rule are equally safe, as we will show later. There will be a derogation in safety at full loads when you switch from 1 in 40 to 1 in 50, particularly in terms of door coverage.	Noted.
	In this regard, we agree with the U.S. NTSB and the U.S. House of Representatives in its 1981 hearings on this issue that the 1 in 50 seats rule in the United States was "already too lenient and unrealistic".	Noted.
	To put this in context, we must recall the history of the Canadian flight attendants requirements rule, as it was implemented in the early 1970s. At that time, there were the following rules elsewhere: a) 1 in 36 passengers (Australia) b) 1 in 44 seats (United States)	Noted.
	Canada's choice of 1 in 40 passengers as its rule was therefore the classic Canadian compromise, giving carriers operational flexibility while maintaining sufficient cabin personnel to perform their emergency duties.	Correct. The original ratio was not based on any empirical evidence, it was developed following lengthy discussions at a May 14, 1968 meeting.
	Then, the U.S. changed in 1972 from 44 to 50 seats in a move that was heavily criticized by the U.S. NTSB.	Noted.

	During his April 6, 1981 testimony before the U.S. House of Representatives Government Activities and Transportation Subcommittee, U.S. NTSB Chair James B. King described the NTSB's Safety Recommendation A-72-131 expressing concern over the reduction in the number of flight attendants through exemption and the proposed rule change contained in FAA NPRM 70-35 (based on a petition from the Air Transport Association of America which sought to increase the maximum seating capacity for which one flight attendant is required from 44 to 50) "because of the potential adverse effect that this may have on passenger evacuation". According to King: "The Board stated that a program for collection of appropriate supporting data was required before the rule change could be supported, and that such a program should also include a study of flight attendant redundancy as a factor in ensuring availability of leadership in emergency situations."	Noted.
	The FAA rejected this NTSB recommendation, stating that it did not regard "such studies as necessary or appropriate for the adoption" of its proposed change to the 1 in 50 seats ratio effective June 15, 1972. While the FAA claimed that it had completed a directed safety investigation of the flight attendant's working environment on typical airline aircraft, it was never passed on to the U.S. NTSB. Nine years later, the NTSB closed this recommendation as "unacceptable action". As King concluded his 1981 testimony: "The Safety Board's accident files are repleté with examples of the importance of the flight attendant role in emergency evacuations but, as the present proposed rule-making [FAA NPRM 81-1 moving to a 1 in 50 passengers rule] indicates, it has had little effect on the FAA."	Noted.
	But what ATAC is proposing for its 1 in 50 rule in Canada is actually below the U.S. level of safety that has already been criticized by the U.S. NTSB. For example, Canada gives relief for an incapacitated flight attendant in the context of its 1 in 40 passengers rule. In the U.S., there is no such relief, as we learned from the previous Working Group. But ATAC seeks to preserve this derogation in its version of the 1 in 50 rule (specifically, CASS 725.104(1) is being retained).	This is incorrect. See ATAC's comments above. This relief will not be allowed under a 1:50 scheme.
	We are not supporters of the Canadian incapacitated flight attendant rule. It is too loose. We would be delighted to see it gone entirely. We are happy that ATAC has seen fit to now re-open that debate so that we can delete this relief entirely, once and for all, for all operators	Noted.
	Nor does ATAC include the FAR 121.391(e) requirement for a minimum crew complement to remain onboard at all station stops with transiting passengers. This is in contrast to the Canadian situation that only requires such a minimum crew complement to be present when there is fuelling with passengers onboard (CASS 725.40(2)(o)).	The Fuelling with Pax on Board standard will have to be revisited before proceeding further if this proposal is accepted.
	Despite its original claim on December 7, 2000 that ATAC was adopting in "all respects, virtually the FAR" rule in its "CARSified" demonstration test (NPA 2000-331), Mr. Fred Jones was compelled to admit that the ATAC proposal was not, in fact, harmonizing with all of the basic principles of the FAR 121.291 demonstration test.	

	Specifically, the ATAC proposal does not include a ditching demonstration as required by FAR 121.291(d) and (e), as outlined below: "(d) Each certificate holder operating or proposing to operate one or more landplanes in extended overwater operations, or otherwise required to have certain equipment under §121.339, must show, by simulated ditching conducted in accordance with paragraph (b) of appendix D to this part, that it has the ability to efficiently carry out its ditching procedures. For a type and model airplane for which the simulated ft 121 certificate holder, the requirements of paragraphs (b)(2), (b)(4), and (b)(5) of Appendix D to this part are complied with if each life raft is removed from stowage, one life raft is launched and inflated (or one slide life raft is inflated) and crewmembers assigned to the inflated life raft display and describe the use of each item of required emergency equipment. The life raft or slide life raft to be inflated will be selected by the Administrator."	ATAC has proposed wording to address this issue. Should be noted however, that the wording itself has not yet been examined or reviewed for appropriateness.
	ATAC also omitted the entire paragraph (b) of Appendix D to FAR 121 as it applies to a ditching demonstration from its NPA 2000-332 as well. This is a substantive omission given that certain operators (Royal, Air Transat) have required life rafts dispersed through their cabins and not at their doors. Unfortunately, ATAC could not explain why this FARs requirement was dropped from its "CARsified" version, other than its desire to deal with this "editorial" change "off-line". Maybe WestJet won't need to pass this aspect of the test for its operations, but the ATAC proposal (as described in their justification) could be used by any operator, including those conducting overseas operations.	See above. ATAC has proposed a correction to this.
	In conclusion, the ATAC proposal is actually less than the U.S. 1 in 50 seats rule. It constitutes "selective harmonization" at its worst.	Noted.
CUPE Part 3. Trojan Horse Nature of an Unenforceable Rule	CUPE is very nervous about the structure of the ATAC rule. We believe Transport Canada should be nervous too. The proposal is creating a "dual stream" of regulations in Canada that will be difficult to enforce in practice. ATAC admitted that this part of its rule was shaky. ATAC's amendment to section 705.104(1) in NPA 2000-331 is based on the premise that an "air operator has elected to continuously operate all aircraft" under subpart 705 as either 1 in 40 passengers OR 1 in 50 seats.	It is agreed that the structure of this proposal has not yet been through any sort of legal process and that if it proceeds will generate a need for very detailed guidance in order to properly administer it.
	Mr. Fred Jones admitted that the term "continuously" was not defined, although it would be limited in practice because of the cumbersome transition process to move the entire fleet (change in Operations Manual, FATs, etc.) from one set of rules to another. It was further emphasized that it was not the intention to allow carriers to adopt one or the other sets of rules on a piecemeal or route segment basis.	Noted.
	But ATAC is clearly underestimating the ingenuity of its industry members and the flexibility of Transport Canada when confronted with an industry operating under this unique "dual stream" of regulations. It underestimates the industry dynamic that will be unleashed by a move to this "dual stream".	Agreed that it will be a difficult regulation to administer if it proceeds.
	If the ATAC proposal is appropriate for transborder operations only OR other international markets only OR domestic routes only, it may be good for one carrier that does only that type of operation exclusively.	Noted.

	In fact, carriers like WestJet (and others like CanJet and the long awaited Air Canada Lite (or "Air Cheap")) will be well-positioned to benefit from the move to a 1 in 50 rule because of a business plan and type of operation premised on one aircraft type (B-737) operating short to medium-haul domestic and transboder routes.	Noted.
	But there are other carriers which operate one or more of these types of operations with different aircraft types within their single AOC, e.g. Air Canada, Royal, C3000, etc. What about them? Why should they not be able to have access to the same advantages of ATAC's "equivalent" safety rule that their competitors are able to use?	Noted.
	CUPE believes that, within a short period time, a single carrier doing some or all these operations will want the option of the "flip-flop" 1 in 40/50 within their carrier for all of their different operations as well. And it will be difficult for Transport Canada to deny these requests for "equal treatment" if it is to maintain a "level" playing field for all operators.	Agreed that it will be a difficult and cumbersome regulation to administer if it proceeds.
	The ultimately corrosive nature of ATAC's "dual stream" approach on the current requirements of the Canadian rule is best demonstrated by WestJet's actions about 45 days after the December 2000 CASO meeting. ATAC attempts to justify its proposal by claiming that some Canadian operators need access to the 1 in 50 rule to be competitive against American and foreign carriers on U.S. transborder and other international routes. This claim was supported by the WestJet PACT pilot representative in attendance on December 7, 2000 who said that WestJet needed this option to operate U.S. transborder flights. But the ATAC proposal does not restrict a 1 in 50 election to foreign markets only. This election could also be made domestically, if so desired. According to WestJet lawyer Bill Clarke on December 7, the ATAC 1 in 50 election option would be used for WestJet's newly acquired B737-700 aircraft beginning in June 2001. (Interestingly, this is only a portion of WestJet's current fleet.) On January 22, 2001, WestJet announced its intention to use its first new B737-700s to operate the domestic Calgary-Toronto route (Clive Beddoe quoted in Financial Post, January 23, 2001), driven by the economics of these new technology aircraft. If the 1 in 50 election is then sought by WestJet to be utilized on a portion of its fleet domestically, how could Transport Canada resist calls from WestJet's direct competitors on the same routes for similar consideration? Alternatively, we face the prospect of "low cost" carriers like WestJet, CanJet and AC's "Air Cheap" all operating B737s using the 1 in 50 election for their segregated fleets, all the while competing with other domestic air operators using the 1 in 40 rule.	Noted. It is also worth noting that Westjet fleet acquisition plans included the assumption that they will be able to operate their newer aircraft with 1:50 rather than 1:40 and are planning on using Boeing to apply pressure. Reference Email January 21, 2000 forwarded from M. Preuss. Also, Westjet's original request was based on a request to fly with 1: 41.6 ratio in order to avoid operating with 5 empty seats as they claimed it was not economically viable to put on another flight attendant. However, the Boeing 737-700 that Westjet has on order has a significantly greater seating capacity (149) than the currently operated Boeing 737-200 model. While the original rationale was that they would only be carrying 5 additional passengers without the extra flight attendant, in fact, on the newer generation aircraft they may be carrying up to an additional 29 passengers without that fourth flight attendant.

	This scenario realizes our worst fears that this ATAC proposal is a very clever "thin edge of the wedge", a "Trojan Horse" to speak, to erode the Canadian rule itself. What is worse, this would occur incrementally over time, despite the present opposition of most of the other air operators, and without any prior or full analysis of the impact of these two ATAC NPAs.	Noted.
	In the meantime, as partial or complete "flip flops" are sought (and granted we fear), it will be difficult if not impossible for Transport Canada to enforce or audit this new state of affairs.	Agreed that it will be difficult to administer this regulation if it goes ahead.
	If Transport Canada now has difficulty handing violations of the current CAR 705.104 (e.g. AC Flight 752, June 21, 2000, YUL to LGA with 91 passengers but only two flight attendants on a DC-9) where an air carrier goes below minimum crew on an aircraft type, a relatively straightforward exercise, how will Transport Canada enforce "flip-flop" rules with different aircraft, routes and passenger loads?	Not sure yet, but there will have to be a system established if this goes forward.
	For all these reasons, CUPE believes that the introduction of the ATAC "dual stream" proposal will be the beginning of a quick slide down to a slippery slope to regulatory chaos.	Agreed.
CUPE Part 4. The Aircraft Certification Test: Myths and Reality	We do not share ATAC's confidence in the demonstration test as an operational rule. We are surprised that ATAC is using it as the cornerstone of their proposal, but if they want to re-open this issue, we are happy to do so. In a word, CUPE is not a fan of the certification test. Its "science" has little to do with reality.	Agreed. The Evacuation Demonstration Test is not an assurance of operational capability.
	Developed originally in 1963, the U.S. aircraft "certification test" requires aircraft manufacturers and air carriers to conduct successfully a simulated evacuation of an aircraft within 90 seconds by a full passenger load based on maximum seating capacity with half the emergency exits blocked. The specific conditions for these demonstrations are detailed in FAR 25.803 and 121.91, the applicable U.S. regulations.	Noted.
	According to aircraft manufacturers, airlines and regulatory authorities alike, these demonstrations "prove" that certified aircraft can be evacuated in under 90 seconds in the event of a real emergency or accident.	Not exactly. It is a standard test intended to compare or measure the performance of one a/c against another. It is a measure of time used to ensure consistency in testing criteria and a basis for consistent analysis.
	The reality of an airplane crash is very different however. Critics say that such tests run by the "Boeing Athletic Club" are ridiculously inadequate and bear no relation to real life emergencies.	Agreed. It is not a guarantee of safety, nor is it a reflection of what happens during accidents.
	The Transportation Safety Board of Canada (TSB) examined the "real world" of Canadian accidents between 1978 and 1992 in its March 1995 A Safety Study of Evacuations of Large, Passenger-Carrying Aircraft. The TSB found that only five of the 21 crashes it reviewed had reported evacuation times of 90 seconds or less. Fourteen of the 21 crashes had evacuations which were reported to have taken more than 90 seconds. (Two evacuation times were unknown.) In a significant number of these 14 crashes, the evacuations occurred in life-threatening situations.	Noted.

	This discrepancy between the ideal, simulated world of demonstration tests and real-life accidents becomes clear when we look at the assumptions behind these tests, including the assumed condition of the airplane after an emergency and human behaviour under the stress of a real emergency.	Noted.
4a) Unrealistic Accident Scenario	The U.S. Federal Aviation Administration admits the demonstration test was never intended to cover all possible accident scenarios. In fact, the demonstration simulates only one type of evacuation: an aborted take-off at night in which the aircraft has stopped with all landing gear intact and touching the ground and there is no smoke or fire involvement. This means that there is no fuselage break-up, engines are stopped, the cabin is intact, emergency lighting is operational, visibility is not reduced, and the cabin floor is level. Cabin debris is simulated by distributing some carry-on baggage, blankets and pillows in the aisles. Such a demonstration represents a narrow, optimistic range of emergency conditions.	Agreed.
	According to a 1985 Boeing study, 78 per cent of 583 known in-service incidents involving evacuations up to that time had all landing gear members extended intact. But 55 per cent of the same evacuations (or 321 of 583) had smoke or fire present. According to the 1995 TSB study cited above, the presence of fire, smoke and toxic fumes created evacuation difficulties in eleven of the 21 crashes studied. In three of these cases, there were 89 deaths and 25 serious injuries. In one case, the location of two passenger bodies indicated they had unwittingly passed an exit because of non-existent visibility at heights higher than one foot above the cabin floor. Visibility was severely restricted or totally obscured in four of these evacuations as a result of cabin fire.	Agreed.
	Mr. D.K. Lynch of the Air Regulations Division of Transport Canada, speaking at a 1985 FAA Public Technical Conference in Seattle, confirmed that the use of simulated smoke in a demonstration "would constitute a major change to the criteria, perhaps making the 90 second time limit invalid".	This statement made by a predecessor of AARXF remains valid today. If simulated smoke were introduced to the certification demonstration the likelihood of injuries to the participants will increase and there is a strong possibility that the 90 second limit would not be able to be achieved.
	The demonstration also randomly blocks off one out of each alternate pair of exits, up to a total of 50 per cent of the exits, to simulate aircraft damage. This is an unrealistic scenario. A 1980s US Air Force study of commercial and military aircraft emergency egress systems found that only 26.8 per cent of doors were usable after a crash in civil air transport due to damage and presence of fire outside the aircraft. The 1995 TSB study found a reduction in the number of available exists in nine of 11 evacuations where fire and smoke was a factor. Not only are more exits blocked or unusable in real crashes, but they are also not lost randomly. In most crashes, all forward exits are lost, forcing a major re-direction of passengers.	Agreed. The certification tests generally block of one side of the aircraft rather than the front or back or randomly in order to ensure that the participants do not have prior knowledge of which exits will be available for the test.
	In addition, Transport Canada allows aircraft to fly with inoperable exits under an exemption, which further limits the number of exits available after a crash on aircraft that do not enjoy such exemptions in the United States.	It should be noted however, that when exercising this option, the MMEL requires that the number of passengers carried be substantially reduced.

4b) Unrealistic Test "Passengers"	While the U.S. FARs call for a specified age/sex passenger distribution to simulate typical passengers to be used in the demonstration (based largely on a 1968 manufacturers' study of passenger behaviour), these test "passengers" are far from average or typical of today's traveling public.	Agreed. The test passengers are not representative of passengers carried today.
	The test "passengers" used in the demonstration are not representative of the heterogeneous body of air travelers on our flights today, particularly as a result of airline deregulation and the growing popularity of air travel. But real passengers can slow evacuations, as the Office of Technology Assessment of the U.S. Congress found in 1993: "Tests conducted using passenger loads with higher percentages of women and elderly persons, or with children and persons with disabilities, would likely generate longer average evacuation times."	Agreed.
	This observation was confirmed in the March 1984 evacuation of a Pacific Western Airlines B-737-200 where the success of the evacuation was attributed, in part, to the fact that almost all passengers were frequent air travelers familiar with the B-737 and that there were no children, elderly or disabled passengers on the flight.	Agreed.
	The wide range of real passengers also puts more safety demands on flight attendants. For the elderly and those with physical or other limitations, as well as infants and unaccompanied children, more flight attendants (not less) are needed to assist them when boarding or leaving the aircraft, during flight and in the vent of emergencies. With age, agility and strength diminish and reflexes slow. Children under 18 are not familiar with aircraft interiors or exit operations. Children under 12 have difficulty assimilating the pre-departure briefing, the safety instruction card and shouted evacuation commands. When infants are carried, additional safety measures must be taken by flight attendants. The carriage of infants requires separate safety briefings for the parents. Should a ditching be required, infants must have separate preparation with life vests. In an evacuation, especially after a crash, parents with infants need extra assistance to evacuate and get clear of the aircraft, including such situations where a parent is injured and unable to carry the infant out of the aircraft. (Such an example is the 1989 Air Ontario crash in Dryden where the surviving flight attendant carried the infant out of the bush to the road because the mother was injured and unable to do so herself.)	Agreed. Transport Canada is already getting complaints about the lack of provision of individual safety briefings from passengers and the lack of time to perform essential safety duties from the flight attendants. The additional demands presented by such passengers also increase the normal workload. Flight Attendants are required on board for a number of reasons. The evacuation of the aircraft in the event of a mishap is one of those reasons, but they have other safety responsibilities as well. These include all the normal safety preparations for take off and for briefing passengers. In addition, air operators have traditionally added other non-safety duties on to the cabin crew.
	Exclusive reliance on the manufacturer's aircraft certification test ignores the emerging realities of the Canadian traveling public. If anything, we should be raising our safety levels to meet these new passenger demands, not lowering them.	Noted. This is being addressed on the international level.

	This is similar to the position of the Ontario Advisory Council on Disability Issues in its July 14, 1995 letter to Mr. LaFlamme, then Director, Air Carrier: "On behalf of the Ontario Advisory Council on Disability Issues, thank you for your letter of June 9, 1995, in which you address Council's concerns with respect to flight attendant requirements. As stated in your letter, a primary concern of Transport Canada is to provide for the safe operation of aircraft and the safety of all aircraft passengers. To ensure such safety for persons with mobility impairments, the issue is physical assistance during evacuation. An additional safety briefing should also be available to any passenger who requires it. Council considers that the most important function of flight attendants is to direct and assist with evacuating airplane passengers in the case of an emergency. Decreasing staff on board certain aircraft increases the risk to people who need to be able to depend on such assistance including the frail elderly and unaccompanied minors. I hope this clarifies Council's position and that this information may be of some use to you in consideration of this matter."	Noted.
4c) Unrealistic Test "Passenger" Behaviour	The demonstration test is conducted under non-life threatening conditions. The primary survival instinct of human beings in an emergency situation is therefore absent. The test "passengers" do not panic or "freeze" as commonly happens in real emergencies.	Agreed, however, there are occasions where passengers will hesitate prior to exiting the aircraft, even in non-life threatening situations such as during certification testing.
	As a result, the test "passengers" generally go out the nearest available exit as opposed to attempting to exit the door that they used when entering, a common problem during real evacuations. These "passengers" also do not get crushed or trampled (rendering them unconscious or dead) in pile-ups in the aisles and at exits as they do in actual evacuations during real emergencies.	Agreed. The purpose of the existing test is to verify if the aircraft has at least the evacuation capability of previous aircraft, not to simulate reality, therefore precautions are taken to avoid participant injury.
	Unlike an accident, the test "passengers" work collaboratively to achieve the common objective of getting everyone out quickly. They queue in an orderly fashion, each waiting their turn to get into the aisle. A fifty passenger line up at each exit forms in less then 3 seconds in some tests. Some test "passengers" in demonstrations are so "goal-oriented" that they evacuate the aircraft before the slide was even deployed!	This is correct.
	The test "passengers" are also company employees who spend up to two hours waiting in the aircraft for the test to begin and have the opportunity to familiarize themselves with the aircraft layout and the nearest exits. Meanwhile, only two-thirds of real passengers recall any safety information from the pre-departure safety announcement and only 29 per cent read or look at the safety information card.	Incorrect. Not all test passengers are company employees and those people who are directly involved in the development of the aircraft are excluded from participating in the test. It is agreed that they do have plenty of time to familiarize themselves with the aircraft.

	Test "passengers" also have the luxury of repeating the evacuation process until it is done right, something not available to persons in real life.	Incorrect in one aspect. If the test fails, a repeat is conducted with different participants.
	The behaviour of these "test" passengers has no relation to the reality of an aircraft emergency. According to the TSB's March 1995 study, "inappropriate passenger behaviour was encountered" in eleven of the 21 evacuations. In nine cases, passengers stopped to retrieve carry-on baggage. Others went over seat backs in an attempt to escape, producing chaos in the aisles. In two cases, passengers became fixated on a particular exit and made no attempt to look for an alternative escape route.	Agreed.
4d) Unrealistic Test "Crew" Behaviour	The test "flight attendants" used in the demonstration receive far more training on exit door operations and evacuation procedures than a normal flight attendant. In the case of the B-757 certification demonstration, the test crew received three days special training on evacuations while the typical U.S. flight attendant spends no more than one day on all aspects of cabin safety and only 15 minutes on hands-on exit door operation.	In the US, the training that is used during the demonstration becomes the yardstick for line training. In Canada, the manufacturer must provide a training program that meets the standard and that is reflective of what would be provided by a Line operation.
	Finally, the demonstration assumes that no flight attendants are injured or killed during the crash so that all the exit have a crew member to operate it and/or direct passengers. In reality, one or more flight attendants are disabled in 30 per cent of serious, but survivable, crashes in the United States.	Agreed.
4e) What Safety Experts have to Say	Captain S.M. Vanstone, Vice-Chairman, Aircraft Designs and Operations Committee, International Federation of Air Line Pilots Association (IFALPA), 1985: "Furthermore, the people involved are not at all representative of a common load of passengers. They know what's expected of them and they are mentally prepared. The elements of surprise, shock, trauma, fright, panic, not to mention alcoholic incapacitation, are not present. Neither are there any broken down overhead bins or displaced seats. Instead, there is an absolute anticipation and preparation in a relatively normal structure. These conditions are obviously going to produce an evacuation proficiency result that is far more idealistic than realistic." (emphasis added)	Noted.
	Wayne Williams, U.S. National Transportation Safety Board, 1985: "When you consider evacuation in a sterile way, as we do actually in most of our evacuation demonstrations anyway, the airplane is frequently, usually not representative of the condition an airplane is in when it comes to rest in an accident, and passengers are then beginning to evacuate. So I think we've got some very basic problems here. We're doing a simulation when we're doing a demonstration. It isn't a very realistic simulation." (emphasis added)	Noted.
	Leroy Keith, Aircraft Certification Division, FAA, Northwest Mountain Region, Seattle, 1985: "But in the history of jet transports we have never had a design change because of a full-scale demonstration. We keep doing them over and over, until the crew performs. And you know, that's what we're saying. (emphasis added)	Noted.

	Office of Technology Assessment, Congress of the United States, 1993: "The emergency evacuation scenario used in full-scale demonstrations does not represent most accident conditions, where impact forces and fire effects frequently impair passengers' abilities to escape the aircraft. Participants in demonstrations know they face no such danger in their efforts to quickly exit the aircraft, so panic is not present." and "FAA acknowledges that demonstrations provide only a benchmark for consistent evaluation of various seating and exit configurations; the requirement to demonstrate complete evacuation within 90 seconds is not an adequate performance standard for measuring evacuation capabilities." (emphasis added)	Noted.
CUPE Part 5 Application to the Canadian Context	Despite the inherent limitations of the demonstration test, the ATAC proposal misses its application to the Canadian context. At the last CASO meeting in June 2000, Mr. Fred Jones of ATAC complained bitterly about how we were simply adopting U.S. rules without study, e.g. TAWS, AEDs. As he stated: "Because of a U.S. Rule, it goes right into NPA, no Working Group. That's a real problem: discussion is only here at the Technical Committee."	Noted.
	Mr. Jones also complained that CARC had removed such discussion from a Working Group that needed to be created to adapt these rules to the Canadian context. As Mr. Bob Palmer added: "we agreed to re-examine [issue], but not blindly adopt the U.S. rule". This same principle applies to the ATAC proposal at hand.	Noted.
	There is an important difference between the U.S. and Canadian contexts that is being overlooked by ATAC. OSHA may only begin now to apply to U.S. flight attendants. But OSH has applied to flight attendant since 1986 in Canada.	Noted.
	We now have changes to Part II of the Canada Labour Code, specifically new duties of employers under Sections 125(1) (Z.05) and (Z.06) which state that employers must: "(Z.05) consult the policy committee or, if there is no policy committee, the work place committee or the health and safety representative to plan the implementation of changes that may affect occupational health and safety, including work processes and procedures; "(Z.06) consult the work place committee or the health and safety representative in the implementation of changes that may affect occupational health and safety, including work processes and procedures;"	Noted. The CLC provides for consultation on the implementation, not the content. In any case, the provision is for consultation with the operator, not Transport Canada.
	There is now a requirement for employers to consult with the OSH committee before implementing changes to work procedures that may affect the occupational safety and health of flight attendants.	Noted.
	In this very different Canadian context, it is not sufficient to simply apply the U.S. certification test, as ATAC does in its proposal for a new CAR 705.104(5)(b) that states: "Where the Minister determines that any change may result in an increased evacuation time..." as a result of an air operator's decision "ii) Changing the number, location or emergency evacuation duties or procedures of flight attendants who are required by 705.104(1)(b)" without the involvement of the affected workers.	Noted.

	Under the new Code, there will have to be worker involvement in this change of procedures.	See Above.
	CUPE believes it is incumbent upon us to do that analysis now, here, centrally, with experts rather than throwing this issue into the regions, where it could be hit and miss and could involve complaints to OSH officers, with varying results in the end.	Agreed that any analysis be conducted centrally, and that we need to avoid causing regional disparity.
	There is an important parallel or point of comparison here: the regional approval of sufficient time for flight attendants to complete any service, secure the cabin and be in their seats for landing. Real problems have developed here because of regional variations in approving these rules.	Noted.
	As a result, Transport Canada cannot rid itself of such an options analysis now if it decides to proceed with the ATAC proposal, e.g. uncovered exits and the impact on evacuation procedures	Agreed that if this proposal proceeds, a detailed analysis will be necessary in regard to unstaffed exits.
	This is what CUPE tried to do in the last Working Group on flight attendant requirements but the airlines ignored this issue saying it was a problem for CUPE and TC to work out. But the impact on evacuations when "uncovering" exits is real and has to be addressed when examining any proposal to reduce the number of flight attendants on board our aircraft.	Noted.
	During certification tests on large aircraft, at maximum seat configuration, there is usually one flight attendant per floor level exit. Once you configure for less than maximum capacity (and therefore have fewer flight attendants to operate the exits), your chances of evacuation become more difficult.	Agreed.
	While the 1 in 40 passengers rule may cause such door assignment problems, moving to 1 in 50 seats will reduce flight attendant numbers further and make door coverage even more difficult.	Agreed.
	This is confirmed in the December 11, 1981 U.S. House of Representatives Committee on Government Operations report entitled "Aircraft Cabin Safety Staffing Standards": "Testifying before the subcommittee on behalf of the NTSB was its Chairman, Mr. James King. Mr. King told members of the subcommittee that the Board's main concern was the lack of any empirical evidence to show that the FAA's proposed methods for allowing a reduced crew complement would be safe. Based upon the Board's previous studies, the Board's position was that a reduction in the number of flight attendants in most cases would constitute a deterioration in the level of safety currently provided." and, under the Committee's findings and conclusions: "1. Rapid evacuation of the airplane is essential in survivable accidents, especially when post-crash fire occurs, since the leading cause of death in such cases is asphyxiation. Thus, an adequate number of flight attendants is necessary to assist passengers to safety. 2. Most passengers are ill-equipped to deal with emergency situations without adequate leadership from flight attendants. 3. The workload of flight attendants is normally heavy and, during emergencies, becomes extremely heavy. A reduction in the number of flight attendants could render this workload impossible.	Noted.

	4. Many aircraft are operated with less than one flight attendant per exit which results in multiple exit duties imposed on each flight attendant during evacuations. A reduction of cabin crew would further complicate this situation and could lead to otherwise preventable deaths and injuries. 5. The proposed amendments to Part 121.391 allowing for a reduction in the number of flight attendants under certain conditions have not been shown to be safe based upon any empirical evidence. 6. No proof of the crew's ability to conduct a 90-second evacuation of an airplane with a reconfiguration of the cabin, a light passenger load, and a reduced cabin crew has been produced, nor is it being required by the FAA. **RECOMMENDATIONS** The FAA should withdraw its proposed amendments to 14 CFR 121.391 regarding cabin crew complement reductions (1 in 50 passengers rule)." (emphasis added)	
	The importance of flight attendants being at exits is also coming under increasing scientific scrutiny. Cranfield University in the United Kingdom has been running evacuation tests under simulated "panic situations" (for instance, the test "passengers" are told that the first 30 people off the plane will get a token payment of five pounds sterling). The tests investigated the differences in evacuations with either one, two or no flight attendants at a single floor level exit and two floor level exits. In addition, the tests looked at the influence of assertive flight attendant behaviour when directing passengers to evacuate.	Noted.
	The studies found that passenger evacuations can be up to 50 per cent faster in an emergency if cabin crew direct the operation and that "the behaviour and number of flight attendants significantly influences the speed at which (test) volunteers are able to evacuate in an emergency".	Agreed.
	Because one more flight attendants are disabled in 40 per cent of serious, but survivable, airplane crashes, using only a minimum crew will mean that some exits will not have flight attendants to direct evacuations when injuries happen. This will delay the evacuation to the detriment of passengers.	Agreed.
	Accordingly, the analysis of exit responsibilities and crew redundancy must be done before the ATAC proposal can be implemented. The analysis should also be based on all aircraft types and/or those who want to do it before the ATAC proposal is adopted.	Agreed.
	In addition, we need to look at the OSH implications of the current 1 in 50 seats rule on small aircraft (and not just keep this exemption as ATAC suggests), specifically CASS 725.104(2).	Noted, however CUPE has not explained specifically which implications they are referring to.
	There is evidence of extra stress and workload that is reflected in higher book off rates and incidents of burnouts in relatively younger people operating alone on these aircraft.	Noted, however this is an issue to be sorted out between the employers and the employees.
	There are also procedures in place that do not allow flight attendants to be in their seat for landing. This had led to an OSH complaint on sufficient time for landing because of this additional workload.	Disagree. The first priority is safety. If Service procedures are such that they are interfering with the flight attendant's ability to be in their assigned station for landing, then the flight attendant has the duty and the right to cease the service whether everyone has been fed and watered or not.

	There must also be training on the hazards of working alone.	Such as? CUPE has not identified what those hazards might be and how they might be germane to the issue at hand.
	For CUPE, there is a need to review whether this 1 in 50 exemption continues to be appropriate for smaller aircraft, rather than "just keeping them", like ATAC hopes.	It is TC's position that the 1 in 50 exception provided for in the current regulatory standard is still appropriate.
CUPE Part 6 Concluding Remarks & Observations	CUPE believes it is incumbent for us to send the ATAC proposal to a Working Group if CARC believes this proposal merits further study	Agreed, however, the primary recommendation of AARXF is that CARC direct that no further consideration be given to this proposal.
	Les Aalders of ATAC raised this possibility at the June 2000 CASO meeting about TAWs. Despite the ruling of CARC, can't we send it to a Working Group, he asked. CASO didn't but we could have and CARC must do so in this case unless CARC decides to drop this ATAC proposal now.	Noted.
	CUPE must also caution Transport Canada in the strongest possible terms that it may be real tempting to take this ATAC proposal, gather dissents, and implement it through a global exemption without any Canada Gazette process.	Noted.
	Alternatively, there may be an equally powerful temptation to grant WestJet a "one-off" exemption based on the certification test for its new B-737-700 aircraft. But this "one-off" exemption will quickly spread, as it did from the Regional Jet to the DASH-8-300 and ATC-42 in a chorus of "me-toos". The logic will be inexorable and Transport Canada will be, once again, unable to resist it.	Noted.
	There is also a sad history here, particularly when it comes to flight attendant requirements, first with the December 17, 1993 "global exemption" which would have repealed the existing 1 in 40 passengers rule and the subsequent small aircraft exemption.	Noted.
	The Senate of Canada has commented disapprovingly on this practice. The Sixth Report of the Standing Senate Committee on Transport and Communications (entitled Report on Air Safety and Security) tabled on June 28, 2000 made the following observations and recommendation on exemptions: "In addition to this method to get around the use of gazetted regulations, the union was concerned about the practice of "regulation by exemption". It is argued that Transport Canada continues to use its "sweeping powers" under section 4.9(2) of the Aeronautics Act to regulate by exemption. It was explained that: *"...Whereas the CARS were originally intended to consolidate and codify all the industry practices in order to create a level safety playing field, Transport Canada continues to use it sweeping powers under section 4.9(2) of the Aeronautics Act to regulate by exemption. Under this section, an exemption may be granted by the minister with mitigating conditions if it is in the public interest and is not likely to affect aviation safety.*	Noted.

	Such exemptions have been used routinely by delegated Transport Canada officials to reduce the number of flight attendants on board aircraft, to allow aircraft to leave with an inoperative door/slide, to remove life preservers for a particular route to an island and to reduce survival equipment on board – often with no meaningful or mitigating conditions." We are concerned that "regulation by exemption" not be used by Transport Canada to circumvent the legitimate safety arguments advanced by participation in the airline industry." (emphasis added) and **"Recommendation 13** We recommend that Transport Canada refrain from using the "regulation by exemption" provisions of the Aeronautics Act in cases which relate in any way to safety." (emphasis added)	
	CUPE suggests that the continuing interest of Senators in this issue, as well as a renewed interest by MPs in the number of flight attendants onboard our aircraft, should weigh heavily in Transport Canada's deliberations on these two NPAs.	Noted.
CUPE Part 7 Recommendations	The ATAC proposal is without merit, for the reasons explained above, and should be rejected by CARC at its next meeting.	Agreed.
	If CARC does proceed with the ATAC proposal, it must first be referred to a properly constituted CASO Working Group to undertake the necessary analysis, particularly in light of our points 4 and 5 above.	Agreed.
	Transport Canada must refrain from issuing any global, partial, air operator-specific or aircraft-specific exemptions on this matter while the ATAC proposal is under study by a Working Group or if the ATAC proposal is rejected by CARC in its entirety (as some sort of an "in lieu of" measure).	Agreed.
Attachment C shows in real terms the impact of the various regulatory schemes.		

Dann[redacted]Christopher

From: Preuss, Merlin
Sent: Tuesday, March 27, 2001 4:14 PM
To: Wokes, Frances
Subject: Fw: CARC Decision Record: Flight Attendant Requirements
Attachments: CARC-March26-01

Your comments please.

M. Preuss
Director
Commercial & Business Aviation
613-990-1121
From Blackberry

-----Original Message-----
From: Girard, Nicole <GIRARDN@tc.gc.ca>
To: Preuss, Merlin <PREUSSM@tc.gc.ca>
CC: Richard, Donna <RICHADK@tc.gc.ca>
Sent: Tue Mar 27 11:08:54 2001
Subject: CARC Decision Record: Flight Attendant Requirements

Please find attached a draft decision for the above-noted issue, for your review and approval. Elaine St-Louis has requested a copy and I would like you to review it before I forward it to her. Please don`t hesitate to make any changes.

Your assistance is appreciated
Nicole

Civil Aviation Regulatory Committee (CARC)

March 26, 2001

Decision Record

In Attendance:

Chair:	Art LaFlamme	AAR
Members:	Franz Reinhardt	AARB
	Ken Mansfield	AARD
	John Maxwell	AARM
	Doug Mein	AARN
	Dick Laird	A/AARP
	Jim McMenemy	A/AARQ
	Manzur Huq	AARR
	Merlin Preuss	AARX
	Dave Nowzek	TA
Observers:	Donna Richard	AARXC
	Valerie Dufour	ACE
	Elizabeth MacNab	AJ
	Elaine St-Louis	
CARAC Secretariat	Nicole Girard	A/AARBH
Regrets:	Don Sherritt	AARP
	Judy Rutherford	AARQ

01/03/26-10.2 Flight Attendant Requirements: NPA 2000-331 and 2000-332

M. Preuss explained that the NPAs were sponsored by ATAC and supported by Westjet in order to propose a change to the flight attendant requirements currently at 1 flight attendant for every 40 passengers. In comparison, the FARs require one flight attendant requirement for every 50 passenger seats while the Australian rule requires that there be one flight attendant for every 36 passengers. The main difference in the various jurisdictions is that the Canadian and Australian requirements are based on the number of passengers actually on board whereas the U.S. requirements are based upon the number of seats installed in the aircraft, whether occupied or not. The proposal would permit an air operator to choose to operate to either the Canadian or the U.S. regulation. These NPAs were tabled at the December 2000 CASO Technical Committee meeting and were strongly opposed by unions, passenger safety and consumer groups. As well, M. Preuss indicated that previous requests submitted by Westjet for the issuance of an exemption had been denied.

A thorough discussion ensued on the matter and consideration was given to the impact on safety if the rule were changed as well as harmonization impact.

Decision: After careful consideration of the comments provided by ATAC and of the opposing views as presented by ACAT, ALPA, ACPA, APSG and CUPE, the CARC determined that the dissent would be declined. It was determined that the arguments presented in favour of a regulatory change did not demonstrate an equivalent level of safety. Furthermore, if the rule were to be reviewed, it would be done with a view to have a complete harmonization of the rule.

Dann[redacted] Christopher

From: Preuss, Merlin
Sent: Wednesday, March 28, 2001 8:24 AM
To: Wokes, Frances
Subject: RE: CARC Decision Record: Flight Attendant Requirements

The decision and process was accurately recorded. It is clear to me that it failed the safety test and that is what Nicole has said, and that the only reason for reopening the issue now is to harmonize with the FARs. I fully support your analysis below and if the subject comes up again, then we will take this approach.

-----Original Message-----
From: Wokes, Frances
Sent: Tuesday, March 27, 2001 16:40
To: Preuss, Merlin
Subject: RE: CARC Decision Record: Flight Attendant Requirements

Given my understanding that CUPE has a meeting with the ADM on Thursday regarding this issue, I think that the decision should be worded a bit stronger regarding some of the safety aspects. I understand the MAJOR risk here is the lowering of public confidence and harm to the Minister, but there is also safety risk and that should be addressed. Using the term "equivalent level of safety" doesn't quite cut it for me.

I realize I was not in the room for the discussion, however, I think a few essential elements were missed. I keep hearing that this is not a safety decision, but I disagree and the fact is that if the ratio was changed to the US rule, there ARE definate safety implications and it WOULD BE a lowering of safety standards and that change becomes more and more evident as the aircraft size increases.

My review of the situation tells me that the Canadian rule is to a higher safety standard than the US rule. I used to say that I didn't care which one we had as long as it was consistent. I also used to say that from an administrative point of view, I'd just as soon have the 1-50 seats rule. I don't say that anymore because I have been persuaded by the facts and the safety studies and the research and some of the arguments put forward by others that we do have the higher safety standard and we should stay there.

The way this decision is worded leaves the door open to simply adopting the US rule provided we don't flip flop. It would be preferable to have stronger language turning it down as this is a bit "weasly" and still leaves the door open. This is just going to keep coming back and coming back to us with this wording.

Speaking as your safety expert in this field, I not only do not support complete harmonization of the rule, I am opposed to it.
Frances
and PS - we still have a very large gaping hole in our current regulations that needs to get fixed and that is not having full door coverage. We allow the minimum crew on a/c with less than a full load to have one f/a be responsible for two exits. While it is sort of doable (but still increases the evacuation time) on a narrow body, it is not appropriate or feasible on a wide body a/c or any aircraft with a twin aisle.

-----Original Message-----
From: Preuss, Merlin
Sent: Tuesday, March 27, 2001 3:14 PM
To: Wokes, Frances

Subject: Fw: CARC Decision Record: Flight Attendant Requirements

Your comments please.

M. Preuss
Director
Commercial & Business Aviation
613-990-1121
From Blackberry

-----Original Message-----
From: Girard, Nicole <GIRARDN@tc.gc.ca>
To: Preuss, Merlin <PREUSSM@tc.gc.ca>
CC: Richard, Donna <RICHADK@tc.gc.ca>
Sent: Tue Mar 27 11:08:54 2001
Subject: CARC Decision Record: Flight Attendant Requirements

Please find attached a draft decision for the above-noted issue, for your review and approval. Elaine St-Louis has requested a copy and I would like you to review it before I forward it to her. Please don't hesitate to make any changes.

Your assistance is appreciated
Nicole

Dann, Christopher

From: Wokes, Frances
Sent: Wednesday, April 18, 2001 12:48 PM
To: Dann, Christopher
Subject: FW: NPA 2000-331 & 2000-332 – Flight Attendant Requirements

-----Original Message-----
From: Preuss, Merlin
Sent: Wednesday, April 18, 2001 12:35 PM
To: LaFlamme, Art
Cc: Wokes, Frances
Subject: FW: NPA 2000-331 & 2000-332 – Flight Attendant Requirements

Fran has made some good points in "blue" and I have added one preceded by my initials (mrp) for your consideration.

-----Original Message-----
From: Wokes, Frances
Sent: Wednesday, April 18, 2001 09:19
To: Preuss, Merlin
Subject: FW: NPA 2000-331 & 2000-332 - Flight Attendant Requirements

You're doing interviews right now, and then I'll be in doing interviews, so I don't think we'll get a chance to talk today, so I've made some comments using the revisions tool. Feel free to accept or reject as necessary.

-----Original Message-----
From: Preuss, Merlin
Sent: Wednesday, April 18, 2001 8:22 AM
To: Wokes, Frances
Subject: FW: NPA 2000-331 & 2000-332 - Flight Attendant Requirements

For your review and then we can discuss if there are any issues.

-----Original Message-----
From: LaFlamme, Art
Sent: Tuesday, April 17, 2001 12:15
To: Preuss, Merlin; Huq, Manzur; Rutherford, Judith; Sherritt, Donald; Mein, Doug; Maxwell, John; Mansfield, Ken; Reinhardt, Franz
Cc: Elliott, William; Girard, Nicole
Subject: NPA 2000-331 & 2000-332 - Flight Attendant Requirements

NPA FA Requirements.doc

I have drafted the attached for the CARC decision record on the subject issue. Please review and comment on whether it is an accurate and appropriate summation of the CARC discussion and decision. I need any input you might have by end of day tomorrow.

NPA 2000-331 & 2000-332 – Flight Attendant Requirements

Issue:
The number of flight attendants that should be on board a passenger carrying aircraft for safety reasons.

Background/History:

The *Canadian Aviation Regulations* (CARs) (and the Air Navigation Order Series VII, No. 2 before the CARs) require that there be one flight attendant for every 40 passengers (1:40 pax) or portion thereof on board an aircraft. There are additional requirements that in effect dictate a minimum level (i.e. a "can't go below line") based on the aircraft type/configuration and the number of exits and any special considerations arising from the certification evacuation test. There is also a special provision for certain eligible aircraft (aircraft type approved to FAR 25 at Amendment 51; this includes the CL-65, ATR 42 and the DASH 8-300) configured with only 50 seats to operate with a reduced number of flight attendants. This latter provision had been allowed by exemption prior to the promulgation of the CARs. The issue of the number of flight attendants required on board was the subject of a CARAC Working Group during the development of the CARs. Consensus was not achieved at the Working Group. ATAC's position was to have the ratio for flight attendant requirements established at 1 for every 50 passengers (1:50 pax). This is not entirely accurate. It was AQTA that raised this rather than ATAC, that is why I used the term "industry" in the report rather than specifying which organization. CUPE objected to the special provision for 50 seat aircraft. CARC accepted the recommendations of the Working Group Leader for the status quo (ANO plus exemption) in 1996 and the current CARs are the end result.

The US FARs require that there be one flight attendant for every 50 passenger seats (1:50 seats) or portion thereof installed in the aircraft and there are additional requirements if there were any special considerations arising from the certification evacuation test.

The Australian CAOs require that there be one flight attendant for every 36 passengers (1:36 pax) or portion thereof on board and for aircraft with more than 216 seats or that have twin aisles, the minimum cannot be less than the number of floor level exits. There may also be special considerations arising from the certification evacuation test. Australia has recently completed a review of their requirements and has decided to stay with the current ratio.

The main difference in the various jurisdictions is that the Canadian and Australian requirements are based on the number of passengers actually on board whereas the US requirements are based upon the number of seats installed in the aircraft, whether occupied or not.

Westjet Airlines operates the Boeing 737-200 aircraft with 125 passenger seats. Under the existing CARs, Westjet can operate this aircraft with 3 flight attendants as long as the passenger load stays at or below 120. Once the 121st passenger is boarded, a fourth flight attendant is required.

Westjet has previously informally (at least three times) and formally (twice) requested an exemption from the CARs to operate with only 3 flight attendants with up to 125 passengers. Given that a Working Group had only recently thoroughly examined the issue and that Westjet was bringing forth no new arguments or data to support their request, the requests were denied on all occasions as a result of failing to ensure an equivalent level of safety. The last denial was reiterated to Westjet in correspondence from the Deputy Minister, Mrs. Bloodworth.

In December 1999, Mr. Bill Clark representing Westjet raised a proposal at the CARAC Commercial Air Services Operations (CASO) Technical Committee to change the CARs in favour of allowing an air operator to either adopt the US regulation or maintain the current Canadian regulation according to their choice. The proposal was expressed as a general concept rather than with specific text or wording.

Pursuing a regulatory change in this area would require significant effort on the part of scarce Transport Canada resources; therefore it was considered prudent to seek a decision from CARC on whether to proceed with this considering the difficulty (I used the word "impossibility" in the original because there's no way you will get consensus on this one. Using "difficulty" implies that through hard work and effort you have a faint possibility that someone could succeed, but in this case it is highly unlikely. Suggest the word

[redacted] "unlikelihood". in achieving CASO consensus on a change and the fact that higher priority tasks would need to be put aside if effort was to be expended in this area.

CASO recommended that an issue paper be prepared for CARC with aim of obtaining a decision to initiate the regulatory change process and if so, to assign a suitable priority to this project.

An issue paper was developed, however, in the interim, ATAC undertook to develop a Notice of Proposed Amendment (NPA) in lieu of the Issue Paper in order to expedite a more detailed examination of the proposal.

The NPA would permit an air operator to choose to operate to either the Canadian or the US regulation. This proposed amendment (NPAs 2000-331 & 2000-332) was tabled at the December, 2000 CASO where it was strongly opposed by unions, passenger safety & consumer groups.

Given the opposition to the proposal, it was decided that prior to any further discussion at CASO on the technical merits of the proposal, a decision would be made by CARC whether or not to proceed any further on this issue. The stakeholders were requested to provide TC with their positions and rationale with supporting justification.

Nature of comments:

There were six organizations that have provided comments in response to the proposal.

- ATAC (Air Transport Association of Canada) is an association that represents air operators.
- ACAT is the Minister's (of Transport) Advisory Committee on Accessible Transportation and includes numerous groups that represent passengers with disabilities as well as seniors.
- ALPA (Air Line Pilots Association) is an association that represents many of the pilots in North America.
- ACPA (Air Canada Pilots Association) is an association that represents the Air Canada Pilots.
- APSG (Air Passenger Safety Group) is an association that represents airline passengers.
- CUPE (Canadian union of Public Employees) is an association that represents the majority of flight attendants in Canada.

ATAC who developed and proposed this amendment supports it. ACAT is provisionally opposed to it while ALPA, ACPA, ASPG and CUPE are opposed to it. A summary of the comments is attached.

CARC Decision:

M. Preuss explained that the NPAs were sponsored by ATAC and supported by Westjet in order to propose a change to the flight attendant requirements currently at 1 flight attendant for every 40 passengers or a portion thereof based on number of passenger on board. The proposal would permit an air operator to choose to operate to either the Canadian or the US regulation.

The NPAs in question were tabled at the December 2000 CASO Technical Committee meeting and were strongly opposed by unions, passenger safety and consumer groups. CASO decided to refer the matter to CARC.

Discussed, in comparison, were the FARs that require one flight attendant for every 50 passenger seats or a portion thereof based on the number of seats installed. This rule is the norm in most of the world. In contrast, the Australian rule requires that there be one flight attendant for every 36 passengers.

The proposal does not demonstrate an equivalent level of safety. The ATAC proposal is less than the full US FAR requirement in that the US provisions for minimum crew at station stops with transiting passengers and the ditching demonstration requirement have not been included. In addition, the proposal has added an incapacitated flight attendant provision borrowed from the Canadian rule. It is CARC's understanding that ATAC is willing to accept the US rule in total. Not exactly, not if it is the only option. Most of their carriers want the Canadian rule because of the greater flexibility. (mrp) Also, ATAC wants a

[redacted]vised 1:50 rule not the original. Nevertheless, in almost all cases, the Canadian rule provides for a better flight attendant to passenger ratio than that of the US

One of the principles in the development of the CARs was to harmonize wherever possible with the US requirements where there was an equal or higher level of safety. It is incumbent upon ATAC to demonstrate that there is no statistically significant difference between the two and, in essence, there exists an equivalent level of safety. Do you want to include the fact that ATAC has so far not provided any data, just assertions?

In summary, after careful consideration of the comments provided by ATAC and of the opposing views as presented by ACAT, ALPA, ACPA, APSG and CUPE, the CARC determined that the proposed amendments should not proceed. It was determined that the arguments presented in favour of a regulatory change did not demonstrate an equivalent level of safety to the existing rule.

Attachment A

SUMMARY OF COMMENTS

ATAC: Comments are focused on countering some of the preliminary objections raised by CUPE at the December 2000 CASO meeting which will be referred to in the analysis section; reiterates their contention the proposal does not erode safety levels; states that the proposal has the potential to increase competitiveness of Canadian operators; requests CARC to accept the concept and proceed directly to Gazette I and allow an exemption in the interim without sending it back to be discussed at CASO; and refers to the cost of air travel to the public being kept low as being identified as a departmental priority.

ACAT: Expresses concern that the amendment could be detrimental to the number of non-ambulatory passengers carried on a flight; requests TC focus on the impact of establishing F/As per seat vis a vis the evacuation procedures & whether any change could lead to a restriction of the number of passengers with disabilities, particularly non-ambulatory that could be carried as a result.

ALPA: Considers proposal is driven by economics and that while the NPA purports to be safety neutral, it would in fact lower safety levels; outlines a number of factors influencing the success of evacuations and emphasized that success is not solely based on the number of flight attendants on board; provided data that in actual evacuations between 1980 to now, the de-facto ratio was 1:25 - therefore the ratio used in US is not really proven; claims that the proposal would do nothing to enhance safety and could lower safety levels; states their position is that there should be at least one F/A at each primary exit.

ACPA: Provided documentation December 21, 1999 when the issue was first raised that opposed the lowering of the ratio from 1:40 and also wishes to ensure that there is at least one flight attendant at each primary exit.

APSG: Confirmed by telecon that the APSG are opposed to such a change and pointed out that there are inconsistencies in ATAC's argument as they have previously argued that AFF is not required citing the F/As on board handling the problem and yet also arguing that fewer F/As are required in total.

CUPE: CUPE's 20 pages of extensive comments are in seven parts which are encapsulated here. The first part provides general criticisms of the NPAs in relation to skimpy justification, lack of explanation within the NPAs and resulting missing key elements, lack of impact of the proposal including what operators and aircraft will be affected, lack of analysis of the impact, i.e., no identification of specific costs savings or examples where routes where service had to be discontinued due to lack of competitiveness, and that the NPAs do not address outstanding issues from previous WG as promised to CUPE by previous DGCA.

The second part moves on to a discussion on selective harmonization and asserts that the premise that the proposal provides an equivalent level of safety is false, disagrees that the two rules (US & Cdn) are equally safe, asserts that there will be a derogation of safety at full loads when switching from Cdn to US rules particularly in terms of door coverage, quotes the US NTSB and the US House of Representatives 1981 hearings that the US 1:50 rule was already too lenient and unrealistic, identifies the history of the initial development of the Cdn rule in the early 70s as a classic Canadian compromise between the 1:36 Australian Ratio and the then 1:44 US ratio, identifies the criticism of the US NTSB when the US rule moved from 44 to 50 seats, quotes the NTSB Chair expressing concern over the reduction of the number of F/As because of the potential adverse effect on passenger evacuation and identifying F/A redundancy as a factor in ensuring available leadership in evacuations, asserts that the ATAC proposal is below current US levels due to preservation of the incapacitated flight attendant provisions within the proposal, is opposed to the incapacitated flight attendant provisions and want it deleted, states that the US minimum crew at station stops with transiting passengers has not been included, does not include the ditching

[redacted]monstration required by the US rule, and states that the proposal constitutes selective harmonization at its worst.

The third part discusses the enforceability or lack thereof of this rule. States that CUPE is nervous about the structure of the proposed rule and that TC should also be as the proposal is creating a dual stream that will be difficult to enforce in practice, asserts that ATAC admitted this was shaky, outlines that the proposal is based on continuously operating all aircraft under one rule or the other but that the term continuously was not defined and outlines some of the potential ways of causing incremental degradation of the staffing levels, and identifies some of the difficulties in implementing, enforcing and auditing an operator who may flip flop between the two rules on different aspects of their operation or with different aircraft, routes and passenger loads, identifies some of the regulatory chaos that will ensue.

The fourth part relates to the inadequacy of the aircraft certification test and it's relation to reality, quotes the TSB's March 1995 Safety Study of Large, Passenger Carrying Aircraft which demonstrates the discrepancy between the simulated tests and real accidents, explains many ways in which the scenario it represents is unrealistic and not representative of any real emergency, explains many ways the test passengers are unrealistic and not at all representative of today's travelling public which will slow an evacuation, identifies the wide range of today's travelling public that puts greater safety demands on the flight attendants, quotes the Ontario Advisory Council on Disability Issues in a letter to A. LaFlamme who was Director, Air Carrier, at the time in which they state that decreasing staff increases the risk to passengers who depend on assistance including the frail, elderly and unaccompanied minors, explains many ways the test passengers behaviour is unlike that which real passengers display in actual situations, identifies the differences between the level of training provided to the test crew versus normal flight attendant training, points out that the demonstration does not take into account the potential for crew incapacitation which occurs in 30% of actual survivable crashes in the US, and quotes a number of safety experts who support the premise that the current certification demonstration is far more idealistic than realistic.

The fifth part relates to the Canadian context. CUPE refers to complaints at CASO by ATAC and others regarding opposition to adopting US rules without study and asserts that the same principle applies to this proposal, identifies a difference between US and Canada in relation to OSH issues and rights of employees, outlines the requirement for employers to consult with employees in the implementation of changes that affect OSH, including work processes and procedures and points out that it is incumbent upon TC to ensure that the impact of any such changes be analysed centrally with experts rather than allowing regional variation in approving procedures which would cause complaint to OSH officers with varying end results, points out that the current 1:40 rule is already inadequate in ensuring that there is at least one F/A per floor level exit which is the norm during the evacuation test and that by moving to 1:50 would further exacerbate this problem, quotes a US House of Representatives Committee on Government Operations entitled "Aircraft Cabin Safety Staffing Standards" where the NTSB's main concern was the lack of any empirical evidence to show that proposed methods of reducing crew complement would be safe and provided findings that highlighted the safety role and need for an adequate number of flight attendants and that reductions in the number of flight attendants could lead to preventable deaths and injuries and recommended that proposed reductions to the staffing levels be withdrawn, points out some of the scientific studies on the importance of the role of the flight attendant and how the influence of the flight attendant can affect evacuation times, identifies a need to conduct a detailed analysis of exit responsibilities and crew redundancy on all aircraft types and affected operators before the proposal can be adopted, asserts that the implications of the current exemption for 1:50 needs to be examined in relation to extra stress and additional workload as well as identifying a need for an examination of current procedures to ensure sufficient time for completion, identifies a need for specific training on the hazards of working solo.

In Part Six, entitled Remarks and Observations, CUPE identifies a need for further study by a working group if CARC deems the proposal merits further study, cautions TC against implementing the proposal through either a global exemption or a stand-alone exemption to Westjet, points out the disapproval of the Senate Standing Committee on Transport and Communications contained in their June 28, 2000 Report on Air Safety and Security of regulation by exemption and the Committee's recommendation that TC refrain from using the regulation by exemption provisions of the Aeronautics Act in cases which relate in

[redacted]y way to safety, and suggests that the continuing interest of Senators as well as renewed interest by MPs in this issue should weigh heavily in TC's deliberations on these NPAs.

CUPE concludes their remarks by stating that the ATAC proposal is without merit and recommending CARC reject it, further recommends that if CARC does not reject it outright that the issue be referred to a WG to undertake the proper analysis, and that TC refrain from issuing any exemptions on this matter while the proposal is under study or if the proposal is rejected by CARC.