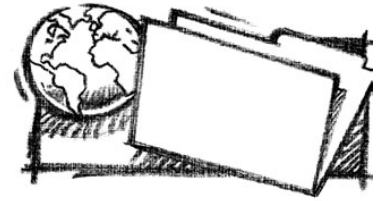


STUDIES IN DEFENCE & FOREIGN POLICY



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Canadian Civil Aviation Security: Improving Command and Control

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❧ *Executive Summary* ❧

There is an urgent need to redefine and reorganize the way that aviation security operations are conducted in Canada. This need has been clearly stated by the recent report of the Senate Committee for National Security and Defence. It states that:

the Committee is concerned that authority over air travel is wide and vague. Jurisdictions and mandates among various government agencies, police forces and airport authorities present a more tangled web than what is needed to focus on creating not just an efficient and prosperous industry, but also a safe industry. (Senate Committee Report, 2003)

The execution of effective aviation security operations is difficult. It calls for the coordination of far-flung activities, both on the ground and in the air, conducted by a variety of personnel and agencies. The command-and-control system required to meet such a challenge needs to have access to credible sources of intelligence gathering while also being capable of directing the activities of individuals at the operational level. In short, it needs to be capable of “centralized control and decentralized execution.” Such command-and-control models exist in the military environment and should be considered for implementation within the Canadian civil aviation security matrix as well.

❧ *Context* ❧

This report aims to propose a command-and-control model suitable for the effective execution of security-related tasks within the Canadian civil aviation environment. The context for this problem—and nearly all others connected to civil aviation security—is provided by the unprecedented events of September 11, 2001. Those events represent a qualitative escalation of Middle-Eastern terrorist activities that have been active within the civil aviation sector for several decades. These activities are generally agreed to have had their starting point shortly after the end of the 1967 Six Day War. Some suggest that the date can be positively fixed to the

hijacking of an El Al flight on July 22, 1968 (Hoffman, 1998, p. 67). This particular terrorist operation aimed to secure the release of Israeli-held, Palestinian prisoners in return for the safe release of El Al passengers. Israel’s long-term response to this incursion was an in-depth reorganization of its civil aviation security network. Other nations, including Canada and the US, watched with interest.

El Al’s massive aviation security reorganization was based on a centrally-controlled, layered approach that extended throughout the flight process—from

ticket purchase to disembarkation. On the ground, El Al instituted such measures as

- 100% check of all checked and carry-on baggage;
- positive matching of checked bags to on-board passengers;
- selective face-to-face passenger interrogation by highly trained security personnel;
- round-the-clock guarding and access control to parked aircraft; and
- extensive background checks on all personnel having access to aviation network resources.

In the air, El Al followed through by positioning armed air marshals on all flights and arming the flight crew with lethal weapons. The latter measure secured a “last ditch” defensive capability and was withdrawn only after the cockpit was secured with a “double door” security configuration. This double door system is designed to create a “man trap” safe zone between the cockpit and the cabin that also permits secured access between the two for authorized personnel: there is always one door or barrier in place at any given time as personnel move between the cockpit and cabin. It is worth noting that the Canadian Senate committee report (2003) also called for the introduction of double doors, the better to secure Canadian airline cockpits. The ground and airborne measures outlined here were supplemented by additional measures, such as evasive take-off routines by El Al, and other still confidential procedures.

The terrorist threat to international aviation operations continued from 1968 onwards, but seemed to restrict itself to theaters of operation characterized by weak defences. Attacks on El Al, for example, subsided, while attacks on other airlines increased. In the 1970s, these “events of duration” (Cooper, 2002, p. 13) were countered by the formation of dedicated counter-terrorist and special forces troops

to deal with the hijacker threat. In the 1980s the terrorist threat, ever adaptable, responded by initiating “conclusive events” (Cooper, 2002, p. 13) that short-circuited police intervention and drew attention to political objectives. Such was the case with Air India Flight 182 when it was blown up off the coast of Ireland in 1985.

Subsequent to the Air India 182 crash, several recommendations proceeded from the resulting joint Indian-Canadian investigation. One of the most important called for the complete reconciliation of all checked baggage to all on-board passengers before flight—as El Al had, at that point, been doing for years. This recommendation, however, was never fully implemented for international flights across the industry until the similar loss by explosion of Pan Am Flight 103 over Lockerbie, Scotland, in 1988. In addition, the reconciliation of passengers to bags for domestic flights was not implemented, in the North American context, until after the events of 9/11. This latter delay was a by-product of the cost and “operational penalties” associated with the reconciliation of domestic baggage, which is to say that reconciliation takes time (Barnett, 2002). Here we begin to see some interesting differences in the approach to aviation security by various industry entities. On one end of the spectrum is El Al who, by the time of the Air India 182 incident, had implemented a layered, defence-in-depth security system that put integrated measures in place throughout its operational environment. On the other is the North American civil aviation industry, which, subsequent to the same event, seemed to implement security measures in a reactive, after-the-fact fashion. The reasons for these variations in approach can be related to the balance struck between the perceived need for change and the cost or effort involved in making change happen.

In the El Al instance, the perceived need to change was overwhelming. The nation it served was surrounded by threats and terrorist activities were not

just possible, they were probable. This was particularly the case in 1968 as aviation-related terrorist activities seemed to accelerate and gain international stature in the post-Six Day War environment. The need for change was facilitated by El Al's ability to make it happen. The state of Israel had been at war or under siege since its inception in 1948, and clearly had become accustomed to the precarious nature of its existence. It had also become adept at implementing defensive security measures and El Al, as a state-run enterprise, had full access to the resources and expertise that had developed as a result. Security methodologies and, more importantly, the state system responsible for national security, were part and parcel of the El Al package. This command-and-control system was key to El Al security successes as it permitted the formulation and execution of centralized, intelligence-based plans. In El Al's case, the need for change was complemented by a system that facilitated rather than stymied the required changes.

Around the time of the 1985 Air India disaster, the perceived need and ability to change aviation security in North America was very different. Events of the Air India nature were few and far between, grounded in foreign conflicts and grievances and not perceived to threaten national security—as was the case in Israel. In addition, and perhaps as a result, the system responsible for aviation security reacted to such occurrences with lists of specific measures rather than a review of the overall system that commanded and controlled the body of these measures. In other words, the Air India disaster of 1985 did not result in substantive changes to the North American civil aviation security network. Rather, in Canada's case, major changes would come in the early and mid 1990s with the devolution of related authority from centralized federal oversight to airline and airport authorities.

This devolution followed a similar American initiative and was necessitated by the need to gain effi-

ciencies through deregulation rather than a requirement to mitigate security concerns. Airlines assumed responsibility for screening personnel and their effects while airports were charged with securing their own facilities. These functions now became a part of the bottom line for each organization. Airlines sought to mitigate costs through the use of contracted security organizations. The new Canadian Local Airport Authorities (LAAs) made similar arrangements with local police forces to secure facilities now leased to them by their former owners, the federal government. Thus was responsibility for aviation security split between two related but separate agencies, each with an eye on the bottom line. The end result was a less than seamless environment prone to the development of persistent gaps. For example, the reconciliation of domestic baggage was one such gap that eluded rectification in the deregulated North American environment. The perceived cost and extra time associated with this initiative were a tough sell in a competitive, market-oriented industry.

The events of 9/11 forced a reconfiguration of the North American aviation security environment to address this and many other gaps. The great lesson of 9/11 is that we now know that terrorist threats are both highly co-ordinated and operate worldwide. In addition, terrorists have explicitly proclaimed their targets to be Israel, the United States, and other countries allied with them. Canada has declared itself an ally in the war against terrorism and, in turn, has been officially declared an enemy by Osama bin Laden, head of the al-Qaeda terrorist network (Burgess, 2002). Thus Canada, Canadian citizens, institutions, and economic infrastructure must all be assumed to be targets of interest to well co-ordinated and suicidal terrorist organizations. Given the importance of the aviation transportation sector to the well being of Canadian economic interests, it is reasonable to assume that Canadian civil aviation assets have become targets. The threat

that made it so easy for El Al to contemplate change has arrived on this side of the Atlantic.

In Canada, the formation of the Canadian Air Transport Security Authority (CATSA) became the centerpiece of a reconfigured aviation security system. This development, however, did not seek to address the command-and-control issues that preceded it. The overall system remains fractured and continues to confound attempts to pinpoint where “the buck stops.” This situation is further complicated by a legislated mandate that focuses overwhelmingly on airport security operations while giving airborne concerns short shrift. As the Senate

Committee for National Security and Defence observed:

A maze-like matrix of departments, agencies and corporations hold responsibilities for security at Canadian airports, and there is a fuzzy Alphonse-and-Gaston relationship between the public and private sector as to who will be responsible if security all goes haywire.

With overlapping and ambiguous responsibilities, it is obvious that command-and-control arrangements within the Canadian civil aviation security sector need to be revisited.

❧ *Existing Security* ❧

Civil aviation security systems today are characterized by extended operations divided between airport and airborne environments. A wide variety of authorities, including federal government regulators, airport authorities, airlines, police agencies, screening contractors, and aircrew preside over these operations. Such a complex matrix of intersecting responsibilities and authorities can be found at airports across Canada and around the world. It is further complicated by variations in international standards and laws. Even at the best of times, civil aviation security exists in a work environment filled with potential command-and-control conflicts.

Security Requirements

Given the assumed terrorist threat to Canada, Canadian citizens, institutions, and economic capabilities, the existing security systems in the Canadian civil aviation industry must present a seamless, coordi-

nated, and effective defence. An effective security organization needs to be able to counter this threat at any point in the operational matrix. This is an onerous task because of the large number of agencies involved and the boundaries that separate them—boundaries that are particularly sensitive to exploitation. An effective security system needs to be able to:

- make plans that address the relevant threats. A relevant threat is one that has both the capabilities and intentions of inflicting damage within the aviation environment;
- identify the threat before it is able to inflict damage;
- alert the operational system and organize security forces to react to this threat;
- direct security forces to engage and defeat the threat; and

- continuously monitor, test and improve security system capabilities to defeat an adaptable and evolving threat.

The making of plans to address the relevant threats presupposes an ability to gather related information and make informed recommendations on how the threats can be defeated. The formulation of these plans, due to the expansive nature of the environment, will require expert input from a variety of disciplines and dedicated access to high and relevant intelligence sources. This will require a number of experts from a variety of selected fields to form a planning cell. Planning activities need to be guided by clear and unambiguous policy and directives. These need to be the purview of a sole authority in the form of one person assigned full responsibility for the aviation security system. The system needs a place for the “buck” to stop, which would be the desk of this centralized commander.

In order to identify an imminent threat, those in the operational environment need access to information from sensitive and even secret sources. This information is generally controlled by federal security agencies. Because its impact is nation-wide and might even extend beyond national boundaries, it cannot be made available to operational levels before being vetted. Rather, the aviation security system commander’s planning cell needs to have access to it on his or her behalf. The commander would then be in a position to assess recommendations and pass information to alert or direct the activities of the operational security system.

Notwithstanding the need for a centralized planning cell and commander to make plans and direct activities, on-site authorities need to be available throughout the system to ensure security operations are executed in accordance with the commander’s intent. These on-site agents require direct access to the commander and will have their authority and responsibility delegated to them by this same authority.

In order to monitor, test, and improve the security system, it will be necessary for the centralized planning cell to accept information and other inputs from all parts of the security system. These inputs then need to be folded into the planning process to accommodate the need for continuous change and improvement.

Finally, in order to implement these five points, the entire process will require direct public input and oversight in order to effect the implementation of necessary national legislation. This last point is critical as civil aviation security is a public imperative that demands accountability to the electorate.

Command-and-Control Requirements

The nature of aviation security requires a command-and-control system capable of coordinating a wide variety of agencies to plan, organize, direct, and control integrated, life-preserving interventions. These interventions need to be executed throughout the system so they can be put into operation on the ground or in the air. The system needs to be able to monitor and synthesize information circulated at international and national levels while at the same time managing operations at specific airports and aboard individual aircraft. Higher-end activities, such as planning and intelligence gathering, will require centralized control, while front-line operations will be affected by an assortment of disparate, decentralized agencies. These latter agencies need to be responsive to the security system for related operations, but will very likely owe their primary allegiance to other offices. Assigned police forces, for example, may be controlled by the security system to affect an intervention even though they belong to a municipality. These operations, in other words, are executed by a “decentralized” agency. “Centralized control, decentralized execution” effectively describes the command-and-control system required for an effective aviation security environment.

This type of command-and-control arrangement represents a radical departure from those normally found within the public and private civil sectors. Traditional structures within these communities are normally aligned vertically, with both command and control cascading downwards along solid lines of responsibility. Decisions are centrally controlled, as are the execution of operations. All stations between the two functions are advised in turn, and afforded an opportunity to provide input and modify outcomes. This hierarchical command-and-control structure is optimized to address issues and functions common to all units within the system. It tends to be effective when closely coupled groups of personnel and resources churn out specific products or functions. This model, however, tends to buckle when faced with multi-faceted operations executed by loosely coupled or even networked personnel and resources. This latter model, a network with a

very flat hierarchy, is the one that operates against the civil aviation security environment.

Examples of the “centralized control, decentralized execution” command-and-control structure required for our purposes are not readily found within the civilian environment. This type of structure, however, can be found in military models where the integration of combined (nation-to-nation) and joint (service-to-service) operations has long been a part of modern warfare. A good example of such a command-and-control arrangement can be found in the recent Persian Gulf War. This conflict saw the integration of several military organizations and, within this wide circle, a further integration of their individual services (army, navy, air force, and marine units) into a seamless entity. This example parallels the civil aviation security matrix requirement and provides a useful model.

∞ Persian Gulf War Command-and-Control Structure ∞

The command-and-control structure used in the Persian Gulf War was based on the “Unified Command” model derived from the American joint operational concept. This concept envisages a distinction between “service” elements and “operational commands.” The “service” elements include navy, army, air force, and marine forces, while the “operational commands” are charged with forging assigned “service” elements into joint operational fighting forces. Currently, the United States unified combatant commands and their respective areas of responsibility are as follows

- USNORTHCOM, North America including Canada;
- USSOUTHCOM, South America;
- USPACOM, Pacific Ocean, East Asia including India;
- USEUCOM, Atlantic Ocean, West Africa, Europe; and
- USCENTCOM, Northeast Africa, Middle East and Central Asia.

A Commander-in-Chief (CINC) heads these “Unified Commands.” He or she is supported by a dedicated cell of advisors that plan for, and exercise, military contingencies in specific areas of responsibility. This planning and exercising function becomes an operational mandate when fighting forces are assigned to make an approved plan happen. This was the case with USCENTCOM during the run-up to and execution of the Persian Gulf War. The “unified” commander’s plan, overseen and approved by elected authorities, was centrally formed and controlled by him and his staff, but was executed by decentralized service elements. The “CINC” was the brain, while his staff was the central nervous system through which he centrally controlled the assigned, decentralized fighting forces that made up his unified command’s arms and legs. When combined, the relationship between the unified commander and his or her service forces is defined by the concepts of “Command,” “Operational Command,” “Operational Control,” and even “Tactical Control.”

Command

“Command” relates to the authority of a commander to use available resources to plan, organize, direct, coordinate, and control forces to accomplish assigned missions. It also includes responsibility for logistic and administrative functions such as the health, welfare, morale, and discipline of assigned personnel.

Operational Command

“Operational command” relies on the authority of a commander to use available resources as noted above. This authority, however, is limited to specific missions and time periods.

Operational Control

“Operational control” relates to the authority derived by a delegated commander to assign tasks to subordinate forces to meet the designated objectives

associated with an overall mission. This authority may be limited by function, time, or location, and does not, of itself, include such matters as logistical and administrative support including discipline, internal organization, and unit training.

Tactical Control

The concept of “tactical control” is similar to that associated with “operational control,” but is exercised by a delegated authority for the purposes of meeting immediate operational requirements. There is no requirement for the controlling authority to provide logistical or administrative support of the assigned forces.

In the Persian Gulf War example, service elements remained under the command of their traditional army, navy, air force, marine and (in the case of Canada and other nations) national authorities for the purposes of logistical and administrative provisioning. They, however, were arrayed and deployed in theater by the unified operational commander who had these forces assigned to his or her operational control. In this manner, the unified commander and his staff formed the brains and central nervous system of the campaign effort while attached service elements executed the assigned mission. This arrangement was effective because it accommodated the operational commander’s requirement to execute a planned mission with tailor-made forces, and at the same time freed him from associated logistical and administrative obligations.

There is no reason why the concept of “centralized control, decentralized execution” remains only a military phenomenon and cannot also be applied to situations where civilian command-and-control is required. The reason why this has not yet been done seems to lie in the fact that such arrangements call for the coordinated sharing of valuable personnel and resources, and especially of power. Power is very difficult for any office or organiza-

tion to share and, in this author's opinion, can be affected only when the consequence of failure overrides parochial interests. It is worth noting that even though the notion of centralized control, decentralized execution is now rooted in the military experience, it took a long time to be accepted even there. The military services were slow to relinquish authority over separate land, naval, and air forces to a unified commander. The process really began with the hard-won lessons learned from the experience of the Second World War, including the disastrous Dieppe Raid, and the problematic distribution of air resources in the North African campaign. It really came together only after the American invasion of Grenada in the 1980s. The concerns that forced change in the military will need to be in place for an equivalent type of change to take hold in civilian structures, which,

regrettably, is just what the experience of 9/11 supplied.

The Persian Gulf War "centralized control, decentralized execution," command-and-control model can address the related system requirements of the Canadian civil aviation security environment. Within this latter context, a unified commander and his or her staff would be properly positioned and connected to gain access to critical intelligence resources and affect the required plans. In addition, positioning his or her liaison officers (LOs) throughout the civil aviation operational structure would permit the execution of a real time alert and active direction. It is also important to note that this same commander could be easily contacted and controlled by elected authorities acting on behalf of public security concerns.

Current System

The Canadian Air Transport Security Authority (CATSA) administers Canadian civil aviation security responsibilities. A review of the enabling legislation (Statutes of Canada, 2002) reveals that this agency will have great difficulty in bringing into effect the requirements of a new security system. This legislation indicates that a not-for-profit Crown Corporation is to be primarily concerned with traditional airport security services. These functions revolve around the provision of passenger and baggage screening services with little emphasis on airborne security measures. Indeed, the original CATSA mandate was modified to accommodate the introduction of armed air marshal services as directed by American authorities and as

requested by the Air Canada Pilot's Association (ACPA, 2001). This need to reorganize on-the-fly to accommodate onboard security measures is the by-product of a Canadian approach (McArthur, 2001) that considers aviation security measures to be exclusive to the ground environment. This approach is contrary to a layered, defence-in-depth strategy advocated by experts worldwide and employed successfully for years by airlines such as El Al.

The CATSA model is also questionable from a planning perspective. The Crown Corporation is remote from publicly-controlled intelligence, enforcement, and regulatory agencies, which will make planning unnecessarily difficult. Likewise, it is

not well positioned to identify threats to system security by virtue of its isolation from these same authorities.

CATSA authorities are cut off from higher-level public security agencies and are similarly cut off from security providers at the operational level. This is because the legislation, Bill C-49, authorizes the delegation of responsibility for ground security operations to Local Airport Authorities (LAAs). These agencies, in turn, are permitted to contract services out to private security providers. This example reveals that the gap between responsible authority and the hands-on security operators may be quite large and complicated unnecessarily by fuzzy lines of communication. These fuzzy lines of command, control, and communication will inhibit the ability of CATSA authorities to provide central direction and to coordinate ground-based security activities. Indeed, in the case of airborne security operations no one is in a position to coordinate such

activities. This is because Bill C-49 provides no formal channels capable of accommodating such initiatives.

It is difficult to see how CATSA, as formed, can counter a coordinated threat to Canadian civil aviation operations. The shortfalls identified above are further complicated by the fact that there is little incentive for the system, as designed, to test its own effectiveness and improve upon itself. After all, the largest motivating factor—pressure from the public being served—cannot be formally channelled into the system. In addition, those in a position to identify problems first hand—the security providers—may be contractors who do not report to the controlling agency. This shortfall is replicated in the airborne security environment as well. Onboard authorities, chiefly the aircraft Captain, have no direct access or mandate to report back to controlling authorities. Instead, they report back to their respective airlines in every case.

∞ *Proposed System* ∞

The command-and-control of Canadian civil aviation security operations would benefit greatly by borrowing from the “centralized control, decentralized execution” model employed during the Persian Gulf War campaign. Both organizations require the employment of far-flung and diverse resources in accordance with a coordinated, intelligence-based plan.

The organizing and planning requirements associated with a Canadian aviation security agency call for a unified commander with direct access to a planning group capable of bringing all relevant

information to the table. Rather than a board of directors, this organization requires the equivalent of a commander-in-chief supported by a comprehensive planning staff. The sole commander concept clearly details lines of responsibility and, when subject to public oversight, accommodates rapid response rates and a place for the “buck” to stop. Populating the commander’s planning staff with permanent representatives from, for example, the military, Transport Canada, RCMP, CSIS, Customs and Immigration, airports, aircrew, and airlines, to mention the most obvious, would accommodate the need to bring relevant information, resources, and

threat-based intelligence to the table. These people would form the core of a centralized “brain” capable of marshalling front-line forces in a coordinated and effective fashion. The unified commander’s planning group would provide him or her with an ability to gauge and identify threat intentions and capabilities and at the same time develop related plans to reduce the associated risk. The commander’s requirement to alert and direct frontline resources requires a corps of representatives to act as go-betweens or liaison officers (LOs). The commander would delegate to these representatives the authority to guide security activities in accordance with plans and directives. These personnel would form the “central nervous system” of the security network and would be capable of directing those under operational control while passing operational input and recommendations upward for the purposes of system monitoring, testing, and improvement. Appendix A provides a schematic representation of such a command-and-control structure.

This “centralized control, decentralized execution” approach is a powerful concept that could accommodate the security requirements of other sectors of the economy. The unified commander, with an appropriate reconfiguration of his planning group, could control other security activities such as those associated with the protection of ports, railways, pipelines, and critical civilian infrastructure. Indeed, the civil aviation security system might be a component of a larger, national initiative akin to the Department of Homeland Security being developed in the United States. The schematic representation in Appendix B outlines the nature of such a possibility.

The relationship between the unified commander, his or her planning staff, and associated liaison officers would be direct and characterized by the previously noted definition of “command.” The relationship between this “brain and central nervous

system” and the frontline ground and airborne security providers would, on the other hand, be characterized by the previously noted definition of “operational control.” The frontline forces would continue to receive administrative and logistical support from their traditional supervisors while at the same time they could respond to the security system unified commander, through his or her LOs, to execute the centralized security plan. These command and operational control arrangements would need to be understood by all within the system and formalized through written and binding directions.

Here is how a reformed CATSA command-and-control structure would work: a commander, rather than a chief executive officer, would head CATSA because he or she would serve the public rather than a business entity. In line with this basic direction, the commander would report directly to an elected official and would be responsible for organizing, planning, directing, and controlling civil aviation security network activities. The commander would be a public official whose office would be directly accountable to the public authority in all matters, including financial affairs. In the absence of a federal Ministry of Homeland Security (as shown in Appendix B), the commander and the related agency would be overseen by the federal minister currently charged with these internal security responsibilities.

The commander would direct his planning staff and liaison personnel and be responsible for all aspects of their work and support. The planning staff would be drawn from those agencies with the expert knowledge required to make aviation security plans and recommendations (such as the RCMP and CSIS) while liaison personnel would direct the activities of frontline security workers. A legislated mandate would make all of these responsibilities and relationships clear and would encompass aviation security both on the ground and in the air. In addition, the mandate would empower the commander to control, through his or her approved pol-

icy, plans, and directives, those operations related to security that need to be carried out by other agencies. The responsibility for these other agencies to comply with these directions, for these security-related purposes, would be clearly detailed by legislation, regulation, or contract, as required. In

this manner, the aviation security authority would answer directly to the public, have a planning cell staffed by experts with the knowledge required to make effective plans and policy recommendations, and have the means of controlling security-related activities at the operational level.

❧ *Cost/ Benefit Analysis* ❧

A comparative cost analysis between the current and proposed aviation security models is complicated by a dearth of related information. This is partially the case because CATSA, a Crown Corporation, is listed under Schedule III, Part I of the Financial Administration Act (Treasury Board, 2002), which means it is exempt from provisions contained within the Access to Information Act (Office of the Information Commissioner, 2001). It is also the case because the collection and disbursement of funds for the purpose of securing Canadian aviation security is profoundly confused. To quote the recent and related Senate Committee for National Security and Defence report (2003):

Both the Committee and Auditor General Sheila Fraser are concerned that the financial regimes of both the Canadian Air Transport Security Authority (CATSA) and the airport authorities are preventing the public from knowing how much of the air travellers security charge is spent at each airport by CATSA and other departments and agencies, as well as how much each Airport authority is spending on security.

Although actual numbers may not be available to perform a quantitative analysis, we may be able to

make some order-of-magnitude comparisons. Can we ascertain, for example, the costs of a “centralized control, decentralized execution” command-and-control system relative to the current “Crown Corporation” model?

The costs associated with any command-and-control system are a function of the people involved and the communications network that joins them. A chief executive officer (CEO) heads the current CATSA system. A Board of Directors oversees the CEO. The board currently comprises 11 individuals, including its chairperson. A dedicated general counsel and three vice-presidents assist the CEO in his responsibilities: there is currently one VP for corporate affairs, one for public affairs, and one for operations.

The command-and-control network below this hierarchy is distributed amongst 89 designated Canadian airports. Ten individuals serve as “facilitators” to the nine major or Class 1 aerodromes, while 14 regional managers attend to the remaining Class 2 and 3 facilities (CATSA, 2002). This command-and-control network is supported by administrative staff as required, and does not appear to employ any communications links that would not

be available to a normal working environment. The costs associated with this network are largely payroll based.

This proposal's command-and-control system calls for a unified commander assisted by a planning staff drawn from relevant federal government, policing, and flight operations agencies. These agencies would include:

- Airports representative;
- Canadian Security Intelligence Service (CSIS);
- Customs and Revenue;
- Citizenship and Immigration;
- Canada Post;
- Communications Security Establishment (CSE);
- Critical Infrastructure Protection and Emergency Preparedness;
- Department of National Defence;
- RCMP;
- Solicitor General
- Transport Canada
- Treasury Board Secretariat;
- Flight crew representative;
- Cabin crew representative; and
- Air Transport Association of Canada representative.

These representatives would communicate directly back to their parent organizations and would develop the broad-based plans and directives driven by the commander's objectives and related policies.

These 15 individuals would offset exactly the numbers found within the current CATSA senior management structure, so this proposed senior management model should incur no additional costs.

The "centralized control, decentralized execution" model also calls for liaison officers to coordinate decentralized security activities in the field, in accordance with the commander's centralized plans and directives. These duties could be carried out by the same number of people at the same locales as is currently the case. Once again, no payroll cost penalties are anticipated.

The communications requirements associated with the "centralized control, decentralized execution" model will be more demanding than is currently the case. Some of the commander's staff, for example, will need dedicated, secure lines back to their parent units (CSIS, CSE and so on), and a reliable communications net that connects all security system participants. The former requirement could be met by extending secure communications links already resident within a parent organization to the commander's planning staff. Designating information routes can accommodate communications throughout the chain of command-and-control. Direct links between the commander and an aircraft in flight, for example, may require a "patch" at the desk of the relevant flight dispatcher. These secure requirements and routing specifications will require planning, but little in the way of finances. When personnel and communications costs are considered, it is apparent that the benefits associated with the "centralized control, decentralized execution" command-and-control model can be effected within current cost structures.

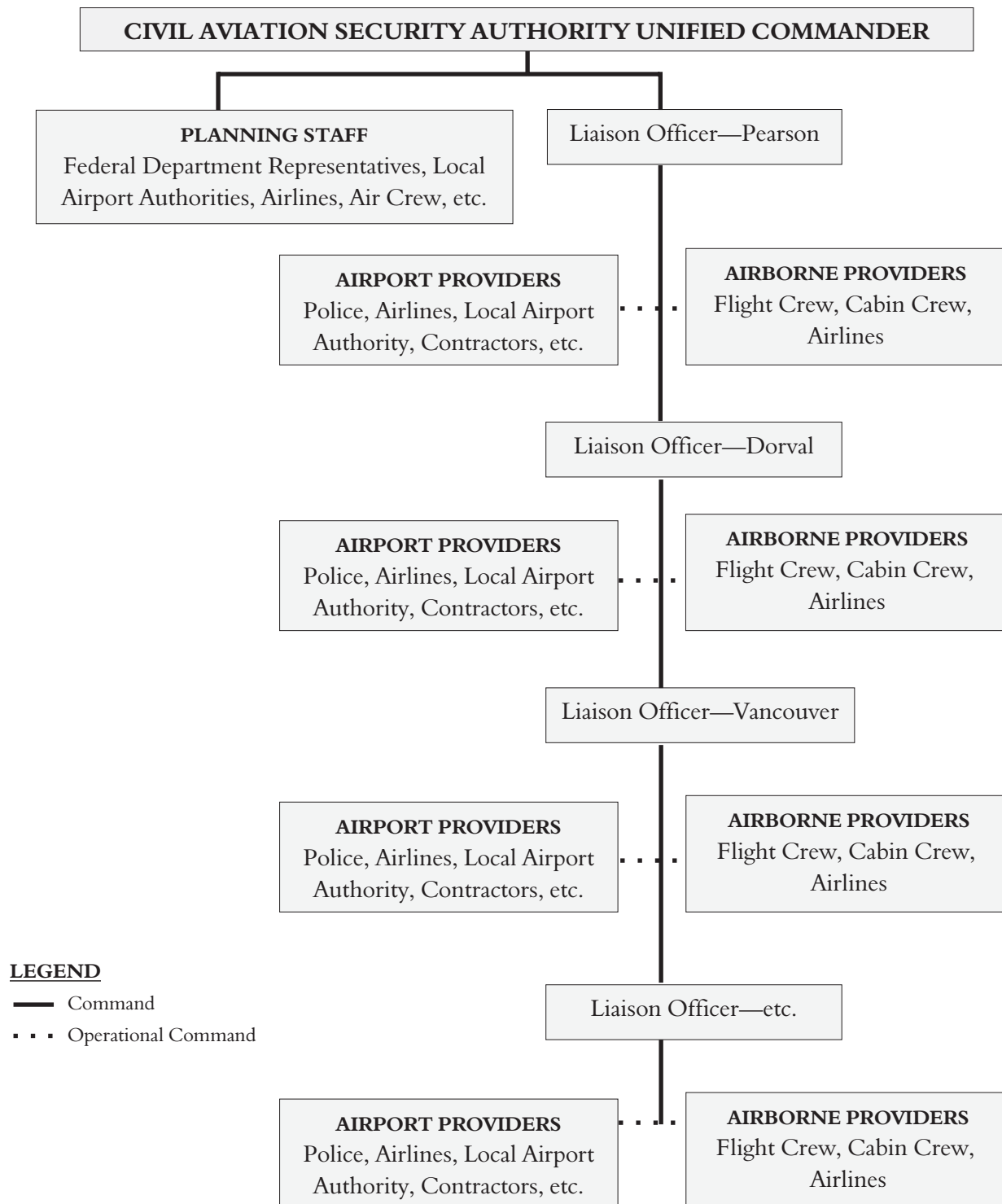
❧ Conclusion ❧

The Bill C-49 “CATSA” model cannot accommodate the security system requirements related to the Canadian civil aviation environment. This agency, as constructed, lacks access to the higher and lower level authorities needed to plan and execute security operations respectively. The need to employ far-flung resources in accordance with a coordinated and intelligence-based plan dictates the use of a “centralized control, decentralized execution” command-and-control model. Such a model, in the form of the unified command concept developed by the American military, has been proven on the modern battlefield. This concept incorporates “command” and “operational control” arrangements and relates directly to Canadian civil aviation security system requirements. Success in the civil aviation security sector, as in the military realm, will require the development of formal relationships between the centralized authority and frontline security providers. All system participants will need to understand the notions of “command” and “operational control,” along with how and when they are effected. For these arrangements and processes to be legitimized,

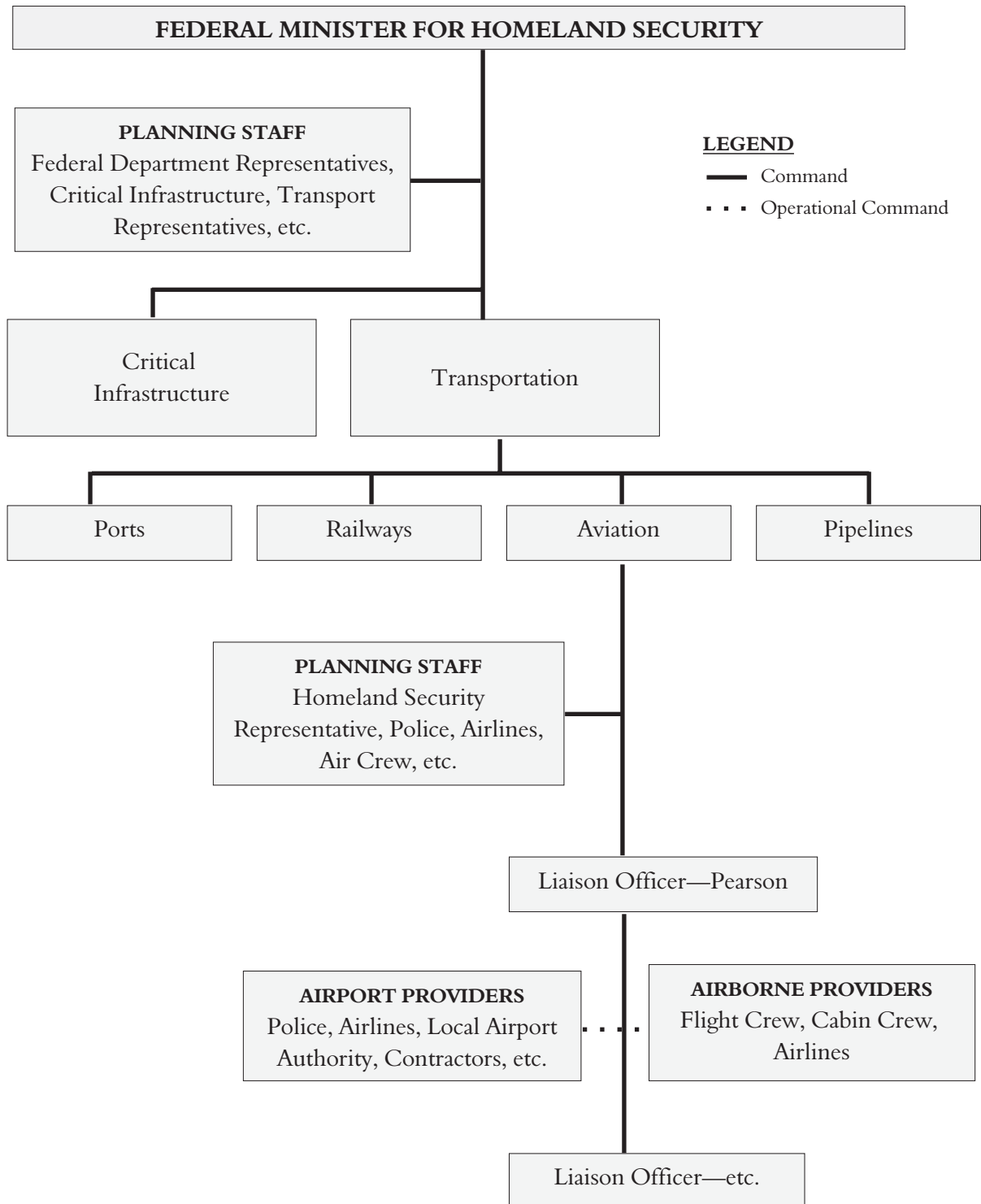
formal legislative, regulative, and contractual guidance will need to be implemented.

South of the border, American authorities have chosen to forego a “centralized control, decentralized execution” model in favour of a monolithic federal department that brings all related resources under the direct control of a sole commander. This new administrative entity will incorporate diverse security elements such as Customs, Immigration, and the Coast Guard under one umbrella department. It will amalgamate some 170,000 employees and is anticipated to take several years and many billions of dollars to bring into effect. In contrast, the re-organization called for in this paper does not require such an enormous effort. It simply requires the current organizations to respond to the legitimate operational control authority of a unified commander. That commander will be supported by a dedicated planning group (“brains”), who will communicate through dedicated Liaison Officers (“central nervous system”), and effect the operational control of assigned frontline security providers (“the arms and legs”). Such a system would be both operationally effective and cost effective.

Appendix A: Proposed Civil Aviation Security System Command-and-Control Model



Appendix B: Proposed Canadian “Homeland Security” Command-and-Control Model



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❧ *About the Author* ❧

Russ Cooper is a seasoned pilot with over 30 years of flying experience in the military and civil aviation sectors. For the past three years he has been employed as a professional airline pilot who, subsequent to 9/11, has been actively engaged in analyzing the civil aviation security environment and advocating change.

In the 31 years prior to assuming his current responsibilities, he served three years with Bombar-

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