

**TRANSIT SECURITY BEST PRACTICES REVIEW:**  
**A Strategic Approach for the Future**

**FINAL REPORT**

Executive Summary

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*In association with:*



## EXECUTIVE SUMMARY

### 1.0 Project Overview

- 1.1 The aim of this Security Review is to identify ETS security needs given existing threats and vulnerabilities, and to present a Strategic Plan that addresses those needs in manner compatible with best practises in the transit industry.
- 1.2 The review process consisted of an employee survey, analysis of ETS-related security incidents, a site visit, investigation of transit industry best practises regarding security, a gap analysis, development of a strategic plan, identification of a suitable “peer review” process, and development of a communications plan. The site visit included meetings with both internal and external stakeholder groups, interviews with key managers, and Threat, Vulnerability, Risk Assessments (TVRAs) of four representative areas.
- 1.3 For the purposes of this project, the comparable transit agencies considered were Calgary, Greater Vancouver, Ottawa, Montreal and Toronto.

### 2.0 Current Situation

#### 2.1 ETS Overview

ETS employs over 1600 personnel and has a fleet of over 790 buses, 37 light rail vehicles, and 123 DATS vehicles. There are three bus garages, one LRT garage, 14 transit centres, 10 LRT stations, and 1350 bus shelters. Municipal taxes account for 61% of ETS 2004 budget of \$161M. In 2003:

- Ridership was 46 million
- There were over 1.6 million service hours covering 31 million km
- Fare box revenues were \$56M
- As identified through customer satisfaction surveys, 93% of ETS customers were satisfied to very satisfied with ETS overall performance

#### 2.2 ETS Security Efforts & Resources

In the continuous pursuit of customer and employee safety, ETS regularly reviews its safety and security processes, procedures and partnerships. In this context, Edmonton is one of the transit security leaders in Canada. Since 1996:

- There have been four previous security reviews
- 27 full-time Transit Security Officer (TSO) positions and a security dispatch centre have been created
- Physical security measures, surveillance and emergency communications have been upgraded at many (but not all) terminals

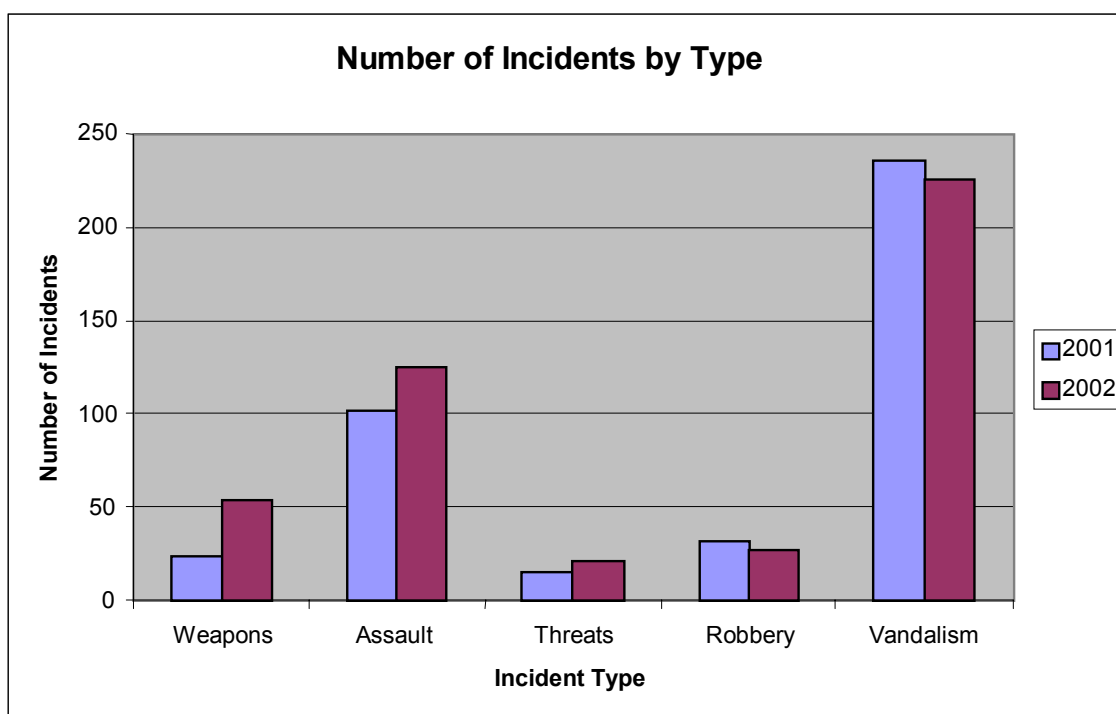
ETS employs Transit Security Officers (TSOs) and Transit Inspectors on the LRT and Surface (Bus) System respectively. They are trained to deal with customers' questions or concerns,

enforce by-laws and fare policies, and respond to any incidents beyond the capacity of transit operators. If further intervention is required, police are contacted.

Despite significant and admirable efforts, ETS lags behind its own transit comparators in security service provision, particularly in terms of the number of security personnel deployed the authority level of security officers and accepted security training standards.

## 2.3 Security Incidents

While the incidence of crime is low compared to the public perception, violent crime does occur on the system and there have been incidents resulting in serious injury. Vandalism accounts for about half of all reported security incidents, while assaults account for about one quarter of all incidents. Between 2001 and 2002 the reported incident rate rose 11%. Also during this period, crimes against persons (e.g. assaults and threats) increased and weapons related offences more than doubled (from 24 to 54).



Few incidents occur between 0200 and 1400 hours. During the business/school week, unruly student behaviour is prominent from 1400 to 1800 hours, while minor assaults and robberies are prominent incidents during this same time period on the weekends.

Minor assaults and robberies are more frequent between 1800 hours and 0200 hours. Gang related activity and drunk and disorderly offences occur more frequently in the late evenings of Wednesday through Saturday. Annual trends indicate that the number of security incidents peak in March and then taper off until September. There is also a small peak in security incidents in January.

Weapons related incidents occur more frequently on Friday, Saturday and Sunday (refer to Figure 1 below). Assaults are more frequent on Friday and Saturdays. Robbery also tends to increase as the week progresses, peaking on Thursday and Sunday. While weapons use is rare, knives are most common and are used in two-thirds of all crimes that involve weapons.



Figure 1 – Assortment of knives and weapons confiscated on ETS system

According to the ETS Advisory Board, many of the community's vulnerable demographic groups would like to use ETS more frequently because it provides more independence and freedom, but some are fearful of using ETS, especially during the evening hours, because of the public perception of the level of crime on the system.

By comparison, the majority of ETS employees feel safe at work and believe that customers are, and feel, safe using ETS (70% of those surveyed). The vast majority of employees indicated that they know what to do in case of a robbery, assault or bomb threat. However, only one quarter of ETS respondents indicated that they had confidence in the incident response capability of ETS security personnel and only half indicated confidence in timely police response. Furthermore, fewer than 40% reported that they had received incident recognition/response training. Meanwhile, a representative of the Edmonton Police Service (EPS), suggested:

- Standardizing incident reporting and corporate-wide analysis
- Establishing a formal working relationship between with ETS and EPS, addressing resource sharing, training and Special Constable selection and evaluation.

Finally, across North America, workplace violence is increasing and is now estimated as the cause of 15% of workplace fatalities. The security statistics for the Corporation of the City of Edmonton as a whole indicate that the number of reported incidents of workplace violence has increased substantially, with over twice as many cases reported in the first eight months of 2003 as were in all of 2001. Due to the solitary nature of the work, the time during which service is provided and because of its mixed gender work force, ETS has a higher risk of workplace violence when compared to a female office worker due to the fact that female operators are working alone in remote locations at night.

## 2.4 ETS Business Plan

ETS realizes that further security enhancements are in the best interests of patrons and employees, and will help contribute towards increased ridership. According to the 2004-2006 Business Plan, the ETS mission is to “provide customer-focused, safe, reliable and affordable public transit services that link people, jobs and communities.” The plan contains a number of important security enhancements, although funding necessary to meet Council policy objectives has not yet been guaranteed.

## 3.0 Threat, Vulnerability & Risk Assessment (TVRA)

### 3.1 Worst Case Credible Scenario

A TVRA was conducted at four representative ETS areas. Those threat events that would result in the greatest impact at each area are listed in the table below.

Area	Worst Case	Impact
LRT Operations	Explosion of petroleum rail car resulting in destruction of a LRT and part of a terminal, during rush hour	Casualties, \$30.1M damage
Surface (bus) Operations	Terrorist bomb of bus while at terminal, during rush hour	Casualties, \$86.1M damage
Mitchell Garage	Truck bomb & fire destroys garage & parked transit vehicles, after hours	\$155.5M damage
Customer Service	Security incident at office draws negative press coverage	\$189K lost revenue

The Worst Case Credible Scenario identifies the largest impact event, such that appropriate mitigation measures can be developed. ETS can mitigate the impact of the Worst Case Credible Scenario by ensuring it has effective physical security measures that reduce the probability of the event occurring, and has a competent security organization capable of effectively reacting to a bomb threat and/or to reducing the impact of a major incident involving a bomb detonated in an ETS vehicle or facility.

### 3.2 Design Basis Threat

Fortunately, worst-case threats are seldom the most likely to occur. Risk is the product of event *impact* and event *probability*. The Design Basis Threat refers to high-risk events i.e. those that are most likely based on the product of the impact and probability. The sample TVRAs found that, of all potential threat events, violent robbery of a bus passenger carried the greatest risk. Other threat events that carried a relatively higher level of risk were:

- Assault of a bus passenger
- Violence action against LRT and Bus operators
- Assault of an LRT passenger
- Sexual harassment of LRT and Bus operators (this is due to the inherent vulnerability of female operators working alone and the increasing societal trend towards increasing violence as opposed to any significant level of incidents with ETS).

ETS can mitigate the Design Basis Threat by ensuring it is capable of effectively responding to acts of violent crime against employees, customers and ETS property, committed by one or more individuals armed with knives or other blunt object weapons.

### 4.0 Best Practices & Gap Analysis

Analysis of the differences between the ETS current situation and transit industry best practices regarding security revealed the following areas (gaps) for improvement:

- **Intelligence-based Security** - planning and deployment of security personnel and technological aids should be based on analysis of past incidents and TVRAs of potential threat events.
- **Integrate Security with Operations** – the Control Centre should integrate security efforts with both LRT and Surface Operations, the incident-command structure should be similarly integrated, a call prioritization system should be developed, and communications systems should be upgraded.
- **Resources** – Initially 46 Special Constables organized in “platoon-shifts”, should be recruited, trained, equipped with ASP (Armament Systems and Procedures) batons, Oleoresin Capsicum (OC) spray/foam, and protective vests, and should be deployed in accordance with intelligence-based needs.
- **Safe Areas** - *Designated Waiting Areas*, featuring enhanced lighting, emergency call boxes and enhanced surveillance, should be established at terminals.
- **Surveillance** - All surveillance equipment should be low light capable and digitally recorded.
- **Cash Handling** - Collection of cash from the new LRT ticket machines should be outsourced to an armored car company.

- **Incident Reporting** – A single reporting system should be developed and integrated with other security organizations for the purposes of collating and analyzing data, and disseminating intelligence across the Corporation of the City Edmonton.
- **Employee Awareness Training** – Security awareness training for employees should be enhanced to include both entry-level and refresher training.
- **Public Awareness** – Incident information, as well as the results of security efforts, should be actively communicated to the public.
- **Exercises & Audits** – A system of security practices, drills, exercises and audits should be developed and implemented.

## 5.0 **Strategic Plan**

### 5.1 **ETS Security Mission**

The suggested ETS Security Mission is “to employ security systems and deploy suitably trained and equipped security personnel to:

- Protect ETS customers, employees and the public from physical harm
- Protect the assets of the City of Edmonton from unnecessary loss
- Promote crime prevention and deterrence through proactive, intelligence-led, security measures and public input”.

### 5.2 **Security Functions**

The ETS security functions should be:

- Conducting routine security patrols across all elements of the ETS system
- Increasing security presence when and where increased threat levels are anticipated (intelligence based security)
- Responding to security incidents, and other emergencies, in an effective and timely manner
- Establishing centralized incident-command
- Conducting investigations of security incidents and preparing case notes for prosecution of perpetrators
- Collecting and analyzing threat and incident based information
- Maintaining liaison and coordination with other associated security organizations and stakeholders
- Establishing a deterrence and crime prevention program
- Conducting regular exercises and “peer review” assessments of the security system



### 5.3 Staffing

In the near term, the ETS security component should be increased by 13.5 full-time equivalents (FTEs), for a total of 46 personnel as follows:

Position	Proposed # FTE	Present # FTE
Security Manager	1	1
Investigators/Training Officer	3	1
Security Analyst	1	0
Admin Support	1	1.5
Shift Supervisors	6	3
Security Controllers	6	7
Security Officers	24	19
Fare Agents	4	0
<b>Total FTE</b>	<b>46</b>	<b>32.5</b>

The proposed increase is for 13.5 FTE of which 11 can be deployed to support operations on the system. The Security Shift Supervisor is an operational position, not a management function, and may be deployed to provide security support to the TSO's on patrol.

### 5.4 Deployment

The principles of intelligence-based security indicate that the appropriate deployment of Special Constables should be:

Time	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
0200 to 0600	Low Threat Activity (Control room, 2 x mobile patrols)						
0600 to 1000	Commuter Rush (Control room, 1 x mobile patrol, 1 x LRT/Pedway patrol, additional fare agents)					Low Threat Activity (Control room, 1 x mobile patrol, 1 x LRT/Pedway patrol)	
1000 to 1400	Low Threat Activity (Control room, 1 x mobile patrol, 1 x LRT/Pedway patrol)						
1400 to 1800	Commuter Rush, student unruly behaviour – petty vandalism (Control room, 1 x mobile patrol, 1 x LRT/Pedway patrol, additional fare agents)					Minor assault and robbery	
1800 to 0200	Minor assault and robbery (Control room, 1 x mobile patrol, 1 x LRT/Pedway patrol)		High threat activity: Gang related assault, robbery and vandalism. Drunk and disorderly offences. (Control room, 3 x mobile and 2 x LRT/Pedway patrol)				



## 5.5 Initial Announcements

Internal and external messages regarding ETS action as a result of this security review should include:

- Pursuit of Special Constable Program
- Expansion of security officers' strength and deployment
- Formalization of security working group, and collaborative intelligence analysis
- Long term plans to upgrade supporting systems
- Introduction of new training programs and amendments to manuals
- Departmental restructuring.

## 5.6 Phase 1 - Operational Upgrade (0-18 Months; approx \$1.5M)

- Recruit additional security personnel and deploy across both LRT and Surface Operations in accordance with threat intelligence
- Enhance emergency communications equipment, channels and procedures
- Contract an armoured car company to empty all of the new LRT ticketing machines
- Establish a single incident reporting system throughout ETS
- Assess and implement employee awareness training requirements
- With EPS assistance, apply for Special Constable Status and equipment, and develop training programs
- Formalize a security working group with the city-wide network of security professionals
- Enhance the internal communications program
- Review the Proof of Payment policy(s), with a view of reducing the likelihood of escalating conflict
- Conduct detailed security assessments of remaining facilities, bus stops and customer parking lots

## 5.7 Phase 2 – Staff Alignment, System Upgrade and Design (18 – 36 Months; approx \$10.7M)

- Establish clearly identifiable Designated Waiting Areas at terminals with enhanced security lighting and CCTV
- Install additional Emergency Call Boxes (ECBs)
- Audit lighting and CCTV surveillance coverage, particularly at new LRT ticket machines, and adjust/upgrade as appropriate
- Design remaining mitigation measures for Customer Support, Mitchell Garage, LRT and Surface Operations, as per TVRAs
- Audit in-vehicle reporting systems and follow-up on any shortcomings
- Upgrade the existing voice communication system to a modern radio system

**5.8 Phase 3 – Equipment Acquisition/Modifications (36 – 60 months; approx \$20.4M)**

- Install Emergency Call Box at select major intersection bus shelters to provide direct voice communication links between patrons and security personnel
- Upgrade selected CCTV cameras to low light level technology units to improve the surveillance capability
- Design and install an enhanced, 24/7 digital recording system to maximize the number full motion CCTV camera input, ideally for all cameras
- Enhance facilities' card-access and intrusion-detection systems
- Design and build enhanced Control Centre
- Install driver panic buttons on LRT and surface vehicles
- Study installing surveillance and GPS equipment on surface vehicles
- Implement remaining TVRA recommendations
- Consider installing higher-grade shelter window material (first conduct market scan to confirm possible upgrade material now available)

Phase costs have been developed without accounting for ETS internal resources (such as overtime for operators attending training sessions). Appreciating the scope of this review study, these costs represent a “rough order of magnitude” estimate as an initial budget range that will need to be refined as the program is implemented on an item-by-item basis. Some individual program item costs represent support for the introduction of new or expanded undertakings. In general, the costs for such items are designed to apply to a select number or segments of routes, or a select portion of the transit fleet or infrastructure facilities, as a means to initiate a practical and manageable scale of implementation of the recommendations. For a few of the deployment items, budget estimates represented only the first year annual costs given ongoing operations would apply.