

INTEGRATING THE PLANNING AND CONTROL OF AUDITING AT THE TORONTO TRANSIT COMMISSION

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This article introduces the Toronto Transit Commission (TTC); describes its organizational structure, auditing at TTC, and how the audit function was developed; and discusses integrated planning and control at TTC in terms of business units, project establishment, long-range planning, risk assessment, formal planning, and project control. This article begins in this issue of *EDPACS* and concludes in the next issue. (This article is adapted from the author's presentation at an ADM PLUS User Conference.)

THE TORONTO TRANSIT COMMISSION

The TTC is one of the largest transit systems in North America. Its operations are second in size only to those of New York City. The TTC has annual expenditures of about \$1 billion. (The dollar amounts cited in this article are in Canadian dollars, rather than in U.S. dollars.) The TTC collects revenue of \$500 million per year. The TTC has an annual operating subsidy of only 15 percent. Such a low figure is unheard of in the transit industry. Most transit systems are subsidized for between 75 and 95 percent of their operation costs in order to function. The TTC capital subsidy is 100 percent. Its annual capital expenditures are approximately \$360 million. The TTC has over 9600 employees. It has been identified as one of "Canada's Best 100 Employers" by the national *Canada's Employment Weekly*.

The TTC took pride in its history of being the safest transit system in North America until it experienced a subway accident in 1995. It was the one and only major accident in the history of the TTC, which opened its first subway in 1954; no fatal accident involving passenger trains ever had occurred. This changed when on August 11, 1995, a six-car TTC subway train rear-ended another similar train while both trains were in service, between the system's Dupont and St. Clair Stations. As a result of this accident, three riders died and 33 passengers and three crew members were injured. The TTC's subsequent investigation

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produced a list of 218 improvements that needed to be made to the system to reduce the risk of another such accident occurring. The Coroner's Jury that was convened to investigate the accident adopted all of the TTC's recommendations and added 18 additional recommendations of its own. Only 32 of these improvements remain to be completed. They are primarily related to the new Transit Control Centre, which is scheduled to go into operation in 2002. This accident taught the TTC to be a little more humble. The TTC remains one of the safest transit systems in the world, but it must strive hard to maintain that status.

*THIS ACCIDENT
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MORE HUMBLE.*

The service that the TTC provides includes two subway lines that total approximately 56 miles, 11 light rail lines that include streetcar lines totalling about 200 miles, and 134 bus lines that total almost 4000 miles. The TTC operating fleet consists of 660 subway cars, 1480 buses, and 248 streetcars. In addition, the TTC operates Wheel-Trans, a service that transports the physically disabled. The TTC has a total of 139 Wheel-Trans buses and hires 25 taxis to help operate this service.

The ridership of the TTC has fluctuated up and down in recent years. Its experience has been similar to that of other transit systems during this same period. The TTC was doing pretty well in 1994; but in 1996, two fare increases were introduced in the same year. It is believed these increases caused a large decline in ridership. Since then, the TTC ridership has started to steadily climb back up again. The TTC executives estimate that, eventually, its annual ridership will be in the 400-million-passenger range.

The subsidy received by the TTC from the City of Toronto has undergone changes in recent years, as [Exhibit 1](#) indicates. (It is a graph of the changes from 1994 to 1999 in the annual subsidy.) Until 1995 the subsidy increased, but since then it has steadily declined. The City of Toronto has told the TTC that in the future the annual subsidy will never be more than \$146 million. In actual fact, this amount will probably be reduced even more as time goes on. The TTC will have to manage within the limit that is imposed by that figure.

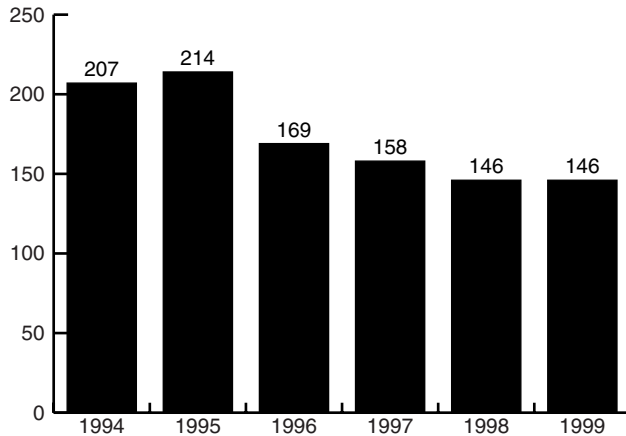
THE TTC ORGANIZATION STRUCTURE

To understand the environment in which the audit activity functions at the TTC, it will be helpful to review the organization's structure. The TTC has a Chief General Manager's office that is responsible for the organization's direction and management. The Internal Audit Department is part of that office; the author of this article is Chief Auditor and reports directly to the Chief General Manager. The larger TTC organization is composed of four branches: (1) Operations, (2) Corporate, (3) Executive, and (4) Engineering and Construction.

Operations

The TTC Operations Branch consists of four departments:

Exhibit 1. TTC Subsidy Changes



*THE TTC
ANTICIPATES
GETTING ANOTHER
SIX YEARS OF
SERVICE OUT OF
THE BUS REBUILD
PROGRAM BUSES.*

- 1. The Service Identification and Planning Department is responsible for providing and scheduling transportation services.
- 2. The Transportation Services Department is responsible for all the operators who drive the TTC buses, streetcars, subways, and other vehicles.
- 3. The Vehicle Maintenance Department is responsible for any repairs to the various kinds of equipment that are operated by the TTC. As part of its vehicle maintenance activity, the TTC has its own Bus Rebuild Program. This venture is engaged in rebuilding 12-year-old buses. The TTC anticipates getting another six years of service out of these vehicles. This means that the TTC buses will be on the road for a total of 18 years.
- 4. The Buildings and Structures Maintenance Department is responsible for all of the TTC structures. The organization has 66 subway stations, seven bus garages, and two streetcar carhouses. In addition, the TTC has four facilities for maintaining its subway fleet and two facilities at which it operates the Bus Rebuild Program.

Corporate

The Corporate Branch consists of six departments:

- 1. The Corporate Security Department is responsible for the Transit Patrol Investigators, who are the Transit Police of the TTC. (They do the same sort of work as the Transit Police do in the United States, but these individuals are not allowed to carry guns.)
- 2. The Employment Services and Training Department is responsible for the overall training for the TTC organization.
- 3. The Health Services Department is responsible for monitoring the fitness of TTC employees for work. If an individual is not available to work because of illness, this

person must get the approval of the TTC doctor in order to return to work.

- 4. The Labour Relations Department is responsible for any dialogue and negotiation on behalf of the TTC with the union.
- 5. The Public Affairs Department is responsible for dealing with the public. All complaints from individuals and organizations must be addressed and responded to.
- 6. The Marketing and Research Department addresses those needs at the TTC.

*THIS APPROACH
WORKED VERY
WELL IN THE CASE
OF THE SUBWAY
ACCIDENT IN 1995.*

Executive

The Executive Branch consists of six departments and services:

- 1. System Safety Monitoring provides exactly that. The TTC has its own fire and safety employees whose responsibilities have increased tremendously as a result of the subway accident in 1995.
- 2. Information Technology Services provides the computer technology needed to operate the TTC. In the next few years, a tremendous investment will be made in the area of IT in an effort to modernize the operation of the TTC organization.
- 3. The Legal Department includes a proactive accident claims section that investigates all accidents that occur on the TTC property. The Legal Department's employees actually go out and approach the victims to try to achieve a satisfactory settlement very quickly of any claims that may arise from an incident. It was evident that this approach worked very well in the case of the subway accident in 1995. All claims were resolved satisfactorily within the following three years.
- 4. The Inventory and Procurement Department is responsible for all purchasing. It administers a \$60 million inventory.
- 5. The Property Management Department is responsible for the leasing of all excess space or required needs. Space is rented in the TTC subway stations. Additionally, this department is responsible for managing the air rights that belong to the TTC.
- 6. The Secretariat Department is responsible for all the corporate administration of the TTC enterprise.

Engineering and Construction

The Engineering and Construction Branch is responsible for the TTC Construction Management and Design activities. This branch deals with construction and researches possibilities for the expansion of the TTC system. The City of Toronto is continuing to grow, so the TTC needs to expand to reflect that development. Part of the system expansion is trying to find funding for this needed growth. Currently under construction

is the Sheppard Subway Project, a \$1 billion subway expansion that will add about five additional miles of subway.

The TTC is a fairly complex organization. What makes it even more complex is that the TTC tends to go through reorganizations on a regular basis. For example, in the past ten years, the TTC has had four Chief General Managers. An examination of the TTC's organization structure for the past four years shows that branches have been removed and departments have been added and deleted during this period. However, when all of this organizational change was completed, the TTC organizational structure was decreased by one branch and increased by one department.

AUDITING AT TTC

The TTC is audited by a number of organizations: internal auditors; external auditors; provincial tax auditors; federal government employment auditors; Canadian Ministry of Transportation license auditors; and, more recently, auditors from the American Public Transit Association (APTA), which is headquartered in Washington D.C. (After the subway accident in 1995, it was found that the TTC was not subject to the monitoring of any Canadian federal or provincial organizations. New legislation was set up to ensure that the operations of the TTC were being monitored on a regular basis. Now, the legislation requires that the APTA or a similar organization comes in every two years to observe the operations of the subway system.)

The TTC Internal Audit Department reports to the Chief General Manager and the TTC Audit Committee, which is made up of the TTC's Commissioners. The Audit Department's real challenge is meeting the needs of the Chief General Manager, its principal client. This author is a strong supporter of setting expectations and stating them clearly. If the Audit Department and its individual members do not do that, they will be lost. If there are no expectations, others will not know the department and its staff are around.

The department's audit planning process is risk-based with an orientation more toward control risk. The audit resources that are available to meet the requirements of the plan are five audit project managers, five senior auditors, and five auditors. All of the audit project managers report directly to the Chief Internal Auditor. The department's administrative assistant provides much needed support to these professionals.

The TTC has a large and diversified Audit Universe, as already has been shown in this discussion. The TTC has all types of operations. At one time, the TTC even maintained its own blacksmith. It also has its own bank where employees count the money collected from riders. This environment creates both a vast range of requirements and a real challenge for the Internal Audit Department.

To meet these challenges, the TTC Internal Audit Department has a variety of skill-based employees within the auditing group. It has engineers, technicians, and chartered accountants. The Audit Department even had a lawyer at one

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time. It also has employees with organizational experience and employees who have worked at similar organizations.

THE DEVELOPMENT OF THE TTC INTERNAL AUDIT DEPARTMENT

When this author joined the TTC ten years ago, he was given the job that every auditor dreams of: to develop an Internal Audit Department in the way that he thought it should be run. The Audit Department was to focus on doing comprehensive audits. Comprehensive audits, for lack of a better name, are operational, management-oriented, and all-inclusive audits. The Audit Department was to analyze the audit standards that had been established by the Institute of Internal Auditors. One of the things that stood out was that the Audit Department at least should appear as if it were being managed, although these standards did not say, necessarily, that such a department has to be managed.

A technical system to assist with the audit management process was needed. For one thing, such a system was needed to direct the audit resources of the TTC in conducting a number of different types of audits. Like most audit departments, this one performs value-for-money, investigative, technology, financial, and capital expenditure audits. In addition to a system that provided auditing support, one was needed that provided a foundation for the budget of the department. One of the big things that had to happen was that the department had to be able to tell the boss why it needed the money and where it was spending this money. ADM PLUS was the department's choice to meet these requirements for the development and implementation of a Five-Year Audit Plan. The department continues to use ADM PLUS.

The goal of the Audit Department development effort was to integrate the audit project planning and control activities so that the work was done only once. Prior to ADM PLUS, the department had a system that kept track of time, a system that kept track of all the audits that were going to be done, a system that kept track of any travel expenditures, and another system that kept track of any sick days. The whole thing was a nightmare. However, ADM PLUS allowed the department to centralize and integrate all this information into a unified automated environment.

INTEGRATED PLANNING AND CONTROL

Business Units

The TTC process for doing audits on its business units is structured differently than the audit department processes of other organizations. The structure and designation of the business units denote these five audit categories.

- 1. *Comprehensive audits.* Roughly 75 percent of the department's audit time is consumed by these types of audits.

*SUCH A
DEPARTMENT HAS
TO BE MANAGED.*

- 2. *Capital project audits.* These consist of reviewing the expenditures by consultants and contractors for time, materials, and expenses.
- 3. *Systems development audits.*
- 4. *Financial audits.* The only financial audits that the department conducts are undertaken in conjunction with the TTC external auditors. Comprehensive audits are conducted of a financial area, but the department does not do these audits.
- 5. *Investigations.* These include everything from inquiring into issues that may be raised in anonymous letters to responding to requests by the TTC managers. The department does fraud investigations along with the TTC Transit Police. This latter group has the right under Ontario provincial law to lay criminal charges should they be required.

Also, the department wanted to establish another business unit where it would be possible to list all department administrative functions.

*THE DEPARTMENT
DOES NOT DO
FINANCIAL AUDITS.*

Project Establishment

As far as project establishment within the Five-Year Audit Plan was concerned, it was a very easy thing to do. To set up a project, the first step was to establish its parameters. Where does a particular project start? Where does the project end? Consider, for example, a project in the TTC Operations Branch, which is responsible for the training of drivers. The department would audit from the time that a driver is identified as needing training until this driver is actually trained and back on the road. The Audit Plan would identify that process as a project.

Each audit project would be assigned a number. Originally, the chosen numbering scheme was quite logical. The first two numbers identified the Branch that the audit belonged to. The Plan structure started out with the 10s being assigned to the Administration Branch; the 60s to the Operations Branch; and the 30s to the Engineering and Construction Branch. As described earlier, however, the TTC periodically reorganized its departments among the different branches. As a result, the Audit Department ran into problems because it wanted to keep the same audit numbering system over time. The Audit Department was more interested in tracking the audits based on the audit itself rather than where it was located in the TTC organizational structure at the time that the department did the audit. Because of this, the audit numbering system has become somewhat polluted; it is now difficult to identify whether an audit number that says 30-XXXXXX-XX actually refers to the Engineering and Construction Branch or whether that particular function has been transferred to the Operations Branch. However, if the audit has to do with the design of electrical systems for the subway signalling system, the TTC executives and the Audit Department staff will know that the number 30 refers to the audit of the design of the signals for the subway.

Exhibit 2. TTC Audit Long-Range Plan Sample

**Toronto Transit Commission
LONG RANGE PLAN
COMPREHENSIVE AUDITS**

**INTERNAL AUDIT
Yr. 2001 - 2005**

	Last Audit	Budget Hours	2001	2002	2003	2004	2005
CHIEF GENERAL MANAGER'S OFFICE							
INTERNAL AUDIT							
DGM's/CORPORATE OFFICE							
CORPORATE SECURITY	Sept 1999	1200					1200
• Human Rights Unit							
• Transit Patrol							
• Investigative Services							
• System Security							
HUMAN RESOURCES							
• Budgets & Office Admin/Benefits-Policy & Admin/Occup'l Health & Claims Mgmt	June 1997	1400		1400			
• Employment Services & HR Development	Nov 1994	1200		1200			
• Employee Relations	Sept 1994	600		600			
• CUMBA	June 1997	450		450			
MARKETING & PUBLIC AFFAIRS							
• Marketing/Public Affairs	Mar 1995	1200		1200			
• Customer Information/Services/Marketing Research	June 1995	1200				1115	85
OPERATIONS							
SERVICE PLANNING							
• Admin/Opers Planning/Data Collection & Analysis	July 1994	1000		1000			
• Route & System Planning/Schedules		1000	1000				1000
SUPPORT SERVICES							
• ATOS	Jan 1992	1000	1000				
• Budgets							
• Workforce Administration							
TRAINING							
• Training: Surface/Subway	Aug 2000	1000					1000
• Planning & Program Development							
WHEEL-TRANS OPERATIONS							
• Transportation/Maintenance	Dec 1992	1400				1400	
• Customer Service & Administration		1400	1400				
OPERATIONS - SUBWAY							
SUBWAY - PLANT MAINTENANCE							
• Stations & Buildings Services	July 1998	1000	1000				1000
• Stations/Tunnels/Buildings Equipment		1000		1000			
• Escalators & Elevators / Maintenance Engineering		1200			1200		
SUBWAY - RAIL CARS & SHOPS							
• Heavy Repair & Overhaul - Greenwood Shop/Revenue & Security Equipment Maint (RSEM)	Jan 2000	1400					1400
• Carhouses/Standard Practices & Procedures/Subway Line Mechanics/Maintenance/Vehicle Engineering	Dec 1999	1400		1400			
SUBWAY - SIGNALS/ELECTRICAL/COMM.							
• Signals/Signals Engineering	Jan 1998	1000	1000				1000
• Electrical/Electrical Engineering/Practices & Procedures		1000			1000		
• Communications/Comm. Engineering/Special Projects		1000		1000			
SUBWAY - TRANSPORTATION							
• Station Operations/Collectors	Oct 2000	1000	1000	300	700	1000	
• Transit Control	July 1998	1000			1000		
SUBWAY - TRACK & STRUCTURE							
• Track Maintenance	Feb 1999	1800					1360
• Track Construction/Track Rehabilitation							
• Structure Maintenance							
• Maintenance Engineering							
OPERATIONS - SURFACE							
SURFACE - BUS MAINTENANCE & SHOPS							
• Bus Garages (7 Garages)	Jan 2000	1400			1400		
• W.E.P. Duncan/D.W. Harvey Shops/Technical Services	Oct 1999	1400				1200	200
SURFACE - BUS TRANSPORTATION							
• Bus Divisions (7 Divisions)	July 1998	1400			635	1165	
STREETCARS							

	Last Audit	Budget Hours	2001	2002	2003	2004	2005
• Roncesvalles/Russell Divisions	Mar 1999	1000				1000	
• Ronces Russell Streetcar Maint/Streetcar Tech'l Svcs.	July 1999	1000			1000		
• Streetcar Way	Feb 1999	1000				1000	
VEHICLE ENGINEERING		1000					
• Vehicle Engineering	Jan 1997						
• Bus Procurement	Jan 1999						
ENGINEERING & CONSTRUCTION							
ENGINEERING							
• Project Management	Feb 1998	1400		1400			
• Design/Controls	Jan 2000	1400				1400	
SHEPPARD SUBWAY							
• Facilities Construction Management	Sep 2000						
• Syst Design & Installation/Proj Ctrl/Facil Design Mgmt		1200					1200
		1000	1000				
EXECUTIVE							
FINANCE							
• Capital Accounting	May 1996	1200		155	1045		
• Payrolls and Costs	Oct 1997	1200				300	900
• Financial Services	May 1997	1200			400	800	
• Treasury Services	May 1996	1200	1200				
• Revenue Operations	April 1999	1200	1200	600	600	1200	1200
GENERAL SECRETARY'S OFFICE							
• Corporate Access & Privacy		1000		1000			
• Records Mgmt/Admin Svcs/Secretariat Svcs/Mail Svcs							
LEGAL AND CLAIMS							
• Legal	Oct 1997	1400	1400			400	1000
• Claims/Insurance							
INFORMATION TECHNOLOGY SERVICES							
• Systems Development/Planning, Quality & Standards	Aug 2000	1400				1400	
• Desktop Services/Y2K Project Office	April 1999	1400			1400		
• Technical Operations	June 1994	1400	1400				1000
MATERIALS & PROCUREMENT							
• Inventory Planning	July 1997	1000	1000				
• Purchasing and Sales	May 2000	1200				1200	
• General Stores/Divisional Stores	Nov 1998	1200			1200		
• Project Procurement	Feb 1998	700		700			
• Graphic Communications	May 1995	1000					1000
PENSION FUND DEPARTMENT							
PROPERTY MANAGEMENT							
• Property Services	June 2000						
• Metropolitan Toronto Coach Terminal (MTCT)		1000			1000		
		600			600		
SAFETY							
• Safety Audit & Eng./Safety Operations/Quality Assurance	Dec 1999	1400	190	1210			
• Environ'l Compliance/Occup Hygiene/ Fire Prev/Statistics	July 1999	1400			1400		
SUB-TOTAL HRS.		63150	14790	14615	14580	14580	14545
SYSTEMS DEVELOPMENT (Annual)		500	500	500	500	500	500
EXTERNAL AUDIT ASSISTANCE (Annual)		700	700	700	700	700	700
INVESTIGATIONS (Annual)		1500	1500	1500	1500	1500	1500
• Fare Evasion		550	550	550	550	550	550
CAPITAL (Annual)		3000	3000	3000	3000	3000	3000
SUB-TOTAL HRS.		6250	6250	6250	6250	6250	6250
ADMINISTRATION (Annual)							
• General			1800	1800	1800	1800	1800
• Vacation			2450	2625	2660	2660	2695
• Statutory Holiday			945	945	945	945	945
• Sick Time			315	315	315	315	315
• Training - Internal			225	225	225	225	225
• Training - External			525	525	525	525	525
SUB-TOTAL HRS.		0	6260	6435	6470	6470	6505
HOURS		69400	27300	27300	27300	27300	27300
Y-T-D TOTAL HOURS			27300	27300	27300	27300	27300
REMAINING PROJECT HOURS:			0	0	0	0	0

"I CAN'T DO THAT; I DON'T KNOW WHAT I'M GOING TO DO; I NEED TO HAVE AS MANY HOURS AS I NEED TO DO THE AUDIT."

Once the audit project parameters were established, the Audit Department staff reviewed the Plan and determined the resource requirements that would be needed to conduct the audit. The auditors were not told to sit down and commit a number of hours to complete a specific audit. Such an approach could be expected to lead to unproductive arguments along the lines of: "I can't do that; I don't know what I'm going to do; I need to have as many hours as I need to do the audit." Instead, the Audit Project Manager controlling the audit decides with the auditors on how long they have to do the specific audit. In effect, there is a contract with the auditors as to what they will do in the allotted time. If they find something that they are going to have to do that is more than that, they have to come back to the Audit Project Manager and get approval to do so. The Audit Plan numbers are not fixed in stone; however, they are designed to be the normal number of hours that should be required to do that particular audit.

Long-Range Planning

A look at the TTC Long-Range Audit Plan gives an idea as to how the audit projects were identified by department. It appeared pretty complicated when this had to be done the first time. Actually, what was done was to list all of the branches and departments in the TTC Phone Directory at that time. The Department Plan methodology has become more sophisticated since then. Now, project identification includes the date of the last audit, the department name, how many hours were allotted to the specific audit, and when it is planned on a five-year cycle. Included are projects for administration functions such as staff member vacations. Everything is tracked based on the five-year program and the number of hours that the Audit Department has available to spend each year. It is 27,300 hours, based on a staff of 15 auditors. Those hours must be accounted for whenever the Audit Department staff puts together the budget or the work plans.

A detailed sample of the TTC Long-Range Audit Plan is presented in [Exhibit 2](#).

The conclusion of this discussion will appear in the next issue of *EDPACS*. ■

Richard (Dick) Beecroft, CIA, has been the Chief Auditor at the Toronto Transit Commission (TTC) since 1989. Prior to coming to the TTC he worked for the Ontario provincial government. The early part of Beecroft's career was spent in the Engineering Operations of the Provincial Ministry of Transportation. Subsequently, he transferred to Internal Audit. Beecroft has been very active in the Toronto chapter of the Institute of Internal Auditors (IIA). He is a past president of the chapter, has held various chapter executive and committee positions, and has served on the Conference Committee for the last two IIA International Conferences that were held in Toronto.