1. OVERVIEW

a. Background

Transport Canada’s mission is to develop and administer policies, regulations and services for a modern, efficient, reliable, safe and affordable transportation system essential to strengthening Canada’s growth and prosperity. The department consists of groups working at headquarters in Ottawa and in five regions, as well as Transport Canada (TC) Service Centres.

Within the Government of Canada (GC), Minister Denis Lebel leads the Transport, Infrastructure and Communities (TIC) Portfolio. The Minister’s portfolio includes TC, Infrastructure Canada, the Canadian Transportation Agency, the Transportation Appeal Tribunal of Canada, and 11 Crown corporations.

The portfolio is a point of convergence for some of the most important issues facing Canada today: the productivity of our economy; transportation safety and security; environmental sustainability; and the quality of life in our cities and communities, as supported by public infrastructure. The portfolio also brings together a range of tools, including programs, legislation, policy frameworks and stakeholder networks.

TC Vision…

A transportation system in Canada that is recognized worldwide as safe and secure, efficient and environmentally responsible

TC Mission…

To serve the public interest through the promotion of a safe and secure, efficient and environmentally responsible transportation system in Canada

b. Organization

TC is organized as shown in Exhibit 1.
EXHIBIT 1

DEPARTMENTAL ORGANIZATIONAL CHART

Minister
Denis Lebel
Parliamentary Secretary
Pierre Poilievre

Associate Deputy Minister
Yapak Baltacıoğlu

Deputy Minister
Anita Biguza

Minister of State (Transport)
Steven Fletcher

ADM, Safety and Security
Gerard McDonald

Associate ADM, Safety and Security
Laureen Kinney

A/ADM, Programs
Helena Borges

ADM, Policy
Kristine Burr

Associate ADM, Policy
Guylaine Roy

ADM, Corporate Services
André Morency

DG, Corporate Secretariat
Natalie Bossé

DG, Communications and Marketing
Dan Dugas

Chief Audit and Evaluation Executive
Laura Ruzzier

Departmental General Counsel
Henry K. Schultz

A/RDG, Atlantic Region
Arthur Allan

RDG, Quebec Region
André Lapointe

RDG, Ontario Region
Debra Taylor

RDG, Prairie and Northern Region
Michele Taylor

RDG, Pacific Region
Michael Henderson
**Policy Group**

- The Policy Group’s role is to develop, recommend and coordinate modal and multi-modal policies. The Group also provides advice, analysis and intelligence on transportation issues, system performance and stakeholder positions. Advice on policy options is based on efficiency, competitiveness, safety and security, environmental sustainability, and intermodal integration. This role is fulfilled through a multi-modal program of policy analysis, briefings, coordination, consultations, evaluation and economic analysis, which develops and utilizes necessary data, forecasts, models, research and intelligence.

**Safety and Security Group**

- The Safety and Security Group is responsible for the development of regulations and national standards, as well as for the implementation of monitoring, testing, inspections and subsidy programs, which contribute to safety and security in the aviation, marine, rail and road modes of transport. The Group administers the delivery of aircraft services to government and other transportation bodies. The Group develops and enforces regulations, and standards under federal jurisdiction to protect public safety in the transportation of dangerous goods and to prevent unlawful interference in the aviation, marine and railway modes of transport. It also ensures that the department is prepared to respond to transportation and transportation-related emergencies.

**Programs Group**

- The Programs Group has responsibility for a vital economic portfolio. Given the Canadian economy's dependence on trade and the fact that trade, in turn, is highly dependent on efficient transportation, the programs they deliver are of utmost importance. They support the priorities of government and contribute to the Minister's policy objectives.

- While in the past the Programs Group concentrated on the divestiture of airport, port and surface transportation facilities, they now have a stronger focus on their custodial and stewardship role while divestiture continues. They are in touch with a broad base of stakeholders and play a key role in the implementation of sustainable transportation infrastructure projects. Their environmental programs seek to create awareness and educate Canadians about sustainable transportation. The Group's contribution programs are complex and managed through a risk-based approach, with effective monitoring and ongoing review.

**Communications and Marketing Group**

- The role of the Communications and Marketing Group is to help ensure effective and comprehensive communications between the department's internal and external clients. The Group exercises an oversight role in all communications areas.

- Group and Regional Heads are responsible for the integration of communications planning and implementation into policy development and delivery, and for the allocation of resources to
fulfill this need. The Communications and Marketing Group provides services and advice to its departmental clients and ensures that high standards are maintained for communications activities.

**Corporate Services Group**

- The Corporate Services Group provides overall administration, finance, human resources (HR), executive services and information management / information technology (IM/IT) support to the department. IM/IT products and services are delivered under a shared accountability model and within a corporately understood framework. Centralized activities are corporate in nature, while decentralized activities are those that are driven by regional requirements. The Group is also responsible for providing the public access to TC’s records in accordance with the *Access to Information Act* and *Privacy Act*. The Access to Information and Privacy (ATIP) Office is responsible for processing requests made under these acts.

**Regions**

- Regional offices are responsible for carrying out the regional activities of TC. Regional heads report directly to the Deputy Minister. Regional offices are located in Vancouver, Edmonton, Winnipeg, Toronto, Montréal and Moncton.

**Key Contacts**

*Technology and Information Management Services (TIMSD)*

Director General and CIO – Chris Molinski, 613-998-6465

- Computer Operations and Network Services
  Director – Rick Huard, 613-990-5380

- Information Management (IM) Services
  Director – Diane Lavigne, 613-991-2867

- IM/IT Architecture and Planning
  Director – Joël Comeau, 613-993-8040

- Application Management Services
  Director – Tracey Boicey, 613- 998-0739

- IM/IT Security and Infrastructure Planning
  Director – Richard Ruta, 613-993-7066

- Access to Information and Privacy
  Director – Réginald Laurent, 613-993-6162
Resources Available

- Approximately $55 million department-wide for IM/IT related activities (capital and ongoing operation costs included, salary and wages excluded).

Technology Overview

- There are approximately 5,500 personal computers (PCs) installed, mostly local area network (LAN)-attached. The Microsoft (MS) suite of products is the departmental standard including Windows XP Professional SP3 and Windows Server 2003 SP2, Windows Server 2008, MS Office 2007, MS Exchange 2007 (Internal, X.400 and Internet Mail). MS Internet Explorer (IE) is the supported Web browser and Internet Information Services (IIS) is the standard Web application server platform. New application development will leverage this environment. Note that a migration to MS Office 2007 and Records, Documents and Information Management System (RDIMS) eDOCS DM 5.2 was completed in the Spring of 2011.

- RDIMS DM is part of the departmental desktop standard. This includes eDOCS 5.2 with LiveLink RS 9.2 (iRIMS).

- Of the approximately 5,500 TC intranet clients, half are located in the NCR while the remainder makes up the other five regions. Windows computers are logically interconnected under a Windows Server 2003 SP2 functional level single forest/single domain model.

- Mid-range platforms include HP Proliant, IBM xSeries and Dell PowerEdge running Windows 2003/2008 and Redhat Enterprise Linux, and Itanium servers running HP/UX and VMWare ESXi running on HP Proliant servers. The VMWare ESXi servers run Redhat Enterprise Linux and Windows 2003, XP, 2000, 2008 in Virtual Machines (VMs). High Availability is provided by clustering technologies on these platforms.

- Citrix Presentation Server is the basis of the departmental thin client architecture and is implemented to facilitate access to, and delivery of, specific TC Enterprise business applications.

- Servers are co-located in centralized server rooms, specially designed to provide fault tolerance capability and provide upwards of 99% availability.

- The TC intranet is the departmental TCP/IP-based wide area network (WAN) to interconnect LANs, and servers. The TC intranet provides service to 90 dedicated sites and provides external access through Citrix Access Gateway (known at TC as TCMyDesk/TCMonBureau) as well as a Public Key Infrastructure (PKI)-based Secure Remote Access (SRA) service and firewall service.
2. TODAY’S PLATFORM AND APPLICATIONS

a. Client/Server Environment

- TC’s desktop software installations are accomplished using the Windows Active Directory Group Policy Object software installation feature and the Distributed File System (DFS) component of Windows server 2003. There are currently 90 DFS shares across the TC network.

- Windows XP SP3 Professional is the standard desktop operating system.

- Windows Server 2008 is the standard for LAN workgroup, application, mail post office, Web services and network communication.

- Server environments include HP Itanium (Integrity) servers running HP/UX; HP Proliant running Redhat Enterprise Linux, Windows Server 2008, 2003 SP2, and VMWare ESX virtual server environment hosting corporate data resources and other data services.

- TCP/IP is the WAN protocol.

- The LAN technology is Ethernet.

- TC uses a Storage Area Network (SAN) solution based on HP disk arrays, Hitachi disk arrays, IBM/Diligent VTL, Brocade Fibre channel switches, high availability disk arrays and virtual and physical tape libraries. In addition, TC uses a CommVault Simpana solution for backups and Symantec Enterprise Vault for automated e-mail archiving.

- TC uses Citrix Presentation Server 5.0 to deliver national corporate applications. In remote locations where bandwidth is not available, Citrix is also used to deliver the full office automation applications and to provide desktop-like functionality for TC’s teleworkers using TCMyDesk. (Citrix Access Gateway software)

- TC's automated Systems Management tool, HP Service Manager 7, is an ITIL-based system used nationally to manage all Change requests and Problem Management incidents. This system has been in use at TC for approximately one year.

- Exhibit 2 shows the PC software environment.
### DESKTOP SOFTWARE ENVIRONMENT

<table>
<thead>
<tr>
<th>Application</th>
<th>Today</th>
<th>Future*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antivirus</strong></td>
<td>McAfee VirusScan Enterprise 8.8, McAfee Host Intrusion Prevention 8.0, McAfee SiteAdvisor Enterprise Plus 3.0, McAfee Agent 4.5</td>
<td>McAfee VirusScan Enterprise 9.0, McAfee Host Intrusion Prevention 9.0, McAfee SiteAdvisor Enterprise Plus 4.0, McAfee Agent 4.6</td>
</tr>
<tr>
<td><strong>Word Processing</strong></td>
<td>RDIMS DM / MS Word 2007 integration</td>
<td>RDIMS DM / MS Word 2010 integration</td>
</tr>
<tr>
<td><strong>Spreadsheet</strong></td>
<td>RDIMS DM / MS Excel 2007 integration</td>
<td>RDIMS DM / MS Excel 2010 integration</td>
</tr>
<tr>
<td><strong>Presentation Graphics</strong></td>
<td>RDIMS DM / MS PowerPoint 2007 integration</td>
<td>RDIMS DM / MS PowerPoint 2010 integration</td>
</tr>
<tr>
<td><strong>Database</strong></td>
<td>Oracle 9i,10g</td>
<td>Oracle 11g</td>
</tr>
<tr>
<td><strong>Messaging</strong></td>
<td>RDIMS DM / MS Outlook 2007 integration (Desktop) MS Exchange 2007 (Server)</td>
<td>RDIMS DM / MS Outlook 2010 (Desktop) MS Exchange 2010 (Server)</td>
</tr>
<tr>
<td><strong>Desktop Operating System</strong></td>
<td>MS Windows XP SP3</td>
<td>MS Windows 7</td>
</tr>
<tr>
<td><strong>Browser</strong></td>
<td>MS Internet Explorer 7</td>
<td>MS Internet Explorer 9 or higher</td>
</tr>
<tr>
<td><strong>Web Editing Tools</strong></td>
<td>Dreamweaver CS4 with Internet WCMS using OpenText Web Solutions</td>
<td>Dreamweaver CS5 Intranet WCMS using OpenText Web Solutions</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>Entrust PKI and SSL Nortel Contivity</td>
<td>Entrust PKI, SSL Nortel Contivity</td>
</tr>
<tr>
<td><strong>Document Management</strong></td>
<td>RDIMS DM ccmMercury Evault</td>
<td>RDIMS DM ccmMercury Evault</td>
</tr>
<tr>
<td><strong>Record Management</strong></td>
<td>LiveLink RS 9.2 (iRIMS)</td>
<td>LiveLink RS 9.2 (iRIMS) or eDOCS RM or Content Server 2010 RM</td>
</tr>
<tr>
<td>Other</td>
<td>Adobe Reader 8.2</td>
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<tr>
<td></td>
<td>WinZip 9.0</td>
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<td></td>
<td>QuickView Plus 10.0</td>
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<tr>
<td></td>
<td>Citrix Program</td>
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<td></td>
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<td>Java 6 Update .x</td>
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</tbody>
</table>

* The future software environment will be determined based on business requirements and strategic business and IM/IT directions.

b. **Web Environment**

TC uses Network Load Balanced Web farms with MS IIS servers for both the Internet and intranet Web sites and also for the secure environments. The Web clustering solution and its associated server platform are scheduled to be updated by the end of 2011. After the update, the software on these servers will be:

- Windows Server 2008 R2 64 bits, Internet Information Services (IIS) 7.5, Oracle Client 11g R2 drivers, IE 8.0, MDAC 6.1, XML 4.2, MSXML 6.2, Crystal Reports 10.2 run time (Visual studio 2005), Crystal Reports 10.5 run time (Visual Studio 2008), Crystal Reports 13 run time (Visual Studio 2010), .NET Framework 1.1 SP1, 2.0 SP2, 3.0 SP2 and 3.5 SP1, TCMailer.Net 2.0 and 3.0 (a custom .NET component that provides mailing capability, logging and error handling), CLF Page (2.0, 2.2, 3.0, 4.0, External 1.0) (a custom .NET component that provide the CLF shell for all Web applications).

c. **Application Development Environment**

TC corporate application development toolset is composed of the following tools:

- **Web/Internet/intranet** - MS Visual Studio, Visual Studio 2010 and Team Foundation Server 2010, Eclipse, Dreamweaver CS4, XHTML, XML, Oracle Forms and Web Services are used.

- **Client/Server** - MS Visual Studio 2010 (MS Visual Studio 2005 and 2008 is legacy), Java, PowerBuilder and Centura are used. PowerBuilder and Centura are considered legacy platforms, and use of MS Access is no longer supported in the any environment including the Web. Work is underway to transition to a service-oriented application architecture (SOA) approach focused on n-tier and smart client designs.

- Database applications requiring out of the box integration with RDIMS DM and/or need
workflow tracking capabilities are developed using the ccmMercury tool.

- Forms Management – TC has standardized on Adobe LiveCycle Designer for the creation and editing of corporate forms. Publishing is facilitated through the Forms Management System, an internally developed database application. Client access to all published PDF and paper forms is available through the TC Internal and External Forms Catalogues. The default forms and PDF document viewer is Adobe Reader, which continues to be part of TC's baseline corporate desktop. The Forms Catalogue Web application (where all electronic and paper forms are stored and accessed) has been modified to use Adobe Acrobat. Adobe LiveCycle Extension 8.2 is used to extend PDF forms. Extending a PDF form provides a Save feature when the form is opened with the Adobe Reader software.

- TC evaluated, acquired and implemented Adobe Acrobat Lifecycle Designer Version 8 as the new standard Forms designer package. Extended PDF forms can be edited and saved using Adobe Reader.

- TC uses the AllFusion Modeling Suite as the Metadata Repository within the department. The suite consists of Model Manager, Erwin Data Modeler, Component Modeler, Process Modeler and Validator. This Data Modelling framework consists of models based on international standards, a common business approach and TC’s business line data subject area categories. The aim is the creation of a department-wide set of models that is built on data/information sharing, standardization, reusability and data integrity. Please note that Component Modeler and Process Modeler have not yet been fully endorsed by the department as a standard.

- The Oracle® Database Management System is the standard Database Management System for National, Corporate, and Internet/Extranet applications. TC went through a competitive process to procure Database Management Software. In 1995, TC bought a departmental licence for the Oracle Database product and has been paying maintenance for the use of this software annually since this time. All TC corporately supported applications use the Oracle Database Management Software. There are over 600 corporate horizontal Oracle Database implementations (development/training, acceptance and production) in the department. Oracle Database Software is the departmental standard for all corporate applications. While TC has some other Database products in the department, these products are limited to vertical workgroup applications in nature or are used in conjunction with MS components such as MS Exchange Storage Management, Citrix Implementation or Team Foundation Server.

- TC’s standard for Database Management Systems is Oracle. TC’s Oracle infrastructure is supported by eight highly skilled and extensively trained Oracle Database Administrators who provide 24/7 on call support for TC’s Corporate Oracle applications. TC’s corporate Database infrastructure includes Oracle Database Management System licensing, tools, processes and most importantly expertise to provide and/or support: TC’s
applications; a secure Oracle Internet environment (Oracle Demilitarized Zone [DMZ]) used by all TC Internet applications; mission critical backup/recovery; problem and analysis resolution; performance analysis and tuning; installation, testing and implementing Oracle release and patch software to manage TC extensive Oracle environments.

- TC has acquired and implemented the following SAP Business Objects products: Business Objects XI Enterprise (for ad hoc and multidimensional reporting); Business Objects Crystal Enterprise (for reporting); Business Objects Xcelcius (for DashBoards) and Business Objects Premium.

- Fujitsu’s (formally DMR) Web based Macroscope ProductivityCentre© is used as the corporate systems development life cycle (SDLC) methodology tool. Macroscope ManagementSuite© is being assessed for consideration as the corporate Project Management methodology tool.

- TC also makes use of Public Works and Government Services Canada’s Secure Channel services for externally facing Protected “B” Web applications for authentication. The new Secure Channel Access Key solution has replaced Secure Channel e-Pass. TC also makes use of Secure Channel’s secure file transfer protocol service known as Secure File Transfer.

- TC's solution for its internally facing Protected “B” Web applications is based on the Entrust Truepass© and Entrust SDK as well as Oracle Advanced Security.

d. **Transport Canada Intranet (TCI)**

- A TCP/IP-based department-wide network, TCI network, has been established interconnecting all TC offices. It is a router-based network supporting 10/100/1000 Base-T (Ethernet) LAN connectivity.

- Wireless capability exists within the NCR Tower C premises and this capability is being provided to regional offices.

- LAN servers are interconnected within the TCI, providing secure access to key corporate services.

- Perimeter defences provide secure external access and gateways to external services (e.g. the government X.400 Network and Global Internet). It includes firewall, Intrusion Detection and host agents for anti-virus.

- Multi-Protocol Label Switching (MPLS) is currently employed as the WAN backbone and has the potential to support Asynchronous Transfer Mode (ATM) for high-speed voice, data, and video, etc… requirements. Government Fibre Network Services has been implemented
in Metropolitan areas where TC offices exist. MPLS is part of production network services.

- The TCI is a service delivered by Public Works Government Services Canada (PWGSC) / Information Technology Services Branch (ITSB).

- The TCI supports access to the GC X.500 Directory and SRA capabilities for the mobile/teleworker.

- PKI Entrust software has been installed on every TC desktop. This allows secure exchange of electronic information created using TC’s national messaging system, MS Exchange, internally and between any government or private entity that participates in the PKI model. A secure Web infrastructure service, based on the Entrust technology, is being implemented for applications requiring such security. TC had been utilizing PWGSC’s Secure Channel services for processing of Protected “B” Web applications on the Internet. These services have now been migrated to PWGSC’s Access Key Services.

- A national SRA service has been implemented to support an increasingly mobile workforce. In addition to providing a standardized service for remote access to e-mail and LAN services by work-at-home users during non-business hours, there is a critical need to support travelling inspectors during core business hours. Other remote connectivity requirements are met with tools such as Webmail and TCMyDesk. (Citrix Access Gateway software).

  - This service is available to all regional offices on a remote-dial phone number basis and provides secure access to that individual’s electronic work environment regardless of where they may be at any particular point in time.

  - This service is now provided by ITSB at PWGSC and incorporates PKI capability for all TC remote users.

  - At this time, there are 15 sites connected via digital subscriber line (DSL)/Cable using SRA Next Generation Gate-to-Gate technology. Currently this service is available on a case-by-case basis.

**e. E-Services Delivery Environment**

- TC currently utilizes approximately 130 national applications to deliver its programs and meet its administrative requirements (these are included in the 600+ applications recorded in TC’s departmental application inventory). These applications run in a mixed environment of LAN based (client-server considered our legacy environment) and intranet/Internet Web (predominant platform for all new application development) environments. Thin-client technology (Citrix Metaframe) has been rolled out to facilitate access to Enterprise applications. TC is also a strong supporter of Commercial-Off-the-Shelf (COTS) / shared solutions and of cluster-group arrangements, where the fit is right.
TC undertook a study in 2006/07, known as TC’s Application Review and Consolidation Study (TC-ARCS) to determine long-range application development and evolution plans (including a review of possible efficiencies). The Study proposed the need to move to a SOA in addition to proposing certain cost efficiencies in our end-to-end planning and system management processes. Since then, a number of Web services modules have been developed providing common master-data access services and a study was conducted on how to implement a UDDI library at TC.

TC has developed an Application Management Framework (AMF) to provide a policy, standards, guidelines and best practices for application development and support. The AMF is a blueprint for how business application systems are planned, developed, implemented, maintained and supported within TC. Its cornerstone is the Fujitsu Macroscope methodology tool.

TC has an internal Web service (intranet) and an external Web service (Global Internet) for access by the public. The platform used for those environments are in the middle of a migration that should be completed before March 31, 2012. The TC internal and external Web environment consists of the following predominant products: MS Windows Server 2003, MS IIS 6 and Oracle Client 10g drivers (they will be replaced by Windows Server 2008 R2 64 bits, Internet Information Services v.7.5 and Oracle Client 11g R2 drivers), Google Search Appliance search engine for intranet and Internet, as well as Dreamweaver CS4. A phased implementation of an Enterprise Web Site Content Management solution (OpenText's Web solutions, formerly known as RedDot) started in 2008/2009 and will be ongoing until March 31, 2013. The Internet part is completed.

Both the intranet and Internet sites are compliant with GC ‘common look and feel’ standards and guidelines (v1.1 for the intranet and v2.0 for the Internet). The v2 ‘look and feel’ (CLF) is being applied to all new externally facing Web sites and business applications. TC’s Web sites provide a more intuitive interface for those requiring information about TC and its services. Clients and members of the general public are currently able to:

- Receive general TC information including speeches and press releases;
- Obtain names and phone numbers from the TC directory;
- Read TC Acts, regulations and policies;
- Review and comment on revisions to regulations;
- Query registration data for Canadian aircraft and vessels.

Web application development and acceptance (DEV and ACC) servers have been implemented to provide more capacity to perform application/database code development and a significantly improved integration and user-testing environment. VMware is used extensively in this environment.
The TC Directory empowers TC managers and employees to manage their own personal information and quickly acquire the TC services and assets directly through the Web environment. The TC Directory consolidates existing directories, automatically manages system and application accounts, Security Screening Functionality and helps promote and enforce safety and security for TC buildings and networks.

Oracle Financials 11i (11.5.10) had been implemented to expand the capability of the departmental financial system to include e-payment (I-Payment) and e-receivables (I-Receivables), electronic ordering and inventory management (I-Store) of TC products sold to the public, and a Web browser-based interface making the system far more effective and efficient to use. The Oracle Financials 11i footprint was subsequently expanded to include the I-Expense module and has been used to manage employee travel claims. TC is currently in the process of upgrading the Oracle ERP to Oracle R12.

The method for selecting and funding e-services candidates has been integrated into the ongoing departmental IM/IT investment planning activities.

f. Administrative Systems Environment

The Oracle 11i BIRM (Business Intelligence and Resource Management) system enables the department to integrate its financial and materiel resources. It is based on the Oracle Financials 11i (Oracle 11.5.10) suite of applications with support for Citrix MetaFrame thin clients. The infrastructure for these systems was upgraded to utilize newer technology based on HP/UX for the database components and Intel based servers running the Linux operating system for the application server components. The core Oracle suite of applications includes Accounts Payable (AP), Accounts Receivable (AR), General Ledger (GL), Fixed Assets (FA), Purchasing (PUR), I-Procurement (internal to TC only), I-Payment, I-Receivables, I-Store, TC Billing System and various interfaces to internal TC systems and external systems such as the Receiver General of Canada. The Oracle Portal (10g) technology solution was implemented to create an Employee portal and a Manager portal to expose financial information, and has been successfully used by hundreds of TC users. TC is currently in the process of upgrading the Oracle ERP to Oracle R12.

TC provides process support to the HR professionals working in its offices across Canada via the TC Integrated Personnel System (TIPS), a suite of some seventeen integrated applications serving the various HR disciplines. The TIPS applications utilize the Gupta Centura Team Developer (v.3) platform and share a common Corporate HR Database (Oracle 11g). TIPS is presently a shared system solution for CSA and CED_Q and contains many features, such as a direct link to the PWGSC Regional Online Pay System. Self-service to managers, employees and the Canadian public are provided through a smaller suite of eight Web applications on various platforms - all utilizing the same Corporate HR database. These include LEX, which provides full workflow support to Leave and Extra Duty, a single sign-
on HR services portal and an automated organization chart generation/HTML publication facility that is available to managers. Significant changes have been incorporated over the last 12-18 months to comply with the coming into force of Public Service Employment Act (PSEA) and Public Service Modernization Act (PSMA), and to provide further self-serve business efficiencies such as the online processing of HR Service Requests, the Staffing Tribunal Automated Complaint Tracking System and the Staffing Action Management System.

- In order to process requests, the ATIP Office uses a suite of software known as AccessPro Case Management Suite from Privasoft. It is comprised of the following modules:
  
  o **AccessPro Case Management** – APCM is an automated central processing system used to process ATIP requests. TC uses an unclassified and secure (for the processing of files up to the secret level) version of the system. It essentially allows analysts to track their actions, create correspondence, and also contains essential data, related to the processing of an ATIP request, such as the requesters’ relevant information, as well as scope of the request and other relevant tombstone data. APCM provides Automated Tracking and Reporting, Detailed Audit Log, Correspondence Generation, Numerous Search Features, Work Allocation and Reporting, Integrated Time Management and Contact Management. The system also allows the production of statistical information for the preparation of the ATIP Annual Report to Parliament, the Treasury Board (TB) statistical report and the Office of the Information Commissioner Report Card.

- A departmental e-mail system continues to evolve in support of internal and external electronic communications requirements. An MS Exchange 2007 rules-based architecture allows users to dynamically manage the inflow and outflow of electronic information through an intuitive, highly graphical interface. Outlook Webmail has been enabled that allows TC employees to access their corporate e-mail via the Internet.

**Information Management Environment and Initiatives**

- RDIMS DM is part of the GC Shared System Initiative. This system was installed on every desktop within TC as of August 2002. RDIMS DM is an integrated set of tools and rules that facilitate the creation, capture, storage, organization, retrieval, sharing, re-use protection and disposal of information in an electronic environment, regardless of the format and without geographical or organizational barriers. It is a fundamental component of the infrastructure necessary for the government to deliver on the Government’s information management agenda. The RDIMS DM implementation for TC enables the storage of Unclassified and Protected “A” information. Provision for storing Protected “B” information is a requirement for the future evolution of RDIMS DM. RDIMS DM is the key information service supporting the GC Policy on IM and its related Directives. RDIMS DM’s main functionality includes:
o Document Management: storage and retrieval of electronic documents or other types of information assets, access control, version control and document history;

o Records Management: life cycle management of records and documents, classification, retention and disposal;

o Full Text Search: content based search and retrieval of a document;

o Workflow: defined flow of information to people and processes based upon rules. The integration between RDIMS DM and ccmMercury provides workflow functionality;

o Imaging: scanning, viewing, Optical Character Recognition to create editable text from images;

o Reporting: Standard and ad hoc reports.

- TC completed an upgrade to RDIMS DM to v5.2 as part of the MS Office 2007 / MS Exchange 2007 Upgrade Project in the Spring 2011. It is the department's objective to maintain one comprehensive document repository to ensure effective sharing and management of document based information holdings for the department.

- Workflow: ccmMercury is the Department's primary application tool that allows business units to monitor and manage ad hoc workflow and processes, track tasks, documents and other items. Examples include: Executive documents, correspondence, projects, work orders, permits, phone calls, monitoring and inspection reports, application security patches, frequently asked questions, agreements, library items such as reference questions and interlibrary loans, etc. ccmMercury is integrated with RDIMS DM, enabling enhanced workflow for business units that require tracking while ensuring document attachments are stored and maintained in the corporate repository. This combination has enabled development of more effective business processes in several business units and is encouraging similar initiatives in others. To date, more than 30 database applications have been created using ccmMercury which has proven to be a cost-effective and efficient application development platform.

- Records Management Information System (RMIS-WEB) to manage its legacy hard copy files (paper) and Livelink (RDIMS DM) for electronic documents. TC uses the Automated Labelling Process System (ALPS-WEB) to produce labels for large mailings.

- TC is committed to the GC IM Strategy and complying with the requirements of the Treasury Board Secretariat (TBS) Policy on IM and other central agency IM policy instruments. Through the IM Strategic and Implementation plans, TC has completed a number of activities covering the broad spectrum of IM. These activities include:
The development and implementation of IM policy instruments such as the TC IM Directive, the TC Directive on IM Procedures for Employee Departures, the TC Standard for Backup Retention Periods, and the TC Data Administration Metadata Standards;

- An IM/IT Governance Framework;
- The development of a sustainable and ongoing national IM awareness training program;
- An IM Succession plan for NCR;
- The adoption of TC Metadata Standards department wide;
- The review and inclusion of IM principles into the departmental System Development Life Cycle (MacroScope Productivity Centre), the TC Change Control Board process, the Program Approval Document Process, the Non-Standard Product Justification Process, Contracting documents and other types of documents;
- The development of the IM Compliance Review Methodology; and
- The development of a Performance Measurement Framework for IM.

TC has a Data Administration Framework and Standards that deal with Application Development, Application Maintenance, Data Modelling, Information Needs Assessments, IM Plans, and Data Warehousing. There are currently three documents which deal with TC’s Data Administration:

- The TC Data Administration Metadata Framework;
- The TC Data Administration Metadata Standards;
- The TC Data Administration Quick Reference Guide.

- The TB Standard on Geospatial Data came into effect July 1, 2009 with all GC Departments required to be fully compliant by May 31, 2014. TC is working to ensure this standard is met (specifically meeting ISO 19115 Geographic information - Metadata standard, ISO 19128 Geographic information - Web Map Server Interface as prescribed by the TB standard).

- With the release of the TBS Policy on IM in July 2007 and its supporting directives (Directive on Roles and Responsibilities, October 2007, and Directive on Record keeping, June 2009), TC has reviewed and updated all its IM standards, directives and documentation (IM Awareness Sessions, Departmental IM Directive etc.). A new annual TC IM Strategy/Action Plan was created in 2008 and is reviewed on a yearly basis. The TC IM Strategic Plan is updated on an annual basis to address the implementation requirements of
the GC IM Strategy, the Policy on IM, other central agency IM Policy instruments, and the evolutionary IM needs within the department over the upcoming four fiscal years.

- TC has built on the original Transport IM Compliance Review Methodology and performed an initial pilot compliance review of TC’s Audit and Advisory Services Branch. Since the pilot, additional IM Compliance Reviews have been done nationally and will continue to be performed in FY 2011/12.

- The TC Library's integrated library system is called Horizon. It is a COTS product that includes an online catalogue of the library's holdings with acquisition, cataloguing and circulation modules that assist in the processing, classification and distribution of library materials to departmental employees, other federal government departments and the public.

- The TC Thesaurus provides a hierarchical controlled vocabulary of terms for TC to use in the subject element of metadata. These terms can be applied to Web pages and used with other applications to organize content and enhance search results. It is currently deployed in the Web Content Management System and Communications’ internal Photo Bank application.

- The TC Virtual Library is an intranet site that allows for informational self-service by providing desktop access to library resources such as subscription-based electronic information resources, digitized collections, research portals and access to other library collections. As part of this intranet site, there is a Virtual Library application, which facilitates the networking of CD-ROMs and DVDs on reference materials, technical standards and aircraft manuals for TC employees across the country.

- In collaboration with the libraries of the Canadian Transportation Agency, the Transportation Association of Canada, the Transportation Development Centre and the Transportation Safety Board have created a Web site called the Canadian Transportation Research Gateway. This Web site is a comprehensive, bilingual collection of Web-based resources on the subject of transportation in Canada and is intended to provide researchers, students, government, and industry with convenient access to evaluated Canadian transportation research resources through a single gateway.

- Collaboration and Web 2.0 Technologies – Collaboration can be defined as a mutually beneficial, well-defined relationship entered into by two or more persons or organizations to achieve common goals. Collaboration and Web 2.0 technology refers to programs that help people work collectively regardless of location and include social media tools (Facebook, Twitter, Youtube etc), shared calendaring and scheduling, file sharing, collective writing, e-mail handling, communities of practice (COP), public consultation, bulletin boards, shared database access, electronic meetings, Instant Messaging etc. TC has performed an in-depth user requirements analysis and is making strides at the implementation of Web 2.0 technologies, which factor IM implications (see IM/IT project 29 below).
There have been a number of Data Warehousing projects completed including Rail and Marine Occurrences. The completion of the BIRM ORACLE 11i reporting project using the Data Warehousing methodology marked a major milestone in Data Warehousing for the department. New initiatives are underway that will expand the scope and capability of the corporate Data Warehouse including Civil Aviation Business Intelligence Infrastructure (ABII) and Enterprise Resources Management System (ERMS). There will also be activities to increase the scope and breadth of TC Core Tables.

The SAP’s Business Objects Business Intelligence platform and tools have been implemented to address the reporting, analytical and DashBoard requirements of various user groups at TC. Casual users and information consumers can leverage various Web interfaces (InfoView, Oracle Portal etc.) to access content, Crystal Reports for enterprise reporting requirements, Web intelligence and Desktop Intelligence for power-users and analysts and: Xcelcius for DashBoard analysis. The department stands to benefit from a Data Warehousing and operational systems reporting approach and the use of Business Intelligence Software in the following ways:

- Accelerate the definition of new performance indicators;
- Enable the creation and iterative development of integrated performance measures where real business value can be derived, e.g. average cost/inspection by mode by inspection type;
- Enable a consistent understanding of trends and performance measures throughout the organization;
- Eliminate redundancies in data collection and analysis;
- Enable improved analysis and reporting of operational data;
- Reduce/eliminate paper reporting, a typical benefit derived by most organizations embarking on a Data Warehouse

h. Management of Information Technology Security Standard (MITS)

- MITS, a TBS standard, defines baseline security requirements that all departments must fulfill to ensure the security of information and information technology assets and is the key to GC-wide effort to improve IM/IT Security. TC has achieved MITS compliance.

- The priorities for IM/IT Security at TC include:
  - Inclusion of IM/IT Security strategic objectives in the newly mandated Departmental
Security Plan;

- Continuation of an Enhanced Security Awareness Program;
- An increased emphasis on the responsibilities of managers and employees;
- The safeguarding of TC’s sensitive information assets;
- An improved monitoring/auditing framework;
- Implementation of advanced IM/IT Security tools.

3. INFORMATICS DRIVING FORCES

Exhibit 3 outlines some key influences, which will affect the informatics activities within the department.

IM/IT exists to support service delivery and business needs. Development, implementation, and application support must be done in close cooperation with lines of business. Because business requirements drive IM/IT activity, the department needs to:

- Find and capitalize on opportunities by coordinating plans and initiatives across the organization through improved governance, communication and planning processes.
- Balance large department-wide and smaller initiatives.
- Integrate IM/IT into the business planning process.

The IM/IT priorities, needs and opportunities of TC Business Lines suggest the following “top ten” common department-wide IM/IT priorities:

- Information integration, interoperability and interchange – including the consolidation/rationalization of existing information systems;
- Business Information Intelligence - including Enterprise Reporting, Data Warehousing and Business Intelligence tools for information access, analysis, and reporting of financial and non-financial information;
- Document and Information Management – The long-term upgrade roadmap for RDIMS DM from eDOCS 5.2 with LiveLink RS 9.2 (iRIMS) to eDOCS 5.3 or 5.4 or Content Server 2010 DM in combination with eDOCS RM or Content Server 2010 RM, continued IM Awareness training, IM Integration into applications, Development and Maintenance and IM Strategic Plan FY 2010/11 - 2013/14
• Security - Electronic Signature, Authentication, Privacy, and Encryption of documents, ability to house Protected “B” documents in an electronic repository (RDIMS DM) (put on hold), information and electronic communications;

• Internal Service Improvement - specialty information systems, such as Geographic Information Systems (GIS) and Wireless / Mobile worker applications, collaborative solutions, new desktop tools (migration to MS Office 2007 / MS Exchange 2007 / RDIMS DM 5.2 were completed in FY 2010/11);

• External Services Delivery – initiatives which provide electronic information, transactional and collaborative capabilities to external stakeholders;

• Communications – an evolved infrastructure providing speed of access for mobile/remote usage while incorporating appropriate security.

• The departmental IM/IT governance structure has evolved to include a Business IM/IT Council, IM/IT Investment Committee and IM/IT Architecture and Standards Committee made up of program and IM/IT senior managers. The Council functions as a liaison between TC and the Executive Management Committee (TMX) through the Assistant Deputy Minister, Corporate Services. The Council, as a departmental governance body, establishes sound IM/IT principles and guidelines and recommends IM/IT investments (through the recommendations of an IM/IT Investment Committee) in support of program requirements, approves IM/IT standards and architecture (through the recommendations of an IM/IT Architecture and Standards Committee), and ensures integrated IM/IT project planning, all in support of program delivery. The Project Oversight Secretariat (POS) launched April 01, 2009 to build on the existing IM/IT governance structure and processes, and improve overall management of IM/IT projects. The POS’ key objective is to facilitate the successful delivery of IM/IT projects by the various IM/IT, business/program area community contacts/resources within TC. The POS supports and is in-line with TB’s Policy on the Management of Projects and the Policy on Investment Planning-Assets and Acquired Services. As required by these policy directives, the POS will develop a departmental capacity to improve the overall management of IM/IT projects.

• By leveraging the revised departmental IM/IT governance structure, the annual TC IM/IT Strategic / Investment Plan was approved in early FY 2010/11, and will evolve to meet the Department’s requirements and will be driven by TC’s business direction and priorities. The main purpose of this Plan is to guide the development and management of the IM/IT environment within TC to contribute to effective program delivery and to meet a broad set of evolving client needs. These clients are diverse, from external stakeholders who help shape policies, to businesses and citizens transacting with TC, and to TC employees working together, with external clients, with other government departments and with other levels of governments in order to assure the best transportation systems for Canada and Canadians.

• The TC IM/IT Strategic / Investment Plan lays the foundation for a business driven IM/IT
investment program, ensuring that all investments across all business lines contribute toward corporate success, maximize business benefits and minimize risk. Realizing the TC IM/IT Strategic / Investment Plan will result from a combination of reductions and careful management of costs, both through the IM/IT efficiencies, investing in new projects (feasibility studies, pilots, new projects and enhancements) and ensuring that the IM/IT goals and objectives not addressed by specific investments are otherwise achieved through a series of planned, budgeted activities. Departmental IM/IT related spending must remain in line with the internal business needs and balanced against the government wide common shared services agenda, and each project undertaken must be linked back to the goals and objectives of the TC IM/IT Strategic / Investment plan.

EXHIBIT 3

<table>
<thead>
<tr>
<th>INFORMATICS DRIVING FORCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• TC has a plan in place to deal with TB IM Standards (Standards on Metadata, and Geospatial Data).</td>
</tr>
<tr>
<td>• Integrating and consolidating existing information and information systems.</td>
</tr>
<tr>
<td>• Implementing Enterprise Reporting, Business Intelligence including data warehousing.</td>
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<tr>
<td>• Improving document and IM.</td>
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<tr>
<td>• Implementing new security features and safeguards including electronic signatures.</td>
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<tr>
<td>• Broadening the use of e-services to serve external stakeholders.</td>
</tr>
<tr>
<td>• Developing the communication infrastructure without compromising security.</td>
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<tr>
<td>• Assessing its Protected “B” information handling capability.</td>
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</tbody>
</table>
4. PLANNED CHANGES AND UPCOMING PROJECTS

The envisioned IM/IT capabilities for TC include:

- The TC intranet network infrastructure capacity and technology is continuously upgraded to meet evolving business needs (e.g. supports combined wireless, voice, data, images and video).
- Application services are delivered in a consistent and efficient manner.
- There exists a common means of ensuring that applications are secure.
- Clear IM/IT governance, management and accountability model is in place.
- Service Level Agreements (SLA) are in place to ensure consistency and measurability of IM/IT services delivered.
- A department-wide IM Strategy is in place and widely adopted.
- An IM Compliance Review regime is operational.
- There exists sufficient skilled IM/IT resources to maintain and evolve the IM/IT environment based on business needs. Succession planning is being emphasized to mitigate the effects of departures due to retirement.
- A department-wide life cycle approach is adopted to maintain desktop, server and associated software.
- Legacy and new application systems are integrated and interoperable.
- Enterprise Electronic Document Management tools will be fully integrated with applications and an integral part of the way people do business.
- The philosophy of “Information as a valued asset” will be ingrained in the TC culture fostering the sharing and reuse of information.
- Solid IM and record keeping practices are part of the normal business processes in TC. This includes training new and existing TC employees on IM roles and responsibilities.
- All IM and record keeping processes are fully integrated together and across application systems.
- TC becomes a learning organization where knowledge management plays an integral role.
- The use of Enterprise TC Directory will be fully implemented into all applications and related processes within TC.
• A single search engine is adopted for all Web content searching.

• A single solution is implemented for Web site content management for both intranet and Internet Web environments.

• Common standards are adopted in the areas of information, application, technology and security.

• An enterprise information model is in place and the acquisition and implementation of a Metadata Repository.

• Enterprise Reporting and Business Intelligence software solution is utilized for all TC reporting.

• IM accountabilities are included in the accountability accords of TC’s Senior Management.

• An Internal (intranet) Access Portal is available for employees to access all work-related information.

• TC’s automated Systems Management tool HP Service Manager 7 is an ITIL-based system used nationally to manage all Change requests and Problem Management incidents. This system has been in use at TC for approximately two years.

• TC’s automated e-mail storage technology known as Evault, allows TC to better manage unstructured data stored in MS Exchange mailboxes and PSTs.

• Mobile workers such as inspectors are provided with mobile services that are more complex than can be provided on a laptop computer. This will require new communications services including satellite, high-speed cable services and other alternatives. Handheld devices and wireless solutions will be required.

• TC Internet/intranet sites evolve from static to transaction-oriented pages and content increases both for internal and external consumption. New self-service applications and enabling and enhanced collaboration infrastructure (e.g. Web 2.0) are being envisioned for TC in support of the e-services (internal and external service delivery) agenda.

• Sound IM principles will be incorporated into the AMF and the Macroscope SDLC.

• IM/IT Project Management Framework is developed and adopted.

• TC business planning practices and Business Cases will include IM requirements.

The following is a list of the IM/IT-based projects that are ongoing during Fiscal Year 2011-2012:

AIR CARGO SECURITY
1. **Secure Supply Chain Information Management System (SSCMS) (8993)** - TC in partnership with Canada Border Services Agency are undertaking to outline a broad strategy and approach for developing a comprehensive air cargo security regime for Canada. The Air Cargo Security (ACS) program's mandate is to enhance aviation security as it relates to the Canadian public, which requires taking all means possible to ensure that no interference occurs with air transportation over which the GC has authority. In 2008, ACS implemented the SSCMS, an automated solution hosted by an external organization, to manage, track and report on ACS program participants. This contract was terminated in March 2010, and the system was temporarily replaced by the interim Secure Supply Chain Management System (iSSCMS), which consisted of a number of manual processes and leveraged a variety of existing TC applications, until a fully operational automated solution could be permanently implemented. The strategy will address three specific risk-based priorities: (1) Protecting against explosives carried in cargo on passenger aircraft; (2) protecting against explosives in mail carried on passenger aircraft; and (3) Protecting against commandeering of all-cargo aircraft. The proposed development work is considered to be a new release of the existing Interim Secure Supply Chain Management System (iSSCMS). It will resolve a number of capability deficiencies, and will re-use some logic, algorithms and code.

**AIRCRAFT SERVICES**

2. **Aircraft Integrated Management System (AIMS) (8569)** - AIMS will assist in greatly improving the efficiencies and safety management of their operations. Such a system will comprise a new integrated aircraft maintenance planning and control, and inventory management software application with an automated interface to both the existing flight operations system (FlightPak) and departmental financial system (IDFS). Ensuring compliance with the airworthiness rules necessitates the effective tracking of thousands of aircraft component parts and serial numbers in terms of their origin of manufacture, current location, modification history and status, time since manufacture, time since overhaul, and time since inspection. These records also serve to provide Aircraft Services Directorate (ASD) with a means to plan, organize and control its operating and maintenance activities in accordance with regulatory requirements, as well as provide the necessary documented evidence of compliance during regulatory audits and inspections by TC’s regulatory inspectors.

3. **Safety and Quality Information Database (8540)** - As with all management systems, a safety management system encompasses goal setting, planning and measuring performance. Implementation of a safety management system is a mandated requirement for Aircraft Maintenance Organizations and Air Operators. The Aircraft Services Directorate (ASD) is certified as both. Failure to implement an effective system may cause ASD to be in violation of Canadian Aviation Regulation requirements. The implementation of a database will enable ASD to efficiently track, assess, manage, and report information that is relevant to complying with safety and/or other quality assurance requirements. The safety management system database will provide a more cost-effective means of carrying out the program and keeping pace with the increasing workload resulting from complying with the TC mandated requirements of the
aviation industry.

CIVIL AVIATION

4. **National Aviation Safety Intelligence Management System (NASIMS) (8449)** - The Aerodromes and Air Navigation Branch has a number of data repositories, both electronic and otherwise. There is a requirement to modernize the databases/data management tools into a common data management system. The goal of this initiative is to design and implement a common data management system that meets the requirements of the integrated branch. NASIMS was designed to provide generic safety intelligence management capabilities. The generic nature of these capabilities allow for an easy and economical way of adapting the data management features of NASIMS to both existing and new business data requirements.

5. **Aviation Business Intelligence Infrastructure (ABII) (8462)** - The project objective is the development of an infrastructure (the ABII) to provide the tools required for the Aviation Safety Analysis Division to produce and deliver comprehensive analysis and reports in a more cost effective, efficient and accessible manner to all of Civil Aviation. The anticipated outcome of the project is a tool that can assist in decision-making with respect to development of policies, regulations and standards. It will effectively rationalize the process by which analysis is done and results delivered, increasing productivity and producing cost savings for all of Civil Aviation. It will allow for different user interfaces for different user types; improve ad-hoc query abilities; and improve the ability to share and disseminate analysis and reports. The development of the infrastructure will reduce duplication of information and will increase the ability to perform analysis with information from separated systems.

6. **National Aviation Company Information System (NACIS) (8771)** - The objective of the project is to complete significant enhancements to NACIS to accommodate major changes to the layout and core elements of Canadian Air Operators Certificates (AOCs) and associated operations specifications for all fixed wing and rotary wing operations authorized under Part VI and Part VII of the Canadian Aviation Regulations (CARs). This project is the result of extensive revisions to the International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARPs), principally, Annex 6, Part I – International Commercial Air Transport, Aeroplanes and Part III – International Operations – Helicopter.

MARINE SAFETY

7 **Regulation Query System Phase 3 (RQS III) (8637)** - The RQS is an existing tool used by the Regulatory Services Group within Marine Safety that provides both an administrative function and a publicly available Query Web site that allows industry stakeholders and the general public to search the *Canada Shipping Act 2001* and it’s supporting Regulations and TC publications for the purpose of dissemination regulatory safety requirements through a guided-navigation interface. RQS supports Marine Safety’s Strategic Plan by providing tools to the general public.
that increase education and awareness of safe and environmentally sound marine practices and knowledge of the marine regulatory regime. It is Marine Safety’s intent to redeveloped the RQS application to upgrade the middleware software module to Endeca v. 5.x to leverage the most recent releases of the Endeca Developer Studio which will provide increased sustainability to the RQS application and convert the application to ensure CLF 2.0 compliance based on TC’s .Net architecture requirements using the TC templates and code base structure.

8 **Marine Aerial Surveillance Information System (MASIS) (8636)** - TC operates a land-based database in a development environment named the Marine Aerial Surveillance Information System (MASIS) containing flight mission information captured by the Maritime Surveillance Systems MSS 6000. This database will be used to conduct analysis, provide reports to a number of internal as well as external clients. TC Marine Safety personnel will be responsible for providing these reports to the external users and clients. The MASIS database stores information gathered during aerial surveillance missions conducted by TC aircraft. The database already exists and there is a need to give an interface to users to manage data. The interface will include an application to visualize required mission data and generate standard reports. An ad hoc query tool will be the next element to be implemented and will be able to generate reports on entire missions.

9 **Marine Safety Core Architecture (MSCA) (8639)** - The proposed technological framework will enable Marine Safety to: a) move effectively towards establishing Integrated management System; b) re-engineer Marine Safety’s dynamic applications to meet TIMSD migration from ASP to .NET.; c) meet the new CSA 2001 regulatory requirements; and d) consolidate Marine Safety’s dynamic applications data and interface in order to improve data integrity, support, sustainability, consistency and accountability.

10 **Marine Oversight System (CMOS) (8640)** - This system will provide the business with the ability to improve the safety culture of the Canadian domestic fleet through delegation and the use of the Delegation Monitoring System, which is to provide the means to track and record delegation and auditing criteria under a defined risk-based framework, delegated inspection data and provide management with integrated safety management tools through a risk management and reporting tool.

11 **Marine Personnel Document Issuance System (MPDIS) (8645)** - MPDIS is a solution for the issuance of the following Marine Documents: Domestic Certificates of Competency (Examiner and Minister issued), Training Certificates, Medical Certificates, Discharge Booklets and Certificates of Equivalency. The Marine Training, Examination and Certification section is responsible for the development and maintenance of Regulations, Examinations, and Training Standards for the Certification of Seafarers. This section also issues Certificates of Competency to seafarers after they have successfully completed all prerequisites and examinations appropriate to the level of certification. Comprehensive records are maintained on all seafarers who are candidates or recipients of the aforementioned certificates. An additional objective of MPDIS is to consolidate and update the issuance process for the above-mentioned documents within one
application. This will be accomplished by building on the existing Marine Personnel Document Issuance System to accommodate the new document types while retaining a consistent process and shared data. This initiative is being undertaken under the context of the Marine Personnel Regulations, which provide TC with the authority to issue these documents.

MARINE SECURITY

12 Secure Network Extension to the Marine Security Operations Centers (MSOC) (8906) - The secure network extension provides MSOC’s TC Marine Intelligence Analysts (MIA) with a means to communicate and process intelligence of the highest classification in collaboration with TC national headquarters. It is the medium on which MSOC’s TC MIA can conduct research, create, store and disseminate its classified products in support of the national headquarters and other federal government departments; and, is currently the only GC approved medium that provides interdepartmental interoperability with the highest security classification.

RAIL SAFETY

13 Rail Safety Data System Development formerly Rail Safety Integrated Gateway System (RSIG) (8701) - The RSIG model is a series of fully integrated functional modules for the Rail Safety Program. These individual modules represent various program areas and supporting systems to meet the operational and reporting requirements for Rail Safety. From this integrated national data system, results will be produced for trend analysis, resource accountability, risk management, performance measures and decision-making. An integrated national data system will allow the Rail Safety Program to collect the information on audits and inspections in order to measure Railway industry compliance with rules and regulations and to assess the level of safety related risk by organization. The release of the Risk Based Planning, SMS, Audit and Inspection Business Process Modules will allow for potential safety issues to be identified before they become problems. Notice and Orders will provide transportation organizations with direction on how to rectify the issues before they become problems and Complaints Handling will allow for the public to inform TC of issues between Audits and Inspections. In addition to this ability, with connectivity to the Rail Safety Data Portal, RSIG will be capable of acquiring mass amounts of data for analysis that feeds into and leads to the development of the Annual Operational Planning output (part of the Risk-Based Planning Business Process). Rail Safety will have accurate reliable information (internal and external via the Data Portal) in a timely manner to make informed decisions and to measure and report on results. All Rail Safety employees will use the RSIG system for data entry, viewing information and producing reports.

14 Rail Safety Data Portal - (B139) - The project is to develop a portal for access into RSIG for non-TC users. The establishment of this electronic data portal system will allow secure electronic filing of railway safety data by outside stakeholders. These outside stakeholders include railway companies, unions, associations and various government agencies at the federal, provincial and municipal level. The data will be used to produce meaningful measures of performance, trends
and benchmarks. This system will also allow for the publishing and dissemination of railway safety data and performance, including reporting on the performance of individual railways, to stakeholders and the public.

ROAD SAFETY

15 Fleet and Test Management System (FTMS) (8743) - This project will migrate and enhance four existing databases into one single and robust enterprise-level application. Road Safety’s operational needs for test fleet asset management, reservation system, vehicle and equipment test and investigation log, and Child Restraint Systems Testing. These existing systems provide the essential Fleet Management System tools to lifecycle manage the Road Safety Directorate’s fleet of test vehicles from purchasing, monitoring, enforcement and research testing through to disposal. The FTMS is used by approximately 20 Road Safety staff members and accessed from two locations in the NCR. The purpose of the new FTMS system is to provide a single combined and more robust system for the group's needs, as opposed to the separate individual systems that may not share data very efficiently and which use older technology platforms such as VB6 and MS Access, that can no longer be effectively supported by corporate IM/IT services.

16 National Collision Database (NCDB) Online Query System (873V) - The NCDB contains data on all motor vehicle collisions reported annually to TC by the thirteen Canadian jurisdictions. It comprises 1.3 million records per year of data. The NCDB is a legacy database that has existed since 1984 and will be updated to TC standards to provide for more efficient data storage, reporting and statistical analysis. It is proposed to put a subset of about 300,000 of the records online annually, beginning with collision year 1999 in order to have ten years of fatality and injury data at the outset. The solution will also enhance data integrity.

17 Compliance Audit Filing System (CAFS) (873W) - The purpose of this project is to upgrade the current software application technology and bring it up to departmental standards. The current platform is considered legacy software within the department, and has become more difficult to maintain and enhance in the current TC IT environment. This upgrade project will also provide the application team with the opportunity to redevelop the application’s database to comply with the departmental standards for data modelling and database development. CAFS will be upgraded to meet TC’s current application development and database standards, in order to continue to support the needs of its users. There will be minor modifications to the system during the redevelopment process.

SECURITY PROGRAM SUPPORT

18 TC Automated Fingerprint Identification System (TCAFIS) Lifecycle Project (88A4) - To procure 23 Livescan (electronic fingerprint capture) Enrolment Devices to replace the existing units initially installed in 2003. This lifecycle will allow for the ongoing capability to process
electronic applications to TCAFIS and thereby assist TC in the protection of our national transportation system.

19 Secure Telecommunication Systems (STS) (88A5) - The acquisition, implementation and installation of STS (Secret Level). This includes the servers, computers (which are all Tempest protected), peripherals and the required software and licenses. TC Emergency Preparedness encompasses the emergency management process for the Department. As such, the TC Situation Centre (TCSC) becomes the Departmental focal point when a crisis occurs. The nature of the work being handled by Civil Aviation Contingency Operations (CACO), Aviation Security Operations, the TCSC and Marine Security has changed tremendously in the past five years where all security/safety events have to be looked at holistically from a Safety and Security perspective. The installation of the Consolidated Secret Network Infrastructure (CSNI) and the Battle Control System (BCS/RTAP) will ensure that we are aware of the real time secret tactical intercept data of civilian aircraft by the military and permit us to effectively work with both the Royal Canadian Mounted Police (RCMP) and the Department of National Defence to ensure both the safety and security of the travelling public. It will allow TC to better manage the various situations at a strategic level, assist for critical decision making and ensure that we are not compromised by not being aware of all the information available when participating in Operation Noble Eagle events on the Canadian Defence Red Switch Network secure teleconferences.

TRANSPORTATION OF DANGEROUS GOODS

20 Transport of Dangerous Goods (TDG) Regulations Schedules (8763) - The project comprises analysis, design, development, data conversion, and implementation required to convert Schedules 1, 2 and 3 of the TDG Regulations into an Oracle database with appropriate user interfaces to amend, consolidate, query, and export the Schedules. Development and implementation of a more robust database with appropriate user interfaces would improve the consistency, accuracy and usability of the Regulations Schedules. The project supports effective program delivery through strategic use of information and information technology. Productivity would be enhanced through the use of modern technology and information tools. The project would also serve to increase awareness and knowledge among handlers and transporters of dangerous goods on transportation requirements, and would improve access to regulatory information.

21 Integrated TDG Information Systems - (8765) - The Compliance and Response Branch is responsible for issuing functional direction that promotes compliance in regional program delivery. A redesigned Inspection Information System (IIS) would provide information critical to the success of the compliance program, enabling better risk management, smart regulations, and improved standards and resource allocation. The Integrated TDG Information Systems will respond to a long-standing and growing need within the Directorate to significantly improve its activities. It will avoid duplicating information in multiple information systems and allow access by TDG staff and managers to information contained in multiple areas to improve both the level
of safety and efficiency in delivering the TDG programs. The project will provide an integrated information system that will provide controlled access for all managers and staff of TDG to the information they need to do their jobs efficiently, to better share information effectively with key partners, and undertake analysis to assess the effectiveness of the program and identify areas for focused efforts and improvements.

22 **CANUTEC Information System (CIS) (8766)** - The CIS project will integrate the existing CANUTEC systems and will migrate them to TC-approved standards. The project will improve service to the Canadian population by providing CANUTEC emergency advisors with more efficient and effective integrated access to CANUTEC’s applications and databases. Upgrade of the CANUTEC communication system. CANUTEC is the 24/7 Canadian Transport Emergency Centre operated by TC to assist emergency response personnel in handling dangerous goods emergencies. CANUTEC is one of the primary programs instituted by TC to promote public safety during movement of people and goods in Canada. CANUTEC’s scientists provide immediate advice and recommend actions to be taken during dangerous goods emergencies. CANUTEC’s professional staff provides immediate advice on; chemical, physical and toxicological properties and incompatibilities of the dangerous goods, health hazards and first aid; fire, explosion, spill or leak hazards; remedial actions for the protection of life, property and the environment; evacuation distances; personal protective clothing and decontamination. The main objective of the CIS project is to provide CANUTEC emergency advisors with more effective conference call capabilities and more efficient access to information required to respond to emergency calls, public inquiries and simulation exercises. Part of the scope of the approved project strategy includes upgrading the CANUTEC communication system in consultation with IM/IT Architecture and Planning and Network and Telecommunications Infrastructure Services to allow for integration with the proposed CIS.

23 **TDG 11S/AERAP Redesign Development Project (A161)** - The Compliance and Response Branch is responsible for issuing functional direction that promotes compliance in regional program delivery. The existing IIS application no longer supports the business needs of the user community and is inconsistent with departmental database development standards and application architecture. The application software is outdated and there is significant technical difficulty to keep the application executing properly on current hardware and software. In the past, the focus was on automating the inspection report form. Some reporting capability was implemented, but it never met all the reporting requirements. Today, the focus of the requirement is much different. Inspectors still want an effective work tool, but with a simpler, cleaner interface, using up-to-date technology. Most of the inspector’s telework and this is something that was not envisaged in 1993. Headquarters and regional managers are also now most concerned with performance indicators, compliance rates, and risk management.

**FINANCE AND ADMINISTRATION**

24 **Oracle Release 12/Fusion Enterprise Resource Planning (ERP) Upgrade (6838)** - TC’s ERP is the backbone of the Department’s financial and administrative functions. Applications and the
official set of books for financial accountability are run by Oracle. It also provides a suite of business applications serving both TC employees and customers. Since its implementation in 1994, the system has typically followed a five-year life cycle in order to remain technologically up to date, reliable and responsive to departmental needs. Consequently, Oracle Applications is an integral component in operational and corporate service delivery. Common business processes are designed into the OFSS R12 shared solution, which means that TC and the other five partner departments will use common business processes, driving benefits such as consistent and robust financial controls, streamlined efforts in auditing, thereby contributing to more efficient production of Auditable Financial Statements. The Oracle 12 upgrade, which includes the required security patches, is considered a technical upgrade critical to application sustainment and enabling the Department to continue to be responsive to its employees, customers and central agencies.

25 **Management, Resources and Results Structure (MRRS) Implementation and Revised Program Activity Architecture (PAA) (6847)** - This triennial project includes work to scope and develop the system infrastructure to support TC management with the decision-making and reporting tools necessary for the new MRRS policy as mandated by TB. This project encompasses the system tools that will be developed, in conjunction with existing management and business intelligence data and reporting, to support the Department’s management obligations.

26 **MRRS – Dashboards (6888)** - The intended user community for MRRS Dashboards is the executive management team and senior managers involved in governing Strategic Outcomes and the PAA. Typically, senior managers receive paper-based reports generated by others. Dashboards facilitate self-serve access to information for decision-making purposes. The intuitive nature of this application will also create efficiencies for functional specialists supporting senior management information needs.

27 **Future Oriented Financial Statements (6898)** - TC must meet a new TBS mandatory requirement to prepare and present general-purpose future-oriented financial statements that provide the department and Parliament with future oriented information on assets and liabilities, complete revenue information and information on expenses. The addition of future-oriented financial information will be published in the Report on Plans and Priorities and is designed to assist Parliamentarians in their consideration of the Estimates and departmental requests for expenditure authority. The comparisons of forecast and actual financial information, that will now be possible in the general purpose historical financial statements format, will help the departments better manage their financial performance and as well, the information will assist Parliament in the assessment of departmental financial performance. Current financial statements are limited to the current year actual expenses only.

**TIMSD**

28 **Security Tools (67B3)** - TC’s IM/IT infrastructure is evolving rapidly in line with industry technology trends as applicable to TC’s corporate infrastructure and applications. There are more
than 500 business applications including more than 125 national applications in support of its programs and administrative requirements. Greater interconnectivity via the Internet, the adoption of electronic collaborative tools, and the steady trend towards Web-based applications are just a few of the essential technologies that improve services to TC clients, but present an ongoing challenge from a security perspective. These changes, combined with the increasing sophistication of attackers, introduce corresponding new security risks that must be continuously monitored and addressed. The tools will improve Security Information, Security Event Management, Vulnerability Management, Intrusion Detection, Web Applications Firewall, Web Security, and E-mail Security.

29 Collaboration/Web 2.0 Infrastructure (67A8) - The purpose of this project is to implement applications that facilitate interactive information sharing, interoperability and collaboration within an intranet and Internet environment at TC. This project will provide TC with the infrastructure and support necessary to provide departmental business lines with the ability to engage in Web-based interactive information exchanges with both internal and external (other departments, public and private partners, general public) contacts.

30 Application Performance Monitoring Tool (67C6) - The purpose of this project is to provide TC with an application performance monitoring tool that would allow proactive detection of web application problems, identification of their root causes, and quicker resolution. This tool will be used in all environments of the Web infrastructure: intranet, Internet, secure, acceptance and production.

31 IM/IT Infrastructure Renewal (2010/11 - 2012/13) (67C7) - The project will enable TIMSD to continue with its life cycle replacement approach for key IM/IT infrastructure components. This approach will address increasing capacity demands for TC business applications in a manner that minimizes ongoing hardware upgrade and support costs. Similar to the NCR, network equipment in the regions generally has to be upgraded/replaced to leverage faster data transfer rates of new servers as well as life cycle replacement of aging equipment.

32 National Video Conference Service Expansion (67C8) - TC videoconference service has been in operation since the mid-1990s and is widely used throughout the department by senior management and employees in general, for face-to-face meetings, collaboration and training purposes. The current bridge is not capable of supporting more than 20 concurrent endpoints. Adding more endpoints without expanding capacity can lead to endpoints not being able to connect, including for our critical TMX attended conferences which occur at a rate of two a week currently. The project will provide for a new standard of user experience: consistent and improved quality across all regions; improved access, allowing more participation from more locations, leveraging the pervasiveness of the existing network, the TC intranet, give support for new video endpoints to meet the broad range of TC requirements, contributing to the Public Service Renewal priority, with a focus on talent management and employee engagement. The project will also allow integration of future possibilities with other emerging applications including TC Web 2.0, audio and Web conferencing.
POLICY

33 **Transportation Object Dictionary (TOD) (7421)** – The TOD project aims to establish a database access bridge between the numerous TC systems as well as external data sources. The project’s main objective is to harmonize and logically integrate disparate information systems. It is expected that this will translate into an increased ability for the Department to dynamically address issues and provide timely response and accuracy in a cost effective fashion. Initial focus has been on the aviation sector and initial research has identified over 100 stand-alone air related databases within TC allowing for very little data sharing and standardization. The scope of the project is multi-modal and will include such attributes as: carrier, location, occurrence, make/model, operating certificate and licence. This project is aimed at addressing the genuine need to pull together the information available through several group’s applications or databases to support the Department’s business needs on both the Policy and Safety and Security side.

34 **Fluidity Indicator and Total Logistics Costing (7438)** - To create a national transportation fluidity indicator and total logistics costing indicator. The purpose of these indicators is to help decision makers (both public and private) understand the performance (time and costs) of the Canadian Transportation System between city pairs for the purpose of policy creation as well as for optimizing daily business opportunities. Each indicator has an associated mathematical algorithm that forms the basis for all calculations of indicator values.

35 **Modeling and Forecasting Tools/Systems (7439)** - The Economic Analysis Directorate has the mandate to conduct socio-economic research and economic analyses, develop forecasts and models and, to collect and manage transportation data. The project will provide for the purchase of data, the development of new tools, intelligence and models transportation flows of passengers and goods in support of the Strategic Outcomes at TC. TC’s capability here is currently limited. The expected outcome of this work will be to forecast transportation activity for passengers and freight. The effectiveness of these models will be assessed by how they are used in the development of policies and programs and in their ability to support corporate reporting requirements. Some of the features include: simultaneous inclusion of multiple modes of transport; asymmetric elastic ties between the modes; and integration of socio-economic data, such as quality and cost of living indicators.

36 **eInnovation (7440)** - To enable TC to leverage Web 2.0 technology for the Canadian Transportation sector to: a) facilitate collaboration between academic, commercial and government stakeholders and partners to exchange information, research; b) promote and foster innovation for Canadian transportation systems and act as a knowledge broker; c) provide a single database inventory of national and international transportation technologies and d) provide an environment where TC can lead by example in the area of innovation and advance innovative strategies.

PROGRAMS

33

RDIMS # 6879144
37 **Surface Infrastructure System (SIS) (941F)** - The project is to implement a single, centralized, fully Web-enabled system to manage contribution agreements, contracts, and claims information related to Directorate projects. Users will share information more readily, increase the quality of information shared, perform certain tasks more efficiently and allow management to monitor projects more closely. It will also provide necessary tools to permit program managers and executives to access and analyze the results of activities in support of performance measurement objectives. SIS will provide more flexibility in defining components of contribution agreements, allow reporting by funding program, implement business rules to allow recording of information at the initiation stage, record a range of infrastructure projects and types of agreements other than contributions, provide flexible reporting to better meet ad hoc queries faced by project managers, record results of Aboriginal pre consultation processes, environmental assessment, and risk assessment; and include reporting requirements features. SIS will directly support the delivery of a suite of infrastructure funding programs by supporting Canada’s Economic Action Plan, the GC’s key strategies for improving our national transportation system and enhancing other key strategic infrastructure.

38 **Locomotive Emissions Information System (941T)** – The proposed Locomotive Emissions Information System Development Project is required to support the new locomotive criteria air contaminants emissions regulations. The creation of this system will allow the department to readily perform its regulatory tasks, such as overseeing industry's compliance with the new regulations, assist with determining annual criteria air contaminant emissions reductions from the rail sector, and will directly support any enforcement activities to ensure compliance with the regulations. This project directly supports the federal government’s clean air agenda by supporting the legal and regulatory frameworks to govern air emissions from the transportation sector and to oversee Industry’s compliance with regulatory obligations. These activities align with the departmental objectives and activities under Clean Air from transportation. The main outcomes are to: create an automated online reporting system to support new locomotive emissions regulations, including modules to monitor, analyze and verify industry compliance as well as maintain records of non-compliance for possible enforcement action; establish a secure, user-friendly, online interface to better manage data submitted from industry; improve reporting timelines; avoid cost; and improve the overall efficiency for both TC and industry; and enable the GC to perform secure data exchange and analysis with industry.

**COMMUNICATIONS**

39 **Web Content Management System (WCMS) Intranet Template Development (6237)** - TC has an established Web presence with more than 105,000 externally facing Web pages and over 100,000 internally facing Web pages as well as Extranet Web sites. The proposed WCMS Intranet Template Development Project will pave the way for the migration of TC’s intranet into a new information architecture and new templates that are supported by and managed through the WCMS, resulting in an intranet site that is more responsive to the needs of TC employees as well as increase its compliance with GC policies and standards, including CLF, official languages, and accessibility. The scope is being restricted to the preliminary work of assessing users’ needs and
business requirements, developing a new Information Architecture and the templates to support it, and preparing a recommendation as to whether it is feasible for TC’s intranet to migrate into the WCMS.

**Intranet Web Content Management System Implementation (6238)** - The WCMS Implementation Project will provide content owners and creators with automated support to efficiently design and manage an increasingly large and complex Web presence and reduce the reliance on manual processes. Using a common template that is WCMS-generated will also increase search accuracy, as mandatory metadata is part of the template and enforced by the WCMS. With consistent metadata across all TC Web assets, it will be possible to focus on search engine optimization, resulting in online searches that are consistent between and relevant to the search terms. This will help to increase employee productivity as search results can then be tailored and made more accurate.

**PACIFIC REGION**

**40 Surface Locomotive and Train Simulation Program (TrainSim) (5495)** - The acquisition of software to improve Rail Safety’s safety oversight capability to monitor railway operations and provide the ability to recreate train operations and accidents by using the simulation software to assist in determining compliance to the *Rail Safety Act*.

**5. BUSINESS OPPORTUNITIES**

Exhibit 4 summarizes the business opportunities in the department.

- Consulting is required on an on-going basis. Some areas include:
  - LAN / Desktop technical support
  - Service Desk Agent technical support
  - Application development and maintenance
  - Web site development and publishing
  - Systems Management
  - Problem and Change Management
  - Data Warehousing
  - Business Intelligence
- Information Management
- Data Management
- Internet/intranet Web site Technical Support
- Electronic document management and electronic forms
- IM/IT security
- Evaluation of emerging technologies
- Strategic Planning
- Development of IM/IT requests for proposals (RFP)
- Project Management

- Existing corporate systems will require hardware and software upgrades.
- Planning is underway for revised server and desktop hardware and software.
- Implementing changes/enhancements to the Oracle ERP Financial and Material Management system.
- Implementing changes/enhancements to the HR application suite (TIPS) to achieve PSMA and PSEA compliance and business efficiencies.
- Implementing program related IM/IT initiatives.
- An operational review against best practices for Storage Area Networks could be performed.
- Expanding the current infrastructure for enhanced collaboration (e.g. Web 2.0) and secure exchange of information.
## BUSINESS OPPORTUNITIES

- Technical, application and strategic consulting is required on an ongoing basis.
- Existing corporate systems will require hardware and software upgrades.
- Planning is underway for revised server and desktop hardware and software.
- Expanding the current infrastructure for enhanced collaboration (e.g. Web 2.0) and the secure exchange of information.
- Implementation of IM activities in support of the GC’s IM Policy
- Implementation of new Web site content management software for the Internet.
- Implementation of additional program related (internal and external e-services) initiatives.