

V. TRANSPORT CANADA

1. OVERVIEW

a. Background

Transport Canada develops and administers 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 Service Centres.

In 2006, the Deputy Minister's mandate expanded to include responsibility for Infrastructure and Communities. Minister John Baird now leads the Transport, Infrastructure and Communities portfolio. The Minister's portfolio includes Transport Canada, Infrastructure Canada, the Canadian Transportation Agency, the Transportation Appeal Tribunal of Canada and 15 Crown corporations.

The portfolio is a point of convergence for some of the most important issues facing Canada today: the productivity of the economy; transportation safety and security; environmental sustainability; and the quality of life in 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

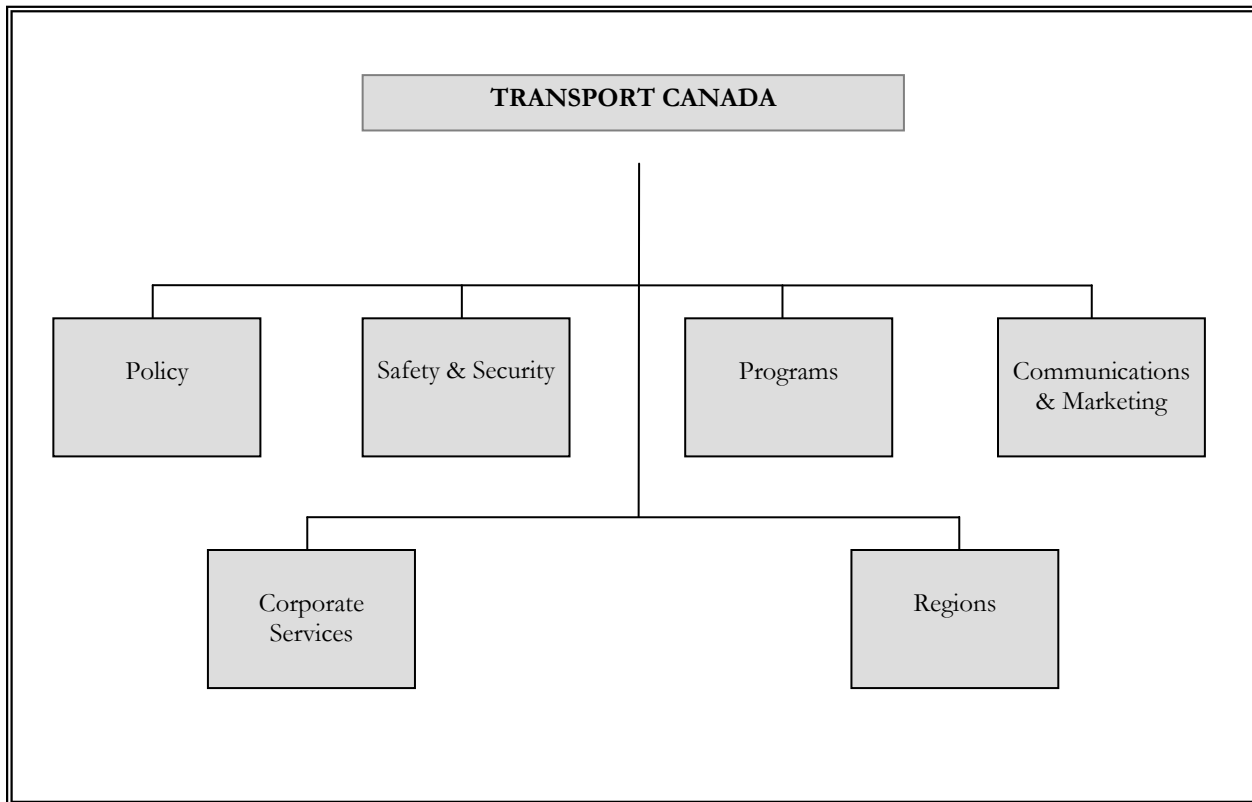
Transport Canada is organized as shown in Exhibit V-1.

- Policy Group

The Policy Group's role is to develop, recommend and coordinate modal and multi-modal policies. They also provide 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.

EXHIBIT V-1



- 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. The Group 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, executive services and 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.

- **Regions**

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

c. Key Contacts

Technology and Information Management Services

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

Computer Operations and Network Services

Director – Rick Huard, 613-990-5380

Information Management Services

Director – Diane Lavigne, 613-991-2867

IM/IT Architecture and Planning

Director – Joël Comeau, 613-993-8040

Application Management Services

Director – Robert Lalonde, 613-998-0739

IM/IT Security and Infrastructure Planning

Director – Richard Ruta, 613-993-7066

d. Resources Available

- Approximately \$55 million department-wide for IM/IT related activities (capital and OOC included, Salary and Wages excluded).
- Staffing – IM/IT Full Time Equivalent (NCR + 5 Regions) 225

e. Technology Overview

- There are approximately 5,500 PCs installed, mostly LAN-attached. The Microsoft suite of products is the departmental standard including Windows XP Professional SP2 and Windows Server 2003 SP2, MS Office 2000 SP3, Outlook 2003, MS Exchange 2003 SP2 (Internal, X.400 and Internet Mail). Microsoft 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.
- The Records Documents and Information Management System (RDIMS) is part of the departmental desktop standard.
- Of the approximately 5,500 Transport Canada intranet (TCI) clients, half are located in the NCR while the remainder are in the other five regions. Windows computers are logically interconnected under a Windows 2003 SP2 functional level single forest/single domain model.
- Mid-range platforms include HP Proliant, IBM xSeries and Dell PowerEdge running Windows 2003, Redhat Enterprise Linux, VMWare ESX server. The VMWare ESX servers also run Redhat Enterprise Linux and Windows 2003,XP, 2000 in Virtual Machines (VMs) HP/UX running on PA-RISC and Itanium servers. High Availability is provided by clustering technologies on these platforms.
- Citrix MetaFrame technology 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 Transport Canada intranet (TCI) is the departmental TCP/IP-based WAN to interconnect LANs, and servers. The TCI provides service to 93 dedicated sites and provides external access through Citrix Access Gateway (known at TC as MyDesk / MonBureau) as well as a PKI-based Secure Remote Access (SRA) service and firewall service.

2. TODAY'S PLATFORM AND APPLICATIONS

- Client/Server Environment

Transport Canada'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 88 DFS shares across the Transport Canada network.

- Windows XP Professional is the standard desktop operating system.
 - Windows Server 2003 SP2 is the standard for LAN workgroup, application, mail post office, web services and network communication.
 - Server environments also include HP/UX on HP 9000 servers; HP Proliant running Windows Server 2003 SP2, and VMWare consolidated/virtual server environment all of which host corporate data resources and other data services.
 - TCP/IP is the WAN protocol.
 - The LAN technology is Ethernet.
 - An Automated Storage Management solution provides Transport Canada with an enterprise storage management system. This solution is based on HP, Hitachi, IBM/Diligent, Brocade, and Symantec technologies and services to provide automated backups, high availability disk arrays and virtual and physical tape libraries. Work is under way to upgrade TC's Netbackup implementation to CommVault Simpana leveraging Virtual Tape Library (VTL) technology. Two Hitachi USPV disk arrays have been implemented in the past year to provide first tier storage and storage virtualization.
 - TC uses Citrix Presentation Server 4.0 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 MyDesk. (Citrix Access Gateway software).
 - Transport Canada's automated Systems Management tool, Tivoli Service Desk (TSD), is an ITIL-based system used nationally to manage all Change requests and Problem Management incidents. This system has been in use at Transport Canada for a number of years but has been identified by its manufacturer to be end-of-life. Work is currently under way to upgrade TC's Tivoli Service Desk 6.0 implementation to HP Service Manager 7.
- Exhibit V-2 shows the PC software environment.

EXHIBIT V-2

DESKTOP SOFTWARE ENVIRONMENT		
Application	Today	Future*
Antivirus	McAfee VirusScan 8.5	McAfee VirusScan 8.7 with Anti-Spyware Module
Word Processing	RDIMS DM / MS Word 2000 integration	RDIMS DM / MS Word 2007 integration
Spreadsheet	RDIMS DM / MS Excel 2000 integration	RDIMS DM / MS Excel 2007 integration
Presentation Graphics	RDIMS DM / MS PowerPoint 2000 integration	RDIMS DM / MS PowerPoint 2007 integration
Database	Oracle 9i,10g MS SQL Server 2005/2008 MS Access 2000	Oracle 11 MS SQL Server 2008 MS Access 2007
Messaging	RDIMS DM / MS Outlook 2003 integration (Desktop) MS Exchange 2003 (Server)	RDIMS DM / MS Outlook 2007 (Desktop) MS Exchange 2007 (Server)
Desktop Operating System	MS Windows XP	MS Windows 7
Browser	MS Internet Explorer 7	MS Internet Explorer 8
Web Editing Tools	Dreamweaver CS4	Dreamweaver CS4 OpenText LiveLink Web Solutions WCMS (formerly known as RedDot)
Security	Entrust PKI and SSL Nortel Contivity	Entrust PKI, SSL Nortel Contivity
Document Management	RDIMS DM CcmMercury Evault	RDIMS DM CcmMercury Evault
Record Management	Livelink (RDIMS)	Livelink (RDIMS)
Other	Adobe Reader 8.1 WinZip 9.0 QuickView Plus 10.0	Adobe Reader 8.1 WinZip 11.1 QuickView Plus 10.0

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

- Web Environment

Transport Canada uses IP-clustered Microsoft Internet Information Services (IIS) servers for both the Internet and intranet web sites. The software on these servers is:

- Windows Server 2003 SP1
 - Application Centre Server 2000
 - Internet Information Services 6.0
 - IE 7.0
 - MDAC 2.82
 - Oracle 10g drivers
 - XML 4.2
 - XML Parser 6.0
 - Crystal Reports XI and Business Objects XI
 - Office Web Components for XP (Internet)
 - Office Web Components for Windows 2000 (intranet)
 - NET Framework 1.1, 2.0 and 3.5 (2009)
 - SMTP Mail Component known as TCMailer.Net (a DLL for the commercial component ASPMail that provides logging and error handling).
- Application Development Environment
 - Client/Server - MS Visual Studio.NET, Java, MS Access, PowerBuilder and Centura are used. PowerBuilder and Centura are considered legacy platforms, and use of MS Access is no longer supported in the Web environment. Work is under way to transition to a service oriented application architecture (SOA) approach focused on n-tier and smart client designs.
 - Web/Internet/intranet - MS Visual Studio and Visual Studio.Net, Java, Active Server Pages (ASP) VBScripting, Frontpage (migration to Dreamweaver CS4), HTML, XML, Oracle Forms and Web Services are used.
 - Database applications requiring out-of-the-box integration with RDIMS and/or need workflow tracking capabilities are developed using the ccmMercury tool.
 - Forms Management - Transport Canada has standardized on Adobe LiveCycle Designer for the creation and editing of corporate forms. Publishing is facilitated through the Forms Management System (FMS); 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 Transport Canada'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. Fytek's PDF ReportWriter COM+ tool is used to generate database driven PDF reports (a .Net version is to be added in 2009).
- Transport Canada has evaluated, acquired and implemented (March 31 2008) Adobe Acrobat Lifecycle Designer Version 8 as the new standard Forms designer package. The Forms reader and updater is Adobe Acrobat.
 - Transport Canada uses the AllFusion Modelling Suite as the Metadata Repository within the department. The suite consists of Model Manager, Erwin Data Modeler, Component Modeler, Process Modeler and Validator. Component Modeler and Process Modeler have not yet been fully endorsed by the department as a standard. This framework consists of models based on international standards, a common business approach and Transport Canada'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.
 - The ORACLE Database Management System is the standard Database Management System for National, Corporate, and Internet / Extranet applications. Where applicable MS SQL Server may be introduced to address particular needs.
 - Transport Canada has implemented two Business Objects XI Enterprise environments. Business Objects Enterprise for adhoc and multidimensional reporting and Business Objects Crystal Enterprise for reporting.
 - Compuware's DevPartner Studio Professional suite is used for software debugging and tuning. Recent additions to the developers' toolbox are DevPartner's Fault Simulator and Security Checker.
 - Fujitsu's (formally DMR) web based Macroscopic ProductivityCentre® is used as the Corporate SDLC methodology tool. Macroscopic ManagementSuite® is being assessed for consideration as the corporate Project Management methodology tool.
 - TC also makes use of PWGSC's Secure Channel services for its externally facing Protected 'B' Web applications, for both strong authentication and data encryption in transit. TC also makes use of Secure Channel's secure FTP service known as Secure file Transfer (SFT).
 - TC has developed a solution for its internally facing Protected 'B' web applications based on the Entrust Truepass, Entrust SDK and IBM Websphere products. The solution will be implemented for production use in 2009.

- Transport Canada intranet
 - A TCP/IP-based department-wide network, Transport Canada intranet (TCI) network, has been established interconnecting all TC offices. It is a router-based network supporting 10/100/1000 Base-T (Ethernet) LAN connectivity.
 - Work was completed in 2008 to establish wireless capability within the NCR Tower C premises and to provide this capability 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 PWGSC/ITSB.
 - The TCI supports access to the GoC X.500 Directory and Secure Remote Access 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. Furthermore, TC has implemented PWGSC's Secure Channel services for processing of Protected "B" web applications on the Internet.
 - A national Secure Remote Access 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 MyDesk. (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 will be provided by ITSB (PWGSC) and incorporates PKI capability for all Transport Canada remote users.

- There are 24 sites connected via DSL/Cable using Secure Remote Access Next Generation Gate-to-Gate technology. Currently this service is available on a case-by-case basis.
- E-Services Delivery Environment
 - Transport Canada currently utilizes approximately 130 national applications to deliver its programs and meet its administrative requirements (these are included in the 490+ applications recorded in Transport Canada's departmental application inventory). These applications run in a mixed environment of LAN based (client-server considered the 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. Transport Canada is also a strong supporter of Commercial-Off-the-Shelf / shared solutions and of cluster-group arrangements, where the fit is right.
 - Transport Canada 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 the 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.
 - Transport Canada 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 Transport Canada. Its cornerstone is the Fujitsu Macroscopic methodology tool.
 - Transport Canada has an internal Web service (intranet) and an external Web service (Global Internet) for access by the public. The TC internal and external Web environment consists of the following predominant products: MS Windows Server 2003, MS IIS6, Unifind Search Engine (from KCSL Inc.) TC is presently piloting the Google Search Engine for its Internet web search requirement and MS FrontPage 2003 will be replaced with Dreamweaver CS4 in 2009. A phased implementation of an Enterprise Web Site Content Management solution (OpenText's Web solutions, formerly known as RedDot) started in 2008-09 and will be ongoing for the next two years.
 - Both the intranet and Internet sites are compliant with Government of Canada 'common look and feel' standards and guidelines (V1.1 for the intranet and V2.0 for the Internet). The V2 'look and feel' is being applied to all new externally facing web sites and business applications. The TC 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 Transport Canada managers and employees to manage their own personal information and quickly acquire the Transport Canada 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 Transport Canada buildings and networks.
 - Oracle Financials 11i (11.5.10) has 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 expanded to include the I-Expense module and has been used to manage employee travel claims.
 - The method for selecting and funding e-services candidates has been integrated into the ongoing departmental IM/IT investment planning activities.
- 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, Transport Canada Billing System (TCBS) and various interfaces to internal Transport Canada 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.

- Transport Canada provides process support to the human resources (HR) professionals working in its HR offices across Canada via the Transport Canada 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 10g). 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 PSEA and PSMA, and to provide further self-serve business efficiencies such as the on-line processing of HR Service Requests (HRSR), the Staffing Tribunal Automated Complaint Tracking System (STACTS) and the Staffing Action Management System (SAMS).
- A departmental e-mail system continues to evolve in support of internal and external electronic communications requirements. A MS Exchange 2003 rules-based architecture allows users to dynamically manage the inflow and outflow of electronic information through an intuitive, highly graphical interface. Outlook Web Mail has been enabled that allows TC employees to access their Corporate e-mail via the Internet.
- Information Management Environment and Initiatives
 - The Records, Document and Information Management System (RDIMS DM) is part of the Shared System Initiative of the Government of Canada. This system was installed on every desktop within Transport Canada 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 Transport Canada 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 a key information service supporting the Government of Canada Management of Government Information (GoC MGI) and the new government Information Management Policy. RDIMS DM main functionality includes:

- Document Management: physical control of information objects including access control, version control, and protection from unauthorized changes.
 - Records Management: life cycle management of records and documents, classification, retention and disposal.
 - Full Text Search: content based search and retrieval of a document.
 - Workflow: defined flow of information to people and processes based upon rules. The integration between RDIMS and ccmMercury provides workflow functionality.
 - Imaging: scanning, viewing, Optical Character Recognition to create editable text from images.
 - Reporting: Standard and ad hoc reports.
 - Transport Canada partnered with PWGSC to upgrade to RDIMS DM (v5.1.0.5 SR6 MR1) by the end of 2007-08. An upgrade to RDIMS DM v.5.1.0.5 SR6 MR5 is planned in 2009. 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, 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) to manage its legacy hard copy files (paper) and Livelink (RDIMS) for electronic documents. Transport Canada uses the Automated Labelling Process System (ALPS-WEB) to produce labels for large mailings.
 - Transport Canada has completed an Information Management Capacity Check based on the modified Library and Archives Canada IM Capacity Check template. This analysis assessed where Transport Canada is in terms of its Information Management Capacity in six key areas: Organization Context; Organization Capabilities; Management of Information Management;

Compliance and Quality; Records and Information Life Cycle Management; and User Perspective. It provided the guidance for the development of Transport Canada Management of Government Information (MGI) Implementation Plan.

- Transport Canada is committed to the Government of Canada (GoC) Management of Government Information (MGI) policy and the new Treasury Board Secretariat (TBS) Information Management Policy. Transport Canada created and completed an MGI Implementation Plan with detailed activities covering the broad spectrum of Information Management. These activities included:
 - The development of the Performance Measurement Accountability Framework (PMAF) for the MGI Implementation;
 - An MGI Implementation Governance Framework (MGI Steering Committee);
 - An MGI Implementation Communications Plan, including actions such as departmental IM awareness sessions;
 - A five year Information Management Succession plan was developed for NCR;
 - The development of an Information Management Staff Training Plan;
 - The adoption of Transport Canada Metadata Standards department wide;
 - The review and inclusion of Information Management principles into the departmental System Development Life Cycle (Macroscopic Productivity Centre), the Transport Canada Change Control Board (CCB) process and Non-standard software justification;
 - The development of the Information Management Compliance Review Methodology;
 - The completion of the Transport Canada Standard for Backup Retention Periods and the Transport Canada Directive on Information Management Procedures for Employee Departures.
- Transport Canada has a Data Administration Framework and Standards that deal with Application Development, Application Maintenance, Data Modelling, Information Needs Assessments, Information Management Plans, and Data Warehousing There are currently two documents, which deal with Transport Canada's Data Administration:
 - The "Transport Canada Data Administration Metadata Framework";
 - The "Transport Canada Data Administration Metadata Standards".

- With the release of the Government of Canada's Information Management (IM) policy in July 2007 and its supporting directives (Directive on Roles and Responsibilities, October 2007, and Directive on Recordkeeping, June 2009), Transport Canada has reviewed and updated all its Information Management standards, directives and documentation (IM Awareness Sessions, Departmental Information Management Directive etc.) in light of the new policy and its supporting policy instruments. A new annual Transport Canada Information Management Strategy/Action Plan was created in 2008 and was updated in early 2009 to address the implementation requirements of the GoC IM Strategy, the Policy on IM and its supporting directives and the evolutionary IM needs within the department over the next four fiscal years.
- Transport Canada has built on the original Transport Information Management Compliance Review Methodology and performed a pilot compliance review of Transport Canada Audit and Advisory Services (A&AS). Additional Information Compliance Reviews will be done in 2009-10.
- A Transport Canada Thesaurus was developed and is operational. The Thesaurus provides standard terms for Transport Canada to use in the Subject element of Metadata, which describes both web publications, and web pages as well as to be indexed into departmental systems. These terms are used to enhance the search results in departmental systems such as iStore, the Web Content Management System, OpenText Web Solutions, the Search Engine (both UniFind and Google Search Appliance), RDIMS DM, the Library Catalogue, etc.
- The Transport Canada Virtual Library has been implemented. This web-based application allows for informational self-service by providing desktop access to library resources such as electronic journals, networked CDROMs, digitized collections, online databases, research portals and access to other library collections. 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 Canadian Transportation Research Gateway. This web site is a comprehensive, bilingual collection of Web-based resources on the subject of transportation in Canada. The Canadian Transportation Research Gateway (CTRG) is intended to provide researchers, students, government, and industry with convenient access to evaluated Canadian transportation research resources through a single gateway.
- Collaboration Tools - 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 technology refers to programs that help people work collectively regardless of location and can include 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. Transport Canada

- undertook a Collaboration Project which: created Collaboration Standards and Guidelines; a Collaboration User Requirements Specification; a collaboration Implementation Approach; and a funding Project Approval Document (PAD). An evaluation which was part of the Collaboration User Requirements Specification recommended the PWGSC Shared Systems initiative Unified Portal Software Solution (UPSS) as the solution. Transport Canada has deferred pursuing a departmental wide collaboration solution pending the development of a departmental WEB 2.0 strategy. In the interim, the department will review on a case-by case basis the requirement for collaboration tools.
- 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.
 - The Business Objects Business Intelligence platform and tools have been implemented to address the reporting and analytical requirements of various user groups at Transport Canada. Casual users and information consumers can leverage various web interfaces (InfoView, Oracle Portal) to access content, Crystal Reports for enterprise reporting requirements, and Web intelligence and Desktop Intelligence for power-users and analysts. 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.
 - Management of Information Technology Security Standard
 - Management of Information Technology Security Standard (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 GoC-wide effort to improve IM/IT Security. Transport Canada has achieved MITS compliance.

- The priorities for IM/IT Security at Transport Canada include:
 - 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.

3. INFORMATICS DRIVING FORCES

Exhibit V-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 Service 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 upgrade to the current maintenance release of RDIMS DM with ccmMercury in order to be compatible with MS Office 2007 department wide, continued IM Awareness training, Information Management Integration into Application, Development and Maintenance and Information Management Strategy/Action Plan Implementation Plan 2009-10;
- 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 / Exchange 2007 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 Transport Canada and the Executive Management Committee (TMX) through the ADM, 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 a 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 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 Treasury Board'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 Transport Canada IM/IT Strategic / Investment Plan was approved in early 2009-10, and will evolve to meet the Department's requirements and will be driven by Transport Canada's business direction and priorities. The main purpose of this Plan is to guide the development and management of the IM/IT environment within Transport Canada 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 Transport Canada, and to Transport Canada 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 Transport Canada 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 achieved through other avenues through a series of planned, budgeted activities. Departmental IM/IT related spending must remain in line with the business needs and each project undertaken must be linked back to the goals and objectives of the TC IM/IT strategic / investment plan.

EXHIBIT V-3

INFORMATICS DRIVING FORCES

- Integrating and consolidating existing information and information systems.
- Implementing Enterprise Reporting, Business Intelligence including data warehousing.
- Improving document and information management.
- Implementing new security features and safeguards including electronic signatures.
- Broaden the use of e-services to serve external stakeholders.
- Develop the communication infrastructure without compromising security.
- Assessment of Protected B information handling capability.

4. PLANNED CHANGES AND UPCOMING PROJECTS

The envisioned IM/IT capabilities for Transport Canada include:

- The Transport Canada intranet (TCI) 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 Information Management Strategy is in place and widely adopted.
- An Information Management Compliance Review regime is operational.
- There exist 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 Transport Canada culture fostering the sharing and reuse of information.
- Solid Information Management and record keeping practices are part of the normal business processes in Transport Canada. This includes training new and existing Transport Canada employees on Information Management roles and responsibilities.
- All Information Management and record keeping processes are fully integrated together and across application systems.
- Transport Canada 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 Transport Canada.

- 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 Transport Canada reporting.
- Information Management accountabilities are included in the accountability accords of Transport Canada's Senior Management.
- An Internal (intranet) Access Portal is available for employees to access all work-related information.
- A single-sign on approach to all applications.
- Transport Canada's automated Systems Management tool, Tivoli Service Desk (TSD), is an ITIL-based system used nationally to manage all Change requests and Problem Management incidents. This system has been in use at Transport Canada for a number of years and has been deemed by its manufacturer to be end-of-life. Work is currently under way to upgrade TC's Tivoli Service Desk 6.0 implementation to HP Service Manager 7.
- Transport Canada's automated email storage technology known as Evault, allows Transport Canada to better manage unstructured data stored in Microsoft 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 infrastructure are being envisioned for TC in support of the e-services (external service delivery) agenda.
- Sound Information Management Principles will be incorporated into the Application Management Framework and the Macroscopic System Development Life Cycle (SDLC).
- Transport Canada business planning practices and Business Cases will include Information Management requirements.

- Several IM/IT related projects will proceed in 2009-10 fiscal year (pending funding allocation) to improve program delivery. This list of projects includes:
- The upgrade to the latest release of RDIMS DM and ccmMercury in conjunction with MS Office 2007 will be a major project to allow the department to upgrade its overall office suite infrastructure.
- The automated storage management solution will continue to evolve to support the department's information management archival and retention policies. This solution is based on HP, Brocade, Symantec technologies and services and includes the implementation of Hitachi VTL and USPv technologies.
- Infrastructure Renewal - Transport Canada's corporate systems will require ongoing hardware and software upgrades and/or replacement to maintain or enhance their operational capabilities. Funding for life cycling of hardware and software in 2009-10 has been approved.
- Web Content Management System – Transport Canada (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 Communications and Marketing Group, through the IM/IT Investment process, sought funding for a Web Content Management solution to assist in the management of its departmental Web presence. TC's Capital Sub-Committee officially approved funding for a three-year project to purchase, develop and implement OpenText's Web Services (formerly known as RedDot) Web Content Management System (WCMS) solution. The Web Solutions Content Management System and Web Solutions LiveServer products will assist in the creation and management of this large and dynamic collection of Web materials, including HTML documents and their associated assets. Replacement of the existing UniFind Search engine to the Google Search Appliance will provide improved search results and indexing of metadata, as well as improved accuracy and efficiency of query results, in both official languages. The Open Text Web Solutions Content Management System is being implemented in three phases, spanning three fiscal years. The scope of the project includes the following:
 - Move existing content, including TC-led Web initiatives (e.g. Canada's Gateways), on the TC external public-facing Web sites to the OpenText Web Solutions WCMS (i.e. the TC Internet presence);
 - Automate the content approval process and posting;
 - Replace the existing Search engine (known as Unifind from KCSL) for WCMS-managed Internet sites to the Google Search Appliance solution;
 - Enable small Web applications such as feedback forms and registration forms via the OpenText Web Solutions product;

- Support progressive enhancements (e.g. multimedia components) that are part of the CLF 2.0 templates provided by the Treasury Board Secretariat;
- Segregate applications from static sites to new servers;
- Integrate, where feasible, document components from the existing departmental RDIMS DM application with the OpenText Web Solutions WCMS.

At this point in time, the scope of the project does not include intranet and private extranet sites, nor will TC's online applications currently available via the Internet be integrated into the WCMS.

- TC's Enterprise Resource Planning (ERP) Upgrade (Oracle Footprint Expansions) - Transport Canada's Enterprise Resource Planning (ERP) system, specifically, Oracle applications, is the official set of books for financial accountability and 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. Transport Canada's long-term capital plan identified a scoping and planning activity for an ERP upgrade in 2007-08 with a phased implementation in 2008-09 and 2009-10. The Oracle 11.5.10 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. The second phase of the project includes planning and analysis of the upgrade of Oracle Financial Analyser (OFA) to SAP's Hyperion Financial Analysis product and the migration to Oracle R12.
- e-Learning Management System - The Canada School of Public Service (CSPS) has acquired a Commercial-off-the-Shelf, Integrated Learning Management System (iLMSI-LMS known as SABA with IBM as the integrator). Given this new situation of a GoC offering for an I-LMS solution, it is incumbent on TC to consider the CSPS solution. A fit-gap analysis was undertaken and the results found that the CSPS requirements exceed those requirements identified as being within scope of the TC LMS project. The primary recommendation from the fit-gap is to complete an assessment of the CSPS iLMSI-LMS solution, partnerships and costing options before recommending a solution option for TC. In order to address this recommendation, it is proposed to extend project definition to focus on an assessment of the CSPS solution and determine in the earliest possible timeframes its potential application at TC. This phase will be managed using a gating process with go/no-go decisions at various crucial points to strategically manage project expenditures, project direction and risks.
- Environmental Information System - this system seeks to integrate information from disparate datasets, bringing together textual and spatial data held by Transport Canada. The data will be geo-referenced and displayed as different layers or views to the user and displayed through a map interface over the intranet to real property and environmental practitioners across the country. Pilot Project activities will include conversion of the Property Records System database, geo-referencing of

property plans, integration of property data and creation of a graphical user interface. If the pilot is successful, the land information will become base-level data on which to layer environmental datasets. Once fully implemented, the EIS will enable the Department to meet Treasury Board requirements for custodians of federal real property to report spatial information pertaining to land holdings and contaminated sites. It will also capture data relevant to the Department's environmental obligations and responsibilities and allow Transport Canada's Environmental Programs Branch to share information relevant to the Environmental Management System, Contaminated Sites and Environmental Assessment.

- **Transportation Security Information System (TSIS)** - TSIS is used by Transport Canada Security Inspectors to record the results of inspections, investigations and infiltration tests in the aviation mode. The system was originally built to support all Security Modes, the redevelopment project will size the application in order to retain the multi-modal capabilities. The system has already been designed to record inspections for cruise ship operations and is the current source for operational data used by regional and headquarters management as well as by CATSA officials. It also includes data input by inspectors at headquarters regarding foreign inspections and exemptions. TSIS is a data collection, data storage and information reporting tool that represents a mandatory component of the security inspectors' tool kit and which is a vital source of operational and strategic information for the management of the security programs in Transport Canada.
- **Public Complaints Database System (PCDB)** – this Road Safety project seeks to enhance the motor vehicle Public Complaint System by converting the existing internal database system (WINPCS) to a Windows.NET interface with an Oracle backend to increase accessibility for investigative staff and the general public. The intent is to provide the general public with the means to view and search pertinent complaints relating to motor vehicles over the Internet.
- **Fleet and Test Management System (FTMS)** – this is a new client-server system that will combine four existing Road Safety systems into one enterprise-level application on a Windows.NET front-end interface with an Oracle back-end database. These 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 of asset. FTMS will provide a single robust information management system.
- **Transportation Object Dictionary (TOD)** – this project aims to establish a database access bridge between the numerous Transport Canada 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 Transport Canada 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.

- Surface Contribution Management System (HCoMS) - HCoMS, a secure, collaborative web-based application, currently monitors contribution programs with significant project and financial information and maintains this monitoring throughout the life of a contribution agreement. Partners (provinces, territories, municipalities, etc) currently submit, via HCoMS, project, contract information, budget forecasting and submit claims. Transport Canada's departmental officials review all submissions and ensure that they comply with financial policies established by Treasury Board. Presently, over 200 users from various groups within and outside Transport Canada currently utilize the system. This project seeks to enhance the functionality of the existing Surface Contribution Management System (HCoMS) by centralizing the Surface Infrastructure Program's contribution agreement/project information related to results based management, performance measurements and evaluation information. As well, the project will focus on issues relating to the creation and enhancements of HCoMS data capture fields. Both initiatives are required in order to meet reporting requirements of both current and new funding programs (i.e. Building Canada Fund, Asia Pacific Gateway Initiative, etc.). The project will also address items raised by the Auditor General of Canada regarding improving information management aspects.
- Microsoft Office 2007 / Exchange 2007 Upgrade Project Launched in 2008, the MS Office 2007/ Exchange 2007 Upgrade Project is a 3-year IM/IT initiative (2008-11) that will lead to the deployment of latest-generation key IM/IT components such as MS Exchange 2007, RDIMS 5.2.X, ccmMercury 5.3.X, and Symantec's Evault 7.5 as well as, of MS Office 2007, on the corporate desktops and Citrix environments. TC's current baseline office suite (MS Office 2000 and Outlook 2003) to Microsoft Office 2007, including: Outlook, Word, Excel and PowerPoint. First released to the corporate desktop in 2002-2003, MS Office 2000 is an aging product with an outdated feature set and one that is reaching the end of its support lifecycle. This upgrade is also vital for Transport Canada to retain full compatibility with other GoC Departments as well as with its external clients and stakeholders. The MS Exchange 2007 upgrade process will also lead to the introduction of MS Windows Server 2008 as a new and supported department-wide Server Operating System platform. The overall Project also includes an end-user training component (MS Office 2007 and RDIMS 5.2.X) to help ensure a smooth introduction of these latest-generation software products within TC. The Project, which is currently well under way, is schedule for completion in March 2011.
- Enhanced Forecasting Tools in Business Objects – this project seeks to develop a tool to support forecasting of expenditures based on current year and historical financial information. The tool will assist program managers and financial staff to more effectively manage resource utilization. The project will result in an expanded

array of reports available in the Business Objects and/or Oracle Financial Analyzer reporting environment accessible to all users.

- Management, Resources and Results Structure (MRRS) and Program Activity Architecture (PAA) - this project serves to assist TC senior management decision-making in support of Treasury Board's new Management Resources and Results Structures policy. This three-year project (2008-09, 2009-10, and 2010-11) includes work to scope and develop the system infrastructure to support Transport Canada management with the decision-making and reporting tools necessary for the new MRRS policy. 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. Meeting management reporting needs under the new MRRS policy is critical, because Departments are expected to use MRRS information in their day-to-day management. This information is to be imbedded in all phases of the expenditure management cycle (commenced January 2008) and will become the authoritative basis on which departments and central agencies will conduct reviews and analyses to assess whether programs are consistent with federal priorities and focused on results and value for money.
- Marine Information Management System - the creation and implementation of MarSec Information Management System's purpose is to exchange, receive, analyze, and discriminate input that will improve security in Ports, Facilities, and Vessels in Canada from coast to coast. To fulfill this responsibility, MarSec requires that an Information Management System be initiated that will provide a WEB/intranet-based activity reporting system for inspectors and Headquarters' staff. It is both a data collection and information management system to capture, monitor and track security-related activities of interest to Transport Canada. Furthermore, MarSec Information Management System is expected to provide an effective reporting and tracking mechanism that allows inspectors to have access to the most up-date and current data on any number of different issues, from facilities to the frequency of vessels, to ongoing investigations.
- Air Cargo - Secure Supply Chain Database - Transport Canada, in partnership with Canada Border Services Agency, is undertaking to outline a broad strategy and approach for developing a comprehensive air cargo security regime for Canada. The strategy will address three specific risk-based priorities:
 - Protecting against explosives carried in cargo on passenger aircraft
 - Protecting against explosives in mail carried on passenger aircraft
 - Protecting against commandeering of all-cargo aircraft.

In an effort to design and pilot test an effective air cargo security program, the goal of this project will be for TC in collaboration with CBSA to identify, assess and develop a secure supply chain database to effectively manage secure supply chain programs for air carriers, freight forwarders and shippers to identify low risk cargo.

- Online Accident Reporting - Part 8 of the Transportation of Dangerous Goods (TDG) Regulations requires that a written report be submitted to the TDG Directorate in the event of any accidental release involving dangerous goods within 30 days of the release. The 30-Day Follow-up Report captures vital information relating to the accident. The resulting output is used for risk and operational analysis, to identify failures of means of containment under normal conditions of transport, to identify appropriate emergency response to dangerous goods accidents, to evaluate the impact of legislative and regulatory requirements, to facilitate research and development initiatives, to facilitate responses to Transportation Safety Board (TSB) documents, and to identify weaknesses in the regulatory program or its application. In addition, identifying the correlation between accidents and compliance rate is essential in order to properly assign resources to inspection activities.
- Navigable Waterways Database System - the Navigable Waterways Database System (NWDS) is a computer system (Oracle database using Oracle Forms & Reports) intended for the management of all applications requesting authority for the construction of works built in navigable waterways in Canada under the National Waters Protection Act (NWSA) and the National Energy Board (NEB). This initiative will improve the system's ability to provide the best possible information for planning, reporting and decision making while promoting consistency in program delivery. The current phase will focus on: developing a highly functional Geographic Information System (GIS) component, designing the application consistent with a comprehensive Marine Safety Core Architecture and increasing the scope to include Inspection data and Aboriginal consultation requirements.
- Marine Safety Enforcement Management System (MSEMS) – Phase 2 - When the Canada Shipping Act, 2001 (CSA 2001) came into force on July 1, 2007, it introduced a new administrative enforcement scheme that was designed to encourage and promote compliance. The CSA 2001 is the principal legislation governing safety in marine transportation and recreational boating, as well as protection of the marine environment. One of the key objectives of the CSA 2001 is to “establish an effective inspection and enforcement program”. Under the CSA 2001 regime, administrative enforcement tools such as the Administrative Monetary Penalties (AMPs) and assurances of compliance agreements are being introduced to allow Marine Safety to deal with contraventions administratively, rather than through the criminal court system. This application will assist Marine Safety in overseeing the enforcement activities and further developing national policies and procedures relating to compliance and enforcement so that marine safety enforcement is not only consistent throughout the country but also transparent to the marine community.
- Integration of Applications with RDIMS DM/CCM Mercury - The purpose of this project is to allow the enhancement of a number of “key” departmental business applications to provide the capability of integrating unstructured data (stored in RDIMS DM, ex. Word documents, faxes, spreadsheets, diagrams etc) with its corresponding structured data (from the business database itself, e.g. tombstone

data, inspection data, registration data, etc.) to provide a single window of access into a given business line's electronic information holdings (e.g. a virtual repository). It should be noted that while significant benefits have been achieved in managing unstructured information with the implementation of the RDIMS DM solution, even greater benefits would be anticipated with the integration of both information types.

- Public Service Modernization Act (PSMA) Implementation - The Public Service Modernization Act is bringing legislative changes that affect the way departments do HR business. Increased delegation and accountabilities, and modifications to business processes and practices bring new information requirements and additional reporting requirements. To ensure Transport Canada can comply with those requirements, the Human Resources Management Systems (including TIPS) will need to be updated in order to support the new information and reporting requirements.

Several areas of IM/IT efficiency will continue to be pursued in 2009-10 in order to continue to create departmental savings and /or improve service delivery.

- Professional Services - current annual spending of over \$14M on professional services. Through close functional scrutiny and management of professional services at a departmental level would allow more efficient and economical use of resources. Areas to be considered for review are application development and support, IM/IT strategies/studies, database administration, etc. Benefits - consolidated management of services.
- Application Review and Consolidation - a review has been conducted of all existing applications, identifying common functions and areas of duplication, costs to support and maintain application and business benefits. Plans are under way to improve the lifecycle management of these applications. The benefits are a better understanding of the costs associated with each application vs. use/benefits; shift resources towards applications with greatest use and impact on business; establish means to manage application.
- Server Rationalization - through the introduction of innovative new technology such as VMWARE, multiple servers can be functionally integrated on one physical larger server. This would reduce the number of servers and associated hardware acquisition and support costs for applicable infrastructure areas and business applications. The benefits are a reduction in the amount of equipment requiring support, service and maintenance; lower annual acquisition and refresh costs; fewer servers to manage; reduction in network components and complexity.
- Telecommunications - this includes telephones, voice circuits, voice mail, video conferencing, teleconferencing, faxes, pagers, cell phones and related support services including help Desk, but excludes the Transport Canada Internet (TCI) itself. Although a large amount of procurement is centralized via Bell Canada, control of expenditures is distributed among the NCR, regions, and groups. By consolidating control over these expenditures and the introduction of new

technology on a national scale (such as voice over IP, cost savings can be achieved as indicated. The benefits are a reduction in telecommunications costs; 'one stop' shopping; easier implementation of new technology by managing more standard equipment; supports capacity planning.

- Infrastructure Services - government wide initiatives are expected to bring down the costs of infrastructure services currently being borne by departments. TC expends in the range of \$4.5m per year to support the desktop, server, email and LAN support functions in the NCR and regions. In the event that projected savings from TBS and PWGSC initiatives do not materialize, a 'move forward' approach, including selective outsourcing, will be adopted by TC in order to drive these costs down unilaterally. The benefits are a reduction in costs for infrastructure support and management of asset lifecycle.
- Managed Output Services - the Department expends approximately \$4m per year for "office" print output including use of network-attached printers, local printers, fax machines and stand-alone photocopiers in the NCR. Large volume special finishing requirements (binding, stapling, etc.) are satisfied via private sector reprographic companies. Output is currently managed at the Responsibility Centre Manager level. Adoption of Managed Output Services within the NCR would yield a number of financial and other tangible benefits. An assessment of the applicability of this model for Regional offices would also be conducted. It is expected that an additional measure of savings could be generated in the Regions. The benefits are fewer equipment models to learn; equipment lifecycle managed by vendor in consultation with TC; improved access to more functions; service and support provided by vendor.

5. BUSINESS OPPORTUNITIES

Exhibit V.4 summarizes the business opportunities in the department.

Consulting is required on an on-going basis. Some areas include:

- LAN / Desktop technical support
 - Application development and maintenance
 - Web Site development and publishing
 - Systems 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 RFPs
 - Project Management.
- Existing corporate systems will require hardware and software upgrades.
 - Planning is under way 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 secure exchange of information.

EXHIBIT V-4

BUSINESS OPPORTUNITIES

- Technical consulting is required on an ongoing basis.
- Existing corporate systems will require hardware and software upgrades.
- Planning is under way 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 secure exchange of information.