

City of Edmonton Information Technology Standards
For Use in All RFPs Whose Bids Contain Some Information Technology Components

CITY OF EDMONTON - INFORMATION TECHNOLOGY STANDARDS	
A. Standards that Apply to All RFPs (regardless of where the Solution may be hosted)	
1. Project Management <ul style="list-style-type: none"> • Methodology • Project Lifecycle / Gating Process 	<p>The Information Technology Branch's project management methodology is customized from the Fujitsu Consulting Macroscopic product suite.</p> <p>The Information Technology Branch utilizes a Gating Process to move projects through the Project Lifecycle. The process consists of 6 gates: Concept, Investment, Design, Implementation, Post Implementation and Post Project Evaluation. Formal deliverables are presented at each gate for approval.</p> <p>Implementation of any information technology to City of Edmonton staff normally must utilize this methodology for the IT-specific components of the Project, even if the primary purpose of your Project is not Information Technology.</p>
2. Client Applications (Intel Workstation) <ul style="list-style-type: none"> • Antivirus software • Software distribution • Other Common Desktop Software • Application Components 	<ul style="list-style-type: none"> • Windows XP Professional & service pack 3 operating system • Internet Explorer 7 (some version 6 remaining) • Microsoft Office 2003 • Trend OfficeScan - latest engine version and pattern files. • SMS • WinDVD (only installed on IBM PC's) • Shockwave Player • Windows Script Host • Windows Installer • Windows Management Instrumentation • MDAC • Windows Media Player • Adobe Acrobat Reader • Winzip • HP LaserJet 4V/4M PostScript Local Printer For RightFax • RightFax • SAP, SAP Tutor • WinPrinter • Enterprise Vault • QuickTime • SVG Viewer (Plugin) • Macromedia flash player (web plug-in) • .NET Framework • Crystal Reports viewer • MS Intellipoint • RIM Blackberry • USB Drivers • MS Intellitype • Visio viewer • Sun JVM • ActiveCGM Viewer (ActiveX Control) • CMS Graphic Reader • CMS HTML Editor • Microsoft Management Console (requirement for the .NET Configuration .MSC) and (requirement for the .NET Framework Configuration MSC) • Microsoft Reporting Services Client

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2. Client Applications (Intel Workstation) Cont. <ul style="list-style-type: none"> • Workstation Configuration 	<p>Non administrative accounts have write access restricted to most directories on the local disk.</p> <p><u>Highlights of user restrictions</u></p> <ul style="list-style-type: none"> • Limited write access to the root of C: • Default security prevents clients from installing software or accessing the registry. • The C:\Temp directory cannot be deleted. Clients have full “create” capabilities at C:\Temp and below but are discouraged from keeping data local. <ul style="list-style-type: none"> ○ The City strives to ensure that all installed applications conform to the following standards: ○ 32 bit applications are installed in C:\Program Files ○ 16 bit applications are installed in C:\Programf ○ Additionally, software that does not recognize spaces in files names use the Programf directory. ○ Program Files and Programf directories have read only access. Directories below that level are granted change access.
<ul style="list-style-type: none"> • Virtual Client Components 	<ul style="list-style-type: none"> • VMWare VDM • Citrix XenDesktop • Citrix Presentation Server • Microsoft Softgrid
3. Personal Computers (Intel-based) <ul style="list-style-type: none"> • Hardware 	<p>All personal computer hardware and software goes through a quality assurance process before it is installed in the CoE computing environment.</p> <p><u>Desktop PCs</u></p> <ul style="list-style-type: none"> • IBM ThinkCentre M Series • Desktop PCs are maintained on a 4 year lifecycle. <p><u>Workstations</u></p> <ul style="list-style-type: none"> • IBM Intellistation M Pro Series • Workstations are maintained on a 3 year lifecycle. <p><u>Laptops</u></p> <ul style="list-style-type: none"> • IBM ThinkPad T Series. • Laptops are maintained on a 3 year lifecycle. Include Absolute Software boot-sector monitor. <p><u>Rugged Laptops</u></p> <ul style="list-style-type: none"> • Panasonic ToughBook Model CF30 • Panasonic ToughBook Model CF19 • Rugged laptops are maintained on a 3 year lifecycle. <p><u>Tablet PC's</u></p> <ul style="list-style-type: none"> • IBM Tablet PC X Series • Tablets are maintained on a 3 year lifecycle. • Include Absolute Software boot-sector monitor.

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4. Client Applications (Macintosh) <ul style="list-style-type: none"> • Antivirus software • Other Common Desktop Software • Virtual Client Components 	<ul style="list-style-type: none"> • Mac OS X 10.5 • Office Mac 2008 with Updates (includes Entourage) • Firefox 3 • Symantec Antivirus - latest engine version and pattern files. • Life '09 • Flip4Mac - WMV Components for OSX • VLC Media Player • Citrix ICA Client for Mac • Microsoft Remote Desktop Client for Mac 2 • VMWare Fusion 2
5. Personal Computers (Macintosh) <ul style="list-style-type: none"> • Hardware 	<p>All personal computer hardware and software goes through a quality assurance process before it is installed in the CoE computing environment.</p> <p><u>Desktop PCs</u></p> <ul style="list-style-type: none"> • Apple brand. <p><u>Laptops</u></p> <ul style="list-style-type: none"> • Apple brand. • Include Absolute Software boot-sector monitor.
6. Handhelds <ul style="list-style-type: none"> • Hardware 	<p><u>Handhelds</u></p> <ul style="list-style-type: none"> • HP FA980AAABA, iPAQ 110 Classic Handheld • HP FB040AAABA iPAQ 210 Enterprise Handheld <p>Blackberry 8830</p>

City of Edmonton Information Technology Standards

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B. Standards that Apply to City Hosted Solutions (where the services or servers are to be located at a City of Edmonton datacenter)	
1. Servers	
<ul style="list-style-type: none"> • General Information 	<p><u>Application Servers</u></p> <ul style="list-style-type: none"> • For high-level applications (e.g. WebSphere, WebLogic, Oracle 10g AS R2). • Oracle 10g AS R2 implemented on Windows 2003 R2 SP2 OS is the preferred application server environment. • UNIX systems support certain enterprise Applications, such as SAP, PeopleSoft, SLIM/ POSSE, TACS, Trapeze and CLASS. <p><u>Web Servers</u></p> <ul style="list-style-type: none"> • The City currently uses IIS as its standard .Net web server software. • Apache is used for Content Server. <p><u>Database Servers</u></p> <ul style="list-style-type: none"> • UNIX & Windows are the preferred platforms for database servers and most enterprise systems. UNIX is preferred for Oracle databases. • Windows and UNIX are both utilized for database server connectivity. The UNIX database environment is geared towards higher availability in comparison to the Windows environment. <p><u>Multicore Processor</u></p> <ul style="list-style-type: none"> • Multicore processors, which consist of multiple processing execution units or "cores" on one chip, are in the majority of server products within the CoE. Processor-based software licensing models must indicate what premium, if any, is charged for the various types of multicore processor.
<ul style="list-style-type: none"> • Virtualization Technologies 	<p>The City of Edmonton IT computing environment utilizes the following virtualization technologies:</p> <ul style="list-style-type: none"> • Solaris 10 Containers • VMWare on Wintel • EMC SAN
2. Windows Servers	
<ul style="list-style-type: none"> • Hardware 	<p><u>IBM xSeries</u></p> <ul style="list-style-type: none"> • IBM xSeries and Series X Intel Servers are rack mounted and installed in one of the server centers unless specific implementation requirements dictate otherwise. • IBM xSeries Intel Servers are maintained on a 3 year lifecycle.
<ul style="list-style-type: none"> • Software 	<ul style="list-style-type: none"> • Microsoft Windows 2008 R2 Server • IBM Director • Trend Office Scan • Microsoft SMS • Microsoft System Center Operations Manager (SCOM) • Legato or Galaxy backup client • Microsoft IIS is not installed by default. If required, it is installed and secured according to Microsoft recommendations. • VMWare for Test, Development, and Production. • NetIQ DRA tool for maintenance of Active Directory entries, permissions, groups etc.

City of Edmonton Information Technology Standards
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CITY OF EDMONTON - INFORMATION TECHNOLOGY STANDARDS	
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2. Windows Servers (cont.)	
<ul style="list-style-type: none"> • Setup 	<ul style="list-style-type: none"> • The Information Technology Branch Windows Server Support Group sets up, installs, configures, and manages server hardware and operating systems.
<ul style="list-style-type: none"> • Support 	<ul style="list-style-type: none"> • Intel Servers require a minimum 2-hour maintenance outage window per month. The preferred scheduled maintenance window is third Sunday every month from 6:00 am to 12:00 noon. • Quarterly maintenance windows are also required once a quarter starting on the 3rd Saturday 10:00 pm to Sunday noon.
<ul style="list-style-type: none"> • Annual Power Outage 	<ul style="list-style-type: none"> • Each server will be subject to an annual power outage for electrical system maintenance. This outage will typically last 12 hours.
<ul style="list-style-type: none"> • Applications 	<ul style="list-style-type: none"> • Applications should be able to run as a service and not require the console to be permanently logged on.
<ul style="list-style-type: none"> • Remote Access 	<ul style="list-style-type: none"> • Point remote access solutions are not allowed (e.g. PCAnywhere).
3. UNIX Servers	
<ul style="list-style-type: none"> • Hardware 	<ul style="list-style-type: none"> • Sun SPARC Systems are rack mounted and installed in one of the server centers unless specific implementation requirements dictate otherwise. • Servers must (mandatory) have a minimum of two (four preferred) locally attached hard drives, either internal (preferred) or through an external disk enclosure. These hard drives (minimum of 146GB in size) must (mandatory) be on a RAID controller, or on separate SCSI or Fibre Channel controllers for mirroring of the O/S boot disk. • Servers must (mandatory) have redundant (N+1) power supplies and redundant (N+1) fans. • Servers must (mandatory) have a minimum of two EMC supported and certified fiber-channel adapters that are capable of a minimum 2Gbps I/O data rate for the SAN connectivity. • Servers must (mandatory) have a minimum of one network adapter compliant to the COE current network connectivity standard. Server must (mandatory) have Lights Out Management capability.
<ul style="list-style-type: none"> • Software 	<ul style="list-style-type: none"> • Solaris 10 or later depending upon the supported application requirement. • Sun Cluster on some critical servers. • IBM Tivoli event management. • ESM security auditing. • Legato and Galaxy backup software support.
<ul style="list-style-type: none"> • Drive Configuration 	<ul style="list-style-type: none"> • The operating system is installed on the server's internal disks with RAID-1 mirroring protection through the hardware RAID controller or software mirroring with Solaris Volume Manager Software. • Data storages are provided from the EMC SAN infrastructure. • High profile applications are mapped to their own disk groups for individual service isolation.
<ul style="list-style-type: none"> • Setup 	<ul style="list-style-type: none"> • The Information Technology Branch, UNIX Server Support Group sets up, installs, configures, and manages server hardware and operating systems.
<ul style="list-style-type: none"> • Support 	<ul style="list-style-type: none"> • The Information Technology Branch, UNIX Server Support Group sets up, installs, configures, and manages server hardware and operating systems.

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3. UNIX Servers (cont.)	
<ul style="list-style-type: none"> Annual Power Outage 	<ul style="list-style-type: none"> Each server will be subject to an annual power outage for electrical system maintenance. This outage will typically last 12 hours.
<ul style="list-style-type: none"> Applications 	<ul style="list-style-type: none"> Applications must (mandatory) be able to run as a service and not require the console to be permanently logged on.
<ul style="list-style-type: none"> Remote Access 	<ul style="list-style-type: none"> Servers are to be connected to Digi console management server via the server's serial port for remote access.
4. Databases	<ul style="list-style-type: none"> Oracle (preferred platform for relational databases) SQL Server MaxDB for Content Server
5. Data Storage & Backup	<ul style="list-style-type: none"> All data disk storage is fiber-channel attached to an EMC Storage area network (SAN) in Backup a mix of Raid 1 or 5. Some systems have mirroring between facility centers for higher system availability using EMC's SRDF facility.
<ul style="list-style-type: none"> Backup Software 	<ul style="list-style-type: none"> Legato and Galaxy
6. Computer Facilities	<ul style="list-style-type: none"> The City of Edmonton has three primary server locations. All servers are expected to be located in one of these primary locations housed in standard 19 inch equipment racks.
7. Network	<ul style="list-style-type: none"> The City of Edmonton's computer network (Ethernet) standard for equipment is Cisco. Any product, device, or application requiring network access, or sending/receiving data across the city's network that does not meet CoE Server, operating system, hardware or software standards requires prior approval on a case by case basis.
<ul style="list-style-type: none"> General Information 	<ul style="list-style-type: none"> Wire line: The City wire line network consists of high-speed (fiber) connections between all major City buildings, and medium speed (e.g. DSL, point-to-point/point-to-multipoint wireless) connections to all other City buildings. Local Area Networks in these buildings are based on CAT5 (or greater) cabling with 100 Base-T (or faster) Cisco switches connected to a 1 GB/s (or greater) backbone.

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8. Wireless	<p>In order to avoid potential interference with City wireless protocols bidders should contact a City of Edmonton, Senior Materials Management Specialist.</p> <ul style="list-style-type: none"> • Wi-Fi: Localized Wi-Fi network access is provided within City of Edmonton facilities through Cisco equipment only. Supported Wi-Fi variants must adhere to IEEE 802.11 a/b/g/n standards. • General Purpose: Network access outside the Wi-Fi zones is provided by third party providers using CDMA “1xRTT/1xEVDO”, EDGE, or HSPA Services. • Broadband Wireless Network (Point-to-Multipoint) is used to interconnect City locations utilizing unlicensed (5.3 GHz, 5.4 GHz, 5.8 GHz) and licensed (4.9 GHz, 18 GHz) radio frequency spectrum bands via rooftop level installations. Interference from competing radio frequencies needs to be addressed if applicable. • Committed Information Rate (CIR - minimum guaranteed bandwidth) to a city location connected to the Broadband Wireless Network is 1 Mbps. Bandwidth usage may burst up to the Maximum Information Rate (MIR) setting of 10 Mbps. • Special Purpose: The Edmonton Police Service uses its private mobile data network based on Motorola’s RDLAP for its own public safety business and shares it with ERD (Emergency Response Division). This network is not available or intended for general purpose use.
9. Telecommunications	<ul style="list-style-type: none"> • Telecommunication services to the city’s 400+ sites are provided through a combination of Telus Corporation’s Centrex service offering (voice) and Cisco’s Voice over IP infrastructure. Any telecommunications device or application must (mandatory) support this infrastructure. • Voicemail is provided through a combination of a city owned and operated Octel350 voicemail server and Cisco’s Unity product.
10. ERP Applications	<ul style="list-style-type: none"> • SAP: ERP, CRM, BI, EP, Solution Manager, Content Server, TRZX • PeopleSoft HR • POSSE • SLIM (Spatial Land Inventory System)
11. GIS & Map Rendering	<ul style="list-style-type: none"> • GeoMedia
12. CAD (Computer Aided Design)	<ul style="list-style-type: none"> • Microstation
13. Spatial Data	<ul style="list-style-type: none"> • Spatial data is stored in Oracle Spatial.

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14. Application Development & Database Tools	<ul style="list-style-type: none"> • ASP.Net • C++ • Java • PL/SQL • Microstation VBA / MDL • GeoMedia • FormScape • Intergraph Batch Services • PERL • Oracle Discoverer • Oracle Forms • Oracle JDeveloper • Oracle Reports • SQL Navigator • SQL Plus / SQL Developer • TOAD • Oracle Enterprise Manager • Business Objects Enterprise XI
<ul style="list-style-type: none"> • Web Development 	<ul style="list-style-type: none"> • .Net Technology • SAP Netweaver Developer Studio
15. Collaboration	<ul style="list-style-type: none"> • Microsoft SharePoint Services 3.0 - Team collaboration software. • Microsoft Live Communication Server 2005 Provides instant messaging "chat" and user availability • Video Streaming: Distribution and viewing of video streams must be in MPEG4 format and compatible with City of Edmonton standard video viewing software; Windows Media Player, Apple QuickTime, or Microsoft Internet Explorer.

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16. I.T. Security	
<ul style="list-style-type: none"> • General information 	<ul style="list-style-type: none"> • Acquired information technology must make use of industry-standard security procedures and solutions. • The level of security controls must be adequate given the level of risks of the application, and the information contained within, and compatible with the City's existing security infrastructure. • The City will not provide details of the City's security protections in a public RFP. • The RFP evaluation process should allow time to evaluate security adequacy and compatibility of any technology items to be provided. • The City prefers any installation or support services to be on-site for any information technology to be acquired as part of an RFP process. If that is not possible, then remote installation or support services should only be provided to the City using a City-approved remote support solution. • The remote support solution is currently WebEx Support Centre. • The City prefers any software development or enhancement services to be on-site for any information technology to be acquired as part of an RFP process. If that is not possible, then remote software development services should only be provided to the City using a City-approved remote development solution.
<ul style="list-style-type: none"> • External websites 	<ul style="list-style-type: none"> • Any secure (SSL) internet sites which the City is required to use as a result of the Work must be signed with valid trusted SSL certificates, i.e. signed by a trusted certificate authority. • Self-issued SSL certificates will not be accepted by the City of Edmonton.
<ul style="list-style-type: none"> • Infrastructure 	<ul style="list-style-type: none"> • All City-managed computers (server or desktop or laptop) require a working, properly-configured copy of the City's anti-virus software (currently TrendMicro OfficeScan). • City personal computers should not require Local Administrator privileges in order to operate applications or other software. • Internal connection to the COE network (i.e. physically connecting to City building wiring) must (mandatory) only be done with City-managed devices. Direct wired connection of non-City devices is not permitted. • Remote access must be limited to the use of City of Edmonton centrally managed remote access solutions and may in some cases be limited to using City-managed end-point devices. In cases where non-City devices are allowed, they are subject to verification of anti-virus, operating system patch levels, and other security practices. • More powerful or privileged types of remote access to the City make use of stronger authentication; currently the City standard is RSA SecurID token. • Any communication over a publicly accessible network between an outside device and a device within the COE network must (mandatory) be adequately encrypted. Adequacy is subject to City of Edmonton approval.

City of Edmonton Information Technology Standards
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17. I.T. Security (cont.)	
<ul style="list-style-type: none"> • Applications 	<ul style="list-style-type: none"> • Application packages which require use of any non-standard ports through City firewalls require explicit City of Edmonton approval plus the use of other compensatory practices to strengthen the level of security. • Information stored locally on mobile computing devices must (mandatory) be protected by an appropriate data security solution; the degree of security used requires City approval. • Encryption of stored data requires City approval, and key escrow procedures must (mandatory) be followed to ensure encryption keys are available when staff is unexpectedly absent.

City of Edmonton Information Technology Standards

For Use in All RFPs Whose Bids Contain Some Information Technology Components

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C. Standards that Apply to Externally Hosted Solutions (where the services or servers are located at a location managed by a service provider)	
1. User Authentication <ul style="list-style-type: none"> • Application Packages 	<ul style="list-style-type: none"> • All new applications requiring a login which are acquired or custom-developed for use at the City of Edmonton must be capable of integrating (then must actually be integrated) with Microsoft Active Directory to perform authentication. Authentication here means whenever a person logs onto the application, the user ID and credentials must be validated with those in our Active Directory. • Applications hosted other than on City premises must be capable of integrating with Active Directory (or other City directories) to perform authentication, using the industry-standard SAML protocol. • must (mandatory) provide adequate application security, including allowing application logon IDs and passwords of at least 8 characters each; • should provide restrictions (preferably based on roles that may be defined and assigned to individual account holders) on what each individual logging onto that application may do; • should be able to integrate the application security features with Microsoft Active Directory using LDAP (Lightweight Directory Access Protocol), in order to support future Identity Management Single Sign On solutions; • should be able to be accessed via the City's remote access solutions: Citrix Metaframe, Cisco IPsec VPN, and Juniper SSL VPN
2. Disaster Recovery <ul style="list-style-type: none"> • Business Continuity Planning 	<ul style="list-style-type: none"> • As part of the City of Edmonton's Business Impact Assessment (BIA), Recovery Point Objectives (RPOs - data loss thresholds) are defined for all City applications. The proposed solution must have an RPO of XX hours. • As part of City of Edmonton's BIA all ITB supported applications and services have been ranked by Recovery Time Objectives (RTO - tolerance to service interruptions). The proposed solution must have an RTO value of XX days/weeks.
3. Data Backups	<ul style="list-style-type: none"> • Data backups must be encrypted. • Data backups must be stored offsite or replicated at an alternate site.
4. Application Requirements	<ul style="list-style-type: none"> • The solution should allow customization and / or configuration to maintain City of Edmonton communications design guidelines (i.e. - the City logo added to documents, customizable form design, etc.) • The City's data must be available to other City of Edmonton applications including business intelligence and statistical reporting tools. • The preferred method for accessing City data is SOA services. • The functionality of the application should be consumable through as a set or series of web services to enable near real-time application to application integration. • The proponent of the solution should describe how the application could be moved to a different platform or functionality transitioned to another application. • Attachments (i.e. unstructured documents) should reside in a content repository versus the application's database. • An Entity Relationship Diagram (ERD) is required for all applications (purchased or custom).