Enterprise Content Management Phase 2: Requirements Analysis

Version 1.0

FINAL DRAFT

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Contents

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Document Approval

The following people have approved the content of this document:

Approver	Project Role	Signature	Approval Date:
	Business Owner		
Stewart Bidinosti	Business Sponsor		

Document Reference Table

The following table lists the supporting documents and artifacts that are referenced in this document.

#	Document Name	Document Location	ECM Requirements Analysis Page #
1	PMM: Project Management Manual	http://winnipeg.ca/finance/pdfs/ipd/ProjectManagementManual.pdf	Pages 17, 19
2	Project Management Framework Cost Classification	http://citynet/finance/infrastructure/pdfs/PM_FrameworkCostClassificationV1.0.pdf	Pages 16, 17
3	Project Management Templates Site	http://citynet/finance/infrastructure/projectmanagement.stm	Page 77
4	AS-006 Corporate Recordkeeping	http://citynet/CAO/administrative_directives/general_administration/pdf/ad006.pdf	Page 56
5	W3C Web Content Accessibility Guidelines	http://www.winnipeg.ca/interhom/accessibility/accesswinnipegca.stm	Page 89
6	Project Management Templates site (Ref: Appendix D)	http://citynet/finance/infrastructure/projectmanagement.stm	Page 102

1 Executive Summary

Enterprise Content Management (ECM), otherwise known as Document Management, is the use of process and technology to manage the storage, retrieval, classification, and movement of electronic documents across the enterprise. An organization-wide discovery conducted in 2015 concluded that the absence of ECM at the City of Winnipeg results in difficulty managing and locating information, duplication of efforts, slow turnaround times in supplying information, poor document version control, and miscommunication.

In conjunction with a subject matter expert in ECM in large organizations, City staff created a strategy in 2016 to implement ECM in a 5-year capital program. This strategy focuses on People, Processes, Information, and Technology. The strategy calls for ECM to be rolled out incrementally across high-impact business processes.

The key objectives of Phase 2 of the Enterprise Content Management (ECM) project are:

- To allow the City to leverage recent investments in formal processes for Investment Planning and Project Management stages of the Asset Management System
- To expand the preliminary requirements assessment from ECM Phase 1
- To update the ECM Project Business case (to a Class 3 estimate level), and
- To develop a Solution Bid Opportunity supporting an RFQ competition, using the baseline requirements outlined in this **ECM Requirements Analysis** document.

The in-scope delivery milestones for ECM Phase 2, which will support these objectives, include:

Project Milestone	Completion/Target Date	Notes:
Stage 1 (ECM Requirements and Process Analysis):		
ECM Requirements - Approved	September 9th, 2016	
Stage 2 (Business Case Updates and Solution Bid Opportunity):		
ECM Change Impact Readiness Assessment	September 2nd	Consolidated findings from both ECM Project team and departmental/agency surveys
ECM Solution Opportunity (RFQ) – Competition Open	October 14th	
ECM RFQ - Competition Closed	November 12th	
ECM RFQ – Evaluation Phase Complete	December 23rd	

Key findings from the Internal Stakeholder interviews in 2015 include:

- *Failure to comply with the city of Winnipeg Records Management By-Law and Record keeping Policy.*

- *Inability to locate information residing in decentralized share drives*
- *Duplicating staff efforts in processing and communicating information.*
- *Experiencing increasingly slow turnaround times and miscommunications.*
- *Experiencing frustration with the lack of tools available for managing information effectively.*

The ECM Project team undertook external consultant interviews, which identified several important findings including:

- *There is a significant lack of consistent City documentation or process standards, as most current interactions with staff are based on 'who knows what' i.e. not a repeatable process*
- *There also appears to be no common vendor evaluation process upon completion of a project. This impacts both the ability to undertake standardised performance assessment of consultants or identify areas for improvement, and*
- *Core project control information, including task status, burn rate and progress estimates could be provided by consultants on a weekly or monthly basis. The level of information requested by City PMs at the present time however varies widely.*

ECM Requirements: Summary of Findings:

Enterprise Content Management (ECM), otherwise known as Document Management, is the use of process and technology to manage the storage, retrieval, classification, and movement of electronic documents across the enterprise. A city-wide discovery conducted in 2015 concluded that the absence of ECM at the City of Winnipeg results in failure to comply with the City Records Management By-Law, difficulty locating information, duplication of efforts, slow turnaround times in supplying information, miscommunication, and staff frustration.

In conjunction with a subject matter expert in ECM in large organizations, City staff created a strategy in 2016 to implement ECM in a 5-year capital program. This strategy focuses on People, Processes, Information, and Technology. The strategy calls for ECM to be rolled out incrementally across high-impact business processes.

Planned next steps for ECM Phase 2, following approval of this **ECM Requirements Document** would include:

- To update the ECM Project Business Case so that it aligns with this approved document
- To develop effective ECM Solution Bid Opportunity documentation for the desired RFQ competition, and
- To conduct a procurement evaluation exercise for external vendors who respond to the ECM RFQ, so that a short-list of approved ECM vendors can be established.

2 Project Summary

The Enterprise Content Management (ECM) Strategy and Roadmap for the Future report was finalized in May 2016. It includes detailed analysis and findings derived from 139 discovery

meetings conducted citywide from June to November 2015, and that involved the participation of 440 City Staff.

Missing content, out-dated or non-existent procedures and a maze of internal filing locations cause delays and prevent City Staff from locating the right information at the right time in the right format. Staffs do not have the means to manage content collaboratively and must rely on tribal knowledge and internal manual processes. The manual processes are cumbersome, not easily communicated, and in no way transparent.

The problem of not having the right information at the right time, in the right format escalates when we consider that City Staff do not comply with the Records Management By-Law 86/2010. For example, many of the documents, emails and content files used in the City are official "records" which must be managed according to legal requirements, and also to recognized standards, such as Canadian General Standards Board (CGSB) and ISO records management standards. As a result, City Staff have purposefully and persistently voiced that they do not have access to the right information required to make effective business decisions.

2.1 Project Background

In 2013, a report was delivered recommending that Data & Application Services proceed with a pilot implementation of document management as a replacement for the existing Decision Making Information System (DMIS) and Report Information Systems (RIS). The DMIS and RIS systems replacement did not continue due to the lack of a suitable vendor response to the RFP requirements.

In 2014, the Winnipeg Police Service embarked on a pilot Document Management project with SharePoint, and it was determined that the results of this pilot should be observed to understand their implications on the greater City initiative. The results of the pilot project were presented in May 2014, and the lessons learned were incorporated into a new project plan.

In 2015, Phase 1 of the City's ECM project, Discovery and Strategy Development was begun. The ECM Strategy and Roadmap for the Future report was finalized in May 2016. The analysis of the findings revealed systemic issues present due to the absence of Enterprise Content Management at the City of Winnipeg.

The strategy created examined three options for ECM implementation:

- Option 1: Status Quo is unacceptable as staff cannot function efficiently in a non-digitized records management.
- Option 2: Big Bang implies attempting to solve the complex issues associated with ECM, Information Management (IM) and a digital workplace in one "big bang" and is not practical or feasible.
- Option 3: Iterative by High-Impact Business Process focuses on streamlining the high-impact processes defined by City staff through automation and ECM best practices. To become more transparent, innovative and modernized City staff will be able to manage digital content with compliance, confidence and professionalism, and citizens will receive much better service.

During 2016, Phase 2 – a RFQ process will take place to develop a short list of pre-qualified ECM solution partners for an appropriate ECM platform that addresses the technical and functional requirements which were the results from the Phase 1 ECM discovery process. Phase 3 will include a RFP process dependent on budget approval and begin in 2017 Phase 4

will begin in the second quarter of 2017 and carry out the tasks identified within the roadmap. Implementing ECM is a multi-year endeavour which permits operational units an opportunity to review, develop and redesign existing processes, to leverage the move to ECM to test new workflows, and to determine where additional business process automation would enhance timeliness and efficiency while streamlining existing processes.

A sustainable City of Winnipeg ECM Solution impacts every department, business process, and employee working with information: 24/7/365. Technology alone will not resolve the issues. Change management, resources, roles, training, policy, information analysis and process automation are all critical parts of the Solution. However those components cannot work without a core system that has the capacity to automate the process of creating and reporting information, from beginning to end.

2.1.1 Enterprise Content Management [ECM] Phase 1

Phase 1 developed a Discovery and Strategy document to validate the need for an ECM solution to support the City's Content Management processes:

Phase 1 of the ECM Project deliverables had deliverables including:

1. An inventory of City business processes and document types
2. A documented process for evaluating business processes and their readiness for adoption of disciplined ECM, and prioritizing implementation
3. Documentation of the business needs of business units as they relate to ECM
4. Documentation of the current state of ECM technologies deployed in business units
5. Criteria for technology selection based on the above two items
6. Development of a set of high level requirements. See Appendix A: ECM High Level Solution by Phase, task, description and resources .
7. Submission of an investment request into the 2016 capital budget.

2.1.2 Enterprise Content Management [ECM] Phase 2

The City of Winnipeg started Phase 2 of the ECM project in July 2016. The purpose of Phase 2 is to:

- Refine the preliminary requirement assessment.
- Update the ECM Business Case and,
- Develop a Solution Bid Opportunity for the ECM.

This document:

- Details current state assessment of the processes used in the City of Winnipeg departments that perform content management, identifying issues and opportunities.
- Describes conceptual designs of potential solutions and the functions ECM would be required to perform, itemizing issues and opportunities of each approach. *"ECM" refers to a "black box" version of the final solution which has not been identified, designed or selected at this phase of the ECM project. This document will identify all of the*

capabilities that must be present in a new solution, regardless of how they will be realized or implemented."

3 Project Scope

3.1 In Scope

The scope of this report focuses on document, content and records management; unstructured content in the form of files, (text, media, images, drawings, voice mails and other formats), whether they are multiple stored on a desktop, hard drive, an email account (or several email accounts), shared drives, e.g. 'M: drive and / or on SharePoint sites.

The organization lives in a world of content chaos. This Strategy identifies ways through architecture, standards, guidelines, best practices and process models to manage the chaos and ensure content is being classified, managed, protected and stored consistently across the City, and is accessible through the appropriate security access levels.

The purpose of Phase 2 of the ECM project is to:

- To develop Approved Requirements and Systems Specification documentation for the ECM Solution based on extensive internal and external stakeholder interviews.
- To update the Business Case for the ECM Project so that it aligns with these approved documents.
- To develop effective ECM Solution Bid Opportunity documentation for future City procurement activities, and
- To conduct a procurement evaluation exercise for external vendors who respond to the ECM Solution Opportunity Request.

The purpose of future Phases of the ECM project will be:

- To undertake implementation activities associated with delivery of a proposed ECM, including system design & development, and
- To also perform organizational change management (OCM) activities for the ECM, which support either *Managing Change (detailed change plans)* or *Reinforcing Change (corrective actions)* stages of the ADKAR model.

3.2 Out of Scope

The following items have been identified by stakeholders as being out of scope for this project at this point, including:

- Any requirements gathering, system design, development or testing which relate to Enterprise Content Management (ECM), and
- Any analysis or design activities associated with process re-engineering of current business processes

4 Stakeholder Groups

An Enterprise Content Management (ECM) Solution is an enterprise level endeavour that will include stakeholders from all areas of the City of Winnipeg internally who require robust functionality to control and analyze information. ECM solutions help reduce search times, manage data, and enable institutions with regulatory compliance. Enterprise Content Management (ECM) is broadly defined as the strategies, tools, processes, and skills an organization needs to manage all of its information assets (regardless of type) over their lifecycle.

4.1 Internal / Administrative

1. Council
2. CAO
3. Executive Policy Committee
4. Standing Policy Committee(s)
5. Corporate Finance - Corporate Asset Management Office/Project Management Office
6. Corporate Finance – Major Capital Projects
7. Corporate Finance – Budgeting
8. Corporate Finance – Materials Management
9. Corporate Finance – Risk Management
10. Corporate Finance – Controller
11. Legal Services
12. Corporate Support Services (CSS)
13. Property Planning and Development (PP&D)
14. Public Works
15. Transit Services
16. Winnipeg Parking Authority
17. Fire and Paramedics Services
18. Police Services
19. Community Services
20. Fleet Management Services, and
21. Water and Waste (W&W)

5 Current State Assessment

The current state assessment for the ECM was performed to provide an understanding of the current department environments to identify critical solution and implementation considerations. Conducting a current statement assessment builds a solid understanding of the problems or opportunities to be addressed and provides a foundation for the ECM Business Case to move forward.

5.1 Background

Phase 2 of the ECM will allow the City of Winnipeg to leverage the policies and business processes Enterprise Content Management and truly operationalizes these activities.

Facilitated 139 discovery meetings were held with 440 staff members from 16 departments, including:

1. Corporate Finance - Corporate Asset Management Office
2. Corporate Finance – Major Capital Projects
3. Corporate Finance – Budgeting
4. Corporate Finance – Controller
5. Corporate Finance – Materials Management
6. Corporate Finance – Risk Management
7. Corporate Support Services
8. Property Planning and Development
9. Public Works
10. Transit Services
11. Winnipeg Parking Authority
12. Fire and Paramedics Services [Business and IT Services]
13. Police Services [Business and IT Services]
14. Community Services
15. Fleet Management Services, and
16. Water and Waste

The facilitation sessions during Phase 1 Discovery employed an Appendix C: Facilitation Framework to guide the discussions and assist in assessing each department's maturity on the Content and Document Management practices and Appendix D: Document/Record Lifecycle

Show the Document/Record Lifecycle process well defined, documented and managed for each type or category across each business process, according to business rules.

The purpose of these meetings was to document current processes, issues, and opportunities, as well as any requirements and future visions of utilizing an ECM tool.

5.2 Current State and Readiness

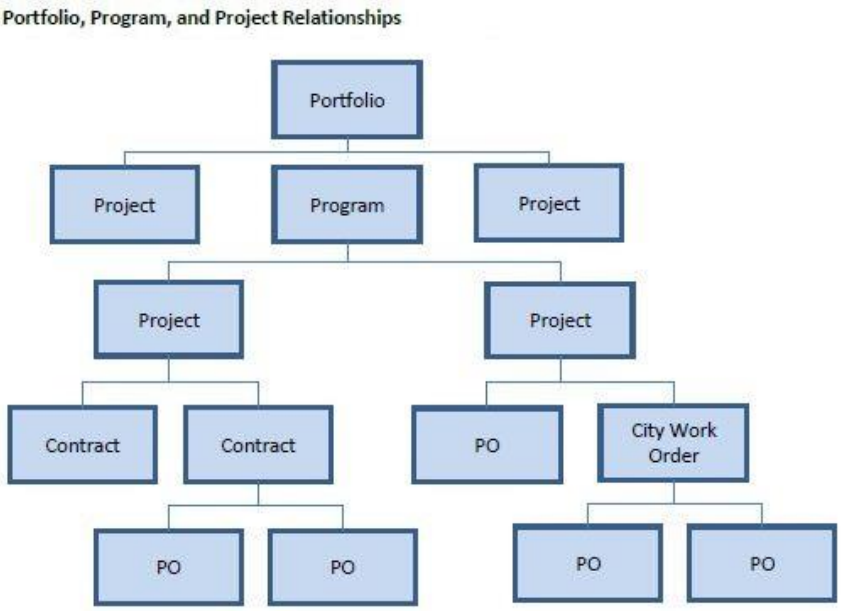
The issue of receiving the right information at the right time to make decisions, respond to Council, citizens, media, and other departmental inquiries are influenced by a number of interdependent problems. These common problems may span many business processes and departments, combining to create an information gridlock. The problems are outlined below and are referenced throughout this report.

Problem Category	Description	Impact
Records Management and Compliance	The City Records Management (RM) By-law is not enforced on digital records.	The City is not compliant with the RM By-law, exposing the City to the risk of litigation.
Version Control and Duplication	There are many different versions of the same document saved in multiple locations.	Searching is slow as sorting through multiple locations and versions is required. Risk of using the wrong version is increased.
Trust of Systems and Content	Staffs do not trust digital records because of the duplication and difficulty in searching.	Multiple duplicate silos of storage are created plus paper files are used.
Use of Paper	Paper copies of digital files are printed and stored as records. They are printed, signed, scanned, re-saved and filed.	Paper slows search time. Paper costs more to store and increases cost. Paper files lost more often, causing re-work.
Information Governance	City-wide policy and procedure for the management of digital information is ad hoc and reactive.	Ad hoc procedures cause inconsistency across departments, making it more difficult to search for and manage documents/ records.
Process Fragmentation	Process requires manual intervention, storing, printing, and emails.	Multiple copies and emails are created. No way to track status of process.
Search	The search for documents and records is slow and sometimes they fail, with no results returned or inaccurate information found.	Decision-making may be delayed and based on inaccurate information.

5.3 Project Delivery Framework – As Is Process

A streamlined project management framework sets standards for project deliverables, including tracking and communicating schedules, setting measurable delivery goals and milestones, performing stage-gate reviews and conducting quality measures. Defining a Project in measurable terms with a consistent approach, clear milestones and decision points and metrics to measure the success; focuses the project team on the end goals of the project.

- ***Portfolio Management*** is a component collection of programs, projects or operations managed as a group to achieve strategic objective.



- ***Project Management*** is the application of knowledge, skills and techniques to execute projects effectively and efficiently. It's a strategic competency for organizations, enabling them to tie project results to business goals.

Project Delivery Framework is divided into four phases:

1. **Project Delivery Framework: Pre-Project:**
    a. This phase encompasses strategic planning and budgeting.
2. **Project Delivery Framework Phase: Initiation:**
    a. Project Definition from Planning to Delivery
3. **Project Delivery Framework Phase: Execute Project Planning:**
    a. Planning Sub-Phase: [to obtain Results, Products, or Services]
    b. Delivery Sub-Phase: [to deliver Results, Products, or Services]
    c. Transfer Sub-Phase: [of Results, Products, or Services to owner (operating business unit)]
4. **Project Delivery Framework Phase: Close Out:**
    a. Project end of life.

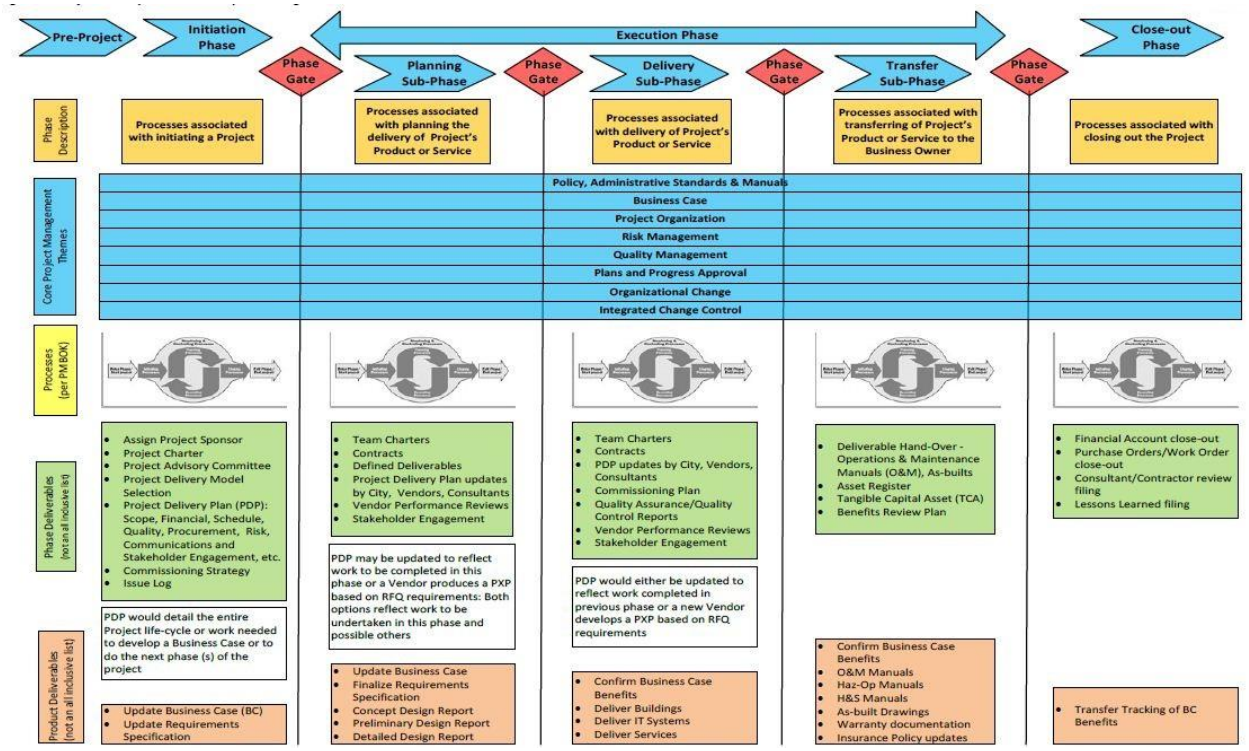


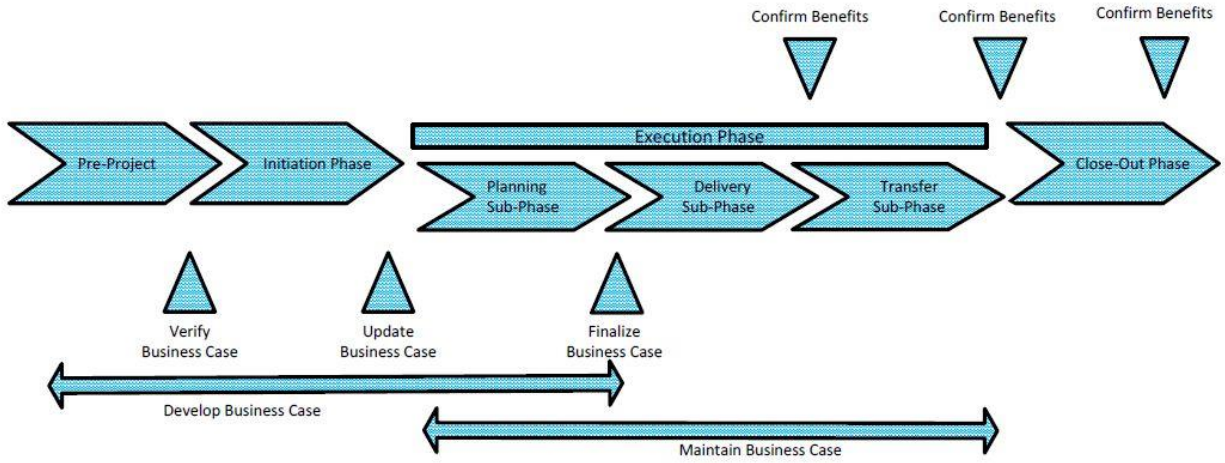
Figure: Project Management Framework Cost Classification

Other Key Disciplines of Project Managers Manual Relevant to the ECM

- **Contract Administration –** Contracts and the administration of those contracts (contract Administration) is significantly involved in and integrated with project management. The role includes managing contract relationships, monitoring contract performance, and modifying contracts as appropriate.
    - Contract administration for Consultants, Construction Contractors, and third-party Contractors is similar. Each is a type of vendor that has a contract with the City, and contract administration for any of the three involves managing the work provided in accordance with the terms and conditions of the contract. The contracts with the three types can be different, which creates differences in the City's role, relationship with the vendor, and administration activities, however the applicable project management and contract administration processes are the same. A Contract Administration manual is provided in Appendix E of the Project Management Manual.
- **Change Management** - Refers to the management of organizational change and as such, should not be confused with change control. Change management is a discipline that offers a structured approach that is aligned with Project Management Institute (PMI) project delivery lifecycle. The purpose of change management is to promote and enable the adoption of changes that may occur as the result of project delivery, and thereby to support the achievement of project results and outcomes.
- **Public Engagement** – refers to a process, involving communication and interaction between the City of Winnipeg and its residents that serves to inform and involve the public, and uses public input to make better decisions. The purpose of engaging the public is to achieve decisions that are sensitive and responsive to community values and concerns. It

ranges from the mere provision of information through to empowering the community to make decisions.

5.3.1 Project Management Process



From Project Management Manual Figure 3-1: Project Delivery Framework Showing Project Phases and their Main Components

Pre-Project Phase – This phase encompasses strategic planning, investment planning, and budgeting. These processes must be completed before project initiation. However, considerations for project delivery are integrated concurrently during business case development.

Initiation Phase – This phase involves clearly defining the project from planning to delivery, developing a project charter. Key Elements:

- Project Charter
- Stakeholder Assessment
- Project Delivery Plan

Execution Phase – In this phase, processes are completed that result in a product. Activities and deliverables can vary widely between projects; however three sub-phases involving the following processes apply to all projects:

a. **Planning sub-phase**: Planning the delivery of the product, result or service [to obtain Results, Products, or Services]. Key elements:

- Creating and/or updating the Project Delivery Plan
- Scheduling
- Risk Assessment (part of Risk Management)
- Basis of Estimate

b. **Delivering sub-phase**: Delivering the product, result, or service per the project plan [to deliver Results, Products, or Services]. Key Elements:

- Direct and Manage the Plan
- Control a Project or a specific phase of a project key elements:

- Integrated Change Control; Control Scope, Cost & Schedule
- Control Procurements (Contract Administration)
- Control Stakeholders and Project Communication

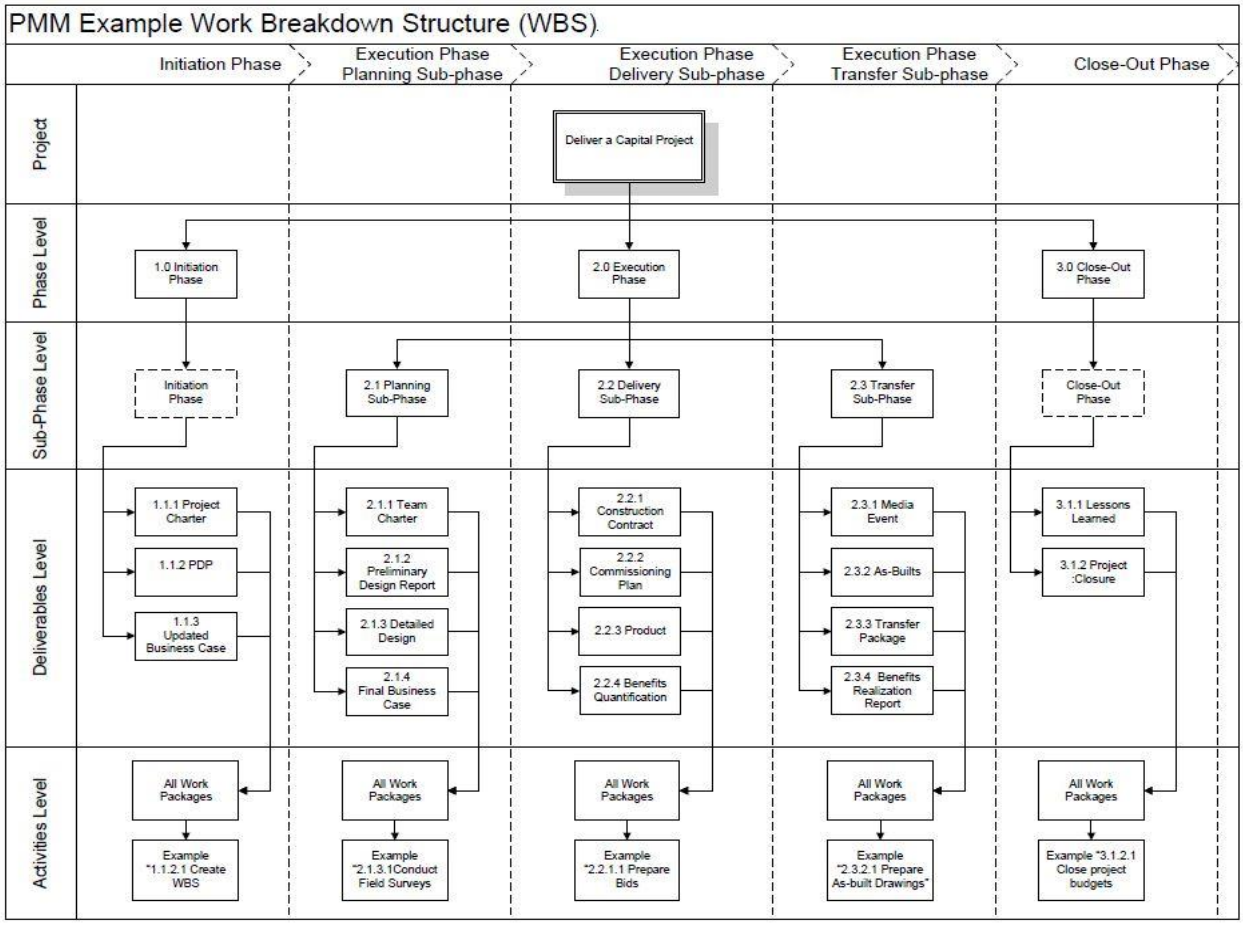
- Conduct Procurements
- Acquire Project Team
- Perform Quality Assurance
- Manage Stakeholders
- Performance Reports

c. **Transferring sub-phase**: Transferring the Results, Products, or Services to owner (operating business unit). Key Elements:

- Transfer to Owner (Documentation, Asset Register & TCA)

Close-Out Phase – As all projects have a defined life, this phase defines the processes and activities that end the life of a project. Key Elements:

- Lessons Learned
- Close Procurements (Contracts)



From Project Management Manual Figure 5.2: A WBS Tree Structure Organized by Project Phases

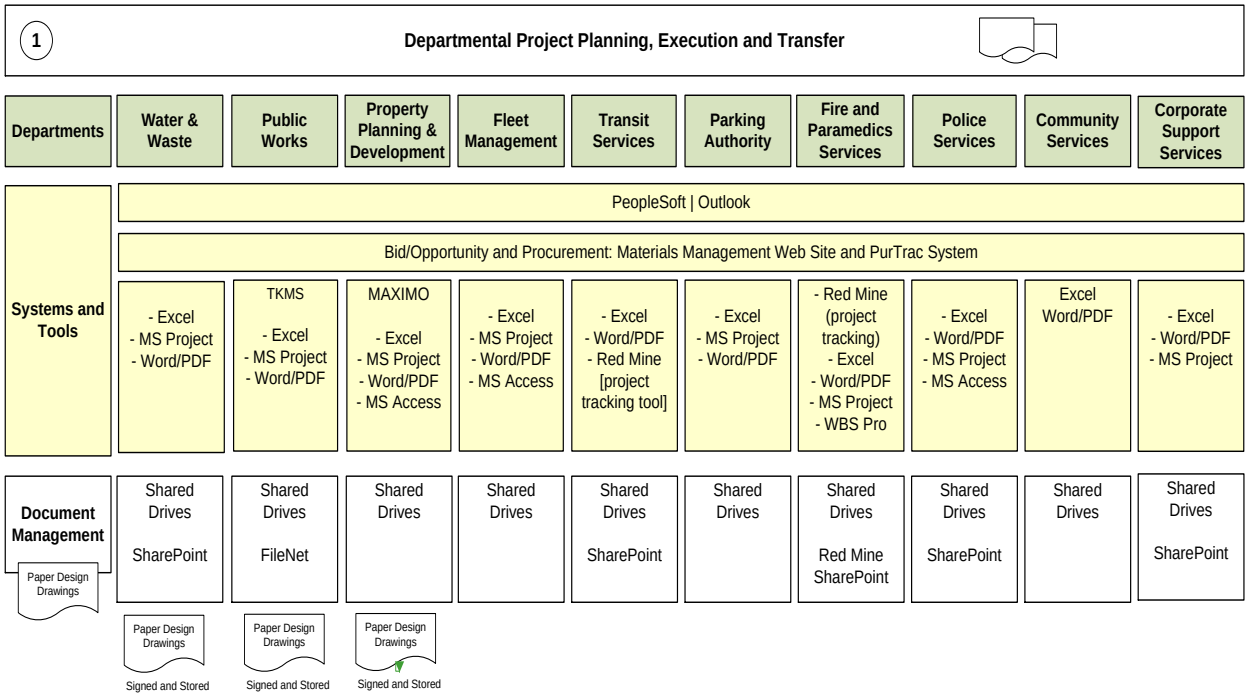
5.3.2 System and As Is Project Delivery Process Ownership

Owner

The Project Management Process Owner is the **Manager of Corporate Data and Applications.**

I.T. Solutions and Tools

The department and business unit IT Solutions and Tools available to support the Project Delivery process consist of a variety of products, identified in the following figure.



Each department uses their own set of solutions and tools to track and report on the Planning, Execution and Transfer phases of Project delivery. In the Portfolio Project Management Solution, the solution will enable standardization of project processes and required artifacts as per the Project Management Manual.

The Corporate systems and tools available to support the Project Management process consist of:

- Various CityNet and City of Winnipeg sites:
  - Materials Management CityNet site: Materials Management CityNet Site [this is an internal City of Winnipeg site].
  - Infrastructure Planning City of Winnipeg site: Infrastructure Planning City of Winnipeg Site

- Asset Management SharePoint site. Asset Management SharePoint Site [this is an internal City of Winnipeg site].

The City of Winnipeg Asset Management Department has developed and documented formal business processes for:

F1-003: Materials Management Policy

PMM: Project Management Manual

6 BUSINESS NEEDS

The City of Winnipeg's business needs were identified in Phase 1 of the Enterprise Content Management Solution project. The assessment revealed current process and technology challenges and gaps in providing ECM capabilities at the City of Winnipeg.

The City of Winnipeg's corporate objective is to provide the right information to the right people at the right time in the right format to enable effective decision making.

6.1 Gaps\Challenges\Issues – Risks - Improvements - Benefits

Staff frequently needs to scramble across several departments and systems to find information, sometimes taking days to find one document. This section addresses “why” and “what” can be done about it.

Staff consistently has problems accessing the information they need, and when they do, they have difficulty discerning the correct version. This causes many problems across the City of Winnipeg including failure to produce information, questionable quality of results and slow response times. The root causes are complex and interdependent, requiring a long-term and systematic approach to the elimination of barriers that City staff face in their best efforts to perform their duties.

The following roadmap of future activities is created by comparing the `current state` requirements to the `future state` to identify gaps which are addressed with recommendations.

The recommendations cross a number of factors, which all need to be simultaneously resolved to prevent the effort from reverting to its previous condition. There are many recommendations but they fall under the following high level categories:

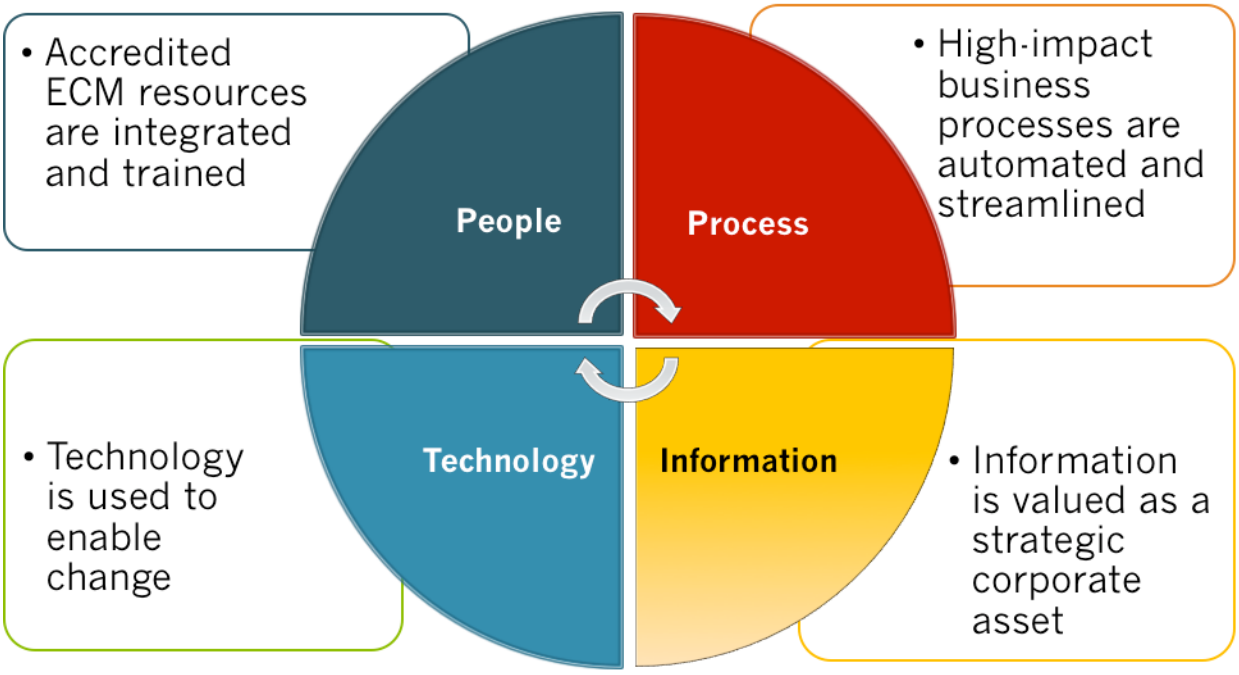
Category	Function	Description
People	Resources, Roles, Training	New resources, role definitions and training
	Policy and Procedure	Steering committee, working groups, IM policy and procedure review needs to be established. RM Policy needs to enforced in digital records.
	Awareness and Change	Communication and change management to align efforts to City goals
Process	Design	Identified business processes to be detailed and refined as required for digital documents/records
	Automation	Business processes need to be automated from "cradle to death" for documents/ records
	Performance	Performance metrics need to be identified, measured and reported
Information	Category Definition	Business Process related documents/records need to be categorized with metadata definitions
	Taxonomy and Search	The search and folder structure/ taxonomy standards need to be defined across the City for Business Process related Documents/records
	Cleanup	Shared Drives and Email records need to be cleaned up, in preparation for integration to or import into ECM
Technology	Infrastructure	IT infrastructure needs to be in place to support City-wide ECM, including High Availability and Disaster Recovery capabilities.
	ECM Functionality	Full-featured ECM systems need to be put in place

The City of Winnipeg's has identified gaps, challenges and issues related to Enterprise Document Management. The City of Winnipeg is expecting that by implementing an ECM the gaps, challenges and issues will be addressed and provides the right information to the right people at the right time in the right format to enable effective decision making.

7 Solution Requirements

The future state for the City of Winnipeg begins with a 5 to 10 year implementation period, during which time ECM will be deployed iteratively across the organization through the automation of document/record intensive business processes that cross departmental boundaries: high-impact city-wide business processes. The goal is to have ECM well managed with the possibility of progressing into a proactive ECM practice.

Unmanaged content (i.e. emails, documents, records, audio, visual, etc.) is the priority. Automating and streamlining high-impact business processes across departmental boundaries, iteratively, is foundational to this ECM Solution. The envisioned end-state is a well-managed ECM Solution that empowers staff to work with digital information. Establishing and growing a state-of-the-art ECM practice is also key to the City of Winnipeg's success.



A five-to-ten year, iterative citywide implementation conducted by high-impact business process is recommended for the City of Winnipeg's ECM Solution. The ECM Strategy and Roadmap for the Future report identified high-impact business processes that are prioritized below (1-14) based on high potential cross-departmental benefit, high implementation readiness, and low organizational risk.

1. Safety, Policy and Procedure;
2. Business Case / Investment Request Process;
3. Film and Special Events Permit Approval Process;
4. Budget Planning Process;
5. Briefing Notes;
6. Strategic Planning, Asset Management and Project Management;
7. Drawings Intake and Distribution Process;
8. Recruitment and Hiring;
9. Medical Records Management;
10. Information Requests Process;
11. Accounts Payable and Invoice Processing;
12. Administrative Reports;
13. Contracts and Agreements; and
14. Procurement Process.

Implementation of the business processes listed above will be managed in synch with a comprehensive Change Management Plan.

Over the duration of the multi-year Project, the future vision is to transition the state of ECM in the City towards the green “Managed” and blue “Optimized” state as depicted by the various categories shown below. This will be attained over a series of incremental deployments of high impact city-wide business processes and iterative cycles of process automation.

Category	Function	Ad Hoc	Reactive	Challenged	Managed	Optimized
People	Set Resources	Coping	Hiring as required	Planning for resources	Adequate resources and training	Proactive training and resourcing
	Define Roles	Discretion of manager	As required	Planning roles	Roles Defined	Proactive role definition and development
	Govern	Discretion of manager	As directed	Planning for governance	Governance in place	Proactive policy development
Process	Define and Refine	Word of mouth	Some documents	Planning process design	Processes defined and refined	Proactive process improvement / metrics
	Automate	Manual	Some digital assistance	Adding workflow applications	Automated ECM processes	Proactive automation policy development
Information	Analyze and Define	Discretion of manager	As required	Planning for further analysis	Types and data defined	Proactive content analysis and intelligence
	Organize	Discretion of manager	As directed	Planning for or organizing	Content well organized, in ECM system	Plan-do-review on optimal content management
Technology	Infrastructure	Minimal cost	Break fix	Planning for ECM	Infrastructure and DR	Proactive design including Cloud and Mobile future trends
	ECM Functions	Make do and freeware	Point Solutions	Planning for ECM	ECM deployed and functional	Proactive leverage of ECM systems to improve City services

The recommendations of the ECM Strategy identified key actions for success:

People

- Establish a Records Management Division with a stronger mandate.
- Establish roles in departments to properly manage information.
- Establish an Information Governance Committee.

Processes

- Enhance Information Policy and Procedures.
- Automate and streamline high-impact business processes.

Information

- Create document and record definitions and lifecycles.
- Define standards for categorizing documents.
- Clean up shared drives to ensure they adhere to Information Policy.
- Reduce the use of paper and adopt E-signatures, reducing environmental footprint.

Technology

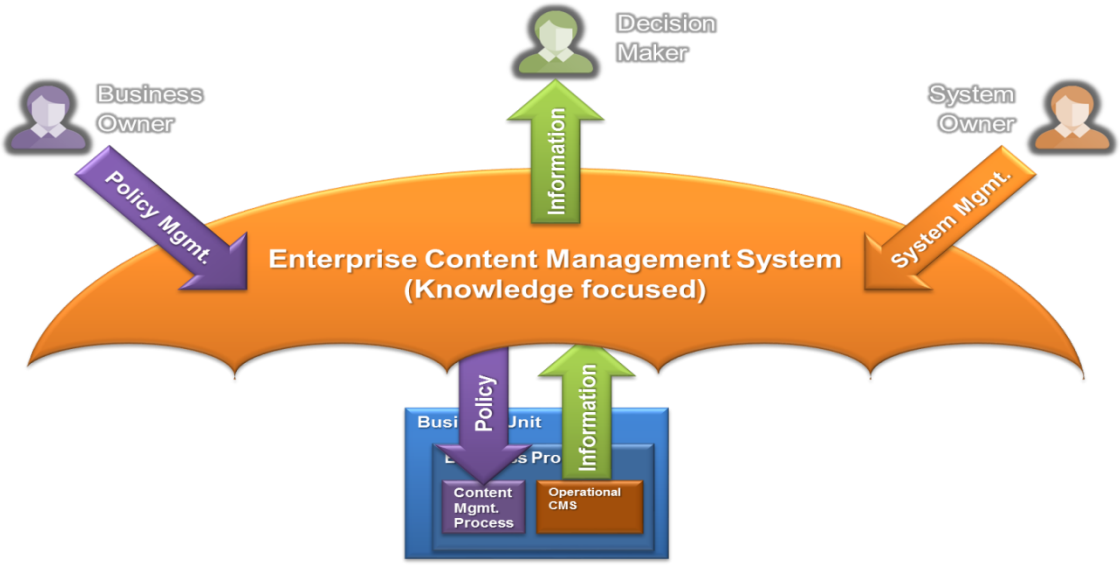
- Utilize technology as an enabler for change.
- Establish shared, foundational ECM technology.
- Integrate to existing document management systems that support departmental business processes.
- Roll out ECM technology to high-impact business processes.

Category	Function	Recommendations
People	*Set Resources*	New resources, role definitions and training need to be created and delivered.
	Define Roles	
	Govern	Steering committee, working groups, policy and procedure review needs to be established. Records Management Policy needs to be enforced on digital records.
Process	*Define and Refine*	Identified business processes to be detailed and refined as required for digital documents/records.
	Automate	Business processes need to be automated for "cradle to grave" document/record lifecycles.
Information	*Analyze and Define*	Business Process related documents/records need to be categorized with metadata definitions.
	Organize	The search and folder structure/ taxonomy standards need to be defined across the City for Business Process related Documents/records.
Technology	*Infrastructure*	IT infrastructure needs to be in place to support City-wide ECM, including High Availability and Disaster Recovery capabilities.
	ECM Functions	Full-featured ECM system platform needs to be put in place.

The long-term vision for ECM in the City of Winnipeg is one where information produced and managed in a way to optimize efficiency, accuracy and timeliness. In this way the City staff, management, Council and the Public will receive the information they need, when they need it and can trust in the integrity of that information.

Since much of the information managed in the City is "unstructured", as in documents, records and other content files such as drawings, images, maps, audio and video recordings, and Enterprise Content Management (ECM) technology is the toolset that can be used to accomplish this vision. Tools are only as good as the people that use them, the procedures and standards need to be maintained and the tool is used to enhance and automate business processes. Preparation also includes various people or resource factors plus information-related factors that will be enabled by the technology.

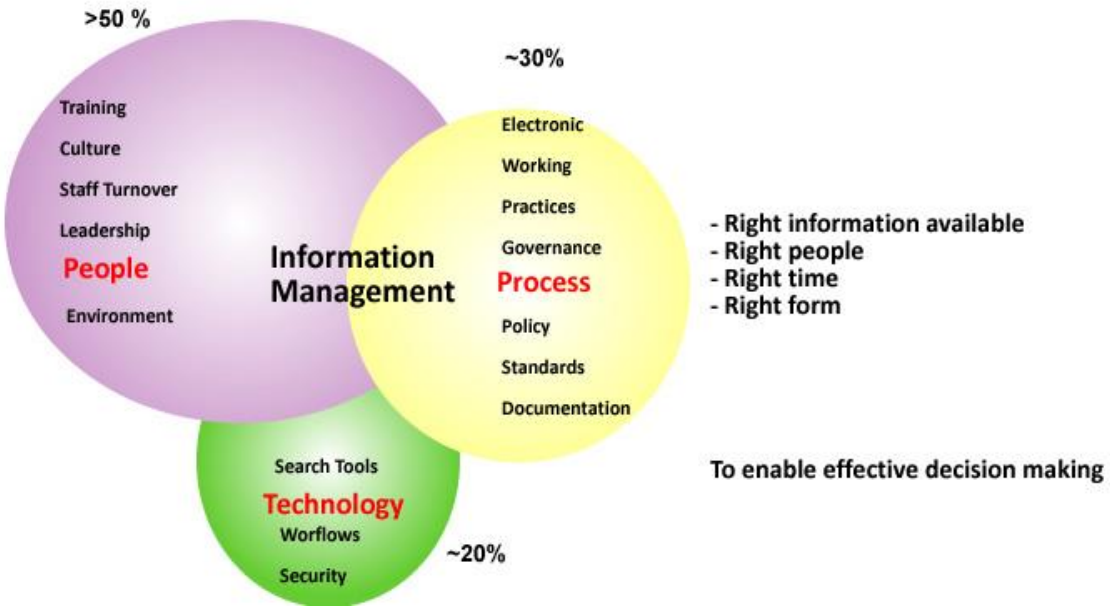
The ECM tools need to be combined into an overall umbrella or platform of services, tools and utilities that, together, enhance the production and maintenance of information across the various business processes in the City. The various functions of ECM support City operations by making sure that information flows through these functions smoothly. Integration and "federation" of ECM-related systems in support of existing business processes, is necessary as opposed to inserting new processes, in order to leverage, as much as possible, the past investments in productivity enhancements.



The vision is based on a holistic approach of change management, process automation and integrating systems together to enable effective decision making to meet Senior Management needs. The ECM technology platform enables this holistic approach by providing an umbrella with a central repository to streamline and automate processes combined with the ability to interoperate with existing systems to provide search and records management functions.

The overall "umbrella" ECM connects to information in the various departmental and shared business processes:

- Decision Makers use ECM to retrieve the right information from the right documents, when they need it.
- Business Owners set the standards of use for the system. (e.g. retention policies, document types, metadata, search criteria, access security roles)
- System Owner ensures that the system meets the needs as defined by the business owner and correctly implements the policies and standards.



The Enterprise Content Management Vision combines several objectives:

- Improve Efficiency of City Business Processes – Automate high impact and high profile business processes that feed information to management, Council and the public.
- Improve “find ability” of content, documents and records - Make content more “findable” and also provide systems to provide more reliable search results. Also, control the versions of documents/records in order to help identify final and correct versions Establish Consistent Access and Security Controls - Define and enforce access controls to protect City information assets and comply with legislation and policy.
- Enablement of Transparency - Produce accurate information in a more timely and reliable manner.
- Regulatory and Policy Compliance - Enable the City to enforce compliance with the City Records Management By-law, provincial legislation and federal law on digital records.
- Service Improvement - Improve City services, to either other departments or to the public that utilizes information during the execution of the services or deliver information.

The accomplishment of these objectives will be the result of an ECM implementation considering people, process, information and technology factors. The operational vision should provide the means for City of Winnipeg staff to provide reliable information in a timely manner to support business decisions and to improve compliance on digital records.

Since this is more than a technical implementation, it also involves people and a change in the attitudes and assumptions around information management in the City. The changes are enabled by process automation, improvements in information definition, information governance and technology. The ideal ECM system results in the right information to the right people at the right time in the right format to enable effective decision making at the City.

7.1 Automation

Automation is the key to the introduction of ECM technology by performing information management tasks behind the scenes on behalf of staff. These tasks are typically: importing and indexing files, deciding which folder to place them in, which retention policy to assign and which security settings are appropriate. Most, if not all, defined business processes involving documents/records can be managed in a workflow, even if they are very simple workflows of editing, approval and publishing within a division.

Users simply choose to create a document of a certain type, enter the metadata and the template would be created, assigned a folder, security and workflow. Ad-hoc approvals can be routed via workflow more easily than sending emails and processes can be tracked and monitored by editors and managers.

Once a repository is established and divisions become adjusted to using ECM it is relatively easy to introduce new document/record types and workflows and the incremental cost of doing so becomes lower over time. The key is to use a standardized and well documented approach and to avoid writing custom tools, so that workflow components and integrations can be leveraged in subsequent project phases.

Another important aspect of automation is the automated ingestion of transactional documents/records such as drawing handovers and transmittals, from Engineering, Procurement and Construction companies (EPCs), the input of electronic forms submissions, the capture of electronic and digital submissions such as invoices and capture of reports and records from other Business Applications. Typically, these involve integration to other systems in order to save manual input into the ECM system or data entry into a business application.

Automation removes the work of uploading files and indexing the metadata required for reliable ECM. It ensures the acceptance and reliability of the information stored in the system by making it more consistent and saving staff repetitive work, while at the same time, making information more accessible and timely.

The following are the documented requirements of the ECM in support of overall solution requirements.

#	Section	Requirement Narrative	Category	Priority
001	Solution Requirements	Should enable Decision Makers use ECM to retrieve the right information from the right documents, when they need it.	Automation	M
002	Solution Requirements	Should automate high impact and high profile business processes that feed information to management, Council and the public.	Automation	M
003	Solution Requirements	Should enable Business Owners set the standards of use for the system. (e.g. retention policies, document types, metadata, search criteria, access security roles)	Automation	M
004	Solution Requirements	Should allow System Owner ensures that the system meets the needs as defined by the business owner and correctly implements the policies and standards.	Automation	3

005	Solution Requirements	Should improve “find ability” of content, documents and records - Make content more “findable” and also provide systems to provide more reliable search results.	Automation	5
006	Solution Requirements	Should control the versions of documents/records in order to help identify final and correct versions	Automation	M
007	Solution Requirements	Should assist to define and enforce access controls to protect City information assets and comply with legislation and policy.	Automation	M
008	Solution Requirements	Should assist to establish and maintain Consistent Access and Security Controls.	Automation	M

7.2 People

People are the most significant factor for success in the future state of ECM in the City. There are several different ways in which the attitudes, behaviour and practices of people will determine the ability of the City to meet its content management goals.

The following categories impact people and how they use the ECM tools:

- Resources - The City will need to have dedicated or, in some cases, partial resources to support records management activities, ECM program technical leadership, ECM support and development. This is one of the more critical factors to ECM success since without these resources it will be difficult to adapt the system to changes in the City, over time. If the ECM system fails to adapt it will gradually be abandoned and the ability of the City to work with information will slip back into its current state.
- Roles - Roles will be defined and allocated to existing staff in the departments. Official roles such as Information Steward and ECM Point Person (a.k.a. Coordinator) will require significant effort, especially during the early days of the business process deployments. The ECM team will want to note early adopters and more technical users which emerge within the departments as leaders and ECM subject matter experts as “Power Users” which, while not an official role, will be key to successful adoption and maintenance of the system.
- Information Governance – Information management procedures and standards need to be set across all departments in a systematic and consistent manner. In order to do this, over time, the City will need a strategic policy group, such as a Steering Committee, which leads the ECM program over time, prioritizing and guiding ECM initiatives and operations. As required, Working Groups will be initiated by the Steering Committee in order to provide policy, procedure, standards and information analysis. This governance must be across the City and in place for the long term, and not just within the ECM project scope.
- Change Management – The variety of attitudes, routines and resulting behaviours across the City will need to be made consistent across the departments. This must be anticipated and carefully implemented during the program and business process project roll-outs with effective communication, logistics and training by a dedicated Change Manager.

The following are the documented requirements of the ECM in support of overall user experience.

#	Section	Requirement Narrative	Category	Priority
001	People	Should enable Users to easily navigate and perform their primary job tasks with intuitive ribbon-style toolbars, tabs and easy access features that are based on the familiar look and feel of Microsoft Office products.	Client User Interface	M
002	People	Should provide the capabilities for users themselves to personalize the user experience (e.g., personalized homepage that opens to personal workflow lifecycles, stored favourite retrievals, etc.).	Client User Interface	5
003	People	Should display all of the associated information about a document right alongside the image itself – displaying index values, notes, related documents, revisions, discussion threads, and document history.	Client User Interface	5
004	People	Should provide ability to display the document being indexed in a preview pane during the indexing process.	Client User Interface	5
005	People	Should provide the ability to auto-import camera images and media files directly from a connected device.	Client User Interface	3
006	People	Should enable users to play, stop, and pause multimedia files (audio/video) with the native viewer.	Client User Interface	5
007	People	Should offer the full feature set of a client-based solution through a web deployable interface (i.e. rich internet application).	Web Client Interface	M
008	People	Web Client should provide a dashboard component to create and manage personalized interfaces that present end users with access to priority content and tasks (e.g., workflow status report, commonly used document searches).	Web Client Interface	M
009	People	Should offer full support for Internet Explorer and Mozilla Firefox browsers on Windows platforms as well as full support for the Mozilla Firefox and Safari browser on the Macintosh platform.	Web Client Interface	3
010	People	Should enable users (not administrators) to create their own personalized saved searches.	Search Experience	5

011	People	Solution should provide ability for meaningful document names to appear in a search results list that can contain both static text as well as defined index values, offering a more detailed description of the documents returned.	Search Experience	5
012	People	Solution's search interface should accommodate multiple search methods from a single panel. This includes advanced search operators, full text searching, text searching, searches against notes, index value searches, searches against defined document types, all file formats, date ranges, etc.	Search Experience	5
013	People	Should provide advanced full text search capabilities that include fuzzy, inflectional, thesaurus, proximity, wild card, and SOUNDEX.	Search Experience	M
014	People	Should provide ability to utilize full text searching alongside index value search.	Search Experience	5
015	People	Should describe how core search and retrieval client allows users to search for multiple document types (e.g., text/COLD, image, PDF, Word, etc.) in one search.	Search Experience	M
016	People	Should provide capabilities to not only retrieve and archive to the ECM system from the native office toolbar, but also search and retrieve ECM stored content from directly inside the native office application.	Search - Microsoft Office	5
017	People	Should provide ability for a user to filter a broad search result list by dragging and dropping attribute fields (index values) on the fly.	Search Filtering	M
018	People	Should provide ability to automatically link related documents of similar or different file types to each other (e.g., a mainframe-generated text file to a TIFF image).	Retrieval	3
019	People	Should provide the ability to identify hot spots or zones that trigger multiple related documents from the primary document.	Retrieval	3
020	People	Solution's workflow experience is integrated to provide task buttons and user interaction on a menu right from selected or open documents through standard document retrieval (i.e., user does not need to enter the Workflow Client).	Integrated Workflow	5

7.3 Process

Streamlined and automated business processes are a major success factor in the deployment of ECM and RM. The benefits include:

a. Eliminating tedious ECM and RM tasks such as uploading and indexing files;

b. Enforcing disciplined records management;

c. Enabling easy search and utility of information to make information more useful and to save time, as opposed to creating extra work; and, in turn:

    i. Reducing the risk of end-user rejection of the system by making their work easier and the results more reliable. There is a cyclical effect of having a system that saves work and enforces integrity of information at the same time. The more people that use it, the more reliable it becomes, creating momentum and trust.

The City's ECM vision is for automated business processes that span "cradle-to-grave" for the document/record lifecycle. The various types of documents/records associated with the business process are identified and made available to end-users and those who initiate the workflow.

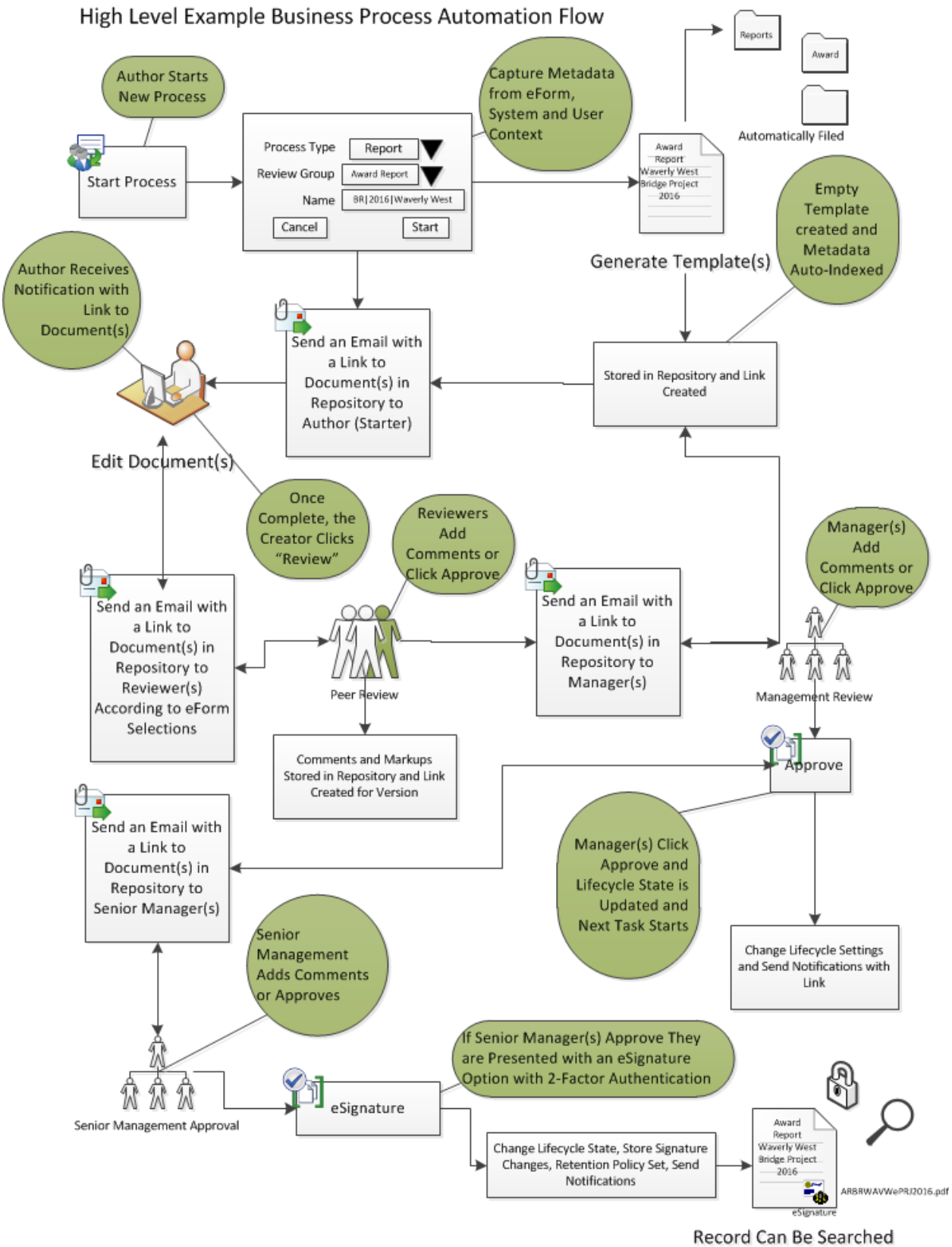
Documents/records that have simple or ad hoc workflows with little review and approval requirements should be instantiated or created using an electronic form and one or two step workflow in order to maintain consistency in metadata, filing (taxonomy placement) and records management. Creating document outside of the system should be discouraged as the ECM system gathers momentum and utilization.

The tasks described in the boxes below are automated and performed behind the scenes by the system. If this was manual, the tasks in the white text boxes would need to be performed by the process participants.

The following are the documented requirements of the ECM in support of overall solution requirements.

#	Section	Requirement Narrative	Category	Priority
001	Process	Should enable automated business processes that span "cradle-to-grave" for the document/record lifecycle	Workflow	3
002	Process	Should eliminate tedious ECM and RM tasks such as uploading and indexing files.	Document Management	M
003	Process	Should enforce disciplined records management.	Document Management	M
004	Process	Should enable easy search and utility of information to make information more useful and to save time, as opposed to creating extra work.	User Interface	M
005	Process	Should be instantiated or created using an electronic form and one or two step workflow in order to maintain consistency in metadata, filing (taxonomy placement) and records management.	User Input	5

006		Solution allow documents to be added to a workflow in several different ways, including: • Scanning • Enterprise text report processing • Electronic forms processing • Document import processing • API • E-mail interface • Drag & drop from a business application screen Adding documents already stored within the solution's repository to a workflow process at a specific point-in-time	Process Initiation	M
007		Solution allows for the automatic distribution and sorting of work based on load balancing rules. Rules should include role, availability, percentage, order of arrival, index values, or the size of existing workloads for users, as well as custom-built work distribution rules. This load balancing should allow for the rebalancing of work to users if inequity is discovered within the workflow processes.	Work Distribution	3

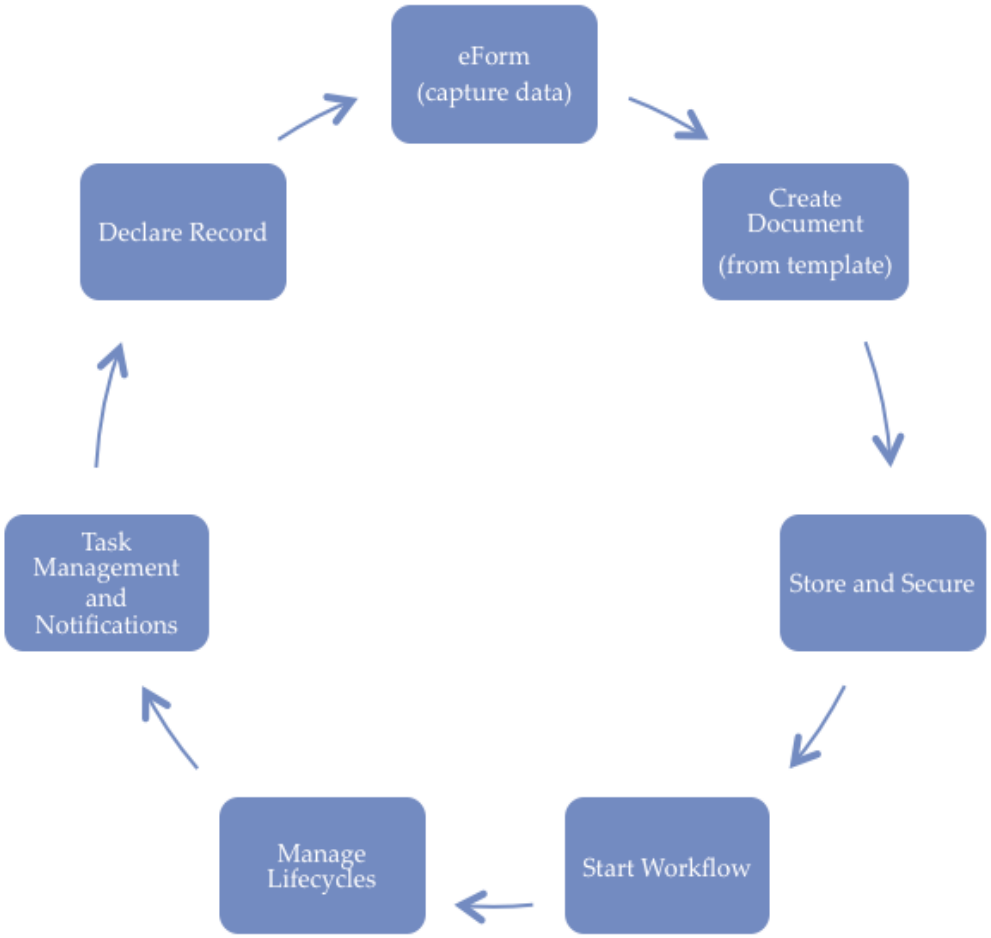

High Level Example Business Process Automation Flow
Author Starts New Process
Start Process
Process Type
Report
Review Group
Award Report
Name
BR|2016|Waverly West
Cancel
Start
Capture Metadata from eForm, System and User Context
Reports
Award
Automatically Filed
Award Report Waverly West Bridge Project 2016
Empty Template created and Metadata Auto-Indexed
Generate Template(s)
Author Receives Notification with Link to Document(s)
Send an Email with a Link to Document(s) in Repository to Author (Starter)
Stored in Repository and Link Created
Edit Document(s)
Once Complete, the Creator Clicks "Review"
Reviewers Add Comments or Click Approve
Manager(s) Add Comments or Click Approve
Send an Email with a Link to Document(s) in Repository to Reviewer(s) According to eForm Selections
Peer Review
Send an Email with a Link to Document(s) in Repository to Manager(s)
Management Review
Comments and Markups Stored in Repository and Link Created for Version
Approve
Send an Email with a Link to Document(s) in Repository to Senior Manager(s)
Manager(s) Click Approve and Lifecycle State is Updated and Next Task Starts
Change Lifecycle Settings and Send Notifications with Link
Senior Management Adds Comments or Approves
Senior Management Approval
eSignature
If Senior Manager(s) Approve They are Presented with an eSignature Option with 2-Factor Authentication
Change Lifecycle State, Store Signature Changes, Retention Policy Set, Send Notifications
Award Report Waverly West Bridge Project 2016
ARBRWAVWePRJ2016.pdf
eSignature
Record Can Be Searched

This automated process captures the required metadata once, in the initial eForm and from the system time, and user context such as division, and automatically creates a document template with the most recent business rules and formatting with a standardized filename, with metadata field names pre-populated, eliminating the need to duplicate data entry or typing.

Access controls, folder location and retention policies are all attached behind the scenes, automatically without the need for end-user intervention. This way the business processes proceed without the steps of downloaded and uploading files from emails and then getting them mixed up, trying to track a process across multiple departments and the documents are saved and managed in one location automatically, secured automatically, retention policies attached for enforcement of the Records management By-law and documents/records easily searchable. The end result should be improved performance, with hand-off search times being dramatically reduced, and highly reliable search results.

7.3.1 Automation of Business Processes

Automation of business processes will bring a gradual and incremental improvement for City ECM. By automating the end to end lifecycle of business process related content, the City will gradually bring content creation and maintenance under control, while creating efficiencies and assuring the integrity of mission-critical information.



#	Section	Requirement Narrative	Category	Priority
001	Process Automation	Should provide a foundation for City-wide search.	Document Management	M
002	Process Automation	Should create and publish Web content.	Content Management	5
003	Process Automation	Should improve citizen facing interaction.	Document Management	5
004	Process Automation	Should be able to guide the users through the process of creation, editing, review, approval, retention policy assignment.	Content Management	M
005	Process Automation	Should be able to notify users of new tasks or changes in the status of content in the process.	Content Management	5
006	Process Automation	Should enable users to setup and monitor the status of reports to track the progress of various processes and workflows.	Report	5
007	Process Automation	Should enable Managers to pull statistical data with reports from the system to measure metrics on process performance.	Metrics	5
008	Process Automation	Should enable that The City By-law and retention policies are enforced and automatically applied.	Document Management	M
009	Process Automation	Should enable Access controls are automatically applied so that users can view relevant content that they have been granted specific access to, based on configured business rules.	Content Management	M

7.3.2 Integration

Workflows commonly need data from other systems in order to provide drop down values, to pre-populate fields, validate data entry or provide routing information. Case management and ECM workflow tools typically have integration points to common systems, including Enterprise Resource Planning tools such as PeopleSoft and common databases such as Oracle and MS SQL Server.

Integration capability will be key to streamlining business processes in a flexible manner that is easy to deploy. In the future changes in Business Processes and also new requirements for automation should involve configuration by system administrators, architects or ECM point person, depending on the complexity of the changes. Sometimes it is inevitable that integrations involve some custom code such as Web Services, but if they are properly managed and designed, they can be easily re-purposed, providing quick turn-around for automation requests.

The following are the documented requirements of the ECM in support of overall solution requirements.

#	Section	Requirement Narrative	Category	Priority
001	Integration	Should ensure solution has Software Development Kit (SDK) or Application Program Interface (APIs) for accessing and managing documents from external programs. All Document Management Features are available including listing, creating, and modifying all aspects of the Document Management features.	Content Management	3
002	Integration	Should enable Solution allows for custom tools to be built and added to product.	Document Management	5
003	Integration	Solution provides ability for the workflow process to interact directly with database tables, allowing external data received to be used as part of a workflow process.	Document Management	M
004	Integration	Solution provides ability for the workflow process to interact directly with defined web services, allowing external data received to be used as part of a workflow process.	Core BPM requirement	M
005	Integration	Solution provides ability for the workflow process to interact directly with database tables, allowing external data received to be used as part of a workflow process.	Core BPM requirement	M
006	Integration	Solution provides ability to update metadata of document in ECM repository from process event.	Core BPM requirement	M
007	Integration	Solution provides ability to delete document in ECM repository from process event.	Core BPM requirement	M
008	Integration	Solution provides ability to add document to ECM repository from process event.	Core BPM requirement	M

7.3.3 Metrics

ECM is a large and complex undertaking which will be successful by directly supporting the City's strategic business objectives. The types of measures are dependent on where The City is at in the journey. Early on in the ECM program usage data generated from the ECM system can be very helpful in identifying where you're succeeding and where you are not. Initially, KPIs and metrics for ECM will be heavily focused on program and operational metrics. Over time, the program can evolve to capture additional metrics that are closely tied to business solutions and the related value generated by those processes.

Operational metrics – measures the health and usage of the ECM technology environment, such as service availability and downtime, and should also include ECM-specific metrics such as search retrieval performance and storage utilization.

Program metrics – measures the progress and performance of the overall ECM program, such as number of concurrent ECM projects, unit's costs for ECM shared services, adoption levels, and user satisfaction levels with the program.

The following are the documented requirements of the ECM in support of overall solution requirements.

#	Section	Requirement Narrative	Category	Priority
001	Metrics	Should enable to measure the health and usage of the ECM technology environment, such as service availability and downtime.	Operational Metrics	M
002	Metrics	Should enable to measure ECM-specific metrics such as search retrieval performance and storage utilization.	Operational Metrics	5
003	Metrics	Should be able to measure what are the service availability rates?	Service Availability	M
004		Should be able to measure and report the downtime?	Service Availability	M
005	Metrics	Should be able to measure what is the search time to produce results?	Search Retrieval	M
006	Metrics	Should be able to measure how long does it take a user to start searching until they find what they want?	Performance	M
007	Metrics	Should enable to measure the progress and performance of the overall ECM program, such as number of concurrent ECM projects, unit's costs for ECM shared services, adoption levels, and user satisfaction levels with the program.	Program Metrics	3
008		Should be able to measure what is the rate of adoption across the business process?	User adoption	M
009	Metrics	Should capture performance and usage metrics.	Workflow	3
010	Metrics	Should provide reporting and statistics in flexible and intuitive displays.	Reporting	5
011	Metrics	Should retain, review, retain and dispose of records.	Document Management	5
012	Metrics	Should be a able to measure how many business processes and applications are using the system?	Solution Usage	5
013	Metrics	Should be able to measure what is the average time to deploy business solutions/processes? How does this differ from existing systems?	Average Implementation Time	5

014	Metrics	Should be able to measure what are the program satisfaction rates with clients for implementation times, communications, responsiveness, support, quality of resources?	Customer Satisfaction	5
015	Metrics	Should be able to measure what percent of available storage is used?	System Job reports	M
016	Metrics	Should be able to measure how many files were accessed weekly, monthly annually?	System Job reports	M
017	Metrics	Should be able to measure which files were accessed weekly, monthly annually?	System Job reports	M
018	Metrics	Should be able to measure which files can be moved to cheaper storage?	System Job reports	M

Once the metrics are defined, they need to be measured and it is essential that the metrics can adjust easily to future changes in priorities, workflows and reporting structures.

7.4 Information

The future state of information in the City of Winnipeg will be well organized, documented, classified, categorized, cleaned up and systematically named and stored in a coherent taxonomy. As much as possible, documents/records will be stored in an ECM system with records management functionality. As a result information is consistently created, stored and maintained in a manner that lends itself to searches, even under complex search criteria. Records will be properly declared and managed as well, bringing the City into compliance with its Records Management Bylaw.

The following information factors will be defined and documented. The state will reflect the point in time related to the project phases that have been completed. With a business process implementation strategy, the state of information will reflect the business processes that have been deployed to that date.

7.5 Technology

The future state for ECM technology is more of a dynamic target, with rapid changes and development in hardware and software capability. The next five to ten years will bring unanticipated changes in both capacity and demand for information services. However, the basic concepts are not that difficult to predict for this period of time and the ECM platform requirements can be anticipated. Any City-wide ECM strategy must include technology selection which can be built up, over time, to accommodate the requirements. This must be done, at that time in the future project deployments without the need to upgrade systems, migrate to different repositories or re-architecting the platform. It is essential that future requirements can be accommodated quickly and easily, in a strategically planned manner. As a result the future state will include the capability and design to accommodate the future needs of the City on a long-term solution, and not a “point solution” for one particular business process implementation.

7.5.1 ECM Conceptual Design

The ECM concept is composed of two categories:

- Infrastructure - required to support an ECM system
- ECM Application(s) - Software applications and or modules that provide the ECM functionality.

The City-wide ECM system will be centered on a common ECM system with integrations to other systems. The process-based user interfaces will utilize the common ECM system while other integrations such as SharePoint and Email will be added to the ECM system. These core integrations should be “Out of the Box” (OOTB) adapters provided by the ECM vendor. Other systems that need to integrate to the ECM system in order to have Records Management By-laws enforced will need to integrate either by Web Services, requiring some relatively straight forward customization or via some Federated Records management tool interface. If Web Services are used some of the services can be re-used.

With Web Services there are customizations offering services on each side, on one the ECM side, on the other side. A simple example might be a “store a file” service which may have methods for determining which folder to store it in, which Access Control List (ACL) to attach to the file and which retention policy to attach.

The following diagram illustrates the relationship of the inter-connected ECM system, its components and the existing City systems that will comprise the ECM ecosystem.

7.5.2 Content Management

Content management (CM) is the administration of digital content throughout its lifecycle, from creation to permanent storage or deletion. The content involved may be images, video, audio and multimedia as well as text.

The following are the documented requirements of the ECM in support of overall solution requirements.

#	Section	Requirement Narrative	Category	Priority
001	Content Management	Should provide the capabilities for users themselves to personalize the user experience (e.g., personalized home page that opens to personal workflow lifecycles, stored favourite retrievals, etc.).	User Experience	5
002	Content Management	Should display the document being indexed in a preview pane during the indexing process.	User Experience	M
003	Content Management	Should display all of the associated information about a document right alongside the image itself – displaying index values, notes, related documents, revisions, discussion threads, and document history.	User Experience	M
004	Content Management	Should be able to search across multiple document classifications, including data from external sources.	User Experience	M

005	Content Management	Solution provides Administrators with the ability to create static and dynamic searches using hidden fields, control lists, prompts, and joins with external data.	User Experience	5
006	Content Management	Solution provides ability for meaningful document names to appear in a search results list that can contain both static text as well as defined index values, offering a more detailed description of the documents returned.	User Experience	5
007	Content Management	Solution's search interface accommodates multiple search methods from a single interface. This includes advanced search operators, full text searching, index value searches, searches against defined document types, all file formats, date ranges, etc.	User Experience	M
008	Content Management	Solution provides advanced full text search capabilities that include AND, OR, NOT, NEAR, *, and FormsOf.	User Experience	5
009	Content Management	Solution provides ability to utilize full text searching alongside index value search.	User Experience	5
010	Content Management	Solution offers hit highlighting for content retrieved from full text searching	User Experience	5
011	Content Management	Solution provides ability for a user to filter search result list by dragging and dropping attribute fields (index values) on the fly.	User Experience	M
012	Content Management	Solution provides ability for users to output search results to Excel, printer, email, or print-friendly format.	User Experience	M
013	Content Management	Solution allows for printing, or saving, of one or multiple documents from search results.	User Experience	M
014	Content Management	Solution provides ability to link disparate applications via equal values.	User Experience	3
015	Content Management	Solution provides ability to link searches to external data via equal values.	User Experience	3
016	Content Management	Solution allows for custom metadata fields (index fields) to be applied to repositories (applications).	Metadata	5
017	Content Management	Solution allows for picklists to be associated with metadata fields. Picklists are used to control the values available for selection in a metadata field.	Metadata	M
018	Content Management	Solution supports varchar (string), date, float/currency, and numeric data types	Metadata	M

019	Content Management	Solution supports an unlimited number of document types.	Metadata	M
020	Content Management	Solution supports modification of applications to add or remove metadata fields after creation.	Metadata	5
021	Content Management	Solution supports update of metadata values for multiple documents at the same time.	Metadata	5
022	Content Management	Solution includes built-in viewer that allows for rendering of many different document formats in a single interface.	Viewer	M
023	Content Management	Solution viewer does not require additional components to be installed on client.	Viewer	5
024	Content Management	Solution viewer supports annotation functionality (text, lines, redactions, highlights, stamps, sticky notes).	Viewer	5
025	Content Management	Solution viewer supports standard functionality such as rotate, sizing (fit width, fit height, fit window, zoom percentage).	Viewer	M
026	Content Management	Solution viewer supports printing functionality.	Viewer	M
027	Content Management	Solution allows for control as to whether or not documents are printed with annotations.	Viewer	5
028	Content Management	Solution supports annotations to be added via SDK or API.	Viewer	M
029	Content Management	Solution provides ability to lock documents so other users cannot make modifications or delete document while locked.	Document Management	M
030	Content Management	Solution provides ability to version documents through Check-In and Check-Out functionality.	Document Management	M
031	Content Management	Solution provides ability to associate documents to other documents.	Document Management	5
032	Content Management	Solution can control and track the modification of documents through multiple revisions, allowing users to view prior revisions and track document history. The solution should clearly display the number of revisions associated with a specific document.	Document Management	M
033	Content Management	Solution provides ability to cut or copy pages from one document to another (TIFF images).	Document Management	M

034	Content Management	Solution supports COLD ingestion and viewing.	Document Management	3
035	Content Management	Solution provides ability to email documents out of the system.	Document Management	M
036	Content Management	Solution provides ability to copy or move documents from one application to another.	Document Management	M
037	Content Management	Solution provides integration with Microsoft Office products and Windows Explorer.	Document Management	M
038	Content Management	Solution supports method for automatic batch-input of documents via metadata flat-files.	Input	5
039	Content Management	Solution supports API input of documents.	Input	M
040	Content Management	Solution supports user input of documents that control metadata input.	Input	5
041	Content Management	Solution Security model is based on application and search access.	Security Model	3
042	Content Management	Solution supports document level security through the design of searches by eliminating or forcing static values.	Security Model	M
043	Content Management	Solution supports security model that controls create/write rights at an application level.	Security Model	5
044	Content Management	Solution supports security model that controls delete rights at an application level.	Security Model	5
045	Content Management	Solution supports security model that controls print rights at an application level.	Security Model	5
046	Content Management	Solution supports security model that controls download rights at an application level.	Security Model	5
047	Content Management	Solution supports security model that controls lock rights at an application level.	Security Model	5
048	Content Management	Solution supports security model that controls unlock rights at an application level.	Security Model	5
049	Content Management	Solution supports security model that controls annotation rights at an application level.	Security Model	5
050	Content Management	Solution supports security model with multiple levels of annotation security.	Security Model	M

051	Content Management	Solution supports granular annotation security model that allows for explicit access to things like redactions, stamps, text.	Security Model	5
052	Content Management	Solution supports security model that allows for access to create searches.	Security Model	M
053	Content Management	Solution supports security model that controls access to modify document metadata or content.	Security Model	M
054	Content Management	Solution provides the ability to import and export application configurations to ease migration of settings between environments.	Administration	M
055	Content Management	System provides a single interface for the configuration and administration of all major system components (for example: application configuration, index value configuration, user groups and rights assignments, and storage structure).	Administration	M
056	Content Management	Solution allows for ease of configuration, in that most administrative tasks can be done by an internal resource as opposed to a third-party software expert.	Administration	3
057	Content Management	Solution allows the archiving of documents to various media, including: Windows file servers, to allow the leveraging of Share and NTFS permissions.	Storage	5
058	Content Management	Solutions should provide means to store objects of disparate applications or repositories in separate physical locations.	Storage	5
059	Content Management	Solution should provide an export mechanism for mass-exporting of content in a non-proprietary format. This should supply both the document and the index values.	Storage	M
060	Content Management	Solution stores pointers in the database to file storage locations, as opposed to a BLOB in the database.	Storage	M
061	Content Management	Solution supports means of migrating objects from one storage location to another.	Storage	M
062	Content Management	Solution should support system-only access to storage location, users should not require access	Storage	5
063	Content Management	Solution supports the ability to encrypt data at the database level and at the file storage level, as well as content that has been backed up/at rest.	Storage	M
064	Content Management	Solution stores documents in their original, native file formats, not in a proprietary format.	Storage	5

065	Content Management	Solution has SDK or APIs for accessing and managing documents from external programs..	Integration	M
066	Content Management	Solution must have all Document Management Features including listing, creating, and modifying all aspects of the Document Management features		M
067	Content Management	Solution allows for custom tools to be built and added to product.	Integration	M
068	Content Management	Solution tracks user logins/logouts	Reporting	M
069	Content Management	Solution tracks when documents are accessed by user.	Reporting	M
070	Content Management	Solution tracks when documents are deleted by user.	Reporting	M
071	Content Management	Solution tracks when documents are updated/modified by user.	Reporting	M
072	Content Management	Solution tracks when document metadata is updated/modified by user.	Reporting	M
073	Content Management	Solution tracks when document is printed by user.	Reporting	5
074	Content Management	Solution tracks when document is downloaded or emailed by user.	Reporting	M
075	Content Management	Solution tracks when annotations are added by user.	Reporting	5
076	Content Management	Solution tracks when annotations are updated/modified by user.	Reporting	5
077	Content Management	Solution tracks when user executes search.	Reporting	M

7.5.3 Content Capture

Within the enterprise critical information exists in many formats that ultimately need to be captured and transformed to be well understood, governed and leveraged to maximize value. Document capture is any one of several processes used to convert a physical document to another format, typically a digital representation.

At its simplest, document capture involves scanning a physical document and saving it as a digital image. However, in the context of enterprise information management (EIM), creating a

digital image file is often not adequate for business purposes. For text documents, capture usually includes processes like optical character recognition (OCR), so that the information contained in the document can be accessed and integrated with an organization's information systems.

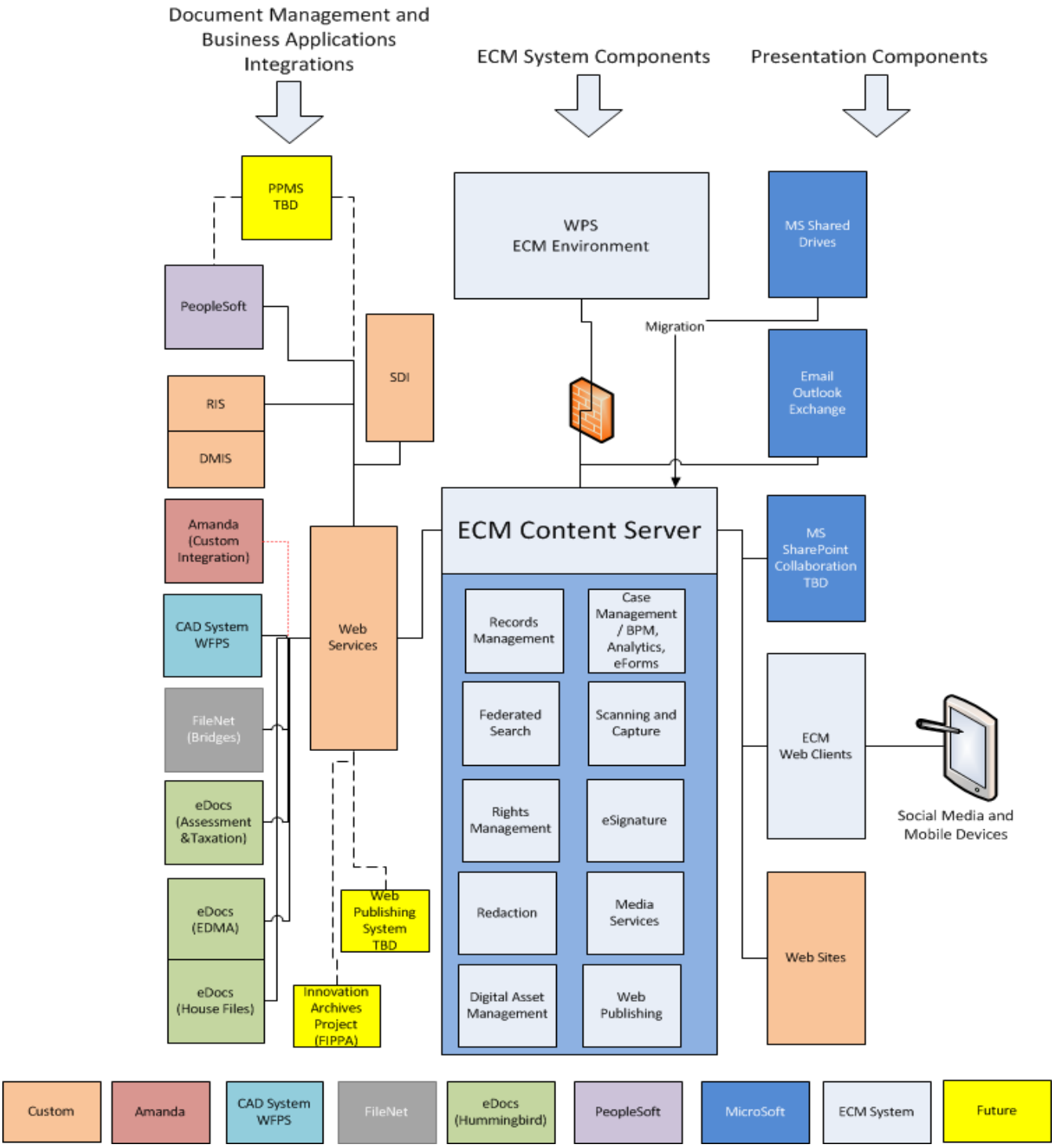
The following are the documented requirements of the ECM in support of overall solution requirements.

#	Section	Requirement Narrative	Category	Priority
001	Content Capture	Solution supports multiple applications or web servers in a load balanced configuration for redundancy and scalability.	Infrastructure	5
002	Content Capture	Solution supports distributed capture and isolation of licenses by location and or AD Groups.	Infrastructure	M
003	Content Capture	Solution provides for administrative access based on AD Group for setting up security for the rest of the security model.	Security Model	M
004	Content Capture	Solution allows for administrator to turn security on and off.	Security Model	M
005	Content Capture	Solution supports controlling access to the categories of document being captured by AD Groups.	Security Model	5
006	Content Capture	Solution supports controlling access to the steps in the capture process so that some users can scan while others can do indexing.	Security Model	5
007	Content Capture	Solution supports an API that allows for extensions to be built in Microsoft .Net language.	Integration	5
008	Content Capture	Solution supports an API, capable of being used by Microsoft .Net languages, that allows for the automation of capture tasks.	Integration	M
009	Content Capture	Solution supports centralized administration of all capture processes with access controlled by AD Group membership.	Administration	M
010	Content Capture	Solution supports defining groups of documents that will be captured and the processes that they will go through during the capture life cycle.	Functionality	5
011	Content Capture	Solution supports both scanning of paper documents and the importing of electronic format documents.	Functionality	M

012	Content Capture	Solution supports the automated importing of documents using an index file with pointers to documents.	Functionality	5
013	Content Capture	Solution supports the polling of a directory structure to import documents using the names of the folders and portions of the file name as index fields in the documents.	Functionality	M
014	Content Capture	Solution supports the use of image cleanup and enhancement technology to allow for improving image quality and resolution during the capture process.	Functionality	M
015	Content Capture	Solution supports document separation using Patch Codes, Bar Codes, Fixed Page Count, Manual, and Forms Feature Recognition.	Functionality	5
016	Content Capture	Solution supports Forms Recognition based on Barcodes and other Forms Recognition techniques.	Functionality	5
017	Content Capture	Solution supports metadata field definitions that can be associated at the batch and or document level.	Functionality	3
018	Content Capture	Solution supports customization of the business logic for each field being capture on a document.	Functionality	5
019	Content Capture	Solution supports a set of events that are fired during the indexing process that allow for custom logic to be inserted when they occur.	Functionality	3
020	Content Capture	Solution supports database lookups that can be triggered from the various events that occur during the document indexing process.	Functionality	5
021	Content Capture	Solution supports page registration for zonal indexing.	Functionality	3
022	Content Capture	Solution supports zonal OCR reading for index fields.	Functionality	5
023	Content Capture	Solution supports OMR Check Boxes for the extraction of index fields	Functionality	3
024	Content Capture	Solution supports Full Text OCR conversion of scanned documents.	Functionality	5

025	Content Capture	Solution supports PDF conversion of scanned documents as Image Only and Image Plus Text PDFs.	Functionality	5
026	Content Capture	Solution supports the release of documents and meta data to multiple backend systems.	Functionality	M
027	Content Capture	Solution supports the development of additional release options using a provided API that can be implemented using Microsoft .Net languages.	Functionality	M
028	Content Capture	Solution supports the addition of custom processes during the capture that can be specified for groups of documents to use. The creation and integration of these custom processes is supported via the provided API and can be implemented in Microsoft .Net languages. These custom processes will have full access to the documents and meta data for the documents in a batch.	Functionality	3
029	Content Capture	Solution provides full auditing of the actions taken by each user during the capture process including all facets of the process including deletion of documents and batches of documents.	Functionality	M
030	Content Capture	Solution supports reporting on all facets of the Capture process by user and type of activity.	Reporting	M

Future State ECM Ecosystem Concept



7.5.4 Infrastructure

The future state of the ECM environment has the functionality components added incrementally, as required, to support the priority business process deployments. A major consideration is to also consider the infrastructure required to support the future functionality.

The chart below lists the infrastructure component, and description of the required infrastructure that needs to be in place before proceeding with the installation of the ECM system.

The infrastructure of servers, networks, databases and application servers supports the functionality of a City-wide ECM/RM system. The initial system is sufficient to support the anticipated load from business processes planned for implementation in the budget cycle. Further investments in servers and infrastructure are planned ahead to avoid budget planning issues across the multi-year implementation.

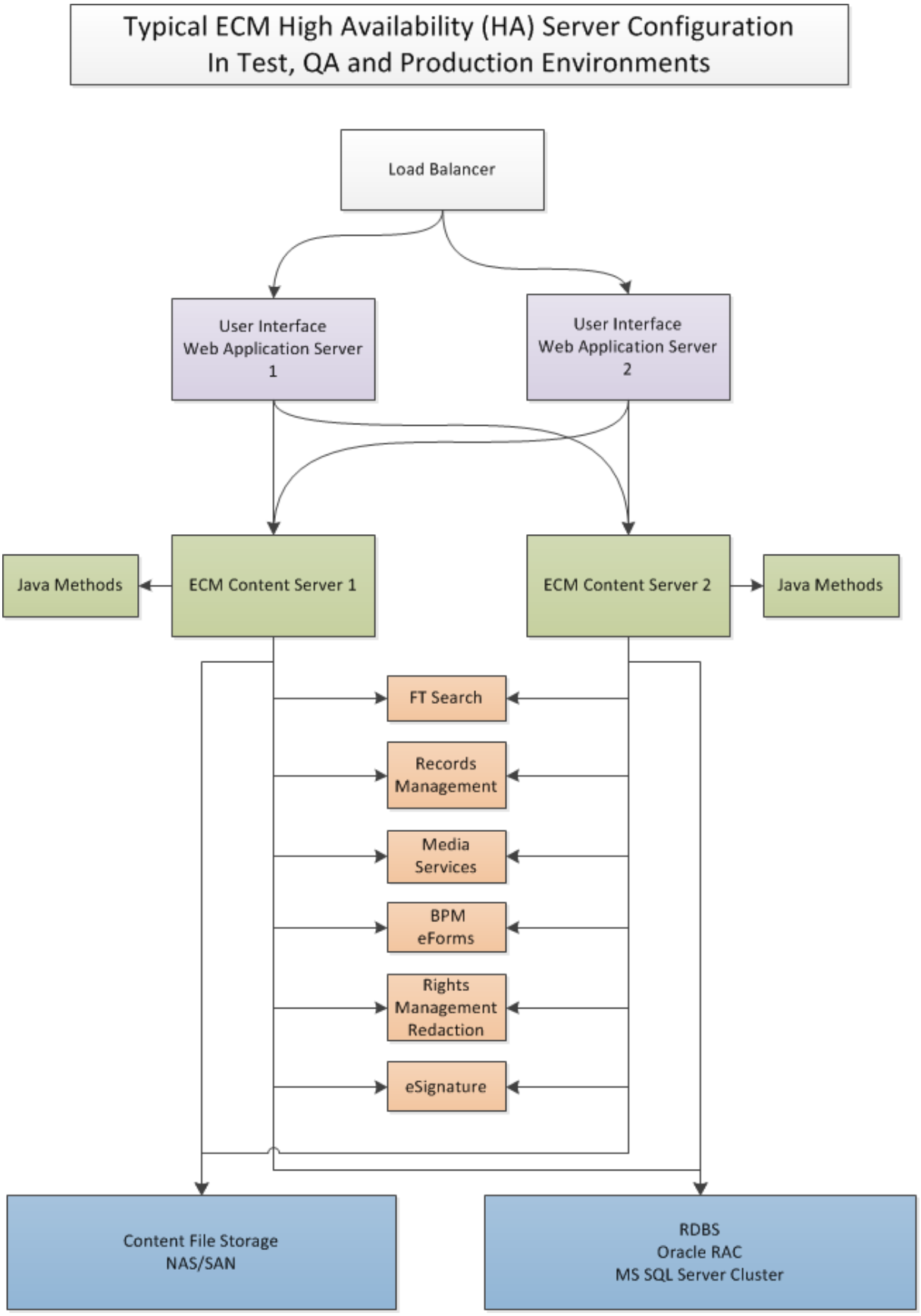
The typical configuration for High Availability (HA) ECM systems provide redundancy of the technology layers of:

- Presentation – User interface and Web Application Servers
- Business logic – Content and BPM servers
- Database/storage – Oracle / MS SQL Servers
    - Oracle requires VERITAS or RAC configurations
    - MS SQL Server can use MS Server Cluster functionality

The main objective for HA is the reliability of the ECM system in support of mission critical City business processes. There are two supporting reasons for a high availability environment:

1. Uninterrupted user experience and keeping availability SLAs for mission critical functions.
2. Convenience and simplicity of maintenance and sustainment for complex systems.

The following diagram, with some variation based on the vendor and product selection, encapsulates the basic concepts for planning a High Availability ECM environment. The entities represent typical server installations. Not all ECM components have separate servers and may not all be represented in the diagram.


Typical ECM High Availability (HA) Server Configuration
In Test, QA and Production Environments
Load Balancer
User Interface
Web Application Server
1
User Interface
Web Application Server
2
Java Methods
ECM Content Server 1
ECM Content Server 2
Java Methods
FT Search
Records
Management
Media
Services
BPM
eForms
Rights
Management
Redaction
eSignature
Content File Storage
NAS/SAN
RDBS
Oracle RAC
MS SQL Server Cluster

In this model if a user is logged into the load balancer and, for example, ECM Content Server 2 goes down, the system will still be available for the next user to log in and use ECM Serve1. There are two levels of failover, depending on the vendor and the Web Application server chosen. This will need to be called out in the RFQ/RFP and defined in SLAs.

Service failover

If a server goes down the ECM service is still available for other users to login. If the server that the logged in user is using goes down, they will need to log in again and may lose uncommitted data form that session.

Session failover

When any one of the of the redundant pairs of servers goes down the logged in user will not lose their session and the session will be seamlessly transferred to the other server without data loss.

7.5.5 ECM Applications (Functionality)

The ECM/RM system will become a mission critical application for the City, hosting crucial business information required to support various essential services. The different technical components can be added to the basic platform as required by the business process automation specifications. Refer to the Roadmap section for details on how the various ECM components and functionality will potentially be added.

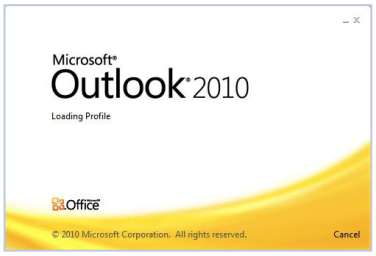
The planned incremental ECM implementation is ordered by a ranking of high priority business processes. The solution will comprise of the required ECM functionality to support the specified requirements for the initial high priority business processes.

The chart below lists the array of ECM Application functionality.

7.5.6 Highly Utilized Systems/Tools:

In lieu of a central ECM system, City staff collaborates and perform business process tasks containing information in email systems, shared drives, SharePoint and in other business applications such as PeopleSoft and Amanda.

7.5.7 Email (Microsoft Outlook)



mail is used as the main workflow and collaboration tool in the City of Winnipeg. It is the highest volume of digital records created in the City. Not all emails are records, but by definition, emails that can be used as support or approvals in business decisions or evidence of a process are official records of the City and fall under the Records Management By-law.

Staff interviewed during Discovery meetings noted that they have thousands of email records each year, sometimes 10s of thousands. Not all contain attached documents but many do. In several cases Executive Assistants manage their documents/records in Outlook folders.

Email is not generally perceived as a record by City staff. However, it is a major concern in many organizations in Canada. For example:

In a report from the Office of the Information & Privacy Commissioner for the province British Columbia 1 "Investigative Report F15-03 Access Denied: Record Retention and Disposal Practices of the Government of British Columbia", the practice of "triple deleting" emails for information requests by staff was called into focus, citing a particular instance of government staff deleting emails from their inbox, deleted folders and archive files that pertained to certain subjects, allegedly so as to deny the existence of requests for information.

The proper management of emails is an important consideration for government staff; however few divisions were aware of the potential consequences of not managing emails as records.

The following are the documented requirements of the ECM in support of overall solution requirements.

#	Section	Requirement Narrative	Category	Priority
001	Email	Solution allows drag-and-drop import of messages into the ECM system using e-mail client folders in order to automate the classification and indexing of e-mails & attachments (e.g., a user could create a folder for POs, one for invoices, another for resumes, etc.).	Email Integration	3
002	Email	Solution allows e-mails and attachments to be automatically imported and fully indexed into the system without any user intervention or data entry.	Document Management	M
003	Email	Solution allows the user to access the ECM system's workflow processes from the e-mail client interface, with the ability to decision items (execute tasks) and view related documents directly from the e-mail message notification.	Email Integration to Workflow	M
004	Email	Solution provides an E-mail Archive that offers the ability to assign time-based retention to e-mails with the ability to put an e-mail or group of e-mails "on hold," preventing automatic destruction.	Email Archive	M
005	Email	Solution supports single instance storage of both e-mail and attachments. For example, e-mails and attachments are only stored once in the E-mail Archive, with the sender and all recipients pointing to one record/file.	Email Archive	5
006	Email	Solution provides the ability for users to access an email in the archive directly from their client.	Email Archive	3
007	Email	Solution provides the ability to search on e-mail index values and/or perform a full-text search on e-mail and attachment content.	Email Archive	M

[1] Investigative Report F15-03 Access Denied: Record Retention and Disposal Practices of the Government of British Columbia https://www.documentcloud.org/documents/2475478-ir-f15-03-accessdenied-22oct2015.html

8 System Permissions and Security

8.1 Security and Access Requirements

The following are the documented requirements of the ECM in support of user roles, and user authentication and access, as well as system security, permissions and authorizations.

#	Section	Requirement Narrative	Category	Priority
001	Security and Access	Must support the capability to provide general Role Based Access Control.	System Permissions and Security	M
002	Security and Access	Should support the capability to provide full administrative control of roles, authorizations and access (e.g. access rights and assigning users to roles, allowing rights to be assignable at the individual user or group levels, etc.).	System Permissions and Security	5
003	Security and Access	Should support the capability to provide full user administration functionality (i.e., user profile set, access and authorization, de-activation and re-activation).	System Permissions and Security	5
004	Security and Access	Should support the capability to maintain confidentiality of documents and data between departments and business units.	System Permissions and Security	M
005	Security and Access	Should support the capability to provide granular control of access rights including but not limited to: "create", "read", “update”, “delete" (CRUD) and printing.	System Permissions and Security	5
006	Security and Access	Should support the capability to allow users to recover their username and password in situations where they have forgotten their username or password or both.	System Permissions and Security	3
007	Security and Access	Must support the capability to use Active Directory (AD) as the primary authorization and authentication repository [single sign-on] and make use of the AD defined users and groups.	System Permissions and Security	M

008	Security and Access	Must support the capability to administer security and access control at the group and individual user level. A user may be granted direct access through Active Directory AD [single sign-on], or through the use of a defined group.	System Permissions and Security	M
009	Security and Access	Should support the capability to meet and support privacy provisions of The Freedom of Information and Protection of Privacy Act (FIPPA).	System Permissions and Security	3
010	Security and Access	Should support the capability to provide a FIPPA coordinator [special access user] with the capacity to search the solution repository.	System Permissions and Security	3
011	Security and Access	Should support the capability to hide/reveal functionality to the user based on security and authorization roles (internal and external).	System Permissions and Security	5
012	Security and Access	Should follow City of Winnipeg and industry security standards and best practices system installation and configuration of the solution.	System Permissions and Security	5
013	Security and Access	Must support the capability to control access to documents stored in the Cloud.	System Permissions and Security	M
014	Security and Access	Must support the capability to automatically provide audit, control, and record the identity of any user who accesses, views, alters, deletes, or uses solution information (e.g. IP address, MACID, user-id, timestamp, etc.).	System Permissions and Security	M
015	Security and Access	Should support the capability to automatically provide audit of any user who accesses (or attempts to access) the Solution. The audit information includes, but is not limited to the credentials and a date and time, number of attempts.	System Permissions and Security	5
016	Security and Access	Should support the capability to encrypt all data at rest with industry recognized and proven cryptographic standards equal to or stronger than AES 256.	System Permissions and Security	3

017	Security and Access	Should support the capability to encrypt all data in-flight/in-transit with industry recognized and proven cryptographic standards equal to or stronger than AES 256.	System Permissions and Security	5
018	Security and Access	Should support the capability to provide authorized users with Read-Only access to audit records via the solution user interface.	System Permissions and Security	3
019	Security and Access	Must support the capability to ensure audit records cannot be updated or deleted.	System Permissions and Security	M
020	Security and Access	Describe the depth and breadth of your system's security methodology (rights and privileges), including system's ability to assign security at each of the following levels: • User groups • Users • Document Type Groups • Document Types • Index Values • Folders • Notes • Workflow • Import Processors • Scan Queues • Configuration	Security Administration	M
021		Describe the solution's different security options for logging into the system, which should allow the system administrator to decide which option is the best for our company (e.g., using a separate security model for an additional logon and password, NT Authentication, integration with Windows© Active Directory, Novell©Security, or single sign-on authentication).	Authentication	M
022		Describe your solution's ability to publish select content onto removable media (CD/DVD) in an encrypted format, allowing access to a self-contained / runtime version of your client.	Encryption	M
023		Describe your solution's ability to send documents as an encrypted PDF.	Encryption	M

9 Non-Functional Requirements

9.1 Accessibility

The following are the documented requirements of the ECM in support of accessibility.

#	Section	Requirement Narrative	Category	Priority
001	Accessibility	Should support the capability to provide awareness to all authorized users on access to information requests under FIPPA of their responsibilities for maintaining effective access controls, particularly regarding the use of passwords.	Accessibility	3
002	Accessibility	Should support the W3C Web Content Accessibility Guidelines to fulfill the Universal Design policy passed by The City of Winnipeg City Council and is implemented on the City Website.	Accessibility	5
003		Describe the system's ability for designated users to perform the following administrative tasks via the web-based client: • Add new users • Change passwords • Reset passwords • Apply rights to user groups	Web Administration	M

9.2 Records Management

The following are the documented requirements of the ECM solution in support of the City of Winnipeg records management requirements.

#	Section	Requirement Narrative	Category	Priority
001	Records Management	Support the capability to ensure the Records Management By-law No. 86/2010 is followed as per the Administrative Standard AS-006 Corporate Recordkeeping.	Records Management	5
002	Records Management	Should support the capability to provide date/time-stamped audit trail of all system actions including but not limited to Create, Read, Update, and Delete.	Records Management	5

003	Records Management	Should support the capability to archive records based on City of Winnipeg records management policies.	Records Management	5

9.3 Usability

The following are the documented requirements of the ECM in support of solution usability.

#	Section	Requirement Narrative	Category	Priority
001	Usability	Should support the capability to enable data review, entry and edit via a user friendly interface.	Usability	5
002	Usability	Should support the capability to search by defined solution data and metadata in the system.	Usability	5
003	Usability	Should support the capability to sort and filter lists of displayed data in the solution. [Column\heading sort and filter capabilities].	Usability	5
004	Usability	Should support the capability to customize filters/sorting based on user preferences.	Usability	5
005	Usability	Should support the capability to incorporate graphics (e.g., City of Winnipeg logo) on to templates, forms, etc.	Usability	3
006	Usability	Should support ease of navigation by minimizing the number of menu levels the user has to manually navigate through for functional use.	Usability	4
007	Usability	Should support ease of use by providing system functions and processes that are intuitive.	Usability	5
008	Usability	Should support user centric design that focuses on ease of use for non-technical users.	Usability	4
009	Usability	Should support the capability to provide the user interface via multiple screens with the capability to function on only one monitor if required.	Usability	1
010	Usability	Should support the capability to enable multiple resources to be able to access/view the documents in the system concurrently.	Usability	5
011	Usability	Should support compatibility with Apple iOS and Blackberry devices.	Usability	4

012	Usability	Please provide examples of scalability using real customer examples and metrics: • Peak number of users in a single instance at one time • Peak number of retrievals per hour • Peak number of documents ingested per day • Peak number of documents stored in the ECM repository	Users	5

9.4 Integration

The following are the documented requirements of the ECM solution in support of integration with City of Winnipeg systems.

#	Section	Requirement Narrative	Category	Priority
001	Integration	Must support the capability to report on the data link resident in the master financial system [PeopleSoft].	Integration	M
002	Integration	Should support the capability to store data on financial information held in the solution against the PeopleSoft General Ledger and sub-ledgers.	Integration	5
003	Integration	Should support the capability to Import budget data from the Capital Budget process documents/artifacts.	Integration	5
004	Integration	Should support the capability to integrate with GIS platforms.	Integration	5
005	Integration	Should support the capability to integrate with the current procurement system.	Integration	1

9.5 Performance and Availability

The following are the documented requirements of the ECM in support of solution availability and system performance.

#	Section	Requirement Narrative	Category	Priority
001	Performance and Availability	Should support the capability to support access for up to 10 concurrent users, with a maximum of 100 total users.	System Performance and Availability	5

002	Performance and Availability	Should support the capability to scale to business, and employee loads of 30 concurrent users, with a maximum of 100 total users.	System Performance and Availability	5
003	Performance and Availability	Should support an estimated storage capacity increase of 75 GB per year as project and electronic content grows and not cause degradation in system response. [This estimate is based on the solution supporting 1000 projects of various complexities. Storage capacity requirements will start low and gradually increase as the City of Winnipeg transitions all departments onto the solution.].	System Performance and Availability	5
004	Performance and Availability	Should support the capability to provide a system response time of less than 3 seconds for 95% of system requests.	System Performance and Availability	5
005	Performance and Availability	Should support the capability to provide a system report response time of less than 5 seconds for 95% of system reports.	System Performance and Availability	5
006	Performance and Availability	Should support the capability to ensure Disaster Recovery and Data Loss Prevention measures are in place, such as redundancy and back-ups, in order to avoid or minimize business disruption and data loss.	System Performance and Availability	5
007	Performance and Availability	System utilizes a file storage system to store documents, as opposed to storing directly into the database.	Image Storage	5

9.6 Technology

The following are the documented requirements of the ECM in support of technology standards required by the City of Winnipeg.

#	Section	Requirement Narrative	Category	Priority
001	Technology	Should support the capability to provide thin-client, web-based access from standard web browsers (i.e., Internet Explorer 8.0 or higher, Chrome, Firefox, and Safari).	Technology	5

002	Technology	For cloud based solutions, must support the capability for the solution to be accessible to users through the web with a reliable cloud based solution hosted in Canada.	Technology	M
003	Technology	For cloud based solutions, must support the capability to ensure that files stored in Cloud are secured and data could be migrated by City of Winnipeg when desired.	Technology	M
004	Technology	Should support the capability to operate on Microsoft Windows Server environment used at the City of Winnipeg.	Technology	5
005	Technology	Should support the capability to operate on Microsoft IIS Web Server.	Technology	5
006	Technology	Should support the capability to use an Oracle or SQL Server database.	Technology	5
007	Technology	Should support the capability to alter solution functions and capabilities via configuration of parameters.	Technology	5
008	Technology	Should support the capability to access internal corporate and departmental templates via an intranet link.	Technology	5
009	Technology	Should support the capability to hyperlink to internet sites for external documents.	Technology	5
010	Technology	Should support compatibility with business intelligence tools such as Cognos.	Technology	3
011	Technology	System supports multiple application and web servers in a load balanced configuration Environment for redundancy.	Redundancy	5

9.7 Storage

The following are the documented requirements of the ECM in support of storage standards required by the City of Winnipeg.

#	Section	Requirement Narrative	Category	Priority

001	Storage	Solution allows the archiving of documents to various media, including: • Windows file servers, to allow the leveraging of Share and NTFS permissions • Linux file servers • Unix file servers • Integrate with IBM Tivoli Storage Management • Integrate with EMC Centera • NetApp • Plasmon Archive Appliances • CD, DVD or Blu-ray	Storage Options	5
002	Storage	Solution stores documents in their original, native file formats, not in a proprietary format, so that we are not forced to use your software to access our data	Storage Format	M
003	Storage	How many native file formats do you support? For unique file types, explain how you handle storage.	Storage Formats	3
004	Storage	Describe the ability of your solution to act as a repository for ERP solutions such as SAP, Oracle EBS, PeopleSoft, JDE, and Lawson. Are you a certified partner with any of the leading ERP solutions?	Document Storage	5
005	Storage	Describe the solution's capabilities for providing high volume storage for SharePoint content (i.e., SharePoint archiving).	Document Storage	3
006	Storage	Solution should contain an export tool for massive exporting of content in a non-proprietary format. This should supply both the document and the index values.	Export	M
007	Storage	Users have the ability to check documents out of the system for access via a localized copy that can be worked on, checked back in, and processed automatically.	Off-line	M
008	Storage	System's storage architecture allows for documents and images to be stored at one too many different physical locations for the purpose of redundancy. If one of the locations were to have a failure, there would be no interruption of access to the documents.	Fail-Over / Redundancy	M
009	Storage	Solution provides the ability to encrypt data at the database level and at the file storage level, as well as content that has been backed up/at rest.	Encryption	5

9.8 Licensing

The following are the documented requirements of the ECM in support of licensing standards required by the City of Winnipeg.

#	Section	Requirement Narrative	Category	Priority
001	Licensing	Describe how your software licensing model promotes multi-departmental adoption and enterprise growth.	Licensing	5
002	Storage	System offers both dedicated user and concurrent (pooled) Client access licenses.	Licensing Flexibility	M
003	Licensing	Primary client access licenses enable a user to access the system either over the web or via a desktop. A client license is not bound to either web-based access or desktop (thick client) access.	Licensing Flexibility	5
004	Licensing	Describe additional test and development environments provided. What are the costs to license these environments – both software and maintenance?	Environment Licensing	3

9.9 Solution Support and Training

The Vendor must specify what training is included in the package and any additional training options that are available, including, their cost, location and scope. The following are the documented requirements of the ECM in support of licensing standards required by the City of Winnipeg.

#	Section	Requirement Narrative	Category	Priority
001	Training	Training options should include train-the-trainer technique within training offerings.	Training	M
002	Training	Training options to include web-enabled training courses and tutorials?	Training	M
003	Training	Provide full array of live interactive training (including solution certification) via the internet, Which can minimize the end user's need for travel?	Training	5
004	Training	Should provide a separate test and development Environments provided.	Training	M
005	Training	Should support the capability to provide product training and knowledge transfer during the implementation & transition phases to the City of Winnipeg internal resources.	Support Training	5

The Solution provider must submit a Maintenance Support Plan for the proposed ECM solution (hardware, software) which defines the system maintenance support they will provide. The Maintenance Support Plan will be incorporated into the contract. Plan should include a website or phone number, contact person and dates and time available.

They must supply information pertaining to future possible upgrades including:

- How the product upgrades seamlessly to the client and server. If it does not, describe what customizations or considerations must occur prior to a product upgrade.
- How is any customization effected by upgrades?
- Describe the general processes for issuing maintenance/fixes or upgrades.
- Describe any forward/backward compatibility.
- Explain how you respond to operating system, application and security patches.

The following are the documented requirements of the ECM in operational support and Service Level Agreements for the solution.

#	Section	Requirement Narrative	Category	Priority
001	Solution Support	Should support the capability to provide on-going maintenance and support.	Support	5
002	Solution Support	Should support the capability to provide knowledge transfer to City of Winnipeg internal operational support resources on an ongoing basis, as required by the City of Winnipeg.	Support	5
003	Solution Support	Should support the capability to provide a dedicated phone number for IT technical support.	Support	5
004	Solution Support	Should support the capability to provide operational support documentation that can be transferred back to the City of Winnipeg Internal Resource group when the project is completed.	Support	3
005	Solution Support	Must have the capability for maintenance and support to be provided either by the City of Winnipeg internal resources or via external resources.	Support	M
006	Solution Support	Must be supportable via a service level agreement model involving the Proponent or outsourced third party, as may be required by the City of Winnipeg Management and Application Maintenance policies	Support	M

10 Appendix A: ECM High Level Solution by Phase, task, description and resources

High Level Solution gathered during the Discovery Phase of the ECM project.

Task	Description	Resources
Phase 1 – ECM Strategy and Roadmap		
Discovery, Strategy and Roadmap Development	Report delivered including current state, future state, gap analysis, and recommendations with an overall ECM strategy and roadmap for the City of Winnipeg.	ECM Core Team [*1], Executive Sponsor(s) (ESs), Business Owner (BO), System Owner (SO), Stakeholders
Change Management Strategy for Funding	Change Management Strategy initiated and the process begins to provide information to stakeholders about the ECM findings and roadmap.	ECM Core Team [*1], ESs, BO, SO
Phase 2 - RFQ		
Request For Qualifications (RFQ)	Upon sign off of Phase 1 deliverable and phase gate approval to move forward into Phase 2 RFQ/RFP, a RFQ is developed, issued and evaluated around initial requirements in order to provide a short list of potential ECM vendors.	ECM Core Team[*2], Corporate Finance - Materials Management, Legal Services, Financial Controller
Business Case Update	Upon sign off of Phase 1 deliverable ECM Strategy and Roadmap, the business case is updated for 2017 submission.	ECM Core Team
Phase 3 - RFP		
Ongoing Change Management	Full time Change Manager is assigned to the project to support the project on an on-going basis.	Change Manager (CM) Project Manager (PM)
Steering Committee	As per Administrative Directive FM-004, a Major Capital Project Steering Committee is established. The roles and responsibilities and accountabilities of the committee, its members and other participants are clear and documented in writing. Detailed meeting minutes are prepared circulated and retained which clearly identify what issues or information has been presented, which project team members attended the meeting and what decisions were made by the committee and communicated to and or requested from the project team. This committee will begin the oversight process of ECM/RM policy and procedure development. Business Case approval is l required before governance activities begin.	Consists of delegates from: ESs, Legal Services, Records Management Services, IT Services, HR Services, Financial Services and other departmental stakeholders
Working Groups (WGs)	Working groups are established as required in order to develop ECM policy and procedures. Working groups will set standards for taxonomy, document types, access controls, naming conventions and the use of Shared Drives, Email and SharePoint.	Subject Matter Experts (SMEs) as required, Departmental Stakeholders CM
Policy Development	Working Groups will start to develop ECM policy, procedures and standards, including role definition. Changes will result in the creation of roles, and	WGs, CM

Task	Description	Resources
	administrative standards for Shared Drives, Email and/or SharePoint.	
Role Development	Led by the City Records Manager and Archivist, the roles and responsibilities are defined, and then they are assigned to members of various departments along with new role training and orientation, which includes process change awareness, responsibilities and activities. This is also included in change management activities.	BO, WGs, CM
Cleanup Activity for Shared Drives, Email and/or SharePoint	Once Policy Development and Role Development have established new procedures and roles, then this is required to be communicated thru change management and training. The training is based on step by step instructions on how to proceed with clean-up of the Shared Drives, Email and/or SharePoint.	Information Stewards*(ISs), ECM 'Point Person' Coordinator (EPPC), SMEs as required
Request For Proposal (RFP) for an ECM Solution, Infrastructure, and Resources	After the 2017 ECM Business Case is approved, a RFP is developed based on the RFQ for the ECM system in addition infrastructure and resources required.	ECM Core Team, Corporate Finance - Materials Management, Legal Services, Financial Controller
Procurement Award Report Approved	Evaluation of RFP bidders occur and vendor is selected and the Award Report is developed and sent for approval.	ECM Core Team, Corporate Finance - Materials Management, Legal Services, Insurance, Financial Controller
Phase 4 - Implementation of ECM Platform and Pilot Business Process Projects		
Sustainment Preparation	In advance of the first ECM deployments, CSS BTS staff who will be assigned support roles for the ECM and Infrastructure deployments and departmental IT reps will prepare for ECM administration, support and development roles, initially by role assignment and, later after the RFP stage, vendor training.	Vendor, External Information Architect (EIA), Information Architect (IA), External Business Analyst (EBA), Business Analyst (BA), External Developer (ED), Developer(s) (D), BTS Support– Network, Servers, DB, and Web Application Team
Infrastructure	Once the orders are in place the servers, operating systems, empty databases and empty web application server domains are setup according to ECM vendor specifications.	Vendor BTS Support – Network, Servers, DB, and Web Application Team
Resources / Training	Project Team resources are identified, on-boarded and trained.	Vendor, ECM Core Team [*3]
ECM Setup	The ECM software will be installed and configured, but with empty repositories. Initially Development, then Test and then Production (in that order) environments will be setup in order to allow early stage development and testing to proceed.	EIA, IA, ED, D, EBA, IBA BTS Support - Network, Servers, DB, and Web Application

Task	Description	Resources
	and ECM Team to shadow and perform Production deployments	
ECM Business Process (BP) Deployments (Pilot and subsequent projects)	The initial Business Process implementation will be of low risk, so the business process can be used to learn the technology, the system, gain knowledge and experience and capture the "lessons learned" of each stage in the ECM Pilot, so that it is iteratively adopted across the subsequent stages and deployments as part of a continuous improvement process.	EIA, IA, EBA, BA, ED, D, CM PM EPPC ISs
	Install and configure any additional software for the business process(s). Also configure any additional items such as taxonomy or access groups where the information is available. This may occur initially as a Development environment and then promoted to testing/UAT to Production setup concurrently with the ongoing stages of implementation. BTS may be required to prepare additional servers, databases and domains or change access to servers and authentication AD systems. BTS may need to perform the process of promotion of change requests or initial builds into production, with assistance or written instructions from the ECM Team.	BTS Support, ECM Core Team Vendor EIA, IA, EBA, BA, ED, D
	1) <u>Analysis</u>: EBA shadowed by BA, will consult with major stakeholders on the specific business process. ISs, EPPC and other DSMEs, as required, develop and document a detailed conceptual design with taxonomy, type, metadata, access and security, workflow (with logical branching with tasks), validation, integration, eForm, search, signature and retention policy requirements for the documents/records related to the business process. Also they will determine the extent of content that is required to be imported into the ECM system. EIA and IA will also consult and perform the analysis.	EBA,BA, EIA, IA, ISs, EPPC, Departmental SMEs (DSME)
	2) <u>Design/Build:</u> EIA, IA and EWD, WD develop and document a detailed specification and implementation plan for the business process implementation. They will jointly develop and document a User Interface (UI) mock-up which will be shared with business process end users for design validation. They will deliver a prototype and perform system and component testing before promoting it to the testing phase.	EBA, BA, EIA, IA External Web Developer (EWD), Web Developer (WD), Some ISs, EPPC validation
	3) <u>Test/Pilot/Training:</u> includes end-to-end testing with business process end users. After testing and	EBA, BA, ISs,

Task	Description	Resources
	User Acceptance Testing (UAT), the system is deployed in production as a 'pilot' in one department for 30 days. End User training is delivered. Approved change requests will be processed by EIA, IA and EWD, WD as required during this time. There is a strong change management process in place.	EPPC, Delegates, Some EIA, IA, EWD, D for changes
	4) <u>Deploy Cross Departmental, Lessons Learned:</u> Upon sign-off the 'pilot' business process implementation in production, the business process is then deployed out to the remaining departments. Change Management and End User Training will be conducted. EIA, IA and EBA, BA will progress on to the next business process implementation however are available for consultation during sustainment.	BTS Support ECM Core Team Trainer (tbd) EBA, BA, EIA, IA, ISs, EPPC, CM, PM
Deployments Continued…	Subsequent deployments will also entail capturing "lessons learned" after each stage and incorporating them into subsequent phases or deployments. The successive implementation should be incrementally higher risk project, with more complexity or volume. Subsequent deployments can be attempted with more risk and complexity as the project proceeds, ECM solution matures and resources gain experience.	EBA, BA, EIA, IA, EWD, WD, CM, PM. ISs, EPPC, Delegates, BTS Support, ECM Core Team

11 Appendix B: ECM / Document Management Functionalities

ECM/Document Management

ECM Technology Suite with the following functionalities:

Library Services

- Checkout
- Check in
- Version control (1.0, 1.2, 1.2.3)
- Access Controls
    - Definition of Roles and Groups
    - ACL definition by role and group
    - Both individual folder and individual content object level assignment to ACLs
    - Access Grants such as
        - "See" or View objects and or metadata
        - Read file content
        - Relate objects such as comments and markups without editing the document
        - Create a new version of the document
        - Update the file and metadata
        - Delete the document
        - Move or change links on documents
        - Create renditions of documents (e.g. change format)
- SSO Authentication and AD integration for UI and API
- Taxonomy and Folder creation and management
- Ability to link content objects to single or multiple folder locations with a primary link object, or similar functionality
- Search capability:
    - Metadata
    - Full text
    - Advanced search criteria with multiple criteria selection
- Document Lifecycle capability
- Simple workflow capability
- Automated and Scheduled Jobs and custom methods capability
- SQL Query language
- Full-featured Application Programming Interface (API) or Web Services API capability
- Ability to define document types or categories
- Ability to define custom metadata fields for defined types
- Ability to create, import, export, copy, move files and or folders and contents (the numbers of objects may be restricted, depending on vendor)
- Highly configurable UI
- File Store drive location configuration

Business Process Management (BPM) / Case Management

- eForms integration
- Complex workflows with logical flow control
- Work queue management
- External data source integration
- Highly configurable role-based user interface
- Highly configurable dashboard for presenting workflow status, progress, analytics and reporting

Collaboration and Sharing

- Collaboration systems provide an easy to use user interface to allow users to interact and collaborate with one another during the process of document creation and review
- Highly customizable and configurable user interfaces
- Tight integration to MS Office Suite products
- Capability to integrate with ECM and RM systems is essential, which requires a form of lifecycle state recognition.
- Workflow capability is required
- Authentication and SSO is required
- Document/record types and categories need to map to ECM/RM types and categories.

Email Integration

- Integrate into the MS Outlook interface with configurable document/records filing features
- Integrate to MS Exchange server to manage and process based transactions and emails
- Ability to use links to the content objects within emails

Media Transformation

- Rendition control and capability (e.g. automatically render a Tiff or Word file to PDF) – This is sometimes referred to as Media Services
- This is common during lifecycles when a Word Document, once approved, is then digitally signed and converted to a PDF format
- This is also used in Web Publishing when one file format is used to edit files and another, smaller file format is used on a Website
- The term “rendering” is used to describe the process of changing from one file format to another

Redaction

- Ability to apply redaction to text in a file by configured rules
- Ability to lock PDF files
- This will apply to FIPPA requests.

Rights Management

- PDF files can be locked in a very detailed manner to control who can read, copy, print, save, edit, etc. PDF files. Access can be controlled by password and or RSA key fob devices similar to Virtual Private Network (VPN) access
- This functionality is very useful when highly confidential information is released to external partners and parties such as Law Firms

Records Management

- Retention Policies definition and assignment
    - Folder level
    - Individual File level
    - Collection Level
- Classification Definition and File Plan
- Disposition Workflows
    - Records management role definition
    - Workflow definition
    - Trigger and rules configuration
    - Archive Capability
- Legal Holds
    - Definition of Legal Holds
    - Selection by:
        - Folder
        - Individual Records
        - Query Sets
- Print Control
- Physical Records Management
    - Transmittals and Consignment Management and Tracking
        - Bar Codes
    - Warehouse Management
        - Shelf/box location management
    - Metadata definition and search
    - Circulation Management, Check in/Checkout or Request and Loan
- Federated Records Management
    - The ability to integrate to other ECM and Collaboration systems such as SharePoint in order to manage records within those systems.
- This technology is required for enforcing City Records management By-laws.

Digital Asset Management - Media Services

- Storage and management of large scale video, audio and graphics files
- Format rendering and transformation
- Content Streaming
- Digital Rights
- Branding Control
- Rich Media Management
- This technology may be used in the management of very large scale storage of audio and video files from cameras, radio systems and 311 calls and or surveillance systems.

Web Content Management

- XML and Web Page template creation
- Web Site layout, design and preview
- Website review workflows
- HTML and graphics support for Web Page maintenance and creation
- Publishing and Approval workflows
- Ability to publish versions of Pages, data and content to Websites

- This technology may be used to publish the City Websites. There are other systems in place, so this may not be needed.

Mobile Capture and Synchronization (Sync)

- Ability to capture forms, documents, signatures, images and Geolocations from mobile devices.
- Ability to synchronize data and content to mobile devices from Enterprise systems.
- This may be useful in a number of data capture and also content push scenarios in the City.
- Public Open Data and information services will be in more demand over time.

Federated Search

- Federated search is a different concept than the search capabilities of the ECM systems.
- Ability to connect to multiple content sources and extract both metadata and content from these systems in order to build search indexes.
- Configurable source metadata settings .
- Ability to extract links to content in other systems and present content files to the user on request.
- Capability of creating advanced search criteria.
- Web Services API to the search capability.

Integration / File Transfer / Migration

- The ability to integrate to other ECM and Business Applications to migrate and or sync data and or content from one system to another according to business rules.
- Ability to transfer files and data from one ECM or RM system to another.
- Ability to ingest large numbers of content files and data for mass migrations.
- This functionality may be useful in migrating large numbers of documents/records from one system to the new ECM/RM system, such as Email, PeopleSoft, shared drives, eDocs or SharePoint and replaces custom code and scripting exercises.

ECM Integration Details

With Web Services there are customizations offering services on each side, on one the ECM side, on the other side. A simple example might be a "*store a file*" service which may have methods for determining which folder to store it in, which Access Control List (ACL) to attach to the file and which retention policy to attach to it. It is advised to use RESTful web services calls since SOAP protocols have file size restrictions, which will cause difficulties for fetching and sending large drawing or video files.

12 Appendix C: Facilitation Framework

The following represents a "script" of questioning (questionnaire) to facilitate the understanding of the current state and to provide insight into each department's asset management and project management business processes and procedures, for the purposes of gap analysis with respect to the future ECM System. Each facilitation session used the framework to guide discussions and depending on responses regarding maturity with the Content and Document Management practices was adjusted accordingly.

What is ECM and How Does Records Management (RIM) Fit Under the ECM Umbrella?

Enterprise content management (ECM) is a set of procedures, processes and supporting software that manage unstructured information such as documents, plans, maps, engineering drawings, scanned documents, video, audio and other discrete files in digital format. Structured information such as databases may also be used to help classify and search for content files and is referred to as “metadata”. Records Information Management (RIM) is the functionality used to enforce retention and disposition of records, legal discovery and legal hold and records classification.

What is “Content”?

Content files can come in many formats, such as MS Word, PDF, TIFF, MS Excel, AutoCAD Drawings, emails, HTML files, Audio files like MP3, and Audio/Video files such as MP4. In ECM, the “type” of file refers more to the context or use of the file, rather than its format. For example a “contract” or “invoice” type may come in MS Word, PDF and even scanned images of physical documents such as TIFF format. It refers more to a process associated with it, the security required to protect it, and the key words that may be used to find it.

As a part of day to day operations some files become significant as evidence of operations and need to be managed and stored as records. Some records are present in operational systems such as accounting, ECM, workflow and asset management systems.

Definition of “Record”:

City of Winnipeg Bylaw: **“record”** means any kind of recorded information that is created or received by, or in the custody or control of, the City regardless of its physical form or its characteristics and includes;

> By-law No. 86/2010 2
> (a) information recorded on paper, photographic film, microfilm, videotape or disk or in a computer system;
> (b) a copy of the record; and
> (c) a part of the record;
> but does not include a personal or constituency record of a member of Council.

Questions: (Please reply by typing into this document)

1. Does your department have a list of the types of documents and or records created, stored or used in various systems or processes? By this we do not mean a detailed list of the individual documents , but a list of the various different types of documents, records or content files. For example, contracts, invoices, bid documents, plans, photos, maps, training videos, etc. If so, please share this documentation. Storage volume statistics like the number of digital documents and or the amount of disk storage would also be helpful. These stats can be found in Windows Explorer by right clicking a folder and choosing “Properties”.

2. Please list the business processes in your department that may include documents, records, plans, drawings, pdf files, images, etc. and how they are associated with the various processes and systems. Please share any documentation. A list of the existing systems and processes is available in the “ECM Discovery Artifacts” spreadsheet on the Systems Tab.

3. Please describe how these processes may interact with other departments or external parties.

4. Please describe how you search for content or how others may search for your content. How frequently does this occur and how long does it take?

5. Please describe how people collaborate on documents and or content files (may include video, drawings, plans or maps), including sharing or publishing of information to the public or external parties.

6. Please list the systems or software applications used in your department that may receive, create, produce or store documents or other content files. A list of the existing systems and processes is available in the “ECM Discovery Artifacts” spreadsheet on the Systems tab. A list of ECM systems is found on the ECM Applications tab.

7. Please identify which of those types of documents/records/content are mission-critical, highly sensitive or confidential, or high volume. We would consider these to be “high impact” document types.

8. Please identify any ongoing projects, priorities or initiatives which may impact how ECM or RIM (records information management) is implemented in your department. A list of the existing priorities is available in the “ECM Discovery Artifacts” spreadsheet on the Priorities tab.

9. Please describe how standards and policies regarding information management are enforced in your department or division? If there are policies which cannot be implemented in your department or division, please explain why.

10. Please describe how responsibility and accountability for the integrity of documents (stewardship), records and or content is implemented in your department or division.

11. Please describe your department's current capability to provide ECM or RIM related resources for technical support, analysis, administration and or software development within your department. This may include the ability to provide local ECM administrators, workflow coordinators, administrative assistants and power users.

12. Please describe your department's current governance policies and procedures for content and or documents and records. This would apply to the process of defining and enforcing policies and procedures for the management of content or related security in your department.

13. Please describe any obstacles or pain points associated with the management of documents and records and the ability to search for information across the City in your department or division and any recent activity to resolve them.

14. Please describe your department's priorities, goals and or opportunities to improve services for the department, City of Winnipeg and or the citizens of the City in relation to the management of content files such as documents, drawings, maps, photos, videos, and records.

<u>General Facilitation Items for each:</u>

1. What people and processes are involved?
2. Is there process documentation available?
3. What systems and/or tools are involved? [IT systems, templates/documents/spreadsheets, workflow management, approval processes]
4. What workflow is required? Workflow documentation?

13 Appendix D: Document/Record Lifecycle

Document/Record Lifecycle is a core concept in the automation of Business Processes that includes documents or records. In order to support automation, the document and record lifecycles will be well defined, documented and managed for each type or category across each business process, according to business rules. This will streamline the process and remove repetitive manual changes that would normally need to be done by an end user or by custom scripts.

The following points describe the relevance of these lifecycles that will be present in a future state of ECM within the City.

Document Lifecycle Management

- Document Lifecycle services provide a way for ECM systems to provide “buckets” of settings for documents or a collection of documents that control taxonomy, access controls, metadata values and workflows. In this way, a defined Lifecycle state can be assigned to one or more documents or content files at a time. And this enables automation of the application of settings for a document or content file.
- An example may be a lifecycle for Administrative Reports which includes the document creation, review, approval, approved, To Council lifecycle states, each of which has different settings. The document will progress through the lifecycle according to pre-established business rules as per the diagram below.
- It is important to differentiate workflows from lifecycles, although they are inter-related. Workflow is the set of tasks in the workflow, with the logical flow defined and managed. Actors in the workflow receive notifications of tasks and perform them, perhaps modifying the documents/ records and triggering a change in the state of the document/record.

Administrative Report Example Lifecycle

Editor can Write or Delete	Editor can Write	Editor can Read	Editor can Read	Editor can now version the document
In Editor’s personal or team folder	In Review Folder	In Approval folder	In Approved folder and RIS	In Approved and in RIS and DMIS
Only Editor or Team can view it or find it	Editors and Review Team can view and	Editors and Review Team and Director can view and	Editors and Review Team and Director and CAO can view	Editors and Review Team and Director and CAO and City Clerks can view and

	find it	find it	and find it	find it
Metadata is populated	Reviewers can add comments and markups	Approvers can add comments and markups and E-Signature	CAO is now approver and can add comments and markups and E-Signature	Council is now approver and can add comments and markups and E-Signature

The purpose of these Lifecycle states is to set business rules to simplify the process of automating a workflow and provide consistency throughout the process. For example, the editing phase may only allow access to the editors or collaborators of the document so that others do not confuse it with the official version of a document.

14 Appendix E: Project Management Templates

Project Management Templates: Project Management Templates Site [this is an internal City of Winnipeg site].

#	Project Document:	Benefits of Document Creation:	Notes:
1	Business Case	Defines budget / financial baseline for project and benefits case.	
2	Project Charter	Provides authority to proceed for PM. Outlines initial project scope baseline	
3	Project Delivery Plan (PDP)	Outlines baseline scope, schedule and assumptions for project delivery.	This document should evolve/iterate during project delivery lifecycle.
4	Risk/Issue/Decisions Log	Identifies critical risks, issues and business decisions associated with project delivery.	This document should evolve/iterate during project delivery lifecycle.
5	Change Control Log	Provides a record of all approved project changes from current baseline.	This document should evolve/iterate during project delivery lifecycle.
6	Stakeholder Engagement Strategy/Plan	Outlines proposed approach for management of internal and external project stakeholders.	
7	Project Status Report	Provides regular progress information to project governance group and other interested stakeholders.	This may be produced on a weekly/bi-weekly/monthly or quarterly basis (depending on need).
8	Quality Management Strategy/Plan	Outlines how quality will be managed during the project lifecycle, including document standards.	
9	Vendor (Consultant/Contractor) Evaluation Form	Provides consistent evaluation metrics for vendor assessment.	Often specified in RFP document for vendor competition.
10	Lessons Learned Log	Identifies what aspects of project delivery went well and areas for improvement, which should be highlighted for future projects.	Improves knowledge management for City PMs and contract administrators.

	Contract Administration Standard *(Reference Standard)*	Identifies how project contracts should be managed.	Majority of major City delivery projects use an external contract administrator for control purposes, therefore this is an important Quality Management Standard.

15 Appendix F: Stakeholder Discovery Interview Agenda

Introductions:

- Round table introductions.
- Review Objectives of Enterprise Content Management [ECM].

Current State Assessment:

- Questions regarding existing People, Process, Templates, Workflow.
  - How does your company receive and take on work\projects from the City of Winnipeg [Capital and/or Operational]?
  - Discuss the advantages and shortcomings of the current processes.
- Questions regarding existing Technologies, Tools, Systems.
  - How/What do you use to bid on City of Winnipeg work?
  - What City of Winnipeg Project Management standards/methods are you asked to utilize during Project Delivery/Contract Administration?
  - Discuss the pros, cons, and shortcomings of their use in carrying out your work.

- Asset Management – Management System [City of Winnipeg Project Manager Manual]
  - Are you aware of the City of Winnipeg Project Managers Manual used in client departments/divisions?
  - If aware, discuss the pros, cons, and shortcomings of its use.
  - Are you aware of the City of Winnipeg Contract Administration Procedure contained in the Project Managers Manual used in client departments/divisions?
  - If aware, discuss the pros, cons, and shortcomings of its use.

Future State Requirements Facilitation:

- Identify and determine Requirements of a ECM as it relates to:
  - Project Bid/Award Process.
  - Project Management [Tracking and Reporting]
    - Pre-Project/ Initiation Phase [Bid/Procurement stage]
    - Execution Phase
      - Execution Planning Sub-Phase
      - Execution Delivery Sub-Phase

    - Execution Transfer Sub-Phase
- Close Out Phase

- General facilitation of Requirements regarding Process, Workflow, Information, People\Groups\Stakeholders.

External Stakeholder Questions:

1. Describe Contract Administrator role and the interaction with the City of Winnipeg counterpart.

2. The Contract Change Control Process:
    a. How does it work today?
    b. What documents are exchanged\approved? When? Why?
    c. Field Instruction Process
    d. Proposed Change Notice

1. What are your experiences using a ECM tool?

2. Pain Points with the current City of Winnipeg relationship:
    a. Procure/Bid
    b. Execution
    c. Financial Management
    d. Close Out procedure

3. Future Requirements of an ECM tool.

16 Appendix G: Stakeholder Discovery Process