

DELIVERABLE

City of Burlington
Information Management (IM) Strategy

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1. Introduction

Ergo Information Management Consulting (Ergo) was engaged by the City of Burlington (City) to document and assess the City's Records and Information Management Program (RIM Program) and the City's current practices for managing information¹ and prepare an Information Management Strategy (IM Strategy).

This engagement included the records lifecycle management of data/records/information in the following formats:

- a) Physical documents/files/records
 - At desks or in offices at City facilities.
 - Inactive physical cords stored off-site at a commercial record centre.
- b) Unstructured electronic documents/files/records (e.g. word-processed documents, spreadsheets, PDFs, etc.) stored in the following locations:
 - Hard drive/laptop storage (where used).
 - Personal network drives.
 - Shared network drives.
 - Portable electronic storage such as USBs, CDs, etc. where used).
 - Stored on and/or accessed using mobile devices (e.g. smartphones).
- c) E-mail messages and attachments in Microsoft Outlook and .pst files (where used).
- d) Structured data in the City's 10 core/enterprise business systems (e.g. Avantis) and selected additional systems that support the distinct business needs of individual City Services (e.g. eScribe and HireDesk).
- e) Intranet (360) content.
- f) Public website content at <https://www.burlington.ca/en/index.asp>
- g) Social media content on the City's social media channels (Facebook, Instagram, LinkedIn, Twitter, and YouTube).

The IM Assessment Report (April 3, 2019) provides Ergo's assessment based on industry best practices, our experience in completing similar engagements for many municipal and other clients, and our analysis of the findings from a data collection methodology consisting of:

- The review of City-supplied data/documentation.
- Interviews with 18 City employees who are subject matter experts in IM areas (e.g. MFIPPA) or IM-related areas (e.g. BI).
- Interviews with 26 City employees who are subject matter experts regarding the City's 10 core/enterprise business systems.
- 19 focus groups attended by 80 employees from across the organization (focus groups were held with the IG Committee, BLT, RIM Program employees, and 16 departments).
- 284 responses to the employee IM survey (approximately 19% response rate).

¹ The IM Assessment Report and the IM Strategy address the data/records/information created/received and maintained by City departments. It excludes data/records/information created/received and maintained by City agencies, boards, and commissions.

- 22 responses to the non-core/non-enterprise systems survey (approximately 50% response rate).

The IM Assessment Report also provides an analysis of the strengths, weaknesses, opportunities, and threats (SWOT analysis) of the City's RIM Program and current IM practices, the rating of the City's IM risks against the City's risk impact scales, and the results of benchmarking the City's RIM Program and IM practices against the Generally Accepted Recordkeeping Principles® (the Principles) using the Information Governance Maturity Model (IG Maturity Model). Although we did not formally assess the City's data maturity using the Capability Maturity Model Integration (CMMI) Data Maturity Model (DMM) framework, it is clear that the City's data management maturity level would be assessed as very low (i.e. between 0 and 1 on the CMMI Data Management Maturity scale).

The IG Committee (see Figure 1 for a list of the IG Committee members) reviewed and validated the draft IM Assessment Report on March 26, 2019. On April 9, 2019, Ergo completed an IM Strategy Workshop with the IG Committee prior to preparing the draft IM Strategy. The following activities were completed at the Workshop:

- a) Set a City benchmark for each of the Principles® in the Information Governance Maturity Model².
- b) Recommend IM priorities.
- c) Identify possible initiatives, projects, or tasks for improving IM at the City, including if/how any existing City projects or initiatives could be leveraged.
- d) For each of the top IM priorities identified at the Workshop, identify any quick wins, dependencies for success, barriers to successful implementation, and success measures.

Figure 1 - IG Committee Members

Employee	Position Title
Nick Anastasopoulos	Chief Building Official, Planning & Building
Andrea Holland	Manager, Records and Information, Clerks
Fabi Karimullah	Program Manager, Business Intelligence
David Klacko	Solicitor
Andrew Maas	Manager of Infrastructure and Data
Angela Morgan	City Clerk
Sandy O'Reilly	Controller and Manager of Financial Services
Ryan Parker	Information Security Manager, IT Services
Christine Swenor	Director of Information Technology Services

The IM Strategy is based on the validated findings in the IM Assessment Report and the outcomes of the IM Strategy Workshop. The IM Strategy describes the recommended future IM state and identifies the governance, compliance, technology, and people considerations for

² See Appendix 3 for the IG Maturity Model. See Appendix 4 for the City's high-level and detailed benchmarking scores. The City scored a 1.875 average maturity score out of 5 across the eight Principles.

effective IM at the City as well as the resources (e.g. funding, technology, space, staff, etc.) required to address the gaps and risks identified in the IM Assessment Report. The IM Strategy also builds on the City's IM strengths (e.g. employee interest in moving to a 'less paper' organization in which electronic records are recognized as the City's official records) and capitalizes on the City's IM opportunities (e.g. formalizing a Data Management Program).

The IM Strategy is designed to enable the City to achieve Level 3 (Essential) for each Principle in the Information Governance Maturity Model (IG Maturity Model) within 5 years. As per the IG Committee's direction, the City will conduct a progress review of the IM Strategy in Year 4 of its implementation at which time the City will determine its future IG maturity goal (i.e. aim to attain Level 4 (Proactive) in all Principles® within a period of time to be determined or aim to attain Level 4 in selected, prioritized Principles® within a period of time to be determined).

Ergo met with the IG Committee to review and discuss the draft IM Strategy.

After the IG Committee endorses the IM Strategy, Ergo will prepare an Executive Summary for presentation to BLT. The Executive Summary will provide a high-level summary of the IM Assessment Report and the IM Strategy.

2. IM Strategy Overview

The IM Strategy consists of strategic priorities, goals, and objectives as described below.

A strategic priority is an overarching area of activity. There are four IM strategic priorities:

- IM and Data Management Roles and Responsibilities.
- RIM Program Services.
- Lifecycle Management of Physical and Unstructured Electronic Records.
- Data Management.

A goal is a general description of a function/topic toward which the City's resources will be directed. A strategic priority typically has more than one goal. There are 31 goals in the IM Strategy.

An objective is a description of the action(s) required to achieve a goal. More than one objective is typically required to achieve a goal. There are 122 objectives in the IM Strategy.

All objectives are important and their collective accomplishment will ensure successful IM Strategy implementation; however, it is helpful to assign a priority to each objective for planning purposes. To a significant extent, the prioritized order reflects the nature of the relationships between the goals (and their objectives) and an ordered approach to IM Strategy implementation. Each objective has been assigned to one of four priority levels as described and colour-coded in Figure 2 below.

Figure 2 – Prioritization of IM Strategy Objectives

Colour, Number, and Percentage	Priority	Definition
4 (3.3%)	Low	An objective whose implementation can be deferred until later in the 5-year IM Strategy implementation timeline with no negative effect
32 (26%)	Medium	An objective which is not otherwise categorized
52 (42.7%)	High	An objective which should be completed first because it establishes (or assists in establishing) the foundation for successful IM Strategy implementation
34 (28%)	Quick Win	An objective with low implementation effort and low cost and whose implementation will provide an immediate benefit

Figure 3 lists the IM strategic priorities, goals, and objectives.

Figure 3 – IM Strategic Priorities, Goals, and Objectives

Strategic Priority	Goal #	Goal	Objective #	Objective
IM and Data Roles and Responsibilities	3.1	Integrated IM and Data Governance Bodies	3.1.1	Expand IG Committee Mandate to Include Data Management
			3.1.2	Integrate Existing Programs into IM and Data Management Governance
			3.1.3	Distribute IM and Data Management Roles
			3.1.4	Revise Job Descriptions to Include IM and/or Data Management Responsibilities
	3.2	Additional Data Management Roles and Responsibilities	3.2.1	Expand BI Program Manager's Responsibilities
			3.2.2	Establish Data Architect Role
			3.2.3	Resource Data Project Work
	3.3	Additional RIM Program Roles and Responsibilities	3.3.1	Staff One Temporary Information Management Coordinator Position
			3.3.2	Secure Archivist Expertise
RIM Program Services	4.1	RIM Advice, Consultation, and Guidance	4.1.1	Increase RIM Advice, Consultation, and Guidance Service Delivery
	4.2	RIM Training	4.2.1	Update and Expand RIM Program Coverage in New Employee Guidebook
			4.2.2	Develop Mandatory Position Level-Specific RIM Training
			4.2.3	Continue to Provide RIM Program Information on 360
	4.3	RIM/RIM Program Compliance Monitoring and Auditing	4.3.1	Develop RIM/RIM Program Compliance Monitoring and Auditing Measures
Lifecycle Management of Physical and Unstructured Electronic Information	5.1	Creation, Capture, and Declaration	5.1.1	Revise Records Management Policy to Include Ownership of Information
			5.1.2	Review Records Creation, Capture, and Declaration Provisions in Business Processes
			5.1.3	Specify Records Creation, Capture, and Declaration Responsibilities in Charters and Terms of Reference
			5.1.4	Train Employees to Identify 'Official' and 'Transitory' Records
			5.1.5	Develop Standards-compliant Records Digitization Program

Strategic Priority	Goal #	Goal	Objective #	Objective
Lifecycle Management of Physical and Unstructured Electronic Information	5.2	Classification, Search, and Retrieval	5.2.1	Replace Uniform File Plan with Function-based Records Classification Scheme
			5.2.2	Develop File Naming Conventions for Unstructured Electronic Records
			5.2.3	Develop Records Storage Location Lists
			5.2.4	Complete Records Clean-up Projects
Lifecycle Management of Physical and Unstructured Electronic Information	5.3	Collaboration and Sharing	5.3.1	Promote Approved Methods for Internal Document Sharing and Collaboration
			5.3.2	Promote Approved Methods for External Document Sharing and Collaboration
			5.3.3	Keep Large E-mail Attachments in E-mail System
Lifecycle Management of Physical and Unstructured Electronic Information	5.4	Storage	5.4.1	Promote Records Retention Schedule Compliance to Help Alleviate Active Physical Records Storage Space Constraints
			5.4.2	Educate Employees on Off-site Physical Records Retrieval Schedule
			5.4.3	Provide Departments/Service Areas with Read-only Access to Commercial Record Centre Database
			5.4.4	Promote Purposes of Unstructured Electronic Records Storage Locations
			5.4.5	Promote Records Retention Schedule Compliance to Help Manage Unstructured Electronic Records Growth
			5.4.6	Provide Modest Mailbox Size Limit Increase in O365
			5.4.7	Increase RIM Program Participation in Records and Information Slimming Days
			5.4.8	Implement Data Archiving Solution
Lifecycle Management of Physical and Unstructured Electronic Information	5.5	Security	5.5.1	Review City Policies to Ensure Consistent Approach to Information Security
			5.5.2	Include IM Requirements in Employee Offboarding Process
			5.5.3	Establish Data and Information Security Classification Scheme
Lifecycle Management of Physical and	5.6	Freedom of Information and Privacy	5.6.1	Establish Formal Network of Department/Service Area FOI Liaisons
			5.6.2	Require Departments/Service Areas to Certify FOI Request Searches
			5.6.3	Capture Routine Disclosure Statistics

Strategic Priority	Goal #	Goal	Objective #	Objective
Unstructured Electronic Information			5.6.4	Ensure (Sufficient) Notices for Personal Information Collection
			5.6.5	Mandate RIM Participation in Privacy Impact Assessments
			5.6.6	Enforce City Requirement for Mandatory Privacy Training
			5.6.7	Educate Employees on Confidential Mail and Encryption
			5.6.8	Ensure Consistent Privacy Breach Reporting Instructions
			5.6.9	Develop Personal Information Bank Index
Lifecycle Management of Physical and Unstructured Electronic Information	5.7	Business Continuity	5.7.1	Identify and Protect Vital Records
			5.7.2	Develop Physical Records Disaster Recovery Plan
Lifecycle Management of Physical and Unstructured Electronic Information	5.8	Retention and Disposition	5.8.1	Use Same Structure in Records Classification Scheme and Records Retention Schedule
			5.8.2	Track Records Retention Requirements in Citation Table
			5.8.3	Track and Apply Appropriate Records Retention Requirements
			5.8.4	Provide Hyperlinked Records Retention Schedule
			5.8.5	Train Employees in Records Retention
			5.8.6	Develop Digital Preservation Plan
			5.8.7	Recognize Voice Mail Messages may be Official Records
			5.8.8	Promote Correct IM Use of Shredding Bins and Recycling Bins
			5.8.9	Require Cross-cut or Particle Shredding of Physical Records
			5.8.10	Develop Destruction Hold Procedure and Keep Records of Destruction Holds
			5.8.11	Schedule Retention Periods for Structured Data
			5.8.12	Ensure New Structured Systems can Implement Retention Periods
Lifecycle Management of Physical and Unstructured Electronic Information	5.9	Archival Information and Artifacts	5.9.1	Revise Disposition Options in Records Retention Schedule to Include Archival Records
			5.9.2	Identify Archival Records in Records Retention Schedule
			5.9.3	Exclude Archival and Archival Review Records from Records and Information Slimming Days
			5.9.4	Review Records Designated as Archival Review at Annual Records Disposition
			5.9.5	Limit Archives Program to City Records

Strategic Priority	Goal #	Goal	Objective #	Objective
			5.9.6	Develop/Revise Archives Program Documents
			5.9.7	Revise Collaboration Agreement with Burlington Public Library
			5.9.8	Provide Reference Copies of Archival Materials
			5.9.9	Provide Suitably Equipped and Secure Archives Program Space
Lifecycle Management of Physical and Unstructured Electronic Information	5.10	Intranet Content (360)	5.10.1	Specify 360 Content
			5.10.2	Review 360 Site Structure and Navigation
			5.10.3	Assign 360 Page Ownership
			5.10.4	Require Annual Review of 360 Content
			5.10.5	Apply Retention Periods to 360 Content
Lifecycle Management of Physical and Unstructured Electronic Information	5.11	Public Website Content	5.11.1	Assign Public Website Page Ownership
			5.11.2	Require Continuous Review of Public Website Content
			5.11.3	Capture and Manage Public Website Content as Records
			5.11.4	Apply Retention Periods to Public Website Content
Lifecycle Management of Physical and Unstructured Electronic Information	5.12	Social Media Content	5.12.1	Capture and Manage Social Media Content as Records
			5.12.2	Apply Retention Period to Records of Deleted Social Media Comments
Lifecycle Management of Physical and Unstructured Electronic Information	5.13	Office 365 (O365)	5.13.1	Establish Suitable Program Delivery Model for O365
			5.13.2	Establish O365 Governance Model
			5.13.3	Provide O365 Overview Education/Training to IMDGC
			5.13.4	Review O365 Scope and Phasing
			5.13.5	Continue to Recognize Risk of Inadequate Information Governance to O365 Project
			5.13.6	Ensure Rescoping of O365 Project Includes Application of Retention Rules
			5.13.7	Incorporate IM in O365 Proofs of Concept
			5.13.8	Manage New Record Types Created in O365
			5.13.9	Include IM Requirements in O365 Training

Strategic Priority	Goal #	Goal	Objective #	Objective
Lifecycle Management of Physical and Unstructured Electronic Information	5.14	Electronic Document and Records Management System (EDRMS)	5.14.1	Research EDRMS Systems
			5.14.2	Document EDRMS Requirements
			5.15.3	Assess Readiness to Implement EDRMS
			5.15.4	Prepare EDRMS Business Case
Data Management	6.1	Effective Data Governance	6.1.1	Establish Data Policy
Data Management	6.2	Data Work Plan and Priorities	6.2.1	Formalize Rolling 2-Year Data Work Plan and Priorities
			6.2.2	Set Corporate Data Priorities
Data Management	6.3	Data and Integration Architecture	6.3.1	Formalize Data and Integration Architecture
			6.3.2	Develop Data Lake Strategy
Data Management	6.4	Data Format Standards	6.4.1	Develop Data Format Standards
Data Management	6.5	Corporate Data Model	6.5.1	Begin Developing Corporate Data Model
			6.5.2	Build Business Glossary
Data Management	6.6	Data Sharing/ Data Providers	6.6.1	Conduct Legislative Review of Data Sharing
			6.6.2	Establish New Customer Consent Model
			6.6.3	Develop Data Sharing Agreements Register
Data Management	6.7	Corporate Data Catalogue	6.7.1	Build Corporate Data Catalogue
			6.7.2	Establish Internal Data Portal
Data Management	6.8	Data Quality Standards and Measures	6.8.1	Set Data Quality Guidelines
			6.8.2	Document Current Data Quality Practices
			6.8.3	Document, Publish, and Socialize Data Quality Tools/Techniques
			6.8.4	Develop PerfectMind Data Management SOP
			6.8.5	Develop Data Quality Scorecards
Data Management	6.9	Specific Data Projects	6.9.1	Determine Top 3 or 5 Data Projects
			6.9.2	Develop Asset Data Model
			6.9.3	Develop ERP Data Model
			6.9.4	Cleanup AMANDA Customer Data
			6.9.5	Pool and Share Data Handling/Quality Assurance Tools

Strategic Priority	Goal #	Goal	Objective #	Objective
			6.9.6	Complete One-off Data Cleansing Projects
Data Management	6.10	Open Data Program	6.10.1	Develop Open Data Policy
			6.10.2	Expand Open Data Program
Data Management	6.11	Data Literacy Education/ Training Program	6.11.1	Develop Data Literacy Education/Training Program
			6.11.2	Build Data Community of Practice

3. IM and Data Management Roles and Responsibilities

IM and data management best practices recommend the establishment of roles and responsibilities. This is a foundational activity upon which all else will build. There is a benefit to aligning IM and data activities, particularly around integrating policy and standards that guide the respective programs (RIM Program and Data Management Program), and aligning work plans and sharing learning, but also we find that in most organizations there is a crossover of people involved in both aspects.

3.1 Integrated IM and Data Governance Bodies

The City has received recommendations regarding data governance bodies and has established the Information Governance Committee. Establishing a clear, integrated governance model is a best practice recommended both by ARMA and the DMM.

3.1.1 *Expand IG Committee Mandate to Include Data Management*

It is recommended that the City's current Information Governance Committee (IG Committee) mandate be expanded to become a combined Information Management and Data Governance Council (IMDGC).

The IMDGC will have delegated authority from BLT to coordinate the IM and Data Management Programs, and be the place to review, debate, edit and approve IM and data management strategy, policy, standards, and guidelines for corporate use. The IMDGC will also monitor and evaluate the implementation of such documents. For example, in Year 4 of the IM Strategy implementation the IMDGC will conduct a progress review and determine the City's future information governance maturity goal (i.e. aim to attain Level 4 (Proactive) in all Principles® within a period of time to be determined or aim to attain Level 4 in selected, prioritized Principles® within a period of time to be determined). The group will operate as a Council (dealing, responding, and reacting to) work typically prepared elsewhere. Where necessary, the IMDGC will make recommendations to BLT for approval.

To assist in the development of its annual work plan, the IMDGC may find it helpful to review the City's annual corporate projects list to identify the projects in which IMDGC should be involved.

Note that the current IG Committee membership covers many of the bases of a data governance council: Director of Information Technology Services (data) and City Clerk (information management) co-chairs, and representatives around Assets, Place and GIS, Finance, Customer Service, and the BI Program. From a data perspective, the City may consider adding to the group a Data Architect (a new position which is discussed later), HR, and Corporate Performance management representatives. As interest evolves, additional Service Owners may also be added to the group, potentially on a rotational term limit basis to allow different service areas to participate over time.

Subgroups and project teams are where the actual work will be done. These groups would operate to share and improve practices and co-develop best practices, bringing forward standards and best practices for discussion/approval at IMDGC.

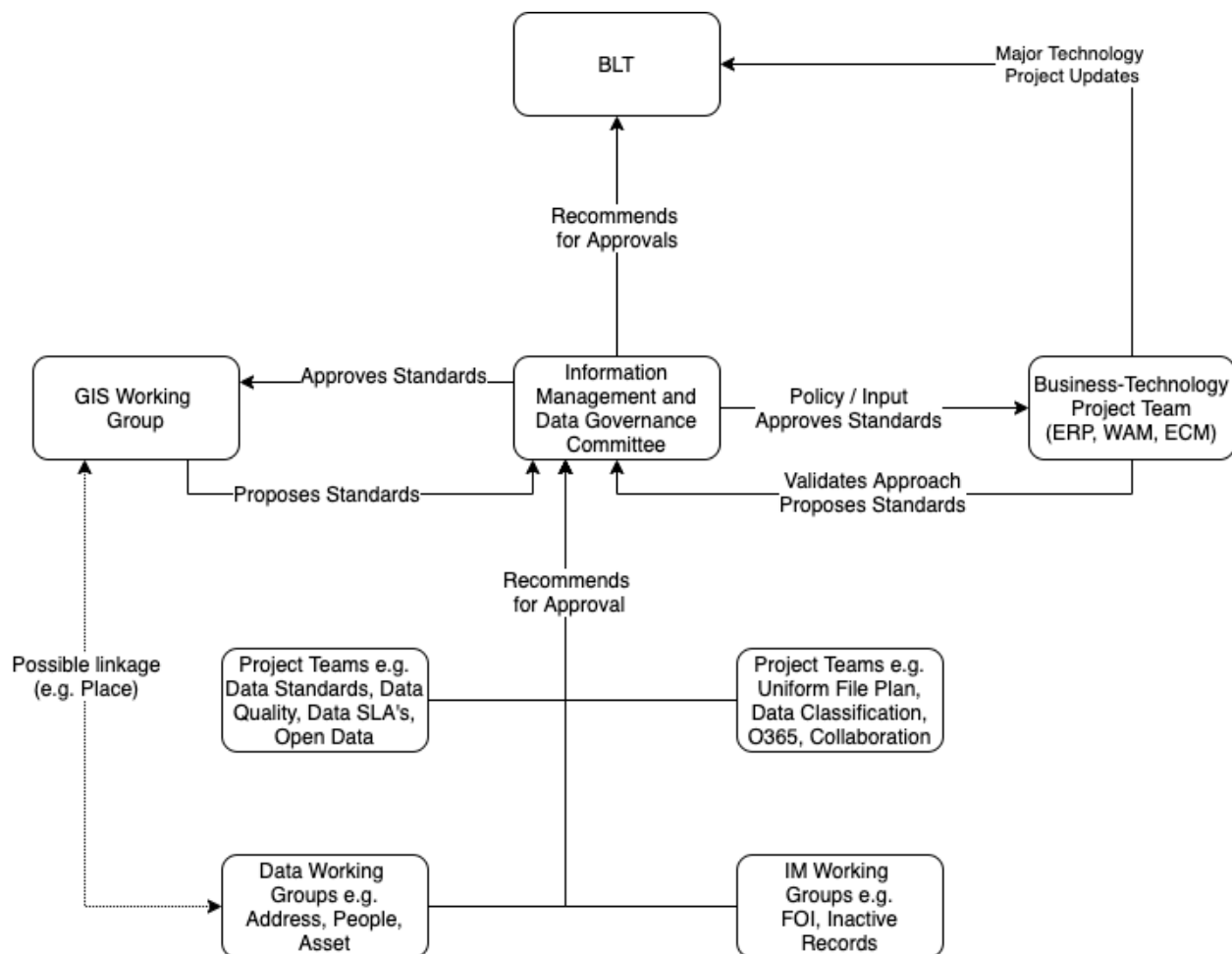
This would manifest itself as:

- Data specific project teams that are formed and disbanded as needed, for instance;
 - A base data standards team - a small team that comes together to draft the base data standards (e.g. postal code, gender lookup lists, etc.), socialize with the data community and review with IMDGC.
 - A data quality standards team - a small team that comes together to draft the standards to be used for defining and assessing data quality (e.g. accuracy, completeness, etc.), and socialize and review at IMDGC.
 - Open data team - coordinating the delivery of the Open Data Program.
- Data working groups/communities or projects focused on key topics and data subjects. These groups should re-use existing groups - GIS Steering Committee for instance - where possible
 - Place, GIS, and Assets
 - Customer
 - People and HR
 - Finance
- Business and technology projects and programs.
 - All technology projects should be required to comply with data and IM standards and policies - compliance monitoring is the responsibility of the Director of Information Technology Services. IMDGC may at any time request an in-person meeting with a project lead at an IMDGC meeting to review alignment in person
 - Major project leads should:
 - in the early stages of a project, consider IMDGC a key project stakeholder to allow for a review of plans for alignment with corporate IM and data policies and standards, and to identify where the project may be able to contribute to corporate IM and data standards
 - Plan for touchpoints with IMDGC throughout the project to review alignment and achievement of plans.

The IMDGC may find it helpful to embed in the terms of reference for Project Teams and Working Groups and in the charters for Business - Technology Project Teams working on technology projects and programs the IMDGC's requirements for those entities to bring deliverables (e.g. draft standards) to the IMDGC or to submit status updates to the IMDGC.

The diagram below summarizes the proposed model. As shown in Figure 4 below, there would also be IM project teams and working groups/committees or projects focused on key topics.

Figure 4 - Integrated IM and Data Management Governance Bodies



Note that the governance model is not completely hierarchical and the City will need to become comfortable operating in a more matrix style. What we mean by this is that there will be large business-technology projects (e.g. ERP, Work and Asset Management) that will operate as a peer of IMDGC, but which will need to seek input from and build standards for the IM or Data Management Programs whilst not operating “within” either program. This relies on effective co-operation and collaboration to be successful. Our interpretation of the situation currently is that management and staff throughout the City are open to cooperation and collaboration and are looking for guidance that is currently lacking.

It is recommended that the City revise the IG Committee’s Terms of Reference to reflect the expanded mandate, membership, and reporting structures. A subset of the IG Committee would develop draft revised Terms of Reference for review and approval by IMDGC (or review and endorsement by IMDGC prior to approval by BLT if BLT approval is required).

A couple of samples for the City’s consideration as a basis for developing its own structure are provided:

- <https://www.usask.ca/avp-ict/documents/Data%20Governance%20Framework-September%202018.pdf>
- <https://cio.ubc.ca/data-governance/people>

3.1.2 Integrate Existing Programs into IM and Data Management Governance

The governance model is predicated on the notion of working openly and transparently. Everyone can benefit from more eyes on ideas and plans - diversity of viewpoints and opinions typically contribute to a better end product.

The BI Program is an umbrella program that includes a variety of corporate data work. It is important to align the BI Program with the IM and Data Governance model. Therefore, it is recommended that the BI Program come under the governance of the IMDGC; that the program plan and key deliverables (namely the BI, Integration Hub, and MDM strategies) be reviewed by the IMDGC at key points and that learnings from the BI Program be actively shared with IMDGC.

Geomatics/GIS is also an umbrella program that tackles technology, process and a variety of data topics in the spatial domain. This group is also leading on Open Data. It is recommended that strategic data topics that are raised through the GIS Program be brought forward to the IMDGC for discussion, debate and approval where required.

3.1.3 Distribute IM and Data Management Roles

The example below (based on the University of Saskatchewan sample referred to earlier and adding 'information' to each role and function description) highlights a sample definition of roles and functions for IM and data management:

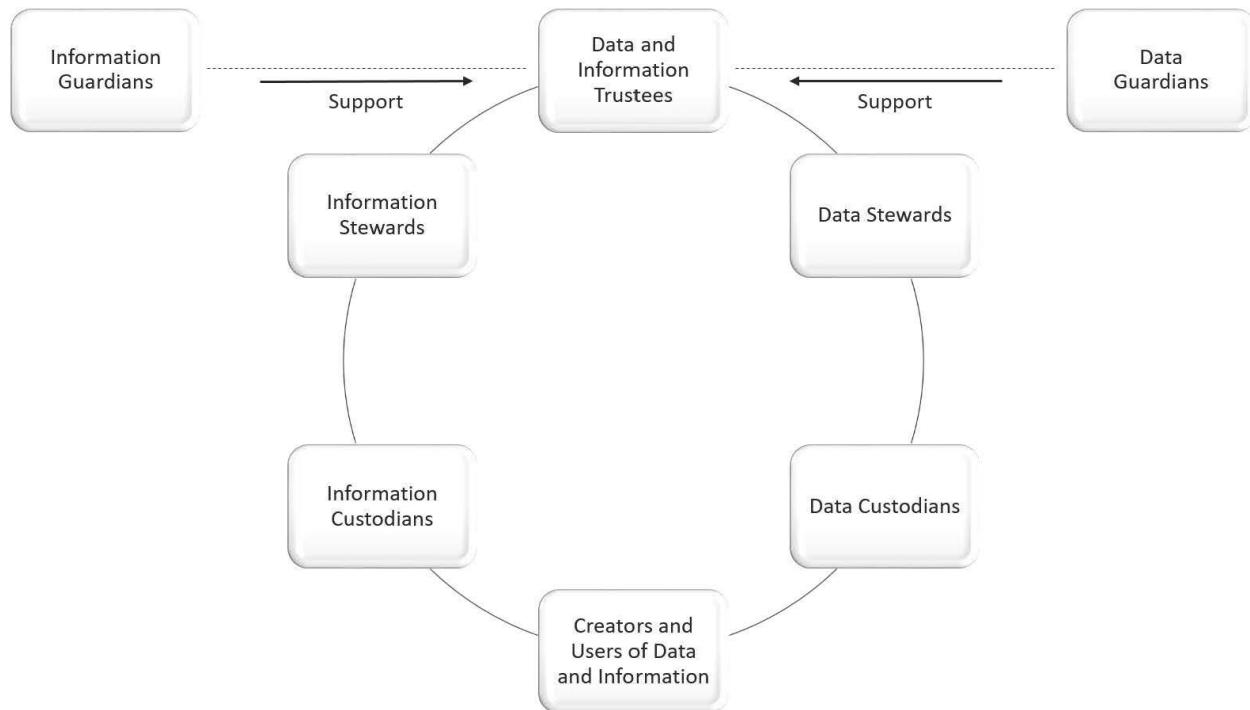
1. Trustees – Highest-ranking individuals accountable for what happens with and to information and data.
2. Stewards – Individuals in business units who are responsible for promoting appropriate information and data use through planning, policy, and protocols.
3. Custodians – Individuals in business units responsible for ensuring that policies are followed within a specific area and that local processes are consistent with policies and procedures.
4. Guardians – Individuals in RIM who have operational level responsibility for IM activities related to managing the records lifecycle and individuals in IT who have operational level responsibility for data management activities related to the creation, storage, maintenance, cataloguing, use, dissemination and disposal of data.
5. Users – Individuals who access and use information and data.

Although it is not explicitly recommended that the City adopt these specific function descriptions as-is, using common industry terminology to describe functions is recommended.

Because integrated IM and Data Management governance bodies are recommended, there is benefit in adopting the same terminology to define the IM and data management roles. Using

the University of Saskatchewan terminology above, Figure 5 illustrates how the City could establish parallel, complimentary roles for the management of information and data. Figure 5 allows a department/service area to split 'Steward' and 'Custodian' appointments between information and data depending on their respective duties/responsibilities. Conversely, if the 'Trustees' are the Directors, it would be logical for each Director to be the Trustee for both information and data in his/her respective department/service area.

Figure 5 - Integrated IM and Data Management Roles



From both the IM and data management perspectives, the City should formally define its operating model: which roles and functions are to be distributed into business units and which roles should be centralized into a corporate unit, i.e. ITS for data or RIM for records/information.

Following the broader model at the City for technology management, it is recommended that data and systems architecture and design, and systems configuration and systems support functions be based in ITS (as is the case with the BI Program setup). Therefore, a Data Architect (a new position recommended later in this document), the Data Modeler, and the Data Warehouse/BI Applications Analyst would logically be based in ITS. Applications Analysts and other ITS staff would play a key role as Data Guardians (as termed in the sample above).

Data creation, editing and maintenance is undeniably the responsibility of users in the business units just as they are responsible for the creation, capture, and management of physical records and unstructured electronic records.

Drivers for the use of data (leadership and management), expert users, data (data scientists, data analysts), analytics and dashboards (management and staff) will typically reside in the business units that have the requirements for the service. That is, outside of ITS and typically in a business unit or in a corporate unit that provides corporate performance or analytics services to other business units.

The RIM Policy would be revised to reflect the information management roles and responsibilities. The Data Policy (recommended later in the IM Strategy) would reflect the data management roles and responsibilities.

3.1.4 Revise Job Descriptions to Include IM and/or Data Management Responsibilities

Every employee creates/receives and manages City records and many employees create or use structured data.

It is recommended that job descriptions be reviewed and responsibilities for IM and/or data management be added where appropriate. This will help reinforce the importance of managing information and data as City assets.

3.2 Additional Data Management Roles and Responsibilities

Three additional actions are recommended regarding data management roles and responsibilities.

3.2.1 Expand BI Program Manager's Responsibilities

The Data Management Program requires leadership and resourcing to be effectively delivered.

It is recommended that the responsibilities of the City's BI Program Manager be broadened to include responsibility for coordinating the City's Data Program activities (the recommendations contained within this roadmap and the Data Strategy (to be developed), alongside those contained within the BI Program).

3.2.2 Establish Data Architect Role

It is recommended that the City establish a Data Architect role within ITS to support the Data Management and BI Programs.

The Data Management Body of Knowledge (DMBOK) recommends that a Data Architect “provides a standard common business vocabulary, expresses strategic data requirements, outlines high-level integrated designs to meet these requirements, and aligns [data strategy] with enterprise strategy and related business architecture.”

Moving forward the Data Architect would take the lead in defining the City's data lifecycle process and the management of data through the lifecycle, along with identifying data design (data modeling) requirements for projects and initiatives.

3.2.3 Resource Data Project Work

In the past data work has simply not received the resources required - with project teams and staff expected to do data work as part of their “other duties as assigned”. Frequently technology projects defer on data migration work because of insufficient funding. For example, projects to cleanse AMANDA customer data have stalled because of a lack of resources. Going forward, the City will need to resource data project work with internal and contracted resources to support project work defined in the City’s capital budget process.

3.3 Additional RIM Program Roles and Responsibilities

Two additional actions are recommended regarding IM roles and responsibilities in the RIM Program.

3.3.1 Staff One Temporary Information Management Coordinator Position

As indicated in Figure 8, the RIM Program would be responsible for a considerable body of work during IM Strategy implementation and, particularly, during the initial years of the 5 year implementation timeline. It is recommended that the City establish a temporary Information Management Coordinator position for a 1 year term with the possibility of renewal (duration of any additional term(s) to be determined as IM Strategy implementation advances).

3.3.2 Secure Archivist Expertise

The objectives in Section 5.9 of the IM Strategy assume the City will expand its Archival Program to include the full range of records of archival value. Should the City proceed with the proposed expansion, the City will require the expertise of a professional, experienced Archivist. Even if the City decides to instead deposit its archival records in an established archival institution that can provide the full range of archival facilities and services, the City will require the expertise of an Archivist to complete the following objectives: revise disposition options in the Records Retention Schedule to include archival records (Objective # 5.9.1), identify records of archival value in the Records Retention Schedule (Objective # 5.9.2), review records designated as archival review at annual records disposition (Objective # 5.9.4), develop/revise Archives Program documents (Objective # 5.9.6), and revise the collaboration agreement with Burlington Public Library (Objective # 5.9.7).

4. RIM Program Services

The RIM Program operates a decentralized model, with service owners being responsible for the success of implementing corporate RIM standards and best practices in their respective service areas. The full-time Records and Information Coordinator position was split into two, full-time positions in 2018: the Access and Privacy Coordinator position and the Information Management and Archives Coordinator position. With that change the RIM Program is better positioned to fulfill its mandate and expand its service offerings, particularly in the three areas discussed below.

4.1 RIM Advice, Consultation, and Guidance

One of the RIM Program's responsibilities is to advise, consult with, and guide employees to help service owners comply with the RIM Program policy and procedures and effectively manage records.

4.1.1 *Increase RIM Advice, Consultation, and Guidance Service Delivery*

Prior to 2018, the Records and Information Coordinator was responsible for delivering most RIM Program services with the Records Assistant being primarily responsible for the delivery of services for the management of inactive physical records.

The current RIM Fundamentals training course informs employees that each department/service area is responsible for developing RIM tools specific to its operations (i.e. Departmental File Plan, inventorying its records and then determining their retention using the Records Retention Schedule, and a SOP on how records are created, received, used, handled, and disposed of at the service level) and the current Electronic Records and E-mail Management course encourages each department/service area to develop a directory structure, naming conventions, and file plans for unstructured electronic records. As stated in the IM Assessment Report, developing any of these tools would require considerable time and RIM expertise. It is doubtful whether an employee who has completed either training course would be sufficiently equipped to create any of these tools. Even with advice or guidance from the Information Management and Archives Coordinator, the creation of these tools would be a daunting task for a department/service area employee.

The creation of two Coordinator positions, one responsible for information management and the other for access and privacy means that each Coordinator will have more time focus on her respective areas of responsibility and, specifically, more time to devote to the provision of advice, consultation, and guidance to departments/service areas and project teams. Consequently, the Coordinators will develop RIM Program tools for the benefit of all employees (e.g. naming conventions for unstructured electronic records) and for specific departments/service areas (e.g. work with a department/service area representative to develop a SOP that captures how the department/service area creates, receives, uses, handles, and disposes of records).

It is recommended that the 2019 RIM Program work plans be revisited to maximize the delivery of the RIM advice, consultation, and guidance service. It is also recommended that the 2020 and future work plans emphasize the delivery of that service.

4.2 RIM Training

Another RIM Program responsibility is the development and delivery of employee training. Three in-classroom, ½ day training courses are currently offered: Access to Information and Privacy Protection, Electronic Records and E-mail Management, and RIM Fundamentals. Each course is offered several times each year and registration is voluntary via OTR. The RIM Program also provides customized training on request (e.g. RIM training specific to the records in a particular department/division). In addition to training employees, the RIM Program also trains Councillors on MFIPPA and the Protection of Privacy and Confidentiality of Information Policy at the start of each term of office.

4.2.1 Update and Expand RIM Program Coverage in New Employee Guidebook

As stated in the City Auditor's 2010 Records Management Audit Report, the City does not have a corporate orientation program for RIM. Minimal information about RIM and the RIM Program is provided in the New Employee Guidebook which Human Resources distributes at the new employee orientation. The Guidebook was last updated in 2013.

It is recommended that the City update and expand RIM Program coverage in the New Employee Guidebook.

4.2.2 Develop Mandatory Position Level-Specific RIM Training

Because RIM Program training is presently voluntary, it is not surprising that only 24.5% of the IM Survey respondents who have received training/guidance in managing the documents/files/records they create/receive received that training/guidance from the RIM Program. Conversely, 57.5% of those respondents received RIM training guidance from a co-worker or their immediate supervisor (46%)³.

The content of the three training courses currently offered by the RIM Program is generic (i.e. applicable to any City employee); however, while all employees have the same basic RIM responsibilities, executive and management/supervisory employees have additional RIM responsibilities.

It is recommended that the City develop mandatory training, preferably online training, which is position level-specific (i.e. BLT, middle management and supervisors, and other employees). The training would address the management of records and obligations for FOI and privacy under MFIPPA. To provide a holistic approach to the management of records, the training would also include training on information-related requirements in other City policies (e.g. Code of Conduct, Computer and Technology Acceptable Use Policy, etc.). Given the amount of

³ The percentages exceed 100% because respondents were asked to 'select all that apply' when identifying the source of the training/guidance they received.

content to be covered, the course would be delivered in several discrete but inter-related modules.

It is further recommended that each employee complete the applicable training course as follows:

- a) New employee hired after a certain date (date to be determined): Complete the 'employee' course within 14 days of hiring.
- b) Existing employee (i.e. employee is already working at the City when the mandatory training program is rolled out): Complete the applicable course within 12 months.

It is also recommended that each training course include a quiz to test the employee's understanding of the material.

4.2.3 Continue to Provide RIM Program Information on 360

The RIM toolbox on 360 provides department/service area employees with information about RIM (e.g. the Uniform File Plan, inactive records, ***privacy impact assessments***, etc.), including links to RIM Program forms (e.g. Certificate of Destruction for on-site records destruction) and training opportunities. Links are also provided to three indices: 1998-2004 Council minutes, registered agreements, and non-registered agreements.

It is recommended that the City continue to provide RIM Program information on 360 and that the RIM toolbox remain the primary repository for RIM Program information in the future.

4.3 RIM/RIM Program Compliance Monitoring and Auditing

One action is recommended regarding RIM/RIM Program compliance monitoring and auditing.

4.3.1 Develop RIM/RIM Program Compliance Monitoring and Auditing Measures

The RIM Program does not currently monitor compliance with or audit the use of the RIM Policy, the Uniform File Plan, the Records Retention Schedule, or the RIM Program SOPs. The City Auditor could potentially advise the RIM Program on developing and implementing a process to monitor how well the IM Strategy (to be developed) is being operationalized and to audit IM processes and compliance with RIM Program policy.

It is recommended that the City develop measures to monitor and audit compliance with RIM/the RIM Program.

5. Lifecycle Management of Physical and Unstructured Electronic Information

This section provides recommendations for improving the lifecycle management of the City's physical (paper) records and unstructured electronic records.

5.1 Creation, Capture, and Declaration

The IM Assessment Report makes several observations about the creation, capture, and declaration of physical records and unstructured electronic records. The observations address the following topics:

- Ownership of information.
- Records creation guidance, including responsibility for creating records.
- Responsibility for records capture and declaration.
- Differentiating between 'official' and 'transitory' records.
- Document imaging specifications and procedures.
- Retention of physical records after they have been imaged.

As described below, several objectives must be met to achieve the goal of improving information creation, capture, and declaration.

5.1.1 *Revise Records Management Policy to Include Ownership of Information*

It is recommended that the Records Management Policy be revised to include a statement which clearly articulates the City's ownership of the data/documents/information/records that employees create/receive and maintain in their jobs. The City's ownership of information would also be addressed at RIM Program training. It may also be restated in RIM Program or department/ service area SOPs for managing information.

5.1.2 *Review Records Creation, Capture, and Declaration Provisions in Business Processes*

As stated in the ISO 15489-1 records management standard, "Business rules, processes, policies and procedures which control the creation, capture and management of records . . . should be implemented and documented to ensure the authenticity⁴ of records. Records creators should be authorized and identified."⁵

It is recommended that the City develop a methodology that departments/service areas would use to review their business processes to assign record creation responsibilities, ensure all necessary records are being created and that they contain the necessary information (whether required by business needs and/or legislated requirements), ensure records are not created

⁴ ISO 15489-1:2016, s. 5.2.2.1 describes an 'authentic' record as a record "that can be proven to: a) be what it purports to be; b) have been created or sent by the agent purported to have created or sent it; and c) have been created or sent when purported."

⁵ Ibid.

unnecessarily, and assign responsibilities for capturing records into the appropriate recordkeeping system (whether paper or electronic). After completing the reviews, departments/service areas would update their policies/procedures accordingly. The Information Management and Archives Coordinator would be available as a resource to departments/service areas during the reviews.

5.1.3 Specify Records Creation, Capture, and Declaration Responsibilities in Charters and Terms of Reference

Knowing who is responsible for creating, capturing, and declaring a record is crucial for ensuring good IM. Knowing who is responsible for creating, capturing, and declaring a record is particularly challenging for project teams and may also be a challenge for some department/service area committees.

It is recommended that a project team's charter and the terms of reference for a committee clearly assign responsibility for creating, capturing, and declaring to the appropriate recordkeeping system (whether paper or electronic) the records created/received by the project team or committee. This would ensure that the required records will be created and that the records which are created (or received) by the project team or committee will become part of the City's records collection. Particularly for project teams, this will likely reduce records duplication at the end of a project because team members will be more willing to dispose of their record copies if they know that the official records have been captured and can be accessed in the future if/as needed.

5.1.4 Train Employees to Identify 'Official' and 'Transitory' Records

It is recommended that all employees be trained to identify 'official' and 'transitory' records. For transitory records, the training should build on the general transitory records information in the existing Records Retention Schedule and provide position- or department/service area-specific examples of transitory records, particularly duplicate records and multiple copies, to assist employees to translate transitory records theory into action as they perform their duties. The creation of a decision tree for determining whether to file (official) or destroy (transitory) a record would be a useful addition to the training. Some organizations reproduce the transitory records decision tree on posters or mousepads to further support employees in their identification and management of transitory records.

Armed with this knowledge, employees will be equipped to identify transitory records and dispose of them as soon as possible after use, thus helping to reduce the volume of records kept by the City. Employees will also be able to better identify the official records that they should classify using the Records Classification Scheme and keep according to the Records Retention Schedule, thus ensuring that they do not waste time classifying and scheduling the retention of transitory records.

5.1.5 Develop Standards-compliant Records Digitization Program

It is recommended that the City develop and implement a standards-compliant⁶ Records Digitization Program to manage the imaging/scanning of existing collections of physical records (records digitization projects) and the day-forward addition of the imaging/scanning of physical records in new or existing business processes (ongoing records digitization). The Records Digitization Program would consist of the following:

- a) Records Digitization Policy: Among other topics, the Policy would require the completion of records digitization assessments, the development of imaging specifications and procedures, and the destruction of physical records that have been imaged (e.g. destroy the physical records 30 days after image quality assurance has been completed) provided their destruction is not prohibited by law⁷.
- b) Records Digitization Feasibility Assessment: Given the costs involved to create and maintain images that will satisfy industry standards and the requirements of evidence laws, digitization should not be undertaken without careful analysis. A feasibility assessment would be conducted for each proposed records digitization project/ongoing records digitization to thoroughly examine the intended use(s) of the images, the retention period of the source documents, the productivity or other benefits that digitization would provide, the constraints or limitations for imaging the records, storage space requirements (image files tend to take up a lot more space than, for example, a PDF rendered from a Word file), and the costs to both image the records and maintain the images over time. The assessment would also identify any records which must be kept in physical format to satisfy legal (or other) requirements. The goal of the assessment would be to ensure only the records most suitable for imaging were digitized because of their value to the City, their condition, their frequency of use, etc. A department/service area would complete the assessment using a template which the RIM Program will develop with input from IT. The RIM Program and IT would review the completed assessments and the IMDGC would approve records digitization projects/ongoing records digitization.
- c) Digitization Specifications: Specifications (e.g. dpi resolution, whether OCR⁸ images will be produced, image file format, etc.) would be developed for each approved records digitization project/ongoing records digitization.
- d) Digitization Procedures: Procedures (e.g. document preparation, scanning, indexing, and quality assurance) would be developed for each approved records digitization project/ ongoing records digitization.

⁶ The Business Records Digitization Program should be compliant with the Canadian General Standards Board standard, Electronic Records as Documentary Evidence (CAN/CGSB-72.34-2017) which includes the electronic image clauses (i.e. Part III and Part IV Section 3) formerly contained in the Microfilm and Electronic Images as Documentary Evidence standard (CAN/CGSB-72.11-1993). Although no longer published, the Microfilm and Electronic Images as Documentary Evidence standard provides detailed information about the records digitization procedures that the City should develop. The City would benefit from referencing that standard in addition to the CAN/CGSB-72.34-2017 standard.

⁷ The Records Retention Schedule will identify any physical records which cannot, by law, be destroyed after imaging and specify a retention period for each of the physical records and the digitized records.

⁸ Although OCR'd images are larger and, therefore, take up more storage space, a record which has not been OCR'd is an unintelligible image (essentially just a photo).

5.2 Classification, Search, and Retrieval

The IM Assessment Report makes several observations about the classification, search, and retrieval of physical records and unstructured electronic records. The observations address the following topics:

- The Uniform File Plan (UFP).
- Naming conventions for unstructured electronic records.
- Lack of a single source of truth for many aspects of the City's operations (e.g. a building permit, a project, etc.).
- Retrieval of physical records and unstructured electronic records (including e-mail).
- The time employees spend searching for information.

As described below, several objectives must be met to achieve the goal of improving information classification, search, and retrieval.

5.2.1 *Replace Uniform File Plan with Function-based Records Classification Scheme*

It is recommended that the Uniform File Plan (UFP), a traditional subject-based scheme, be replaced with a function-based Records Classification Scheme (RCS). A function-based RCS would organize records into categories based on a top-down view of the City's functions and activities, not the subject of the records or the department/service area where the records are created/received and maintained. It answers the question, "Why are records created and used?" because it classifies records based on work processes.

Function-based records classification is endorsed by the ISO 15489-1:2016 records management standard to more readily respond to accountability obligations and to manage records efficiently and effectively. It is also the preferred classification approach of the Canadian federal government and many provincial governments (including Ontario). Some municipalities (including Ontario municipalities) are replacing (or have replaced) their records classification schemes with function-based schemes.

The many benefits of a function-based RCS include:

- Directly linking records with the City's functions and activities.
- Being relatively stable because a City's functions and what it does (its activities) remain relatively stable over time as compared to subjects and department names which change more often.
- Eliminating the siloed view of information and the dispersal of identical (or related) records across different categories.
- Helping to reduce the time spent retrieving information, particularly in response to FOI requests or in the event of litigation, investigation, or audit, because records would be organized and described at a more granular level than in the current subject-based superstructure.

- Being suitable for organizing both physical and unstructured electronic records, resulting in one system for employees to learn and use.
- Being able to easily adapt to future changes in business operations and organization.

The function-based RCS would be based on a top down view of the City's operations and services to identify the core functions representing the City's primary activities (e.g. Council administration, provision of recreation programs, etc.) and the functions which support those activities (e.g. finance, human resources, etc.). Records would be organized using a set pattern of divisions in a hierarchical (or tiered) structure from the general to the specific and by function. The RCS would also specify how to organize each type of information (e.g. by date, then subject). A retention period would also be assigned to each record group/series.

The IM Program would develop the RCS in consultation with department/service area representatives to ensure the inclusion of all City records and their optimum organization/arrangement. The department/service area representatives would also validate their respective parts of the draft RCS to ensure a logical, consistent, easy to use, and unambiguous structure (i.e. it should be possible to classify a record in only one part of the RCS). The IM Program would administer a process for requesting, approving, and implementing revisions to the approved RCS to ensure its integrity over time.

5.2.2 Develop File Naming Conventions for Unstructured Electronic Records

It is recommended that the City develop electronic file naming conventions to be used by all departments/service areas. The development of corporate conventions would be significantly more efficient than continuing to expect individual departments/service areas to develop their own naming conventions despite the fact that they lack the expertise and time to do so.

The naming conventions would address such topics as the structure of a file name (i.e. the order of the elements in a file name such as 'recipient name - subject - date' when naming an electronic file containing a letter sent by the City), date format, permissible abbreviations (e.g. RPT for report), and version control.

The City-wide use of the naming conventions would create understandable, consistent, and predictable electronic file names and help employees to identify and track versions⁹. Using standardized electronic file naming conventions would improve retrieval speed and accuracy and facilitate the disposition of versions which are no longer required. Specifically, the development and consistent use of electronic file naming conventions would:

- Help employees easily identify the record(s) they are looking for.
- Enable employees to browse file names more effectively and efficiently.
- Help employees distinguish one electronic record from others on the same (a similar) topic.

⁹ This protocol is not required for files in Microsoft SharePoint or an enterprise content management (ECM) system because those systems provide automated version control provided a user uploads a revised file of the same name.

- Increase the likelihood that employees would be able to interpret file names without needing to open the files to confirm their purpose/contents or having to consult with the file creator.
- Make file naming easier because an employee who followed the conventions would not have to 're-think' the naming process each time s/he named a file.
- Allow sorting of documents in a logical sequence (e.g. by date).
- Eliminate the confusion and delays often experienced when attempting to distinguish between different versions of a draft document, between drafts and final/approved/published documents, and between final approved versions over time such as approved policy which has been superseded or revised.
- Reduce the likelihood that an obsolete version would be used or distributed.

The use of electronic file naming conventions would be particularly helpful in shared network drives because the current lack of standardized naming conventions often results in ad hoc file names which have little (or no) meaning to anyone other than the file creator.

Using the file naming conventions in conjunction with the RCS would bring greater precision to the organization of unstructured electronic records, particularly in the near-future until the City implements an enterprise content management (ECM) system (or similar technology) in which versioning is automated and a 'record type' can be captured in a filename via a drop-down box during the file saving process.

5.2.3 Develop Records Storage Location Lists

When conducting a records search, whether to find information for operational purposes, to respond to a FOI request, or to assemble documents for a legal matter, it is often necessary to search multiple storage locations such as physical records in a central storage area, unstructured electronic records in a shared network drive, data in a structured system (core/enterprise system or line of business system), e-mail accounts, and microfilm/microfiche (where used). It is also possible that not all potential storage locations will be known depending on the type of records being sought and the tenure/experience of the employee who is searching for the records, further increasing the risk that the complete record (if it exists) will not be found.

To help overcome these challenges, it is recommended that each department/service area develop a list of the locations in which records are kept. These lists would be at the business function level and further subdivided by record series, subject, name, or other category as appropriate. The lists would also be date specific, for example listing the date ranges of physical records stored off-site versus those kept in a central file room at City Hall/another City facility.

5.2.4 Complete Records Clean-up Projects

The RIM Program would work with individual departments/service areas to plan records clean-up projects for physical records (in individual offices/at workstations, in central filing areas within departments/service areas, and in off-site storage) and unstructured electronic records (in

personal and shared network drives and e-mail accounts and on portable electronic storage media (e.g. CDs) where used). A cross-departmental team would plan and complete a records clean-up of the S: drive.

A records clean-up project in a department/service area would be planned and completed in phases by record format (physical or electronic) and storage location given the department/service area's priorities (e.g. the storage location that constitutes the largest volume of records, records of most frequent use, etc.). For example, a department/service area that relies heavily on a shared network drive may begin the clean-up there.

Below is a high-level list of the tasks that would be completed during a records clean-up project. Note: The tasks apply to physical and unstructured electronic records unless otherwise indicated.

- Delete 'ROT' (redundant, obsolete, or transitory) records.
- Review and disposition the contents of orphan folders on shared drives and orphaned personal drives (i.e. folders/drives of departed employees).
- Apply the Records Classification Scheme. For unstructured electronic records this would involve setting up the applicable parts of the Records Classification Scheme in a folder/sub-folder structure in personal and shared drives and in e-mail accounts.
- Apply the file naming conventions to unstructured electronic records.
- Apply the Records Retention Schedule. For physical records this would include transferring records to off-site storage if/as applicable.
- Move from personal to shared drives any files of interest/benefit to other employees or any file types which the department/service area has decided to store centrally going forward.

Employees would be trained to complete these tasks and the Information Management and Archives Coordinator (and the Records Assistant for inactive physical records) would be available as resources to answer questions during the clean-ups.

Completing the clean-ups would provide several benefits:

- a) Improve the organization/classification of records.
- b) Eliminate a sizeable volume of valueless information or 'ROT'.
- c) Reduce the time required to locate records because there would be a smaller volume to search.
- d) Eliminate (or significantly decrease) records storage space constraints.
- e) Achieve a higher rate of Records Retention Schedule compliance.

Apart from these immediate efficiency and risk mitigation benefits, unstructured electronic records clean-ups would also reduce the amount of time required to run (or restore) back-ups and support the future implementation of an ECM system (or similar technology) by introducing order and standardization.

Note:

1. A records clean-up project would require significantly more effort than the existing Records and Information Slimming Days which are voluntary and last for only 1 day.
2. An organization typically sets up new personal and shared drives for a records clean-up project, with employees moving to the new drives only those records that require continued retention and then classifying those records using the RCS. After a records clean-up is complete, the feasibility of applying the RCS to the old drives (or some subset thereof) is assessed. Regardless, the records remaining in the old drives would be deleted when appropriate as per the Records Retention Schedule.
3. The City may find it advantageous to use file analysis and de-duplication software during the unstructured electronic records clean-up projects (e.g. FileFacets, ActiveNavigation, etc.).

5.3 Collaboration and Sharing

The IM Assessment Report makes several observations about document collaboration and the sharing of unstructured electronic records. The observations address the following topics:

- Use of e-mail attachments for document collaboration and sharing.
- Alternative methods of document collaboration and sharing used by City employees.
- Challenges of sending (and receiving) large attachments via e-mail.
- Use of cloud-based file storage or sharing applications (e.g. Dropbox, 2big4email, etc.).

As described below, several objectives must be met to achieve the goal of improving document collaboration and sharing.

5.3.1 Promote Approved Methods for Internal Document Sharing and Collaboration

It is recommended that the City promote approved methods for sharing documents internally and recommend the most appropriate use of each method given the audience and a document's confidentiality. Examples of methods for sharing documents internally include distributing a document as an e-mail attachment, storing a document in a shared drive, and posting a document on 360. The City would also determine whether cloud-based file storage or sharing applications may continue to be used to share documents internally and if yes, standardize the use of such software by authorizing the use of one such application and a back-up application.

It is also recommended that the City promote O365 as the approved method for internal document collaboration. However, until O365 is fully deployed, the City would promote alternative, interim methods for internal document collaboration such as:

- If the document is not a Council report: Send a hyperlink to a document in a folder on the T: drive which is accessible to all of the document collaborators. If that is not possible:

- Send a hyperlink to the document in a folder on the S: drive (only if the document is not confidential), or
 - Send the document as an e-mail attachment to all of the document collaborators.
- If the document is a Council report: Use eScribe.

Employees would be reminded that the Computer and Technology Acceptable Use Policy prohibits the use of personal web-based e-mail systems to distribute corporate or business-related files and also prohibits the saving of any attachment received via web-based e-mail to a corporate computer (PC or network drive).

Note: The promotion of alternative, interim methods for internal document collaboration would also include instructing employees in setting up a hyperlink. Given the discussion at several focus groups, the ability to set up a hyperlink to a document in a shared drive is not a commonly known skill.

5.3.2 Promote Approved Methods for External Document Sharing and Collaboration

It is recommended that the City promote approved methods for sharing and collaborating on documents externally and recommend the most appropriate use of each method. Examples of methods for sharing and collaborating on documents externally include e-mail attachments, .zip files, the City's FTP site (provided network security settings at the external party's end do not prohibit access to the site), an external party's FTP or Microsoft SharePoint site (provided the City's network allows access), or a cloud-based file sharing application. The City would also specify if/when encryption is required. Regarding cloud-based file sharing applications, it is further recommended that the City standardize the use of such software by authorizing the use of one such application and a back-up application. It is also recommended that the City specify if/when documents may be shared externally via USB/CD or other portable electronic storage media.

Employees would be reminded that the Computer and Technology Acceptable Use Policy prohibits the use of personal web-based e-mail systems to distribute corporate or business-related files and also prohibits the saving of any attachment received via web-based e-mail to a corporate computer (PC or network drive).

Note: The promotion of approved methods for external document sharing and collaboration would also include instructing employees in using the City's FTP site. Given the discussion at several focus groups, very few employees are aware of or know how to use the FTP site.

5.3.3 Keep Large Attachments in E-mail System

Several focus group participants and IM Survey respondents often receive very large e-mail attachments (e.g. drawings, photos, videos), primarily from external parties such as consultants and taxpayers. Because of mailbox size limits in on-premise Microsoft Exchange, an employee who receives many large e-mail attachments will:

- Save the attachment¹⁰ to network storage and then delete the message (including its attachment(s), and/or
- Periodically create a .pst file.

Saving the attachment to network storage is problematic because it breaks the attachment's audit trail by separating the attachment from the e-mail message with which it was transmitted, raising the potential that the attachment's authenticity may be questioned in the future. Similarly, saving an e-mail message to network storage creates the potential that the message may be inadvertently or deliberately altered. The creation of .pst files creates yet more unstructured electronic files that need to be managed. For these reasons, it is recommended that the City instruct employees to keep large e-mail attachments and the e-mail messages with which they were transmitted in the e-mail system when O365 is deployed given the significantly larger mailbox size limits in that software.

Note:

1. The recommendation to keep large attachments in the e-mail system in the future is contrary to the current Electronic Records and E-mail Management training course which instructs employees to save business e-mails on the appropriate drive or print physical copies for filing.
2. The Manager, IT Infrastructure and Operations advised that .pst files will not be used in O365.
3. As stated under Objective # 5.4.6, "e-mail is a communication vehicle, not a records filing system"; however, in the absence of an EDRMS it is preferable to keep in the e-mail system both the message and its attachment(s) rather than storing them in uncontrolled network drives or moving only the attachment(s) to network storage.

5.4 Storage

The IM Assessment Report makes several observations about the storage of physical records and unstructured electronic records (including e-mail). It also discusses data archiving. As described below, a few objectives must be met to achieve the goal of improving records storage.

5.4.1 Promote Records Retention Schedule Compliance to Help Alleviate Active Physical Records Storage Space Constraints

Insufficient physical records storage space is not a significant challenge for IM Survey respondents and only a handful of focus group participants experience space constraints for storing active physical records at City Hall or other facilities. Some of those focus group participants said that file room space had to be reduced to construct new office space. While storage space for active physical records is generally sufficient, it is recommended that the City promote Records Retention Schedule compliance as one way to help alleviate any such storage space constraints that may arise. Regular (at least annual) review of active physical records

¹⁰ Sometimes the attachment is converted to Adobe Acrobat PDF format before saving.

and the prompt transfer of inactive physical records to off-site storage (as per the Records Retention Schedule) will help contain the size of most physical records collections in departments/service areas.

5.4.2 Educate Employees on Off-site Physical Records Retrieval Schedule

Many records focus group participants and a few IM Survey respondents complained that it often takes 1-2 weeks to retrieve records from off-site storage, citing their understanding that the Records Assistant only submits retrieval requests to the commercial record centre once per week on Wednesday for delivery/pickup the following Thursday (i.e. just over a week later). They also noted that an additional delay occurs in transporting the retrieved records from the Records Room at City Hall to the requester's location (except for the three City locations serviced directly by the commercial record centre). However, the Manager, Records and Information confirmed that while the Records Assistant generally places retrieval orders on Wednesdays for delivery on Thursdays (i.e. the next business day), the Records Assistant will submit a retrieval request for next business day delivery upon request provided the request is received by 12 noon. Further, while a slight delay is incurred to deliver retrieved records to the requesting department/service area or for the department/service area to collect them, that delay does not result in a retrieval taking 1-2 weeks.

Therefore, it is recommended that the City educate employees about the schedule for retrieving physical records from off-site storage to correct the misunderstanding and hopefully increase off-site records storage use.

Note: Same day retrieval is possible provided a department/service area agrees to pay the additional fees.

5.4.3 Provide Departments/Service Areas with Read-Only Access to Commercial Record Centre Database

To increase the integrity of the information entered, use of the commercial record centre's database is restricted to the Records Assistant and the Information Management and Archives Coordinator. Each department/service area is expected to keep a copy of the physical transmittals it completes when transferring records to off-site storage and to refer to the transmittals when e-mailing a records retrieval request to the Records Assistant. Each department/service area is also expected to update their transmittals to reflect the records which have been destroyed.

It is recommended that the City provide a designated employee (and a back-up) in each department/service area with read-only access to the commercial record centre database to eliminate the need to retain, reference, and update the physical transmittals. The provision of read-only database access would also allow departments/service areas to more easily prepare retrieval requests because they could search for keywords instead of having to flip through physical transmittals and they would also be able to easily identify records which have been destroyed.

5.4.4 Promote Purposes of Unstructured Electronic Records Storage Locations

The City has, and will continue to create/receive and accumulate, a considerable volume of unstructured electronic records. At present, those records are kept in several locations (H:, S:, and T: network drives, e-mail accounts, 360, public websites, and social media channels) and there is no common understanding of the type of information to be kept in each location, particularly what to keep on the different network drives. O365 implementation has the potential of increasing the storage locations (e.g. Microsoft Team, SharePoint, and Yammer).

It is recommended that the City determine and promote the purpose of each location in which unstructured electronic records are stored so employees will understand what information is to be kept in each location and what they would, therefore, expect to be able to access from each location. Specifying the purpose of each unstructured electronic records storage location will also likely reduce duplication across the locations, thus reducing overall storage volume and the confusion that invariably results when multiple copies of information are found.

5.4.5 Promote Records Retention Schedule Compliance to Help Manage Unstructured Electronic Records Growth

The City's unstructured electronic storage volume is growing at a high rate and the City is using more storage than anticipated according to the City's original lifecycle planning. As a result, IT has had to accelerate the lifecycle replacement plan despite recent expansions in storage capacity. There is currently 8.7 TB of electronic files in the H:, S:, and T: drives and the estimated overall annual growth rate on file services is 500 GB per year.

It is recommended that the City promote Records Retention Schedule compliance as one way to help manage the growth of unstructured electronic records. Regular (at least annual) review of those records and the prompt deletion of records that have met their retention requirements will help contain the overall growth in unstructured electronic records volume.

5.4.6 Provide Modest Mailbox Size Limit Increase in O365

In the current on-premise Microsoft Exchange environment, mailbox sizes are limited to manage disk space. Many employees, particularly employees who often receive large attachments (e.g. videos, photos, etc.), regularly exceed their mailbox size quota and are prevented from sending or receiving messages until they have taken steps to reduce the size of their mailboxes. This results in ad hoc, arbitrary, and often frantic activity to identify e-mails to be deleted (e.g. oldest messages, messages with large attachments, etc.). While employees will be overjoyed by the increased mailbox size limit in O365, any significant mailbox size increase must be accompanied by the application of retention rules to prevent the continued indefinite and uncontrolled accumulation of e-mails.

It is recommended that the City seriously reconsider adopting the O365 default of 100 GB mailboxes and instead provide a modest increase in mailbox size limit (e.g. 5-10 GB) given that e-mail is a communication vehicle, not a records filing system.

Note: O365 allows administrators to reduce mailbox size per user or globally.

5.4.7 Increase RIM Program Participation in Records and Information Slimming Days

The RIM Program provides resources (a Planning Handbook and a Participant Handbook) to assist departments/service areas to plan and carry out Records and Information Slimming Days (Slimming Days) and also provides on call advice/consultation on a Slimming Day upon advance request from the department/service area. A department/service area is responsible for all Slimming Day planning, i.e. distribute the Slimming Day Participant Handbook to employees, schedule the drop-off and collection of large shredding bins, ask ITS to report the department/ service area's network drive and e-mail box sizes before and after Slimming Day, arrange for the RIM Program to provide on call advice/consultation on Slimming Day, and set Slimming Day goals for individuals (e.g. "I will reduce the number of folders in my H: drive from 100 to 60") or teams (e.g. "We will destroy 10 linear feet of paper records").

It is recommended that the RIM Program become a more active participant in the Slimming Days by scheduling 2-3 Slimming Days each year (each department/service area would participate in a minimum of 1 Slimming Day per year), preparing and distributing Slimming Day promotional materials (e.g. e-mail blasts, posters, a brief webinar on what to do on Slimming Day, etc.), and assisting departments/service areas to plan Slimming Days by co-ordinating the drop-off and collection of shredding pins and the provision of reports from ITS.

5.4.8 Implement Data Archiving Solution

The City's data storage volumes on network (personal and shared) drives are expanding more rapidly than anticipated, shortening planned lifecycles for core storage technologies.

While acknowledging that this is a temporary workaround and not a solution for improved file management practices, it is recommended that the City explore implementing an automated, time-based Data Archiving solution on network drives to help IT meet the lifecycle targets. Such a solution (implemented by municipalities such as Newmarket) automatically moves files not accessed in a defined period (e.g. 2 years) from the primary storage to an archive solution. To the user there is no difference, the file appears to be available - but is actually stored somewhere else (on cheaper storage).

5.5 Security

The IM Assessment Report makes a few observations about the security of physical records and unstructured electronic records. The observations address the following topics:

- Use of e-mail attachments for document collaboration and sharing.
- Alternative methods of document collaboration and sharing used by City employees.
- Challenges of sending (and receiving) large attachments via e-mail.
- Use of cloud-based file storage or sharing applications (e.g. Dropbox, 2big4email, etc.).

As described below, several objectives must be met to achieve the goal of improving information security.

5.5.1 Review City Policies to Ensure Consistent Approach to Information Security

The Information Technology Security Policy prohibits the transmission of confidential or personal information via e-mail without required security; however, the policy does not provide direction on what the required security constitutes. While the policy states (p. 2) “All employees on terminating employment must return all City-owned IT property in their possession”, the policy does not state what is to be done with the data/information/records on the devices.

The Mobile Device and BYOD Policy requires sensitive, confidential, or private¹¹ data files stored on a corporate mobile device to be encrypted and for confidential documents transferred/sent from a mobile device to be password protected.

Three additional City policies address confidential information: The Code of Conduct, Corporate Communications Policy, and Protection of Privacy and Confidentiality of Information Policy.

It is recommended that the City review these policies to ensure a consistent approach to information security. As part of this review, the Information Technology Security Policy would be revised to provide high-level direction on the security required for the transmission of confidential or personal information.

5.5.2 Include IM Requirements in Employee Offboarding Process

The Information Technology Security Policy states that all employees who are terminating their employment with the City must return all City-owned IT property in their possession (e.g. a laptop); however, the policy does not state what is to be done with the data/information/records on that property. No evidence was found that the RIM Program or any department/service area includes IM requirements in the employee offboarding process. Instead, focus group discussions revealed ad hoc and undocumented practices such as copying - as is - the personal drive of the terminating/transferring employee to a shared network drive or making a .pst file of the employee’s mailbox for storage on a network drive, safekeeping by the employee’s supervisor/manager, or transfer to the employee’s successor (if any). Because the records remain in whatever structure/classification the employee used and because retention rules may not have been applied, it is very likely that anyone who attempts to search for a record will have difficulty.

It is recommended that the City document the IM requirements to be completed by management and by the employee during the employee offboarding process.

An employee, under the direction of his/her manager or supervisor, would be required to appropriately action the physical and unstructured electronic records (including e-mail) in his/her custody prior to his/her departure from the City or transfer to another department/service area. The employee would complete, and certify his/her completion of, tasks such as identifying records to be deleted/destroyed, moved into storage, transferred to another employee, or set

¹¹ The policy does not define ‘private’ data files.

aside for a successor. The implementation of this recommendation would ensure that the employee's successor (if any) inherited only the records that were truly required and that records which had not met their retention requirements were kept.

The employee's manager or supervisor would be required to ensure the employee completed the IM offboarding tasks or, in the event of a sudden or involuntary departure, either complete the tasks personally or arrange for another employee to complete them. The manager or supervisor would also notify ITS of the employee's termination/transfer so access rights/privileges would be revised or deleted as applicable. The manager or supervisor would also be required to certify completion of the IM offboarding tasks.

5.5.3 Establish Data and Information Security Classification Scheme

For various purposes, including for information security, open data, privilege management, and MFIPPA, the City requires a consistent Data and Information Security Classification Scheme. Working with a multidisciplinary team of IM, IT and data staff, the City should establish a consistent Data and Information Security Classification Scheme that would be applied to all City data/information/records.

A couple of samples for the City's consideration as a basis for developing its own Data and Information Security Classification Scheme are provided:

- <https://www.usask.ca/avp-ict/documents/Data%20Classification%20Summary.pdf>
- [http://imtdocs.alberta.ca/Data-and-Information-Security-Classification-Standard\(1\).pdf](http://imtdocs.alberta.ca/Data-and-Information-Security-Classification-Standard(1).pdf)

Note: As discussed in the IM Assessment Report, a level of sensitivity (low, medium, or high) is assigned to each record series in the current Records Retention Schedule. The sensitivity levels indicate the level of confidentiality that generally applies to the records in a series. they also indicate how the record series is to be handled from a FOI request perspective (i.e. series classified as low sensitivity are generally considered to be public and a formal FOI request is not generally required to access these records, series classified as medium likely contain information exempt from public disclosure under MFIPPA so a formal FOI request is required to access these records, and series classified as high sensitivity are considered confidential for internal business purposes, legal protection, or legislative compliance so a formal FOI request is required to access these records). When developing the Data and Information Security Classification Scheme the City may wish to factor in FOI access requirements.

5.5.4 Develop Procedures to Operationalize Information Security Policy Requirements

It is recommended that the City develop procedures for department/service area employees to enable them to operationalize the information security requirements in City policies. For example, provide a procedure on how to encrypt a file.

Note: Some of the procedures would be used to develop the training to be provided under Objective # 5.6.7.

5.6 Freedom of Information and Privacy

The IM Assessment Report makes several observations about the sensitivity of information categories in the existing Records Retention Schedule, the City's handling of FOI requests, and the City's privacy practices. As described below, a few objectives must be met to achieve the goal of improving access to information and privacy.

5.6.1 Establish Formal Network of Department/Service Area FOI Liaisons

After the Access and Privacy Coordinator determines it is appropriate to respond to a formal FOI request, the Coordinator prepares a FOI request search memo for response within five business days by the department(s)/service area(s) with custody or control of the requested records¹². Unlike many other municipalities, the City has not established a formal network of FOI Liaisons with responsibility for coordinating and reporting on FOI records searches within each department/ service area. Currently, the Access and Privacy Coordinator sends the FOI request search memos to Directors for action with the exception of Building and By-law for which search request memos are sent to the Customer Service Representatives. This means the Coordinator usually does not know to whom a search request memo has been assigned and often receives multiple submissions of records for one FOI request over several days instead of one consolidated package.

It is recommended that the City establish a formal network of department/service area FOI Liaisons (one liaison and one back up for each department/service area) to whom the Access and Privacy Coordinator will send FOI request search memos. A Liaison would be responsible for searching for responsive records or co-ordinating the search by other staff in the department/service area. The FOI Liaison would also submit one consolidated package of responsive records to the Access and Information Coordinator, ending the current practice whereby a department/service area may make multiple submissions for one FOI request.

5.6.2 Require Departments/Service Areas to Certify FOI Request Searches

The individual to whom the Access and Privacy Coordinator sends a FOI request search memo is asked to provide the following information:

- The names and positions of the staff that conducted the search.
- Locations searched for the records provided (e.g. paper files, off-site storage, database (the database is to be specified), electronic files, network shared folders, e-mail, cell phones, microfiche, personal devices/accounts, etc.).
- The total amount of search time it took to find the records so that a charge back fee can be determined.

That individual is also asked to advise if s/he is aware of any legal action or activities that require an exemption under MFIPPA, if any responsive records once existed but were destroyed or have gone missing, or if the department/service area does not have any responsive records.

¹² The search request memo specifies the location and date range of the records which are related to the request.

This information is typically provided via e-mail. Unlike many other Ontario municipalities, a department/service area is not required to sign off or attest to the accuracy or thoroughness of a search or the amount of search time.

It is recommended that the City develop a FOI Request Search Form to capture the particulars of a search and certify the search. This would formalize the search process and underscore the responsibility of a department/service area for completing a thorough search and providing the Access and Privacy Coordinator with the information needed to process the FOI request and the necessary evidence in the case of an appeal to the IPC.

5.6.3 Capture Routine Disclosure Statistics

The City strives to make as much information as possible available via routine disclosure instead of the formal FOI request process. Routine disclosures are handled by individual departments/ service areas. The RIM Program does not track routine disclosures and the City Clerk is not required to annually report routine disclosure volume to the IPC. One focus group participant reported 900 routine disclosures in 2018.

It is recommended that the City begin capturing annual routine disclosure statistics at the department/service area level. This will enable the Access and Privacy Coordinator to monitor routine disclosure activity, potentially highlighting department/service areas where additional training is required to increase the volume of routine disclosure. Capturing these statistics will also enable Directors to assess the staffing implications of routine disclosure and plan accordingly.

Note: Work on Objective # 5.6.3 should be aligned with work on Objective # 6.10.2 to establish Open Data Program performance metrics.

5.6.4 Ensure (Sufficient) Notices for Personal Information Collection

The Protection of Privacy and Confidentiality of Information Policy requires the City to communicate a notice of collection¹³ to the public whenever personal information is collected (i.e. how and why the personal information is collected, used and disclosed, and under what authority and to provide contact information for questions). The Access and Privacy Coordinator is aware that many City forms do not have (sufficient) notices of collection.

It is recommended that the City review all of the forms used to collect personal information to ensure the provision of (sufficient) notices of collection, a MFIPPA requirement.

Note: Work on Objective # 5.6.4 should be aligned with work on Objective # 6.6.2 to establish a new customer consent model for data.

¹³ S. 29(2) of the Municipal Freedom of Information and Protection of Privacy Act (R.S.O. 1990, c. M.56) requires the City to inform the information to whom the personal information relates as follows: the legal authority for collecting the personal information, the principal purpose(s) for which the personal information is intended to be used, and the title, business address, and business phone number of an office or employee of the City who can answer the individual's questions about the collection.

5.6.5 Mandate RIM Participation in Privacy Impact Assessments

The Protection of Privacy and Confidentiality of Information Policy requires the City to conduct privacy impact assessments to ensure information protection requirements are embedded in the design of all City programs, processes, projects and technology for personal information. Currently, a department/project is expected to complete and submit a Preliminary Analysis Questionnaire before implementing a new program/system or significantly changing a program/system that requires the collection, use, or disclosure of personal information. The Access and Privacy Coordinator reviews the Preliminary Analysis Questionnaire to determine whether a PIA is required. If a PIA is required, the department/project is responsible for providing resources (own staff or consultants) to complete the PIA. The Access and Privacy Coordinator drafted A Guide to Privacy Impact Assessments¹⁴ which outlines when a PIA is required and describes the steps that must be taken to successfully complete a PIA and high-level information about PIAs is provided in the Access to Information and Privacy Protection training course.

The Access and Privacy Coordinator advised that the PIA process is not consistently used. For example, the Coordinator is rarely asked to assist with a PIA, is aware of one significant enterprise system upgrade that was implemented without consideration of its privacy impacts and is aware of two other significant enterprise system upgrades for which a PIA was completed after the City had purchased the software. Further, the RIM Program is not aware of the projects being worked on so that the Access and Privacy Coordinator can get involved in the process.

It is recommended that the Protection of Privacy and Confidentiality of Information Policy be revised to require the Access and Privacy Coordinator's participation in privacy impact assessments as follows: be advised of new programs/systems or significant changes to programs/systems requiring the collection, use, or disclosure of personal information; consulted during the completion of a PIA if/as applicable; and required to review and give feedback on PIAs completed by the department/project. It is also recommended that the City communicate these requirements and incorporate them in the Guide to Privacy Impact Assessments and the Access to Information and Privacy Protection training course.

Note: The Access and Privacy Coordinator is already working on a corporate procedure and communication to inform employees that completion of the Preliminary Analysis Questionnaire is required and that the Access and Privacy Coordinator is to be involved in that process.

5.6.6 Enforce City Requirement for Mandatory Privacy Training

The Protection of Privacy and Confidentiality of Information Policy states that privacy training is mandatory for all City staff, members of Council, and volunteers that handle personal information; however, not all employees, Councillors, or volunteers have completed the training.

It is recommended that the City develop a plan to ensure all current employees, Councillors, and volunteers complete the training within the next 12 months and develop a plan to ensure all

¹⁴ Management approval of the Guide was pending as of the writing of this report.

new employees, Councillors, and volunteers complete the training within 30 days of their employment/Council term/becoming a volunteer. Given the number of employees to be trained (i.e. the backlog) and the need to provide the training on an ongoing basis thereafter, online training is recommended instead of the in-classroom training historically provided by the RIM Program.

Note: The Manager, Records and Information advised that the 2019 Access and Privacy Work Plan includes the development of online privacy training.

5.6.7 Educate Employees on Confidential Mail and Encryption

The Computer and Technology Acceptable Use Policy requires “sensitive” personal and confidential business information intended for recipients outside the City to be sent through conventional means such as confidential mail or e-mail encrypted using approved ITS security software; however, the policy does not explain what confidential mail is or how to encrypt e-mail. None of the focus group participants or IM Survey respondents mentioned confidential mail or e-mail encryption.

It is recommended that the City define ‘confidential mail’ and educate employees on its use. It is also recommended that the City provide training in the use of encrypted e-mail. These actions would help support the City’s protection of personal information and help protect its confidential information.

Note: The training would be based on the procedures to be developed as part of implementing Objective # 5.5.4.

5.6.8 Ensure Consistent Privacy Breach Reporting Instructions

The Computer and Technology Acceptable Use Policy requires employees to report breaches of privacy or unauthorized disclosure to the Director of Information Technology Services and the Executive Director of Human Resources; however, that direction is not in sync with the Protection of Privacy and Confidentiality of Information Policy which requires complaints and suspected breaches regarding the inappropriate or unauthorized collection, retention, use, disclosure or disposition of information not in accordance with MFIPPA or corporate policies to be reported to the employee’s Supervisor and the Records and Information Coordinator (the position title has changed to Access and Privacy Coordinator).

It is recommended that the City ensure the privacy breach reporting instructions are consistent in the Computer and Technology Acceptable Use Policy and the Protection of Privacy and Confidentiality of Information Policy.

5.6.9 Develop Personal Information Bank Index

S. 34(1) of MFIPPA requires the City to develop, keep current, and make available for public inspection an index of all personal information banks in its custody or control. The following information is to be provided for each personal information bank: name and location; legal authority for its establishment; types of personal information maintained in it; how the personal

information is used on a regular basis; to whom the personal information is disclosed on a regular basis; the categories of individuals about whom personal information is maintained; and the policies and practices applicable to the retention and disposal of the personal information. The City does not have a Personal Information Bank Index.

It is recommended that the City develop a Personal Information Bank Index and publish the Index on the City's public website.

5.7 Business Continuity

The IM Assessment Report makes a few observations vital records and the backup and recovery of electronically stored information. As described below, a few objectives must be met to achieve the goal of improving business continuity.

5.7.1 Identify and Protect Vital Records

'Vital records' are essential to the continuation or resumption of City business in the event of a disaster. They will allow the City to fulfill its obligations to taxpayers, employees, other levels of government, and outside interested parties. Because the informational value of vital records is so great and the consequences of their loss, damage or inaccessibility so severe, special protection is justified. Consequently, vital records must be identified and appropriately protected to ensure their availability to resume operations during and after a disaster, enable the City to continue complying with legislated/regulatory obligations, and ensure accountability to the public, employees, business partners, and other stakeholders.

The City has not identified its vital records; therefore, the City's vital records may not be protected with the exception of vital records in electronic format which are already being backed up as part of the business continuity service provided by ITS.

It is recommended that the City identify its physical vital records and implement appropriate protection methods (e.g. fire-resistant file cabinets). It is also recommended that the City identify its electronic vital records and confirm their appropriate protection, with protection being implemented or enhanced to resolve any protection gaps which may be identified.

5.7.2 Develop Physical Records Disaster Recovery Plan

The City does not have a disaster recovery plan for physical records. Part of an organization's overall disaster recovery planning, a disaster recovery plan for records would document the actions to be taken to recover damaged or threatened records immediately following a disaster (e.g. measures to be taken in an attempt to rehabilitate records damaged by water).

It is recommended that the City develop a Disaster Recovery Plan for Physical Records. It is also recommended that the City test the Recovery Plan once per year.

5.8 Retention and Disposition

The IM Assessment Report makes several observations about the Records Retention Schedule, records retention challenges, and records disposition. As described below, several objectives must be met to achieve the goal of improving the retention and disposition of records.

5.8.1 Use Same Structure in Records Classification Scheme and Records Retention Schedule

As stated in Section 5.2, the City's Uniform File Plan is a block-numeric structure in which records are classified under 6 main subjects. Conversely, the City's Records Retention Schedule groups records under 17 (business) functions. Where applicable, UFP codes have been mapped to individual series in the Records Retention Schedule; however, no UFP codes are listed for many of the record series in the Records Retention Schedule. For these reasons, it can be a time-consuming exercise to determine the entries in the Records Retention Schedule that apply to an employee's work.

It is IM best practice for an organization to present (organize) the records in its Records Classification Scheme and its Records Retention Schedule in the same way so employees need to learn only one structure. Many organizations embed retention periods into their Records Classification Scheme so employees need to reference only one document to determine both the classification and retention period of a record. Therefore, it is recommended that the records in the Records Retention Schedule be organized in the same way as the Records Classification Scheme (see Objective # 5.2.1 for information about the Records Classification Scheme that would replace the Uniform File Plan).

Note: Objective # 5.2.1 recommends the development of a function-based Records Classification Scheme and the current Records Retention Schedule groups records under (business) functions. It is, however, very likely that the function-based Records Classification Scheme will present records differently than the current Records Retention Schedule; therefore, it will be necessary to revise the Records Retention Schedule to match the function-based Records Classification Scheme.

5.8.2 Track Records Retention Requirements in Citation Table

Where applicable, an entry in the Records Retention Schedule includes citations to legislation, professional best practices, industry standards, corporate policies or other guidelines that apply to the record series and its retention requirements. The inclusion of citations within the body of the Records Retention Schedule adds yet more detail to a document which many users may already find overwhelming. Further, it has been our experience that most users do not need (or wish) to know the rationale for a retention period. They merely want to be told how long to keep records and trust in the accuracy/appropriateness of the retention periods they are asked to implement.

It is recommended that the City track citations in a separate Citation Table which would be appended to the Records Retention Schedule. Each citation would be uniquely numbered and cross-referenced to a record series in the Records Retention Schedule if/as applicable.

5.8.3 Track and Apply Appropriate Records Retention Requirements

It is IM best practice to cite in a Records Retention Schedule the legislation (statutes and regulations) which governs the retention of records; however, the City has broadened the scope of its Retention Schedule citations to include not only legislation but also professional best practices, industry standards, corporate policies, or other guidelines that apply to a record series and its retention requirements. The City's citations are unusual in several ways:

- Some citations are to Ontario government or Canadian federal government requirements or resources which do apply to the City's records (e.g. the General Correspondence series cites the Canadian federal government's Retention Guidelines for Common Administrative Records).
- Some citations are to books (e.g. the Project Management series cites a book called Practical Guide to Project Management Documentation) or other published items (e.g. the WSIB Reporting and Employee Medical Records series cites the WSIB Ontario Operational Policy Manual regarding cancers in firefighters and fire investigators).
- Some citations are to City documents which presumably refer to the records in question but which are unlikely to specify retention requirements (e.g. the By-law Enforcement series cites various City by-laws such as noise and drainage).
- Guidelines provide suggestions, advice, or recommendations and not requirements; therefore, it is curious to cite a guideline as the basis for a retention period (e.g. the Fire Voice Recording System series cites the Public Fire Safety Guidelines issued by the Ministry of Community Safety and Correctional Services).

It is recommended that the City restrict its citations in the future to the applicable Canadian federal and Ontario legislation (statutes and regulations) and any City policies which contain records retention requirements.

5.8.4 Provide Hyperlinked Records Retention Schedule

The Records Retention schedule currently contains a table of contents and two appendices (Records Retention Summary and Corporate Records and Service Portfolio). The table of contents and the appendices are not hyperlinked, requiring the reader to scroll from the table of contents or an appendix to the applicable page in the Records Retention Schedule or use the 'find' command to locate the entry in the Records Retention Schedule which matches an item in the table of contents or an appendix.

It is recommended that the City provide hyperlinked appendices should the Records Retention Schedule continue to contain appendices in the future.

5.8.5 Train Employees in Records Retention

Employee awareness of the Records Retention Schedule is high (it was mentioned at 70% of the focus groups and 83% of IM Survey respondents are aware of it). When asked to rank their top 3 challenges in managing records, 28.5% of IM Survey respondents ranked knowing how long to keep electronic records as their # 1 challenge in managing unstructured electronic records while 21.5% ranked knowing how long to keep e-mails as their # 1 challenge in

managing e-mails. Focus group discussions revealed that many employees are challenged in knowing which e-mails to keep and where best to store them (i.e. in the e-mail system, on a network drive, or print and file a physical copy). 44% of IM Survey respondents disagree or strongly disagree that they received adequate training in how to use the Records Retention Schedule.

It is recommended that records retention training be mandatory for all employees and that the training emphasize the retention of unstructured electronic records and e-mails.

5.8.6 Develop Digital Preservation Plan

An ever-increasing volume of the City's records are in electronic format (unstructured electronic records and structured data) and there is interest in converting physical records to digital format. However, in the absence of proactive digital continuity measures, many of the City's electronic records and data are (or will be with the passage of time) at significant risk of becoming inaccessible due to software, hardware, and/or storage media obsolescence, and data corruption. This means the records and data will either cease to exist or the City will be unable to access and use them. The need for digital continuity is particularly acute for archival records to ensure the corporate memory is preserved; however, digital continuity is also required to safeguard non-archival records with long-term retention periods (decades) to ensure the records will be available to staff when needed and to comply with the Records Retention Schedule.

The National Archives (United Kingdom) describes digital continuity as follows¹⁵: "Digital continuity is the ability to use digital information in the way that you need, for as long as you need. If you do not actively work to ensure digital continuity, your information can easily become unusable. Digital continuity is about making sure that your information is complete, available and therefore usable for your business needs. Your information is usable if you can: a) find it when you need it, b) open it as you need it, c) work with it in the way you need to, d) understand what it is and what it is about, and e) trust that it is what it says it is."

It is recommended that the City develop a Digital Preservation Plan to provide digital continuity for unstructured electronic records and structured data. The Digital Preservation Plan would identify preservation options, costs, and requirements for complying with The Accessibility for Ontarians with Disabilities Act (AODA).

5.8.7 Recognize Voice Mail Messages may be Official Records

The Electronic Records and E-mail Management training course states that voice mail messages are **transitory records** which should be purged; however, no qualification is given to guide employees in keeping or transcribing a record of substantive voice mail messages such as a voice mail giving authorization to proceed with an expenditure.

¹⁵ The National Archives (United Kingdom) <http://www.nationalarchives.gov.uk/information-management/manage-information/policy-process/digital-continuity/what-is-digital-continuity/>

It is recommended that RIM Program training recognize that voice mail messages may be official records and educate employees to manage official record voice mail messages accordingly.

5.8.8 Promote Correct IM Use of Shredding Bins and Recycling Bins

Shredding consoles are provided throughout City Hall and at other City facilities with the expectation that they be used to securely destroy small quantities of records or confidential information (e.g. a surplus copy of a confidential report). Recycling bins are also provided with the expectation that they will be used for the disposal of non-confidential papers. We did not note any signs informing employees of these expectations in any of the City Hall office areas visited during this study. The RIM Program does not monitor or audit use of the shredding consoles or recycling bins; however, the Records Retention Schedule provides the following reminder regarding the secure destruction of paper records (p. 7): "Papers in the blue and grey recycling bins on City property are not shredded. Think of the blue and grey bins as public areas, and do not put anything into those bins which contains personal, sensitive or otherwise confidential information."

It is recommended that the RIM Program post signage on the shredding bins and recycling bins to promote their correct use from an IM perspective.

5.8.9 Require Cross-cut or Particle Shredding of Physical Records

The Records Retention Schedule requires physical records to be destroyed by cross-cut or particle shredding. It is not known whether cross-cut or particle shredding is required under the City's contract with a shredding service (for physical records destroyed in bulk at City facilities) or its contract with the commercial record centre (for inactive physical records stored at that facility). It is also not known whether any shredders used by individual departments/service areas are cross-cut or particle shredders. While cross-cut or particle shredding is a policy requirement, it is curious that the Secure Destruction section of the Records Retention Schedule only presents cross-cut shredding as a recommendation to departments/service areas who are looking to purchase a shredder.

It is recommended that the City require cross-cut or particle shredding of physical records by any party (i.e. the shredding service, commercial record centre, and a department/service area that purchases a shredder).

5.8.10 Develop Destruction Hold Procedure and Keep Records of Destruction Holds

Annually in November, the Records Assistant runs a report for each department/service area listing the inactive physical records which are eligible for disposition. The department/service area Director is required to review the list and either authorize the disposition or identify records whose disposition should be deferred for one year in a special circumstance, i.e. a project is ongoing/not yet complete or because litigation, audit, or other legal action is pending (the City has received a statement of claim or other claim in writing). The City does not, however, have a procedure for invoking and rescinding a destruction hold for unstructured electronic records or

data or for active physical records. It is IM best practice for an organization to have such a procedure.

It is recommended that the City develop a procedure for invoking and rescinding a destruction hold in writing. The procedure would set out in detail the individuals to be engaged and the processes to be followed during the hold process: notification, preservation of the affected/responsive records, and revocation of the hold. This procedure would add to the defensibility of the City's RIM Program and minimize legal and business risk with respect to ensuring the preservation of records potentially subject to production. The destruction holds would be retained in case the City was called upon to justify its destruction hold process.

5.8.11 Schedule Retention Periods for Structured Data

The Records Retention Bylaw (By-law 5-2015) applies to both paper and electronic records; however, this Council-approved requirement is contradicted by the following qualification about structured data in the Records Retention Schedule (p. 5) which is appended to the By-law: "The records retention schedule applies equally to paper and electronic records, with the exception of records that exist in structured database systems." The IM Assessment Report also illustrates that a number of core systems (e.g. HR, Finance and Budget systems) have been in operation for 20+ years and have retained data from the date that use started (i.e. no data has ever been purged).

It is IM best practice to schedule retention periods for the data in a structured system and not schedule one retention period for the system (or database) as a whole. Because databases are complex, consisting of tables and data elements (or fields/values) which are often in motion moving from one application to another through batch exchanges or defined middleware, it is a challenging and time-consuming exercise to isolate records in a structured system and determine their retention. Often a record is comprised of multiple data elements, each of which may be stored in a separate table. The ability to apply retention periods also largely depends on a system's functionality, with many (particularly older systems) lacking the ability to apply retention periods and delete data (at a discrete level). Consequently, it is necessary to apply a variety of remediation strategies to implement retention periods (e.g. leverage a system's reporting functionality and generate reports to be kept as records, use purpose built archiving in an off the shelf application where available, etc.). And unlike paper and unstructured electronic records, IT assistance is usually required when attempting to schedule retention periods for structured information/data. Due to these factors, an organization typically prioritizes the scheduling of retention periods for its structured systems in terms of the importance, level of effort, and cost for each system and develops a phased approach for analyzing systems and scheduling retention periods for them.

It is recommended that the City develop a prioritized work plan for scheduling retention periods for the data in its structured systems.

Note: Given that the ERP project is expected to replace some of the existing core/enterprise systems in which 20+ years of data is now stored, the retention of the data in those systems

should be dealt with as part of the data migration to the ERP system. Thus, the ERP system may serve as the initial test case for the City's work in scheduling retention periods for the data in its structured systems.

5.8.12 Ensure New Structured Systems can Implement Retention Periods

Moving forward, the City should ensure that it assesses whether new solutions being purchased/developed can suitably implement retention periods and data deletion, and that projects configure those capabilities.

5.9 Archival Information and Artifacts

The IM Assessment Report makes several observations about the current state of the City's Archival Program from the perspective of three functions: appraisal, selection, and acquisition; preservation; and accessibility. As described below, several objectives must be met to achieve the goal of improving the management of the City's archival records and artifacts.

Establishing and maintaining an Archives Program requires a long-term commitment and is not to be undertaken lightly. Professional archival practice comprises a number of complex functions, each of which has an established body of agreed upon principles and processes, typically learned in a graduate program. As indicated in the IM Assessment Report, the City has made a start at preserving its archives, but far more is needed. Unless further action is taken, the risk of loss of the City's archival heritage and the resulting damage to the City's reputation is high.

Note: The recommendations below assume the City will expand its Archival Program to include the full range of records of archival value. However, the City may wish to consider depositing its archival records in an established archival institution that can provide the full range of archival facilities and services. Such a partnership would ensure the ongoing preservation of the City's documentary heritage in secure environmentally controlled premises, as well as fulfilling the functions required to make the materials accessible for use in accordance with professional principles, standards and practices. Should the City choose to consider that option, it is recommended that the City investigate and enter into discussions with established archival repositories that may be willing to preserve the City's archival records.

5.9.1 Revise Disposition Options in Records Retention Schedule to Include Archival Records

There is no "archives" designation in the Records Retention Schedule. Instead the **disposition** choices are "destroy" or "permanent" (i.e. retain until the City ceases to be a municipality) but the Archives Policy says the Archives does not acquire "permanent" records such as staff reports, Council minutes, by-laws, and final budgets. Yet it is precisely those records whose disposition is "permanent" that should be preserved in an archives because the "permanent" records meet the first three selection criteria in the Archives Policy (i.e. the record or object documents the history of the City and its predecessor municipalities, the record or object contains evidential and/or informational value, or the record or object has reached the end of its retention period as required under the Records Retention Schedule and has no residual

business value). The absence of an “archives” disposition in the Records Retention Schedule has also led to an alternate process whereby, according to the Archives Procedures, the record owner is to arrange a meeting with the Records and Information Coordinator [position title has been changed to Information Management and Archives Coordinator] for a preliminary discussion regarding the potential archive. This “meeting/discussion” process should apply only to records offered by private citizens, assuming the Archives collects such records.

A brief review of the Records Retention Schedule reveals that many records series that are potentially of archival value have been designated “destroy” (e.g. Events Coordination, Strategic Planning, Environmental and Energy Management, Policy and Procedure Retention, and Corporate Communications). While some of these series may not merit archival retention in their entirety, many should, at a minimum, be designated for selective retention. Furthermore, the Archives Policy (p. 2) explicitly excludes records of potential archival value (e.g. “Records or objects relating to employee activities and milestones” and “Records or objects documenting a specific project, study or report unless it can be proven that the project, study or report foundationally changed the Corporation of the City of Burlington’s organization or functions.”). Compared with other archives programs, the stated scope of the City’s Archives mandate is very narrow.

It is recommended that the “permanent” disposition option in the Records Retention Schedule be replaced by an “archival” option. It is also recommended that an “archival review” option be added to apply to those record series that need further review in order to identify the portion of material that is of archival value.

5.9.2 Identify Records of Archival Value in Records Retention Schedule

Archival appraisal is one of the most challenging of archival functions. Any assessment of archival value should be done by a professionally trained archivist, and all City records that possess archival value should be documented in the Records Retention Schedule. However, the Archives Policy (p. 5) says that “City of Burlington employees, Council and Committee members and volunteers are responsible for identifying records or objects with archival value and bringing them to the Archives for appraisal.” Any input from these stakeholders must be channeled through the RIM Program and documented, if/as applicable, in the Records Retention Schedule.

It is recommended that the Records Retention Schedule be reviewed and revised under the guidance of a professional archivist to ensure that all records of archival value in both physical and digital formats are identified. It is also recommended that the Archives Policy and the Records Retention Schedule be revised to make them internally consistent. During the Records Retention Schedule review, records currently designated as “permanent” would be changed to “archival” where applicable.

5.9.3 Exclude Archival and Archival Review Records from Records and Information Slimming Days

The Records and Information Slimming Day Participant Kit (p. 8) directs staff to “Set aside records, photos and objects that you believe may have historical or archival value, and contact the Records and Information Coordinator [position title since changed to Information Management and Archives Coordinator] to evaluate”. Removing such records from the files in which they have been stored and maintained destroys contextual information which is essential to fully understand archival records.

It is recommended that records series designated as “archival” or “archival review” be excluded from Records and Information Slimming Days to ensure contextual information is maintained and that the records will be kept until they can be accessioned into the archives (if “archival”) or reviewed by a professional archivist (if “archival review”).

5.9.4 Review Records Designated as Archival Review at Annual Records Disposition

It is recommended that, when disposing of records annually, a professional archivist be engaged to assist in appraising archival value of those series that are designated in the Records Retention Schedule as “archival review”.

5.9.5 Limit Archives Program to City Records

The Archives Policy provides for the acquisition of records from private citizens, although it also states that the City will not acquire records that fall within the acquisition mandates of other local institutions (i.e. Burlington Public Library, Burlington Historical Society, or the Museums of Burlington). However, the acquisition mandates of these institutions were not available from City staff, so it is not clear how staff would know whether a particular offering should be referred to another repository, and if so, which one.

It is recommended that the City Archives’ acquisition mandate be limited to records created/ received by the City and that material offered by private citizens be referred to Burlington Public Library.

5.9.6 Develop/Revise Archives Program Documents

It is recommended that Archives Program documents be developed/ revised, i.e.

- Extensively expand the appraisal guidelines for physical and digital formats so they are comprehensive and consistent to assist the City to appraise the archival value of records.
- Develop a policy, procedures, and forms for accessioning (and, where necessary, deaccessioning) records to gain control and document the provenance of new acquisitions and the disposition of material that no longer meets the acquisition mandate.

- Develop a policy and procedures on archival arrangement and description based on professional archival principles to ensure employees and citizens are aware of the City's archival assets.
- Revise the Archives Policy and Archives Procedures to fully address the ongoing preservation and usability of archival records in electronic formats.

5.9.7 *Revise Collaboration Agreement with Burlington Public Library*

Copies of some 269 items from the City's archival materials are made available by the Burlington Public Library (BPL), which digitizes the items and puts them on its website in accordance with a Collaboration Agreement with the City. One notable omission from the Agreement is the matter of copyright, i.e. are the items being copied protected by copyright (if so, copying requires the copyright owner's permission) and who will own the copyright in the digitized copies? If a claim of copyright infringement is made, who will bear the liability?

The BPL content includes many of the items listed in the City's rudimentary Archives Finding Aid. However, BPL recently changed its website so the City material is no longer easy to find. Nor is the Finding Aid available on the BPL site - users cannot browse the collection (although it can be searched). The agreement with BPL does not address how the City's archival material is to be presented.

It is recommended that the Collaboration Agreement with BPL be reviewed and revised to address the matter of copyright and to ensure that the City's archival material is easily available on BPL's website.

5.9.8 *Provide Reference Copies of Archival Materials*

It is recommended that (digital) reference copies be made of the archival material (minutes, by-laws, etc.) currently stored in the Records Room and that the copies be made available to researchers. It is also recommended that the original physical records from which the reference copies would be made be moved off-site to the commercial record centre, thus reducing the handling of unique and irreplaceable records and providing for their secure storage in an environmentally-controlled environment.

5.9.9 *Provide Suitably Equipped and Secure Archival Program Space*

According to the Archives Procedures, the Records Room at City Hall serves as the location where City staff and members of the public may consult archival records. The risk of physical loss or damage to the archival material in the Records Room is high. City staff sometimes have unsupervised access to the Records Room (the door to the Records Room is not locked when the Access and Privacy Coordinator and the Information Management and Archives Coordinator are absent or working in another part of the building such as when attending a meeting). Signs caution visitors not to remove records and to contact records staff for assistance; however, nothing prevents someone from removing records or from carelessly handling them. As well, the Records Room has overhead sprinklers and there are signs of water damage in the ceiling. Together, lack of supervised access and sign-out/sign-in procedures, and problematic storage conditions could lead to the loss of and/or damage to valuable records.

It is recommended that the City provide a suitably equipped, secure space in which to store and process its archival records. It is also recommended that removal of archival material from the Records Room be subject to a sign out/sign in procedure.

5.10 Intranet Content (360)

The IM Assessment Report makes several observations about the current administration and content of the Intranet (360). As described below, several objectives must be met to achieve the goal of managing Intranet content as a City record.

5.10.1 Specify 360 Content

Although employees reporting to the Supervisor of Creative Services receive, review, and approve requests for new pages, writer and publisher roles are assigned to designated department/service area employees. A page owner is responsible for the content and for ensuring the page is accessible and functional. Government Relations and Strategic Communications do not review or approve content before it is posted; however, a department/service may have an internal review and approval process. The Supervisor of Creative Services advised there is no policy specifying the information that should and should not be shared on 360. An employee with 360 access can see any page.

It is recommended that the City develop a policy to specify the content to be made available on 360.

5.10.2 Review 360 Site Structure and Navigation

The Supervisor of Creative Services advised that the site has grown beyond its original scope so site structure and navigation are beginning to suffer (e.g. main directories are being used as catch all categories).

It is recommended that the City review the 360 site structure and navigation to improve navigation and the ease with which content can be located.

5.10.3 Assign 360 Page Ownership

The Supervisor of Creative Services advised that it is often difficult to identify a page owner.

It is recommended that the City review 360 and determine the owner of each page.

5.10.4 Require Annual Review of 360 Content

The Supervisor of Creative Services advised that 360 suffers from bloat: some content is obsolete, project/committee/team pages (which are often used as collaboration sites) are often abandoned, and the number of pages continues to grow. The Supervisor also advised that City policy (the Supervisor did not identify the policy) requires a page owner to review its content every two years; however, many pages are not reviewed. Government Relations and Strategic Communications can provide reports to assist in completing a review (i.e. the date when each page was last edited and whether an attached document is being used or was last used).

It is recommended that the City require a page owner to review its content every year (instead of every two years). It is also recommended that the City enforce that requirement.

5.10.5 Apply Retention Periods to 360 Content

Retention periods are not applied to 360 content.

It is recommended that the City apply the retention periods in the Records Retention Schedule to 360 content.

5.11 Public Website Content

The IM Assessment Report makes several observations about the current administration and content of the City's main public website www.burlington.ca. As described below, several objectives must be met to achieve the goal of managing public website content as a City record.

5.11.1 Assign Public Website Page Ownership

The Supervisor of Creative Services advised that not all pages have a primary contact (some pages have multiple owners) so there is often confusion over ownership and maintenance responsibilities.

It is recommended that the City review the public website and determine the primary contact for each page.

5.11.2 Require Continuous Review of Public Website Content

The City's image is negatively impacted if the content on the public website is not accurate and current. According to the Web Communications Policy, two of the Web Editor's responsibilities are to a) assist department/service area staff to review and maintain their content to ensure it is current (daily, weekly, or monthly as appropriate for the communication requirement) and b) assist department/service area staff to complete a comprehensive evaluation of all content every two years to ensure regular updates are being made, the content continues to meet communications requirements, gaps and overlaps are being identified, and to improve navigation, look, and feel. The Supervisor of Creative Services advised, however, that the public website suffers from bloat: some content is not updated and other content is obsolete.

It is recommended that the City require a page owner to continuously review its content (daily, weekly, or monthly as appropriate for the communication requirement) and that this requirement be enforced. It is also recommended that the City require a page owner to complete a comprehensive evaluation of all content once per year (instead of every two years) and that this requirement be enforced.

5.11.3 Capture and Manage Public Website Content as Records

The City does not capture screenshots of the public website; therefore, the City would be unable to reproduce an exact image of specific content as it appeared on the site on a specific day unless the requested content had been captured by the third-party Internet Archive Wayback machine (for example, it saved content at www.burlington.ca 363 times from September 11,

2002 and May 8, 2019) or the requested content could potentially be obtained from the backups maintained by the website hosting service. It may be necessary for legal or other purposes for the City to be able to demonstrate what content was – and was not – on its website on a certain date.

It is recommended that the City implement technology to capture, store, and manage the retention and disposition of its public website content.

5.11.4 Apply Retention Periods to Public Website Content

Retention periods are not applied to public website content. Further, content that is removed from the website may be deleted or just hidden, with hidden content remaining on the site indefinitely.

It is recommended that the City apply the retention periods in the Records Retention Schedule to public website content. It is further recommended that content that has met its retention requirements be deleted and not hidden.

Note: Government Relations and Strategic Communications staff plan to start reviewing the hidden pages with the goal of securing their deletion.

5.12 Social Media Content

The IM Assessment Report makes several observations about the current administration and use of the City's social media channels. Facebook (<https://www.facebook.com/cityburlington>) and Twitter (<https://twitter.com/cityburlington>) are the City's primary corporate social media channels. Government Relations & Strategic Communications¹⁶ uses the following additional social media platforms for corporate purposes:

- Instagram (<https://www.instagram.com/cityburlington/>)
- LinkedIn (<https://www.linkedin.com/company/cityburlington>) (primarily for job postings)
- YouTube (<https://www.youtube.com/user/CityofBurlington>) (publicly available videos)

As described below, several objectives must be met to achieve the goal of managing social media content as a City record.

5.12.1 Capture and Manage Social Media Content as Records

Generally, the Facebook and Twitter posts drive the reader to the City's website or to <https://www.burlington.ca/en/services-for-you/Get-Involved.asp> (e.g. for the City's recent cannabis store survey). Secondary social media accounts approved by Government Relations & Strategic Communications (currently Fire, Festivals and Events, Parks and Recreation, and Transit) are administered by department/service area employees and are used to communicate

¹⁶ Government Relations & Strategic Communications also uses Vimeo to store internal videos (e.g. training videos) and videos posted to the City's social media channels such as Facebook.

operations specific information (e.g. Parks and Recreation posts about recreation facility closures).

The City does not use social media archiving software (e.g. ArchiveSocial); therefore, the City would currently need to rely on a social media channel's continued retention of the City's social media content if the City was asked to provide evidence of a social media post or comment. While the Social Media Specialist maintains a Word file of the text of posts to the corporate Facebook and Twitter accounts, that file would be insufficient in proving the content of a social media post or its time/date stamp.

It is recommended that the City implement social media archiving software to capture and manage social media content as a record.

5.12.2 Apply Retention Period to Records of Deleted Social Media Comments

The Corporate Communications Policy authorizes the City to edit, modify, and/or remove comments or content in certain circumstances (e.g. profane or inappropriate language or content, defamatory content, or information that may compromise the safety or security of the public or public systems). The policy does not require a record to be made of the comments or content which is edited or modified. Comments may be hidden by the Social Media Specialist on a corporate account or by a designated employee on a secondary account. If a comment is deleted, those employees are required to take a screenshot of the deleted comment with a time and date stamp.

It is recommended that the City apply a retention period to its record of deleted comments.

5.13 Office 365 (O365)

The IM Assessment Report makes several observations about the City's plans to implement O365. As described below, several objectives must be met to achieve the goal of managing the City's use of O365 from an IM perspective.

Note: See Objective # 5.4.6 for a recommendation regarding the O365 mailbox size limit.

5.13.1 Establish Suitable Program Delivery Model for O365

It is recommended that the City review and revise its current resourcing model for O365. This is not a back-office infrastructure project; it is a very significant organization-wide change which will require significant design thinking, change management planning and user support for successful implementation. As such, a project resourcing approach similar to other major business focused programs and projects (e.g. BI, PerfectMind, ERP) that builds strong teams and partnerships to support effective delivery (for instance project management, Business Analysts, subject matter experts, and technical leads) will be required.

5.13.2 Establish O365 Governance Model

It is recommended that the City establish a governance model for O365. Given the proposed mandate of the IMDGC in overseeing IM and data topics, and that the key players that would be

involved will already be present at IMDGC, it is recommended that the IMDGC become responsible for overseeing the O365 implementation. Using this approach, topics such as how unstructured electronic records and e-mail will be managed will have suitable visibility to key stakeholders.

5.13.3 Provide O365 Overview Education / Training to IMDGC

To make decisions about a technology, it is important to have a solid basis of understanding of the capabilities, possibilities and considerations around that technology. It is recommended that the City provide education/training around the O365 platform to all members of IMDGC.

5.13.4 Review O365 Scope and Phasing

In the context of an updated O365 resourcing plan and governance model, it is recommended that the City work with the O365 project team and IMDGC to review the current roadmap for O365 deployment and develop a revised roadmap aligned with IMDGC priorities.

5.13.5 Continue to Recognize Risk of Inadequate Information Governance to O365 Project

The O365 Project Charter identifies inadequate information governance as a risk to the O365 project as described in Figure 6.

Figure 6 - The Inadequate Information Governance

Description of Risk	Likelihood	Impact	Proposed Response	Responsibility
Inadequate information governance for unstructured data stored in the cloud vs. network drives, including the risk of replicating existing issues re: lack of control over electronic records in new storage environment. May be unable to take full advantage of new office productivity features if inadequate IG by office suite users is expected to compromise system performance, and features are not enabled as a result	<p style="text-align: center;">H</p> <p>Corporate awareness of RM and IG still in early stages; ample evidence of challenges in use of existing tools</p>	<p style="text-align: center;">M</p> <p>Risk could be mitigated by limiting access to system features; corporate training and outreach initiatives are underway</p>	<ul style="list-style-type: none"> Build IG principles and rules into configuration of new office productivity suite. Utilize training tools from Clerks Department. Review and revise processes related to document sharing and ownership, i.e. rules for sharing files outside of the organization. Utilize consultant and vendor expertise in previous deployments. Develop and deploy a Data Loss Protection plan, with necessary policy updates to encompass all new productivity tools. 	<p>Records Liaison</p> <p>Office Productivity Consultant</p>

It is recommended that the City continue to recognize the risk of inadequate information governance to successful implementation of O365.

5.13.6 Ensure Rescoping of O365 Project Includes Application of Retention Rules

Although the O365 Project Charter recognizes the risk of inadequate information governance and the connections between O365 and IM, it is concerning that the Project Charter excludes (p. 7) “Application of retention rules to electronic documents” from the O365 project scope. In the absence of retention rules (preferably automated), electronic records will continue to accumulate as they do today in network drives and the e-mail system. With the potential expansion of mailbox capacity to 100 GB in O365 (a very significant increase from the City’s current mailbox size limit), the future accumulation of e-mails will likely be significant. As discussed in the IM Assessment Report, the indefinite, uncontrolled accumulation of unstructured electronic records (indeed, records in any format) is not IM best practice, results in retrieval challenges, and may also pose a risk to the City in the event of litigation or a FOI request.

It is recommended that the City rescope the O365 Project to include the application of retention rules to unstructured electronic records, including e-mails.

5.13.7 Incorporate IM in O365 Proofs of Concept

The O365 Project will likely involve proof of concept for applications such as OneDrive, SharePoint, and Teams.

It is recommended that ITS and the RIM Program work together, through IMDGC and involvement in project teams, in the context of the City’s EDRMS requirements (to be determined) and current state of ImageSite (to be assessed) to determine the scope of any proof of concept for Microsoft SharePoint, OneDrive, or Teams. One important factor to consider is that the nature of the Microsoft products is founded on openness and collaboration. While the City should be careful not to lock down SharePoint (as some other municipalities have) to the point that the collaboration features of the software are neutered, a holistic approach which includes IM best practices is required to ensure the City leverages the software functionality with ‘good’ IM in mind.

Note:

1. A Microsoft SharePoint proof of concept is being considered, although at this stage it is unclear how the SharePoint capabilities would intersect with the City’s EDRMS requirements (as yet undefined) and this work would be dependent upon ITS and the RIM Program having available capacity to work on the proof of concept.
2. There is interest in using OneDrive; however, it is unclear at this stage what the OneDrive utilization/strategy will be or how it will intersect with Teams, SharePoint and EDRMS initiatives.

5.13.8 Manage New Record Types Created in O365

The O365 Project includes the selection and implementation of enhanced collaboration and accessibility tools such as web and video conferencing and instant messaging. The implementation of such tools may result in new record types (e.g. instant messages) which should be managed from an IM perspective.

It is recommended that the City develop policies and procedures to support the management of any new record types created in O365 in compliance with the City's existing policies and legislated requirements such as privacy legislation.

5.13.9 Include IM Requirements in O365 Training

It is recommended that the City develop and implement an O365 training plan which not only teaches employees how to use the new software functionality but instructs them to do so in compliance with the City's RIM Program requirements and IM best practices.

5.14 Electronic Document and Records Management System (EDRMS)

The IM Assessment Report makes several observations about the previous recommendations to implement an electronic document and records management system (EDRMS) from the employee OREO Team¹⁷ and in the current Corporate Technology (IT) Strategy. The IT Strategy flags EDRMS¹⁸ as a project requiring a high level of effort (i.e. > 100 days) with a proposed 2019-2021 implementation. The IM Assessment Report also observed that interest in implementing an EDRMS was expressed at two focus groups and two subject matter interviews. As described below, several objectives must be met to build and secure BLT approval of a business case for an EDRMS.

5.14.1 Research EDRMS Systems

It is recommended that the City conduct research to become familiar with EDRMS systems from a functional and technical perspective. The research process would include identifying EDRMS vendors/products and gathering authoritative evaluations/ references. Gartner's Magic Quadrant for Content Services Platforms (last published in October 2018) would be a helpful starting point.

¹⁷ In 2016, the OREO Team (Our Records Electronically Organized Team) sought BLT endorsement for a corporate EDRMS Strategy. The EDRMS Strategy describes its development as follows (p. 2): "The development of the strategy was led through a staff team from across the corporation who were involved in a leadership and project management course [Mohawk Leadership Program] that required them to complete a city project. The project team, along with the project sponsor, Deb Caughlin, Manager – Service Burlington, worked together to define the project and process, complete best practice research, execute stakeholder analysis, request feedback and engage with stakeholders, and deliver the EDRMS."

¹⁸ The IT Strategy uses the term 'enterprise content management' (or ECM) instead of EDRMS. While a few vendors continue to market their systems as EDRMS, most have moved to using the term ECM. Some have begun to call their systems "content services platforms" following Gartner's lead. As stated in its Magic Quadrant for Content Services Platforms 2018 (p. 1) Gartner defines a content services platform as "A set of services and microservices, embodied as an integrated product suite and applications that share common APIs and repositories, to exploit diverse content types and to serve multiple constituencies and numerous use cases across an organization." For simplicity, the IM Strategy uses the term 'EDRMS'.

Note: The research would include Microsoft SharePoint since that software is included in the City's O365 license.

5.14.2 Document EDRMS Requirements

It is recommended that the City identify and prioritize its EDRMS functional, technical, and user requirements. Requirements would be identified as mandatory or discretionary and within the discretionary category, requirements would be classified as high, medium, or low priority. The specification would most likely include requirements for document collaboration, workflow, and auto-classification. It would potentially include requirements for electronic (digital) signatures. The specification would also address if/how an EDRMS would replace or integrate with the following technologies now used by the City:

- ImageSite.
- Intranet (360).
- O365 (including Microsoft SharePoint).

The requirements definition would also identify the requirements for capturing and managing the City's social media and public website content unless provision had been made to otherwise manage that content. Given the City's openness to cloud-based technology solutions, the technical requirements would state whether the City required an on-premise or cloud-based EDRMS. The requirements definition would also address enterprise mobility requirements.

Note: From discussions during the development of the Corporate Technology (IT) Strategy in 2016, the Clerks Department plans to replace ImageSite. The City's O365 licensing includes licensing for Teams and SharePoint and ITS plans to, resources permitting, undertake Teams and SharePoint pilot projects and work closely with Clerks on both initiatives, again assuming sufficient resources in Clerks. No timetable has yet been set for either initiative. There is, therefore, an opportunity for ITS and Clerks to work together to fully understand how these solutions may intersect with those plans.

5.14.3 Assess Readiness to Implement EDRMS

It is recommended that the City complete a Readiness Assessment to determine its readiness to implement an EDRMS. Below are examples of the topics that would be addressed in the EDRMS Readiness Assessment.

1. Document and assess the City's current environment for managing the in scope information
 - Policy/procedures, practices, staffing and technology for managing the in scope information and any challenges, constraints, and risks presently experienced.
 - Intradepartmental and departmental requirements for accessing/sharing the in scope information.
 - Electronic document/file/record collaboration requirements.
2. Describe the future environment for managing the in scope information in an EDRMS
 - EDRMS functionality that would most benefit the City.

- EDRMS technological environment (high-level only).
- How an employee's day-to-day management of records would change.
- 3. Assess the City's readiness for the introduction of an EDRMS on five dimensions
 - Technological.
 - Policy/procedure/process.
 - Staffing.
 - Financial.
 - Cultural (includes change management).

5.14.4 Prepare EDRMS Business Case

It is recommended that the City develop an EDRMS Business Case to present:

1. The strategic case (i.e. why an EDRMS is required and the business needs it will satisfy, EDRMS strategic objective(s), EDRMS benefits including any opportunities to automate business processes, EDRMS limitations, and any constraints or dependencies with other change initiatives at the City).
2. The economic case (i.e. summary of EDRMS benefits and high-level, estimated costs to purchase, implement, and maintain an EDRMS).
3. The funding case (i.e. determination whether the available sources of funding are sufficient for EDRMS implementation and maintenance and contingency plans to account for different levels of funding if/as applicable).
4. The commercial case (i.e. plan for EDRMS procurement and procurement of any technology and/or services required to support EDRMS implementation or maintenance).
5. The project management case (i.e. governance arrangements for the EDRMS project, summary of EDRMS implementation milestones, and high-level identification of implementation and maintenance resource requirements).

6. Data Management

The topic of data is so large as to be somewhat overwhelming. Every person in the City is doing something with data each and every day. Many staff work with data all day long. Based on our assessment there is much to be done to mature the City's data management practices. There is so much work, it is hard to imagine where to start.

As such, our general advice is to start small and stay focused, work incrementally, on one piece at a time, learn and share. Work in the open and share what is learned through the IMDGC so that the City's data leaders and its data practitioners can collectively build a shared knowledgebase of what works well. Remember, perfect is the enemy of good - build something good enough for now, and plan to revisit and improve as you learn.

This section provides recommendations for improving the management of the data in the City's structured systems, both core/enterprise solutions (e.g. Avantis) and systems that support the distinct business needs of individual City services (e.g. e-scribe and Ticket Tracker).

6.1 Data Policy

One action is recommended regarding Data Policy.

6.1.1 *Establish Data Policy*

It is recommended that the City develop a formal Data Policy that encapsulates key aspects of the City's data thinking (e.g. "data is a City-owned Asset") into a corporate-level policy, alongside agreed positions on data governance, access, usage, integrity, and integration.

A sample for the City's consideration as a basis for developing its policy is provided:

- <https://policies.usask.ca/policies/operations-and-general-administration/data-management.php>

6.2 Data Work Plan and Priorities

Two actions are recommended regarding Data Work Plan and priorities.

6.2.1 *Formalize Rolling 2-Year Data Work Plan and Priorities*

Led by the BI Program Manager, it is recommended that the City formalize a rolling 2-year Data Work Plan and Priorities that would be approved by the IMDGC.

This should be a simple document prepared internally, not the output of a consulting engagement. It should be a compilation of the items recommended as part of this strategy, along with the work already underway as part of the BI and GIS Programs, as well as data work that is already underway or which will be tackled as part of high-profile City projects such as ERP, CRM extension, etc. The intent is to create a single picture view of all of the data management activities - ensuring alignment is achieved.

6.2.2 Set Corporate Data Priorities

It will be difficult for the City to improve its data practices wholesale across the organization without significant organizational resources and buy-in. This is the proverbial boiling the ocean approach, which is unlikely to be successful.

Thus, it is recommended that the City focus on ratcheting up data standards in a small number of data domains where real progress can be made, where progress in these areas can be used to learn and establish good practices, and which can become lighthouse models which can illustrate what it takes to be successful with data.

In selecting data domains, it is suggested that the City focus on data that is most important to the City corporately or data that will support strategically important projects (e.g. ERP, CRM, Asset Management).

Work is already underway in the BI Program on the MDM roadmap, so with inputs from that and working with the IMDGC to brainstorm, the City should prioritize a list of its top 3 to 5 datasets upon which to focus its data improvement efforts and attention.

For example:

- Place (Address, Street, Non-Addressable Objects)
- Asset (Linear, Facility, Mobile)
- Party (Employee, Customer, Vendor, Partner)
- Financial (GL)

Subsequent projects (discussed later) should be initiated to enhance processes and practices, quality and completeness of these datasets.

6.3 Data and Integration Architecture

Two actions are recommended regarding the formalization of target data and integration architecture.

6.3.1 Formalize Data and Integration Architecture

In the BI platform, the City has purchased and is in the process of implementing a large suite of data tools and capabilities that include a data warehouse, reporting and dashboarding capabilities, data profiling and cleansing tools, extract, transform and load tools, an integration hub (Enterprise Service Bus), and Master Data Management capabilities.

At this early stage the City has experimented with various aspects of the solutions platform, with a particular early focus (as planned) on BI and Analytics.

The City should rapidly formalize the target architecture and standard integration methods (API based push/pull, publish and subscribe) that it intends to target going forward. Once these standard methods are established, these should be shared (as standards) with those involved in

key projects which should rely on the platform for integration and MDM purposes (ERP, Asset Management, etc.).

6.3.2 *Develop Data Lake Strategy*

As key legacy systems are decommissioned, the City has plans to store historical data from these legacy systems (e.g. ERP) in its corporate data warehouse. It is recommended that the City develop a formalized Data Lake Strategy to guide this approach (and provide clear input for projects that are dealing with legacy systems and data stores). Guidance around best practices for data migration strategies for projects would be especially valuable.

6.4 Data Format Standards

One action is recommended regarding Data Format Standards.

6.4.1 *Develop Data Format Standards*

Just like a branding guide or a writing style guide, the City should establish its basic data formatting standards, so that new IT solutions can be designed to handle data in a consistent way. If followed, this will reduce the need to clean or reformat data, increase data interoperability and save time and effort.

Thus, it is recommended that a small project team be formed to crowdsource input about current practices from the Data Community of Practice and those responsible for key datasets across the City.

From this input the team should compile and recommend basic data formatting standards to be used for future projects: e.g. Prefixes, People Names, Suffixes, Gender, Cost Centre, Cost Element, Phone Number, Email, Domain Name, Date, Time, SIN, Business Number, CC, GST #

These standards should be documented, approved by IMDGC, published and socialized across the City and especially with application staff and project leads so that the standards can be applied to future projects.

6.5 Corporate Data Model

Two actions are recommended regarding a corporate data model.

6.5.1 *Begin Developing Corporate Data Model*

With the hiring of a Data Architect, we recommend that the City begin work on developing a corporate Data Model.

The conceptual data model will be initially the most valuable area for focus.

Note that at this stage the data model doesn't need to be, won't and shouldn't be, a complete model. We recommend that the City start by documenting what is currently known, what standards are currently in place for the datasets that are under governance and where standards have been defined (e.g. Property / Address / Street).

This will be a starting point for understanding how to document, how to share and socialize and how to build value from the exercise.

As new datasets come under governance, the data model can be evolved and further built out.

6.5.2 Build Business Glossary

As an output of work on the Data Model, alongside work on the BI Program and other MDM and data modeling activities, and as well as work on metadata in the GIS Program, the City should begin to evolve consistent business terminology for referencing data elements.

So, when working on data projects, take the opportunity to work on standardizing the terms and descriptions in use and work gradually toward building a Business Glossary.

6.6 Data Sharing/Data Providers

Three actions are recommended regarding data sharing/data providers.

6.6.1 Conduct Legislative Review of Data Sharing

One of the challenges associated with data sharing within municipalities is a generalized concern about legislative controls that may prevent data sharing. Because it is a grey area, municipalities often take a conservative view and default to not sharing.

Furthermore, as the City begins to use data more, and continues to embrace analytics and Open Data, combining or mashing up of data may lead the City into areas where privacy becomes a challenge and the de-identification of data may become necessary.

Therefore, we recommend conducting a review of existing legislation that inhibits or facilitates internal data sharing so that the City may determine and document a formalized position that allows for this area to be demystified.

6.6.2 Establish New Customer Consent Model

As part of building a master customer dataset, customer consent is required to allow for data sharing within the corporation. For instance, the CRM project was unable to build an initial customer database from existing sources, as the data had not originally been collected for that purpose.

The Customer Service Team plans to revise the corporate customer consent model, ensuring that customer consent for sharing is secured as the customer database is built. This consent review should include all appropriate customer contact points to ensure that the City can build a reliable customer database.

Note that the review should also realistically reflect the expectations of customers who typically believe that in interacting with the City (just as they do with private sector organizations) that information about them and their previous interactions with the City would be available to customer service agents.

Note also that the same concept can apply to data sharing about staff, a review of which is also recommended. For example, an employee who provided banking information to Human Resources for payroll purposes likely expects that information to be available to Accounts Payable for processing any expense reimbursement claims that the employee may submit.

Note: Work on Objective # 6.6.2 should be aligned with work on Objective # 5.6.4 to ensure (sufficient) notices for personal information collection.

6.6.3 *Develop Data Sharing Agreements Register*

In a number of current systems, malformed, inconsistent data is stored in key fields. For In many situations the City shares data with third parties, and receives data from others. In some cases, these are other levels of government (Halton, HRPS), agencies (HRCA, Teranet, MPAC), or the private sector (Waze, Strava). In some situations, the City may purchase data (EnviroNics).

While much of the data sharing that the City does is coordinated by the Geomatics Team, individual business units will also coordinate their own sharing and purchases of data. The City could benefit from maintaining a centralized register of all data sharing agreements, ensuring that it is more widely known what data sharing agreements and purchases exist.

6.7 Corporate Data Catalogue

Two actions are recommended regarding a Corporate Data Catalogue.

6.7.1 *Build Corporate Data Catalogue*

We recommend the City conduct an inventory of its data and use the inventory findings to build and publish a Corporate Data Catalogue. Following the approach noted in the introduction to this section, this should be an iterative process that builds value as it grows – not an endeavor that must capture every data source before it is published. Start simple, with known data sources and work openly with the Data Community of Practice and other stakeholders to gradually build out a more complete Data Catalogue.

The City can use this process to formally agree/set the assignment of roles for each of the key datasets (e.g. custodian, steward), roles which should ideally be aligned with service owners.

It is likely that the City can use its BI technology to create the Corporate Data Catalogue.

6.7.2 *Establish Internal Data Portal*

We recommend the City establish a centralized data portal (think internal open data but in a simple and usable format, or a Burlington wikipedia internal to the City), ensuring that staff can easily and quickly get access to consistent, accurate and up-to-date information for Council reports, strategies, etc.

This should be a one-stop-shop / portal to get access to core master data that should be broadly available internally. This would likely re-use the BI and GIS platforms for delivery and should provide the source data as well as processed and visualizations of the data.

Examples of commonly available data could include:

- Census data
- Customer preference data
- Web traffic / analytics
- 311/call centre calls (topics, volumes)
- Common HR data (headcount, etc.)
- Budget books and financial performance data (budget vs. actuals)
- KPIs
- City projects

6.8 Data Quality Standards and Measures

Five actions are recommended regarding data quality standards and measures.

6.8.1 Set Data Quality Guidelines

Language around data quality should be refined so that the City can more effectively discuss and report on data quality.

The City would establish a corporately consistent data quality guideline that identifies the various dimensions of data quality and how to assess these for use on data and technology projects, i.e.

- Completeness
- Uniqueness
- Timeliness
- Validity
- Accuracy
- Consistency

See a sample here that discusses the dimensions and means of assessing data quality in each dimension: https://www.whitepapers.em360tech.com/wp-content/files_mf/1407250286DAMAUKDQDimensionsWhitePaperR37.pdf

6.8.2 Document Current Data Quality Practices

There are already some interesting and quite effective data quality control practices in place at the City today - for instance, HR staff regularly conduct a formal peer review of each other's data entry work. Some of these good practices already in place in pockets across the City could be shared and applied in other business areas.

Thus, it is recommended that the City work with the Data Community of Practice to compile its best and known data quality practices into a shared knowledge base that can be made broadly available to all data practitioners.

6.8.3 Document, Publish, and Socialize Data Quality Tools/Techniques

We recommend the City document, publish and socialize the existing data profiling, transformation, and cleansing methods and tools that are available within the City (e.g. BI, GIS, Geocoder).

The City would target socializing these capabilities within the IT team (project managers, teams and application analysts) and with data practitioners (the Data Community of Practice) so they are aware of the capabilities available that can be incorporated into future projects.

6.8.4 Develop PerfectMind Data Management SOP

The PerfectMind Team plans to develop a data management SOP in 2019 to guide its administrators and users in their management of data. It is recommended that the PerfectMind Team work collaboratively with the Data Program, with the Data Community of Practice, and with the IMDGC to make this into a broader learning exercise for all involved that could be used in the future as a template for other teams and projects.

6.8.5 Develop Data Quality Scorecards

For the priority datasets that the City is working on (as discussed earlier), and to which the Data Quality Guidelines are being applied, it is recommended that the City develop data quality scorecards/methods to quantify data quality.

Using these datasets as a learning case, the City should learn about the value of Data Quality Scorecards, then expand them out to other corporate datasets.

6.9 Specific Data Projects

There are a series of data projects that should be considered and which support planned corporate projects or master data initiatives. Note that we recommended earlier that the Data Strategy focus on supporting corporate initiatives / programs.

6.9.1 Determine Top 3 or 5 Data Projects

Depending on the data domains that are identified as corporate priorities (see earlier discussion), a series of projects to establish (or refine) the data model, understand the existing data quality, define corporate service requirements, allocate roles and responsibilities, define service level agreements (SLAs) and operationalize data maintenance will need to be undertaken. Note these top 3 or 5 data projects may or may not include the projects noted below.

6.9.2 Develop Asset Data Model

In support of the implementation of the Work and Asset Management systems implementation project, it is recommended that the City conduct an existing asset data assessment to

understand the data requirements and current data gaps required to support the project. The City should also consider the development of a new, integrated asset data model that builds around an integrated GIS / Work Management system asset register.

6.9.3 Develop ERP Data Model

In support of the implementation of the City's ERP system, consideration should be given to the establishment of master datasets for general ledger, staff and vendors. Consideration should be given to the interface/API model that will make that master data available across the City, and how the ERP will interface with other key data sources (such as place and asset data).

6.9.4 Cleanup AMANDA Customer Data

The customer data stored in AMANDA is known to be problematic, due to limited controls on the way that customer data is managed in the system. It is recommended that a customer data quality improvement program be developed with AMANDA. Utilizing the data profiling and cleansing capabilities of the BI/MDM platform would likely be beneficial in this area.

6.9.5 Pool and Share Data Handling/Quality Assurance Tools

The City would complete a one-off exercise facilitated through the Data Community of Practice to crowdsource or pool existing data handling, processing, cleansing and data quality assurance (QA) processes that teams have been put in place. For instance, one team (perhaps the Geomatics team) may have developed a routine that validates and correctly formats malformed postal codes (capitalizing, trimming spaces, etc.) and this routine could be valuable to other staff at the City and to projects going forward. The goal is to inventory and share amongst the data community where tools (however simple they may be) exist, so that staff are not reinventing the wheel. The more broadly applicable of these tools can be formalized into more robust data cleansing tools built on the BI and GIS platforms.

6.9.6 Complete One-off Data Cleansing Projects

In a number of current systems, malformed, inconsistent data is stored in key fields. For example, in a number of systems that handle employee records, names are not correctly split into constituent parts, prefixes and suffixes are included in the main name field, and some data is in ALL CAPS and some in lower case. This represents a good opportunity to establish business rules and develop data cleansing services using the BI / GIS and other City tools that can be consistently applied to name records.

Working with the Data Community of Practice, the Data Program should identify a set of common data cleansing needs (e.g. names, addresses, dates, streets) for which common data cleansing routines and services could be developed - in which malformed data can be passed in and clean data can be passed out or reloaded into the source system.

6.10 Open Data Program

Two actions are recommended regarding the Open Data Program.

6.10.1 Develop Open Data Policy

It is recommended that the City develop a formal Open Data Policy that will guide the continued expansion of the Open Data Program. Note: City staff have prepared an initial draft of the Open Data Policy

6.10.2 Expand Open Data Program

The City should continue to open up its data to the community, with a focus on making data available that has community value and/or where providing data (as part of a more proactive routine disclosure process) could reduce repetitive requests, or formal FOI requests to the City. The City should define performance metrics to measure the success of the Open Data Program, with the metrics considering downloads, hits and various other key metrics.

Note: Work on Objective # 6.10.2 regarding metrics for routine disclosure should be aligned with work on Objective # 5.6.3 to capture routine disclosure statistics.

6.11 Data Literacy Education/Training Program

Two actions are recommended regarding a Data Literacy Education/Training Program.

6.11.1 Develop Data Literacy Education/Training Program

It is recommended that the City develop a Data Literacy Program. Such a program should provide education on core data concepts such as the value of data- driven decisions, understanding data and statistics, data roles and responsibilities, designing effective data collection processes, and ethical use of data.

A starting point may be to complete a data literacy assessment (e.g. the Databilities® assessment tool) for the City to pinpoint areas of focus for the Data Literacy Program. Working with the Data Community of Practice to identify data literacy strengths and gaps would also help identify where education and training needs exist.

In addition, the City must also provide education and training around the tools, which may range from basic to advanced Microsoft Excel, building and using self-service dashboards and geo-tools, how to conduct complex statistical analysis, and how to conduct spatial analysis.

6.11.2 Build Data Community of Practice

It is recommended that the City use online discussion forums, mailing lists, the Intranet (360), and face-to-face sessions (lunch and learns, etc.) to build a network of self-identified staff and management involved in data management, analysis, and visualization. Use the group to learn about existing pockets of good practice, share standards and best practices, and to highlight examples of good work or useful resources from which the community can benefit.

7. IM Strategy Implementation Timeline

This section provides a high-level timeline for the prioritized and phased implementation of the IM Strategy (Figure 7). The timeline illustrates durations, some of which will be elapsed.

Many objectives in the IM Strategy require something to be established, developed, revised, or replaced. The timeline indicates the year(s) in which each such action would occur. However, the timeline does not show the continued use of something which has been established developed, revised, or replaced because it is assumed that the City would continue to use/ deploy/implement what was put in place (e.g.)

- Establish Data Architect Role (Objective # 3.3.2) is proposed for Year 2. Assuming the role was established, it would continue in perpetuity. However, the timeline only indicates work on this objective in Year 2.
- Develop Standards-compliant Records Digitization Program (Objective # 5.1.5) is proposed for Years 1-2. Assuming the Program was developed, it would continue until such time as it was discontinued with revisions being made to the Program if/as appropriate over time. However, the timeline only indicates work on this objective in Years 1 and 2.

Conversely, some objectives are recurring projects which, once they begin, will reoccur annually. The timeline, therefore, shows continued work on those objectives, e.g. the City would need to resource work for various data projects over the years as the City works on different data projects (Objective # 3.2.3).

The proposed timeline assumes the availability of the necessary expertise (as provided by City employees, temporary employees, consultants, or some combination thereof), the timely approval of new/revised policies, processes, business cases, and other documents, and the availability and active participation of all City employees to support IM Strategy implementation.

Figure 7 – IM Strategy Implementation Timeline

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
3.1.1	Expand IG Committee Mandate to Include Data Management		BLT	IMDGC	X				
3.1.2	Integrate Existing Programs into IM and Data Management Governance		BLT	BI Program Manager GIS/Geomatics	X				
3.1.3	Distribute IM and Data Management Roles		BLT	IMDGC	X				
3.1.4	Revise Job Descriptions to Include IM and/or Data Management Responsibilities		RIM ITS Departments/Service Areas	Human Resources	X	X	X		
3.2.1	Expand BI Program Manager's Responsibilities		ITS	BI Program Manager	X				
3.2.2	Establish Data Architect Role		BLT	ITS Human Resources		X			
3.3.1	Staff One Temporary Information Management Coordinator Position ¹⁹		BLT	RIM Human Resources	X				

¹⁹ The position would be funded for a 12 month term. The duration of any additional terms(s) would be determined as IM Strategy implementation advances. The position is plotted under Year 1; however, the City may find it beneficial to split the 12 month term over Years 1 and 2.

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
3.3.2	Secure Archivist Expertise		BLT	RIM Human Resources (if staffed by an employee) Procurement (if staffed by a consultant)		X	X	X	X
3.2.3	Resource Data Project Work		BLT	Project Owner Project Manager Human Resources Any backfilled staff		X	X	X	X
4.1.1	Increase RIM Advice, Consultation, and Guidance Service Delivery	3.3.1	RIM	RIM Program staff Department/Service Area employees (receive the service and participate in its delivery if/as applicable)	X	X	X	X	X
4.2.1	Update and Expand RIM Program Coverage in New Employee Guidebook		RIM Human Resources	IM Project Team (provide input during update and expansion of the RIM Program coverage in the New Employee Guidebook) All future employees (receive the New Employee Guidebook)	X				
4.2.2	Develop Mandatory Position Level-Specific RIM Training		RIM ITS (for IT-specific topics, e.g. how to encrypt an e-mail)	IM Project Team (provide input during training development) All existing and future employees (complete training)	X				

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
4.2.3	Continue to Provide RIM Program Information on 360		RIM	All existing and future employees (access RIM Program information on 360 when required)	X	X	X	X	X
4.3.1	Develop RIM/RIM Program Compliance Monitoring and Auditing Measures		RIM	Internal Auditor IM Project Team		X	X		
5.1.1	Revise Records Management Policy to Include Ownership of Information		RIM	IMDGC (endorse revised policy) BLT (approve revised policy)	X				
5.1.2	Review Records Creation, Capture, and Declaration Provisions in Business Processes		RIM (develop methodology) Departments/Service Areas (review business processes and update policies/procedures accordingly)	Information Management and Archives Coordinator (resource to the Departments/Service Areas)	X	X	X	X	X
5.1.3	Specify Records Creation, Capture, and Declaration Responsibilities in Charters and Terms of Reference		Project Teams Staff Committees	Information Management and Archives Coordinator (resource to the Project Teams as they reflect these responsibilities in their project charters and to Staff Committees as they reflect these responsibilities in their terms of reference)	X	X	X	X	X
5.1.4	Train Employees to Identify 'Official' and 'Transitory' Records		RIM	IM Project Team (provide input during training development) All existing and future employees (complete training)	X	X	X	X	X

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
				which would be included under training in Objective # 4.2.2)					
5.1.5	Develop Standards-compliant Records Digitization Program		<p>RIM (Records Digitization Policy, Feasibility Assessment Template, Specifications, and Procedures)</p> <p>ITS (input on above-listed documents)</p> <p>RIM and ITS (review completed Records Digitization Feasibility Assessments)</p> <p>IMDGC (approve Records Digitization Feasibility Assessments)</p>	<p>Information Management and Archives Coordinator (resource to the Departments/Service Areas)</p> <p>Departments/service areas (complete Records Digitization Feasibility Assessments)</p> <p>Departments/service areas (digitize approved records as per Records Digitization Specifications and Procedures)</p>	X	X			
5.2.1	Replace Uniform File Plan with Function-based Records Classification Scheme		RIM	<p>Departments/Service Areas (identify records and validate draft Records Classification Scheme)</p> <p>All existing and future employees (use the Records Classification Scheme)</p>		X			
5.2.2	Develop File Naming Conventions for Unstructured Electronic Records		RIM	<p>IM Project Team</p> <p>All existing and future employees (use the File Naming Conventions for Unstructured Electronic</p>	X				

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
				Records)					
5.2.3	Develop Records Storage Location Lists		Departments/Service Areas	Information Management and Archives Coordinator (resource to the Departments/Service Areas)	X				
5.2.4	Complete Records Clean-up Projects		RIM Clean-up Project Leads in Departments/Service Areas ITS (create new personal and shared network drives) Cross-departmental team (clean-up the S: drive)	All employees (clean-up the records for which they are responsible)		X	X		
5.3.1	Promote Approved Methods for Internal Document Sharing and Collaboration		RIM and ITS (identify approved methods for internal document sharing and collaboration)	All employees (use the approved methods for internal document sharing and collaboration)	X	X	X	X	X
5.3.2	Promote Approved Methods for External Document Sharing and Collaboration		RIM and ITS (identify approved methods for external document sharing and collaboration)	All employees (use the approved methods for external document sharing and collaboration)	X	X	X	X	X
5.3.3	Keep Large E-mail Attachments in E-mail System		All employees who receive large e-mail attachments		X	X	X	X	X
5.4.1	Promote Records Retention Schedule Compliance to Help Alleviate Active Physical Records		RIM	Department/Service Areas (regular (at least annual) review of active physical records and prompt transfer of inactive physical records to off-site	X	X	X	X	X

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
	Storage Space Constraints			storage)					
5.4.2	Educate Employees on Off-site Physical Records Retrieval Schedule		RIM	All employees who retrieve physical records from off-site storage (comply with the records retrieval schedule)	X	X	X	X	X
5.4.3	Provide Departments/Service Areas with Read-only Access to Commercial Record Centre Database		RIM	Designated Department/Service Area employees (receive read-only access to and training in searching the commercial record centre database)		X			
5.4.4	Promote Purposes of Unstructured Electronic Records Storage Locations		RIM and ITS (identify approved uses of unstructured electronic records storage locations)	All employees (use unstructured electronic records storage locations as directed)	X	X	X	X	X
5.4.5	Promote Records Retention Schedule Compliance to Help Manage Unstructured Electronic Records Growth		RIM		X	X	X	X	X
5.4.6	Provide Modest Mailbox Size Limit Increase in O365		ITS		X				
5.4.7	Increase RIM Program Participation in Records and Information Slimming Days		RIM	Departments/Service Areas	X	X	X	X	X

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
5.4.8	Implement Data Archiving Solution		ITS RIM (provide input during selection and implementation of data archiving solution)	Departments/Service Areas (benefit from the data archiving solution)		X			
5.5.1	Review City Policies to Ensure Consistent Approach to Information Security		Policy Owners	IMDGC (endorse revised policies) BLT (approve revised policies where applicable)	X				
5.5.2	Include IM Requirements in Employee Offboarding Process		RIM Human Resources	Departments/Service Areas (implement the Employee Offboarding Process) Information Management and Archives Coordinator (resource to the Departments/Service Areas)	X	X	X	X	X
5.5.3	Establish Data and Information Security Classification Scheme		ITS RIM	IMDGC (approve the Data and Information Security Classification Scheme)	X				
5.5.4	Develop Procedures to Operationalize Information Security Policy Requirements		ITS RIM	Departments/Service Areas (implement the procedures)	X				
5.6.1	Establish Formal Network of Department/Service Area FOI Liaisons		RIM	Departments/Service Areas (appoint Liaisons and backups) Department/Service Area FOI Liaisons (fulfill their Liaison responsibilities)	X				

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
5.6.2	Require Departments/Service Areas to Certify FOI Request Searches		RIM (create FOI request search certification form) Departments/Service Areas (certify FOI request searches)	Access and Privacy Coordinator (resource to the Departments/Service Areas)	X	X	X	X	X
5.6.3	Capture Routine Disclosure Statistics		RIM (create statistics gathering template) Departments/Service Areas (capture routine disclosure certificates)	Access and Privacy Coordinator (resource to the Departments/Service Areas)	X	X	X	X	X
5.6.4	Ensure (Sufficient) Notices for Personal Information Collection		RIM (provide Personal Information Collection Statement Template) Departments/Service Areas (ensure (sufficient) Notices for Personal Information Collection)	Access and Privacy Coordinator (resource to the Departments/Service Areas)	X	X	X	X	X
5.6.5	Mandate RIM Participation in Privacy Impact Assessments		RIM (prepare revised Protection of Privacy and Confidentiality of Information Policy) BLT (approve revised policy)	Departments/Service Areas (comply with the policy)	X				
5.6.6	Enforce City Requirement for Mandatory Privacy Training		BLT	RIM (provide the training) All existing and future employees (complete training)	X	X	X	X	X
5.6.7	Educate Employees on Confidential Mail and Encryption	5.5.4	RIM ITS	All existing and future employees (complete training)	X	X	X	X	X

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
5.6.8	Ensure Consistent Privacy Breach Reporting Instructions		RIM	ITS (provide input and ensure its policies are consistent with the approved privacy breach reporting instructions) All existing and future employees (comply with the approved privacy breach reporting instructions)	X	X	X	X	X
5.6.9	Develop Personal Information Bank Index		RIM	Departments/Service Areas (provide information about personal information in their custody or control and appropriately administer their personal information banks)	X	X			
5.7.1	Identify and Protect Vital Records		RIM	Departments/Service Areas (implement approved vital records protection methods)		X	X	X	X
5.7.2	Develop Physical Records Disaster Recovery Plan		RIM	Departments/Service Areas (participate in implementing the Physical Records Disaster Recovery Plan if/when applicable)				X	
5.8.1	Use Same Structure in Records Classification Scheme and Records Retention Schedule		RIM			X	X	X	X
5.8.2	Track Records Retention Requirements in Citation Table		RIM			X	X	X	X

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
5.8.3	Track and Apply Appropriate Records Retention Requirements		RIM			X	X	X	X
5.8.4	Provide Hyperlinked Records Retention Schedule		RIM			X	X	X	X
5.8.5	Train Employees in Records Retention		RIM	IM Project Team (provide input during training development) All existing and future employees (complete training which would be included under training in Objective # 4.2.2)	X	X	X	X	X
5.8.6	Develop Digital Preservation Plan		RIM ITS	IMDGC (endorse the Digital Preservation Plan) BLT (fund the recommended preservation measures)			X	X	
5.8.7	Recognize Voice Mail Messages may be Official Records		RIM	All existing and future employees (complete training which would be included under training in Objective # 4.2.2)	X	X	X	X	X
5.8.8	Promote Correct IM Use of Shredding Bins and Recycling Bins		RIM	All existing and future employees (use shredding bins and recycling bins as prescribed)	X	X	X	X	X
5.8.9	Require Cross-cut or Particle Shredding of Physical Records		RIM	Departments/Service Areas (comply with the requirement)	X	X	X	X	X
5.8.10	Develop Destruction Hold Procedure and		RIM	IMDGC (approve the procedure)	X				

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
	Keep Records of Destruction Holds		Legal Services	Departments/Service Areas (comply with the procedure) RIM (retain records of destruction holds)					
5.8.11	Schedule Retention Periods for Structured Data		RIM ITS				X	X	
5.8.12	Ensure New Structured Systems can Implement Retention Periods		RIM ITS	Departments/Service Areas (include implementation of retention periods as a requirement in specifications for new structured systems)	X	X	X	X	X
5.9.1	Revise Disposition Options in Records Retention Schedule to Include Archival Records		RIM			X			
5.9.2	Identify Archival Records in Records Retention Schedule	3.3.2	RIM			X			
5.9.3	Exclude Archival and Archival Review Records from Records and Information Slimming Days	3.3.2	RIM	All existing and future employees (be educated on archival and archival review records and exclude them from Records and Information Slimming Days)		X	X	X	X
5.9.4	Review Records Designated as Archival Review at Annual Records Disposition	3.3.2	RIM			X	X	X	X

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
5.9.5	Limit Archives Program to City Records	3.3.2	RIM		X				
5.9.6	Develop/Revise Archives Program Documents	3.3.2	RIM			X	X	X	
5.9.7	Revise Collaboration Agreement with Burlington Public Library	3.3.2	RIM Legal Services	RIM (implement the agreement)	X				
5.9.8	Provide Reference Copies of Archival Materials	3.3.2	RIM	All existing and future employees who access archival materials (use copies instead of originals)	X	X			
5.9.9	Provide Suitably Equipped and Secure Archives Program Space	3.3.2	RIM BLT (fund new/upgraded space and suitable equipment)		X				
5.10.1	Specify 360 Content		RIM Government Relations and Strategic Communications	Departments/Service Areas (provide content on 360 as prescribed)	X		X		
5.10.2	Review 360 Site Structure and Navigation		Government Relations and Strategic Communications	Departments/Service Areas (participate in the site structure and navigation review)		X			
5.10.3	Assign 360 Page Ownership		Government Relations and Strategic Communications	Departments/Service Areas (fulfill their responsibilities as 360 page owners)	X				
5.10.4	Require Annual Review of 360 Content		Government Relations and Strategic Communications	Departments/Service Areas (annually review 360 content)	X	X	X	X	X

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
5.10.5	Apply Retention Periods to 360 Content		RIM Government Relations and Strategic Communications	Departments/Service Areas (apply retention periods to 360 content)		X	X	X	X
5.11.1	Assign Public Website Page Ownership		Government Relations and Strategic Communications	Departments/Service Areas (fulfill their responsibilities as 360 page owners)	X				
5.11.2	Require Continuous Review of Public Website Content		Government Relations and Strategic Communications	Departments/Service Areas (continuously review public website content)	X	X	X	X	X
5.11.3	Capture and Manage Public Website Content as Records		RIM Government Relations and Strategic Communications	Government Relations and Strategic Communications (capture and manage public website content as records)				X	X
5.11.4	Apply Retention Periods to Public Website Content		RIM Government Relations and Strategic Communications	Government Relations and Strategic Communications (apply retention periods to social media content)				X	X
5.12.1	Capture and Manage Social Media Content as Records		RIM Government Relations and Strategic Communications	Government Relations and Strategic Communications (capture and manage social media content as records)				X	X
5.12.2	Apply Retention Period to Records of Deleted Social Media Comments		RIM Government Relations and Strategic Communications	Government Relations and Strategic Communications (apply retention period to records of deleted social media comments)	X				
5.13.1	Establish Suitable Program Delivery Model for O365		ITS	Stakeholders IMDGC	X	X			
5.13.2	Establish O365 Governance Model		ITS	IMDGC	X				

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
			RIM						
5.13.3	Provide O365 Overview Education/Training to IMDGC		ITS	IMDGC	X				
5.13.4	Review O365 Scope and Phasing		ITS	IMDGC	X	X			
5.13.5	Continue to Recognize Risk of Inadequate Information Governance to O365 Project		ITS		X				
5.13.6	Ensure Rescoping of O365 Project Includes Application of Retention Rules	5.13.4	ITS RIM		X				
5.13.7	Incorporate IM in O365 Proofs of Concept		RIM ITS		X	X			
5.13.8	Manage New Record Types Created in O365		RIM	Departments/Service Areas (manage new record types created in O365 as directed)	X	X	X	X	X
5.13.9	Include IM Requirements in O365 Training		RIM ITS	All existing and future employees (complete training)	X	X	X	X	X
5.14.1	Research EDRMS Systems		IMDGC	IMDGC Project Team			X		
5.14.2	Document EDRMS Requirements		IMDGC	IMDGC Project Team Departments/Service Areas (provide input during			X		

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
				specifications development)					
5.15.3	Assess Readiness to Implement EDRMS		IMDGC	IMDGC Project Team				X	
5.15.4	Prepare EDRMS Business Case		IMDGC	IMDGC Project Team BLT (receive EDRMS Business Case and provide EDRMS funding)				X	
6.1.1	Establish Data Policy		ITS	IMDGC LT	X				
6.2.1	Formalize Rolling 2-Year Data Work Plan and Priorities	6.2.2	ITS	IMDGC	X		X		X
6.2.2	Set Corporate Data Priorities		ITS	IMDGC	X		X		X
6.3.1	Formalize Data and Integration Architecture		ITS	IMDGC BI Project Team	X	X			
6.3.2	Develop Data Lake Strategy		ITS	IMDGC		X			
6.4.1	Develop Data Format Standards		IMDGC	Data Community of Practice	X				
6.5.1	Begin Developing Corporate Data Model	3.3.2	ITS (Data Architect)			X	X	X	X
6.5.2	Build Business Glossary	6.5.1	ITS			X	X	X	X
6.6.1	Conduct Legislative Review of Data Sharing		RIM	IMDGC				X	
6.6.2	Establish New		RIM	IMDGC		X			

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
	Customer Consent Model								
6.6.3	Develop Data Sharing Agreements Register		ITS Geomatics	IMDGC Data Community of Practice				X	
6.7.1	Build Corporate Data Catalogue		ITS	IMDGC All business units	X	X	X		
6.7.2	Establish Internal Data Portal		ITS	IMDGC Geomatics All business units	X				
6.8.1	Set Data Quality Guidelines		ITS	Data Community of Practice IMDGC	X				
6.8.2	Document Current Data Quality Practices		ITS	Data Community of Practice IMDGC	X				
6.8.3	Document, Publish, and Socialize Data Quality Tools/Techniques		ITS	Data Community of Practice IMDGC	X				
6.8.4	Develop PerfectMind Data Management SOP		Recreation Services	ITS Data Community of Practice IMDGC	X				
6.8.5	Develop Data Quality Scorecards	6.8.1	ITS	IMDGC Data Community of Practice		X	X	X	
6.9.1	Determine Top 3 or 5	6.2.1, 6.2.2	IMDGC	ITS	X	X	X		

Objective #	Objective	Dependency (if any)	Responsibility	Participants	Year				
					1	2	3	4	5
	Data Projects			Data Community of Practice					
6.9.2	Develop Asset Data Model		Geomatics / Asset Management ITS	IMDGC	X				
6.9.3	Develop ERP Data Model		ERP project ITS	IMDGC	X				
6.9.4	Cleanup AMANDA Customer Data		AMANDA Team			X	X		
6.9.5	Pool and Share Data Handling/Quality Assurance Tools		ITS	Data Community of Practice IMDGC	X	X	X	X	X
6.9.6	Complete One-off Data Cleansing Projects		TBD	TBD	X	X	X	X	X
6.10.1	Develop Open Data Policy		Geomatics	IMDGC	X				
6.10.2	Expand Open Data Program		Geomatics	IMDGC All business units	X	X	X	X	X
6.11.1	Develop Data Literacy Education/Training Program		ITS	All business units		X			
6.11.2	Build Data Community of Practice		ITS	All business units	X				

8. IM Strategy Implementation Costs

Staff time comprises a significant, but unquantifiable, cost for implementing many of the IM Strategy objectives.

A significant amount of work must be completed by RIM Program and ITS employees as shown by the 'Responsibility' column in Figure 7. It is assumed that Clerks and ITS will assess the capabilities/expertise and availability of staff to determine if/when additional resources will be required. Additional resources may be temporary employees, co-op students/interns, and/or consultants. Because it is not known the extent to which Clerks and/or ITS will require additional staff resources, Figure 8 does not allocate funds for additional staff resources with the following exceptions:

- a) One temporary Information Management Coordinator position (initial 12 month term) to assist the RIM Program to implement the IM Strategy.
- b) Archivist expertise for implementation of the objectives in Section 5.9 of the IM Strategy.
- c) A Data Architect (new position), the need for which was identified by the IG Committee at the IM Strategy Workshop.
- d) Resources (TBD) to support effective O365 Program implementation.
- e) Resources for data project work because, as also identified at the IM Strategy Workshop, the City typically does not fund that work or does not fund it sufficiently as part of a technology project.

All City employees will be asked to do some new tasks (e.g. attend IM training, participate in records clean-up projects, etc.). They will also be asked to do some existing tasks in a different way (e.g. use the specified date convention when including a date in the name of an unstructured electronic record instead of whatever convention they use currently). No monetary compensation is anticipated for the performance of new or modified tasks. The allocation of employee time to new tasks or from inefficient, ad hoc IM efforts to deliberate, targeted, and City-wide IM initiatives should increase overall productivity. To assist in resource planning, the 'Participants' column in Figure 7 indicates where department/service area employees will participate in implementing an objective.

Figure 8 lists only the objectives for which the City would incur some costs during IM Strategy implementation. In many cases, the implementation of an objective depends on information that is not presently known (e.g. volumes). Some objectives require the completion of a detailed analysis of requirements and options prior to deciding if/how to proceed. Consequently, until a detailed business case is prepared, the cost to implement those objectives cannot be reliably estimated. 'TBD' in Figure 8 stands for 'To be determined'.

Following initial implementation of the IM Strategy, many activities would continue in perpetuity (e.g. delivery of online IM training). Figure 8 does not include the costs, if any, for perpetual activities.

Figure 8 – Summary of Estimated IM Strategy Implementation Costs

Objective #	Objective	Cost Item(s)	Estimated Cost
3.2.2	Establish Data Architect Role	Annual salary	\$95,000 - \$115,000 plus benefits
		Workspace (desk, chair, computer, telephone)	TBD as per City's standard cost recovery
3.2.3	Resource Data Project Work	Cost of hiring project resources or backfilling staff to allow them to participate in data projects	TBD on a project by project basis
3.3.1	Staff One Temporary Information Management Coordinator Position	Annual salary	\$69,699 - \$87,124 plus benefits ²⁰
		Workspace (desk, chair, computer, telephone)	TBD as per City's standard cost recovery
3.3.2	Secure Archivist Expertise	If recommended Archives Program expansion staffed by an employee: Annual salary	\$69,699 - \$87,124 plus benefits ²¹
		If recommended Archives Program expansion staffed by an employee: Workspace (desk, chair, computer, telephone)	TBD as per City's standard cost recovery
		If recommended Archives Program expansion staffed by a consultant: Consulting fees	TBD depending on scope of services required
		If Archives Program not expanded as recommended: consulting fees to complete Objectives # 5.9.1, # 5.9.2, # 5.9.6, and # 5.9.7 and annual consulting fees to complete Objective # 5.9.4	TBD depending on scope of services required
4.2.2	Develop Mandatory Position Level-Specific RIM Training	Recording of online training	TBD depending on technology requirements, volume of webinars/podcasts to be recorded, and vendor's pricing
5.1.4	Train Employees to Identify 'Official' and 'Transitory' Records	Recording of online training, if online training is used	TBD depending on technology requirements, volume of webinars/podcasts to be recorded, and vendor's pricing

²⁰ This is the current salary range for the existing Coordinator positions in the RIM Program.

²¹ Ibid.

Objective #	Objective	Cost Item(s)	Estimated Cost
5.2.4	Complete Records Clean-up Projects	Increased shredding services fees	TBD depending on volume of records to be shredded
		Purchase of additional boxes to store physical records off-site	TBD depending on number of boxes required
		Commercial record centre fees to transfer boxed physical records to storage and process them	TBD depending on volume of records to be transferred
5.3.2	Promote Approved Methods for External Document Sharing and Collaboration	Additional FTP licenses if the City's FTP site is one of the approved methods	TBD
5.4.3	Provide Departments/Service Areas with Read-only Access to Commercial Record Centre Database	Additional database licenses	TBD depending on vendor's price list and number of licenses required
5.4.8	Implement Data Archiving Solution	Purchase of Digital Archiving Solution	Minimum \$20,000
		Annual license for Digital Archiving Solution	TBD
5.6.6	Enforce City Requirement for Mandatory Privacy Training	Recording of online training	TBD depending on technology requirements, volume of webinars/ podcasts to be recorded, and vendor's pricing
5.6.7	Educate Employees on Confidential Mail and Encryption	Recording of online training, if online training is used	TBD depending on technology requirements, volume of webinars/ podcasts to be recorded, and vendor's pricing
5.7.1	Identify and Protect Vital Records	Cost to implement protection methods for physical vital records	TBD depending on volume of records and protection method
		It is assumed that electronic vital records are already protected via the existing network backup process; therefore, no costs have been estimated to protect electronic vital records	TBD if existing network backup process cannot accommodate the protection of any additional records

Objective #	Objective	Cost Item(s)	Estimated Cost
5.8.3	Track and Apply Appropriate Records Retention Requirements		
5.8.5	Train Employees in Records Retention	Recording of online training	TBD depending on technology requirements, volume of webinars/ podcasts to be recorded, and vendor's pricing
5.8.6	Develop Digital Preservation Plan	Costs to implement the Digital Preservation Plan	TBD depending on the requirements in the Digital Preservation Plan
5.8.11	Schedule Retention Periods for Structured Data		
5.9.8	Provide Reference Copies of Archival Materials	Printing costs if reference copies are provided in hard copy	TBD depending on volume
5.9.9	Provide Suitably Equipped and Secure Archives Program Space	Environmentally-controlled, secure space	TBD depending on extent of renovations required
5.11.3	Capture and Manage Public Website Content as Records	Software to capture public website content as records	TBD depending on software requirements and number of licenses required
		Annual software licenses	TBD depending on vendor's price list and number of licenses required
5.12.1	Capture and Manage Social Media Content as Records	Software to capture social media content as records	TBD depending on software requirements and number of licenses required
		Annual software licenses	TBD depending on vendor's price list and number of licenses required
5.13.1	Establish Suitable Program Delivery Model for O365	Resourcing to drive the O365 Program	TBD depending upon gap between resource requirements and current resourcing levels
5.13.3	Provide O365	Overview education / training around O365 for	Up to \$5,000

Objective #	Objective	Cost Item(s)	Estimated Cost
	Overview Education/Training to IMDGC	IMDGC members	
5.13.9	Include IM Requirements in O365 Training	Recording of online training, if online training is used	TBD depending on technology requirements, volume of webinars/ podcasts to be recorded, and vendor's pricing
5.14.1	Research EDRMS Systems	Purchase of analyst/consultant research reports	\$3,000
5.15.4	Prepare EDRMS Business Case	Cost to implement the EDRMS if business case is approved (software purchase, hardware purchase if any, professional services, etc.)	TBD
6.7.1	Build Corporate Data Catalogue	We assume the BI platform can provide this capability; therefore, no cost has been estimated	TBD if BI platform cannot provide this capability
6.7.2	Establish Internal Data Portal	We assume that the BI and GIS platforms combined can provide this capability; therefore, no cost has been estimated	TBD if BI or GIS platform cannot provide this capability
6.9.1	Determine Top 3 or 5 Data Projects	Funding to support the execution of project work to bring 3 or 5 datasets under effective data governance (may involve data model design, data quality assessment, data work to address gaps and cleanse data, secure new data sources, etc.). Projects TBD.	\$75,000
6.9.4	Cleanup AMANDA Customer Data	Project resources to support the customer data cleanup may be included in work planned as part of the BI Program on an MDM initiative around customer data; therefore, no cost has been estimated	TBD if not included in funded work planned as part of the BI Program
6.11.1	Develop Data Literacy Education/Training Program	Data literacy assessment	\$25,000
		Data literacy training program	\$50,000

Appendix 1: Acronyms and Abbreviations

Figure 9 lists the acronyms and abbreviations used in this report.

Figure 9 – Acronyms and Abbreviations Used in the Report

Acronym	Full Name
BI	Business intelligence
BLT	Burlington Leadership Team
City	City of Burlington
CRM	Customer relationship management
EDRMS	Electronic document and records management system
ERP	Enterprise resource planning (system)
FOI	Freedom of Information
GIS	Geographical information system
GL	General ledger
IG	Information governance
IM	Information management
IPC	Information and Privacy Commissioner of Ontario
ISO 15489-1:2016	International Organization for Standardization standard: Information and documentation - Records management - Part 1: Concepts and Principles (ISO 15489-1:2016 (E))
IT	Information technology in the context of using computers, storage, networking and other physical devices, infrastructure and processes to create, process, store, secure and exchange all forms of electronic data
ITS	The City's Information Technology Services Department
MDM	Master data management
MFIPPA	Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. M.56, as amended, and includes any regulations passed under it
PIA	Privacy impact assessment
QA	Quality assurance
QC	Quality control
RIM	Records and information management
RM	Records management
RRS	Records Retention Schedule
SOP	Standard operating procedure
UFP	Uniform File Plan

Appendix 2: Definitions

Figure 10 defines the key terms in the report. The prefix 'External' is used before the name of a document in the 'Definition Source' column to indicate a resource published by a 3rd party.

Figure 10 – Definitions

Term	Definition	Definition Source
Accession (verb)	To take legal and physical custody of records and to formally document their receipt by entering brief information about them in a register or database.	External: Glossary of Archival and Records Terminology (2005)
Active Records	Are currently open, being edited and changed, regularly used and worked on by staff.	By-law 5-2015 (Schedule A: Records Retention Schedule)
Archival Record	Materials created or received by a person, family, or organization, public or private, in the conduct of their affairs that are preserved because of the enduring value contained in the information they contain or as evidence of the functions and responsibilities of their creator.	External: Glossary of Archival and Records Terminology
Archival Records	After their inactive retention periods expire, archival records may be selected for permanent retention in order to document the City of Burlington's history as a municipal organization.	By-law 5-2015 (Schedule A: Records Retention Schedule)
Archival Value	The ongoing usefulness or significance of records, based on the administrative, legal, fiscal, evidential, or historical information they contain, justifying their continued preservation.	External: Glossary of Archival and Records Terminology (2005)
Arrangement	The process of intellectually and/or physically organizing records in accordance with the archival principles of provenance and original order, and into levels of arrangement such as the fonds, the series, the file, and the item.	External: Millar, Archives Principles and Practices (2010)

Term	Definition	Definition Source
Confidential Information	<p>This description is for all records and information with limited access and intended solely for the addressee(s). It includes:</p> <ul style="list-style-type: none"> • the security of the city's property • personal matters about an identifiable individual • proposed or pending acquisition of land • labour relations or employee negotiations • litigation or potential litigation • advice that is subject to solicitor-client privilege • subject matter related to consideration of a request under MFIPPA • third party proprietary information • relations with government • information that is sensitive or personal • as well as any other information that the city deems to be confidential. <p>Note that confidential information and records may be releasable as determined under MFIPPA legislation.</p>	Protection of Privacy and Confidential Information Policy
Description	The process of establishing intellectual control over archival material by creating finding aids or other access tools that identify the content, context, and structure of the archives.	External: Millar, Archives Principles and Practices (2010)
Destruction Hold	A hold placed on the scheduled destruction of records due to foreseeable or pending litigation, governmental investigation, audit, or special organizational requirements	External: Glossary of Records Management and Information Governance Terms, 5 th edition
Disposition	<p>The final outcome of a record when its retention period is complete. Disposition may indicate one of the following:</p> <ul style="list-style-type: none"> • Destruction, where records are securely destroyed beyond the point of recognition or recovery. For paper records, this means cross-cut or particle shredding; for electronic records, this means a complete deletion from shared drives, servers and backup storage. • Permanent retention, where records are retained until the City of Burlington ceases to exist as a municipality. 	By-law 5-2015 (Schedule A: Records Retention Schedule)
Disposition	The action taken with regards to personal and confidential information including destruction, transfer to another entity, or permanent preservation.	Protection of Privacy and Confidential Information Policy

Term	Definition	Definition Source
Electronic Document and Records Management System (EDRMS)	An automated software application designed to assist ... with the creation, management, use, storage and disposal of information and records. An EDRMS may also automate business processes such as workflows and approvals and be integrated with other business systems.	External: National Archives of Australia http://www.naa.gov.au/information-management/managing-information-and-records/systems/EDRMS/index.aspx
Enduring Value	The continuing usefulness or significance of records, based on the administrative, legal, fiscal, evidential, or historical information they contain, justifying their ongoing preservation.	External: Glossary of Archival and Records Terminology (2005)
ERP (enterprise resource planning) system	A single, consolidated repository for data that is considered business critical and is used across an entire organization.	ERP Program Overview
Fonds	The entire body of documents, regardless of form or medium, created or accumulated by a particular individual, family, corporate body or other agency as part of life and work and retained because those materials have ongoing archival value as evidence of those functions and activities.	External: Millar, Archives Principles and Practices (2010)
GIS Data	<p>GIS [geographic information system] data can be otherwise referred to as spatial data or geospatial data. It has explicit geographic positioning information included within it, such as a road network or a satellite image that has a built-in coordinate system. It also has associated metadata (i.e. description of data and who collected the data) and may include attribute data (i.e. condition value for a road, the data a value is collected, etc.) that describes the features found in a dataset.</p> <p>Any data on physical assets that are owned and/or operated by the city of Burlington would be considered GIS data.</p>	GIS Data Collection Policy (draft)
Inactive Records	Are closed, completed, and no longer actively referred to or changed by staff.	By-law 5-2015 (Schedule A: Records Retention Schedule)
Inactive Records	Those records no longer required to carry out the administrative or operational functions for which they were created or received but must be kept for administrative, fiscal, legal, or historical purposes in accordance with the approved records retention schedules pursuant to	Records Management Policy

Term	Definition	Definition Source
	Records Retention By-law.	
Information Governance	A strategic, cross-disciplinary framework composed of standards, processes, roles, and metrics that hold organizations and individuals accountable for the proper handling of information assets. The framework helps organizations achieve business objectives, facilitates compliance with external requirements, and minimizes risk posed by sub-standard information handling practices	External: Glossary of Records Management and Information Governance Terms, 5 th edition
Information Management	Information management is the lifecycle of information - the acquisition of information from various sources, the custodianship of that information, the distribution of that information, and the disposition of the information through deletion or archiving as dictated by the organization's information governance policies.	IG Committee Terms of Reference which quotes the following external source: MacFarlane, The Difference Between Information Governance and Information Management (2017)
Original Order	The order and organization in which records were created, used, maintained and stored by the creator or office of origin. The Principle of Original Order states that the order and organization in which records were created, used, maintained and stored by the creator or office of origin is maintained by an archives.	External: Millar, Archives Principles and Practices (2010)
Personal Information	Recorded information about an identifiable individual, including: <ul style="list-style-type: none"> • race, national or ethnic origin, colour, religion, age, sex, sexual orientation or marital or family status of the individual • education or the medical, psychiatric, psychological, criminal or employment history of the individual or information relating to financial transactions in which the individual has been involved • identifying number, symbol or other particular assigned • address, telephone number, fingerprints or blood type • personal opinions or views of the individual except if they relate to another individual • correspondence sent by the individual that is implicitly or explicitly of a private or confidential nature, and replies that would reveal the contents of the original correspondence • views or opinions of another individual about the individual • individual's name if it appears with other personal information For more information, refer to MFIPPA s. 2(1).	Protection of Privacy and Confidential Information Policy
Privacy	This is a set of interests and rights that an individual has regarding his/her ability to control	Protection of Privacy and

Term	Definition	Definition Source
	the collection, use, disclosure and disposal retention of his/her own personal information that is in the custody or under the control of the City of Burlington. Privacy is not an absolute right in all situations. Personal information may be collected, used, disclosed or retained without the consent of individuals where specific legislation permits.	Confidential Information Policy
Privacy Breach	Occurs when personal information is collected, retained, used, disclosed or disposed in ways that are not in accordance with the provisions of MFIPPA [Municipal Freedom of Information and Protection of Privacy Act] and/or corporate policies.	Protection of Privacy and Confidential Information Policy
Privacy Impact Assessment (PIA)	The PIA is a process for identifying, assessing and mitigating privacy risks. A PIA is a due diligence exercise to analyze the effects of a technology, system, program or service design on the privacy of individuals.	Protection of Privacy and Confidential Information Policy
Provenance	The person, agency or office of origin that created, acquired, used and retained a body of records in the course of their work or life. The Principle of Provenance states that The records created acquired, used and retained by a person, agency or office of origin are kept together in an archives.	External: Millar, Archives Principles and Practices (2010)
Record Series	Group of records created as the result of a similar business activity or function. Each record series acts as a container for records that share a common purpose, or are all linked to the same service, project or issue.	By-law 5-2015 (Schedule A: Records Retention Schedule)
Record	Means any record of information however recorded, whether in printed form, on film, by electronic means or otherwise, and includes, a) correspondence, a memorandum, a book, a plan, a map, a drawing, a diagram, a pictorial or graphic work, a photograph, a film, a microfilm, a sound recording, a videotape, a machine-readable record, any other documentary material, regardless of physical form or characteristics, and any copy thereof, and b) any record that is capable of being produced from a machine-readable record under the control of the institution by means of computer hardware and software or any other information storage equipment and technical expertise normally used by the institution. (from MFIPPA)	Archives Policy
		Protection of Privacy and Confidential Information Policy
		Records Management Policy
Records	Collections of information that provide evidence of business decisions and actions, regardless of format. Records may also be defined as the output of a process or proof of service. Records have legal, operational or historical value to the organization.	By-law 5-2015 (Schedule A: Records Retention Schedule)
Records	Records are information that provides evidence of action, service or decision, regardless of format. They are also information assets, meaning information that has legal, business and/or historical value for the organization. Records may exist in any information format,	Records and Information Slimming Day Participant Handbook

Term	Definition	Definition Source
	including paper files, photographs, shared drive folders, e-mail and other electronic records.	
Records and Information Management	See the definition for 'records management'. The terms 'records management' and 'records and information management' are interchangeable. [Ergo note: While the City used the term 'records management' in the past (e.g. the current policy is called the Records Management Policy), it uses the term 'records and information management' in more recent documentation (e.g. in the job description for the Information and Archives Co-ordinator position).]	N/A
Records Lifecycle	The span of time beginning with a record creation or receipt and ending with final disposition (either destruction or permanent retention).	Records Management Policy
Records Management	The systematic control of all records from their creation or receipt to their ultimate disposition either by physical destruction or transfer to an archives.	Records Management Policy
Records Retention Schedule	A timetable that governs the life span of a record from its creation or receipt, through active use within an office and retention in off-site storage, to destruction or transfer to an archives/permanent storage approved by City Council and the City's external auditor. [Ergo note: The Municipal Act no longer requires approval by an auditor.]	Records Management Policy
Retention	The period of time for which a record must be kept, usually expressed in years.	By-law 5-2015 (Schedule A: Records Retention Schedule)
Secure Destruction	Papers in the blue and grey recycling bins on City property are not shredded. Think of the blue and grey bins as public areas, and do not put anything in to those bins which contains personal, sensitive or otherwise confidential information. If purchasing or maintaining an office shredder, cross-cut technology is recommended by the Information and Privacy Commission of Ontario, as a better method than strip shredding for protecting privacy and confidentiality. On-site shredding services are recommended for routine and large volume paper records destruction which may be required at City facilities. Contact Procurement Services if you would like to receive shredding services under the current third-party service contract. Paper records at the off-site records storage facility are securely shredded at that location	By-law 5-2015 (Schedule A: Records Retention Schedule)

Term	Definition	Definition Source
	when retention periods expire, following a departmental review and sign-off.	
Sensitivity (of a record series)	<p>Indicates the general level of confidentiality applied to a record series. This area of the schedule will include one of the following designations:</p> <ul style="list-style-type: none"> • Low - Records are generally considered to be public, and a Freedom of Information request is not generally required in order to access these records. Examples include bylaws, annual reports, approved budget books, and non-confidential committee reports. • Medium - Records are likely to contain information exempt from public disclosure under the <i>Municipal Freedom of Information and Protection of Privacy Act</i> (MFIPPA). A formal Freedom of Information request is required under MFIPPA in order to access. • High - Records are considered to be confidential for internal business purposes, legal protection or legislative compliance, as in the case of confidential reports to Committee and Council. A formal Freedom of Information request is required under MFIPPA in order to access. High sensitivity records may also contain Personal Information Banks, defined by section 2(1) of MFIPPA as "a collection of personal information that is organized and capable of being retrieved using an individual's name or an identifying number or particular assigned to the individual." 	By-law 5-2015 (Schedule A: Records Retention Schedule)
Series (in the archives context)	Aggregations of files or other records within a larger fonds or group that relate to the same processes or that are evidence of a common form, purpose or use.	External: Millar, Archives Principles and Practices (2010)
Structured data (or structured information or structured records)	Information with a high degree of pre-defined organization so humans and/or software applications handling it know exactly where to find each data element. An example is a relational database with tables, data fields, and relations among fields in different tables.	External: Glossary of Records Management and Information Governance Terms, 5 th edition
Transitory Records	Records and documents with temporary usefulness and no long-term value, received or stored in any format. Transitory records may facilitate the completion of insignificant transactions or be created while preparing an official corporate record. Transitory records are not required to meet legal or fiscal obligations, do not provide evidence of decision-making, and are not directly linked to the provision of City services and operations.	Transitory Records record series in the Records Retention Schedule
Uniform File Plan	Arrangement/categorization of records that provides a uniform structure for naming and storing files and documents.	Records Management Policy
Vital Record	A record that is fundamental to the functioning of an organization and necessary to the	External: Glossary of Records

Term	Definition	Definition Source
	continuance of operations. Also referred to as essential record.	Management and Information Governance Terms, 5 th edition

Appendix 3: The Information Governance Maturity Model

Note: The information in this appendix was excerpted from Sections 11.1 and 11.2 and Appendix 5 of the IM Assessment Report.

Developed by ARMA International (ARMA), the Generally Accepted Recordkeeping Principles® (the Principles) “constitute a generally accepted global standard that identifies the critical hallmarks and a high-level framework of good practices for information governance.”²² The Principles “are meant to provide organizations with a standard of conduct for governing information and guidelines by which to judge that conduct.”²³ There are eight principles, as briefly described in Figure 11 below.

The Information Governance Maturity Model (IG Maturity Model) is based on the Generally Accepted Recordkeeping Principles® and the “standards, best practices, and legal/regulatory requirements that surround information governance.”²⁴ Intended “to be deployed as a quality improvement tool”²⁵, the IG Maturity Model describes for each Principle the characteristics of effective IG at five levels of development. The five levels of development are²⁶:

1. Level 1 (Substandard): “This level describes an environment where information governance concerns are not addressed at all, are addressed minimally, or are addressed in a sporadic manner. Organizations at this level usually have concerns that the information governance programs will not meet legal or regulatory requirements and may not effectively serve their business needs.”
2. Level 2 (In Development): “This level describes an environment where there is a developing recognition that information governance has an impact on the organization and that the organization may benefit from a more defined information governance program. The organization is vulnerable to redress of its legal or regulatory, and business requirements because its practices are ill-defined, incomplete, nascent, or only marginally effective.”
3. Level 3 (Essential): “This level describes the essential or minimum requirements that must be addressed to meet the organization’s legal, regulatory, and business requirements. Level 3 is characterized by defined policies and procedures and the implementation of processes specifically intended to improve information governance. Level 3 organizations may be missing significant opportunities for streamlining the business and controlling costs, but they demonstrate the key components of a sound

²² http://c.ymcdn.com/sites/www.arma.org/resource/resmgr/files/Learn/2017_Generally_Accepted_Reco.pdf

²³ Ibid.

²⁴ <http://www.arma.org/page/IGMaturityModel>

²⁵ Ibid.

²⁶ Ibid.

program and may be minimally compliant with legal, operational, and other responsibilities.”

4. Level 4 (Proactive): “This level describes an organization-wide, proactive information governance program with mechanisms for continuous improvement. Information governance issues and considerations are routinized and integrated into business decisions. For the most part, the organization is compliant with industry best practices and meets its legal and regulatory requirements. Level 4 organizations can pursue the additional business benefits they could attain by increasing information asset availability, as appropriate; mining information assets for a better understanding of client and customer needs; and fostering their organizations’ optimal use of information.”
5. Level 5 (Transformational): “This level describes an organization that has integrated information governance into its infrastructure and business processes such that compliance with the organization’s policies and legal/regulatory responsibilities is routine. The organization recognizes that effective information governance plays a critical role in cost containment, competitive advantage, and client service. It implements strategies and tools for ongoing success.”

Figure 11 contains the Information Governance Maturity Model (Maturity Model), as excerpted from the following ARMA International publication registered with the American National Standards Institute (ANSI): *Implementing the Generally Accepted Recordkeeping Principles®* (ARMA International TR 30-2017).

The Maturity Model lists the requirements at each of Levels 1-5 for each of the eight Principles in the Generally Accepted Recordkeeping Principles.

Notes:

1. References in the Maturity Model to ‘information management’ were abbreviated as ‘IM’.
2. References in the Maturity Model to ‘information management program’ were abbreviated as ‘IM Program’.
3. References in the Maturity Model to ‘information governance program’ were abbreviated as ‘IG Program’.
4. References in the Maturity Model to ‘information governance’ were abbreviated as ‘IG’.

Figure 11 – The Information Governance Maturity Model

The Principle	Level 1 (Substandard)	Level 2 (In Development)
<p>Accountability:</p> <p>"A senior executive (or a person of comparable authority) shall oversee the IG Program and delegate responsibility for IM to appropriate individuals."</p>	<p>No senior executive (or person of comparable authority) is aware of the need to manage records or other information assets.</p> <p>The information manager role is largely non-existent, or it is an administrative or clerical role distributed among general staff.</p> <p>Employees are not made aware of their responsibilities for managing the information assets they create or receive.</p> <p>Information assets are managed inconsistently or not at all.</p>	<p>A senior executive (or person of comparable authority) is aware of the need to manage information assets but is not actively engaged in coordinating with individual departments.</p> <p>The information manager role is recognized, but the person in that role is responsible only for tactical operation of the IM Program, which is concerned primarily with managing specific records rather than all information assets.</p> <p>The IM Program primarily covers only paper records. The information technology function or department is the <i>de facto</i> lead for storing electronic information, and the information manager is not involved in discussions about electronic systems; information assets are not stored in a systematic fashion.</p> <p>Only employees with direct IM Program responsibilities receive training about managing information assets, but that training is limited to their program responsibilities.</p>
Level 3 (Essential)	Level 4 (Proactive)	Level 5 (Transformational)
<p>A senior executive (or person of comparable authority) is both responsible for and actively engaged in setting strategy for managing information.</p> <p>The information manager role is recognized within the organization, and the person in that role is responsible for the tactical operation of the established IM Program on an organization-wide basis. The information manager is occasionally engaged in strategic IM initiatives with executive management.</p> <p>The IM Program is responsible for electronic and paper records.</p> <p>Senior management is aware of the IM Program and its value to the organization. The organization envisions establishing a broader-based IG program to direct various information-driven business processes in the organization.</p> <p>The organization has created specific goals related to accountability for records assets and information-driven business processes.</p> <p>All employees receive training regarding their IM responsibilities, but only during orientation.</p>	<p>A senior executive (or person of comparable authority) is responsible for and involved in setting the strategy for managing all of the organization's information assets.</p> <p>The organization has appointed an IG professional who oversees the IM Program.</p> <p>The information manager is a senior officer responsible for all tactical and strategic aspects of the IM Program, which is an element of the IG program.</p> <p>An IG stakeholder committee, representing all functional areas, meets periodically to review disposition policy and other IG-related issues.</p> <p>All employees receive ongoing, documented training regarding their IM responsibilities.</p>	<p>The organization's governing board and senior management place great emphasis on the importance of IG.</p> <p>The information manager directs the IM Program and reports to an individual at the senior level of management (e.g. chief IG officer).</p> <p>The chief IG officer and the information manager are essential members of the organization's governing body.</p> <p>The organization's initial goals related to accountability for information-related business processes have been met, and it has an established, routinized process to ensure goals for accountability are reviewed and revised, as needed.</p> <p>All employees receive ongoing, documented training regarding their IM responsibilities, and compliance with this training is audited and documented regularly.</p>

City of Burlington
Information Management (IM) Strategy

The Principle	Level 1 (Substandard)	Level 2 (In Development)
<p>Transparency:</p> <p>"An organization's business processes and activities, including its IG Program, shall be documented in an open and verifiable manner, and that documentation shall be available to all personnel and appropriate, interested parties."</p>	<p>It is difficult to obtain information about the organization, its business, or its IM Program in a timely manner.</p> <p>Business and IM processes are not well-defined, and no clear documentation regarding these processes is readily available.</p> <p>Employees are not made aware of their responsibilities for helping ensure transparency.</p> <p>The organization puts no emphasis on transparency.</p> <p>The organization cannot readily accommodate requests for information from regulators, the courts, potential business partners, investors, buyers, or other entities.</p> <p>The organization has no controls to ensure the consistency of information disclosure.</p>	<p>The organization realizes that some degree of transparency is important in its business processes and IM Program to meet the organization's business or regulatory needs.</p> <p>Although a limited amount of transparency exists in areas where regulations demand it, there is no systematic or organization-wide drive to transparency.</p> <p>Only those employees with direct IM Program responsibilities receive training related to transparency, but that training is limited to their program responsibilities.</p> <p>The organization has begun to document its business and IM processes.</p>
Level 3 (Essential)	Level 4 (Proactive)	Level 5 (Transformational)
<p>Transparency in business practices and IM is taken seriously, and information is readily and systematically available, when needed.</p> <p>There is a written policy regarding transparency in business operations and in IM.</p> <p>Employees receive training about the importance of transparency and the specifics of the organization's commitment to transparency, but only during orientation.</p> <p>The organization has defined specific goals related to IG transparency.</p> <p>Business and IM processes are documented.</p> <p>The organization can accommodate most requests for information from regulators, the courts, potential business partners, investors, buyers, or other entities.</p>	<p>Transparency is an essential part of the corporate culture.</p> <p>On a regular basis, the organization monitors compliance with its transparency policy.</p> <p>Documentation of business and IM processes is monitored and updated consistently.</p> <p>All employees receive ongoing, documented training about the importance of transparency and the specifics of the organization's commitment to transparency.</p> <p>Requests for information from regulators, the courts, potential business partners, investors, buyers, or other entities are managed through routinized business processes.</p>	<p>The organization's senior management considers transparency as a key component of IG.</p> <p>Software tools are in place to help ensure transparency.</p> <p>All employees receive ongoing, documented training about the importance of transparency and the specifics of the organization's commitment to transparency; compliance with this training is audited and documented regularly.</p> <p>Regulators, the courts, potential business partners, investors, buyers, or other legitimately interested parties are consistently satisfied with the transparency of the organization's processes.</p> <p>The organization's initial transparency goals have been met and it follows a routinized process to ensure its goals for transparency are reviewed and revised, as needed.</p>

City of Burlington
Information Management (IM) Strategy

The Principle	Level 1 (Substandard)	Level 2 (In Development)
<p>Integrity:</p> <p>“An IG Program shall be constructed so the information assets generated by or managed for the organization have a reasonable guarantee of authenticity and reliability.”</p>	<p>There are no systematic audits or defined processes for showing that an information asset is authentic, i.e., the information asset's origin, time of creation or transmission, and content are what they are purported to be.</p> <p>Various organization functions use haphazard methods to demonstrate authenticity and chain of custody; the legitimacy of those methods cannot be verified easily.</p>	<p>Some of the organization's information assets are stored with metadata that demonstrate their authenticity, but there is no formal process for metadata storage or chain of custody safeguards.</p> <p>Metadata storage and chain of custody safeguards are deemed important, but they are left to the departments to handle in their own ways.</p> <p>Only those employees with direct IM Program responsibilities receive training related to ensuring the integrity of information assets, but that training is limited to their program responsibilities.</p>
Level 3 (Essential)	Level 4 (Proactive)	Level 5 (Transformational)
<p>The organization has a formal process to ensure that chain of custody and the required levels of authenticity can be integrated into its systems and processes.</p> <p>The organization captures the appropriate metadata elements to demonstrate compliance with its policies. All employees receive training related to ensuring the integrity of information assets, but only during orientation.</p> <p>The organization has specific goals related to integrity.</p>	<p>For all systems, business applications, and records, there is a clear definition of metadata requirements that will ensure the authenticity of information assets.</p> <p>The organization's metadata requirements include security, signature, and chain of custody safeguards to demonstrate authenticity.</p> <p>Metadata-related processes are an integral part of IM practices.</p> <p>All employees receive ongoing, documented training related to ensuring the integrity of information assets.</p>	<p>There is a formal, defined process for introducing record-generating systems, capturing metadata, and meeting other authenticity requirements, including those related to chain of custody.</p> <p>Controls for ensuring the integrity of information assets are audited regularly.</p> <p>The organization's initial goals related to integrity have been met, and there is a routinized process to ensure goals for integrity are reviewed and revised, as needed.</p> <p>All employees receive ongoing, documented training related to ensuring the integrity of information assets, and their compliance with that training is audited.</p>

City of Burlington
Information Management (IM) Strategy

The Principle	Level 1 (Substandard)	Level 2 (In Development)
<p>Protection:</p> <p>“An IG Program shall be constructed to ensure an appropriate level of protection to information assets that are private, confidential, privileged, secret, classified, essential to business continuity, or that otherwise require protection.”</p>	<p>No consideration is given to the organization-wide protection of information assets. For example, information is not backed up, and virus protection is absent.</p> <p>Employees are not made aware of their responsibilities for protecting information assets.</p> <p>Information assets are stored haphazardly and without centralized access controls; if controls exist, they are assigned by the document's author or owner.</p> <p>Protection methods, if used at all, are left to the discretion of the divisions and departments within the organization.</p>	<p>Some protection of information assets is exercised. For example, anti-virus protection may be in place and information may be backed up sporadically.</p> <p>There is a written policy for select information assets requiring protection (e.g. paper personnel records); however, the policy does not give clear and definitive guidelines for all information assets in all formats and on all media.</p> <p>Only those employees with direct IM Program responsibilities receive training about protecting information assets; but that training is limited to their program responsibilities.</p> <p>Protection policies do not address how to transmit protected information assets among internal or external stakeholders.</p> <p>Access controls for information are determined by individual content owners.</p>
Level 3 (Essential)	Level 4 (Proactive)	Level 5 (Transformational)
<p>The organization has a formal written policy for protecting information assets, and it has centralized access controls. For example, firewalls are in place, anti-virus software is installed, information is backed up regularly, and the breach response and business continuity plans are documented.</p> <p>Confidentiality and privacy considerations for information assets are well-defined throughout the organization.</p> <p>The importance of chain of custody is defined.</p> <p>Employees receive training about how to protect information assets, but only during orientation.</p> <p>Information asset audits are conducted in regulated areas of the business; audits in other areas may be conducted, but they are left to the discretion of each functional area.</p> <p>The organization has created specific goals related to information asset protection.</p>	<p>The organization has implemented systems that provide for the protection of information assets. Firewalls are in place, ant-virus software is installed across the enterprise, there are centralized access controls, information is backed up routinely, and the breach response and business continuity plans are reviewed and updated regularly.</p> <p>Employees receive ongoing, documented training about how to protect information assets.</p> <p>Auditing of compliance and protection measures is conducted regularly.</p>	<p>Executives, senior management, and other governing bodies (e.g. board of directors) place great value in the protection of information.</p> <p>All information protections are in place, including anti-hacking tools, offsite data backups, and business continuity and breach response plans; plans are reviewed, tested, and updated regularly.</p> <p>Employees receive ongoing, documented training about how to protect information assets, and compliance with that training is audited.</p> <p>Audits are conducted and results are examined regularly; continuous improvement is a priority.</p> <p>Incidents of inappropriate or inadvertent information asset disclosure or loss are rare.</p> <p>The organization's initial goals related to information protection have been met, and there is an established, routinized process to ensure that goals for protection are reviewed and revised, as needed.</p>

City of Burlington
Information Management (IM) Strategy

The Principle	Level 1 (Substandard)	Level 2 (In Development)
<p>Compliance:</p> <p>“An IG Program shall be constructed to comply with applicable laws, other binding authorities, and the organization’s policies.”</p>	<p>There is no clear understanding or definition of the information assets the organization is obligated to keep.</p> <p>Employees are not made aware of their responsibilities for complying with IM policies and processes.</p> <p>Information is not systematically managed; groups within the organization manage information as they see fit, based upon their own understanding of their responsibilities, duties, and requirements.</p> <p>There is no central oversight or guidance and no consistent, defensible position on compliance.</p> <p>There is no formally defined or generally understood policy for imposing legal, audit, or other processes in relation to information asset production.</p> <p>The organization has significant exposure to adverse consequences from poor compliance practices.</p>	<p>The organization has identified some of the rules and regulations that govern its business and introduced some compliance policies and practices; the policies are incomplete, and there are no structured accountability controls for compliance.</p> <p>Only those employees with direct IM Program responsibilities receive training about the importance of compliance with IM policies and processes, but that training is limited to their program responsibilities.</p> <p>There is an information asset hold process, but it is not well-integrated with the organization’s IM and discovery processes; the organization lacks full confidence in it.</p>
Level 3 (Essential)	Level 4 (Proactive)	Level 5 (Transformational)
<p>The organization has identified key compliance laws and regulations.</p> <p>Information creation and capture are, in most cases, systematically carried out in accordance with IM principles.</p> <p>The organization has a code of business conduct that is integrated into its overall IG structure and policies.</p> <p>All employees receive training about the importance of compliance with IM policies and processes, but only during orientation.</p> <p>Compliance is highly valued, and it is measurable and verifiable.</p> <p>The information hold process is integrated into the organization’s IM and discovery processes, and it is generally effective.</p> <p>The organization has created specific goals related to compliance.</p> <p>The organization’s exposure to adverse consequences from poor IM and IG practices is reduced.</p>	<p>The organization has implemented systems to capture, protect, and dispose of information assets in a legally defensible manner.</p> <p>Records are linked with the metadata, which are used to demonstrate and measure compliance.</p> <p>Employees receive ongoing, documented training about the importance of compliance with IM policies and processes.</p> <p>Training and audit-related information is available for review.</p> <p>Lack of compliance is consistently remedied by defined corrective actions.</p> <p>Legal, audit, and other processes that require producing information assets are well-managed and effective, with defined roles and repeatable processes that are integrated into the organization’s IG Program.</p> <p>The organization is at low risk of adverse consequences from poor IM and IG practices.</p>	<p>The importance of compliance in the management of information assets is clearly recognized at the board and senior management levels. Auditing and continuous improvement processes are well-established and monitored by senior management.</p> <p>The roles and processes for IM are discovery are integrated, well-developed, and effective.</p> <p>All employees receive ongoing, documented training regarding the importance of compliance with IM policies and processes; compliance with this training is audited and documented regularly.</p> <p>The organization suffers few or no adverse consequences related to IG and compliance failures.</p> <p>The organization’s goals related to compliance have been met, and it has an established, routinized process to ensure its goals for compliance are reviewed and revised, as needed.</p>

City of Burlington
Information Management (IM) Strategy

The Principle	Level 1 (Substandard)	Level 2 (In Development)
<p>Availability:</p> <p>“An organization shall maintain its information assets in a manner that ensures their timely, efficient, and accurate retrieval.”</p>	<p>Information assets are not readily available when needed, and/or it is unclear whom to ask when assets need to be produced.</p> <p>It is too time-consuming to find the appropriate version of an information asset, if it can be found at all.</p> <p>Employees are not made aware of how and where to store information assets.</p> <p>The organization lacks finding aids, such as indices or metadata, for information assets.</p> <p>Legal discovery and information requests are difficult to fulfill because it is not clear where information assets, including specific versions of those assets, are located.</p>	<p>Information retrieval mechanisms have been implemented in some areas of the organization.</p> <p>In those areas with information asset retrieval mechanisms, it is possible to distinguish among official records, duplicates, and other items.</p> <p>There are some policies on where and how to store official records and other information assets, but a best practice is not imposed across the organization.</p> <p>Only those employees with direct IM Program responsibilities receive training about how and where to store information assets, but that training is limited to their program responsibilities.</p> <p>Responding to legal discovery and information asset requests is complicated and costly due to the inconsistent treatment of information.</p>
Level 3 (Essential)	Level 4 (Proactive)	Level 5 (Transformational)
<p>There is a best practice for where and how information assets are stored, protected, and made available.</p> <p>There are clearly defined policies for handling information assets.</p> <p>Information asset retrieval mechanisms are consistent and effective.</p> <p>All employees receive training about how and where to store information, but only during orientation.</p> <p>Most of the time, it is easy to determine where to find the authentic, final version of any information asset.</p> <p>Discovery and information asset request processes are well-defined and systematic.</p> <p>Systems and infrastructure contribute to the availability of information assets.</p> <p>The organization has created specific goals related to the availability of information assets.</p>	<p>IG policies have been clearly communicated to all employees and other parties.</p> <p>All employees receive ongoing, documented training about how and where to store information.</p> <p>There are clear guidelines and an inventory that identify and define information assets and systems, so information assets are consistently and readily available, when needed.</p> <p>Appropriate systems and controls are in place for discovery and other requests for information assets, including the use of automation for consistent processing of requests.</p>	<p>The senior management and board provide support to continually upgrade processes that affect information asset availability.</p> <p>All employees receive ongoing, documented training about how and where to store information, and they are audited for compliance regularly.</p> <p>There is a measurable return on investment because of the availability of information assets.</p> <p>The organization's goals for information asset availability have been met, and there is an established, routinized process to ensure that these goals are reviewed and revised, as needed.</p>

City of Burlington
Information Management (IM) Strategy

The Principle	Level 1 (Substandard)	Level 2 (In Development)
<p>Retention:</p> <p>“An organization shall maintain its information assets for an appropriate amount of time, taking into account its legal, regulatory, fiscal, operational, and historical requirements.”</p>	<p>There is no current, documented records retention schedule or policy.</p> <p>Rules and regulations defining retention are not identified or centralized; retention guidelines are haphazard, at best.</p> <p>In the absence of retention schedules and policies, employees either keep everything or dispose of information assets based on their own business needs, rather than on organizational needs.</p>	<p>A records retention schedule and policies are available, but they do not encompass all information assets, have not undergone an official review, and are not well-known throughout the organization.</p> <p>Only those employees with direct IM Program responsibilities receive training about the requirements for keeping or disposing of the information assets they create and receive, but only as the requirements relate to their program responsibilities.</p> <p>The records retention schedule and policies are not updated or maintained regularly.</p> <p>The litigation hold process is in place, but it may not be monitored to ensure its effectiveness so relevant information may be missed.</p> <p>Educational materials and training activities related to retention policies are not available.</p>
Level 3 (Essential)	Level 4 (Proactive)	Level 5 (Transformational)
<p>The organization has instituted a policy for the retention of information assets; a formal records retention schedule that is tied to rules and regulations is consistently applied throughout the organization.</p> <p>All employees receive training about the requirements for keeping or disposing of the information assets they create and receive, but only during orientation.</p> <p>The litigation hold process is in place and compliance is monitored.</p> <p>The organization has created specific goals related to information asset retention.</p>	<p>Employees understand how to classify records and other information assets appropriately.</p> <p>All employees receive ongoing, documented training about the requirements for keeping or disposing of the information assets they create and receive.</p> <p>Records retention schedules are reviewed on a regular basis and there is a process to adjust retention schedules, as needed.</p> <p>The appropriate retention of information assets is a major organizational objective.</p>	<p>The appropriate retention of information assets is an important consideration at the senior management and board levels.</p> <p>All employees receive ongoing, documented training about the requirements for keeping or disposing of the information assets they create and receive, and compliance with this training is audited and documented regularly.</p> <p>Retention is applied to all information assets in an organization and is not limited to official records only.</p> <p>Information assets are consistently retained for the appropriate periods, per retention schedules.</p> <p>The litigation hold process is in place, routinely monitored, and actively reminds employees of requirements throughout the litigation action.</p> <p>The organization's information asset retention goals have been met, and there is an established, routinized process to ensure goals are reviewed and revised, as needed.</p>

City of Burlington
Information Management (IM) Strategy

The Principle	Level 1 (Substandard)	Level 2 (In Development)
<p>Disposition:</p> <p>“An organization shall provide secure and appropriate disposition for information assets no longer required to be maintained, in compliance with applicable laws and the organization’s policies.”</p>	<p>There are no processes or there is no documentation of processes for transferring or disposing of information assets.</p> <p>Employees are not made aware of their information disposition responsibilities.</p> <p>A process for suspending the disposition of information assets in the event of investigation or litigation is non-existent or applied inconsistently throughout the organization.</p>	<p>Preliminary guidelines for the disposition of information assets are established.</p> <p>There is a realization of the importance of consistently suspending the disposition of information assets, when required.</p> <p>Only those employees with IM Program responsibilities receive training about their information disposition responsibilities, but that training is limited to their program responsibilities.</p> <p>The disposition of information assets is not audited or enforced.</p>
Level 3 (Essential)	Level 4 (Proactive)	Level 5 (Transformational)
<p>Official policy and procedures for the disposition of information assets have been developed.</p> <p>Official policy and procedures for suspending the disposition of information assets have been developed.</p> <p>Although policies and procedures for the disposition of information assets exist, they may not be standardized throughout the organization.</p> <p>All employees receive training about their information disposition responsibilities, but only during orientation.</p> <p>The organization has created specific goals related to the disposition of information assets.</p>	<p>All employees receive documented, ongoing training about their information disposition responsibilities.</p> <p>Information asset disposition procedures are applied consistently throughout the organization.</p> <p>The process for suspending the disposition of information assets is defined, understood, and used consistently throughout the organization.</p> <p>Information assets are disposed of in a manner appropriate to the assets’ content, media, and format in accordance with retention policies.</p>	<p>The information asset disposition process covers all information assets, regardless of media or format.</p> <p>Information asset disposition is assisted by technology and is integrated into all applicable data applications, repositories, and systems.</p> <p>All employees receive documented, ongoing training about their information disposition responsibilities, and compliance with this training is audited and documented regularly.</p> <p>Information asset disposition processes are applied consistently and effectively.</p> <p>Processes for information asset disposition are regularly evaluated and updated to account for operational changes.</p> <p>The organization’s information asset disposition goals have been met and it has an established, routinized process to ensure goals are reviewed and revised, as needed.</p>

Appendix 4: IG Maturity Model Benchmarking Results

Note: The information in this appendix was excerpted from Section 11.3 and Appendix 6 in the IM Assessment Report.

Ergo assessed the City's RIM Program and its IM practices using the IG Maturity Model and assigned a current benchmarking rating for each Principle. This assessment is based on our understanding of the City's current RIM Program and its IM practices as obtained from the documentation/data review, the surveys, and consultations with many stakeholders.

Figure 12 provides the high-level results of our benchmarking (i.e. our maturity assessment and proposed target level for each Principle). As summarized in Figure 12, the City scored a 1.875 average maturity score out of 5 across the eight Principles.

Ergo proposed a Level 3 target level for each Principle because that is the minimum target level for all organizations. At the IM Strategy Workshop, the IG Committee decided that the City should aim to attain Level 3 (Essential) in all Principles® within 5 years and conduct a progress review in Year 4 of the IM Strategy's implementation to determine the City's future goal (i.e. aim to attain Level 4 (Proactive) in all Principles® within a period of time to be determined or aim to attain Level 4 in selected, prioritized Principles® within a period of time to be determined).

Figure 12 – The Principles Benchmarking Ratings

Principle	Definition ²⁷	City's Current Level	Proposed Target Level
Accountability	"A senior executive (or a person of comparable authority) shall oversee the information governance program and delegate responsibility for information management to appropriate individuals."	2	3
Transparency	"An organization's business processes and activities, including its information governance program, shall be documented in an open and verifiable manner, and that documentation shall be available to all personnel and appropriate, interested parties."	2	3
Integrity	"An information governance program shall be constructed so the information assets generated by or managed for the organization have a reasonable guarantee of authenticity and reliability."	1.75	3

²⁷ http://c.ymcdn.com/sites/www.arma.org/resource/resmgr/files/Learn/2017_Generally_Accepted_Reco.pdf

Principle	Definition ²⁷	City's Current Level	Proposed Target Level
Protection	"An information governance program shall be constructed to ensure an appropriate level of protection to information assets that are private, confidential, privileged, secret, classified, essential to business continuity, or that otherwise require protection."	2	3
Compliance	"An information governance program shall be constructed to comply with applicable laws, other binding authorities, and the organization's policies."	2	3
Availability	"An organization shall maintain its information assets in a manner that ensures their timely, efficient, and accurate retrieval."	1.5	3
Retention	"An organization shall maintain its information assets for an appropriate amount of time, taking into account its legal, regulatory, fiscal, operational, and historical requirements."	1.75	3
Disposition	"An organization shall provide secure and appropriate disposition of information assets no longer required to be maintained, in compliance with applicable laws and the organization's policies."	2	3

The above ratings are illustrative, but should not overly alarm the City. These scores should be considered opportunities to target and prioritize key areas for improvement. Indeed, many organizations with which we have worked started with comparable scores and are either working toward or have succeeded in attaining the Level 3 targets.

Figure 13 provides the details of our rationale for each benchmarking rating in Figure 12 above. Note: Because the City is not at Level 4 (Proactive) or Level 5 (Transformational), those levels are not included in Figure 13. See Appendix 3 for the verbatim requirements for those levels.

Notes:

1. References in the Maturity Model to 'information management' were abbreviated as 'IM'.
2. References in the Maturity Model to 'information management program' were abbreviated as 'IM Program'.
3. References in the Maturity Model to 'information governance program' were abbreviated as 'IG Program'.
4. References in the Maturity Model to 'information governance' were abbreviated as 'IG'.

Figure 13 – Benchmarking Using the Information Governance Maturity Model

Accountability: “A senior executive (or a person of comparable authority) shall oversee the IG Program and delegate responsibility for IM to appropriate individuals.”

Level 1 (Substandard)	Level 2 (In Development)	Level 3 (Essential)
<p>No senior executive (or person of comparable authority) is aware of the need to manage records or other information assets.</p> <p>The information manager role is largely non-existent, or it is an administrative or clerical role distributed among general staff.</p> <p>Employees are not made aware of their responsibilities for managing the information assets they create or receive.</p> <p>Information assets are managed inconsistently or not at all.</p>	<p>A senior executive (or person of comparable authority) is aware of the need to manage information assets but is not actively engaged in coordinating with individual departments.</p> <p>The information manager role is recognized, but the person in that role is responsible only for tactical operation of the IM Program, which is concerned primarily with managing specific records rather than all information assets.</p> <p>The IM Program primarily covers only paper records. The information technology function or department is the <i>de facto</i> lead for storing electronic information, and the information manager is not involved in discussions about electronic systems; information assets are not stored in a systematic fashion.</p> <p>Only employees with direct IM Program responsibilities receive training about managing information assets, but that training is limited to their program responsibilities.</p>	<p>A senior executive (or person of comparable authority) is both responsible for and actively engaged in setting strategy for managing information.</p> <p>The information manager role is recognized within the organization, and the person in that role is responsible for the tactical operation of the established IM Program on an organization-wide basis. The information manager is occasionally engaged in strategic IM initiatives with executive management.</p> <p>The IM Program is responsible for electronic and paper records.</p> <p>Senior management is aware of the IM Program and its value to the organization. The organization envisions establishing a broader-based IG program to direct various information-driven business processes in the organization.</p> <p>The organization has created specific goals related to accountability for records assets and information-driven business processes.</p> <p>All employees receive training regarding their IM responsibilities, but only during orientation.</p>

City's rating: Level 2

Rationale:

- BLT is aware of the need to manage records or other information assets.
- Two senior executives (City Clerk and Director of IT Services) are responsible for and actively engaged in setting strategy for managing information.
- City Clerk oversees the IM Program.
- IM Program responsibility delegated to Manager, Records and Information who is responsible for the tactical, organization-wide IM Program. The Manager is occasionally engaged in strategic IM initiatives with executive management.
- The City envisions establishing a broader-based IG Program to direct various information-driven business processes in the organization.
- Some employees have been trained regarding their IM responsibilities, but training is voluntary and very little training is provided during new employee orientation.

Transparency: “An organization’s business processes and activities, including its IG Program, shall be documented in an open and verifiable manner, and that documentation shall be available to all personnel and appropriate, interested parties.”

Level 1 (Substandard)	Level 2 (In Development)	Level 3 (Essential)
<p>It is difficult to obtain information about the organization, its business, or its IM Program in a timely manner.</p> <p>Business and IM processes are not well-defined, and no clear documentation regarding these processes is readily available.</p> <p>Employees are not made aware of their responsibilities for helping ensure transparency.</p> <p>The organization puts no emphasis on transparency.</p> <p>The organization cannot readily accommodate requests for information from regulators, the courts, potential business partners, investors, buyers, or other entities.</p> <p>The organization has no controls to ensure the consistency of information disclosure.</p>	<p>The organization realizes that some degree of transparency is important in its business processes and IM Program to meet the organization's business or regulatory needs.</p> <p>Although a limited amount of transparency exists in areas where regulations demand it, there is no systematic or organization-wide drive to transparency.</p> <p>Only those employees with direct IM Program responsibilities receive training related to transparency, but that training is limited to their program responsibilities.</p> <p>The organization has begun to document its business and IM processes.</p>	<p>Transparency in business practices and IM is taken seriously, and information is readily and systematically available, when needed.</p> <p>There is a written policy regarding transparency in business operations and in IM.</p> <p>Employees receive training about the importance of transparency and the specifics of the organization's commitment to transparency, but only during orientation.</p> <p>The organization has defined specific goals related to IG transparency.</p> <p>Business and IM processes are documented.</p> <p>The organization can accommodate most requests for information from regulators, the courts, potential business partners, investors, buyers, or other entities.</p>

City's rating: Level 2

Rationale:

- The City has documented some of its business processes and some of its IM processes.
- No written policy regarding transparency in business operations and in IM.
- Ad hoc (if any) training about the importance of transparency.
- The City can accommodate most requests for information from regulators, the courts, the public and others under MFIPPA, or other entities.

Integrity: “An IG Program shall be constructed so the information assets generated by or managed for the organization have a reasonable guarantee of authenticity and reliability.”

Level 1 (Substandard)	Level 2 (In Development)	Level 3 (Essential)
<p>There are no systematic audits or defined processes for showing that an information asset is authentic, i.e., the information asset's origin, time of creation or transmission, and content are what they are purported to be.</p> <p>Various organization functions use haphazard methods to demonstrate authenticity and chain of custody; the legitimacy of those methods cannot be verified easily.</p>	<p>Some of the organization's information assets are stored with metadata that demonstrate their authenticity, but there is no formal process for metadata storage or chain of custody safeguards.</p> <p>Metadata storage and chain of custody safeguards are deemed important, but they are left to the departments to handle in their own ways.</p> <p>Only those employees with direct IM Program responsibilities receive training related to ensuring the integrity of information assets, but that training is limited to their program responsibilities.</p>	<p>The organization has a formal process to ensure that chain of custody and the required levels of authenticity can be integrated into its systems and processes.</p> <p>The organization captures the appropriate metadata elements to demonstrate compliance with its policies. All employees receive training related to ensuring the integrity of information assets, but only during orientation.</p> <p>The organization has specific goals related to integrity.</p>

City's rating: Level 1.75

Rationale:

- No systematic audits or defined processes for showing the authenticity of information assets.
- Legitimacy of methods to demonstrate the authenticity of information assets and chain of custody cannot be verified easily.
- Some of the City's information assets are stored with metadata (e.g. GIS data) and there are (formal) processes for metadata storage for those information assets.
- Very few formalized QA/QC methods for any of the City's data assets.
- No specific City goals related to integrity.
- A hybrid physical and electronic records environment in which it is often time-consuming and challenging to assemble the single source of truth for a project, decision, etc.
- Lack of systematic audits to ensure authenticity and reliability inevitably has a negative impact on the quality of the City's archives.

Protection: “An IG Program shall be constructed to ensure an appropriate level of protection to information assets that are private, confidential, privileged, secret, classified, essential to business continuity, or that otherwise require protection.”

Level 1 (Substandard)	Level 2 (In Development)	Level 3 (Essential)
<p>No consideration is given to the organization-wide protection of information assets. For example, information is not backed up, and virus protection is absent.</p> <p>Employees are not made aware of their responsibilities for protecting information assets.</p> <p>Information assets are stored haphazardly and without centralized access controls; if controls exist, they are assigned by the document's author or owner.</p> <p>Protection methods, if used at all, are left to the discretion of the divisions and departments within the organization.</p>	<p>Some protection of information assets is exercised. For example, anti-virus protection may be in place and information may be backed up sporadically.</p> <p>There is a written policy for select information assets requiring protection (e.g. paper personnel records); however, the policy does not give clear and definitive guidelines for all information assets in all formats and on all media.</p> <p>Only those employees with direct IM Program responsibilities receive training about protecting information assets; but that training is limited to their program responsibilities.</p> <p>Protection policies do not address how to transmit protected information assets among internal or external stakeholders.</p> <p>Access controls for information are determined by individual content owners.</p>	<p>The organization has a formal written policy for protecting information assets, and has centralized access controls. For example, firewalls are in place, anti-virus software is installed, information is backed up regularly, and breach response and business continuity plans are documented.</p> <p>Confidentiality and privacy considerations for information assets are well-defined throughout the organization.</p> <p>The importance of chain of custody is defined.</p> <p>Employees receive training about how to protect information assets, but only during orientation.</p> <p>Information asset audits are conducted in regulated areas of the business; audits in other areas may be conducted, but they are left to the discretion of each functional area.</p> <p>The organization has created specific goals related to information asset protection.</p>

City's rating: Level 2

Rationale:

- Electronic records on the network: there is a written policy (Information Technology Security Policy) for protecting information assets and there are centralized access controls.
- Physical records: there is a written policy (Protection of Privacy and Confidentiality of Information Policy)²⁸ but no centralized access controls except for inactive records stored off-site.
- Privacy training is mandatory for all employees, Councillors, and volunteers who handle personal information; however, attendance at the Access to Information and Privacy course is voluntary.
- Levels of information sensitivity (a very basic information security classification) in the RRS are not well known or consistently applied, and don't apply to structured systems which are excluded.
- City has suitable firewalls and anti-virus protection, and information is backed up regularly.
- Privacy breach response plan and an IT-specific breach response plan are not documented.
- The business continuity plan does not include records.
- Archival material not under physical or intellectual control is at risk of loss or damage.

²⁸ The policy also covers electronically stored information.

Compliance: “An IG Program shall be constructed to comply with applicable laws, other binding authorities, and the organization’s policies.”

Level 1 (Substandard)	Level 2 (In Development)	Level 3 (Essential)
<p>There is no clear understanding or definition of the information assets the organization is obligated to keep.</p> <p>Employees are not made aware of their responsibilities for complying with IM policies and processes.</p> <p>Information is not systematically managed; groups within the organization manage information as they see fit, based upon their own understanding of their responsibilities, duties, and requirements.</p> <p>There is no central oversight or guidance and no consistent, defensible position on compliance.</p> <p>There is no formally defined or generally understood policy for imposing legal, audit, or other processes in relation to information asset production.</p> <p>The organization has significant exposure to adverse consequences from poor compliance practices.</p>	<p>The organization has identified some of the rules and regulations that govern its business and introduced some compliance policies and practices; the policies are incomplete, and there are no structured accountability controls for compliance.</p> <p>Only those employees with direct IM Program responsibilities receive training about the importance of compliance with IM policies and processes, but that training is limited to their program responsibilities.</p> <p>There is an information asset hold process, but it is not well-integrated with the organization’s IM and discovery processes; the organization lacks full confidence in it.</p>	<p>The organization has identified key compliance laws and regulations.</p> <p>Information creation and capture are, in most cases, systematically carried out in accordance with IM principles.</p> <p>The organization has a code of business conduct that is integrated into its overall IG structure and policies.</p> <p>All employees receive training about the importance of compliance with IM policies and processes, but only during orientation.</p> <p>Compliance is highly valued, and it is measurable and verifiable.</p> <p>The information hold process is integrated into the organization’s IM and discovery processes, and it is generally effective.</p> <p>The organization has created specific goals related to compliance.</p> <p>The organization’s exposure to adverse consequences from poor IM and IG practices is reduced.</p>

City’s rating: Level 2

Rationale:

- The RRS defines the information assets the City is obligated to keep but RRS awareness and use are limited (and structured systems are excluded from the RRS).
- Information is not systematically managed; groups within the City manage information as they see fit, based upon their own understanding of their responsibilities, duties, and requirements.
- There is no formally defined or generally understood policy for imposing legal, audit, or other processes in relation to information asset production.
- The City has a code of business conduct.
- Compliance is not measurable or verifiable.
- The City has some exposure to adverse consequences from poor compliance practices.
- RIM Program training addresses the importance of compliance with IM policies and processes (where existing), but the completion of training is voluntary and very limited IM training is provided during new employee orientation.
- More systematic control and management of some paper records, as compared to electronic records for which control and management is ad hoc.

Availability: “An organization shall maintain its information assets in a manner that ensures their timely, efficient, and accurate retrieval.”

Level 1 (Substandard)	Level 2 (In Development)	Level 3 (Essential)
<p>Information assets are not readily available when needed, and/or it is unclear whom to ask when assets need to be produced.</p> <p>It is too time-consuming to find the appropriate version of an information asset, if it can be found at all.</p> <p>Employees are not made aware of how and where to store information assets.</p> <p>The organization lacks finding aids, such as indices or metadata, for information assets.</p> <p>Legal discovery and information requests are difficult to fulfill because it is not clear where information assets, including specific versions of those assets, are located.</p>	<p>Information retrieval mechanisms have been implemented in some areas of the organization.</p> <p>In those areas with information asset retrieval mechanisms, it is possible to distinguish among official records, duplicates, and other items.</p> <p>There are some policies on where and how to store official records and other information assets, but a best practice is not imposed across the organization.</p> <p>Only those employees with direct IM Program responsibilities receive training about how and where to store information assets, but that training is limited to their program responsibilities.</p> <p>Responding to legal discovery and information asset requests is complicated and costly due to the inconsistent treatment of information.</p>	<p>There is a best practice for where and how information assets are stored, protected, and made available.</p> <p>There are clearly defined policies for handling information assets.</p> <p>Information asset retrieval mechanisms are consistent and effective.</p> <p>All employees receive training about how and where to store information, but only during orientation.</p> <p>Most of the time, it is easy to determine where to find the authentic, final version of any information asset.</p> <p>Discovery and information asset request processes are well-defined and systematic.</p> <p>Systems and infrastructure contribute to the availability of information assets.</p> <p>The organization has created specific goals related to the availability of information assets.</p>

City's rating: Level 1.5

Rationale:

- Information retrieval mechanisms have been implemented in some areas of the City.
- Some information assets are not readily available when needed, and/or it is unclear whom to ask when assets need to be produced. It can be time-consuming to find the appropriate version of an information asset, if it can be found at all.
- Not all employees are made aware of how and where to store information assets, including archival records.
- There is a lack of finding aids for many information assets.
- Responding to legal discovery and information asset requests is occasionally complicated and costly due to the inconsistent treatment of information; consequently, it is not always clear where information resides, many repositories must often be searched, and there is considerable duplication.
- It is not always possible to distinguish between official records and duplicates.
- RIM Program training includes some consideration of where to store information assets; however, training attendance is voluntary and very limited RIM Program training is provided during new employee orientation.
- Frequent challenges to timely, efficient retrieval of information.

Retention: “An organization shall maintain its information assets for an appropriate amount of time, taking into account its legal, regulatory, fiscal, operational, and historical requirements.”

Level 1 (Substandard)	Level 2 (In Development)	Level 3 (Essential)
<p>There is no current, documented records retention schedule or policy.</p> <p>Rules and regulations defining retention are not identified or centralized; retention guidelines are haphazard, at best.</p> <p>In the absence of retention schedules and policies, employees either keep everything or dispose of information assets based on their own business needs, rather than on organizational needs.</p>	<p>A records retention schedule and policies are available, but they do not encompass all information assets, have not undergone an official review, and are not well-known throughout the organization.</p> <p>Only those employees with direct IM Program responsibilities receive training about the requirements for keeping or disposing of the information assets they create and receive, but only as the requirements relate to their program responsibilities.</p> <p>The records retention schedule and policies are not updated or maintained regularly.</p> <p>The litigation hold process is in place, but it may not be monitored to ensure its effectiveness so relevant information may be missed.</p> <p>Educational materials and training activities related to retention policies are not available.</p>	<p>The organization has instituted a policy for the retention of information assets; a formal records retention schedule that is tied to rules and regulations is consistently applied throughout the organization.</p> <p>All employees receive training about the requirements for keeping or disposing of the information assets they create and receive, but only during orientation.</p> <p>The litigation hold process is in place and compliance is monitored.</p> <p>The organization has created specific goals related to information asset retention.</p>

City's rating: Level 1.75

Rationale:

- RRS has been documented; however, it needs to be reviewed and updated to ensure it remains current (it was last revised in January 2015). Note: At the March 26th IG Committee at which the IG Assessment Report was reviewed, the Manager of Records and Information advised that a RRS revision is planned for 2019.
- RRS does not include structured data, a significant volume of the City's information assets.
- RRS not used consistently throughout the City.
- RIM Program training addresses the retention of records; however, training attendance is voluntary and very little IM training is provided during new employee orientation.
- The litigation (legal) hold process is informal and not monitored to ensure its effectiveness so relevant information may be missed.
- Some educational materials and training activities related to records retention are available.

Disposition: “An organization shall provide secure and appropriate disposition for information assets no longer required to be maintained, in compliance with applicable laws and the organization's policies.”

Level 1 (Substandard)	Level 2 (In Development)	Level 3 (Essential)
<p>There are no processes or there is no documentation of processes for transferring or disposing of information assets.</p> <p>Employees are not made aware of their information disposition responsibilities.</p> <p>A process for suspending the disposition of information assets in the event of investigation or litigation is non-existent or applied inconsistently throughout the organization.</p>	<p>Preliminary guidelines for the disposition of information assets are established.</p> <p>There is a realization of the importance of consistently suspending the disposition of information assets, when required.</p> <p>Only those employees with IM Program responsibilities receive training about their information disposition responsibilities, but that training is limited to their program responsibilities.</p> <p>The disposition of information assets is not audited or enforced.</p>	<p>Official policy and procedures for the disposition of information assets have been developed.</p> <p>Official policy and procedures for suspending the disposition of information assets have been developed.</p> <p>Although policies and procedures for the disposition of information assets exist, they may not be standardized throughout the organization.</p> <p>All employees receive training about their information disposition responsibilities, but only during orientation.</p> <p>The organization has created specific goals related to the disposition of information assets.</p>

City's rating: Level 2

Rationale:

- Documented processes exist to guide the transfer and disposition of physical records.
- RIM Program training addresses information disposition responsibilities; however, training attendance is voluntary and very limited information disposition information is provided during new employee orientation.
- There is an informal process for suspending the disposition of information assets (excluding structured data) in the event of investigation or litigation.
- The disposition of information assets is not audited or enforced.
- The disposition of structured data assets has almost universally not been implemented.
- Disposition of electronic records (including e-mail) is mostly ad hoc and undocumented.
- Nothing in the RRS is designated “archival.”
- Identification of records to be disposed of by transfer to the City Archives is not made by a professionally trained Archivist.
- The so-called ‘permanent’ records are not placed under archival control within an archival system.

Appendix 5: Version Control Log

Figure 14 provides the history of the drafting and finalization of the IM Strategy.

Figure 14 – Version Control Log

Date	Description	Author
May 10, 2019	Draft strategy submitted to the IG Committee	Ergo Information Management Consulting
June 13, 2019	Final strategy submitted to the IG Committee reflecting revisions arising from the May 27 IG Committee meeting at which the draft IM Strategy was reviewed	Ergo Information Management Consulting