RICOH

DOCUMENT MANAGEMENT CONSULTANTS

Findings & Recommendations Report

The District of North Saanich

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Executive Summary

Ricoh Canada, Inc. (Ricoh) Consulting Services was engaged to perform a Document Management Needs Analysis for the District of North Saanich (the District). The methodology of the Analysis was to collect and analyze information on the flow of documents within and between targeted business units. By analyzing the workflow of these documents and their storage systems and methods, we were able to identify where, with the implementation of appropriate technology and structured processes and procedures, current methods can be improved and possibly automated in the future, productivity can be enhanced and overall operational costs can be reduced.

Business units targeted during this project include:

- Corporate Services
- Financial Services
- Planning and Community Services
- Infrastructure Services
- Public Works and Parks
- Emergency Services
- IT/GIS Department

The deliverable from this Analysis, this *Findings & Recommendations Report*, provides a summary of the current state and identifies opportunities for improvement in the future. Where applicable, the report will recommend specific solutions to improve document processes, lower costs and reduce the risk associated with document management. However, the report, as intended, will not recommend a specific product solution. The District's intent is to issue a Request for Proposal (RFP) for technology at some point in the future.

Ricoh obtained the findings applicable to the target business units contained within this document by interviewing the staff, observing the functional process flows, and assessing the current technology; all the while searching for opportunities to streamline the flow of work and reduce or remove any challenges or associated bottlenecks. The recommendations are based on the information obtained during the interviews, Ricoh's experience with similar environments and municipalities and industry-standard best practices associated with this type of an analysis.

Project Scope and Objectives

The project scope and objects language paraphrased below was previously agreed between Ricoh and the District of North Saanich in a Statement of Work (#32299) dated July 21, 2010.

The main objective of this project is to conduct a formal Document Management Needs Analysis and to present a *Findings and Recommendations Report* that will document the District's requirements and recommend enhancements that can be made through the introduction of electronic document

management (EDM) software. Select content from the report is also intended to be used in a future EDM product Request for Proposal which may be issued by the District.

The report will be vendor neutral, however if requested, a demonstration and estimated pricing can be delivered for the purposes of providing a baseline with which to proceed. The District of North Saanich is in no way obligated to use Ricoh as a provider of implementation services or Electronic Document Management System (EDMS) software upon completion of this study.

Objectives of the Document Management Needs Analysis:

- Define a phased approach to an EDM implementation within the District.
- Analyze and document key document processes in order to make recommendations for EDM software with estimated budget costs and timeframe for deployment.
- Recognize processes that could benefit from an EDMS and provide time/cost savings statements to support the EDM initiative.
- Investigate and make recommendations for Change Management in order to secure staff buy-in and ensure a smooth transition.
- Prioritize and document which departments would benefit from the EDMS most and create a phased plan for deploying the EDMS district-wide over a period of 3-5 years.
- Suggest a District orientation plan for the purpose of corporate memory due to retirement and staff turnover.

Services included in the project scope

The following are the services and tasks which Ricoh will provide in fulfillment of the defined objective of this project:

- Review the District's document management objectives and requirements
- Gather data on selected current processes through:
    - Interviews with District of North Saanich Project Sponsors
    - Interviews with District of North Saanich Management and selected End Users within the identified business processes
    - Interviews with District of North Saanich IT Support
    - High-level network assessment in preparation for EDMS
- Compilation and Analysis of Data
- Research and Design of Solution
- Project Management
- Preparation of Findings & Recommendations Report
- Presentation to Council at a future meeting (20-30 minutes)

Services excluded from the project scope

This project does not cover the following functions or deliverables:

- Network sizing, capacity analysis, and performance considerations
- Detailed cost/benefit analysis
- Advanced, automated workflow design
- Custom coding or programming
- Back-file conversion services
- Technical Design or build services for an EDMS

Summary of Current Issues

Several issues were uncovered during the course of the Analysis, the most disturbing of which are a total lack of control and organization associated with document records, deficient or absent processes for document management and non-existent, or severely outdated, policies governing document records.

Specific examples of issues observed and discussed are listed in the Current Issues section of the report on page 23.

The examples are categorized in the following five ways:

- Lack of structured document management processes across the organization; both paper-based and electronic
- Limited and/or constrained resourcing available to develop, disseminate and enforce what little document and records management policy exists
- Distributed hard copy archive
- Underutilized technology or utilization of technology for purposes other than intended
- No "true" document management technology is in place to force users to manage documents efficiently and effectively

"Training, consistency in process, centralization of document management both paper and electronic, would be things I would like to see improved with document management at the District of North Saanich."

Based on the current situation related to the accuracy, efficiency and accountability for documents and records, the District should undertake serious measures to address the systemic challenge of document management.

Summary of Recommendations

Ricoh's recommendations are derived from our study of the target business units, our experience with similar municipal environments and the document management industry at large. Ricoh sought to make recommendations that would provide an immediate benefit for the District. Thus, the recommended actions and solution discussed here, while applicable to the target areas in specific, is scalable and flexible enough to apply to the entire organization.

- ✓ Initiate creation of a Records Management Policy with an updated Retention Schedule
- ✓ Initiate Change Management activities in preparation for Hard copy and Electronic Document Management
- ✓ Establish a centrally located Document Center staffed with knowledgeable resources to provide hard copy and digital document services to all
- ✓ Prepare Request for Proposal for Document Management, including:
    - o Structure and processes for hard copy document records
    - o Technology for electronic document management
    - o Properly qualified vendor/partner to design and deploy the solution through a structured, proven methodology

Challenges

The District will need to address the following challenges:

- Lack of resource(s) to "own" document management
- User adoption and resistance to change
- Human desire to print and store hard copy documentation

Detail on these challenges and suggestions to mitigate them can be found on page 26.

Benefits

As a result of implementing electronic document management technology, the District stands to reap benefits, including, but not limited to the following:

- Improved productivity in targeted business units and beyond
- Significant increases in processing capacity without proportional increases in staffing
- Reduced operation and maintenance costs
- Better reliability, security, faster document retrieval
- Increased audit-ability of document-centric processes

Review of the business processes and requirements with the business process owners would increase end-user acceptance and return on investment. Considering technology only will increase cost, effectively lowering the return on investment and end-user acceptance.

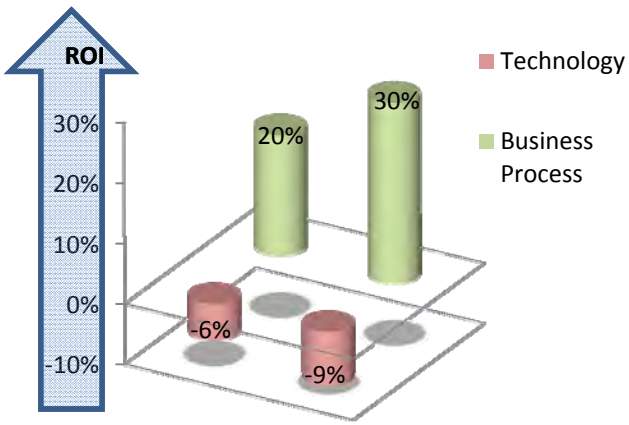


Figure 1 - Technology vs. Business Process ROI[1]

While it may not seem possible, at this year's pace, the District will use enough paper to build a stack the height of the Empress Hotel. Though the current Recommendation may not drastically reduce paper consumption initially, save for long-term archive, the following "green" information is interesting.

Item	Value
Number of pages consumed per year*	500,000
Number of reams consumed in year	1,000
Height per ream of paper (inches)	2
Number of feet per year	166.7
Height of the Empress Hotel (feet)	170
Number of years to reach the top of Empress Hotel	1

* represents only 8.5x11" paper

Environmental Impact

The average employee consumes 10,000 office pages per year[2]. Since it takes 6% of a tree to make one carton of paper, each worker consumes approximately 1.2 trees per year[3].

[1] Complexity Avalanche, Overcoming the Threat to Technology Adaption
J. B. Wood, President and CEO, Technology Services Industry Association Copyright 2009
[2] InfoTrends/ALL Associates Group
[3] www.conservatree.com: 1 tree makes 16.67 reams of copy paper or 8,333.3 sheets, 1 ream (500 sheets) uses 6% of a tree

Background Information

On-site interviews and observation were conducted at the District's location in North Saanich over a period of a few days. It is from these sessions that the information provided in the following pages was derived.

Participation

Thanks are due to the following individuals for their participation.

Interviewee	Title	Department
John Carnell	IT/GIS Manager	IT/GIS
Curt Kingsley	Manager of Corporate Services	Corporate Services
Rob Buchan	Chief Administration Officer	CAO
Brian Robinson	Works Superintendent	Public Works
Sarah Fairbrass	Admin Assistant	Public Works
John Post	Senior Building Inspector	Planning and Community Services
Deanna Law	Planning Services Clerk	Planning and Community Services
Adam Fitch	Assistant Planner	Planning and Community Services
Gary Wilton	Director of Emergency Services	Emergency Services
Jennifer Provan	Admin Assistant	Emergency Services
Patrick O'Reilly	Director of Infrastructure Services	Infrastructure Services
Brian Simon	Sr. Engineering Technician	Infrastructure Services
Kelly Albucz	Admin Assistant	Infrastructure Services
Susan McWhirter	Engineering Clerk	Infrastructure Services
Baohua Duan	Engineering Assistant	Infrastructure Services
Patricia Roberts	Director of Financial Services	Financial Services
Theresa Flynn	Manager of Financial Operations	Financial Services
Emmanual Iturralde	Capital Asset Accountant	Financial Services
Val Mahoney	Administrative Assistant	Financial Services
Lisa Coburn	Executive Secretary/HR	Corporate Services
Jackie Gretchen	Admin Secretary	Corporate Services
Rick Fedrigo	Network Support Technician	IT/GIS
Shawn Munro	GIS Technician	IT/GIS

District Terminology

- LGMA - Local Government Management Association
- GIS - Geographic Information System

Report Terminology

- EDMS - Electronic Document Management System
- RM - Records Management

Findings

The Findings present both business process and technology environments at the District. For the purposes of this report, seven business units within the District were studied: Corporate Services, Financial Services, Planning and Community Services, Infrastructure Services, Public Works and Parks, Emergency Services and IT/GIS.

In total, the District employs 65 full time employees (FTE), 11 of whom are exempt, the remaining are members of union(s).

Current hard copy document storage is in one (1) of four (4) main locations, in addition to individual filing cabinets:

1. West Wing vault
2. Corporate Services vault
3. Large-format copier room (downstairs)
4. Financial Services vault

The following pages summarize the business and human-centric processes, the target document types within each business unit and general observations, as they relate to the document management needs.

Corporate Services

An interview was conducted with Curt Kingsley, Manager of Corporate Services; Rob Buchan, CAO; Lisa Coburn, Executive Secretary; Jackie Gretchen, Administration Secretary; and Louis Muir, Auxiliary File Clerk.

Responsibilities

Corporate Services is responsible for processing all business as it relates to the North Saanich Council, as well as performing all statutory requirements as required in the Local Government Act and the Community Charter; coordinates all local government elections and other voting opportunities; provides advice with respect to procedures, policies, and functions; administers and processes all requests to access information through the Freedom of Information and Protection of Privacy Act; and maintains all vital records of the municipality. Additionally, Corporate Services handles Human Resources and Records Management for the District office.

Business Processes and Priorities

One of the largest, most important activities performed by Corporate Services is creation of the Council Agenda. A simplistic view of the process appears below.

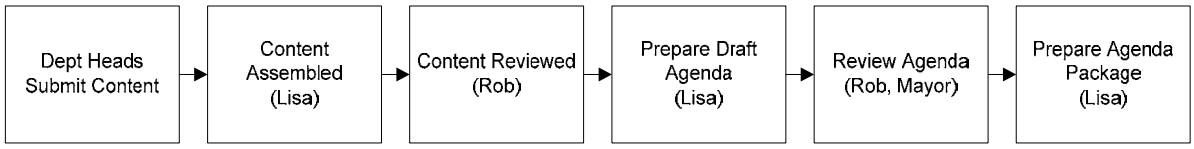


Figure 2 - High-level View of Council Agenda/Package Creation

Conditions, constraints and general challenges associated with the current Agenda process include:

- An iterative review process between Department Heads, their Directors, and other Directors, before submission
    - Content preparation begins weeks or sometimes months before it's ready
    - Hard copies routed for commentary
- Statutes and/or current practices dictate time constraints to the process, for example:
    - Agenda are to be approved the Tuesday before the Council meeting
    - Posting/Advertising for public notification prior to the meeting
    - Posted online so subscription service properly notifies subscribers
- Package prepared in hardcopy form
    - Each page is stamped (the District is in the process of improving this)
    - 24 copies produced (7 to Council, 1 to local newspaper, 1 to walk-in counter, 14 to senior staff, 1 extra)
- Multiple copies/parts are filed
    - Scan one to PDF for the web site
    - Break up one for sub-part filing in the vault, file one whole also
    - Senior staff file their own copies

Corresponding to the Council Agenda/Package are meeting minutes in written and audio format (video is being evaluated). Minutes are ratified one to two weeks after the meeting and become official records. The agenda/minutes process is similar for Commissions.

Correspondence associated with Council and/or Commission has a defined process as well, beginning with categorization:

1. Council correspondence requiring action
2. "Talk, show, file" indicating its receipt is a public record also known as the InfoPack
3. Council reading file

Each piece is stamped accordingly. After it has been addressed as required, there will be a response generated ("letter for a letter"). The volume of correspondence is based on current council activity but averages 50 +/- each month.

Other District and Council related items include elections, publications and reports (Strategic Plans, Annual Work Plans, and Annual Report), etc.

Human Resources is managed by Corporate Services. Personnel files are retained primarily in the vault, however portions of them can be found in Financial Services and the Department Head's files as well, particularly as it relates to performance appraisals and on-boarding.

"Some managers like to do these things themselves…" (Speaking of reference checks, postings, resumes, etc.)

"(HR) is something we have to do off the corner of our desks"

"It's indicative of a file system that they don't trust"

"I think we get copies occasionally"

Documents

This group utilizes many document types in the performance of their services including:

- Council and/or Commission Packages
- Council and/or Commission Agenda
- Council and/or Commission Minutes
- Follow-up Reports (Staff "To Do" work)
- Correspondence association with Council and/or Commission
- Personnel documents
- District Reports
- Email and correspondence

General Observations

- File vault contains 4-5 rolling cabinets, lockable
- There's a broad theme of anxiety associated with document management
- the District does not maintain permanent counsel but relies on external attorneys as required
- Staffing consists of 3 FTE: 1 manager and 2 administrative personnel

Financial Services

An interview was conducted with Patricia Roberts, Director of Financial Services; Theresa Flynn, Manager of Financial Operations; Emmanuel Iturralde, Capital Assets; and Val Mahoney, Property Tax Clerk.

Responsibilities

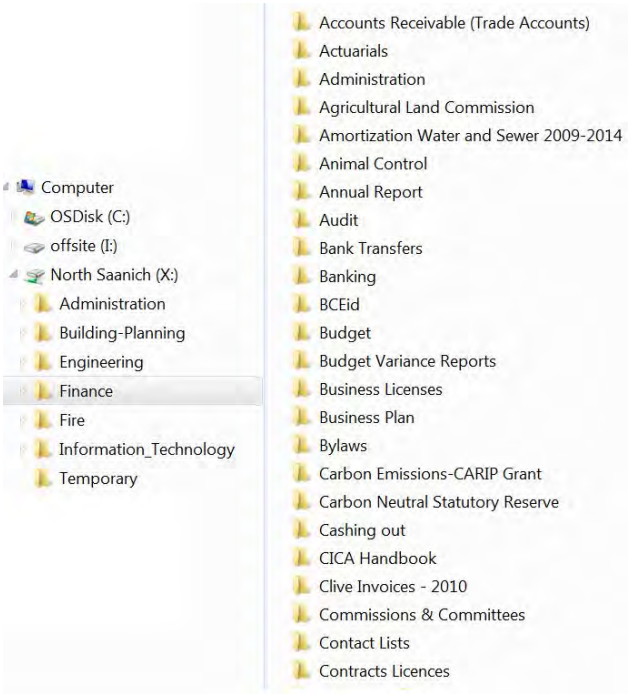
The Finance Department is responsible for all aspects of financial management for the District. Primary responsibilities include preparation and monitoring of the Five Year Financial Plan; levying and collection of property taxes and utility bills; preparation of the Annual Financial Statements and the Annual Report.

Business Processes and Priorities

Major activities include receipting and depositing intact all payments made to the District; invoicing, collecting, and accounting for annual property tax and other levies; maintaining accounting records,

preparing financial reports, administering cash flows, preparing payrolls, handling accounts payable, billings and collecting utilities, coordinating the development and preparation of the District's Financial Plan, monitoring expenditures in comparison to budgeted amounts, system reviews, filing government statistical returns and providing advice and recommendations to other departments and Council on financial matters.

- Property taxes are comprised of a BC assessment and local billing components. Approximately, 4,800 notices each year are printed by Financial Services. The insert and mail operation is outsourced to a local vendor, FastTrack.
- Utility bills are produced three times each year, approximately 4,000 each time. Again, these statements are printed in Financial Services but the insert/mail operation is outsourced.
- The Cash Receipts for taxes and utilities is distributed: walk-ins (50% for taxes), mortgage companies, and banks.
- Licensing for pets and business is managed by Financial Services. Each year an invoice is generated and sent out, same process as other outbound invoices. The actual license itself sits at the front counter until the invoice is paid, then it is imprinted and handed/sent to the individual.
- Accounts payable processed 3800 invoices in 2009; resulting in 2300 checks paid to vendors. Each invoice is coded, approved by department, reviewed for Tangible Capital Asset (TCA) implications, approved by the Sr. Accountant and Director. Recently added EFT (100-200 per year)
- Financial Services is responsible for the finance side of Human Resources: payroll, workers compensation and benefits. As such, they maintain their own set of HR files.
- TCA recording is required by government and audited by external bodies. The District utilizes a hosted application named CityWide to record the information. If the asset is purchased, the information comes from the Accounts Payable process. If the asset is constructed, the information comes from Infrastructure Services.



Financial Services uses Enterprise iCity by VADIM for all transactions.

General Observations

- Financial Services utilizes the shared network drive extensively
- File room contains mostly boxes, some loose filing, open and unlocked during the work day
    - Boxes labeled by document type: AP, TCA, Payroll, GL, etc.

Planning and Community Services

An interview was conducted with John Post, Senior Building Inspector; Adam Fitch, Assistant Planner; Deanna Law, Planning Services Clerk; and Rob Buchan, CAO (formerly Director of Planning and Community Services).

Responsibilities

The Planning and Community Services Department takes the lead in land use planning and many of the inspection and permitting processes for the District of North Saanich. The principal functions of the Development and Community Services Department are:

- Planning
- Permitting Process
- Building Inspection
- Bylaw Enforcement

> "I have a sense that my department should be a well-oiled machine but the wheels are coming off and the parts are rusting; it's not possible."

Business Processes and Priorities

Building permits are mostly residential with some Agricultural, Limited Commercial/Industrial and Temporary Use.

From a high-level, a successful permit process is seen below. Details of the process include:

- The "bring backs" may be extensive depending on the type of permit requested
    - Warrantee
    - Engineering documents
    - Site plans, building plans
    - Easements, covenants, etc.
- "Bring backs" are stamped and logged upon receipt
- Inspectors review for completeness and accuracy before advancing the process
- VADIM data entered by Planning and Financial Services
    - Sequence #, address, type of permit, status of permit, estimated value, fee
    - Payment information
- Replicate application file (pink) for other department's review, e.g., Engineering's is blue
- Service levels to complete the whole process in 10 days

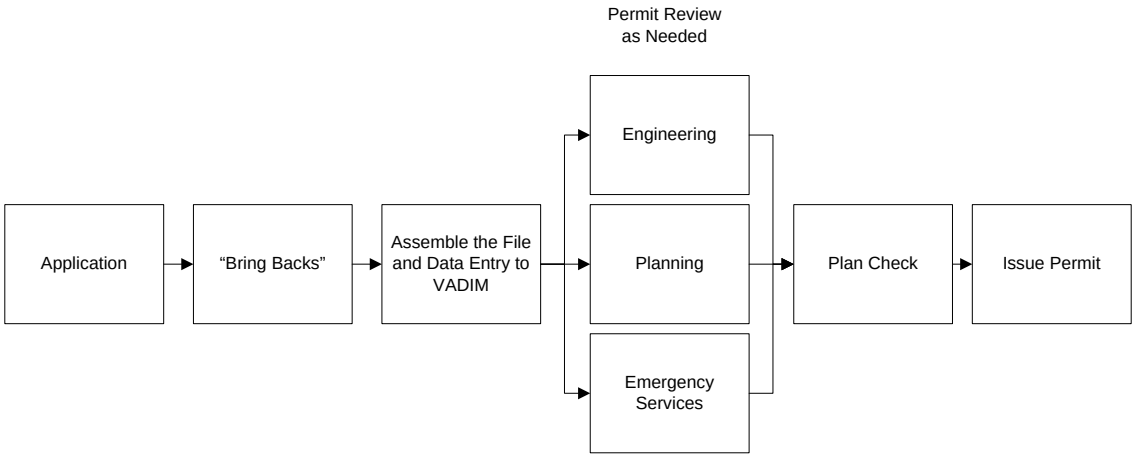
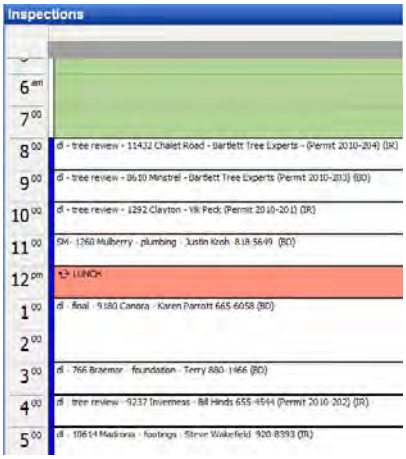


Figure 3 - High-level Permit Process

There are approximately 325 permits processed each year.



For inspections, the team takes advantage of the "Casper" calendar. Casper is a generic account setup on the Exchange server by IT. Building uses the calendar as a mass scheduler for the inspectors.

Development applications for rezoning, amendments, licenses, etc. follow a similar process: application, supporting documentation, fees, review, and issuance. Most of these, however, require Council approval so the timeline for completion is longer. For example, rezoning typically takes 4-8 months; development permits is 12 weeks, etc. There are 10-12 applications in progress at any given time.

This group also performs services for bylaw enforcement which would include generating notices, follow up and reporting status.

General Observations

- There are approximately 6,000 property files for the District
    - None for pre-1965
- "Heartburn" associated with processing
    - Active files taken out on inspections making them inaccessible to others
    - Missing or misplaced files; "this happens at least once per week"
    - Multiple sets of the same documents, e.g., faxed in then mailed later
    - Building maintenance contracts
    - Current condition of property records
        - Multiple people adding the same documents
        - No logical organization; "would take at least an hour to organize just one"
- There are 7 FTE in Planning and Community Services

Infrastructure Services

An interview was conducted with Patrick O'Reilly, Director of Infrastructure Services; Brian Simon, Senior Technologist; Kelly Albucz, Administrative Assistant; Susan McWhirter, Infrastructure Services Clerk; and Baohua Duan, Engineering Technologist.

Note - This group is commonly referred to as "Engineering".

Responsibilities

The Infrastructure Services department is responsible for the planning, construction, maintenance and records management of the District's infrastructure. This includes issuing permits to the public and public utilities for any works proposed on District roads or property. This department administers and approves all new subdivision activities within the District and manages the design and construction of all new infrastructure projects.

Business Processes and Priorities

By nature of the services provided by Engineering, this team sends and receives a lot of correspondence, including:

- Letters
- Site plans
- Construction plans
- Reports
- Application

More than half of the documentation sent/received is electronic in nature. Documentation that is received in hard copy is stamped and logged in an Access database and distribute as needed within the department.

This team also shares documentation with other District Departments. For example, requests generated by Public Works and Planning, permitting documents with Planning, Financial Services, and Corporate Services (for Council approvals), special events with Planning, Emergency Services, and Public Works, etc.

For each new project: subdivision, connections, construction, capital, a file is created using the LGMA standard for naming and contents. The file contents may be hard copy only, digital only or both. The master LGMA log is stored on the shared network drive. The Legal Files are stored in a locked room; few have keys. The main property file is stored centrally in a large room accessible by all. Files are intended to be signed out (with a card left in its place indicated who/when) when they are removed. Indications are that the sign-out process is not observed by all staff.

Subdivision files are stored in the Director's office until such a time as the project is complete, i.e., registered with Land Title Office. There are 19 active projects now which will span multiple years before completion. They will not be added to the central file until completed.

A back-file conversion was performed on large format drawings. Approximately 30-40% of the total drawings are digitized and stored on the shared network drive or on CD in the vault.

Documents

- Letters
- Site plans
- Construction plans
- Reports
- Applications
- Correspondence and email

General Observations

- Main property file room consists of 8 rolling cabinets each with 7 shelves
- Challenges with the filing system exist
    - Sharing parts with other departments (permits with Building, fees with Finance, etc.)
    - Chain of custody when files are removed from the central location
    - Limited training on LGMA standards
    - Most electronic document sharing is done via email
- "Major" drawings, i.e., those for capital projects, are back up; "minor" drawings, e.g., consultant submitted 'as-built', are stored on CD and not currently backed up
    - The assigned Engineer makes the determination on what is major vs. minor

Public Works and Parks

An interview was conducted with Brian Robinson, Works Superintendent. Sarah Fairbrass provided information in the form of responses to the Needs Analysis Questionnaire.

Responsibilities

Public Works works closely with Infrastructure Services to maintain day-to-day operations of the Districts infrastructure including:

- Utilities
- Parks
- Infrastructure (roads)
- Fleet
- Capital improvement

By nature, Public Works is both a proactive and reactive group. They proactively participate in major infrastructure projects and respond to requests for services.

Documents

This group utilizes many forms and document types in the performance of their services including:

- Request Forms
- Work Orders
- Sign Maintenance
- Tree Removal
- Shouldering
- Ditch Maintenance
- Inventory Maintenance Records
- Various inspection reports
- General staff reports
- Email and correspondence

Resources

Staffing as follows:

- Public Works - 6 FTE, 2 seasonal (includes 1 Foreman)
- Utilities - 7 FTE (includes 1 Foreman)
- Parks - 3 FTE, 3 seasonal (includes 1 Foreman)

Business Processes and Priorities

Every morning, each Foreman completes a Daily Activity Log which summarizes his team's work.

The team uses the network shared network drive for electronic document storage (refer to IT/GIS Department beginning on page 17). Everyone has their own folder and access to each other's folders is allowed. Hard copy document storage is prevalent as well.

The Works Superintendent, Brian Robinson, views the group's priorities as follows:

1. Maintenance management
2. Request Form/log/management
3. New inventory (disseminate info to other departments)

Issues specifically identified during the interview session include:

- Timely filing
- Sensitivity (of confidential/secure information)
- (Staff) performance reviews (the process in general is lacking)

General Observations

- LGMA standards for document filing “are too generic to meet our needs”
- Timelier update of information between departments is needed, e.g. when Public Works finishes a project on behalf of Infrastructure Services, the file(s) need to be updated quickly, and possibly, depending on the project, Emergency Services may need to be notified as well
- There are approximately 60 vehicles in the fleet
    - Inventory Maintenance Records are critical; audited every three years
- Email management is done annually (“retain what is worthy”)
- No real good place to store digital photos
    - Asset photos, signage, maintenance, insurance claims
    - Currently use shared network drive
- Public has access to some forms on the website but submit most electronically or upload files
- General desire to be more proactive
- Maintenance inspection volume/frequency (documentation for each is prepared and retained)
    - 4,000 meter reads conducted 3 times per year
    - 13 sewer lifts inspected 2 times per week
    - 450 hydrants inspected 2 times per year
    - Exercise approximately 2,500 water valves once each per year

Emergency Services

An interview was conducted with Gary Wilton, Director of Emergency Services, and Jennifer Provan, Administrative Assistant.

Responsibilities

For the purposes of this Needs Analysis, the responsibilities of Emergency Services (ES) include documentation related to emergency events (reports, photos, etc.), permitting, and inspections.

In general, fire services are provided by 4 career and 40 volunteer fire fighters; Policing is provided by RCMP; and emergency medical services are provided by BC Ambulance Service.

Documents

This group utilizes many forms and document types in the performance of their services including:

- Burning permits
- Wood Burning inspections
- Oil burning equipment inspections
- Fire inspections
- Human Resources documents
- Training documentation
- Incident reports
- Photos
- Reports to Council and insurance

- Email and correspondence

Business Processes and Priorities

The permitting process carried out by Emergency Services is structured and requires a lot of form-based documentation. Each form is multi-part (one for firehall, one for District, one for owner) and is completed by hand. Certain data from the form is subsequently keyed into an Access database. If needed, digital photos are taken.

Notification of the need for a Fire Inspection is made to ES by the Planning Department, sending a copy of the issued permit.

Incident Reports, fill-in-the-blank forms, are legal documents. They contain written commentary about the event and are considered confidential for the public (not for the District). Photos are taken (~150 per fire) and stored on an external hard drive, uncompressed to preserve the detail. Some of the photos will be transferred to a District server and posted to the Web for public consumption.

There are approximately 550 calls per year. Seven years worth of reports are filed at the fire house. Fire reports are similarly generated with major structure fire reports being shared with the Planning Department.

Checklists are used, and retained, for equipment inspections.

The EMS Access database is uploaded to the fire truck on a monthly basis to provide additional information during a call.

General Observations

- Space for document storage is extremely tight, however a new firehall is being built which will allow the old one to be used for office space and storage

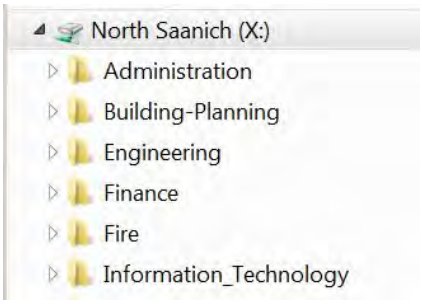
IT/GIS Department

An interview was conducted with John Carnell, IT/GIS Manager; Rick Fedrigo, Network Support Technician; Shawn Munro, GIS Technician; Dawn Gould, Auxiliary Projects (Intranet).

The Information Technology (IT) Department is responsible for the management of all activity related to the District's integrated network of computers, the Geographic Information System (GIS), and the municipal website. The primary goal of the IT Department is to deliver innovative and cost-effective technology solutions that enable the District to meet its business and corporate objectives.

Shared Network Drive

IT has put in place for the business a large shared network drive (X:\) where users can store documentation. Each department has their own main folder in which they can create subfolders as they see fit. Department staff has full access to



create/view/modify/delete within their own folder, but have only view access to other department's folders.

Table 1 - Department Usage of Shared network drive

Department	Qty Files	Total Size (GB)
Administration	22,989	38.7
Bldg/Planning	8,425	3.5
Engineering	74,782	64.0
Finance	37,896	13.0
Fire	10,066	6.3
IT/GIS	41,720	60.5
Total	**195,878**	**186.0**

Additionally, users have their own "personal" folders which analysis shows accounts for another 50,000+ files. These folders are for personal use, not personal documents.

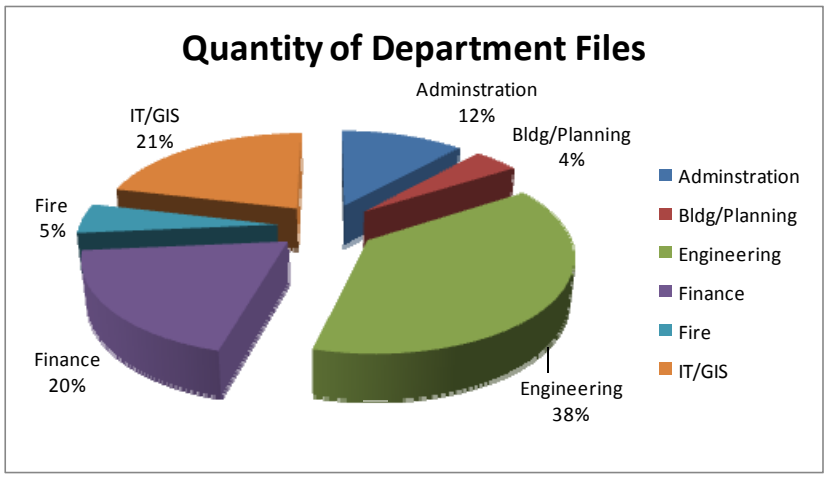


Figure 4 - Shared network drive Files by Department

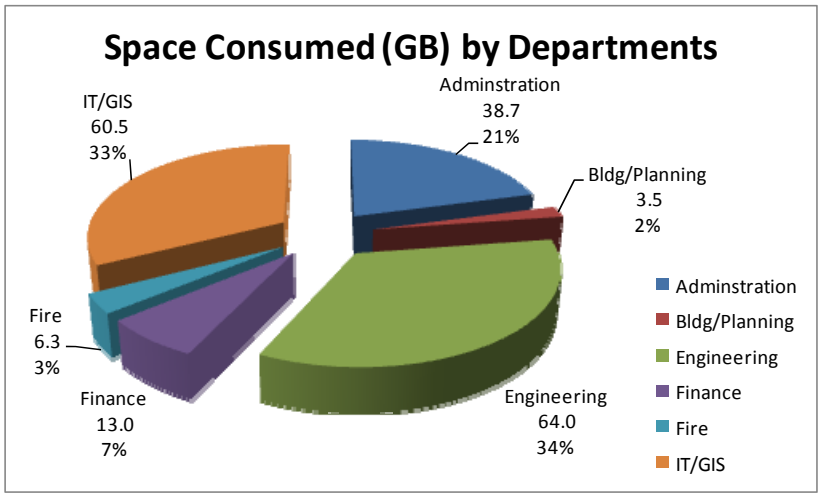


Figure 5 - Shared network drive Space Consumption by Department

Many of the files stored in both the departmental and personal folders are duplicates when comparing file name and size. When a list of the duplicated files was prepared, 284 pages worth, approximately 50,000 were noted. In this case, "duplicate" indicates at least two were found, meaning there could have been more. A few examples from the Administration pages are below. Notice the audio file (*.mp3) exists both in a main folder and a year-named subfolder, the first Word document is located in an Audio Files folder, the second Word document appears in a "permanent" folder as well as (presumably) a non-permanent operating folder.

File Name	File Location	File Size (KB)
Council 2010-02-15.mp3	X:\Administration\Meetings\Audio Files\Council meetings	122644.1
Council 2010-02-15.mp3	X:\Administration\Meetings\Audio Files\Council meetings\2010	122644.1
AAC Agenda 03-04-2010.doc	X:\Administration\Metings\Audio Files\Commissions\Agendas\AAC\2010	41.0
AAC Agenda 03-04-2010.doc	X:\Administration\Meetings\Commissions\Agendas\AAC\2010	41.0
hs-July 16 Sanscha fax.doc	X:\Administration\Meetings\Tri-Municipals\Agendas	411.0
hs-July 16 Sanscha fax.doc	X:\Administration\Permanent\Meetings\Tri-Municipals\Agendas	411.0

Geographic Information System (GIS)

The Geographic Information System (GIS) from ESRI is one of the primary applications supported by this team. GIS provides geographic data, and some documents, relating to lot, block and section detail about the properties within the District.

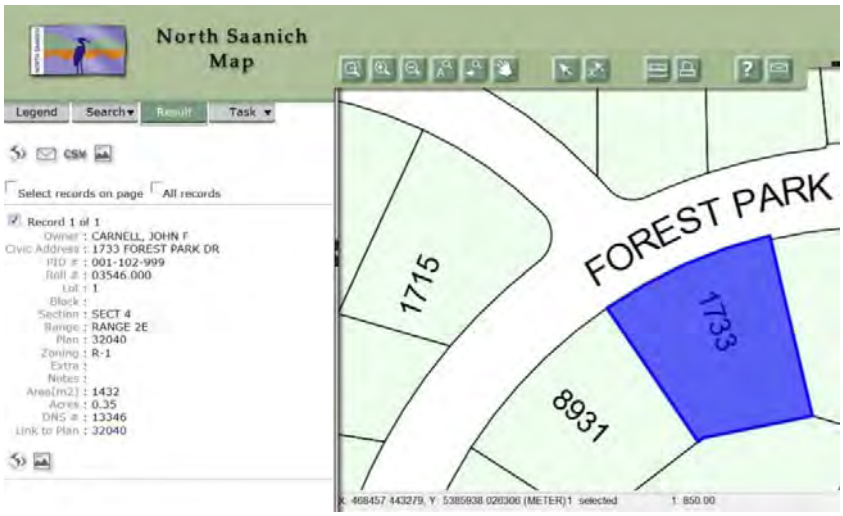


Figure 6 - GIS View of Property Location

The Land Titles Office sends an email to the District IT Manager with notification of availability of a new Legal Plan. The email is forwarded to the appropriate GIS resource that downloads a PDF version, redraws it in AutoCAD, produces a TIFF version and uploads it to GIS. Notice the "Link to Plan" in the lower left of Figure 6 is blue. This indicates there is a legal plan drawing available for viewing. Clicking the link displays the plan.

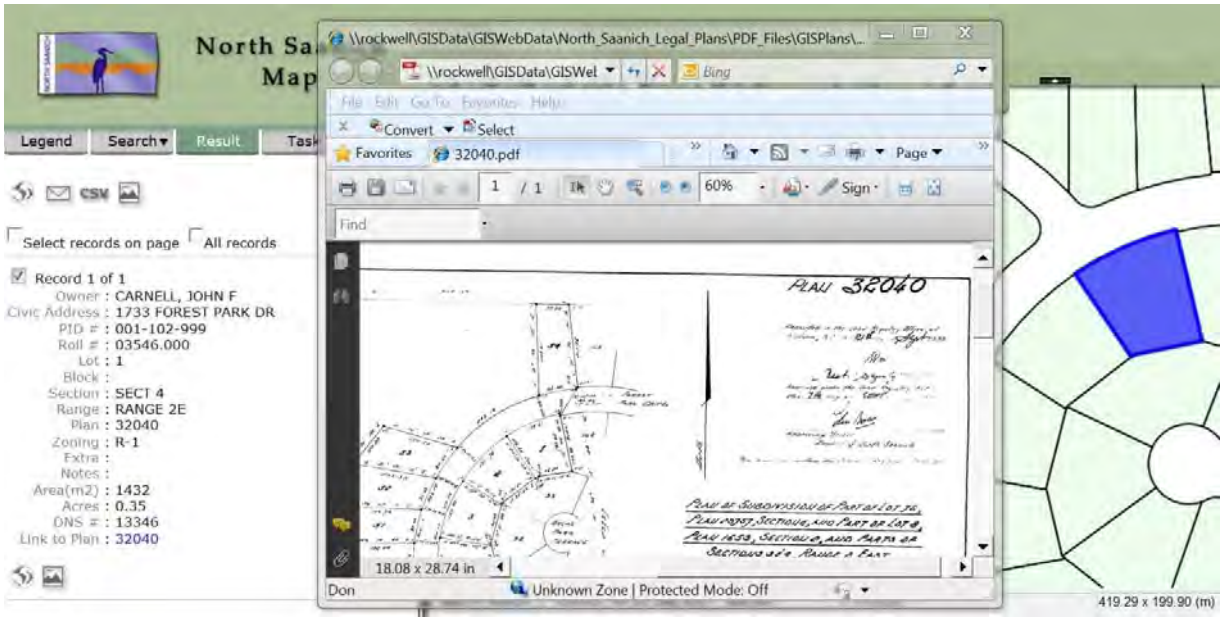


Figure 7 - View of Legal Plan in GIS

GIS is also linked to the SQL database behind Finance's iCity (Vadim) for ownership information on the properties.

In the future, the District would like to add permits to the documents that are available through GIS.

Intranet Site

IT is in the process of building an intranet site for District staff usage. The goals of the project include:

- Connection through LDAP to the Active Directory for user access and management
- Central location for forms management
    - Employee oriented
    - Policies and procedures
- IT Help Desk
- Department-specific pages
- Mayor and Council pages for their own use

Note - Consideration will be given to leveraging the Intranet calendaring system not only for conference rooms but for other internal scheduled activities like building and fire inspections, personnel time off, etc.

Documents

This group utilizes document types in the performance of their services and simply manages documents on behalf of the District including:

- Vendor Contracts
- Policy and Procedure management
- Hardware and Software Documentation
- Email and correspondence

General Observations

- IT/GIS has 3 FTE and 1 auxiliary consultant brought in as needed for large projects
- www.northsaanich.ca is hosted externally
- Request for Feedback forms submitted on the site are emailed to an admin mailbox
- The CityWide system (used by Financial Services for Tangible Capital Asset management) is a hosted solution which cannot be integrated with GIS or iCity without significant effort

Current Technology

Since the future document management system will integrate with components of the District's technology environment for the processing and delivery of information, a review of the existing systems was necessary.

Corporate Applications: iCity from Vadim Software; AutoCAD Map 3D 2001, AutoCAD 2009, AutoCAD 2011, Acrobat Pro 9 Ext, GIS from ESRI 9.3; Microsoft Exchange 2003, SQL 2005 and 2008

Desktop Applications: Windows 7 64bit, Office 2003 (upgrading to 2010 over the next few months); Corporate systems as needed by user role

Servers: Mostly Dell, some old HP; Windows 2003 and 2008

- Upgraded every four years; due in 2012
- SAN replication (3.7TB); Local (6TB); total data approximately 1TB

Workstations: workstations (64) and laptops (12) running Windows 7, 4GB RAM, 120GB HD

- Upgraded every four years; done this year

Output: Oce TPS 100, HP DesignJet 800ps, Canon iRC6800; currently investigating purchase of a plotter/scanner, Oce ColorWave 300

Variable Data solution: None

Multifunction devices: Scan and print enabled multi-functional devices

IT Department Structure:

- IT Department supports all applications and some packages have external support agreements as well
- No formal Help Desk process exists but will be investigating next year

Other:

- No data stored on local workstations
- Staff does not have local admin rights
- Cat5e or Cat5 depending on location in the building, fiber from server room
- Real-time backups (3 hour snapshot), duplicated, monthly/quarterly schedule for off-site rotation

Current Issues

Highlighted in the Executive Summary is the need for the District to act decisively and assertively to rectify years of deficient procedural and document management habits. These poor habits have been left unchecked resulting in a compounding of the problem, "an air of uncertainty and confusion" among the staff, wasted time and effort, and adverse effects on quality and service levels for the public.

As stated in the Executive Summary, the biggest defects in the District's current practices are

- Considerable lack of control and organization related to document records
- Deficient or absent processes for document management
- Non-existent policy governing document records

What is impossible to assess is the impact associated with a confidentiality breach, Administrative Fairness complaint, or failed Freedom of Information request. Case in point, Administrative Fairness requires that decisions are made lawfully, not negligently, and that decision-making processes are reasonably fair and prompt within a defined process and timeframe. Due to the document record environment in place today, this is challenging to achieve. In addition, imagine the potential consequences associated with sensitive files going missing. The District has been fortunate thus far that no disastrous events have taken place.

"Every single day that we work we make the situation worse; compounding the problem, which will make it harder to fix the longer we wait."

"The situation is bad and getting worse."

"The loss of staff time looking for files is considerable."

The following issues were observed and documented during the Needs Analysis:

Lack of structured document management processes across the organization; both paper-based and electronic

- In cases where there is a semi-structured method in place, e.g. LGMA, usage is limited due to lack of broad-based understanding of the requirements and methods
- Those few staff that are trained in LGMA standards find themselves "policing the masses" who don't comply with the standards or don't know how to comply
- In cases where this is no structured method in place, ad-hoc methods persist creating difficulty for all but the original filer; this is especially true of the shared network drive

Specific examples of this issue are evident with the following:

  - Duplication and multiple versions of digital and paper files
  - Limited file storage structure: naming conventions, access and security management, and effective retention management
  - No back up of hard copy records
  - Due to an overly large amount of duplication within the District's 250,000 digital files (+/- 40%), digital backups are time consuming and create space issues on the computer network

- No defined processes or specific storage locations for certain document types: contracts, confidential documents , email, photos, CAD drawings

Limited and/or constrained resourcing available to develop, disseminate and enforce what little policy exists

- The existing Records Management Policy dated 1998 is not only exceptionally out of date and incomplete, most staff are unaware that it exists
- No resourcing for administering document policies

Specific examples of this issue are evident with the following:

- Impossible to train staff on the existing methods (as they are largely non-existent and inconsistent where they do exist)
- No destruction policy
- Fulfilling Freedom of Information requests can be very challenging and unnecessarily time consuming due to the difficulties finding appropriate documents
- There is considerable confusion about who/how/when the next step in a work process is conducted (permitting workflows is a perfect example of this)

Distributed hard copy archive

- Many file rooms exist making it difficult for an individual to access documentation easily or to know where it is
- Even though sign in/sign out procedures exist, frequently they are not observed so if a file is not where it "should" be, there's often no indication when it was removed or by whom. This results in files frequently being misplaced
- Documents are stored in personal folders and offices making them inaccessible to others

Specific examples of this issue are evident with the following:

- Over reliance on and over use of paper including potential for lost files (paper and electronic) and the time to file, re-file and recreate files
- Staff print and store documents unnecessarily due to lack of confidence in the central filing system
- Some documents remain un-filed, in boxes, in offices, storage rooms and file rooms
- Unfiled documents in boxes that haven't been touched in years

Underutilized technology or utilization of technology for purposes other than intended

- Stretching the limits of an application's intended function by using it to 'fill a gap'
- Corporate systems that should be integrated but are not

Specific examples of this issue are evident with the following:

- Use of Microsoft Outlook PST files for document storage rather than a central storage location that is searchable
- Documents and processes are tracked in departmental (or personal) databases without standards or integration to corporate systems
- Multi-function photocopiers that are capable of scanning but are not used for document filing

No "true" document management standard or technology is in place to allow users to manage documents efficiently and effectively

- The only technology remotely resembling electronic document management leverages GIS with reference links to document files on a network server
- Basic office documents are stored on a shared server space with virtually no rules or security for the files and certainly no satisfactory structure in which to file them

Specific examples of this issue are evident with the following:

- Using Outlook email application for the storage of electronic documents and email (there are significant limits to searching capabilities and accessibility)
- No production scanning equipment for office documents and large format drawings
- No true (cross-functional) search capabilities
- No underlying document management environment to support the many corporate applications
- No organized or documented workflow resulting in multiple manual processes created by staff
- No online processes to streamline workflows between departments and reduce paper usage

Despite requests for improvements in prior IT Strategic Plans, the current records management practices have been allowed to continue unchecked. Document management was first recommended within the 2001 IT Strategic Plan when the District had approximately 12,000 digital document files. In 2006, the IT Strategic Plan identified some 60,000 digital document files. The District now has approximately 250,000 digital files and approximately 40% of these files (100,000) are duplications. Based on these figures, the District's total number of digital documents has increased by approximately 35% per year. If this trend continues, the District will have over one million digital documents within five years making the current situation considerably more difficult to resolve.

"The (digital document count) figures do not take into account hard copy records or files."

Challenges

During the analysis process, Ricoh identified areas that could pose a threat to the success of the District's planned document management initiative. The challenges contained within this section are potential roadblocks to a successful adoption of the policies and practices, as well as any technology brought in to facilitate them.

Challenge #1 End-users reluctance to embrace change and technology. Some individuals may resist using new EDMS technology and may not always access the appropriate systems correctly or efficiently. This slow adoption could create a bottleneck in the workflow process. Given that customer service, both internal (other departments) and external (residents) is paramount, any technological implementation must be as painless and user-friendly as possible.

Suggestions: Image enabling GIS and other Corporate Systems for a seamless solution will assist in acceptance. Regardless of the document management product chosen, it should be able to fully integrate (from an image standpoint) with GIS and iCity. This means that casual users would not need to login to document management to retrieve documents, but would be able to do so from within the corporate system.

Second, the creation of an internal marketing campaign to promote the efficacy of integrated document viewing. This should occur well before system implementation. This campaign should also include a strong argument towards going green, and the benefits to the business unit and the individual users. This should include eliminating the propagation (via xerographic duplication) of paper-based information; smaller footprint in terms of document storage; and instant access to information. It should also promote the decrease of risks by having secure digital information.

Third, senior leadership endorsement is critical. As is the case with many process improvement initiatives, if senior leadership and upper management do not fully and publically support this project, the project is likely doomed for failure.

Fourth, select a partner that employs a sound project management and implementation methodology. Strict adherence to a sound project methodology is required to accurately determine, craft, and subsequently implement the correct solution. The District should choose a partner who takes a holistic approach to understanding the true business needs before implementing a solution. Doing so will help to ensure that the system works well from the beginning. This approach will mean that poor performance, system bugs, or poorly integrated workflows will not exist to frustrate users.

Finally, recruit subject matter experts and super-users for their input into the system design. In short, make these individuals an integral part of the design and subsequent implementation phases. Giving them that sense of ownership is a key factor in increasing user adoption.

Challenge #2 Document destruction must occur; else the proliferation of paper will not abate in a timely fashion.

Suggestions: Destroy paper records, when allowed by the Records Management policy, after adding them to the document management system. Ricoh normally recommends a 30-to-60-day hard copy document retention practice post-ingestion and auditing. After this time, securely destroy the hard copy records.

If 30-60 days is too aggressive, an alternative approach could be to destroy paper records one year after ingestion. If an audit of records occurs within one year and the auditor needs the hard copy record, a box for that date containing the file in question is hard copy retrievable. The extra time it takes to retrieve the hard copy file might dissuade the auditor from wanting the original, therefore resorting to the ingested copy for audit purposes.

The District's Legal Counsel must weigh the destruction policy carefully. Upon reaching a decision, establish a policy for shredding (hard copy or digital) records after scanning/ingestion and audit processes.

Challenge #3 Reluctance to accept digital information as the sole source when the same information coexists on paper. This is a common issue and is a debated subject in many organizations. Many municipalities often, unfortunately, err to the side of keeping the paper even after it has been imaged.

Suggestion: the District should define a policy that allows electronic documents to be acceptable as a source of record, where allowed by law. The District needs to disseminate this policy information and be prepared to enforce its compliance with the user base so paper information subsides rather than persists. It is possible to use electronic records as evidence, provided that they can be proven to be the genuine and authentic record[4]. Based on The British Columbia Rules of Court (Reg 221/90), under the Electronic Evidence Project, it is admissible evidence. As a recommendation, and based on best practice, all images are best stored in the G4 TIFF format. This is considered by many courts as the least alterable of the digital image formats and the therefore the most favorable from a legality standpoint.

Challenge #4 Lack of a dedicated resource to manage enterprise imaging and document management will be a cause for concern. This is a challenge for the District both from a tactical and strategic standpoint. Currently, no one individual (or group) has sole responsibility and accountability of the document management, process metrics, file maintenance and chain of custody. Additionally no one person (or group) is responsible for departmental liaising and setting the strategic vision for document imaging and digital documents.

"(We need to) think corporately not departmentally."

Suggestions: Create a dedicated leadership role to oversee document management. This individual would be responsible for managing the imaging operations as well as setting future technical and process-oriented direction for this ongoing endeavor.

[4] LGMA – Records Management Manual for Local Governments in British Columbia, 3rd ed. Victoria, 2006

During the implementation and rollout of document management system, retain a consultant with strong industry experience and practical application of implementing EDM systems. This individual will help guide the District through the phases of design, planning, and implementation of the EDMS.

Challenge #5 Multiple instances/versions of the same documents throughout the District. As is so often observed with today's organizations, multiple versions of the same document frequently exist. This includes the same document being stored in multiple locations, multiple versions of the same document being stored in the same location, native electronic versions being saved when a paper version is already on file, the same electronic file being saved on several hard drives, and/or shadow records (copies) being created and stored "just in case."

Suggestion: Implement a well-designed, state-of-the-art, EDMS for the storage of scanned images and native electronic content. Such a system will significantly reduce the instances of multiple versions of documents and native electronic files within the District. By granting centralized access based on user security, the District will essentially a have a common document repository and information "hub."

Challenge #6 After technology implementation, end-users will desire to print. This is a common issue in many organizations. Knowledge workers, especially during processes where a review of documentation must occur, tend to desire a tangible piece of paper to work with rather than viewing and annotating the documentation on-screen. Beyond that, paper-based information poses a risk concerning privacy. Notably, the potential for identity theft increases exponentially when personal information becomes "portable" and prone to duplication. Secure digital information is less prone to such risks.

Suggestions: An implementation of print auditing technology will control the desire to print. In short, this is a behavioral management approach. It can be configured to be passive, simply collecting information, or aggressive, actually restricting user's actions, an "iron fist." Such technology will allow the District to determine who the "offenders" are and, over time, warn accordingly. Print management software can be a good approach to both controlling printing costs and directing print jobs to less expensive devices, as well as modify behavior.

Second, provide super-users with large screen monitors. This will allow the user to work with the image and the corporate application simultaneously without the need to toggle between the two.

Challenge #7 Performance with scanning technologies must NOT be slow. Digital images are stored on a central server/SAN for viewing by end-users and the proper technologies must be in place. Users tend to be very unforgiving and resistant to adopt new technologies if the new system slows down the performance of their tasks. This is even more critical if the information is electronic and time-sensitive, and related to critical business processes.

Suggestion: Ensure that adequate capacity and bandwidth is available at production scanning facilities. Given that access to digital images is somewhat critical, the scanning of the images will be on demand and not sent in batches to the EDMS on a schedule. Likewise, imaging technology will be reliant on local server(s).

Recommendations

After careful analysis of the current practices and methods of document management at the District, Ricoh recommends first instituting structure in the document management environment, and then implement technology to facilitate and enforce that structure.

The structure needed can be obtained with the following five steps:

1. Records Management
    - Create and hire, or identify from within, an individual to be the "Document Custodian"[5]
    - Create Records Management Policy and update the existing Retention Schedule
    - Educate staff on the new policy, check for understanding and enforce compliance
2. Change Management
    - Create awareness
    - Disseminate knowledge
    - Reinforce change
3. Establish a Document Center
    - Hard copy location for paper-record storage and imaging operations
    - Functions as a shared service center for the business with walk-up filing, scanning services, library services, etc.
    - Equipped with hardware, software and resources to perform service-oriented activities
    - Could be outsourced or self-sourced
4. Technology Acquisition
    - Issue a Request for Information (RFI) to a broad base
    - Issue a Request for Proposal to a selection of vendor partners identified by the RFI
    - Select a vendor partner, select a product set and purchase the technology
5. Phased Technology Implementation and Expansion
    - Identify one target business unit for a pilot implementation (Phase I)
    - Design, implement and deploy a base EMDS for the pilot target
    - Expand to other business units (Phase II) and increase complexity of the system (Phase II or III depending on need and speed of adoption)

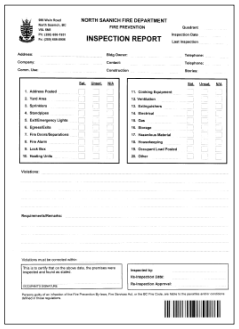
Ancillary Observations and Recommendations

These items, when further investigated, have potential to improve operations for the District.

- **Dual role -** Due to current workload constraints, the District should consider the creation/addition of a single dual-purpose position that would serve in the capacity as both the Document Custodian and Human Resources Manager

[5] Other terms to refer to this role include Chief Content Officer, Records Manager, Record Custodian, etc.

- With the addition of a dedicated individual for the aforementioned duties, more focus on document- and personnel-centric activities would be allowed, thus making the District more successful overall.
    - Each role, individually, would not likely warrant a full-time staff person
    - This role would ideally hold record management and human resource compliance responsibilities, so it is strongly recommended that the individual possesses the appropriate authority level within the District (at least Manager level, perhaps even Director)
    - Ricoh's experiences with previous clients, coupled with industry best practices, has shown that simply adding each responsibility to existing personnel will likely yield less-than-desired results for the District
- Given the nature of the Document Management project overall, this role would be influential in how the project is executed; therefore, to ensure a smooth project implementation, it is best to put this resource in place prior to acquisition of technology and development/implementation of procedures, etc.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FIRE PREVENTION
INSPECTION REPORT

- **Form (re)Design** - For consideration, to facilitate scanning, the District should modify all forms within your control by adding document type-specific barcodes and constrained hand-print boxes for hand written information.

  The bar codes will:

    - Identify the form
    - Separate the form from other forms in scanning process
    - Improve accuracy of indexing
    - Speed up scanning process

  The constrained hand-print boxes will primarily facilitate automated data extraction (which reduces human error and time consumed from manual data entry).

- **Variable Data Print** - A variable data print solution enables the creation and printing of transactional documents (e.g., earnings statements, invoices, revolving charge bills, etc.) as well as automates their distribution based on workflow rules. Documents can be printed, archived, emailed and/or faxed as part of this output management application. Conditional text, business graphs and images can be incorporated based upon information contained within the data stream.

  For the District, variable data print technology would have many uses including:

    - Intelligent manipulation and production of printed materials
        - Utilities statements
        - Tax statements
        - One-to-one, transactional marketing
    - Intelligent processing for documents destined for imaging

- Placing generic or custom barcodes on documents
- Converting print stream data directly to image and metadata for storage in an archive system

Note - In keeping with the idea that the Document Center would function as a shared service, it would be a good location to house production output (print) equipment, appropriately sized for the District's needs. Given the staffing needed to operate the Document Center, cost savings and efficiency gains may be had by bringing in-house those print/mail jobs that are currently outsourced.

Records Management

What is a Record?

> *Records are information created, received, and maintained as evidence and information by an organization or person, in pursuance of legal obligations or in the transaction of business*[6].

Records come in many formats, including hard copy paper, electronic documents and messages, website content, data in database, etc.

A Records Management and Retention Policy is defined as a program that provides for the systematic management of "records." The typical policy encompasses creation and organization, collection, access, disclosure, maintenance, retention, security, storage, preservation and disposal of records in compliance with applicable laws and standards.

The policy will need to establish a definition for each of the following:

- Record - information captured to meet business, operational, legal, evidentiary and regulatory requirements of the District.
- Transitory Information - includes duplicate copies of records used for short-term reference purposes, blank forms, publications, correspondence and messages used primarily for the informal communication of information. This information has no long-term benefit to justify its maintenance after its use.
- Vital Records - records that are essential to the continued operation or reconstitution of the District during and after an emergency and should be identified as such.
- Records Custodian - has responsibility for the maintenance of the active and inactive records of their functional group, from creation through record destruction, regardless of the storage location or the systems used to retain the records.
- Record Index - an index of all active and inactive records retained by a functional area. Each functional area of the District must have a Record Index.
- Retention Schedule - a list of the applicable retention periods for each record location or type as defined by local or national laws, or by the needs of the District. Each functional area of the District must have a Retention Schedule that applies to the types of records it creates.

[6] ISO 15489-1, 3.15 Information and Documentation – Records Management

- Policy - to create, use, maintain, preserve and destroy records in accordance with all national and local requirements and all applicable District policies.

Speaking specifically to the retention schedule, electronic documents, not just paper, must be monitored as well. *Because the cost of electronic document storage is relatively low, some have suggested preserving copies of electronic documents even when there is no business reason or legal obligation to do so. This overlooks the fact that indiscriminate copying and retention of electronic files - even if cheaper than indiscriminate copying and retention of paper files - leads to the same or greater headaches in litigation: ballooning costs of review for relevance and privilege, large numbers of duplicate documents, and problems dealing with retrieving documents in obsolete formats that have been unnecessarily retained.*[7]

As an organization's volume of unstructured content expands, the associated litigation risk and discovery cost grow. Retention management assists in the following manor:

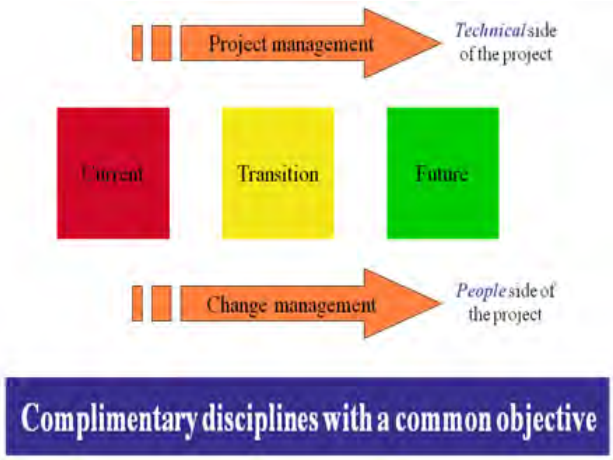
- Lowers cost by quickly differentiating between records that need to be destroyed from those that are required to be retained
- Saves time and provides accuracy by automating events to trigger retention/destruction of records
- Lowers costs associated with litigation and increases likelihood of success in lawsuits
- Facilitates compliance with regulation and business policy
- Minimizes storage and administrative cost by enforcing retention policy and disposition of records
- Provides easier access to information needed for the ongoing operation of the District
- Provides capacity to access information pertinent to enhanced decision-making
- Promotes job satisfaction for workers who work predominantly with information management and access

Along with creation of a formal Records Management policy, the District should put in place a resource responsible for maintaining it and ensuring general compliance with its parameters. This position, often referred to as a Document Custodian, or Chief Document Officer in the private sector, would have responsibility for all the District's document-related matters, both hard copy and electronic. Given that the District eventually intends to implement EDM technology to compliment its hard copy document management needs, this individual would be a prime candidate to "own" the EDMS as well. This would require the individual to have the following qualifications and/or prior experiences:

- ✓ Familiarity with British Columbia and Canadian Records Management best practices, standards, laws and regulations (e.g., ARMA CA, BC Rules of Court, Electronic Evidence Project, LGMA, etc.)
- ✓ Responsibility for hard copy and electronic content (e.g., image quality, security policies, data integrity, chain of custody, etc.)

[7] The Sedona Canada Principles, January 2008

- ✓ Experienced with technology implementations, change management, project management, and resource management
- ✓ Familiarity with digital document management, document library services, imaging technology (scanning); experience with the EDM systems
- ✓ Set future technical and business-process-oriented direction for this ongoing endeavor across multiple business units
- ✓ Responsibility for policies and procedures associated with documentation
    - Ensure employee awareness and understanding
    - Provide repeated/continued reinforcement as staff advance and/or are replaced
    - Audit for compliance



Change Management

The value from any technology usage in an organization is primarily derived from user adoption.[8] Effective user adoption is not achieved through Project Management; it is achieved through Change Management.

By definition, Project Management focuses on the resources, tasks, timelines, budgets, etc., associated with implementing technology. There is an element of user training and documentation associated with a new system, but simply teaching users how to use the system and going live does not ensure actual successful adoption. Change Management, by definition, is the process, tools and techniques to manage the people-side of change to achieve the required business results.[9] It is Change Management that will ensure the success of transitioning the District from a paper-based world to a partially or fully electronic environment.

For any given organizational change, there are three "human" factors that impact the amount of expected improvement from a solution:

1. Speed of adoption - How quickly do people get on board?
2. Ultimate utilization (participation) - How many people are on board?
3. Proficiency - How much improvement occurs when people are on board?

As part of the Analysis project, Ricoh conducted a high-level Impact Assessment to determine the District's readiness for change. The results of the Analysis indicate that although this will be a "Large, Disruptive" change overall, the District is "change ready."

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[8] Source: TSIA (Technology Services Industry Association)/Neochange/Sand Hill Group

[9] © Prosci 2010

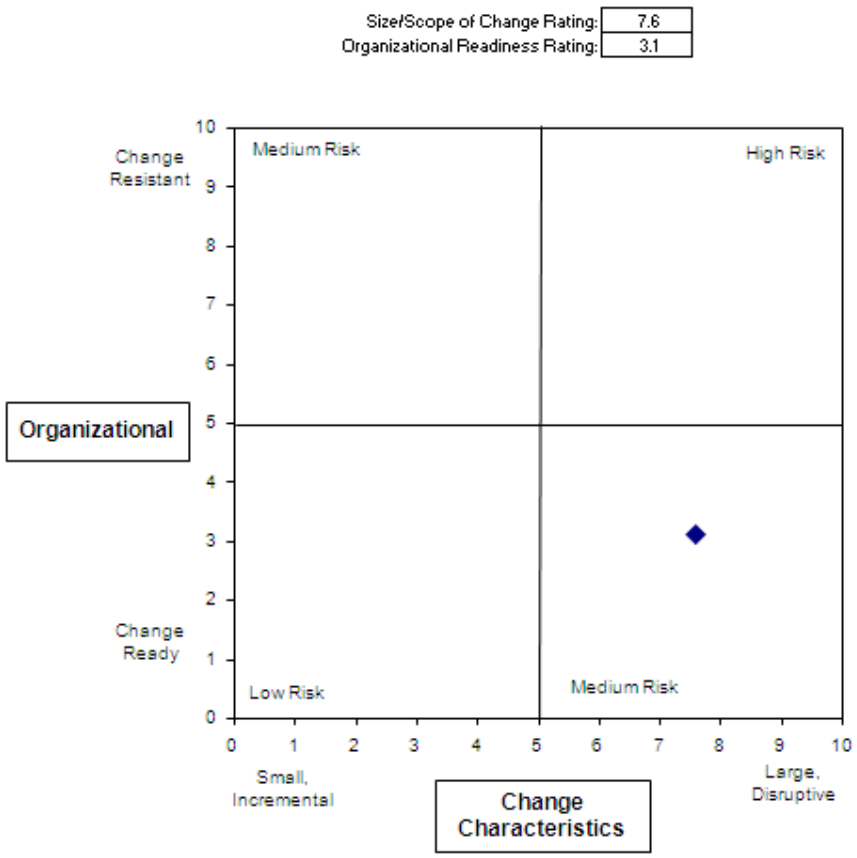

Figure 8 - Impact Assessment

The greatest contributors to success, and therefore the greatest impediments to resistance, are:

- ✓ Active and visible executive sponsorship
- ✓ Frequent and open communications
- ✓ Structured change management approach
- ✓ Dedicated resources for change management
- ✓ Employee engagement and participation

A proper Change Plan for the District must include a:

- ➢ Communication Plan
  - o Frequent, regular, positive communication
  - o Timing, message, delivery method, and sender are all important
- ➢ Sponsorship Roadmap
- ➢ Coaching Plan
  - o Prepare for the change then lead through it
  - o Applies to target business units and individuals alike
- ➢ Resistance Management Plan
  - o Anticipate, mitigate and manage

- Diagnose the root cause, coach, communicate and implement consequences

- Training Plan
  - Provide knowledge and ability to succeed through the change
  - Develop materials, deliver training, and reinforce

Document Center

To gain maximum efficiency for document imaging and production, a Document Center should be centrally located, close to where the documents are today, and easily accessible to the business units that will utilize its services.

Figure 9 and Figure 10 show examples of ergonomically friendly and efficient work areas for the document preparation and scanning activities that would occur in a Document Center. It represents two individual scanning areas, two quality/indexing areas, and room for transient boxed document storage. Having two scan areas gives the District a backup in the event that one of the units is being serviced, temporarily non-functional or at full capacity due to backfile or backlog. The equipment recommended includes:

- Work tables for preparation
- Document joggers and shredding equipment
- Work cubicles or desks for scanning (to accommodate PC, scanner, and documents)
- Production-level document scanners
- PCs with minimum large monitors
- Secure document storage space

Consideration should also be given to co-locating document output equipment (production printing) and mail operations to create a truly shared service environment. (Equipment of this sort is not depicted in the examples.)

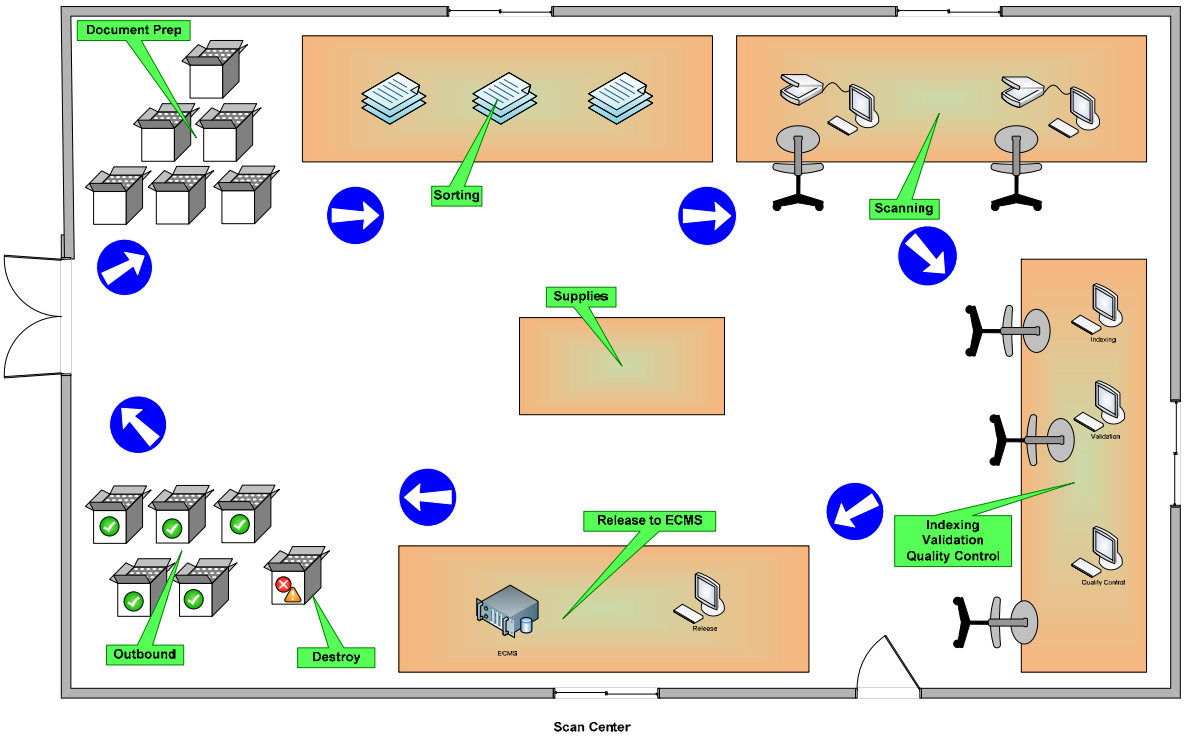

Figure 9 - Document Center (Example 1)

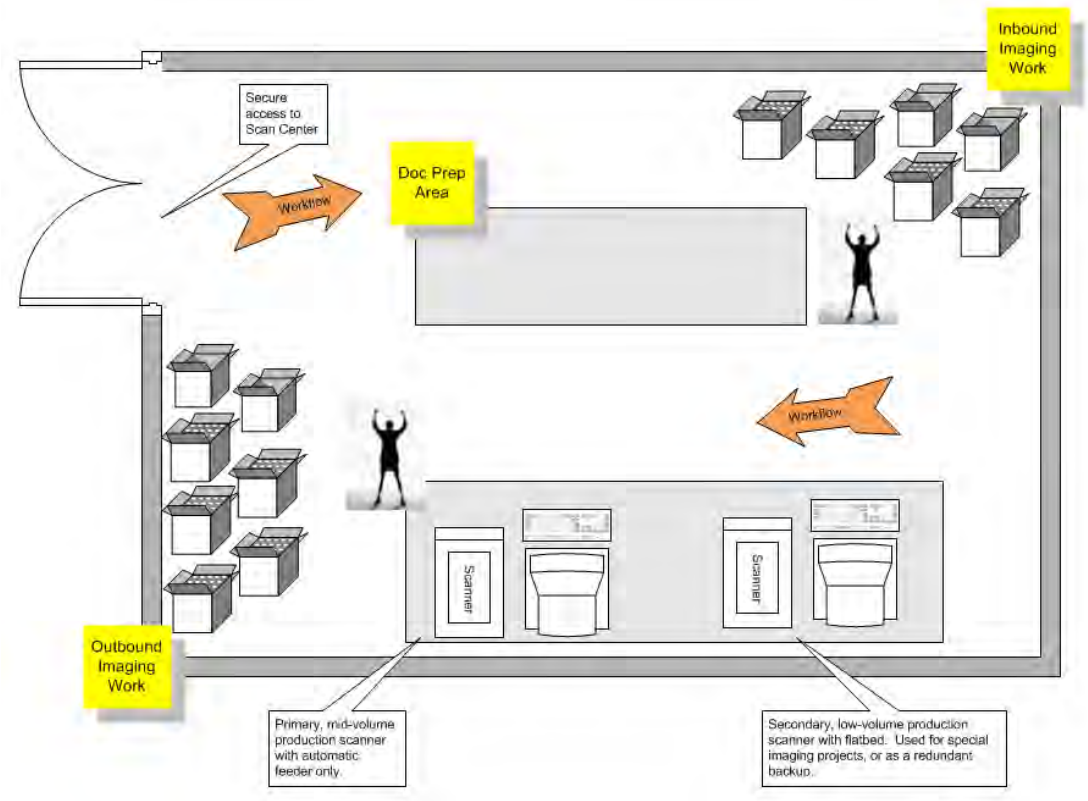

Figure 10 - Document Center (Example 2)

Options

the District has three options for establishing the Document Center; although only two of them are feasible in this case.

1. **Outsource** - Outsourcing, is the process of sending an organization's documents to a service provider to perform the imaging work. The service provider will often return CDs of images and possibly the original paper documentation depending on the organization's requirements. This option is not feasible for the District.
2. **In-source** - In sourcing, also referred to as on-site outsourcing, is the process of bringing temporary staff from a service provider into an organization to perform the imaging work onsite.
3. **Self-source** - Self-sourcing is the method by which an organization uses their employees to perform the imaging work.

The pros and cons of each option are in the table below.

Table 2 - Pros & Cons of Imaging

	Pro	Con
Outsource Imaging	• Allows your staff to totally focus on their job • Often the fastest method	• People doing imaging work are not as experienced with the document content • Higher cost associated • Documents leave your possession
In-source Imaging	• Allows your staff to continue focusing on their job, with minimal subject matter oversight • Documents do not leave the premises • Moderate cost associated	• People doing imaging work are not as experienced with the document content; they are likely not subject matter experts
Self-source Imaging	• Little or no net new cost associated with labor • Imaging is performed by subject matter experts • No security/confidentiality exposure	• Takes your staff away from their regular job; could be costly if you have to backfill their position • Often the most time consuming (duration) method if staff is not dedicated to imaging

Best Practices

There are a minimum of four distinct steps or processes involved in the conversion to an electronic image: Preparation, Scanning, Indexing, and Release. Two additional steps are very often added: Quality Assurance and Validation.

- Document preparation is the most difficult process for capture due to its manual nature
    - Staple removal, post it notes, paperclips, opening of mail, un-folding, etc.
- Scanning is the conversion of paper documents into electronic images
- Indexing is used by end-users for the retrieval documents and must be meaningful

    - Index data ought to be a finite set of easily identifiable and assessable business information
- Quality assurance is the process used to ensure high image quality and readability of the digitized document
- Validation is the process used to guarantee data integrity prior to release into the repository, tools include:
    - Database lookups, OCR, ICR, BCR, IDR, OMR, Advanced Capture, etc.
- Archiving is the releasing of the digitized image and associated data to the repository for storage

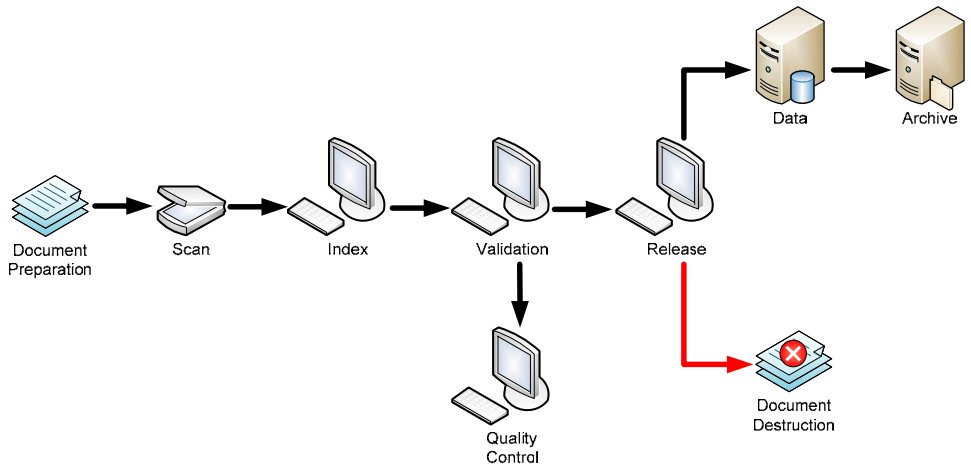

Figure 11 - Document Capture Process

Request for Information and Proposal

A RFI is a standard business process whose purpose is to collect written information about the capabilities of various suppliers. Normally it follows a format that can be used for comparative purposes.

The RFI is primarily used to gather information to help make a decision on what steps to take next. RFIs are therefore seldom the final stage, and are instead often used in combination with a Request for Proposal (RFP). In addition to gathering basic information, an RFI is often used as a solicitation sent to a broad base of potential suppliers for the purpose of conditioning supplier's minds, developing strategy, building a database, and preparing for an RFP.

Information Points

The respondents will need to address the following points:

- A single, enterprise-wide EDMS will need to be implemented to serve as the foundation
- Basic features of the system must include:
    - Support for ~60 named users (or ~20 concurrent)
    - Complete document management

        - Version control and audit trail methods for monitoring changes in the document and keeping track of multiple versions of it
        - Check-in/out privileges so only one user is allowed to modify a document at a given time
        - Allow annotations to documents without changing the underlying file
        - Indexing system to organize documents into related groups, such as folders
        - Robust index/metadata searching for rapid retrieval based on flexible criteria
        - Free-text search and retrieval to enable rapid access to documents based on finding keywords in text
        - Capable of launching native application when viewing file in EDMS
        - Print driver for printing documents into EDMS
        - Fax in/out capability (fax server integration)
        - Import/Export functions for data and documents
    - Support for multiple file formats
        - PDF and TIF scan files which would include large format drawings
        - CAD drawings
        - Web content
        - MS Office documents: Word, Excel, etc.
        - Any other pre-defined file type: JPG, GIF, BMP, etc.
        - E-forms (HTML, XML) - for future consideration
    - Support for production, workgroup and Multi-function Device (MFD)-based scanning
    - Support for integration with other systems
        - Image enablement technology that supports linkages between the EDMS and Corporate Systems
        - Open data exchange - ODBC, XML, SQL
        - Open API - Application Programming Interface
    - Full audit trail capabilities (view, print, add, delete, email)
    - Ability to support full Records Management
        - Includes hard copy records support (box locations, microfiche, etc.)
        - Automated disposition functionality
        - Declaration of a document as a formal (non-alterable) record
- Additional features, sometimes in the form of “bolt-on modules” for future expansion should allow:
    - Rules-based and ad hoc workflow
    - ERM (Electronic Report Management) storage for large volume electronic storage media and permanent archiving of documents
    - Digital writing and digital signature capabilities
    - Electronic forms
    - Advanced capture technologies
- Provisions for professional services
    - Project Management
    - Change Management

    - Consulting for design
    - Engineering for implementation
    - Training and documentation
    - Post-implementation support
- Disaster Recovery for the EDMS solution
- Capture of documents should have the following capabilities:
    - Template or structured rules-based forms processing
    - Semi-structured forms processing
    - Ability to process unstructured documents
    - Machine printed, hand written and bar code recognition capabilities
    - The ability to create text searchable documents
- All based on standard, non-proprietary technology platforms that integrate with the Districts existing technology infrastructure

Phased Implementation

The phased implementation strategy mimics a "walk before you run" approach, starting with a basic archival system for one business target, then progressing to more complex technology for the first business target and basic archival for a second target, and so on. This process is repeated until eventually all business units are operational with varying levels of technological complexity based on need.

Phase I Install a base EDMS with simple capture/store/retrieve functionality to act as an archive system only (for now)

Configure and design the archive system for one object

Train users and deploy the system

Begin back-file conversion imaging on existing files (that have been previously purged of non-value-added documents)

Phase II Identify the next target business unit for simple archive services

Expand the complexity of the first configuration to integrate with Corporate Systems for specific Document Types (may require purchase of additional technology depending on the configuration of the base system initially)

Phase III Identify the next business unit target for simple archive services

Expand the complexity of second configuration to encompass a rules-based workflow that is measurable and monitored (may require purchase of additional technology depending on the configuration of the base system initially)

And so on….

Phase I - Base System and Pilot Project

They key to making a phased implementation successful is to not take on too much at one time. This means looking at a business process or document type, not an entire department. For example, Financial Services is an extremely complex department including Accounts Payable, Accounts Receivable, Tax and Utility billing, Cash Receipts, Cash Management, Financial Reporting, etc. To take on Financial Services in its entirety in a single phase of the project would be asking for a lengthy, complex design , followed by a drawn-out build, laborious test phase, and likely a lot of rework activity; all making for an unhappy user base.

Focus on one manageable target at a time. As the District becomes more comfortable with EDMS technology and deploying it, multiple (related) targets can be taken on simultaneously with success.

The profile of the first few EDMS implementation targets should belong to a department with the following characteristics:

- Strong committed leader with political capital (respected within the organization)
- Significant throughput, whereby a change will be able to demonstrate financial and process improvements that can demonstratively scale to other departments' throughput
- Experience going through changes or have documented pain points
- Desire to finish what they start ("stick-to-it" attitude)

Given those parameters, Ricoh recommends Property Files be the Phase I target. Property files are a pain point for more than one group, would be easily managed from a basic archival perspective and would garner significant success "points" with others when the project is executed successfully.

Design, Plan and Implement the newly EDMS software and related hardware for Property File archiving.

- Create a project plan outlining the time, effort and resourcing required to perform the implementation
- Establish the Document Center in close proximity to the paper files (maybe in the same room)
- Specific to Property Files archiving:
    - Create capture process flows for day-forward and back-file imaging and electronic documents
    - Design the database with appropriate metadata attributes
    - Establish a user management and security schema
    - Install and configure the EDMS according to design
- Perform SIT and UAT and train users
    - Create test plans
    - Create user procedures for imaging and quality control
    - Create system training guides
- Deploy the system
- Begin back-file imaging on most frequently accessed files first

EDMS Architecture

Figure 12 reflects a potential future state view of a centralized document management system. While the display of all known systems is not possible, this depiction gives an overview of the EDMS.

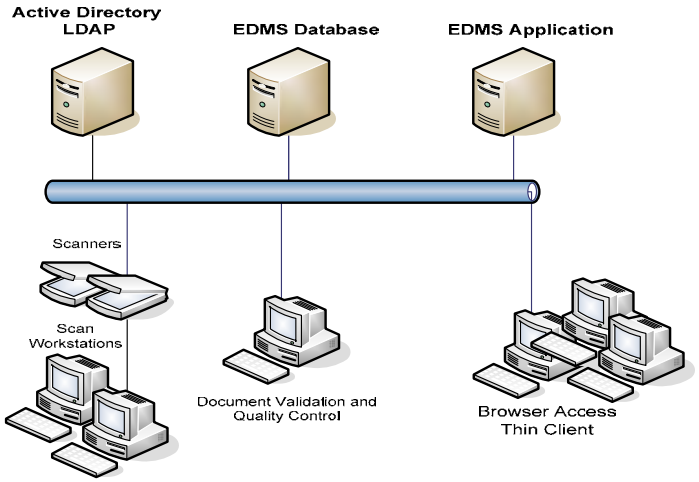

Figure 12 - High-level EDMS Architecture

The future system depicts one central knowledge hub for integrated document capture, storage and retrieval in Phase I. Figure 13 shows a depiction of the architecture reflecting the interrelations and co-existences between each corporate application and the EDMS in Phase II and beyond. Green and orange arrows represent data flow. This depiction also shows the bi-directional flow of data and images as retrieval may be from within the corporate system.

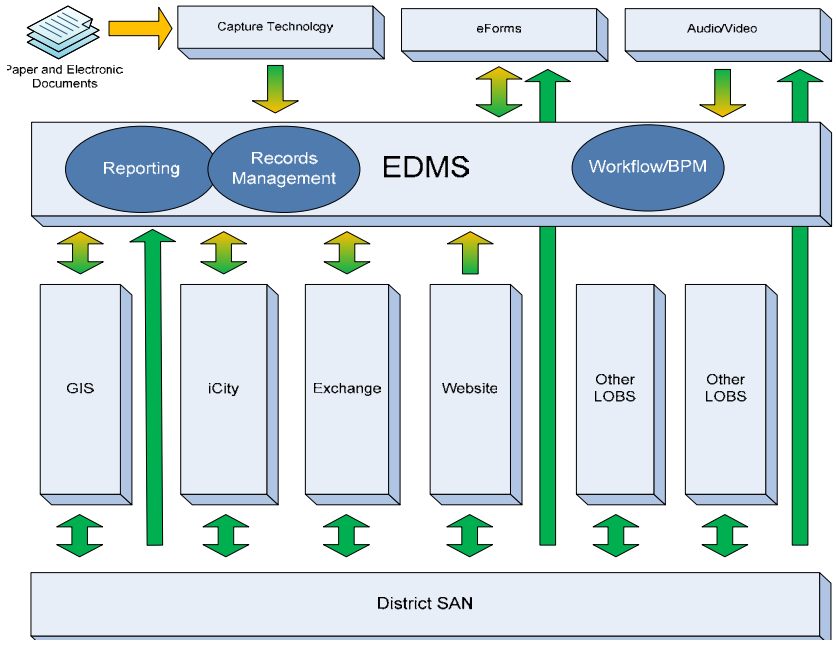

Figure 13 - Potential Future State EDMS

Costs and Savings Opportunities

EDMS Costs

Approximately every three years, for another client, Ricoh Consulting Services has been engaged to prepare a Product Comparison Matrix. Over time, this client faced "*potential issues encompass(ing) documents stored on shared network drives, a reliance on older or proprietary document management platforms, a new collaboration platform based on Microsoft SharePoint, ad hoc workflows and approval processes, and regulatory requirements for collecting, storing, and protecting information.*" The client also had, at the time, an investment in one of the products being compared. As a result of their issues and a desire to investigate current technology available, this product comparative matrix was commissioned and is repeated approximately every three years. The client's current EDMS, which has been upgraded over the years, is always one of the products compared.

This matrix consisted of five, well-known, mid-tier document management products flexible enough to accommodate change as users adapt to business change; scalable enough to allow future growth for user counts, transaction speed and frequency, and expansion through the organization; yet structured enough to maintain control, compliance and accountability for the business processes within. These products were compared on the following criteria:

- ✓ Core document management
- ✓ Reporting, auditing, and records management
- ✓ Web content management
- ✓ Capture and retrieval methods and interfaces
- ✓ Security and architecture
- ✓ End-user software functionality (usability or "friendliness", customizability)
- ✓ Manufacturer information (administration and support, professional services, background and stability, horizontal and vertical areas of expertise)

The comparison excluded the following:

- ✓ Network sizing, capacity analysis and performance considerations
- ✓ Advanced, automated workflow
- ✓ Custom coding, programming, integration requirements
- ✓ Detailed pricing and distribution information (as this is proprietary and confidential)
- ✓ Information regarding end-user training

Fortunately for the District, this comparative matrix did include a high-level costing component, shown below in Table 3. Pricing is full retail, which government entities rarely pay, and excludes hardware and professional services. Additionally, the average time to implement a core system is displayed.

Table 3 - High-level, Mid-tier EDMS Costs

	Product 1	Product 2	Product 3	Product 4	Product 5
Server	$ 50,000-75,000	60,000-100,000	100,000-150,000	50,000-75,000	50,000-100.000
Per User	$ 300	$ 250	$ 225	$ 200	Unknown
For The District ~60 users	$ 18,000	$ 15,000	$ 13,500	$ 12,000	Unknown
Cost Range *	$ 68,000-93,000	75,000-115,000	113,500-163,500	62,000-77,000	50,000-100,000+
Time to Implement	6-8 weeks	3-4 weeks	4-6 weeks	3-4 weeks	4-6 weeks

* Excludes hardware, professional services and annual maintenance

Implementation costs would normally include hardware, software and associated professional services. Also included should be the District's costs for IT and business user participation plus a portion of overhead for infrastructure and administration. Total implementation cost is often estimated by using software cost as the basis: professional services will cost approximately 40% of what was paid for the software. Hardware and other items will cost approximately 20% of what was paid for the software. Meaning, whatever you pay for software, you should expect to pay 40% of that amount for professional services to implement all of it (in year one), and about 20% of that amount for hardware, overhead, incidentals, etc.

> Note - Most organizations will not actually implement and deploy all of the software purchased in year one. For example, to achieve a greater discount on the purchase, a higher license count may have been bought (one license for every employee) however not all the licenses were deployed in Phase I, perhaps only one department was deployed. This makes the software costs disproportionate to the services costs initially.

The implementation cost in year one for the five products is shown in Table 4 below. Subsequent years would have, at a minimum, software maintenance (typically 20% of original software cost, year over year) and any services associated with expansion, additional scopes of work or support services.

Table 4 - Extrapolated Total Implementation Costs

Estimated Total Implementation	Product 1		Product 2		Product 3		Product 4		Product 5	
	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Software	$ 68,000	$ 93,000	$ 75,000	$ 115,000	$ 113,500	$ 163,500	$ 62,000	$ 77,000	$ 50,000	$ 100,000
Hardware	$ 13,600	$ 18,600	$ 15,000	$ 23,000	$ 22,700	$ 32,700	$ 12,400	$ 15,400	$ 10,000	$ 20,000
Implementation	$ 27,200	$ 37,200	$ 30,000	$ 46,000	$ 45,400	$ 65,400	$ 24,800	$ 30,800	$ 20,000	$ 40,000
Total	$ 108,800	$ 148,800	$ 120,000	$ 184,000	$ 181,600	$ 261,600	$ 99,200	$ 123,200	$ 80,000	$ 160,000

Opportunity for Savings

By implementing an Electronic Document Management System, the District can create an electronic library to manage all critical documents. This solution will increase productivity, making it dramatically easier to retrieve information in a timely manner.

Industry Standards Show Greater Potential Savings

Document management industry analysts indicate the cost of document management as a portion of top-line revenues. Examples include:

- IDC - 10% of corporate revenue on document production, management and distribution
- Xplor International - 6-10% of corporate revenue spent on document-related activities
- InfoTrends - 12-15% of a corporation's revenues
- CAP Ventures - 5-15% of revenue spent on printing and managing documents costs

As CAP Ventures has the largest range, we'll use their percentages: 5-15% of revenue.[10]

Per the 2009 Annual Report, the District has revenues equal to approximately $15 million.

Table 5 - Potential Savings According to Industry Standards

Document Management Costs According to Industry Standards			
Revenues	$15,000,000	$15,000,000	$15,000,000
Avg % of Revenues Managing Documents	5%	10%	15%
Annual Document Management Expense	**$750,000**	**$1,500,000**	**$2,250,000**

Document Management, as represented by the industry analysts above, encompasses more than what we deem "document management" in this Needs Analysis. The analyst definition includes printing, infrastructure, administration, etc. Our definition focuses only on the storage/archival of documents.

[10] *The Cost of Business Communication: A Look at the Business Document Lifecycle*, InfoTrends / CAP Ventures

Based on information provided by ALL Associates, a well respected consultant in the document industry who works with both business consumers and industry suppliers, 47% of the total document management costs are attributable to what this Needs Analysis considers "document management."

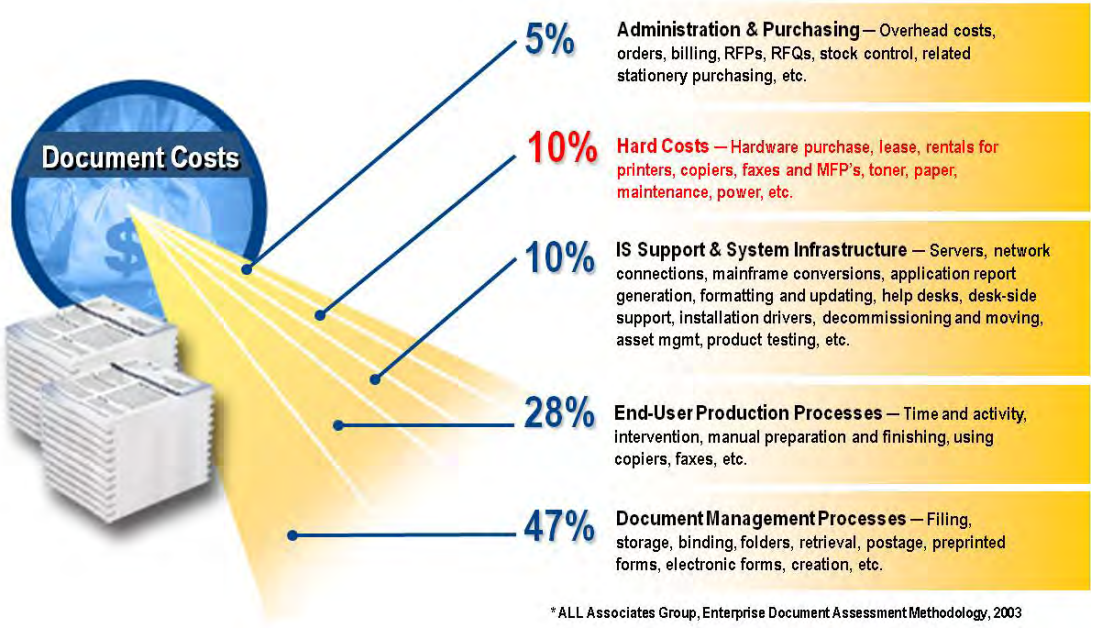

Table 6 - Document Management Costs According to the District Definition

Document Management Costs According to Industry Standards			
Revenues	$15,000,000	$15,000,000	$15,000,000
Avg % of Revenues Managing Documents	5%	10%	15%
Annual Document Management Expense	$750,000	$1,500,000	$2,250,000
Needs Analysis Def'n "Document Management" at 47% of Total DM Cost	**$352,500**	**$705,000**	**$1,057,500**

Based on similar implementations of like complexity, Ricoh anticipates savings equal to a **25% to 40% reduction** in time managing documents. The District could achieve this reduction by reducing or virtually eliminating the need to search for paper documents, transmitting files electronically instead of via hard copy, and by greatly enhancing the ability to manage workflows. Reducing the time spent on document management will free up staff time for core business activities, while also improving responsiveness to other staff needs and improve service to the public.

Table 7 shows consolidated costs and potential benefits.

Table 7 - Project Cost Reduction

Cost Displacement			
Existing Overall Estimated Cost	**5%**	**10%**	**15%**
47% of…	$ 352,500	$ 705,000	$ 1,057,500
EDMS Implementation Cost	**High (P3)**	**Med (P2)**	**Low (P4)**
Mid-range Est. Ttl. Impl.	$ 221,600	$ 152,000	$ 111,200
Benefit Opportunity			
25% Cost Recovery	$ 55,400	$ 38,000	$ 27,800
40% Cost Recovery	$ 88,640	$ 60,800	$ 44,480

Note - As the underlying assumptions are all conservative, the estimated payback is very likely to occur in 30 to 48 months depending on how aggressively the District pursues savings.

Intangible benefits abound with the implementation of electronic document management technology including:

- Security and operational risk avoidance
- Positive image associated with “Going Green”
- Improved customer service provided to residents
- Reduced cost of operations resulting in tax payer savings

These intangibles cannot be quantified in terms of dollars saved nonetheless they are valuable.

Implementation Methodology

To deliver a successful project, the District must envision the project from start to finish, and have the prowess to execute that vision.

There is a tendency for projects to shortchange the planning process, with the emphasis being on jumping right in and beginning the work. This is a mistake. The time spent properly planning the project will result in reduced cost and duration and increased quality. Proper planning and good change management practices will reduce the fear of change among the user base.

The key to a successful technology improvement, regardless of said technology, is its implementation in a controlled environment. Organizations that revolutionize the hardware, software, and process across the enterprise in one project cycle are almost certainly destined for failure (by doing too much too fast), thus increasing the cost of the process and no doubt dooming any future attempts at improvement. That said, the most effective and successful course of any technology implementation is with a proven methodology.

Project Management Methodology

The Ricoh Methodology Framework is based on industry best practices, and years of consulting and project delivery knowledge in the field of business communications. It consists of subdividing a larger project into smaller, more manageable phases, allowing the District to control the progress of the project by monitoring each Phase to ensure the needs and expectations are being met.

Discovery

This phase focuses on clearly defining, understanding and documenting the existing information about the business processes, environment and infrastructure to be able to develop and execute a detailed solution design and implementation strategy in the subsequent phases. Documentation typically includes any documents, volumes, data streams, etc., that would be included in the future project. This phase of the Methodology is complete with the District's acceptance of this Findings & Recommendations Report, hence the green checkmark.

Design

The Design phase is where the information gathered in the Discovery is applied to specific equipment, software, and services to enable the District to reach their desired 'future state.' The deliverable of this phase is a thorough, comprehensible Design document for review and approval. The Design document, often comprised of two distinct sections (one business-related, the other system-related) is, in essence, the blueprint of the system. This phase of the Methodology has not begun, hence the red checkmark.

Planning

Once all parties involved agree to the full design, the Planning phase establishes the project implementation timelines and responsibilities of implementation resources. The Planning phase is where the bulk of the project management activity occurs, and the success of the project is directly related to the level of focus in this area.

Implementation

After all parties have agreed to the implementation timeline and responsibilities, the Implementation phase will essentially delivery the promised solution. It is the phase where the system becomes a reality. Since projects like this one can sometimes involve dramatic changes to the processes, a strict change control method allows for changes to the solution while maintaining the integrity of the scope of the project. Communication between all members of the project team is paramount at this phase.

Support

The Support phase involves transitioning the system support to the assigned District IT resources as well as potential initiation of any number of support options, including maintenance, technical and education to enhance the solution and ensure maximum benefit is derived.

Recall, when speaking of the cost to implement this type of technology (page 43), Professional Services typically equates to 40% of the software investment. That 40% allocates across the 5 phases of the Implementation Methodology Framework as follows:

- Discovery - 15-20%
- Design - 20-25%
- Implementation - 35-40%
- Planning - 15-20%
- Support - 10%

Notice that each phase is approximated. This is because the scope of work, complexity of the project and level of customization and integration make it highly subjective.

The following standards will support the District in achievement of an effective project:

- ✓ Visualize - guide everyone in the same direction; avoid vague descriptions at all costs, be specific, draw diagrams and pictures, and make certain everyone is in agreement
- ✓ Planning - must be detailed, organized, and requires team participation
- ✓ Sense of urgency - with a set timeline, budget, and resources, it is of utmost importance that the project process is constantly being driven towards completion
- ✓ Deliverables - complete on a step-by-step process, which will seem less foreboding
- ✓ Micromanagement - do not micromanage; focus on milestones or project completion, not how the tasks are completed
- ✓ Agile - respond with agility to rising issues and unseen changes
- ✓ Communication - adhere to a policy of open communication, encouraging all members to voice opinions and concerns
- ✓ Sight - be aware of time, budget, and quality

Next Steps

The District is on a proper path taking into consideration not only technology but the impact on the business.

Step 1. Validate Needs Analysis and Hire Staff with the Proper Skill Set to Support the Initiative
Step 2. Initiate Steps toward Proper Records Management
Step 3. Begin Plans for a Document Center with a Dedicated Document Custodian
Step 4. Solicit and Acquire Document Management Technology
Step 5. Deploy Document Management in a Phased Approach

Appendix A - Education on Document Management

Enterprise Document/Content Management

The largest opportunity for cost savings and process improvement for the District lies in implementation of a true enterprise-class document/content management system. A system of this caliber could be used from basic capture/store/retrieve archiving to rules-based workflow that can be measured and monitored, equally well.

Attributes of a Robust EDMS

One of the most concise and appropriate ways to describe an Electronic Document Management System (EDMS) is to think of it as a "library." As in a hard copy library building, documents can be **stored** and **retrieved** according to a wide variety of attributes. These attributes are common to all books in the library, and include things such as author, title, subject, and date. In a content management system, these properties are referred to as "search criteria". This criteria is alternatively called metadata (metadata is data "about" data) and are descriptive fields that are attached to each document as it goes into the electronic library. All documents that can be digitized are candidates for entry into the document management system. A Microsoft Word file, an Excel spreadsheet, a scanned image, an email, a sound bite or video clip - anything that can exist in digital format can be organized, tracked, retrieved, or purged according to logical relationships.

A document is copied, either hard copy or electronically, 9 to 11 times, at a cost of $18 – Coopers and Lybrand

For example, the EDMS could house a folder for each department or sub-organization in the District. Items within each folder could be "related" by some unique identifier, such as Document Number, LGMA Number, or Property ID. These would be "embedded" within each document, including Microsoft Word, Microsoft Excel, PDF, e-forms (electronic forms), and/or scanned images relating to that topic.

Alternatively, if there are numerous documents related to a property, each could be segregated accordingly, with documents flowing to individual subfolders based on type. All files would be retrievable, securely, via integrated corporate applications (GIS, iCity, etc.), Microsoft Office, or Web browser by anyone with sufficient permission to access them, and they would be invisible to those who did not have permission.

Remember though, the magic of a document management system "folder" is actually just a customized "view" of a particular set of documents. There is no true "foldering" system as in the Microsoft Windows Explorer environment.

The underlying structure to the library is the master database that maintains all the metadata. Therefore, the only limit to the number of ways documents can be organized (put in "folders') is the number of combinations of metadata used to categorize them.

Just as in a library, a user (with the proper permissions) could "check out" the original documents and make changes to them. Other users, with lesser permissions, would only be able to view the documents or to download copies, but be unable to affect the originals. When the user finishes with the document, s/he would return the documents to the library via a "check in" function, and the system would keep track of the changes through its version control feature. In the case of a property diagram, once the plan is finalized, the original documents can be locked down so that no further edits could be made, thus creating a "formal record". The system will allow a user with appropriate permissions to make a copy of the original, or annotate it electronically similar to the way someone may add a notation or post-it note to a paper document, but the locked down file can be preserved intact.

By creating a digital library where it can gather together material from different software applications and databases in one place, the District will make a quantum leap forward in the speed, accuracy, and security of sharing information across the enterprise.

Attributes of a Robust EDMS

One of the core components of the recommended solution is the implementation of an EDMS with the following features:

Document Acceptance in Multiple Formats **-** the document management system should accept the following content:

- Electronic files from standard applications, such as MS Word, Access, Excel, PowerPoint, Project and Visio
- AutoCAD
- E-forms (HTML, XML)
- Web content
- PDF and Tiff scan files
- Electronic reports
- Any other pre-defined file type: JPG, GIF, BMP, etc. (There are hundreds).

Complete Document Management **-** the system should support all key document management features, specifically:

- Allow annotations to documents without changing the underlying file
- Indexing system to organize documents into related groups, such as folders or books
- Robust index/metadata searching for rapid retrieval based on flexible criteria

- Free-text search and retrieval to enable rapid access to documents based on finding keywords in text
- Metadata indexing to enable document workflow controlled by index data such as the author, title, date created or modified
- Electronic publishing for assembly of combination documents into coherent collections and selective distribution
- ERM (Electronic Report Management) storage for large volume electronic storage media and permanent archiving of documents
- Support for publishing to the web via HTTP and XML
- Capable of launching native application when viewing file in EDMS
- Print Driver for printing documents into EDMS
- Fax in / Fax out capability (fax server integration)
- Import/Export functions for data and documents

Integration with Imaging **-** the key functionality for the District is a document management systems' ability to accept document input from multiple front-end capture systems, and seamlessly route document to the document repository for automated filing. Imaging should support:

- Scanner
- Digital Writing (electronic/intelligent pen)
- Fax
- Electronic Forms (via kiosk, computer, or hand-held device)

Additionally, the system should leverage intelligent capture functionality, including:

- OCR (zone and full-text) and ICR recognition technologies that enable conversion of imaged paper documents into computer-usable data
- Image enhancement, to correct the most common and basic errors (de-skew, de-speckle, image registration, adjust color depth, etc.)
- Support for production scanners and networked multifunction devices
- Automated document classification that enable document type identification with little or no human intervention

Security **-** a key challenge organizations face is that they "don't know what they don't know", which can ultimately cause issues in the document lifecycle. A document management system should provide multiple levels of security from certificate-based authentication to SSL encryption to document-level access control and storage encryption. It should also provide:

- Security-controls that restrict user access according to document type and purpose
- Feature access control based on user/group security

- Inheritable security rights and permissions based on groups or other logical collections
- Audit trails that track document activity (view, edit, print, etc.) throughout the lifecycle
- Digital Signatures / Digital Rights / Information Rights Management

Lifecycle Management **-** refers to the ability to effectively manage documents throughout their lifecycle - from authoring through review, approval, distribution, and archiving - within a single application. Desirable lifecycle management functions include:

- Ease of use for updates, comments, expiration events, reminders and ticklers - to keep review and approval cycles moving smoothly
- Multi-contributor document authoring easily accessible from multiple clients
- Distribution of content to multiple audiences easily, such as from intranet to extranet; with automatic conversion to the most suitable viewing format (e.g., convert to PDF for web publishing)
- Automatically move documents to alternate repositories based on flexible criteria
- Rules-based archive/retention to address variable storage requirements, from instant short-term storage to perpetual archive
- Open data exchange - ODBC, XML, SQL
- Open API - Application Programming Interface
- Scripting engine for automation

Integration with Workflow **-** enables workflow systems to route the documents that are stored within the document management system. The systems should also allow users to:

- Define life cycle steps quickly by filling out a form or via a graphical process design tool
- Perform document routing
- Receive active notification of pending workflow items
- Monitor time lapse for each workflow step
- Collaborate by enabling simultaneous document sharing and multiple authorship of documents
- Easily track where documents are in the workflow

Day-Forward Imaging and Back-file Conversion

"Day-forward" and "back-file" are terms frequently used in the document management industry to describe how imaging will take place. "Day forward" refers to taking new documents ("from this day forward") and converting them to digital format. "Back-file" conversion is the imaging of legacy documents. Back-file conversions usually target transition from one imaging platform to another, overflowing file rooms, offsite paper storage, or any other accumulations of paper that have become unwieldy to the enterprise. Both day-forward and back-file imaging can facilitate workflow automation, and both are integral elements of an organization's disaster recovery plan.

The main points of an imaging project are to make retrieval of documents easier and cheaper. (The exception is for disaster recovery/business continuity requirements that demand imaging of legacy files.) Therefore, if document retrieval requirements are minimal, it is generally not cost effective to convert them. When files are retrieved and re-filed frequently, it may be more cost effective to perform a back-file conversion. Outsourced back-file imaging costs are typically in the range of $0.08 - $0.20 per office-sized page, depending on the level of complexity of the project. Old folders will cycle out of active use by attrition until retrieval rates drop to virtually zero times per year.

The other option is to as the end-users retrieve the documents a scan of the files “on-demand” happens. While this is a good strategy, it can take years to digitize all the information and it does add an additional step to the file retrieval process for many years to come. It also means that hard copy document storage slowly diminishes as opposed to the more rapid regaining of space that occurs when a full-on back-file conversion occurs.