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IMPACT OF TANGIBLE CAPITAL ASSET (TCA) ACCOUNTING ON ELECTRONIC RECORDKEEPING PRACTICES

Intended Audience

US, Canadian Municipalities

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Contents

INTRODUCTION

The purpose of this report is to document specific changes in recordkeeping practices that will be required for a municipality that has fully implemented **TCA** (**T**angible **C**apital **A**sset) accounting practices. The changes in recordkeeping will occur in the following areas:

1. The procedures used to create, identify (label), and file records in physical (paper) form will change.
2. The procedures used to create, identify (declare) electronic records within a modern EDRMS (**E**lectronic **D**ocument & **R**ecords **M**anagement **S**ystem) system will change.
    a. The underlying Retention Schedule (File Plan). There are structural changes required in the retention rules within the schedule.
    b. The EDRMS must present asset data lists to the end users to support proper TCA recordkeeping.

We will assume that all municipalities should/will incorporate these recordkeeping changes, even if they have not yet fully adopted TCA accounting methods, as we assume they will eventually be adopting TCA.

We are assuming that TCA accounting practices are to be applied to a system for managing electronic records. For the purpose of this report, we will assume the EDRMS will be **RBR** (**R**ules-**B**ased **R**ecordkeeping) capable.

DEFINITIONS

Asset — An individual, indivisible asset. Also sometimes referred to as a **component**.

Asset Class — A set of assets forming a greater whole. For example, **Roads** is an asset class, comprising all the assets of Roads.

CAC — **C**apital **A**sset **C**ode (CAC). Unique code or identifier that identifies a particular asset. Can be alpha-numeric or numeric.

Case — A set of related records, typically about a *Person*, *Place*, *Event*, or *Thing*. The set of records is not considered complete until some triggering event has taken place that defines the end of the business activity. For example, a company with 1,000 employees would typically have 1,000 “cases”, one for each employee that contains all the records for each particular employee over the duration of their employment. Each case contains all of the records for the activity (in this example the employment of the employee), from the beginning of the activity (start of employment) to the end of the activity (termination of employment).

Case Category A file plan category containing related records about a business activity with a defined end date. Disposition is triggered by an event date that defines the end of the activity, such as "*End of Useful Life*" (A machine), or "*Close of all Legal Matters*" (A workplace Accident). For example, employee records might be eligible for disposition 3 years after termination of employment. All records within a case category reach disposition and are processed as a complete, intact group – they are never separated or processed as individual records. In many organizations, 50% or more of all business records are case records.

Category A node in the hierarchical file plan. Denotes a set of records of related activity, i.e. *Travel Requisitions*. All categories are linked via a child/parent relationship. Each category is designated either as a *Case* or *Administrative* category, and is enumerated or labelled with a unique **category ID**.

Classify The process whereby a document is assigned a category from the file plan (retention schedule). Classification is often part of the Declaration process and can be achieved by the user (manual), or by the system (RBR). Manual classification can be achieved *explicitly* (the user selects and assigns a category), or *implicitly* (by virtue of selecting a storage location such as a folder, that matches the subject of the document, and which bears the appropriate category for that document).

Component The smallest, indivisible portion of a linear asset. It cannot be further broken down into parts.

Declare Manage a document as a record. The document is presumed to meet the criteria of a business record, however it may not. A declared document is tracked by the EDRMS, is classified against the file plan, and is immutable (users cannot edit or delete it) to preserve its integrity. It can only be deleted via the formal disposition process.

Disposition As distinguished from ***Deletion****.* Formal, structured process of determining what happens to records at the end of their retention period. The process is human-initiated, and the decision as to what is destroyed/transferred is ultimately governed by an approved file plan (retention schedule). A records administrator provides oversight of the process. Approval from originating business units is typically sought

prior to physical destruction, and a formal audit trail of disposition is maintained. Disposition yields (3) possible outcomes following the expiration of the retention period:

1) **Destroy**
2) **Transfer** to outside agency for permanent archival storage
3) **Unknown**. Retain until disposition is known. Some possibilities:
    - Held for legal review
    - In Dispute
    - Disposition simply not yet known or decided

ECM — **E**nterprise **C**ontent **M**anagement (system). A platform for the management of unstructured documents and data. Examples include Microsoft SharePoint, IBM's Content Manager, and OpenText's Content Manager. Most ECM platforms have recordkeeping capabilities.

EDRMS — (**EDRMS)**. A business information system in which the records of an organization are created, captured, maintained, and disposed of. Such a system also ensures their preservation for evidential purposes, accurate and efficient updating, timely availability, and control of access to them only by authorized personnel. An EDRMS includes rules and procedures governing the storage, use, maintenance and disposition of records and/or information about records, and the tools and mechanisms used to implement these rules.

An EDRMS delivers specified recordkeeping controls. Most systems can manage electronic and physical records. Many are comprised of general-purpose content management systems that deliver recordkeeping capability. Some are certified compliant with recordkeeping standards such as US DoD 5015.2 or ICA Module 2. An EDRMS can be configured to store exclusively records, however it will typically store all three of the following categories of items:

- Declared Records
- Non-Records
- Non-Declared (unmanaged) records

EOL — **E**nd **o**f **L**ife. Trigger date that triggers the final retention period for the records. The date on which the asset reaches the end of its useful life. EOL can sometime represent the disposal date of the asset, where the disposal date exceeds the originally-projected asset EOL.

Linear Asset	An asset with no defined starting or ending point, and multiple interconnected components, such as a buried pipeline, or systems of roadways. A linear asset must therefore be broken into manageable pieces, each of which will be considered an individual **asset**.
MACL	**M**aster **A**sset **C**lass **L**ist. The list of all assets, each asset bearing an identifying code (CAC). This list is presumed to be stored in some corporate database system, such as an **ERP** (**E**nterprise **R**esource **P**lanning) system. Examples of such systems may include *SAP*, *JD Edwards*, or *Microsoft Dynamics*. Any list of assets presented within the EDRMS is presumed to be derived from the MACL, either by duplicating the list, or by presenting the MACL within the EDRMS via a software integration between the EDRMS and the ERP system hosting the MACL.
Project	A predetermined list of assets that have received budget approval for work to be carried out on the assets. Typically, a project is assigned a G/L code, and a date.
RBR	(**R**ule-**B**ased **R**ecordkeeping). An automated method of selecting documents to manage as records by defining rules that the targeted documents must meet. Rules typically match documents based on Content Types and/or metadata field values, then declare the document as a record, and classify it against the file plan.
Retention Schedule	Also known as a **File Plan**. The list of approved retention periods and disposition rules for each business activity or subject area within the organization. Typically a hierarchy of business functions broken into specific activities. Driven by legislative obligation (various laws and regulations that apply to the business), and operational corporate policies. Also identifies which records are vital.
TCA	Tangible Capital Asset. An asset.

EDRMS

EDRMS is a blend of two core technologies (along with several optional additional technologies). The first is a modern **ECM** (**E**nterprise **C**ontent **M**anagement) platform (which used to be known as *document management*). This platform forms a digital repository for all electronic records, and provides for advanced searching by content and metadata, security control, version management, workflow automation, and collaboration such as multi-author document editing, and much more. The second technology is **recordkeeping capability**,

often delivered as a set of features within the ECM itself or as a third-party product added to the content management platform.

The records retention schedule underpins both technologies. The retention schedule does more than just feed retention rules to the ECM platform-it actually greatly influences the configuration of the ECM itself. This is necessary for the recordkeeping component to do its job properly.

All modern EDRMS systems incorporate **RBR** (**R**ules-**B**ased **R**ecordkeeping) to some extent. RBR is an approach to electronic recordkeeping that automates the recordkeeping functions the end user would normally have to carry out. These functions include identifying which documents are records, when to declare documents as records, and how to classify the documents against the retention schedule. A full and proper EDRMS deployment that fully utilizes RBR capability automates all these end user recordkeeping functions. End users have absolutely no role to play in the declaration or classification of any records. They simply operate the system as an ordinary everyday ECM, without thinking about records management whatsoever. Thanks to RBR however, in the background documents are being declared as records and are being properly classified against the retention schedule, even if the user is blissfully unaware of this.

Modern electronic recordkeeping software can carry out retention and disposition in ways not previously available. Because the records are digital, we have more document-level information to deal with and we can leverage that information to do more granular, more sophisticated, and more flexible retention and disposition. For example, we can apply retention based on the value of documents, we can apply multiple retention rules to a single category, even different types of retention rules within the same category. The software has these amazing retention and disposition capabilities, however we have to **tell it** what we want it to do. And that's the job of the retention schedule. If we know what the recordkeeping software is capable of in terms of retention and disposition, then we can write a retention schedule to take full advantage of these powerful new capabilities. A retention schedule that leverages these retention and disposition capabilities is referred to as a "software ready" retention schedule.

A software ready retention schedule is written with the assumption that it will be used within an EDRMS and will take full advantage of the advanced retention and disposition capabilities of the software. Any well-written software ready retention schedule can be used with any modern recordkeeping software, regardless of brand.

Figure 1 shows what a modern EDRMS looks like conceptually. There are three "layers" to an EDRMS:

The retention schedule	The software ready retention schedule. This will be divided into case categories and administrative categories. On the left side are two administrative categories (operator rounds, and employee onboarding). On the right are two case categories (union grievances, and safety audits).
ECM structure	Often referred to as “information architecture”, the ECM structure consists of all the so-called “libraries”, or places that documents can be stored. Different ECM products have different names for storage locations. Storage locations can be called libraries, folders, cabinets, etc. ECM structure also consists of the metadata, fields of information permanently stored with each document placed in each storage location. There is more to ECM structure than just libraries and metadata, including such things as versioning, security and collaboration, etc. But for now we’re only concerned with libraries and metadata.
RBR rules	RBR rules refer to the rules created within the recordkeeping software to automate the recordkeeping processes, namely *declaration* (which documents are declared as records and when), and which *retention rules* in the retention schedule get applied to which locations in the ECM structure.

Done properly, the retention schedule massively impacts the ECM structure. Each category in the retention schedule translates to a library in the ECM structure. This library is where users will store documents for that particular category. Both the *category* and the *library* bear exactly the same name. Case categories require that the library be subdivided into “cases”, or containers, one for each case. This allows us to group records of each case together, separate from and independently of all other cases.

At the top of the pyramid lies the recordkeeping software and its RBR rules. This is where you define declaration rules such as “if library = “operator rounds” and approved = “yes” then declare”. Retention rules also get defined here, such as “if library = “operator rounds” retention equals true document date +5 years”. The rules need to know what the library names are, and what metadata it can work with.

As you can see, the retention schedule forms the base upon which the ECM is structured. This in turn allows the RBR rules to execute against that structure, as shown in figure 3.

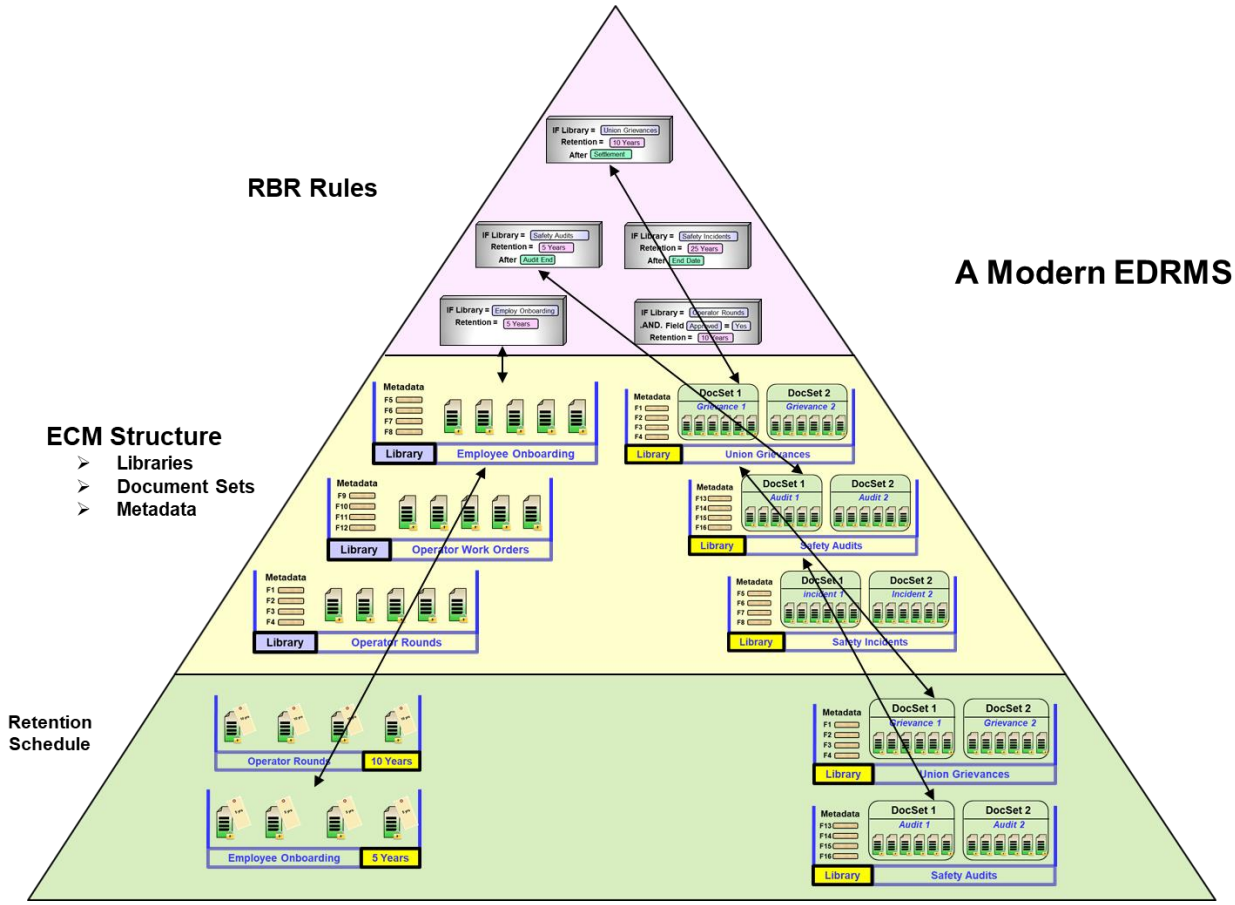


Figure 1 - A Modern EDRMS

CASE RECORDS

The retention schedule must differentiate between case and so-called "administrative" record categories. Each category in the retention schedule therefore is either a *case* category or an *administrative* category. In most organizations today, about 60% of all records belong to case categories. The best way to understand case records structure is with the help of an example. Suppose you have 1000 contracts in existence at any one time. Each contract has a contractor name, the contract value, an expiration date, a contract type, etc. This data will not change among all the documents in any given case. Each contract theoretically could have an expiration date different from those of all other contracts. All contracts would have a single retention rule similar to "keep five years after contract end date, then destroy". Although there is only one single rule applied to all 1000 contracts, that single rule has 1000 different trigger dates, i.e. 1000 different expiry dates. The recordkeeping software must therefore track each of these 1000 dates.

Let's look at this from the perspective of an EDRMS end user. A user has a document related to a particular contract. The document may be an email suggesting several changes

to the draft of the contract. The user must specify which of the 1000 contracts the document is related to. How is this accomplished? The user must have a way to choose from among the 1000 contracts. How this is done can vary among different ECM systems but the most common would be a simple drop-down list of all 1000 contracts, as shown in figure 2. Each contract has a unique name, and the user must select one of the 1000 contracts. The ECM will have a library known as “contracts”. That library will be further subdivided into 1000 case containers, each bearing a unique name of one of the 1000 contracts. This is a good example of how the retention schedule shapes the ECM structure. The two have to work in concert, and only then can the RBR rules be applied to the records within these libraries.

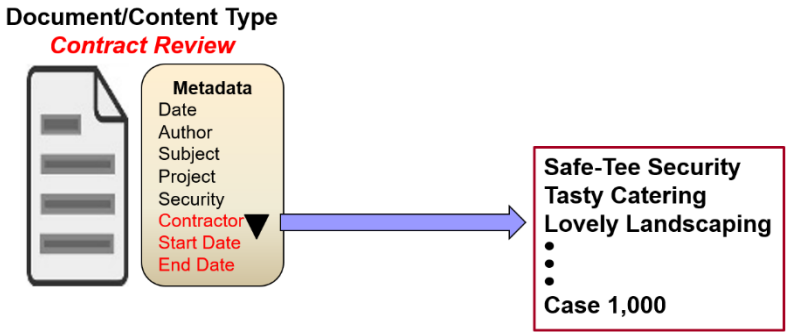


Figure 2 - Contract Selection

TCA OVERVIEW

Tangible capital assets (assets) are non-financial assets having physical substance that:

- Are held for use in the production or supply of goods and services for rental to others for administrative purposes or for the development, construction, maintenance or repair of other tangible capital assets;
- Have useful economic lives extending beyond an accounting period;
- Are used on a continuing basis; and
- Are not for resale in the ordinary course of operations

The diagram that follows shows typical municipal TCAs:

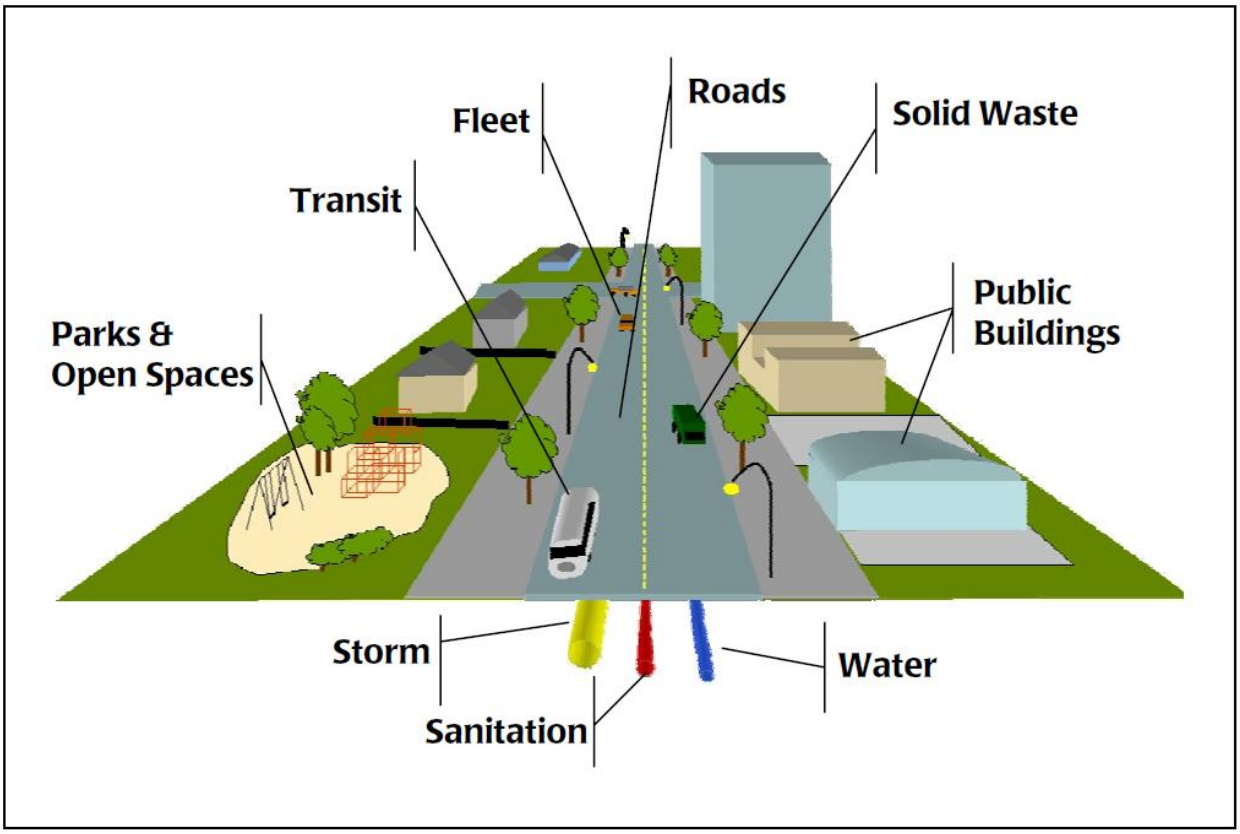


Figure 3 - Asset Classification

With the asset accounting approach, municipalities now:

- Identify each asset by class/category
- Identify a current and ongoing value of that asset
- Continuously track the current value of each asset by tracking the funds and work invested in the asset each year.

The financial statements must now disclose, for each major category of asset and in total:

- Costs at the beginning and end of the period;
- Additions in the period;
- Disposals in the period;
- The amount of any write-downs in the period;
- The amount of amortization of costs of asset for the period;
- Accumulated amortization at the beginning and end of the period
- Net carrying amount at the beginning and end of the period.

As shown in the table below, each of the assets has a cost assigned to it each year.

Anything the municipality does to that asset that affects its value has to be tracked, so as to show an increase or decrease in its value. This means the Finance people need to associate work activities with each individual asset. This in turn means that the records generated by the activity, which support the work carried out on these assets, must also be associated with each individual asset.

	2009			2008		
	Cost	Accumulated Amortization	Net Book Value	Cost	Accumulated Amortization	Net Book Value
Land	$ xx	$ -	$ xxx	$ xx	$ -	$ xxx
Buildings	xxx	xxx	xxx	xxx	xxx	xxx
Furniture & Fixtures	xxx	xxx	xxx	xxx	xxx	xxx
Machinery & Equipment	xxx	xxx	xxx	xxx	xxx	xxx
Computer Equipment	xxx	xxx	xxx	xxx	xxx	xxx

A typical **Asset Inventory Sheet** is shown in Appendix 2. A **Property Record Card** is shown in Appendix 3. These are typical of the documents used to record and track assets. These days, asset data, which is usually voluminous in nature, is recorded in modern ERP (Enterprise Resource Planning) systems.

RECORDKEEPING IMPLICATIONS

The following are the major impacts on recordkeeping as a result of TCA Accounting practices:

Asset Classification — There must be a clear means of identifying (naming) Tangible Capital Assets that recordkeeping is aware of.

TCA Records Identification — There must be a means whereby a given record can be related to (associated with) an asset.

Retention Rule Structure — The retention schedule rules must be structured in a certain way to accommodate appropriate retention for assets.

Asset List Synchronization — The master list of assets must be synchronized with the corresponding list in the EDRMS.

EDRMS Configuration — The host EDRMS must be configured with user selection lists and other metadata characteristics in order to support TCA recordkeeping.

ASSET TYPES AND CLASSIFICATION

Assets are loosely grouped into Infrastructure and Non-Infrastructure assets, as shown below:

Infrastructure

Roads

Facilities (buildings)

Waste and Storm Water Management (WSW)

Water Treatment and Distribution (WTD)

Parks and Playgrounds (sometimes referred to as Land Improvements)

Non-Infrastructure

Fleet

Equipment

Infrastructure assets can be considered to be those assets that are in, attached to, or represent improvements upon, the land (such as parks). Activities carried out upon these assets generate records that document these activities. In an asset setting, these documents (records) must be associated with each asset so the finance people can determine how much money was spent on a particular asset, and what impact that activity had on the asset. Furthermore, certain selected records need to be preserved for the life of that asset in order to support Finance's claim as to the value of the asset.

It's obviously too general simply to say "the asset". A municipality would have a network of hundreds of miles/KM of roads, or several miles/KM of buried pipeline. These types of assets are referred to as Linear Assets. Under TCA rules, each asset is broken down into individual components, each of which are indivisible. These components are treated in isolation of each other component. It is important to understand how assets are divided up into components. It is a simple breakout of an asset into its components parts. Each municipality will have its own particular approach to the breakout of its assets – there is no single "right way" to define it. We will list some examples of typical breakouts.

Let's start with Roads. How do we treat a large systems of roadways as an asset? We break it down into its component parts, as shown:

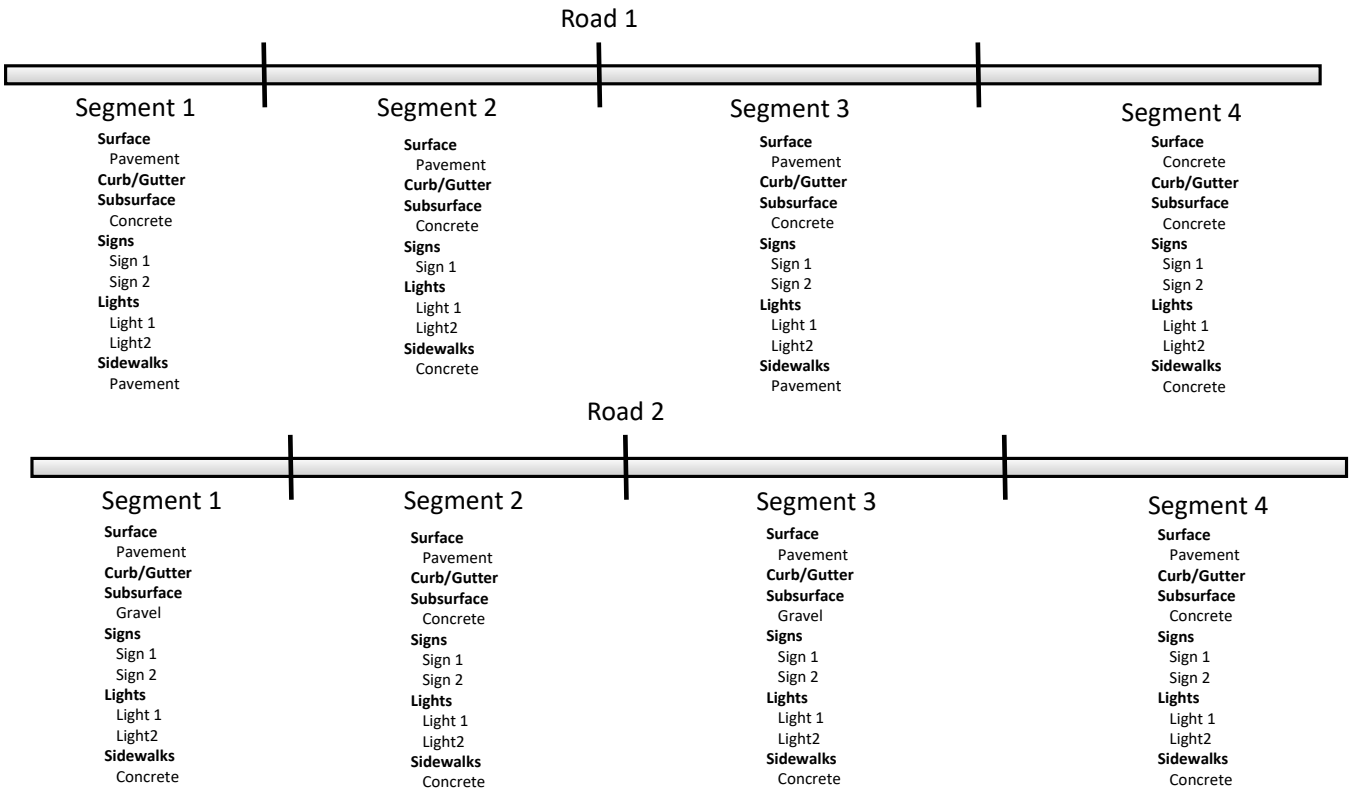


Figure 4 – Road Segmentation

Each road is named, in our case Road 1 and Road 2. The road is then divided into **Segments**, segments 1-4 as shown in our example. Each segment is then broken into individual components. Note for instance that Road 2 segment 2 (R2S2) has a concrete sidewalk, whereas Road 1 Segment 1 (R1S1) has a pavement sidewalk. TCA accounting needs to know this distinction, as it will place a lower value on the sidewalk for R1S1 compared to the sidewalk for R2S2. In addition, it tells us that a repair or maintenance will be required sooner on the sidewalk for R1S1 compared to the sidewalk for R2S2. This is the inherent benefit of TCA accounting – by breaking down a large, complex (and often aging) asset into individual components, the municipality can better understand and budget maintenance, and make better decisions based on an accurate valuation of the assets.

As mentioned earlier, different municipalities will have somewhat different approaches to how they break down an asset, what they name the individual pieces, and how many levels they choose to utilize in this breakdown. Let's take Facilities as an example. Below are shown four facilities:

Building 1 (a stadium)
Building 2 (a recreation centre)
Building 3 (a fire hall)
Building 4 (an animal shelter)

A **facility** may be broken down as follows:

Building 1		Building 2	
Floor 1	Hallway 1	Floor 1	Hallway 1
	Hallway 2		Hallway 2
	Room 100		Room 100
	Room 102		Room 102
	Room 103		Room 103
	Washroom 1		Washroom 1
	Washroom 2		Washroom 2
	Lobby		Lobby
	Windows		Windows
Floor 2	Hallway 1	Floor 2	Hallway 1
	Hallway 2		Hallway 2
	Room 200		Room 200
	Room 202		Room 202
	Room 203		Room 203
	Lobby		Lobby
	Windows		Windows
Air Handler		Air Handler	
Roof		Roof	
Foundation		Foundation	
Windows		Windows	

Each of the two facilities (buildings) has been broken down into its component parts. Suppose the washrooms in both buildings 1 and 2 are renovated, via a single contract. That means that four washrooms (2 in each building) were renovated. This renovation activity affected 4 individual assets, i.e. the four washrooms. The records generated by the specifications for the work, the contract selection and award, the construction, and payment, all relate to the following four assets:

Building 1 washroom 1
Building 1 washroom 2
Building 2 washroom 1
Building 2 washroom 2

A typical municipality has a ***phenomenal*** quantity of assets when recorded in this manner. Suppose we have 100 roads, each divided into 10 segments. Suppose each segment has 10 components. That's 10,000 individual assets to define and track just for roads alone. If a municipality has 30 buildings, each with 100 components, that's another 3,000 assets.

Waste and Storm Water Management (WSW) is another example of a linear asset. There will be hundreds of miles/KM of buried sewer and storm water collection pipes, dozens of lift stations to raise the fluid to ground level, pump stations and pumps within these stations, lagoons to collect the fluid, and treatment facilities to treat and sanitize the water. Suppose again that we have 100 miles/KM of underground piping, divided into 20 segments. That's 2000 assets just for the collections pipes **alone**. Then let's assume 10 lift stations with 10 assets per station, etc. We quickly define another 2,000-5,000 individual assets. We repeat this for facilities, drinking water distribution, parks and fleet, fire and emergency, etc., and even a small municipality will have tens of thousands of assets. A medium-sized municipality can have several hundred thousand, and a large municipality may have as many as a million or more, especially when considering mass transit systems such as bus fleets and light rail or subways.

Recordkeeping considerations are as follows:

1. Records must somehow be associated with individual assets.
2. There are a massive quantity of individual assets

ASSET IDENTIFICATION

Each asset must be identified, or uniquely named. An asset identifier is referred to in TCA language as a **C**apital **A**sset **C**ode **(CAC)**. The table below is an extract of a typical list of asset classes.

Asset Classes **Major** ***Minor*** **Sub-class One** ***Sub-class Two*** **Sub-class Three**	**Maximum Useful Life**
Land	
Right-of-way	
Undeveloped right-of-way	
Parks	
General	
Cultural & Historical Assets	
Public art	
Historical	
Heritage site	
Land Improvements	
Parking lot	
Gravel	**15**
Asphalt	**25**
Playground structures	**15**
Landscaping	**25**
Fences	**20**
Sprinkler systems	**25**
Golf courses	**45**
Tennis courts	**20**
Fountains	**20**
Lakes/ponds	**25**
Retaining walls	**20**
Running tracks	**15**
Outdoor lighting	**20**
Airport runways	**10**
Soccer pitch - outdoor	**20**
Bike/jogging Paths	
Gravel	**15**
Asphalt	**20**
Landfill	
Pits	**Volume**
Pads	**Volume**
Transfer stations	**25**
Construction in progress	
Buildings	
Permanent Structures	
Frame	**50**
Metal	**50**
Concrete	**50**
Portable Structures	
Metal	**25**
Frame	**25**
Leasehold improvements	**Variable**
Construction in progress	

Notice that each asset has a description from a 5-level hierarchical list of assets. This is known in TCA parlance as **Asset Classes**, organized according to a 5-level hierarchy as shown:

Major

Minor

Sub-Class 1

Sub-class 2

Sub-Class 3

Each asset class (each asset) has a **Maximum Useful Life**. This important parameter will be adjusted up or down over time by the Finance people, as they determine if certain activities carried out on the asset will shorten or extend asset life. This is extremely important to records management. Records management has to ultimately determine when to delete the records associated with the asset. The records practice known as **Disposition**, where we delete the records at the end of their life, has to delete records in accordance with the following formulaic approach:

End of Life + Retention Period ➔ Disposition action

End of Life	(EOL). Trigger date that triggers the final retention period for the records. The date on which the asset reaches the end of its useful life. The records are in their final phase of life. This can sometimes represent the asset disposal date, where the asset's life the originally-projected EOL.
Retention Period	How long to keep the records after the trigger date.
Disposition Action	What to do with the records after the end of the retention period. *Destroy*, *Archive* (retain permanently), or *Transfer* (To an external party)

A typical retention rule would be shown as:

EOL + 5 Years then Destroy

For the remainder of this report therefore, we will refer to Maximum Useful Life as **End Of Life** (EOL). Recordkeeping will need to "translate" the Maximum Useful Life into an actionable calendar date. The EOL will be that calendar date. For instance, suppose the Maximum Useful Life as of 2020 is estimated to be 10 years. We will translate that into an EOL of 2030. For simplicity we will also refer to each of the five levels of classes as simply levels 1 through 5, i.e. L1 through L5. Below are two sample tables from a typical Asset Class List, altered to conform to our records-compliant view:

Asset Class					
L1	L2	L3	L4	L5	
Land					
	Right-of-way				
	Undeveloped right-of-way				
	Parks				
	General				
Cultural & Historical Assets					
	Public art				
	Historical				
	Heritage site				
Land Improvements					
	Parking lot				
		Gravel			
		Asphalt			
	Playground structures				
	Landscaping				
	Fences				
	Sprinkler systems				
	Golf courses				
	Tennis courts				
	Fountains				
	Lakes/ponds				
	Retaining w alls				
	Running tracks				
	Outdoor lighting				
	Airport runw ays				
	Soccer pitch - outdoor				
	Bike/jogging Paths				
		Gravel			
		Asphalt			
	Landfill				
		Pits			
		Pads			
		Transfer stations			
	Construction in progress				

Asset Class					
L1	L2	L3	L4	L5	
Buildings					
	Permanent Structures				
		Frame			
		Metal			
		Concrete			
	Portable Structures				
		Metal			
		Frame			
	Leasehold improvements				
	Construction in progress				
Engineered Structures					
	Roadw ay system				
		Bridges			
		Overpass/interchange			
		Curb &gutter			
		Parkades			
		Roads & streets			
			Lanes/alleys		
				ACP - hot mix	
				Gravel	
				Nonconforming	
			Local/Collector/Arterial/Major Arterial		
			Surface		
				Concrete	
				ACP - hot mix	
				ACP - cold mix	
				Chip seal	
				Oil	
				Gravel	
			Subsurface		
		Road signs			
			Traffic control		
			Information		
		Lights			
			Decorative		
			Street		
			Traffic		
		Guard rails			
		Ramps			
		Sidew alks & para-ramps			
		Light rail system			
		Construction in progress			

The left table includes classes *for Land, Cultural & Historical Assets,* and *Land Improvements*. The other contains classes for *Buildings* and *Engineered Structures*.

We will refer to this list as the **Master Asset Class List** (MACL). We will refer to the unique TCA identifier (asset Class identifier) as the **C**apital **A**sset **C**ode (**CAC**). Each municipality will have a different level of granularity to its asset identification. Some will group together all assets into a single, large category (class) called **Buildings**. Others will break it out as shown, into the following individual asset classes:

Permanent

Portable

Leasehold Improvements

For each individual asset class (breakout), the following are tracked, independently of other asset classes:

- Asset cost at the beginning and end of the fiscal year
- Any write-downs (reductions) in the value of the asset
- Projected **E**nd **o**f **L**ife (EOL)
- Investments in the asset
- Upgrades and Improvements (Betterments)
- Amortization (per-year cost over its useful life)

This has enormous implications for recordkeeping. All records referring to an asset must specify which asset the document is about (referring to). It means that the finance department personnel now have to calculate/estimate the effect of work carried out on each asset. They must determine, for each asset, did the work carried out in relation to this work:

1. Increase its value?
2. Reveal that the value was reduced?
3. Increase asset life?
4. Increase usability or improve service provided by this asset?

Some examples:

1. An inspection could reveal that a pipe has deteriorated faster than expected, shortening its usable life.
2. The water delivery was improved such that water is delivered more cheaply, increasing the efficiency of the asset.
3. A road was improved, adding 20 years to its estimated usable life.
4. An improved replacement water pump can now deliver 3 times more water with less electrical consumption, reducing annual operating costs.

Records of business activities carried out on/to an asset must identify which specific asset they relate to. Without tying records to assets, there is no way for Finance to determine the impact of these activities on the particular asset.

Many municipalities create a General Ledger (G/L) code or some other code for each asset at the beginning of each fiscal year, as shown below:

Asset Class					EOL	G/L Code
L1	L2	L3	L4	L5		
Land Improvements						
	Parking lot					
		Gravel			15	LI-10
		Asphalt			25	LI-20
	Playground structures				15	LI-30
	Landscaping				25	LI-40
	Fences				20	LI-50
	Sprinkler systems				25	LI-60
	Golf courses				45	LI-70
	Tennis courts				20	LI-80
	Fountains				20	LI-90
	Lakes/ponds				25	LI-100
	Retaining walls				20	LI-110
	Running tracks				15	LI-120
	Outdoor lighting				20	LI-130
	Airport runways				10	LI-140
	Soccer pitch - outdoor				20	LI-150
	Bike/jogging Paths					LI-160
		Gravel			15	LI-170
		Asphalt			20	LI-180
	Landfill					LI-190
		Pits			Volume	LI-200
		Pads			Volume	LI-210
		Transfer stations			25	LI-220

If the municipality has assigned a G/L code for each asset, then the CAC can be the G/L code, e.g. **LI-150** for a soccer pitch. If there is no G/L code assigned, the CAC could be the Description, i.e. **Land Improvement – Soccer Pitch**. Each municipality can determine their own naming convention for assets. For this report we will refer to the asset identifier as the **CAC**.

Let's assume 70% of all records in the municipality are about an asset (we believe this is a reasonable assumption). If we further assume 1,000 electronic records get declared per day, then we expect 700 TCA records and 300 non-TCA records per day. Suppose a user is issuing a permit for a new well. It is a Land Improvement records category, but not an asset activity. When declaring this record, the user would select:

Land Improvement

Permits

The user should not have to be exposed to large selection of categories for each asset class. Suppose however they were replacing a pump in a fountain. The user declaring the records related to that pump would have to tell us:

Land Improvement

Maintenance

We now know this business activity was about *Maintenance* of *Land*. Now we need the user to also tell us that this work was about an asset. How? By selecting a **C**apital **A**sset **C**ode (**CAC**), from the list shown above. They would select:

Land Improvements

Fountains CAC LI-90

Selecting a CAC achieves two things at the same time:

1. Identifying the activity as an asset activity
2. Specifying the particular asset, by CAC.

By inference, if the user failed to select a CAC, we know that this activity is not an asset-related activity. Later in this report we will examine the ways in which the user can select and specify an asset.

BETTERMENT VS MAINTENANCE

Of all the work carried out on an asset, *someone* must determine if the work falls into one of the following two categories:

Repair and Maintenance (R&M)

Betterment

The work is considered to be a **betterment** if it enhances the service potential of an asset, or when the work results in an increase in the previously assessed physical output or service capacity, such as:

- where associated operating costs are lowered
- the useful life of the property is extended
- the quality of the output is improved.

The table below illustrates some examples of outcomes of various work tasks:

Examples:

Replaced a building's old windows with energy efficient windows (**betterment** – lower operating costs)
Replaced the old air conditioning unit with a similar one (**R&M**)
Paved a gravel road (**betterment** – service capacity)
Put new gravel on a gravel road (**R&M**)
Extended the water main system to a new subdivision (**betterment** – service capacity)
Replaced a broken water main (**R&M**)

In theory, each employee creating records about a task on an asset would specify if it is betterment or R&M. However, we are going to assume that this is simply too much to ask of

rank and file employees. This determination is best left up to people in Finance with the skills, training, and expertise to differentiate between the two, and to judge the subtle nuances. Suppose there are two projects being carried out on an overpass:

Annual Inspection Inspections for cracks, defects, damage.

Repairs Cracks identified from previous year are being repaired

Let's assume that the inspection generates just 3 documents:

Inspection Report

Recommendations from Inspector

Commentary from head of engineering

Let's further assume that the overpass repairs generated a total of 1,000 records, including:

Budget estimates

Proposal for work (what work to carry out, why, and impact on work)

Technical drawings

Approval of work

Tendering for work

Received bids

Contract negotiations, drafts, and final contract

Work plan

Progress reports

Contractor Payment records

Photographs

Final inspection reports

Deficiency report

Contractor correspondence

Etc.

This is a total of **1,003** records related to this TCA (the overpass) in a year. Finance may determine that the inspection, being routine, and not revealing any unexpected surprises, has not affected the asset's value, life expectancy, or serviceability. The set of 3 inspection records therefore are deemed to be R&M.

The repairs however extend the life of the overpass by a further 10 years, from 20 to 30 years. Finance needs to know the input costs of the repairs, and the impact of the repairs (extend life by 10 years).

To substantiate their determination, and to provide auditable evidence of their determination in the future, they would require the following documents:

Budget estimates

Proposal for work (what work to carry out, why, and impact on work)

Contract negotiations, drafts, and final contract

These records support Finance's determination, and provide auditable evidence going forward. Finance will wish to retain these documents for EOL + X years, where **EOL** = **E**nd **O**f **L**ife of the asset, and X = years to be retained following asset EOL. How is EOL determined? It is a **critical** element of each asset class, defined in the master asset class list[1].

There is no good business reason for the remaining records to be kept for the full EOL. They are ancillary to the final documents, and are not required to back up Finance's determination as to betterment or R&M. They can be kept for whatever period (X years) the records manager determines to be appropriate. This will typically be a fixed period of time, not tied to the asset's EOL. This means that for each asset, there will be two *classes* of TCA records:

Those retained for EOL + X years

Those retained for X years

Which specific records will Finance require to be in the first class (EOL + X)? We believe this will vary somewhat among different municipalities, but for recordkeeping purposes, all that matters is that ***there are two classes of records for each asset***. Each municipality will uniquely define which records are in each class. We further suspect that each municipality will likely name/describe each of the two classes of record differently. For now, we will define them as shown:

TCAS	**TCA S**upporting. Financial, engineering, and other related records supporting the investment costs into, and asset valuation impact of, the asset. Retention must be tied to the EOL.
Non TCAS	All records except those financial, engineering, and related records supporting the investment costs into, and asset valuation impact of, the asset. All other

[1] EOL may change from year to year. The Asset Class List must be updated on an ongoing basis as circumstances warrant.

records about this particular asset. Retention does not need to be tied to EOL.

Record Class	Inclusion	Retention
TCAS	Financial and related records supporting the investment costs into, and asset valuation impact of, the asset. Examples could be Invoices, final contracts, final technical drawings.	EOL + X years
Non TCAS	All records ***except*** financial records supporting the investment costs into, and asset valuation impact of, the asset. Invoices, Final contracts, final technical drawings	X Years

An important note to make here is that the Records Manager does not have provenance over the asset EOL – the financial people do. For infrastructure records such as roads, the EOL of each component is a moving target determined on a continuous basis. For non-infrastructure records such as Fleet (vehicles), the EOL will not likely change much over the life of the asset. Either way, the EOL is specified in the MACL.

In many municipalities we expect that over half of all records will be asset-related. We would expect that typically 5-10% of all such asset-related records are TCAS, at most. Different municipalities will set their own guidelines as to which documents are TCAS. Services-oriented business functions such as Finance, HR, Admin, and Council will not likely have much in the way of TCA records, but the remaining business functions will be TCA-rich. Following is a typical list of municipal business functions:

TCA Records by Business Function		
ADM	Administration	TCA Records
ASM	Assessment	Some
COM	Communications	None
CON	Council	None
CSV	Community Services	Some
ENF	Enforcement	None
EQP	Equipment & Supplies	Many
FIN	Finance	Few
FIR	Fire & Rescue	Some
FLT	Fleet management	Many
GOV	Governance	None
HR	Human Resources	None
IM	Information Management	Few
LEG	Legal & Regulatory	Many
LPM	Land & Property Management	Many
OHS	Occupational Health & Safety	None
PLN	Planning & Development	Many
SM	Strategic Management	None
TAX	Taxation	None
WSW	Waste & Storm Water	Many
WTD	Water Treatment & Distribution	Many

The EDRMS must be aware of the assets within the MACL. The MACL typically resides in a corporate ERP system. This is the true "master" list of assets, and the data in the MACL is used in the preparation of the municipality's financial statements. However the EDRMS must be aware of this list of assets. The list must be presented to the EDRMS users. This can be done in one of two ways:

Real-Time Integration The ERP system containing the MACL is custom-integrated with the EDRMS such that the MACL is presented to users within the EDRMS as needed. The MACL does not "exist" in the EDRMS – it simply is drawn from the ERP system and presented when needed.

Synchronized Duplication The MACL is duplicated within the EDRMS in its entirety. As the MACL is updated over time, the duplicate list in the EDRMS is updated with the changes, so they are synchronized with each other. This way the EDRMS asset list does not fall out of sync with the MACL. This synchronization could be carried out periodically via a custom software integration between the EDRMS and the ERP system.

The recordkeeping component of the EDRMS will, at Disposition time[2], have to consult the MACL to determine EOL. These asset EOLs will have to be fed to the disposition process in order for end-of-life disposition to be carried out.

TCA Records Identification

The Finance department is ***not*** responsible for collecting records relevant to them. It is the responsibility of the contributing business units to determine which records are related to an asset. For all records related to an asset, they must further specify if the records are TCAS, or not. This is unavoidable in order to support TCA accounting. Each work activity (corresponding to a category in the retention schedule) may, or may not, be contributing to an asset. Each work activity about an asset however may result in one or more records being generated about that particular asset. This means that every time a user generates a record they somehow have to tell us the following:

1. Is this document about an asset, or not?
2. If it is about an asset, which asset is it about?
3. If it is about an asset, is it a **TCAS** record, or not?

Again, this is an enormous burden on end users. For our overpass example, this 3-level decision tree would have to be followed by end users 1003 times. Let's assume that of the

[2] Disposition refers to the process whereby the Records Manager destroys records in accordance with the retention schedule.

1,000 overpass repair records, 100 were *TCAS*. This means the following answers to the questions above:

Is this about an asset?	**Yes** = 1,003 times
Which asset is this record about?	**Maple Street Bridge Overpass 100-122**, 1003 times
TCAS record?	**Yes** = 100 times

IDENTIFYING TCAS RECORDS IN THE EDRMS

For each business activity (category) in the retention schedule that stores records about an asset, the user will have to somehow identify which records are TCAS, and which are not. For all categories in the retention schedule that involve work of any kind on an asset (at least an asset that is being tracked in the master asset class list), the retention rule will specify EOL plus X years for TCAS records, and a different retention rule for non-TCAS records. Therefore there must be a way to distinguish between those records that are TCAS from those that are not. This will be accomplished with a document level metadata field called TCAS as shown below :

Metadata:

CASE Fields

Work Performed (M) (freeform)
Start Date (O)
Work Order Number (O)
Equipment/Item Name(O) (freeform)
Capital Asset Code/Asset Number (M)
Asset End of Life (O) Date Field
Work Performed By (O) (freeform)
Completion Date (O)

DOCUMENT Fields

Subject/Keywords (M)
True Document Date (M) (Default = Today)
TCAS (Y/N) Default = N
Critical (Y/N) Default = N

The retention schedule does not concern itself with who, how, or when the TCAS field was completed. All the retention schedule specifies is that when a document/record is marked as being a TCAS record, the retention rule “EOL plus X years, then destroy” will be applied to it. For those documents where the TCAS field is set to NO, the retention schedule will apply a different rule, such as “5 years then destroy”.

During the activity, the work being performed on the asset may possibly extend its life. Therefore we need a mechanism by which the person filing the records related to the work can notify the finance people of such an increase in the asset's life. This will be done via a dedicated but optional field called **asset end-of-life** as shown below:

Metadata:

CASE Fields

Work Performed (M) (freeform)
Start Date (O)
Work Order Number (O)
Equipment/Item Name(O) (freeform)
Capital Asset Code/Asset Number (M)
Asset End of Life (O) Date Field
Work Performed By (O) (freeform)
Completion Date (O)

DOCUMENT Fields

Subject/Keywords (M)
True Document Date (M) (Default = Today)
TCAS (Y/N) Default = N
Critical (Y/N) Default = N

The record category above is a case category, i.e. all records in a particular case (in this case a project) must be grouped together. It's important to understand the difference between case and document metadata fields. The **case fields** are common to all records in the case. **Document fields** are unique to each document in the case. Each document is assigned the document and the case fields. The user only enters the document fields – the case fields are automatically assigned to all documents in the case.

The asset itself must also be identified. This will be accomplished via a dedicated field called **Capital Asset Code/Asset Number**, as shown below:

Metadata:

CASE Fields

Work Performed (M) (freeform)
Start Date (O)
Work Order Number (O)
Equipment/Item Name(O) (freeform)
Capital Asset Code/Asset Number (M)
Asset End of Life (O) Date Field
Work Performed By (O) (freeform)
Completion Date (O)

DOCUMENT Fields

Subject/Keywords (M)
True Document Date (M) (Default = Today)
TCAS (Y/N) Default = N
Critical (Y/N) Default = N

The TCAS related fields shown above are for a case category. The project manager would enter the case fields only once. The end user would enter the TCAS field on individual documents every time they uploaded a document into the system. The example below shows the metadata fields for an administrative (non-case) category:

Metadata:

CASE Fields

DOCUMENT Fields

Subject/Keywords (M)
True Document Date (M) (Default = Today)
TCAS (Y/N) Default = N
Work Performed (M) (freeform)
Start Date (O)
Work Order Number (O)
Equipment/Item Name(O) (freeform)
Capital Asset Code/Asset Number (M)
Asset End of Life (O) Date Field
Work Performed By (O) (freeform)
Completion Date (O)
Critical (Y/N) Default = N

Notice that now the end user must enter all three asset-related fields. Suppose we have a category called “pump maintenance”. Maintenance is carried out on a scheduled, or ad hoc basis as required. Suppose the same pump had three rounds of maintenance conducted on it in a given year. Let’s assign the pump an asset number “pump 707”. Each round of work carried out on the pump might yield one or two records, such as a work order, a written report, and perhaps a photograph of the pump following the completion of the work. This would be a total of nine records within that year. The end user would have to type in the CAC 9 times, the asset end-of-life 9 times, and would have to specify TCAS = YES 9 times. We depend on the operator to be consistent, and enter the same CAC number, specify TCAS = YES 9 times, and ideally, the EOL would be consistently entered each of 9 times. It is possible that the EOL could be extended following work conducted on the asset. If this were the case, the end user would specify the new EOL. This is a fairly significant burden on the end user, therefore we would expect that in some EDRMS implementations, the finance

people may wish to enter the EOL's after the end user has uploaded the document into the system.

Again however, the retention schedule does not care who, how, or when the EOL gets updated. The retention schedule simply knows that the applicable retention rule is **EOL + X years**, and it is up to the users of the system to ensure that the EOL is entered at the appropriate time, with the appropriate value, and by the appropriate people with the skills and knowledge to enter it correctly.

TCA-Compliant Retention Schedule

In a classic retention schedule a single category specifies a single retention rule. A case category's typical retention rule is based on an event trigger, i.e.:

> Retention – Event Date + X years

An administrative category however specified a time-based rule, such as:

> Retention – X years.

With asset-related records however we require *two* retention rules, not one:

> Retention = EOL + X years

> Retention = X years

We need to apply *both* of these types of rules (event-based and time-based) to the same category. Furthermore, these two asset-related rules will be applied to an administrative (time-based) category, and sometimes to a case-based (event-driven) category. Any modern recordkeeping software can easily accommodate this. The retention schedule must call for these rules, with the confidence that the EDRMS system will be able to run them.

The retention schedule must provide for the following:

1. Multiple retention rules per category
2. Case and time-based retention rules within the same category.

Suppose for example that an ordinary municipal retention schedule called for the following three categories under Waste and Storm Water Management:

Waste and Storm Water Management			
Category	**Category ID**	**Description**	**Retention Rule**
Lagoons	10-100	Design, development, maintenance, drawings and as-builts, planning, replacement or closing of any lagoons	50 years, Destroy
Collection System	10-200	Records about the design, construction, modification drawings and as-builts, maintenance of the pipes, pumps, and other elements of the wastewater and storm water distribution to the lagoons.	50 years, Destroy
Maintenance & Repair	10-300	All records related to repairs and maintenance of the water treatment and distribution system, except emergency incidents	10 years

This is a traditional, typical set of 3 categories. With TCA accounting however, each of our (3) categories now has two different retention treatments, as shown below:

Waste and Storm Water Management			
Category	**Category ID**	**Description**	**Retention Rule**
Lagoons	10-100	Design, development, maintenance, drawings and as-builts, planning, replacement or closing of any lagoons	25 years
Lagoons, TCAS		Final Invoice, Final Drawings, Contract Cost	EOL + 5 years
Collection System	10-200	Records about the design, construction, modification drawings and as-builts, maintenance of the pipes, pumps, and other elements of the wastewater and storm water distribution to the lagoons.	25 years
Collection System, TCAS		Final Invoice, Final Drawings, Contract Cost	EOL + 5 years
Maintenance & Repair	10-300	All records related to repairs and maintenance of the water treatment and distribution system, except emergency incidents	10 years
Maintenance & Repair, TCAS		Final Invoice, Final Drawings, Contract Cost	EOL + 5 years

We have now grown from 3 to 6 retention rules, necessitated because each of the TCAS records bears a different retention rule than the regular records in that category. Suppose further that due to TCA accounting, we decide to break the single asset *Collection System* into three different assets:

Piping

Pumps

Interconnects

Each of these three assets (Piping, Pumps, and Interconnects) has multiple physical components, but we are not breaking it down any further – all records on all pumps will be grouped together for that particular asset Pumps. Our retention schedule for *Collection System* now looks as follows:

Waste and Storm Water Management			
Category	**Category ID**	**Description**	**Retention Rule**
Collection System, Piping	10-210	Records about the design, construction, modification drawings and as-builts, maintenance of the pipes, pumps, and other elements of the wastewater and storm water distribution to the lagoons.	25 years
Collection System, Piping TCAS		Final Invoice, Final Drawings, Contract Cost	EOL + 5 years
Collection System, Pumps	10-220	Records about the design, construction, modification drawings and as-builts, maintenance of the pipes, pumps, and other elements of the wastewater and storm water distribution to the lagoons.	25 years
Collection System, Pumps TCAS		Final Invoice, Final Drawings, Contract Cost	EOL + 5 years
Collection System, Interconnects	10-230	Records about the design, construction, modification drawings and as-builts, maintenance of the pipes, pumps, and other elements of the wastewater and storm water distribution to the lagoons.	25 years
Collection System, Interconnects, TCAS		Final Invoice, Final Drawings, Contract Cost	EOL + 5 years

What was originally a single category *Collection System* has now grown to 3 individual categories with 6 retention rules. Why? Because each of the three subclasses (Piping, Pumps, and Interconnects) will each have a (potentially) different EOL. This means that the retention rule for records associated with each of the three subsystems will be tracking against a different EOL. Suppose the EOL for Pumps is 20 years, and the EOL for Piping is 60 years. Even though the retention rule is the same for each (EOL + 25 years), the records for the Piping, TCAS will be kept for 65 years (EOL + 5), whereas the records for the Pumps, TCAS will be kept for 25 years (EOL + 25).

Not all assets will have a corresponding retention schedule category. The retention schedule will specify an activity, not an asset. The activity may be “Facility Maintenance”. Each record (work order, etc.) classified against that activity can (optionally) specify an asset (washroom 1, lobby, etc.) affected by that particular record. The work order for the washroom may specify asset number 70707, and the work order about the lobby may specify asset number 80808. The category will also contain plenty of records not related to a particular asset (fire drills, schedules, cleaning, etc.). Hence, the following document metadata fields must be optional, not mandatory:

Asset Number

TCAS (Y/N)?

Alternatively, the TCAS can be associated with a mandatory document metadata field **Document** Type.

Conversely, it is possible from time to time that a retention schedule category may in fact represent an asset, such as a fleet vehicle number 707. All purchase, licensing and registration, repair and maintenance, and disposal records for that vehicle will be associated to that case (vehicle) for the life of the asset, i.e. EOL + 5 years. The single retention schedule category Vehicles will have a case for each vehicle. Each case will have an event date (EOL) unique to that case (vehicle). All records in each case have the same asset number (vehicle 707). Users would only have to specify which records are TCAS. For example, licensing would not be TCAS, but a major repair may be TCAS.

RETENTION SCHEDULE USAGE FOR TCA

How are assets utilized within the retention schedule? A given retention schedule fragment is shown below:

Roads

- Repair and Maintenance
- Operations
- Planning and Management
- Construction

Facilities (buildings)

- Repair and Maintenance
- Operations
- Planning and Management
- Construction

Waste and Storm Water Management (WSW)

Repair and Maintenance

Operations

Planning and Management

Construction

Water Treatment and Distribution (WTD)

Repair and Maintenance

Operations

Planning and Management

Construction

Under each of these primary (functional) headings shown in bold, we have the following 4 secondary-level activities:

Repair and Maintenance

Operations

Planning and Management

Construction

Let's take *Repair and Maintenance* as an example. Each repair or maintenance activity will generate multiple records (work order, photos, emails, inspections, etc.). Each such activity in turn can affect one (or more) assets. There must be a way to specify the assets affected by the work. We will use a (small portion of) **Roads** to illustrate how we would configure and utilize the retention schedule over time:

Start		
Sec	**Asset IDs**	
	Asset Name	**EOL**
Roads	R1S1C1	2020
	R1S1C2	2020
	R1S1C3	2020
	R1S1C4	2050
	R1S2C1	2030
	R1S2C2	2030
	R1S2C3	2030
	R1S2C4	2040
	R1S3C1	2030
	R1S3C2	2040
	R1S3C3	2040
	R1S3C4	2040

Note we are using a shorthand notation for CAC descriptions:

Shorthand Notation		
Code	Meaning	Example
R	Road	R1 = Maple Street
S	Segment	S2 = Segment 2
C	Component	C1 = Surface Pavement

In our example we have three segments of road R1 (S1 through S3), and four components of each segment (C1 through C4 for each segment), for a total of 12 assets. The activity/category “Roads – Repair and Maintenance” categories is not a case category, i.e. all records in these categories will have a retention rule of X years. The table below shows the projected EOL for each asset (as stated in the MACL), and a corresponding appropriate retention rule for records related to each asset:

Start

Sec	Asset IDs		Retention Rule		
	Asset Name	EOL	EOL	Ret	Destroy
Roads	R1S1C1	2020	2020	5	2025
	R1S1C2	2020	2020	5	2025
	R1S1C3	2020	2020	5	2025
	R1S1C4	2050	2050	5	2055
	R1S2C1	2030	2030	10	2040
	R1S2C2	2030	2030	10	2040
	R1S2C3	2030	2030	10	2040
	R1S2C4	2040	2040	10	2050
	R1S3C1	2030	2030	5	2035
	R1S3C2	2040	2040	5	2045
	R1S3C3	2040	2040	10	2050
	R1S3C4	2040	2040	5	2045

Suppose someone carries out an inspection on asset R1S2C3. The inspection report can be filed into category “Roads – Repair and Maintenance” at any time, and the asset R1S2C3 will be specified as the affected asset. The asset is selected from the asset list in the document metadata field “Asset ID (or similar). The needed retention rule is EOL + 10 years, or 2030 + 10 years = 2040. The EDRMS has to include the EOL in the retention rule.

Now let’s suppose that a project we’ll call **Project 1 2010** was carried out. The project involves upgrade work on all four assets from each of segments 1 and 2 – no work is done on segment 3:

Completion of Project 1 2010							
Project 1 2010		Sec	Asset IDs		Retention Rule		
			Asset Name	EOL	EOL	Ret	Destroy
R1S1C1		Roads	R1S1C1	2020	2020	5	2025
R1S1C2			R1S1C2	**2030**	2030	5	**2035**
R1S1C3			R1S1C3	2020	2020	5	2025
R1S1C4			R1S1C4	2050	2050	5	2055
R1S2C1			R1S2C1	**2050**	2050	10	**2060**
R1S2C2			R1S2C2	**2050**	2050	10	**2060**
R1S2C3			R1S2C3	**2050**	2050	10	**2060**
R1S2C4			R1S2C4	2040	2040	10	2050
			R1S3C1	2030			
			R1S3C2	2040			
			R1S3C3	2040			
			R1S3C4	2040			

Of all the records that will be generated by the work of Project 1 2010, some will be TCAS, and some will not. We do not know what to expect from the project. First however we will need to create a new **case** category entitled “Project 1 2010” under “Roads – Repair and Maintenance”. Upon the completion of “Project 1 2010”, (4) of the affected asset’s EOLs were extended as shown:

Asset	**From**	**To**
==========		
R1S1C2	2020	2030
R1S2C1	2030	2050
R1S2C2	2030	2050
R1S2C3	2030	2050

This is a typical outcome of roadwork. The EOLs of some assets have changed (shown in red in the table), but others have not. Notice that where an EOL has changed, we must now change the retention rule in the asset’s corresponding case category. Note the case must record 8 asset numbers, and 8 corresponding EOLs. The EOLs represent the retention rule triggers. The Records Manager will “translate” the “Maximum Useful Life” value into calendar dates for retention rule purposes. For instance, a maximum useful life of 20 years rendered in 2010 for asset R1S1C1 yields a calendar EOL of 2030. This in turns leads to a destruction date of EOL + 5, or 2035, when the records will be destroyed.

Now let’s suppose another project was approved in 2012. This project will affect the assets of Road 1 Segments 2 and 3, as shown:

Completion of Project 2 2012

Project 2 2012	Sec	Asset IDs		Retention Rules			
		Asset Name	EOL	Name	EOL	Ret	Destroy
	Roads	R1S1C1	2020	Project 1 2010 R1S1C1	2020	5	2025
		R1S1C2	2030	Project 1 2010 R1S1C2	2030	5	2035
		R1S1C3	2020	Project 1 2010 R1S1C3	2020	5	2025
		R1S1C4	2050	Project 1 2010 R1S1C4	2050	5	2055
R1S2C1		R1S2C1	2050	Project 1 2010 R1S2C1	2050	10	2060
R1S2C2				Project 2 2012 R1S2C1	2050	10	2060
R1S2C3		R1S2C2	2050	Project 1 2010 R1S2C2	2050	10	2060
R1S2C4				Project 2 2012 R1S1C2	2050	10	2060
R1S3C1		R1S2C3	2050	Project 1 2010 R1S2C3	2050	10	2060
R1S3C2				Project 2 2012 R1S2C3	2050	10	2060
R1S3C3		R1S2C4	2060	Project 1 2010 R1S2C4	2040	10	2050
R1S3C4				Project 2 2012 R1S2C4	2060	10	2070
		R1S3C1	2050	Project 2 2012 R1S3C1	2050	5	2055
		R1S3C2	2050	Project 2 2012 R1S3C2	2050	5	2055
		R1S3C3	2050	Project 2 2012 R1S3C3	2050	5	2055
		R1S3C4	2050	Project 2 2012 R1S3C4	2050	5	2055

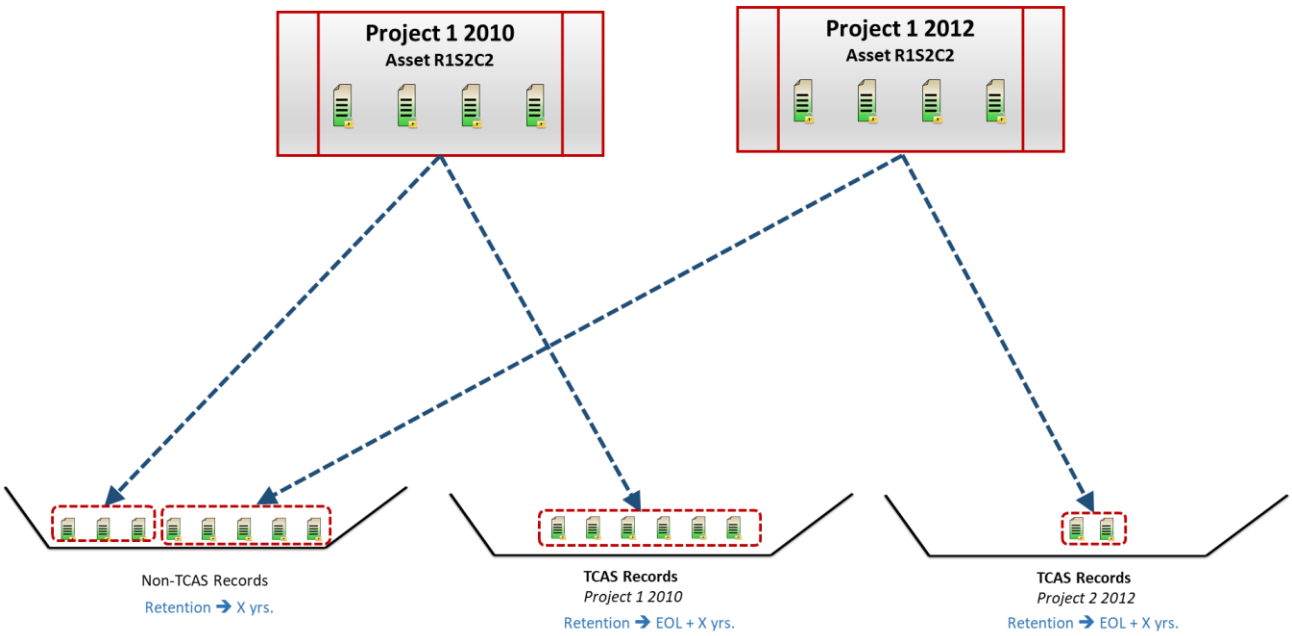
This new project comprises new capital works effort that will affect the designated 8 assets. The work on Segment 2 represents an additional project on this segment. So now we will have the following two groups of records resulting from work on the asset R1S2 components 1 through 4:

Project 1 2010

Project 2 2012

Perhaps this work is completing work started earlier. Or perhaps it is completely replacing assets R1S2C1 through R1S2C4. That does not matter – what matters is that there are now records generated by Project 1 2010, and a *different* group of records generated by Project 2 2012. Two projects, two sets of records. Each group of records has (potentially) a different impact on the assets. Each project is a case, in that the records have a defined start, and end dates. Each project will generate both TCAS and non-TCAS records. Finance will need to track the TCAS records until the asset's EOL. Finance needs to know the impact of Project 1 2010 on the assets, as well as the impact of Project 2 2012 on the assets. They will need to retain the critical records from each project to back up their determinations of impact. We therefore need to create a separate case category for the new project, **Project 2 2012**.

Each of the two projects has, at different times, contributed TCAS and non-TCAS records to these four assets, as shown below for asset R1S2C2:



Both projects contributed non-TCAS records against asset R1S2C2. The first project contributed 3 non-TCAS records, and the second project contributed 5. Project 1 2010 contributed 6 TCAS records in 2010. Project 2 2012 however contributed 2 TCAS records in 2012. All records for Project 1 2010 are stored in the case “Project 1 2010”, and all records for case Project 2 2012” are stored in the case “Project 2 2012”.

Notice however that Project 2 2012 bumped up the EOL of asset R1S2C4 to 2060. The TCAS records of the original project 1 2010 are tracking against an EOL of 2040 for the same asset. The TCAS records of project 2 2012 however are now tracking against an EOL of 2060. The TCAS records of R1S2C4 from project 1 2010 will be destroyed in 2050 (EOL + 10), whereas the TCAS records from Project 2 2012 will be destroyed in 2070 (EOL + 10). This is important to preserving TCA accountability. Project 2 2012 could have completely rebuilt and replaced asset R1S2C4 in its entirety, essentially resulting in a new asset. The records for both the old asset R1S2C4 and the new asset R1S2C4 are being kept for the appropriate periods following their respective EOLs. A complete history of all the critical records for all the projects that affected this asset is being preserved. This provides strong TCA evidential support for TCA accounting.

Take the example of a roof on a building B1. The building bears an EOL of 100 years, however the roof only lasts 30 years. There will be three roof replacements over the building’s 100-year life. With this approach, each roof will create its own independent set of records and will be maintained for the life of that roof, then destroyed.

If for some reason finance wishes to extend (or reduce) the EOL of any project’s records, they can simply ask the Records Manager to manually adjust the destruction calendar dates

of any case categories. Suppose a third project was carried out, Project 3 2014, as shown below:

Completion of Project 3 2014

Project 3 2014	Sec	Asset IDs		Retention Rules			
		Asset Name	EOL	Name	EOL	Ret	Destroy
	Roads	R1S1C1	2020	Project 1 2010 R1S1C1	2020	5	2025
		R1S1C2	2030	Project 1 2010 R1S1C2	2030	5	2035
R1S1C3		R1S1C3	2040	Project 1 2010 R1S1C3	2020	5	2025
				Project 1 2010 R1S1C3	2040	5	2045
		R1S1C4	2050	Project 1 2010 R1S1C4	2050	5	2055
		R1S2C1	2050	Project 1 2010 R1S2C1	2050	10	2060
				Project 2 2012 R1S2C1	2050	10	2060
		R1S2C2	2050	Project 1 2010 R1S2C2	2050	10	2060
				Project 2 2012 R1S2C2	2050	10	2060
		R1S2C3	2050	Project 1 2010 R1S2C3	2050	10	2060
R1S2C4				Project 2 2012 R1S2C3	2050	10	2060
		R1S2C4	2080	Project 1 2010 R1S2C4	2050	10	2060
				Project 2 2012 R1S2C4	2060	10	2070
				Project 3 2014 R1S2C4	2080	10	2090
R1S3C3		R1S3C1	2050	Project 2 2012 R1S3C1	2050	5	2055
		R1S3C2	2050	Project 2 2012 R1S3C2	2050	5	2055
		R1S3C3	2060	Project 2 2012 R1S3C3	2050	5	2055
				Project 3 2014 R1S3C3	2060	5	2065
		R1S3C4	2050	Project 2 2012 R1S3C4	2050	5	2055

This is a much more selective project, working on just 3 assets. This is now the third consecutive project carried out on asset R1S2C4. This project also extended the life of R1S2C4. We now have 3 activities against this asset, each tracking to a different EOL. Similarly, asset R1S3C3 now has had two projects that have affected it – Project 2 2012 and Project 3 2014. Project 3 extended the assets life, and it now has two sets of project records tracking against two different destruction dates.

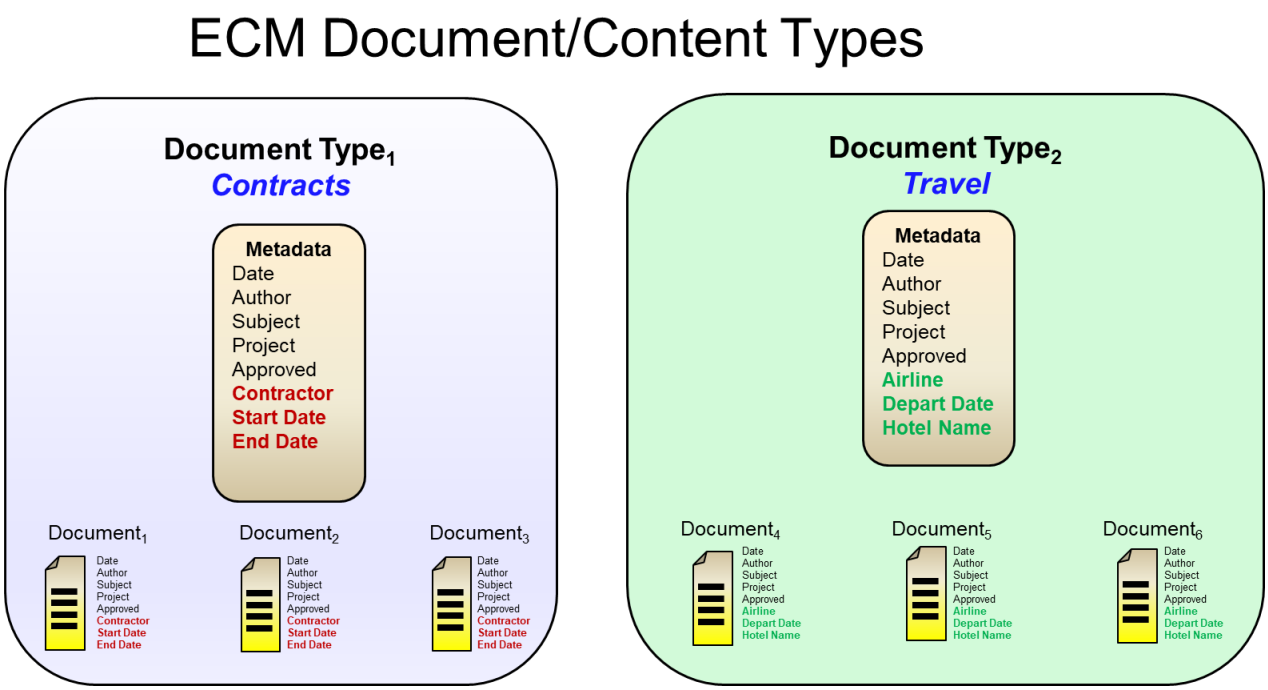
DOCUMENT TYPES

In order to understand how electronic records are handled in an asset setting, the reader must first be familiar with the concept of **Document Types**. ***This Document type refers to a structure within the EDRMS ECM and should not be confused with a document metadata fields called "Document Type".***

A document type is a core element of modern ECM (Enterprise Content Management) EDRMS systems. All ECM systems share this common capability. Some ECM systems such as Microsoft SharePoint refer to the document type as a content type. A content type is not a part of a document. A content type specifies the metadata fields you apply to all the documents filed with that document type. A document is then assigned to a document type,

which specifies the metadata that will be associated with that document. Metadata fields are critically important to a successful ECM/EDRMS deployment. Users can search on metadata fields, which provides for very powerful retrieval.

The following diagram shows two document types. Document $type_1$ specifies 8 fields useful to describe documents about contracts, and document $type_2$ contains 8 fields useful to associate with documents about travel. Each document type has the same first 5 fields, which are generally useful in most any document. The last 3 fields are referring specifically to the intended type of document the document type is trying to organize. Every document in the ECM **must** be assigned to a document type. Note that documents 1 through 3 have been assigned to Document $Type_1$ (*Contracts*). They will all therefore have the metadata fields from document $type_1$. Documents 4 through 6 however have been assigned to document $type_2$ (*travel*), and they will have the 8 fields from Document $Type_2$.



When a user puts a document into the ECM, a document type is either selected by the user, or automatically assigned to the document depending on where they are storing the document, or what they are doing with it. Either way, all documents get a document type assignment, which determines which metadata fields will be required for that document. The Document Type also specifies which of the fields are mandatory, default field values, allowable values to choose from, and many other elements too numerous to mention here. We're only concerned with metadata for now.

A Document Type can have fields that are not visible to users but are searchable. Metadata fields provide for useful downstream searching of documents/records. A useful field to define for various document types in an asset setting would be Asset ID, Asset Type, TCAS (Y/N), etc.

EDRMS DOCUMENT METADATA

In a typical EDRMS configuration, there will be a location (folder/library) in the ECM for each category (activity) in the retention schedule. That location will bear the same name as the corresponding activity in the retention schedule. Each activity by definition will normally have different metadata from all other activities. Therefore, by necessity, each folder/library will require a different content type. The table below shows a selection of retention schedule activities and their corresponding document types:

Document Types for Asset -Based Categories	
Folder/Library	**Document Type**
Roads - Repair and Maintenance	Roads - Repair and Maintenance
Roads - Operations	Roads - Operations
Roads - Planning and Management	Roads - Planning and Management
Roads - Construction	Roads - Construction
Parks - Repair and Maintenance	Parks - Repair and Maintenance
Parks - Operations	Parks - Operations
Parks - Planning and Management	Parks - Planning and Management
Parks - Construction	Parks - Construction

The *Repair and Maintenance* and *Construction* categories, for roads and for parks, will each contain asset-related records. We will therefore require that the document types for each of these four specify the following fields:

Project Name (in some cases)

Asset ID

TCAS (Y/N)

EOL

These fields are required to support TCA-compliant recordkeeping. We refer to these fields as **Compliance Fields**, to represent a document or case metadata field that is used in some manner to support recordkeeping compliance. Each metadata will be explained individually.

ASSET ID

There must be a way for each user to identify the asset their document refers to. We call this the **Asset List**. The metadata field can simply be called **ASSET ID** or similar. The software must present a list of all assets for the selected content type, which in turn is linked to the asset class. An Asset List is required for each of the following sample asset classes:

Road Assets
Land Improvement Assets
Facilities Assets
WSW Assets
WTD Assets
Fleet Assets
Equipment Assets
Solid Waste Assets
Recylcling Assets
Cemetary Assets
Public Art Assets
Fire Rescue Assets

Different municipalities will of course have different lists of assets – this is a representative example only.

Each list must present all assets. For instance, if we have 100 roads with 10 segments each and 10 components per segment, the list for Road assets will have 10,000 items to choose from. Each proprietary EDRMS solution will have a different method/approach to presenting 10,000+ assets on screen for selection.

PROJECT NAME

An individual Project is a pre-defined list of assets that have received budget approval for future work. These would usually come from Council budget meetings. A project might specify a list of assets as follows:

Approved Projects	
Project	**Asset**
Roadwork 2010	R4S12C6
	R4S12C7
	R4S12C8
	R4S12C9
	R22S8C5
	R22S8C6
	R22S8C7
	R22S8C8
Sewer Repairs 2010	WSWS6C22
	WSWS6C23
	WSWS6C24
	WSWS6C25
Facility 1 Repainting 2010	F1room201
	F1room202
	F1room203
	F1room204
Firetruck replacement 2010	Firetruck1
	Firetruck2
	Firetruck3
	Firetruck4

Each project now specifies all assets the project affects. Roadwork 2010 for instance now yields 8 named assets. Behind the scenes, the Records Manager is creating a name and an EOL for each asset. Users must tell us for each project, which asset their record is related to. Suppose for example their document refers to an inspection failure of repainting carried out in Facility 1 room 203. The project name will be "*Facility 1 Repainting 2010*", and the attributed asset will be F1 Room 203.

The Records Manager must create the projects and corresponding case categories before work commences, and

The examples we use contain explicit dates, i.e. the year the projects were carried out. This makes it easier to see the sequence of projects carried out on assets. However, it is not essential – many users, including finance personnel, may be very used to project names, and may intuitively know which projects occurred in which years. For completeness and accuracy however, it is recommended that dates be imbedded into the project names.

The Asset List must be presented in the ECM as a field for the document type the user is utilizing. In some ECM products, this field would be implemented as a taxonomy field, where the user can sort the list of projects by either of the columns shown in the Project List table shown earlier. Each column becomes a "facet[3]":

Project Name

Asset

DOCUMENT TYPES

There are two ways to identify a TCAS record:

Explicit User selects YES in the document field TCAS

Implicit User selects a document type from the drop-down list in the document field DOCUMENT TYPE. Document types are known in advance to be TCAS records, and the retention rule is applied accordingly. The following might be a list of possible document types for an activity called "Land Improvement Projects":

[3] A ***facet*** refers to a view of multi-column table data within a SharePoint managed metadata field.

Document Type	TCAS	Retention Rule
Project Management	N	5 years, destroy
GIS Location Data	Y	Permanent
Drawings, Construction	N	3 years, destroy
Project Costing	Y	EOL + 7 years
Drawings, As-Built	Y	EOL + 7 years
Technical Specifications	Y	EOL + 7 years
Contract-Related	N	5 years, destroy
Permits and Licenses	N	10 years, destroy
Testing and Inspections	N	3 years, destroy

The user does not have to specify whether or not the record is TCAS. Instead, they specify the **type** of document from this list. The retention schedule will specify a retention rule in accordance with the Document Type from the list shown above.

END USER PROCEDURES

There are two different ways for a user to declare a record to be related to an asset:

Asset Selection There is no pre-defined project. The user selects an asset, and specifies if it is TCAS or not.

Project Selection The user selects the project that this document is related to.

ASSET SELECTION

Suppose a user has a document about a pump in the water treatment plant. Following are the steps they would follow to declare it as a record:

Step 1 Select Document Type *Water Treatment & Distribution*.

Step 2 From Field **Asset ID**, select *Pumping Equipment* (CAC W-110) as shown below:

Asset Class	EOL	G/L Code
Water system		
Distribution system		
Mains	75	W-10
Services	75	W-20
Pump, lift and transfer stations		W-30
Structures		W-40
Envelope	50	W-50
Foundation	50	W-60
Roof	25	W-70
Treatment equipment		W-80
Mechanical	45	W-90
Electrical	45	W-100
Pumping equipment	45	W-110
Plants and facilities		W-120
Treatment equipment		W-130
Mechanical	45	W-140
Electrical	45	W-150
General	45	W-160
Valves	75	W-170
Hydrants/fire protection	75	W-180
Reservoirs		W-190
Structures	50	W-200
Treatment Equipment		W-210
Mechanical	45	W-220
Electrical	45	W-230

The list that appears is the Asset List for asset class WTD.

Step 3 From Field **Document Type**, select Document Type *Technical Specifications*, as shown below:

Document Type	TCAS	Retention Rule
Project Management	N	5 years, destroy
GIS Location Data	Y	Permanent
Draw ings, Construction	N	3 years, destroy
Project Costing	Y	EOL + 7 years
Draw ings, As-Built	Y	EOL + 7 years
Technical Specifications	Y	EOL + 7 years
Contract-Related	N	5 years, destroy
Permits and Licenses	N	10 years, destroy
Testing and Inspections	N	3 years, destroy

The selection list displayed is the Document Type list for asset class WTD. Notice that we are **not** explicitly asking for a TCAS status. We are using the approach of embedding the TCAS status into the document type selection. Because the user selected *Technical Specifications*, we know this is a TCAS record.

Now let's examine the RBR recordkeeping procedures that happen in the background that will route this document to the right place in the retention schedule. The required RBR rule would be as follows:

> If **Content Type** = *WTD* and Field **Asset** = *W-110* and **Field** Document Type = *Technical Specifications*. then. **Retention** = EOL + 7 years

Now let's suppose the user declared a second document. The document is also about the water pump. This time however the user selected Document Type *Testing and Inspections*. The applicable RBR rule would be as shown:

> If **Content Type** = *WTD* and Field **Asset** = *W-110* and **Field** Document Type = *Testing and Inspections* .then. **Retention** = 3 years, then destroy

Notice both documents are filed into the same category, but they each bear a different retention rule, one TCAS and one non-TCAS.

The document the user declared does not need to physically move to the retention schedule's archive – it can stay in place and still have the retention rule applied

The Records Manager must create sufficient RBR rules, in advance, for every possibility, for all assets, both TCAS and non-TCAS. This will take considerable time and planning, however it is an inherent requirement for RBR[4]. The benefit of RBR is that once these rules are in place, the users never participate in recordkeeping – they are just doing their job. In an asset-compliant setting, "their job" requires that they specify which assets they are working on. This is a necessary burden of TCA compliance, and there is no way to overcome that extra effort. At least with RBR we can greatly minimize the end user effort, and ensure that all asset-related records are properly classified as TCA assets.

PROJECT SELECTION

Let's now examine end user procedures when pre-defined projects are being utilized. The following sample projects have been pre-approved:

Facility Projects	
Project	**Asset**
Facility 6 Washroom Upgrades	F6 Floor 1 Washroom 1
	F6 Floor 1 Washroom 2
	F6 Floor 2 Washroom 1
	F6 Floor 2 Washroom 2
	F6 Floor 3 Washroom 1
	F6 Floor 3 Washroom 2
	F6 Floor 4 Washroom 1
	F6 Floor 4 Washroom 2
Faciity 3 Air Conditioning Upgrade	F1 Air Handler 1
	F1 Air handler 2
	F1 Air Handler 3
	AC Control System
Facility 1 Repainting 2010	F1room201
	F1room202
	F1room203
	F1room204
Facility 4 Swimming Pool Addition	F4 Foundation Pour
	F4 Change Room
	F4 Show er Stall
	F4 Sanitation Equipment

[4] Some recordkeeping software products have a capability called ***DHR Variable Substitution*** that will greatly reduce the total number of rules that need to be created.

Suppose the user is repainting rooms 201 through 204 in Facility 1. Their document is concerning a problem in Room 203. Here is what they would do to declare a document:

Step 1 Select Content Type *LPM – Land & Property Management*. LPM has a secondary for "Repair and Maintenance". There is a Document Type defined for "Repair and Maintenance". This document type will have all the data fields related to the business of facility repair and maintenance, such as "Building Name", etc..

Step 2 In the field **Project**, select project *Facility1 Repainting 2010*.

Step 3 In Field **Document Type**, select *Contract Change Orders*. This is a TCAS document type.

Now let's examine the RBR recordkeeping rule that will route this document to the right place in the retention schedule. The required RBR rule would be as follows:

If **Content Type** = LPM – *Maintenance & Repair* and Field **Project** = *Facility1 Repainting 2010* .then. **Retention =** EOL + 2 years

The TCAS vs non-TCAS status could theoretically be embedded into the Project as a whole, instead of individual documents. Suppose we know that all work on the swimming pool upgrade project will be TCAS records. We could create a new case for the swimming pool called "Swimming Pool Upgrade 2010". Users would not need to be asked TCAS vs Non-TCAS. We could call for a field called Project Part, and construct a one-time selection list consisting of the following four allowable selections:

Foundation Pour (TCAS = Y)
Change Room (TCAS = Y)
Shower Stall (TCAS = N)
Sanitation Equipment (TCAS = N)

We could then create the following two RBR rules as shown:

If Field **Project Part** = *Foundation Pour* .then. TCAS = Yes

If Field **Project Part** = *Change Room* .then. TCAS = Yes

MACL SYNCHRONIZATION

When an EDRMS user declares an asset-related document by placing it into the EDRMS as a record, they must have a means of selecting the appropriate asset, such as:

Vehicle X from the list of vehicles

Pump X from the list of Water Distribution Pumps

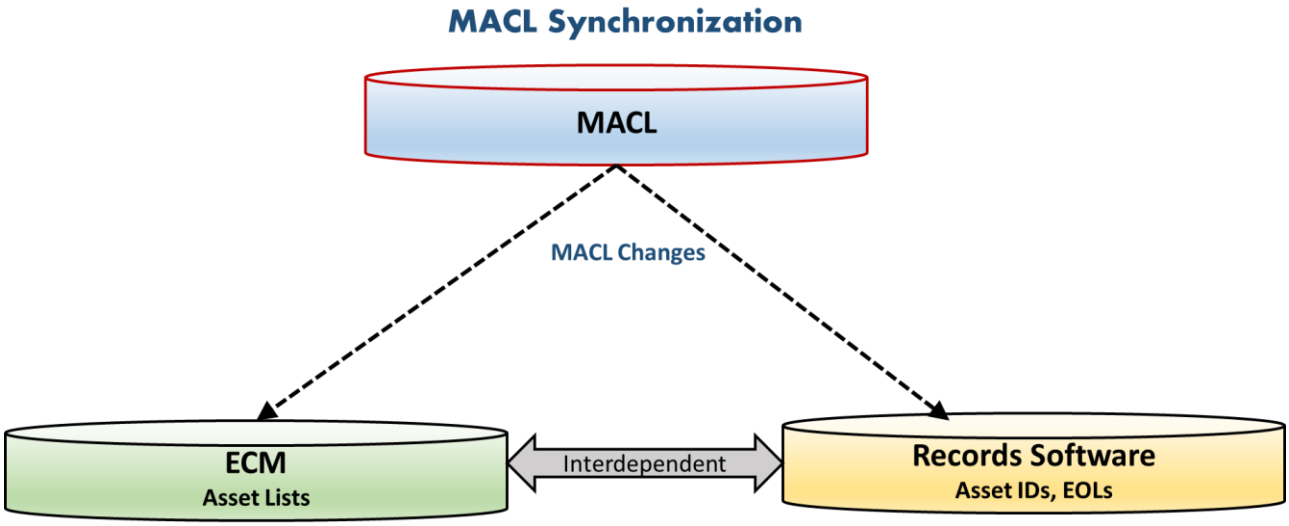
Road segment X from the list of road segments

This list must obviously be presented within the EDRMS. It must also be current (up to date) with the MACL. Remember that the MACL “lives” in the ERP system, not the EDRMS. If the MACL is extracted from the ERP system and displayed in the EDRMS via a custom integration between the EDRMS and the ERP system hosting the MACL, the EDRMS is not storing a duplicate of the MACL. Inside the EDRMS, the EDRMS is merely querying the ERP system and presenting the MACL. If, however the MACL is stored in the EDRMS as a duplicate, the MACL and the duplicate list in the EDRMS will eventually differ, as changes are made to the MACL. In this case, there must be a means by which the MACL and the EDRMS can be synchronized, either continuously in real time, or periodically (e.g. every 24 hours). This means that:

1. When a new CAC is added to the MACL, the EDRMS asset list must be updated.
2. When Finance changes the EOL of an asset, the Records Manager must be made aware of it so they can change the trigger date in the asset’s retention rule.

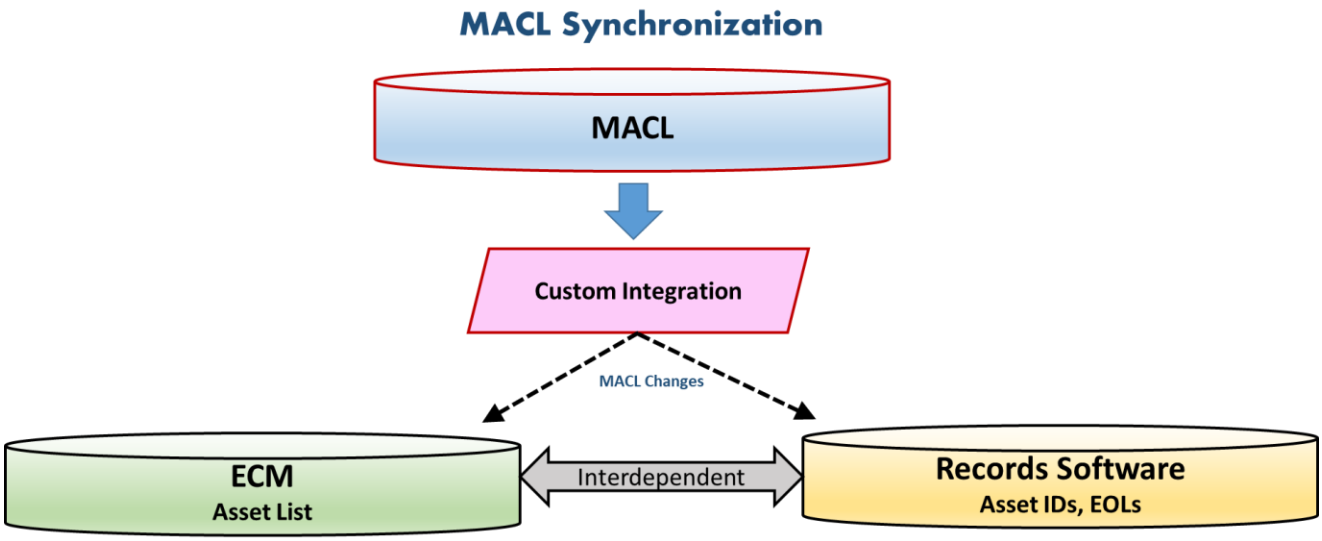
In a small municipality with limited IT resources, this synchronization will have to occur manually, i.e. Finance and the Records Manager must keep each other informed of changes as they occur. If the Master Asset Class List and the EDRMS fall out of sync over time, the entire recordkeeping process is no longer TCA-compliant. In a larger municipality with a larger MACL, and more IT resources, there are many ways to build custom software integration solutions that will automatically update the retention rules automatically as a result of changes to the MACL.

The MACL is the master list – the authoritative list of assets. Put another way, the retention schedule and the ECM Asset Lists (used for end user selection) are both subservient to the MACL. The retention schedule and the ECM Asset List must somehow keep up with changes in the MACL. A “change” means an addition to, a deletion from, or a modification to an existing MACL entry. This sets up a three-way synchronization challenge as illustrated below:



Whenever a change is made to the MACL, both the **Asset List** (in the ECM), and **Retention Schedule** (Assets IDs and EOLs) must be updated accordingly with the changes. Worse still, there is a strong interdependence between the retention schedule and the SharePoint Asset Lists. The RBR rules contain explicit field values for assets. Therefore, the RBR rules can only work if the Asset field values are being presented in the ECM

Every time the MACL changes, these changes need to be communicated to IT so they can update the ECM Asset List, and to Records Management so they can update the retention categories, including any changes in the EOLs. This could represent a great deal of manual data entry. In a larger municipality this could approach a full-time job just for the data entry. The solution is a custom integration between the ERP system and the EDRMS as illustrated below:



This integration could take the form of a custom integration that runs in real time, or periodically, (e.g. at midnight each night). The MACL could be an asset management application such as WorkTech, or it could be as simple as a spreadsheet. Each time there is an asset change, the integration software would take the actions as shown in the table below:

Custom MACL Integration		
MACL Change	**Records Management Software**	**ECM Asset List**
New Asset	Create new Asset ID, EOL	Add to requisite Asset Class List
Dropped Asset		Delete from Asset Class List
EOL Change	Update EOL in corresponding category	
Asset Edit	Update Asset Name/Number	Update Asset Name/Number

PHYSICAL RECORDS

How would TCA recordkeeping be handled with physical (paper) records)? The same approach as used in electronic would have to be used for paper:

- Each paper document would have to be filed in a folder with same labelling as called for in the electronic system. Each label would have to bear a CAC number, drawn from the Master Asset List.
- The records would have to be marked with the appropriate TCAS status. This means TCAS records must be physically segregated from the remaining records in the category.

The paper system would in this case follow the electronic. The electronic system is presenting the choices to the end user, who will have to follow through and label the documents and folders appropriately. With physical records, users will need access to paper copies of the following lists in order to properly classify (file) records:

Retention Schedule

Master Asset Class List

Project List (for project cases)

The retention schedule will generally not change very often, however the Master Asset Class List and the Project list could change quite frequently. If this is the case, it would be best if the users used the computer just to look up appropriate values in these lists, instead of having to rely on paper copies that could quickly get out of date.

USING TCA

Appendix 1 shows a high-level view of how records are handled in an asset-compliant setting. If the record being declared describes an activity that has affected a specific named asset, then the process shown on the right-hand side of the diagram is applied. We refer to this as an **ARM** (Asset Repair & Maintenance) record. If the record is not dealing with a repair or maintenance, then there are three possibilities on the left-hand side of the diagram as shown:

Construction of New Asset	Building of a new asset or group of assets. This would only apply to assets that have to be built, i.e. roads, facilities, storm drains, and land improvements. It does not apply to assets that have to be acquired, such as equipment or fleet. The user has to select the secondary ACS (Asset Construction), specify the asset class to which the activity pertains, then select a case project. A case project will typically be a capital-funded construction project. All construction projects are cases.
Planning/Management	Activities related to the general planning and overall management of the assets, such as long-term plans and forecasts, estimates for future funding, etc. The user has to select the secondary **APM** (Asset Planning & Management), specify the asset class to which the activity pertains, then select a specific named asset.
Operations	Regular operation of the assets, such as snow clearing (roads), window cleaning and janitorial services (buildings/facilities), leasing (land, buildings), inspections, etc. The user has to select the secondary **AOP** (Asset Operations), specify the asset class to which the activity pertains, then select a specific named asset.

Suppose a record is about a repair on a specific asset – a road segment for example. The repair applies to a specific named asset (the road segment), so the right-hand side of the diagram applies. It is an ARM record. First the user must select the asset class, in this case **Roads**. Then, from within the asset class of Roads, they have to select a specific (named) asset, for instance **Maple Street Segment 2**. It's possible that for some reason, the asset is not available in the selection list. If so, the software will have to notify the Records Manager of the need for this asset, and the user will have to wait and try again later.

Assuming the asset appears in the list, the user selects it. If the user happens to be a designated administrative user, the software can ask explicitly if this record indicates activity that results in a betterment of the asset. This would apply to very few users who are entrusted with the knowledge and motivation to answer this question appropriately. We will assume however that most of the time, this is a non-privileged user not trained to properly answer the question.

Now the user must select a document type, such as:

Invoice
Drawing, As-Built
Drawing, Final
Specifications
Timesheet
etc.

The **Document Type** is a mandatory document metadata field. Each of these document types is defined in advance and presented to the user as a limited selection – they have to identify the appropriate document type. The definition of each document type specifies whether the document type represents TCAS documents, or not (this is an internal system attribute or field). By selecting the appropriate document type therefore, we now know if the document is a TCAS record or not. If TCAS, the EDRMS will assign a retention period of EOL + X years. If the document is non-TCAS, it will be assigned a retention period of X years.

Suppose however the record is a plan specifying which roads to repair in the coming summer months. This document does not affect a specific (named) asset. It is therefore an APM (Asset Planning & Management) record. The user will go to the APM section of the file plan, then select an asset class, in this case **Roads**. The record's classification is "APM-

Roads". Roads is the primary level, Planning & Management is the secondary level. The retention period will be (typically) X years.

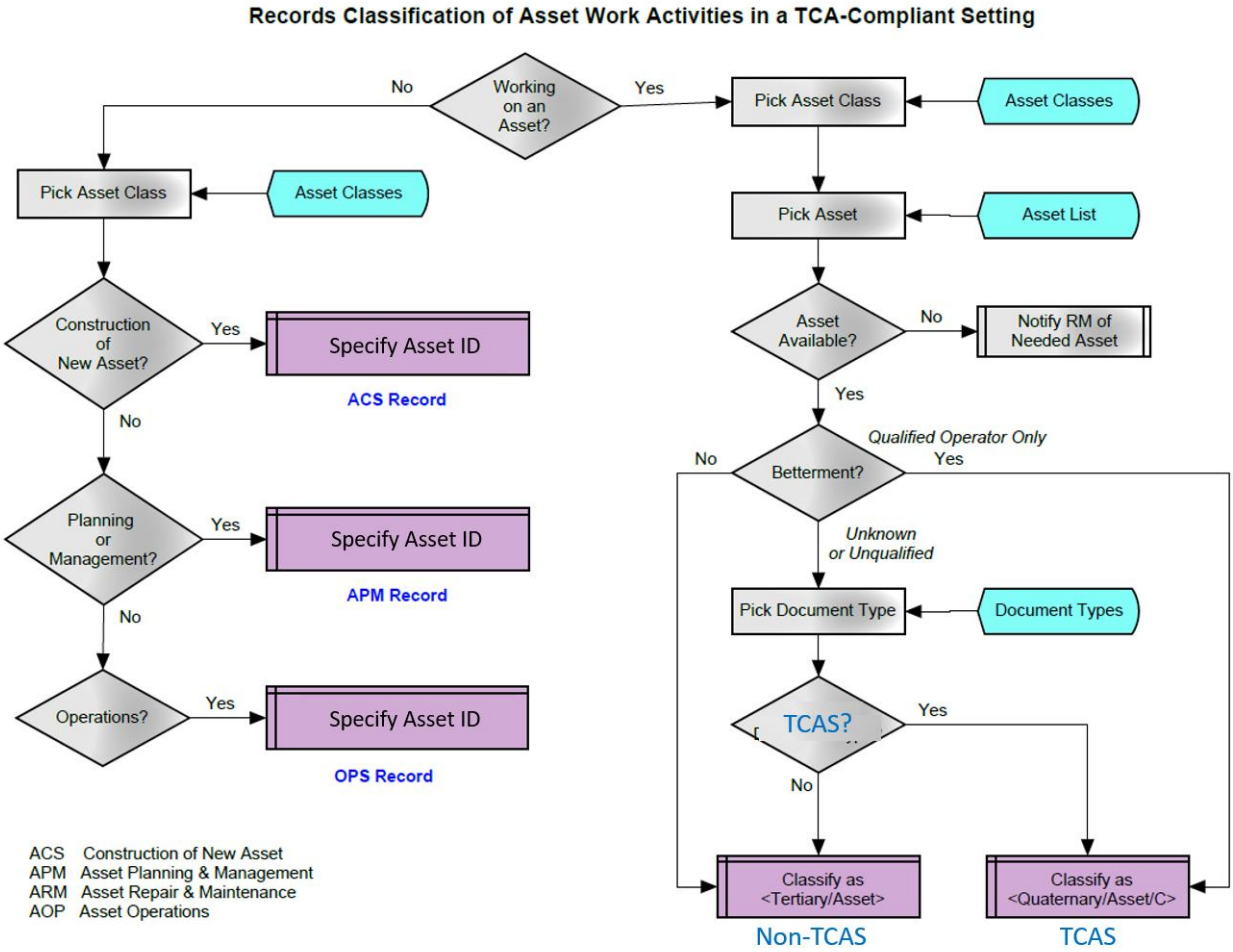
A record would follow a similar process if it were about routine operations of an asset. Suppose the document was a plan for road snow clearing. This does not affect the asset itself – it is purely an operational activity. The user would go to the ROADS section of the file plan, then select the activity "Operations". The record's classification is "Roads - Operations". Roads is the primary level, Operations is the secondary level. The retention period will be (typically) X years.

- end –

APPENDIX 1

TCA USAGE

-



APPENDIX 2

ASSET INVENTORY SHEET

Initial Inventory Sheet
(Local Government)

Department: _____ Page # _____

Location: _____ Custodian _____

Prop. ID#	Description	Serial #	Manufacturer	Year	Condition	Cost*	Useful Life	Remarks

APPENDIX 3

PROPERTY RECORD CARD

REAL PROPERTY RECORD CARD

Description: _____ Identification No.: _____

_____ Date Prepared: ___/___/___

Location:

Remarks:

Tax Map #:

Original Cost:		**Source of Funds:**	
Acquisition (Construction)	$ _____	Current Appropriations	$ _____
Legal	_____	Bonds	_____
Engineering	_____	Notes (Specify Type)	_____
Other (Specify):	_____	State Aid	_____
_____	_____	Federal Aid	_____
_____	_____	Gift	_____
_____	_____	Other (Specify)	_____
Total	$ ═══	Total	$ ═══

Current Value:		**Disposition:**
Original Cost (Total)	$ _____	Sold To _____
Additions: (Specify)		
_____		
_____	_____	Transferred To _____
Sub-Total	$ _____	
Deductions: (Specify)		Other _____
_____		
Total	$ _____	
Insured Value	$ _____	Policy #: _____

ABOUT THE AUTHOR

Bruce Miller, MBA, IGP is a world leading expert on electronic recordkeeping. He is an independent consultant, an author, and an educator. Widely regarded as the inventor of modern electronic recordkeeping software, he pioneered the world's first commercial electronic recordkeeping software in 1989. In 1997 he achieved the world's first e-Records software certification against the US DoD 5015.2-STD standard, and has since presided over several successful software certifications. In 1999 he developed the world's first e-Records software engine for business software. That year he received ARMA Canada's National Capital Region's **Ted Ferrier Award of Excellence** for his contribution to the field of records management. Bruce's software was the first technology in the world to be certified against the revised 5015.2 June 2002 standard. In 2002 his company was acquired by IBM, where he served for three years as IBM's global e-Records Strategy and Business Development Executive. At IBM he was honoured as a ***Technical Leader***, one of only 439 out of 360,000 IBM employees. Mr. Miller is the recipient of the prestigious 2003 **Emmett Leahy Award**, considered the highest international recognition given to professionals in the field of information and records management. His book "*Managing Records in Microsoft SharePoint 2010*" was an ARMA best seller, and the second edition was released in October 2015. Bruce holds a Diploma in Electronics Engineering Technology, a Masters in Business Administration from Queen's University, and is a certified Information Governance Professional. Learn more about Bruce and his consulting practice at https://www.rimtechconsulting.com.