



Alberta Association of Recreation Facility Personnel (AARFP)

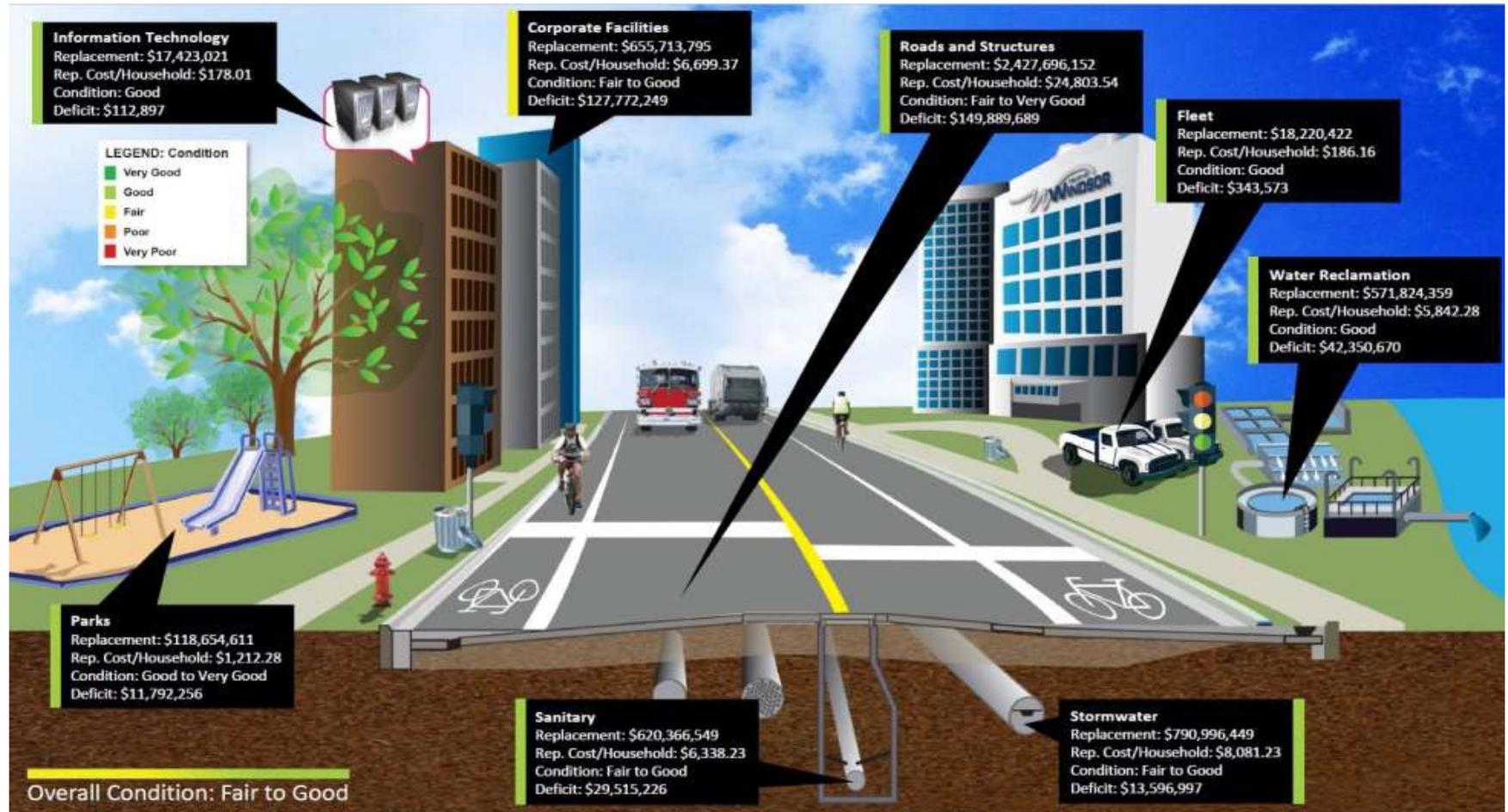
Asset Management 101





Learning Objectives

1. Managing Assets and Asset Management
2. What is a Preventative Maintenance Program?
3. What does lifecycle planning really mean?
4. Where are you at with your program?





An asset management plan

Defines how a group of assets is to be managed over a period of time. The asset management plan describes the characteristics and condition of infrastructure assets, the levels of service expected from them, planned actions to ensure the assets are providing the expected level of service, and financing strategies to implement the planned actions.



An “asset” is an item, thing or entity that has potential or actual value to an organization

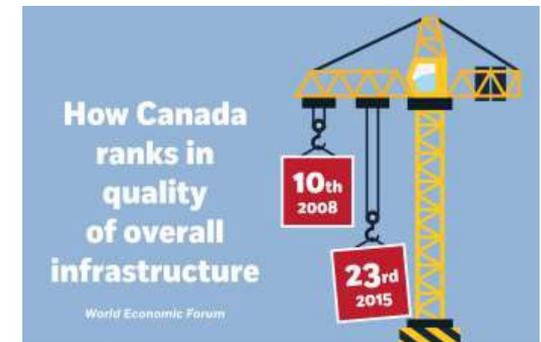
Source: ISO 55000



- Lots of things are assets to your organization
 - People, processes, knowledge, etc.
- Today we are focusing on Infrastructure Asset Management
 - Physical infrastructure assets that we own / are responsible for
 - Vertical assets are typically referred to as single location assets like buildings, bridges, treatment plants, etc.
 - Mobile equipment such as ice resurfacers
 - And Natural Assets parks, wetlands, creeks/rivers/lakes, soil, fields, rain gardens...

Infrastructure History

- Building for Confederation in the 1800s
- Industrialization and Urbanization in the 1900s
 - Public works responding to new industry drive and booming cities
 - Start electrification, reliable water, waste management, transit etc.
- Modern infra 'Golden Age' after WWII, 1950s-60s
 - Population increase with Baby Boomers
 - 1949 Trans-Canada Highway Act, Rogers Pass opened in 1962
- General decline in infrastructure investment in 70-80s
 - Funding slowed, led to lots of deferred maintenance
 - Increase in average core infrastructure age
- And what about recent years...?
 - Infrastructure deployed vs GDP\$ is low compared to other nation
 - Feds pushing to significantly invest, but govt structure is challenging
 - Lack of AM practices is slowing the spending acceleration



Canadian Infrastructure Report Card

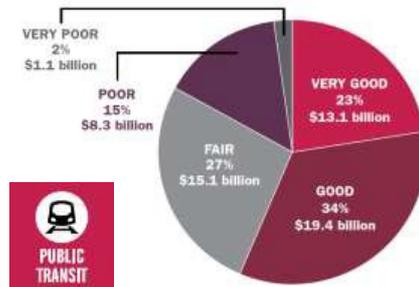


Figure 4: Target Reinvestment Rates vs Current Reinvestment Rate

Infrastructure	Lower Target Reinvestment Rate	Upper Target Reinvestment Rate	Current Reinvestment Rate
Potable Water (linear)	1.0%	1.5%	0.9%
Potable Water (non-linear)	1.7%	2.5%	1.1%
Wastewater (linear)	1.0%	1.3%	0.7%
Wastewater (non-linear)	1.7%	2.5%	1.4%
Stormwater (linear)	1.0%	1.3%	0.3%
Stormwater (non-linear)	1.7%	2.0%	1.3%
Roads and Sidewalks	2.0%	3.0%	1.1%
Bridges	1.0%	1.5%	0.8%
Buildings	1.7%	2.5%	1.7%
Sport and Recreation	1.7%	2.5%	1.3%

- Total value of core muni assets ~\$1.1 trillion, \$80k per household
- **~35% of municipal infrastructure across Canada needs attention**
- **Increasing reinvestment rates will stop the deterioration of municipal infrastructure, and save money in long term**
- Investing in preventive maintenance and regular repair will prolong the asset service life, avoiding premature and costly reconstruction and service disruption.
- **All communities, particularly smaller municipalities, would benefit from increased asset management capacity.**

Source: Canadian Infrastructure Report Card, 2016



In Alberta

- 79% of all municipalities have an indoor arena
- 84% of all municipalities have a pool
- 93.7 % of all municipalities have a multipurpose facility
- 84% of all municipalities have a arts or cultural facility
- Both rural and urban centres are included

Culture, recreation and sports facilities include the following:

- **Ice arenas facilities** include indoor ice arenas (single pad; two–three pads; four pads; five pads or more) and outdoor ice arenas.
- **Pool facilities** include indoor pools (25 metres; 50 metres or longer and leisure pools); outdoor pools; wading pools and splash pads.
- **Multiple-purpose facilities** include a combination of various facility components such as a pool, arena, fitness centre, meeting rooms, seniors' centre, gallery, museum, training space and presentation space.
- **Art and culture facilities** include galleries; libraries; museums and archives; and presentation and performance spaces.
- **Other facilities** include skate parks (indoor/outdoor); indoor curling rinks; stadiums (indoor/outdoor); tennis courts (indoor/outdoor); sports field (indoor/outdoor) and ski hills.



In Canada

Approximately half of the pools of each type were constructed from 1970 to 1999.

From 1940 to 1969, 40.6% of wading pools and 31.0% of outdoor pools were built, while 54.1% of leisure pools and 49.8% of indoor pools 50 metres or longer were built since 2000.



In Canada

Just over 25% of all culture, recreation and sports facilities owners have an asset management plan

Just over one-quarter (25.1%) of the public organizations owning culture, recreation and sports facilities had an asset management plan in 2016. Almost two-fifths (38.8%) of those without a plan in 2016 anticipated implementing one within four years.

Stats Canada - Canada's Core Public Infrastructure Survey

“Managing Assets” vs “Asset Management”

- Managing Assets (things you do to assets) can be done with or without strategy and org context
- Asset Management has a broader focus than Managing Assets, encompassing many organizational levels and applying to all functions or departments.

Managing assets focuses on...	Asset Management focuses on...
<ul style="list-style-type: none"> • Lifecycle activities and asset care - availability, reliability, dependability and safety • Asset location, condition, life extension and/or interventions • Asset databases, systems (and IT) and performance • People, skills and work management • Budgets and key performance indicators (KPIs) / cost of maintenance and current performance 	<ul style="list-style-type: none"> • The purpose of your organization and what assets does it need – and why • Value, purpose and long term outcomes • Risk and context e.g. markets / climate / regulation • Holistic approach to different funding streams e.g. capital and operating? • Collaborative behaviors - breaking down silos both internal and supply chain? • How assets contribute to organizational value

Asset Management is about MUCH more than ‘managing assets’



Free to any RFP member

- Recreation Facilities Asset Management (RFAM) Software Program Provided Free as Benefit of RFP Membership

<http://www.marmak.ca/>

Federal Infrastructure Investment

INVESTING IN CANADA \$180 + BILLION INFRASTRUCTURE PLAN OVER 12 YEARS



Federal Gas Tax Fund



Do you have a list of 'shovel ready' projects?

Asset Management must connect different departments



Benefits of AM to your organization

- Clearer alignment across organization with strategic goals
- Find the optimum balance for your organization
 - Service
 - Risk
 - Cost
- Budgets and rates are set for a sustainable future
- Departments work together more effectively
- Information and data on hand to support decision making and a list of ‘shovel ready’ projects



“We can react quickly to infrastructure grants that become available as we have the right information to hand.”

Jeffrey Morrison, Director of Corporate Services,
Town of Essex, Ont. Pop. 20k.

Benefits of Asset Management

“The goal was to bring together the best available information and report to council so that we could begin making more informed decisions on infrastructure replacement. Through the process we learned a lot about gaps in our existing asset data and processes. **The report cards provided the justification we needed for infrastructure investment that was lacking before.**”

— Joel Shaw, Infrastructure Planning Manager,
City of Kelowna, B.C. Pop. 125k



“Discussions at budget time have focused more on maintaining our existing assets in a state of good repair than ever before. **There has been an increased awareness on the need to maintain existing assets and the realization that this comes at a cost.**”

— Patrick Brisson, AM Program Manager
City of Ottawa, Ont. Pop. 950k



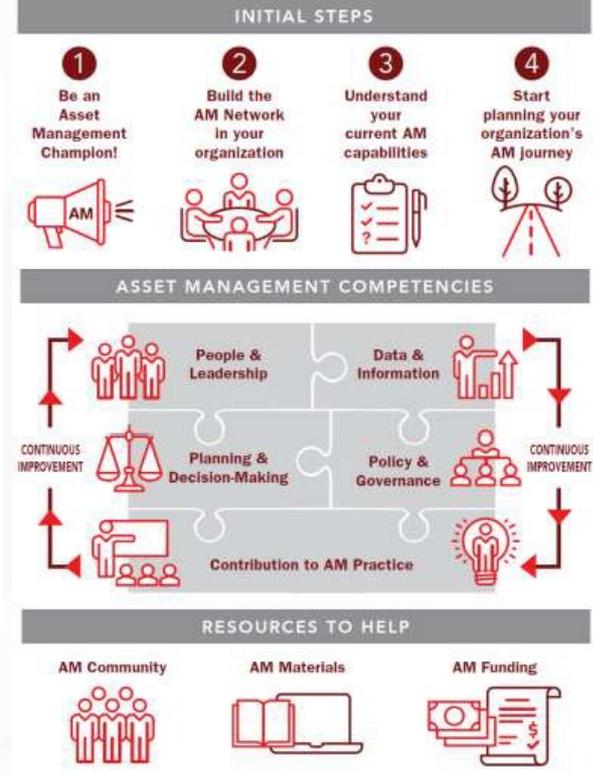
You may face some challenges on your AM journey...

- You likely don't have dedicated **staff** to focus on asset management efforts;
- You don't have all the **data or information** you need to move forward;
- You have more infrastructure deficit than you can **financially resolve**;
- You have **demands from citizens** which are not always aligned with your recommendations;
- You have **elected officials** with four-year terms such that visions may change with a significant election.



Guide to formalizing AM *in your organization*

Guide to formalizing asset management in your organization



How to formalize your AM Plan

Guide to formalizing asset management in your organization

INITIAL STEPS

1

**Be an
Asset
Management
Champion!**



2

**Build the
AM Network
in your
organization**



3

**Understand
your
current AM
capabilities**



4

**Start
planning your
organization's
AM journey**





Initial Steps to formalizing Asset Management in your organization

1

Be an
Asset
Management
Champion!



- It has to start somewhere!
- Someone / a group needs to get AM moving



2

Build the
AM Network
in your
organization



- AM must be cross-department, break silos
- Start getting those people in a room together!

AM Assessment

3

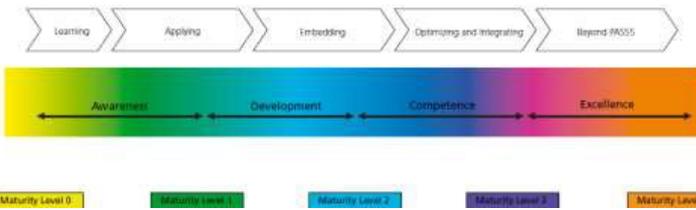
Understand your current AM capabilities



- Understand your organization's current level of AM
- You might already be doing more than you think

FCM AM Readiness Self-Assessment					
Competency POLICY AND GOVERNANCE					
	1	2	3	4	5
Business Unit	1.1	1.2	1.3	1.4	1.5
Business Unit	2.1	2.2	2.3	2.4	2.5
Business Unit	3.1	3.2	3.3	3.4	3.5
Business Unit	4.1	4.2	4.3	4.4	4.5
Business Unit	5.1	5.2	5.3	5.4	5.5

FCM AM Readiness Self Assessment

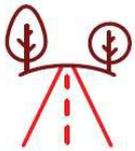


- Many AM Consultant's have their own more advanced assessments
- Additional value in an unbiased 3rd party perspective

AM Roadmap / Implementation Plan

4

Start planning your organization's AM journey



- This doesn't happen overnight...sorry
- Develop a 3-5 year AM Roadmap for your journey



“It can be overwhelming to look at the asset management system as a whole, pick small projects and initiatives that will support you getting where you want to go. Pick areas where people are already working to help with some easy wins to get the ball rolling.”

Scott Quinn, Engineering and Public Works Manager
County of Kings, N.S. Pop. 60k

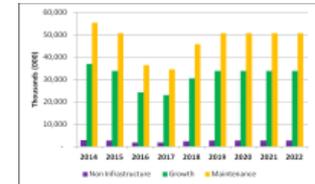
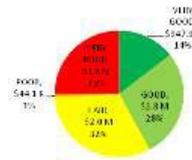


Level of Resource needed?

	IN-HOUSE OPTION	ADDITIONAL RESOURCES OPTION
PROS	<ul style="list-style-type: none"> ● Home-grown approach; build in-house capacity and expertise ● Low costs incurred in starting to get things moving ● Utilizes the internal knowledge of existing staff 	<ul style="list-style-type: none"> ● Additional resources can focus on AM outcomes and serve as the champion to bring existing staff together from across departments ● Municipalities can utilize external expertise with robust asset management experience ● Objective assessment of current practice; experience from other municipalities
CONS	<ul style="list-style-type: none"> ● Not sustainable for most small communities ● You might have to decide what doesn't get done as a result of taking this on. ● Staff turnover would result in lost knowledge of AM process 	<ul style="list-style-type: none"> ● Municipalities have limited capacity to hire additional resources (grant funding can help) ● Unless the additional resources can help build a sustainable long-term approach to asset management capacity building, if those resources are ever removed, the municipality might not have the ability to continue the work

Understanding your Assets

- It's very important to understand the basics of your asset base



- Operations and Maintenance
 - Do you have adequate budgets in places?
- Life Cycle Planning
 - Are you forecasting future major maintenance costs?

Do you know understand the basics of your asset base?



Don't forget...it's more than Capital \$

Town of Here Splash Pad Financial Analysis	
Capital Costs including equipment, installation, hook-up to water and sewer	\$300,000
Annual Operating Costs: Loan	\$36,000
Payments	<u>\$50,000</u>
Maintenance, Water, etc	<u>\$86,000</u>
Total Annual Operating Costs...every year	

Other situations to watch out for?

Developer contributed infrastructure...

But is it really 'free'?

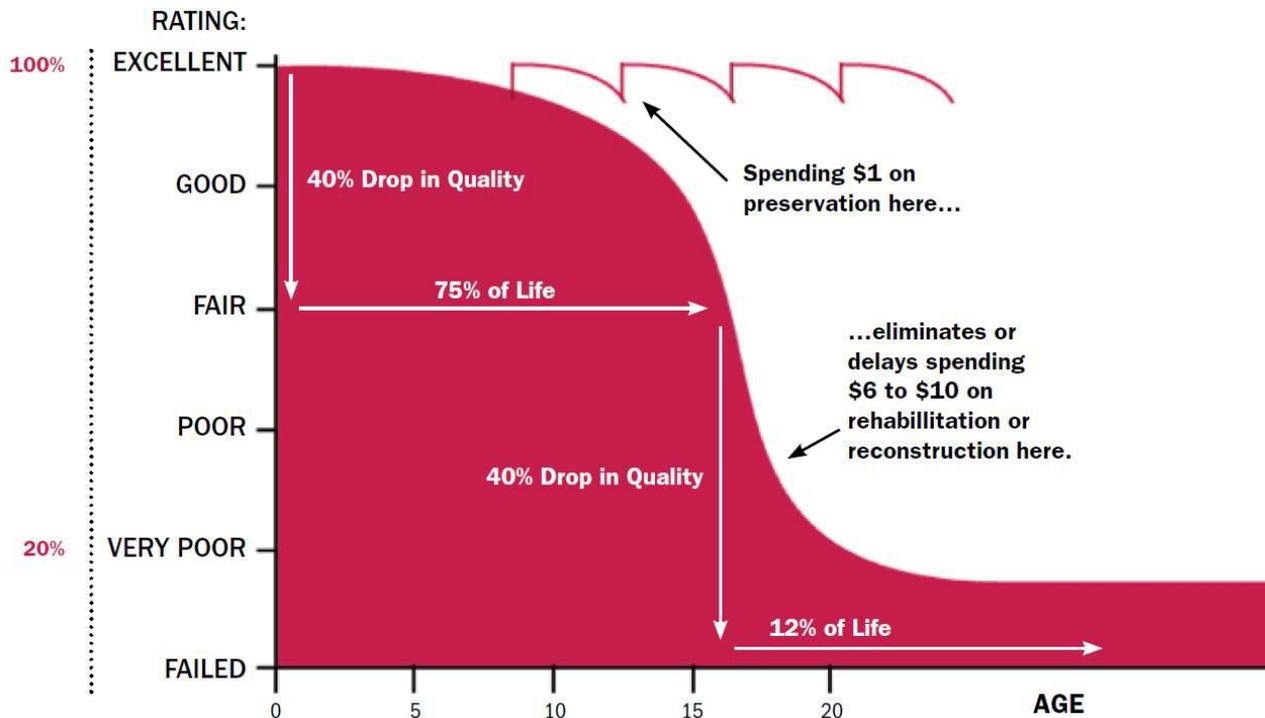
Donors and Gifts

'The Sam Smith Centre'

Capital costs can be as little as 20% of the full life cycle costs

Look after and maintain your assets! It'll save you money

Figure 6: Example of asset deterioration curve (Roads)



Source: Canadian Infrastructure Report Card, 2016



This is real...

“For the first time ever, the City has been able to consolidate, analyze and evaluate our asset data consistently across all Departments, through the development of our Asset Management Plans.

Asset management has facilitated new, collaborative and objective approaches to making investment decisions regarding the City’s top priority needs.

Armed with the current status of our assets and the financial requirements needed over the next ten years, the City has positioned itself to focus on areas having the greatest risk of not meeting desired levels of service.”



Georges Chartier, Chief Asset and Project Management Office, City of Winnipeg, MB



Balanced Investment Plans

- You can't just cut ribbons...sorry!



Long Term Planning

- Longer Term Financial Planning
 - Collect and forecast life cycle activities for your assets
 - You need to be able to see ‘what is coming’ in the future, 10+ yrs
 - Set appropriate rates for your community to be financially sustainable

Dreaming of multi-year budgets? AM will give you much of the data you need for longer term financial planning and rate setting



Risk Management

Risk Management - The City will have a good understanding of its **corporate, asset, and operational risks** in order to be confident that it is appropriately investing in any risk mitigation activities needed to manage service levels. See City Risk Policy.

Risk-based Investment Decisions – risk associated with target levels of service is managed by ensuring that resources, expenditures and priorities are allocated based on risk and associated cost/benefit and risk tolerance.

City of Winsor, AM Policy 2017 Extract

Risk = Likelihood x Consequence

- Need a structured approach to assess and score risks in a quantifiable way
- Develop a standardised approach that aligns across the organization

		Consequence				
		1 Insignificant	2 Minor	3 Moderate	4 Major	5 Severe
Probability	5 Almost Certain					
	4 Likely					
	3 Possible					
	2 Unlikely					
	1 Rare					

Probability

1- Rare	2- Unlikely	3- Possible	4- Likely	5- Almost Certain
May only occur in certain conditions	Could occur some time	Might occur at some time	Will probably occur in most circumstances	Almost certain to occur
1 in 300 year	10 % chance	40%-60%	60-90%	



Consequence

	Insignificant	Minor	Moderate	Major	Severe
Health & Safety	No treatment required	Minor injury or illness requiring treatment	Serious injury or illness	Permanent disability or widespread illness	Death
Legal Liability	< \$25,000	\$25,000 - \$250,000	\$250k - \$500k	\$500k-3M	> \$3M
Physical Asset Replacement	<\$25,000	\$25,000 - \$250,000	\$250k - \$500k	\$500k-3M	> \$3M
Environment	Negligible event no clean up required	Non permanent damage little clean up	Major Event some permanent damage moderate clean up required	Major Event permanent damage extensive clean up	Severe Event permanent damage significant clean up

Risk Types

External	Strategic	Operational	Organizational	Financial / Legal
Legislative/ Regulatory	Governance	Service Failure	Inter- departmental Coordination	Compliance
Funding	Planning and Resources	Substandard Service Delivery	Organizational Culture	Litigation
Terrorism / Vandalism	Conflicting priorities/ demands	Technology Fails	Employee Turnover	Financial Resources
Natural Disaster		Infrastructure	Health/Safety Incident	
Technology Changes		Third Party Performance	Human Resource Capacity	



Facility Life Cycle Planning

Is a management and systematic approach to forecasting design, maintenance, renovation and replacement requirements for major components.



The Aging Building Audit

Average Life Expectancy- (examples)

25 Years

20 Years

15 Years

Tile flooring

Filter pump

Lockers

Fire alarm system

Hot water tank

Toilet partitions

Boiler

Air handling unit

Diving boards

Filter tank controls

Pool tiling

Heat exchangers



The Asset Life Cycle

An asset proceeds through a number of phases during its life cycle.

- Purchase,
- Operation and maintenance,
- Refurbishment or enhancement and,
- Finally, disposal.



Aging Factors

- *Design*
- *Materials*
- *Construction*
- *Climate*
- *Use*
- *Maintenance*



5 Stages of Building Life Cycle

1. Pre Natal:

- The stage prior to and including construction.
- No maintenance, conservation or capital improvement funds required.
- The opportunity exists at this stage to minimize future costs.



5 Stages of Building Life Cycle

2. Childhood:

- The period from 1 to 14 years.
- Annual maintenance and operational budgets are usually still sufficient.
- False sense of security during this period as there is no capital conservation or capital improvement funds required during this stage.

5 Stages of Building Life Cycle

3. Adolescence:

- The period from 15 to 24 years, when in addition to annual maintenance, special attention is required for conservation and capital improvements.
- This is the period when architectural and mechanical components need major refurbishing or replacement.
- During this period, community's needs have most likely outgrown the facility and capital costs are required to suit their needs.
- These capital conservation/improvements may result in a 5 fold increase in annual expenditures.



5 Stages of Building Life Cycle

4. Adulthood:

- This stage begins at about age 25 and run to 34 but will vary in duration depending on a number of factors:
 - * Design.
 - * Maintenance practices.
 - * Quality of materials.
 - * Construction.
 - * Demographics of the community.



5 Stages of Building Life Cycle

5. Old Age:

- The period of decline, ages 35 and over when it is known the building is no longer cost efficient to operate, or its' function can no longer serve the community need.
- Age that this happens is generally determined at a point when the combined capital conservation or improvement costs exceeds 50% of new construction.



Theoretical Lifespan

- All aspects of a facility (elements) have a theoretical lifecycle given.
- These are based on what would be considered “normal operating conditions”.
- It is a starting point for your lifecycle plan.
- These estimations can be acquired from the manufacturer, the installer, or your service provider or Google Theoretical Lifespans of Buildings & Equipment



Theoretical Lifespan

As any experienced facility operator will readily realize here is that the lifespan is dependant upon several factors:

- Type and frequency of use.
- Quality of product.
- Quality of installation.
- Is the element being used as intended.



My House in theory

- Built in 1980 has a 55 year life expectancy
 - It has 17 or so years left in it.

At the end you:

- Have approximately 50% left in the foundation
- Have approximately 40% left in the structure
- Have approximately 10% left in the staircase

- Replaced the roof cover at least once
 - ✓ Replaced 2
- Replaced the gutters and downspouts at least once
 - Still original
- Ready to replace the windows at any time
 - ✓ Done once
- Replaced the doors at least once
 - ✓ Some have been replaced due to age and one due to damages (RCMP and Fire Dept)
- Replaced carpet and pad at least three times
 - ✓ Just completed this one
 - ✓ Rest was done a few years ago into slate flooring
- Replaced the ceiling finishes at least once
 - ✓ Also just completed this one



- ✓ Replaced the cabinetry at least once
- ✓ Ready to replace sewer systems at any time
- ✓ Replace plumbing fixtures at least once
- ✓ Replaced hot water tank at least four times
- ✓ Replaced the heating plant at least twice
- ✓ Replaced light fixtures at least twice
- ✓ Replaced fencing at least twice
- ✓ Replace driveways at least once



Discussion & Questions

- How is your Asset Management system?
- What have been your challenges?

- Questions?



Links to resources

- Asset Management Alberta

<http://assetmanagementab.ca/>

- Canadian Network of Asset Managers

<http://cnam.ca/>

- AB Assoc. of Recreation Facility Personnel

<http://www.aarfp.com/>