



# Risk:

## How Asset Management Can Help



This initiative is offered through the Municipal Asset Management Program, which is delivered by the Federation of Canadian Municipalities and funded by the Government of Canada.

[fcm.ca/assetmanagementprogram](http://fcm.ca/assetmanagementprogram)



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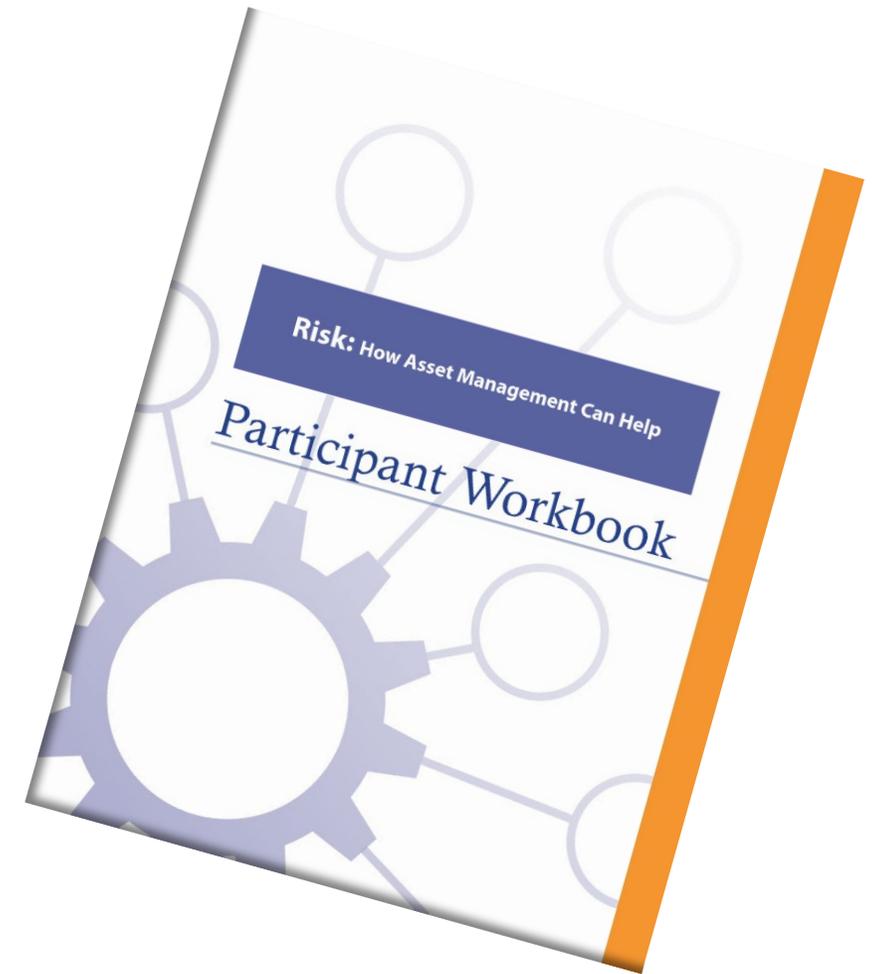
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# Welcome!

## Why we're here:

- To develop a basic understanding of asset management and risk



# FCM's Municipal Asset Management Program

- Funding for asset management activities
  - Assessments
  - Plans, policies, and strategies
  - Data collection and reporting
  - Training and organizational development
  - Knowledge Transfer
- Funds up to 80% of eligible costs to a maximum of \$50,000



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# Your Facilitators



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# Introductions



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# Using the Workbook



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# Schedule

<i>Time</i>	<i>Topic</i>
	<b>Introductory Remarks</b> <ul style="list-style-type: none"><li>➤ Asset Management Refresh</li><li>➤ Define Risk</li><li>➤ Identify Municipal Risks to Service Delivery</li><li>➤ Describe the Basic Process for Risk Management</li></ul>
	<b>Refreshment Break</b> <ul style="list-style-type: none"><li>➤ Describe How Asset Management Supports Risk Management</li><li>➤ Identify Asset Management Tools that Support Risk Management</li><li>➤ Describe Council's Role in the Risk Management Process</li></ul>
	<b>Concluding Remarks</b>



# What Does Asset Management Mean to You?



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# What is Asset Management?

“The process of **making decisions** about the use and care of infrastructure to **deliver services** in a way that considers current and future needs, manages risks and opportunities and makes the best use of resources”

*Source: Building Community Resilience Through Asset Management: A Handbook & Toolkit for Alberta Municipalities*



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# Asset Management

- It is not just for large communities - all municipalities make decisions about their services and assets.
- The systems and processes don't need to be extensively detailed or expensive.
- You can start where you are, building on existing processes.
- Asset management is about updating those processes to ensure they are systematic, documented, consider the right kind of information and take a long-term perspective.



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## Did You Know?



- Asset management includes not only engineered assets but also natural assets, including aquifers, riparian areas, and wetlands.
- Asset management processes can be applied to these natural assets in support of sustainable service delivery.



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# Some Vocabulary...



**Assets** | Also known as a tangible capital asset, a physical component of a system that enables a service, or services, to be provided.

**Asset management system** | A set of processes and procedures that support asset management. Components may include a plan, policy, and/or strategy.

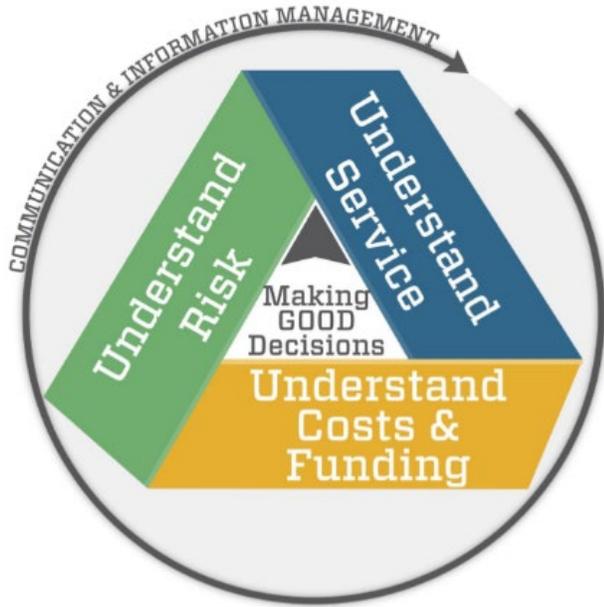
**Sustainable service delivery** | Process of ensuring that municipal services are delivered in a socially, economically, and environmentally responsible way.



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# Asset Management and Decision Making



- Municipal councils make decisions and set direction.
- Decisions require trade-offs between service, risk, and cost.
- Council must incorporate an asset management lens and understand these trade-offs to support decision-making.

Source: Alberta Handbook and Toolkit



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# Service, Risk, and Cost Considerations

Service	Risk	Cost
<ul style="list-style-type: none"> <li>• Types of services</li> <li>• Who benefits or doesn't benefit from a particular service</li> <li>• The current and desired level of service</li> <li>• Regulatory requirements</li> <li>• Service demands</li> </ul>	<ul style="list-style-type: none"> <li>• Events that would have an undesirable impact on services</li> <li>• <b><u>Asset risk</u></b> describes the risk of an asset failing to perform the way you need it to deliver a service</li> <li>• <b><u>Strategic risk</u></b> describes a change that would affect your ability to achieve municipal objective</li> <li>• Risk management strategies</li> </ul>	<ul style="list-style-type: none"> <li>• Replacement and capital costs</li> <li>• Operating and maintenance costs</li> <li>• Revenue sources</li> <li>• Partnerships</li> </ul>



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# Trade-Offs

Asset management helps you make trade-offs by putting decisions within a larger context and focusing on:

- The purpose of your organization and how assets support community goals
- Value, purpose, and long-term outcomes of assets
- Risk and context
- Holistic approaches to budgeting
- Collaboration



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## Some Vocabulary...



**Risk** | The relationship between the likelihood of an event happening and the consequences of that event.

**Asset risk** | The risk of an asset failing to perform the way you need it to.

**Strategic Risk** | The risk of change occurring that impedes your ability to achieve your overarching strategic goals.

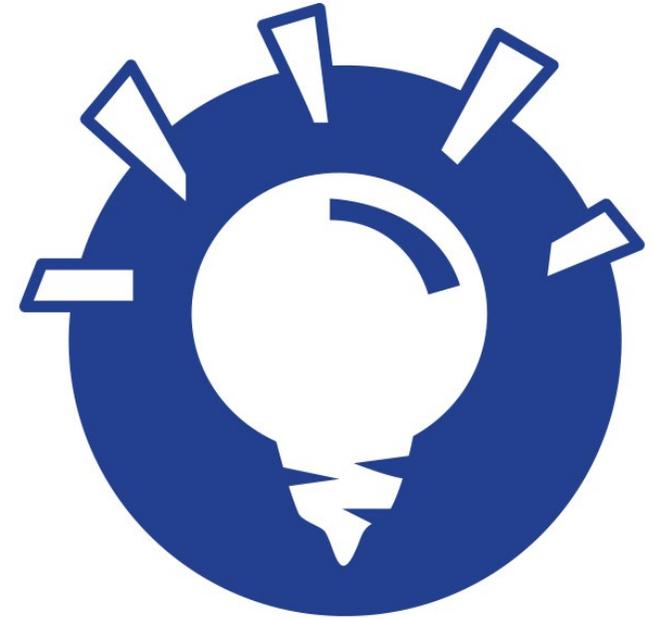


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# Activity

See page 6 in Workbook



Module 1

# Identify Risks in a Municipality



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# Did You Know?



- 60% of Canada's core public infrastructure is owned and maintained by municipal governments
- One-third of municipal infrastructure is in fair, poor, or very poor condition.
- Asset management and risk management can help municipalities further understand risks by assessing the consequences.



# What is Risk?

$$\text{RISK} = \text{IMPACT} \times \text{LIKELIHOOD}$$

(how severe will  
the negative  
consequences be?)

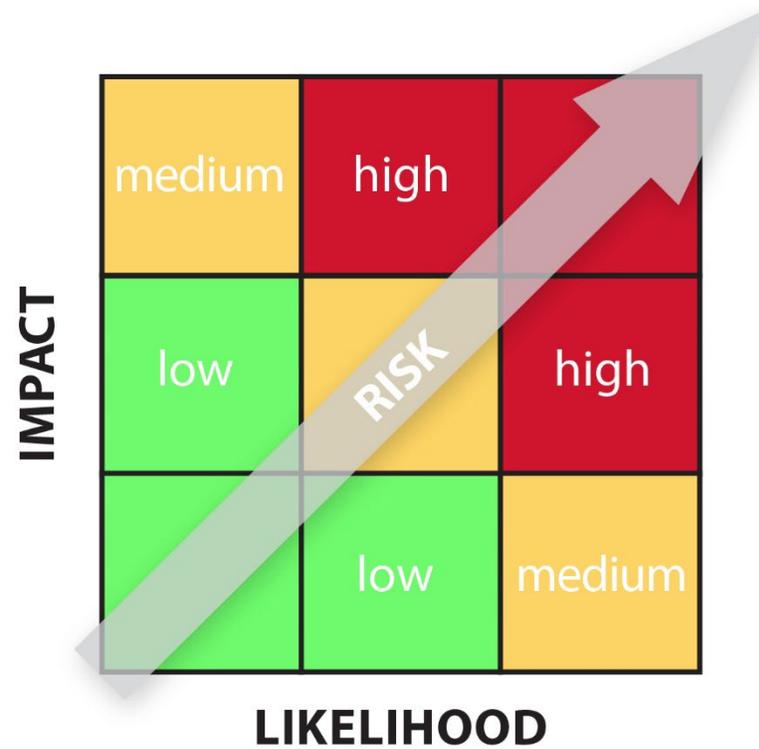
(how probable is it that these  
negative consequences will  
happen?)



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# What is Risk?



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# Types of Risk

	What it Means	Examples
<b>Strategic Risk</b>	Risk of an event occurring that impacts your ability to achieve your organizational goals.	<ul style="list-style-type: none"> <li>• Hot, dry conditions put pressure on your ability to meet your water service demands.</li> <li>• A change in provincial or federal grant programs that reduces available grant funding to your municipality.</li> </ul>
<b>Asset Risk</b>	Risk of an asset failing to perform the way you need it to.	<ul style="list-style-type: none"> <li>• A pipe bursts and interrupts the delivery of water to residents.</li> <li>• The furnace in the library breaks down in the winter, leading to the cancellation of programs for children.</li> </ul>



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# Risk Tolerance

- Not all risks can be eliminated
- Some risks can only be mitigated
- Risk tolerance means the capacity to accept a level of risk, dependent on the likelihood and severity of consequences, and the existence of other priorities that require more immediate investment.

**What is an example of a risk you might choose to tolerate?**

**What is an example of a risk you would want to mitigate?**



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# Risk Tolerance

- Every community has a different level of risk tolerance.
- Risk tolerance is informed by the magnitude of the risk but also the cost of managing or reducing the risk.

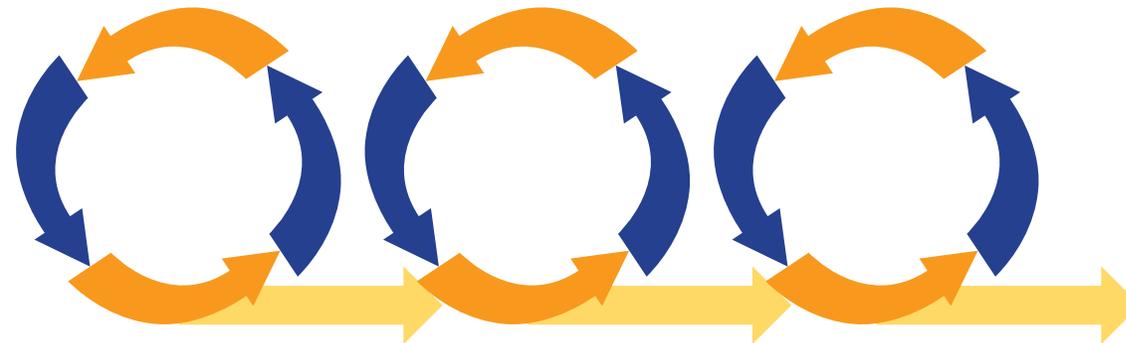


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# Risk Management

- Identifying and assessing risks
- Identifying and evaluating actions to reduce risk
- Implementing appropriate actions
- **Risk management is an iterative process**



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# Risk Management

- Staff identify risks and implements actions to reduce or manage risk.
- Council should be informed of significant asset and strategic risks and how these are managed over time.
- Council provides guidance on the level of risk that is acceptable to the municipality.

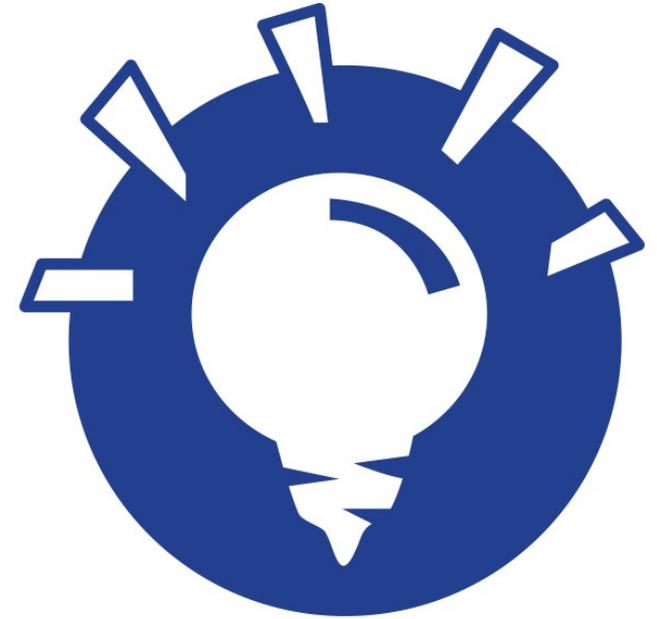


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# Activity

See page 10 in Workbook



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# Common Strategic Risks

- **Financial:** Over-reliance on grant funding, insufficient capital reserves for infrastructure renewal, etc.
- **Organizational:** Aging workforce combined with lack of succession planning, overreliance on undocumented knowledge of assets, etc.
- **Regulatory:** Changing regulations requiring infrastructure upgrades.



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# Common Strategic Risks

- **Aging Infrastructure:** Periods of rapid growth and investment in the past can lead to infrastructure reaching the end of its service life at the same time.
- **Natural Disaster and Emergencies:** Forest fires or other emergencies may destroy or compromise infrastructure.



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Infrastructure	Replacement Value of All Assets	Assets in Poor/Very Poor Condition Replacement Value	Assets in Fair Condition Replacement Value	Anticipated Condition
Potable Water	\$207 billion	\$25 billion (12%)	\$35 billion (17%)	Declining
Wastewater	\$234 billion	\$26 billion (11%)	\$56 billion (24%)	Declining
Stormwater	\$134 billion	\$10 billion (7%)	\$21 billion (16%)	Declining
Roads	\$330 billion	\$48 billion (15%)	\$75 billion (23%)	Declining
Bridges	\$50 billion	\$2 billion (4%)	\$11 billion (22%)	Declining
Buildings	\$70 billion	\$12 billion (17%)	\$20 billion (28%)	Declining
Sport & Rec Facilities	\$51 billion	\$9 billion (18%)	\$14 billion (27%)	Declining
Transit	\$57 billion	\$9 billion (16%)	\$15 billion (27%)	Unavailable
<b>TOTAL</b>	<b>\$1.1 trillion</b>	<b>\$141 billion (12%)</b>	<b>\$247 billion (22%)</b>	
Replacement value per household	\$80,000	\$10,000	\$18,000	

Source: Canadian Infrastructure Report Card, 2016.



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# Risk

Whether a strategic risk is a high or low risk depends on:

- Age of the community
- Materials and methods of construction
- Organizational structure and culture
- Decisions and actions taken in the past
- Geographic factors
- Land use factors



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# Identifying Strategic Risks

- Thinking through:
  - Community objectives
  - Events that might impair your ability to meet these objectives
  - Main systems that you rely on
  - Risks related to these systems
- Once events that pose strategic risks are identified, consequence and likelihood should be estimated to understand what the most significant risks are.



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# Identifying Asset Risks

- Asset risks unique to each community and require risk assessments.
- Risk assessment can be done by scanning asset systems to:
  - Identify how failures could happen
  - Estimate likelihood and consequence of failures



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# Council's Role

- Be aware of what the significant risks to municipal service delivery are and how they are managed.
- Be aware of the overall risk management process and how it informs decision-making during capital planning and budgeting.

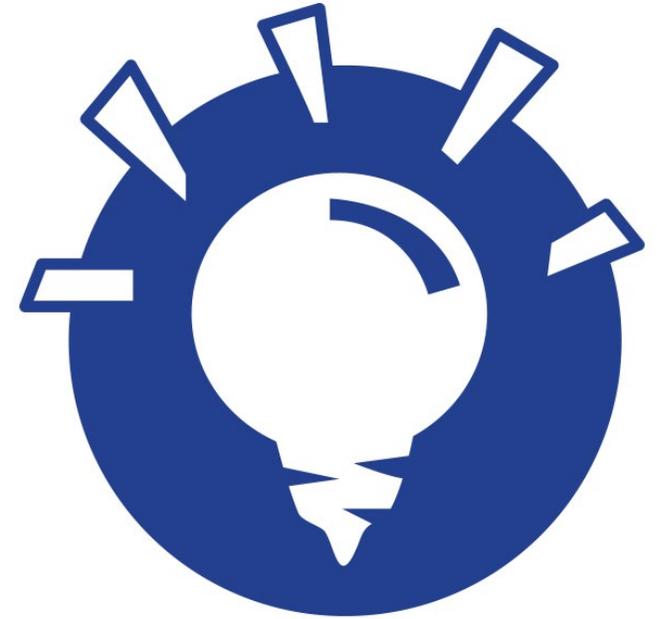


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# Activity

See page 14 in Workbook



# Risk Management Process

- Risk management is not a one-time project
- It is a process that requires revisiting and updating
  
- **Follow along on page 16 and 17.**



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# Risk Management Process

## 1. Identify risks:

- a) What are the asset risks in your community?  
Where are they?
- b) What are your strategic risks?



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# Risk Management Process

## 2. Assess risks:

- a) How severe is the impact of this event? How are we evaluating what high or low impact looks like?
- b) How likely is this event to happen?



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# Risk Management Process

## 3. Implement management strategies:

- a) What are some appropriate management strategies (this can range from tolerance to mitigation)?
- b) What is the preferred management strategy? How are we evaluating management strategies?



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# Risk Management Process

## 4. Monitor risks:

- a) Is the management strategy producing the desired result?
- b) Has the asset or strategic risk changed since we last evaluated?



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# Risk Management Process

## 5. Repeat

- a) Why would you repeat the above steps?  
What would you be looking for?



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# Risk Management Process

- An organization should have a policy that requires a risk management process.
- Staff should develop the risk management process.
- Council should be aware there is a process and be informed of the key risks and risk management progress over time.

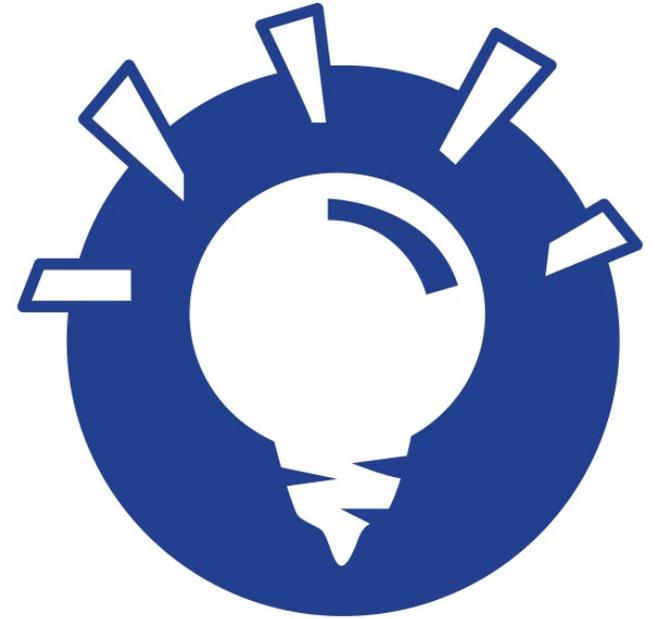


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# Activity

See page 18- 20 in Workbook



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Module 2

# Identify How Asset Management Supports Municipal Risk Management



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# Asset Management and Risk Management

- Ongoing processes
- End goal of sustainable service delivery
- Asset management is most effective when risk management is embedded



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# Connect Risk to Service Levels and Cost

- Holistic view of service delivery
- Asset management considers risk, cost and service levels
- Allows more nuanced conversations about assets and community goals



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# Know What You Have and What You Need

- Asset management helps ensure staff know:
  - What assets the municipality owns
  - Where they are
  - What condition they are in
  - What investments are needed
- Unexpected events will happen, but understanding asset information can minimize surprise costs



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# Systematic Risk Management

- Asset management is a process that requires re-evaluation and continuous improvement
- Revisiting risk assessments over time allows for:
  - Monitoring effectiveness of risk management strategies
  - Re-assessing risk in case of change



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# Maximizing Lifecycle and Minimizing Costs

- Asset management helps maximize asset lifecycles because there is a process in place to maintain and replace assets.
- Evidence shows that good maintenance practices help reduce overall costs by extending the service life of assets.

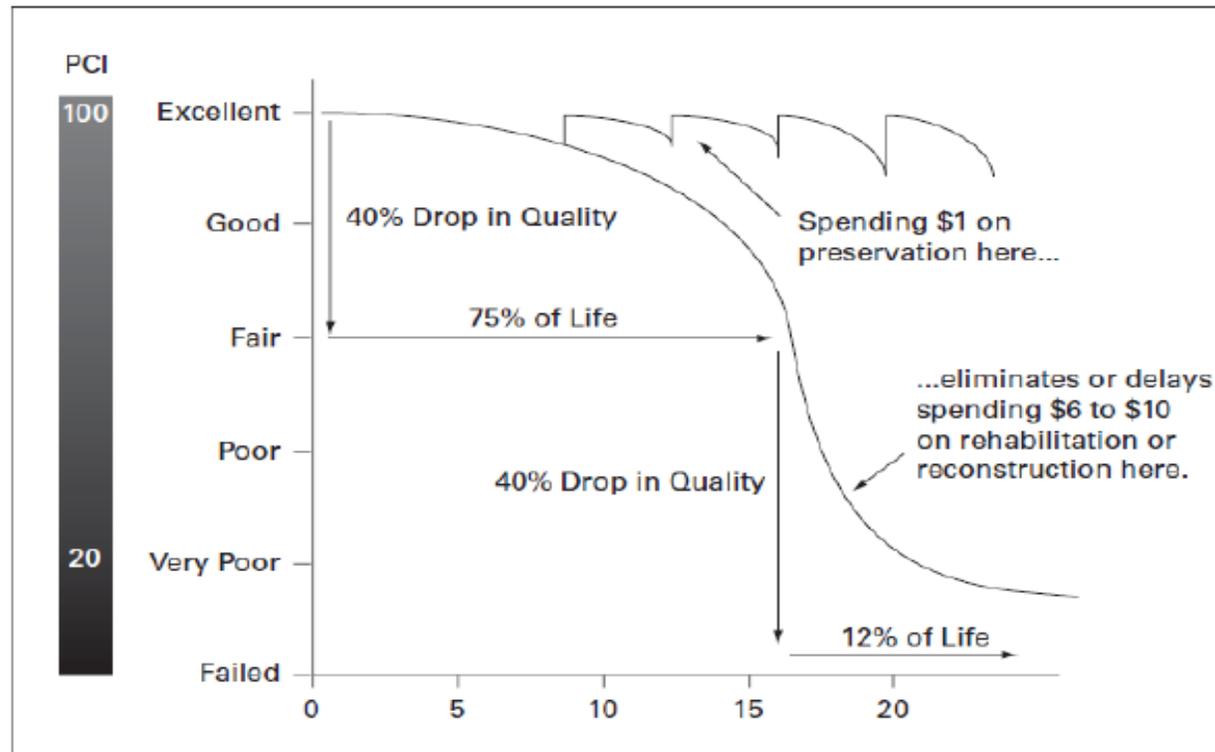


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# Maximizing Lifecycle and Minimizing Costs

Sample Pavement Depreciation Curve

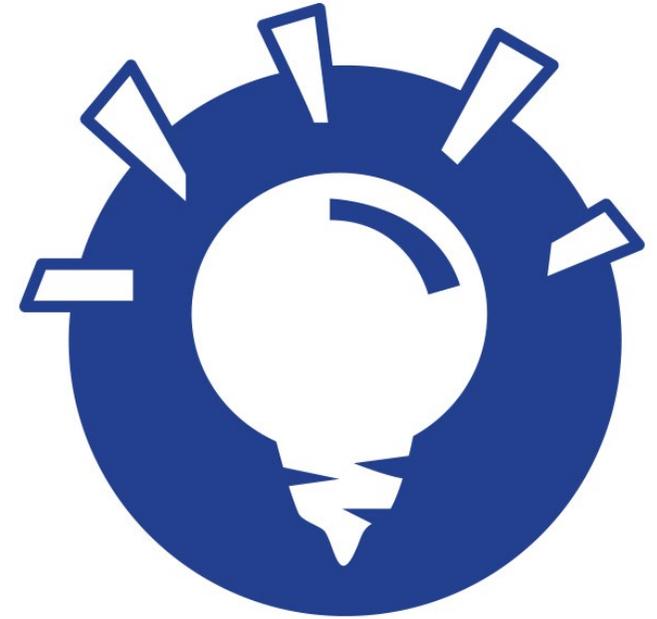


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# Activity

See page 22 in Workbook



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# Asset Management Tools



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# Asset Management Policy

- Outlines the organization's commitment and mandated requirements for asset management
- Aligns the direction of council and the activities of staff
- Sets the direction on how asset and strategic risks are integrated into asset management considerations
- May state the municipality's commitment to implementing or maintaining a risk management process



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# Asset Management Strategy

- Used primarily by staff
- Endorsed by council
- Outlines the framework and approach for implementing the asset management policy
- Includes risk considerations that set the direction for staff to implement the asset management policy
- Can outline the specific risk management process to be used for asset and strategic risks



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# Asset Management Plan

- Contains comprehensive asset information
- Outlines asset management practices and processes
- Identifies specific asset and strategic risks and management strategies
- Articulates consequences of not following the plan or implementing risk management activities
- Helps inform other processes

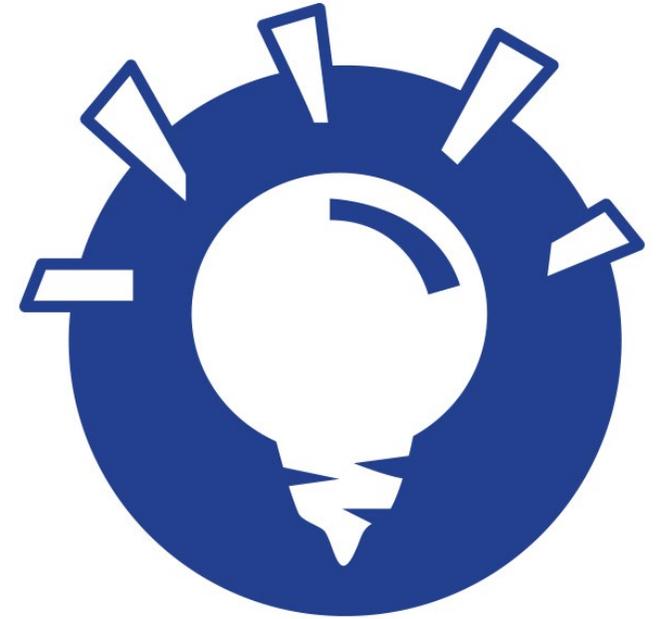


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# Activity

See page 24 in Workbook



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Module 3

# Identify Council's Role in Risk Management



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# Council's Role in Risk Management

- Set the tone for risk management
- Provides leadership that prioritizes risk management within asset management
  - Through policy
  - Through day-to-day discussions and decisions



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# Establishing Risk Tolerance

- Council makes decision on what level of strategic and asset risk is acceptable
- Staff provide information to help council determine risk tolerance
- Context-specific
- Risk tolerance should be informed by:
  - Magnitude of the risk
  - How risk will change over time without intervention
  - Cost and level of effort of managing risk



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# Risk Management

- Council provides direction to staff to initiate a risk management process for assets
- Council supports staff by making resources available for risk management, and supporting staff time on risk management and training



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# Activity

See page 27-28 in Workbook



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# You've Made It!



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# Asset Management Mindset Checklist

- Do we have the information we need to make a decision?
- Have trade-offs between cost, risk, and service been considered?
- Are we focusing on service delivery?
- What are the long-term implications?
- Have all the relevant disciplines been properly engaged in this decision (e.g., planning, engineering, public works, finance, etc.)?
- Are we thinking about both short- and long-term needs?



# Half-Day Specialized Courses

- Boring Until It's Broken: Engaging the Public in Infrastructure Asset Management
- Risk: How Asset Management Can Help
- “I want a Five-Star Experience for a Two-Star Price”: Setting and Communicating Levels of Service
- It's Got Teeth but Doesn't Bite: Developing and Implementing an Effective Asset Management Policy
- Weathering the Storm: Asset Management and Climate Change



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# Questions?



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# Evaluation Form



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