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# IMPLEMENTING EFFECTIVE ASSET MANAGEMENT

**Alaska Municipal League Conference 2023**

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# Iain Cranston

- Originally from the UK, moved to North America in 2011
- Founded icInfrastructure in 2017
  - **Passionate about training and building AM capacity**
- ISO 55000 Global Committee / TC251 Expert
- Canadian Network of Asset Managers, Board of Directors 2014-2017
  - 2017-2022: PM for CNAM's "New to AM" & Competency Framework
- Asset Management Consultant, CH2M/Jacobs 2011-2017
  - PM for How to develop an AM Policy & Strategy Handbook
- Before that...Lean & 6 Sigma, Local govt + Water, Engineering Degree



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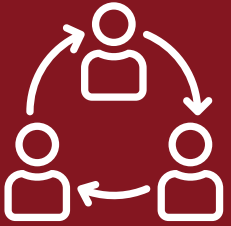


# Our Agenda

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- ◆ 'What is Asset Management' Recap
- ◆ Guide to Formalizing AM
- ◆ More Parts of the Asset Management Puzzle
- ◆ Gap Assessment and Roadmap
- ◆ Open Q&A

Copy of slides available  
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# WHAT IS ASSET MANAGEMENT?

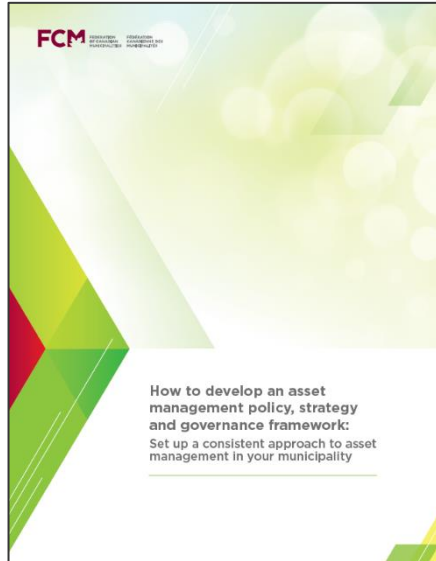
Bare Bones Recap



# So what is “Asset Management”



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Source: FCM Leadership in Asset Management Program (LAMP)

This is not something “new” – it’s better connecting what we are already doing and filling in some gaps



**“Asset Management is an integrated approach, involving all organization departments, to effectively manage existing and new assets to deliver services to customers.”**

The intent is to maximize benefits, reduce risks and provide satisfactory levels of service to the community in a sustainable manner – providing an optimum balance.

Good asset management practices are fundamental to achieving sustainable communities.”





# What is an “asset”?



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

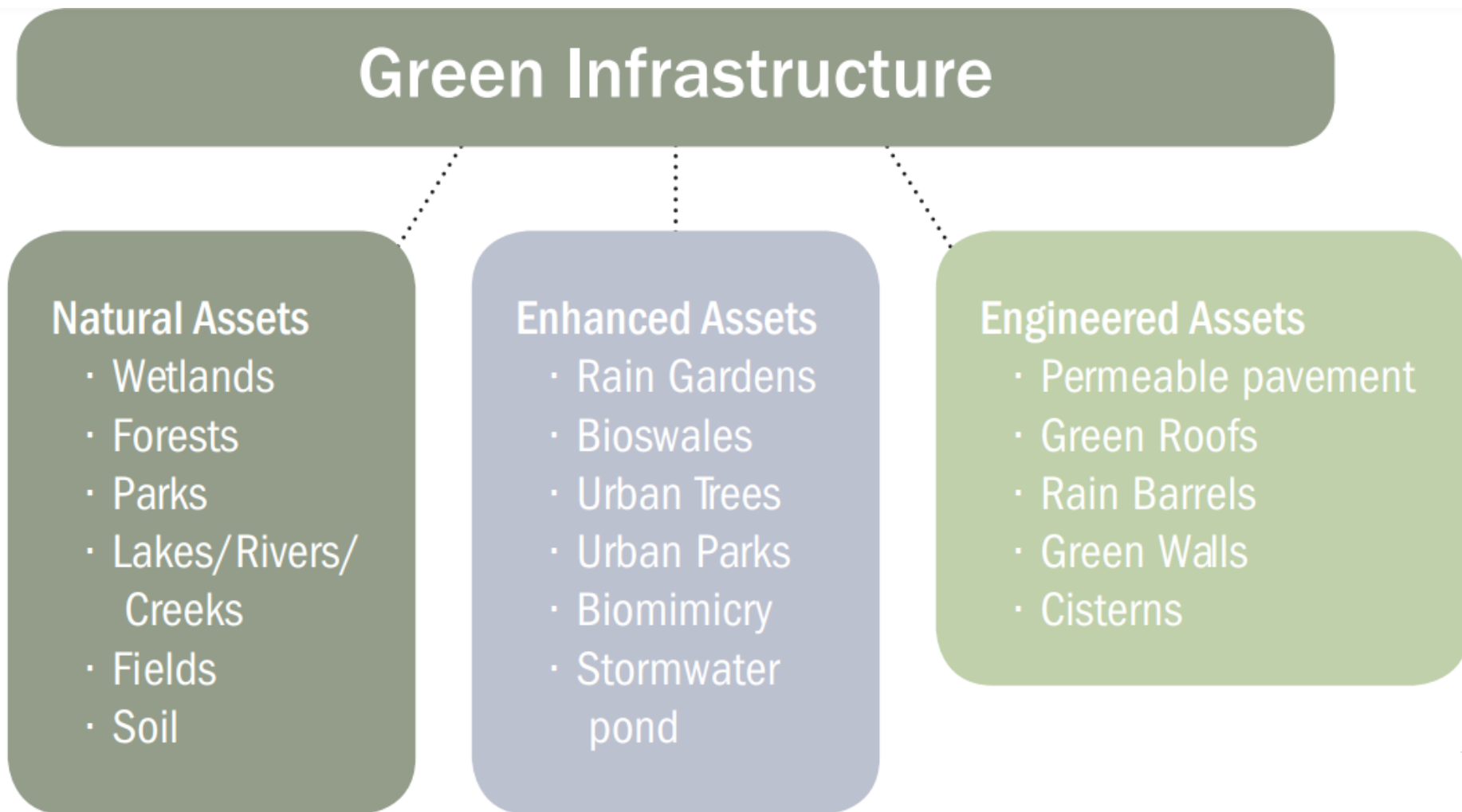
Source: ISO 55000



International  
Organization for  
Standardization



# Natural Assets and Green Infrastructure



Source: Natural Assets Initiative (NAI); [https://mnai.ca/media/2019/07/SP\\_MNAI\\_Report-1- June2019-2.pdf](https://mnai.ca/media/2019/07/SP_MNAI_Report-1- June2019-2.pdf)





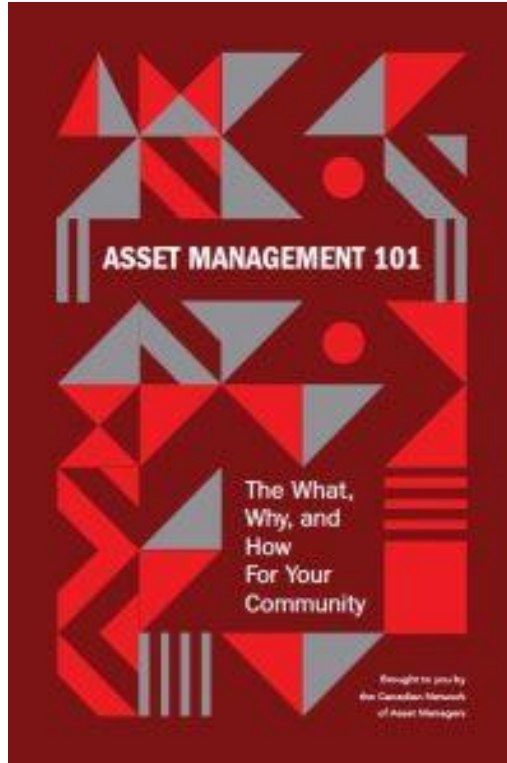
# COMMUNITIES GETTING STARTED FORMALIZING ASSET MANAGEMENT

Learning from others, no need for reinventing!





# Guide to Formalizing AM



Free download from  
[cnam.ca/New-to-AM](https://cnam.ca/New-to-AM)

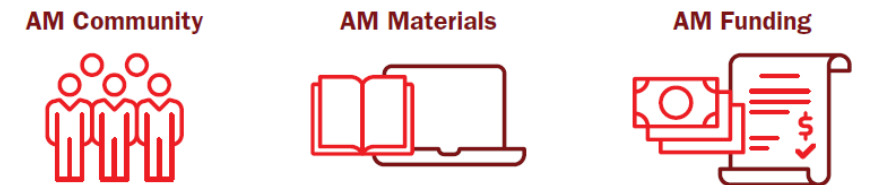
## INITIAL STEPS



## ASSET MANAGEMENT COMPETENCIES



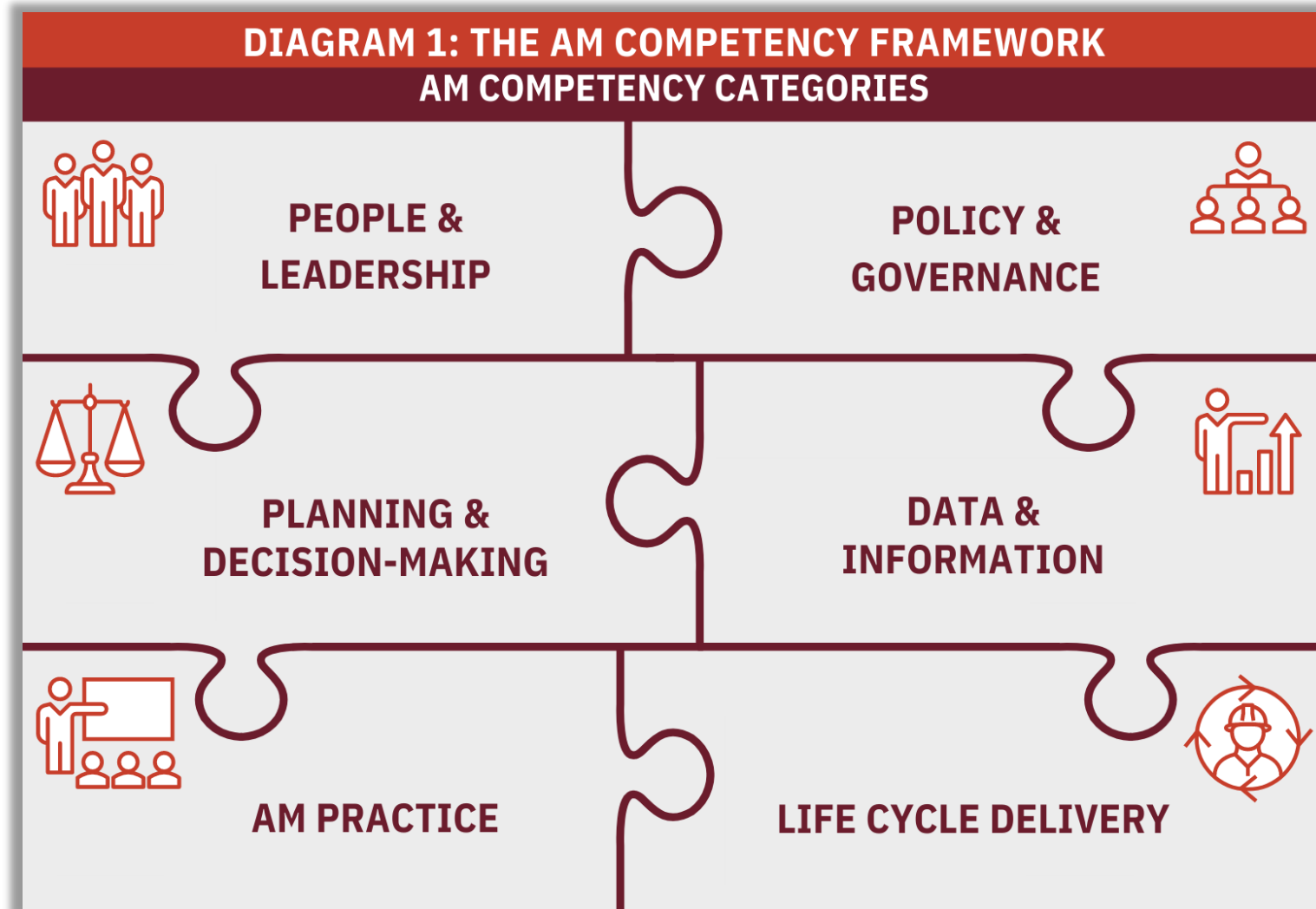
## RESOURCES TO HELP



Source: CNAM's AM101 Booklet



# Asset Management Core Organizational Elements

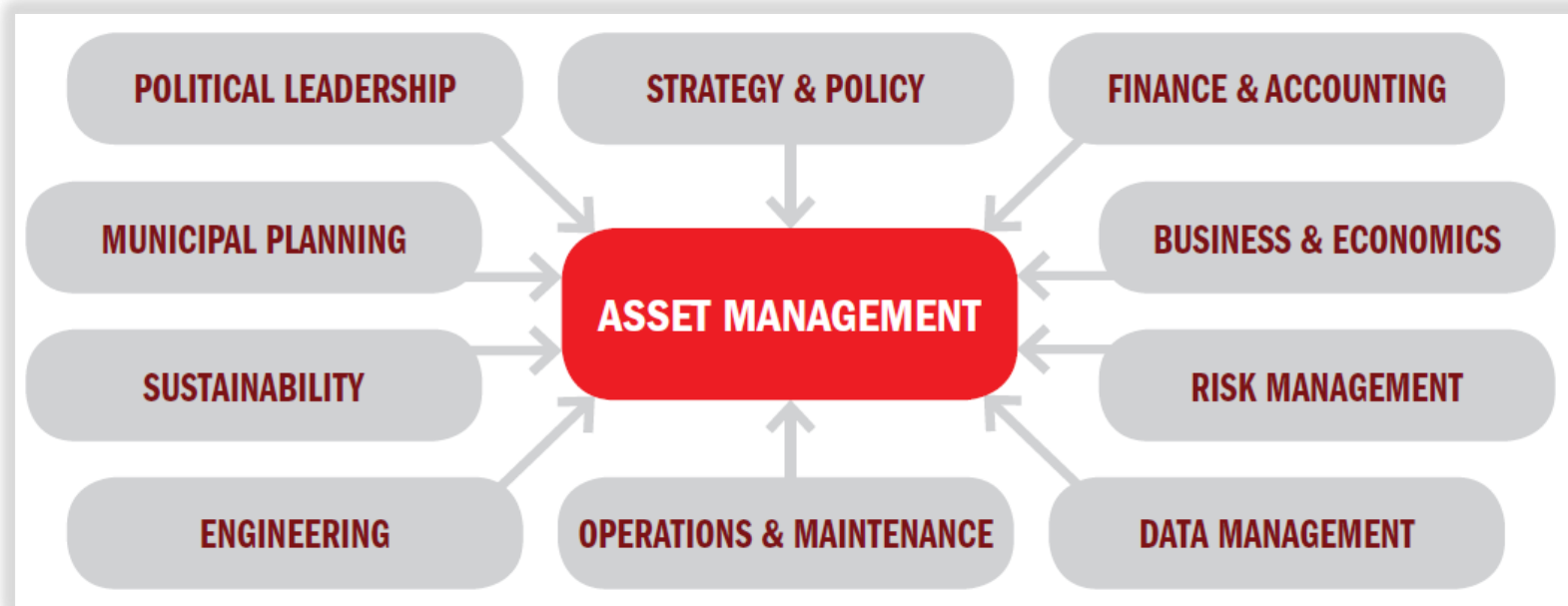


Source: CNAM Asset Management Competency Framework

# People and Leadership

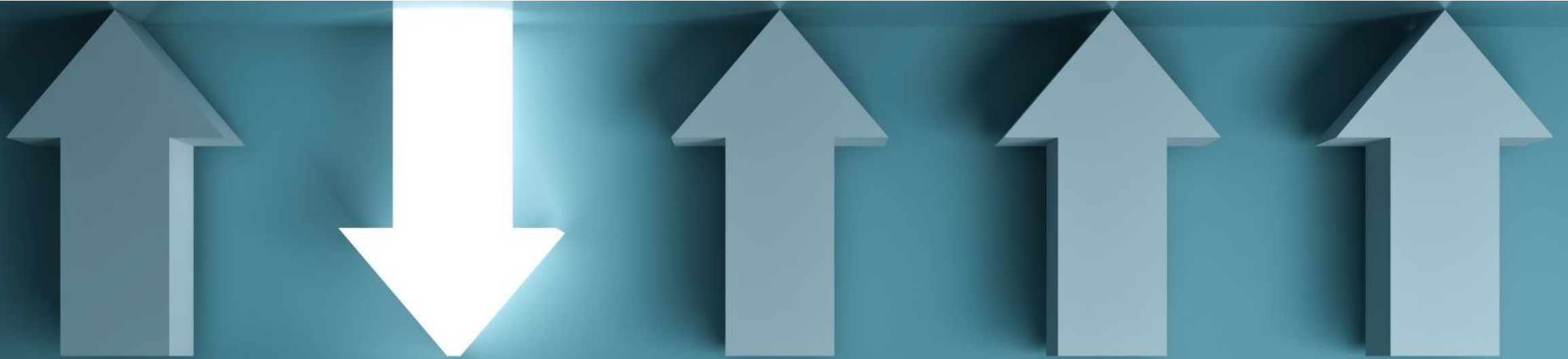
## STAFF ARE CRITICAL TO ASSET MANAGEMENT

\*People do Asset Management



Source: CNAM AM101 Booklet



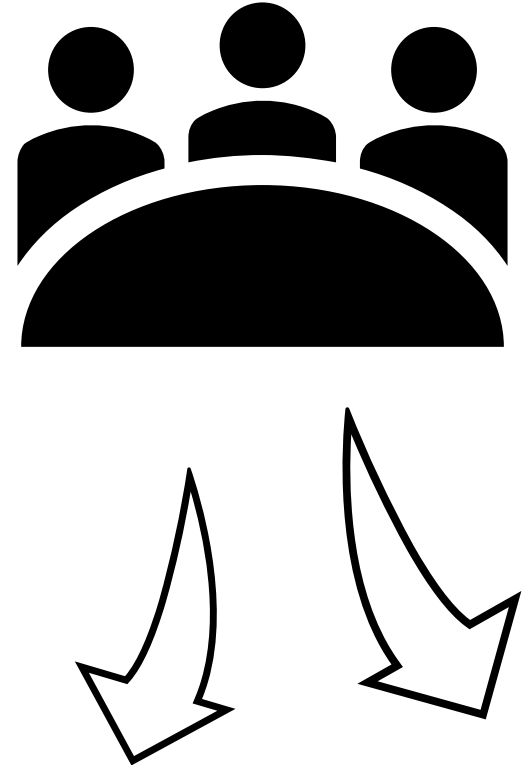


Senior Leadership Support  
is **very** important



# Value in establishing an AM Steering Committee

- Provides direction to the overall program
- Cross department representation
- Oversees work to make sure progress is made towards AM goals with AM Roadmap
- Should have direct link to senior leadership team
- ***Lifting roadblocks!***





# MORE ASSET MANAGEMENT PUZZLE PIECES

A selection of the important AM parts to work on



# Planning and Decision-Making AMPs



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## Asset Management Plans (AMP)

- ◆ Understand your Assets
  - ◆ Get a basic understand of services, challenges and funding
- ◆ Great communications tool
- ◆ Improve Quality over Time
- ◆ Lots of examples online
- ◆ Collaboratively developing an AMP in your organization – great activity to get different departments working together!

The overall condition, value, and age relating to all assets that are required to deliver Roads services is depicted below.

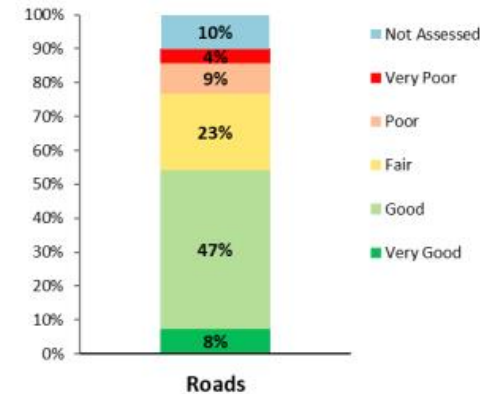


Figure 3.1-1. Roads - Condition



Figure 3.1-2. Roads - Condition and Value



Figure 3.1-3. Roads - Average Condition



Figure 3.1-4. Roads - Age Profile

Source: City of Winnipeg, 2018 Asset Management Plan



# Asset Condition Grading



Some asset classes have their own condition assessment protocols and scales...use those!

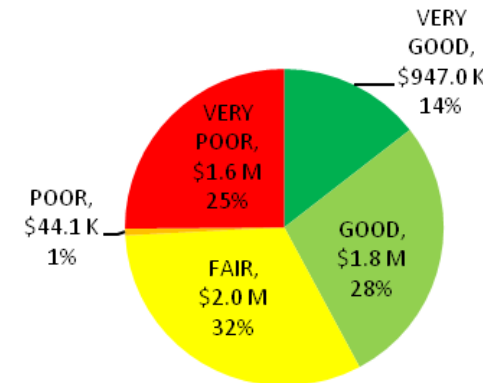
Use generic Very Poor to Very Good scale where not an industry standard / limited resources

Map all to a common grading system, 1 to 5  
 Apples vs Oranges vs Pears vs ...

Can use 'age' as a proxy for condition

Prioritize condition assessments to do using Risk

| CONDITION GRADE | % OF ESL REMAINING ON ASSET |
|-----------------|-----------------------------|
| Very Good       | 80-100%                     |
| Good            | 60-80%                      |
| Fair            | 40-60%                      |
| Poor            | 20-40%                      |
| Very Poor       | < 20%                       |



Example condition grade for asset class in an AMP

But there are problems with design life...

- Very poor:** The asset is unfit for sustained service. It is near or beyond its expected service life and shows widespread signs of advanced deterioration. Some assets may be unusable.
- Poor:** There is an increasing potential for its condition to affect the service it provides. The asset is approaching the end of its service life, the condition is below the standard and a large portion of the system exhibits significant deterioration.
- Fair:** The asset requires attention. The asset shows signs of deterioration and some elements exhibit deficiencies.
- Good:** The asset is adequate. It is acceptable and generally within the mid-stage of its expected service life.
- Very Good:** The asset is fit for the future. It is well maintained, in good condition, new or recently rehabilitated.
- Unknown:** Not enough data exists to respond.

Source: Canadian Infrastructure Report Card, AM Primer





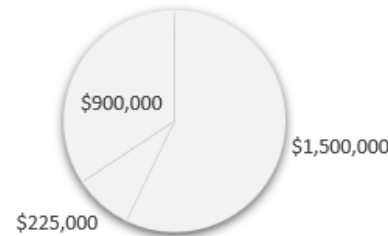
# Asset Age as proxy to Condition - Exercise

Known / actual physical condition is best... but what if that data isn't available?

Condition vs Estimate Service Life Remaining

| Condition Grade | % of ESL Remaining |
|-----------------|--------------------|
| Very Good       | 81-100%            |
| Good            | 61-80%             |
| Fair            | 41-60%             |
| Poor            | 21-40%             |
| Very Poor       | <20%               |

Storm Sewer Condition by Age



Year today 2024

| Storm Sewer Asset | Year       | Age     | Estimated    | % ESL     | Actual    | Age-Based | Replacement | % of Asset  |     |
|-------------------|------------|---------|--------------|-----------|-----------|-----------|-------------|-------------|-----|
| Location...       | Length (m) | Const.  | Service Life | Remaining | Condition | Condition | Value       | Base        |     |
| Mains (Concrete)  | 2000       | 1979    | 45           | 80        | 44%       | Unknown   |             | \$1,500,000 | 57% |
| Mains (PVC)       | 500        | 2015    | 9            | 40        |           | Unknown   |             | \$ 225,000  |     |
| Mains (Unkown)    | 1000       | 1968 ?? |              |           |           | Unknown   |             | \$ 900,000  |     |
|                   |            |         |              |           |           |           |             | \$2,625,000 |     |

Roll your sleeves up for AM!

Handouts on the table to work through together.

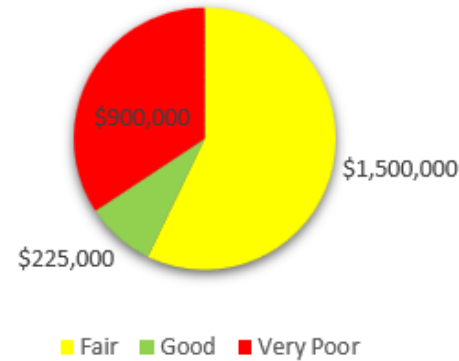
5mins.

# Asset Age as proxy to Condition – Exercise Answers

Condition vs Estimate Service Life Remaining

| Condition Grade | % of ESL Remaining |
|-----------------|--------------------|
| Very Good       | 81-100%            |
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Storm Sewer Condition by Age



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| Storm Sewer Asset | Year   | Age   | Estimated    | % ESL     | Actual    | Age-Based | Replacement | % of Asset  |      |
|-------------------|--------|-------|--------------|-----------|-----------|-----------|-------------|-------------|------|
| Location...       | Const. | Today | Service Life | Remaining | Condition | Condition | Value       | Base        |      |
| Length (m)        |        |       |              |           | CCTV etc? |           |             |             |      |
| Mains (Concrete)  | 2000   | 1979  | 45           | 80        | 44%       | Unknown   | Fair        | \$1,500,000 | 57%  |
| Mains (PVC)       | 500    | 2015  | 9            | 40        | 78%       | Unknown   | Good        | \$ 225,000  | 9%   |
| Mains (Unkown)    | 1000   | 1968  | 56           | 70        | 20%       | Unknown   | Very Poor   | \$ 900,000  | 34%  |
|                   |        |       |              |           |           |           |             | \$2,625,000 | 100% |

# Community Expectations

## What is the approximate cost of replacing one block of sidewalk?

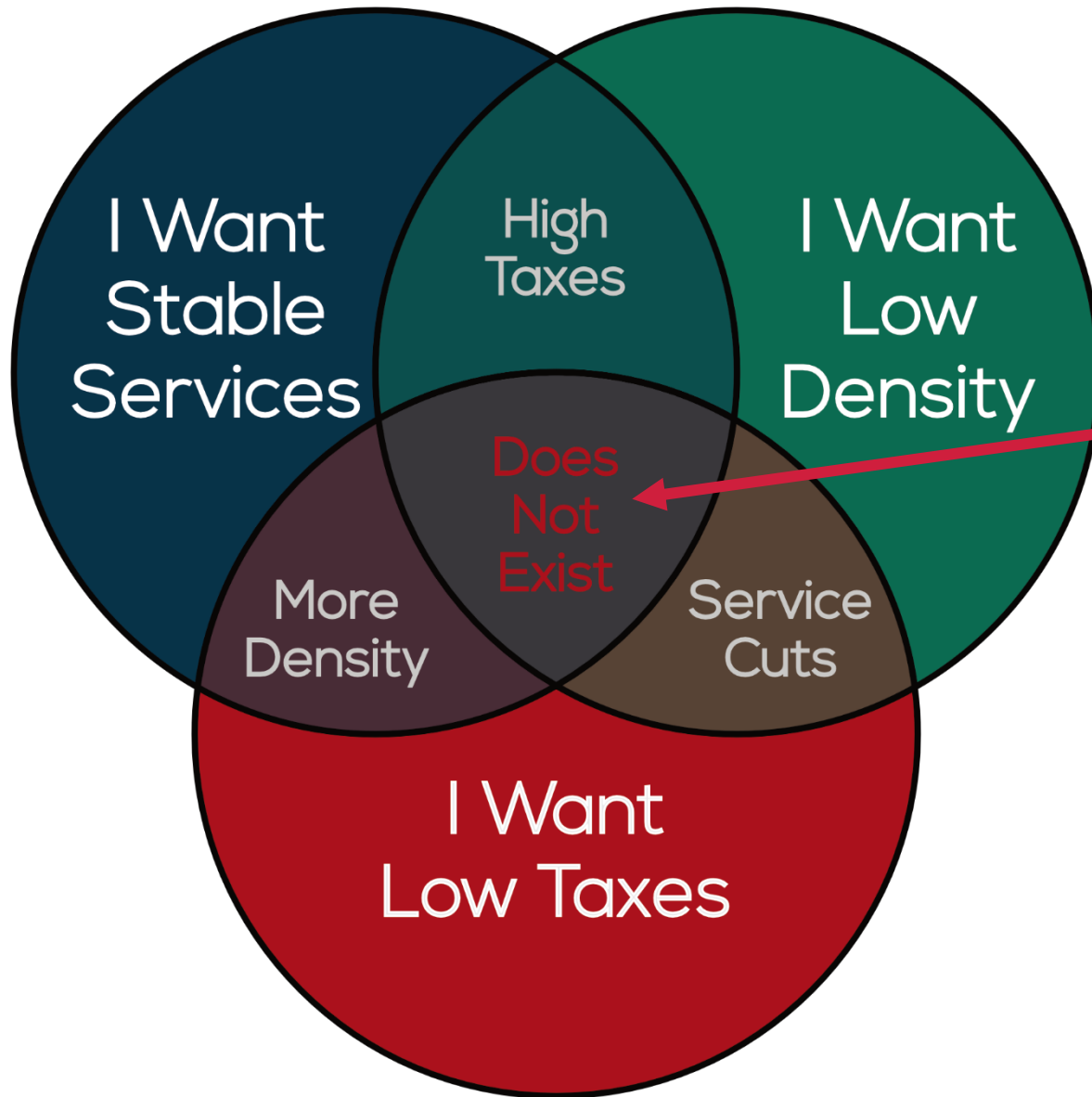
| Choices      | Responses  |    |
|--------------|------------|----|
| \$1,000      | 4.35%      | 8  |
| \$10,000     | 25.00%     | 46 |
| \$20,000     | 17.39%     | 32 |
| \$30,000     | 19.57%     | 36 |
| \$50,000     | 13.59%     | 25 |
| \$80,000     | 14.13%     | 26 |
| \$150,000    | 5.98%      | 11 |
| <b>Total</b> | <b>184</b> |    |



*1% tax increase = ~\$45k*

*Population ~4,000*

Source: Christina Benty, Masters Thesis / Town of Golden, BC



... but Community expects!

Source:

URBAN3



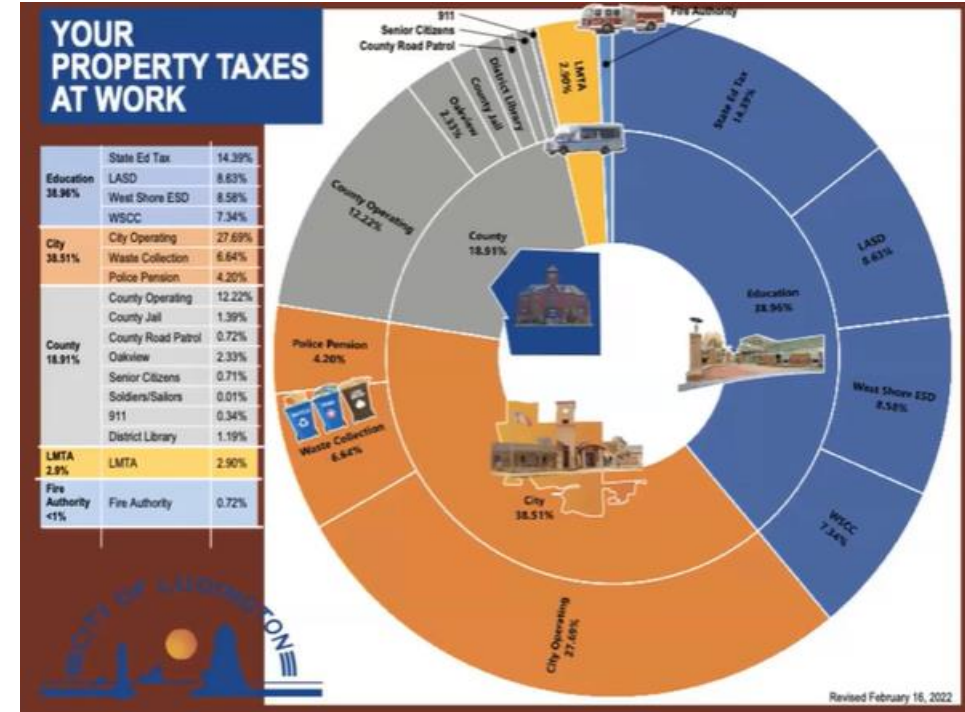


# Engaging with the Public



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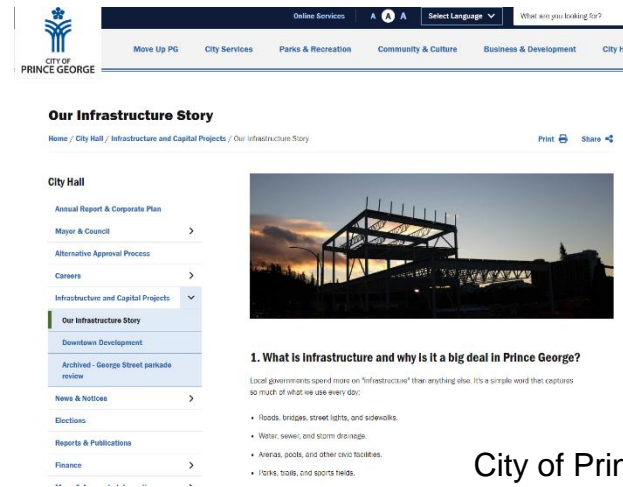
- Customer expectations are a challenge – people expect better services for the same or less taxes
- We must help the public better understand the costs of maintaining and delivering services
- Lots of ways to do this...



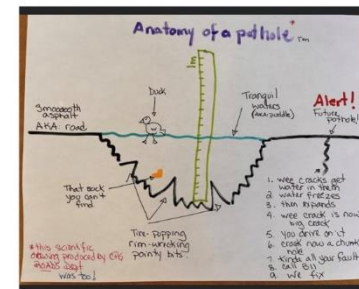
City of Luddington, MI



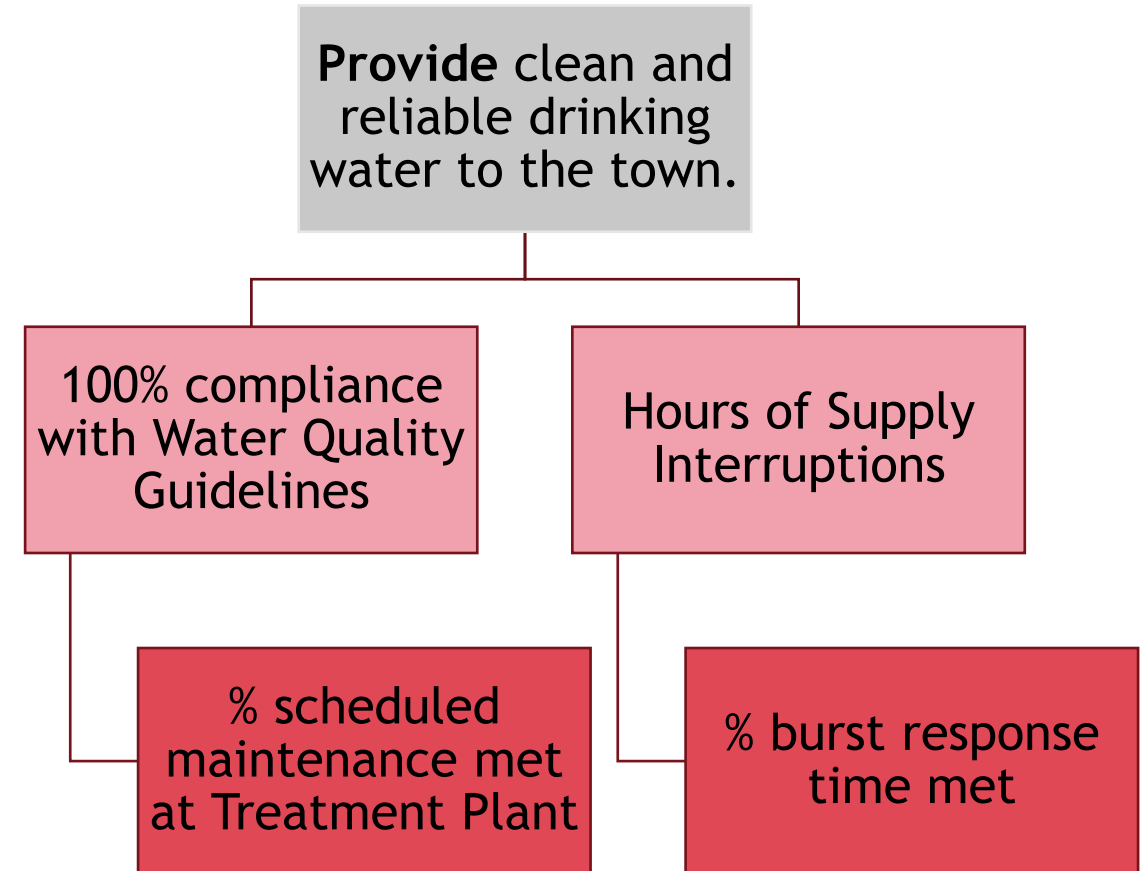
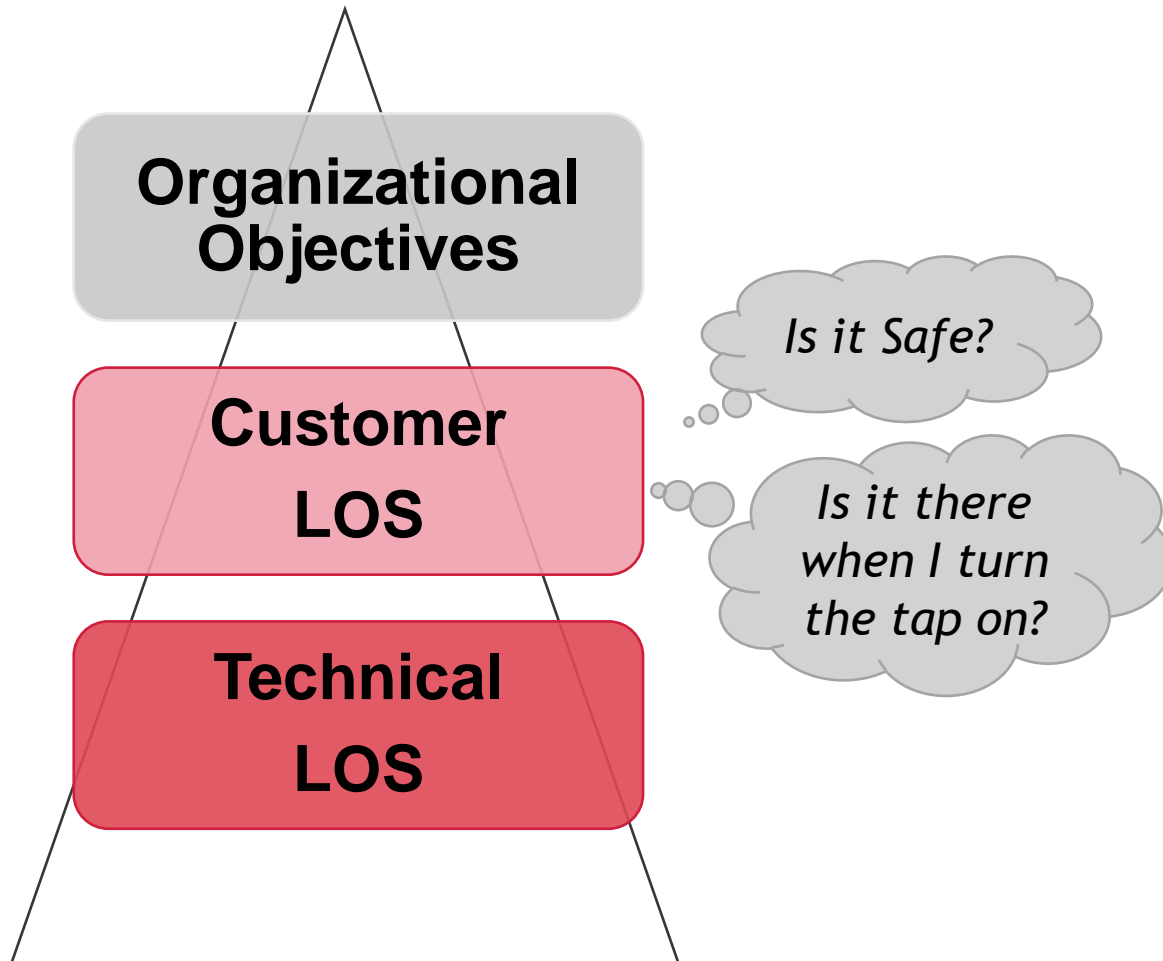
City of Selkirk, MB



City of Prince George, BC



# Levels of Service – Customer vs Technical



# Life Cycle Delivery

- ◆ 'Managing assets' part of asset management
- ◆ Managing the asset through all stages of the life cycle
- ◆ Must consider **whole life cost**

"Managing Assets" vs  
"Asset Management"  
*ISO55000 TC251 Memo*

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



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



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

Petrolia 6k population generates ~\$5.5M in tax revenue annually.

Annual upkeep of the splash pad requires **over 1.5%** of the this revenue!

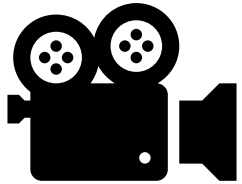


**Developer contributed infrastructure...but is it really 'free'?**

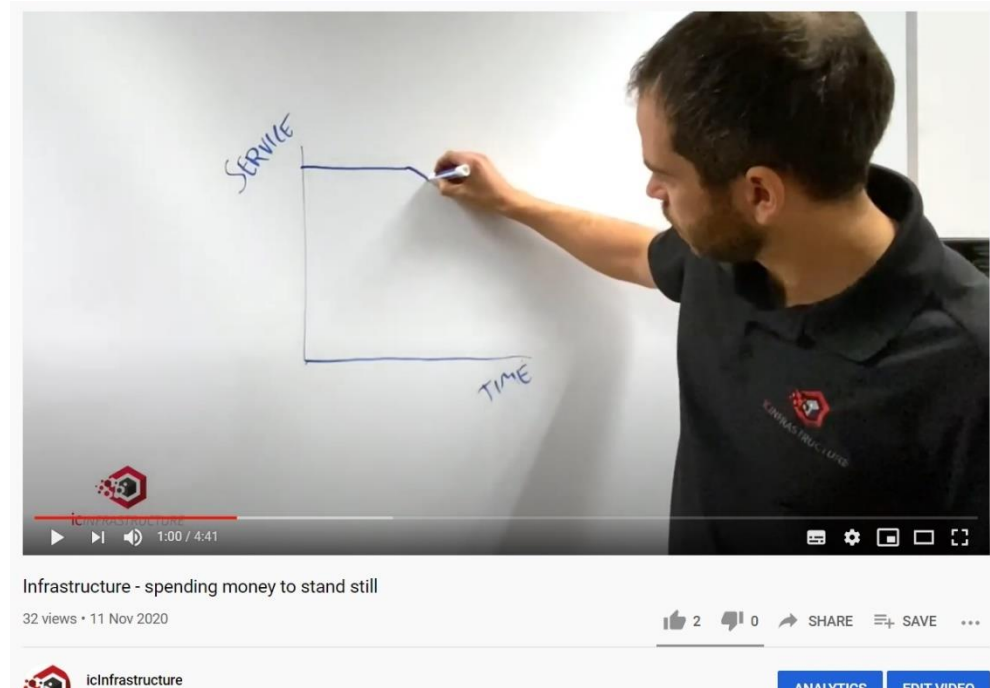
**Donors and Gifts**  
'The Sam Smith Centre'



# Infrastructure – Spending Money to Stand Still



5min

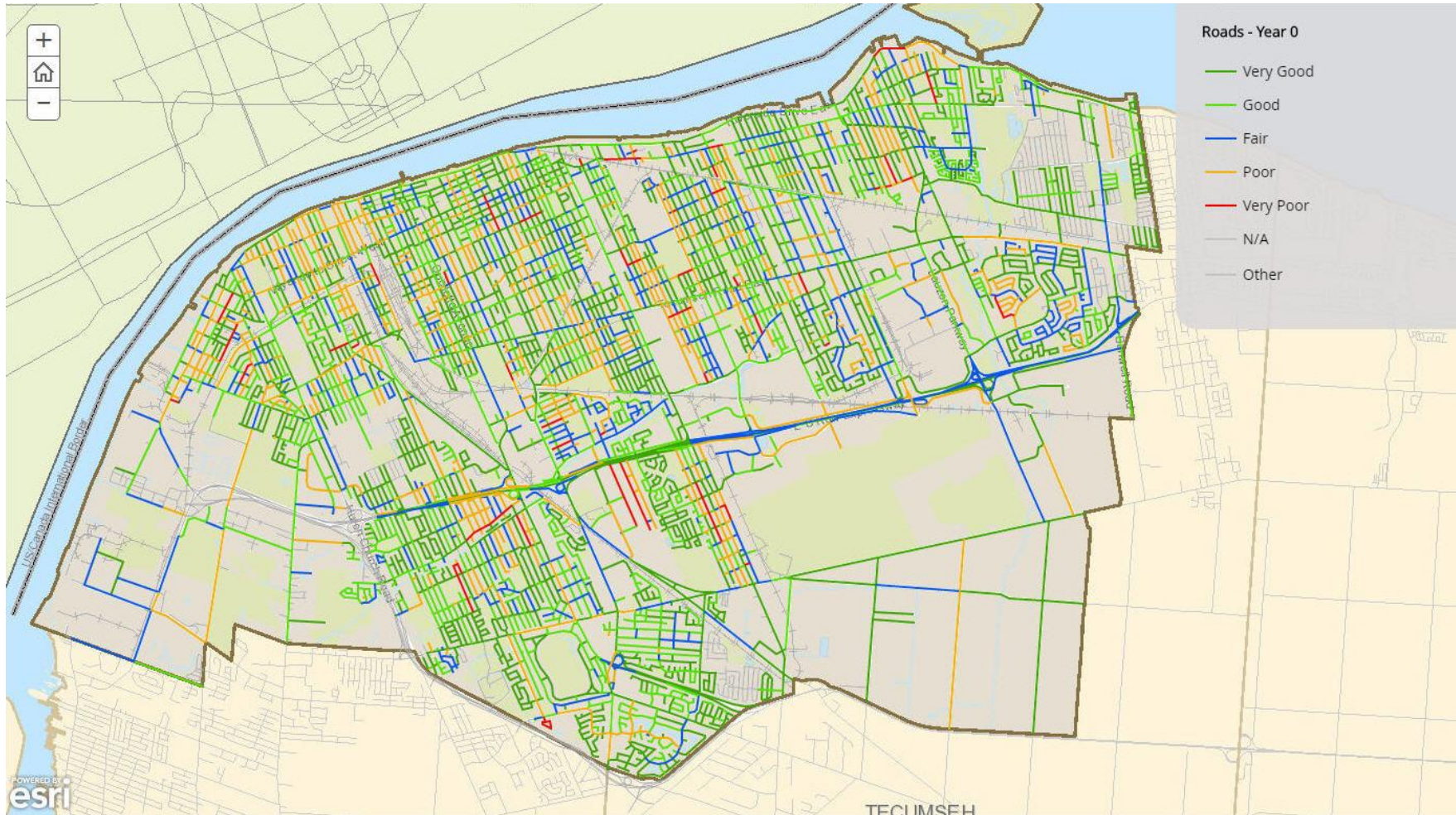


Flashback to Session 1  
earlier today!

<https://www.youtube.com/watch?v=OT1qpU39CDA>

# Better Decisions.

## Windsor-Year 0

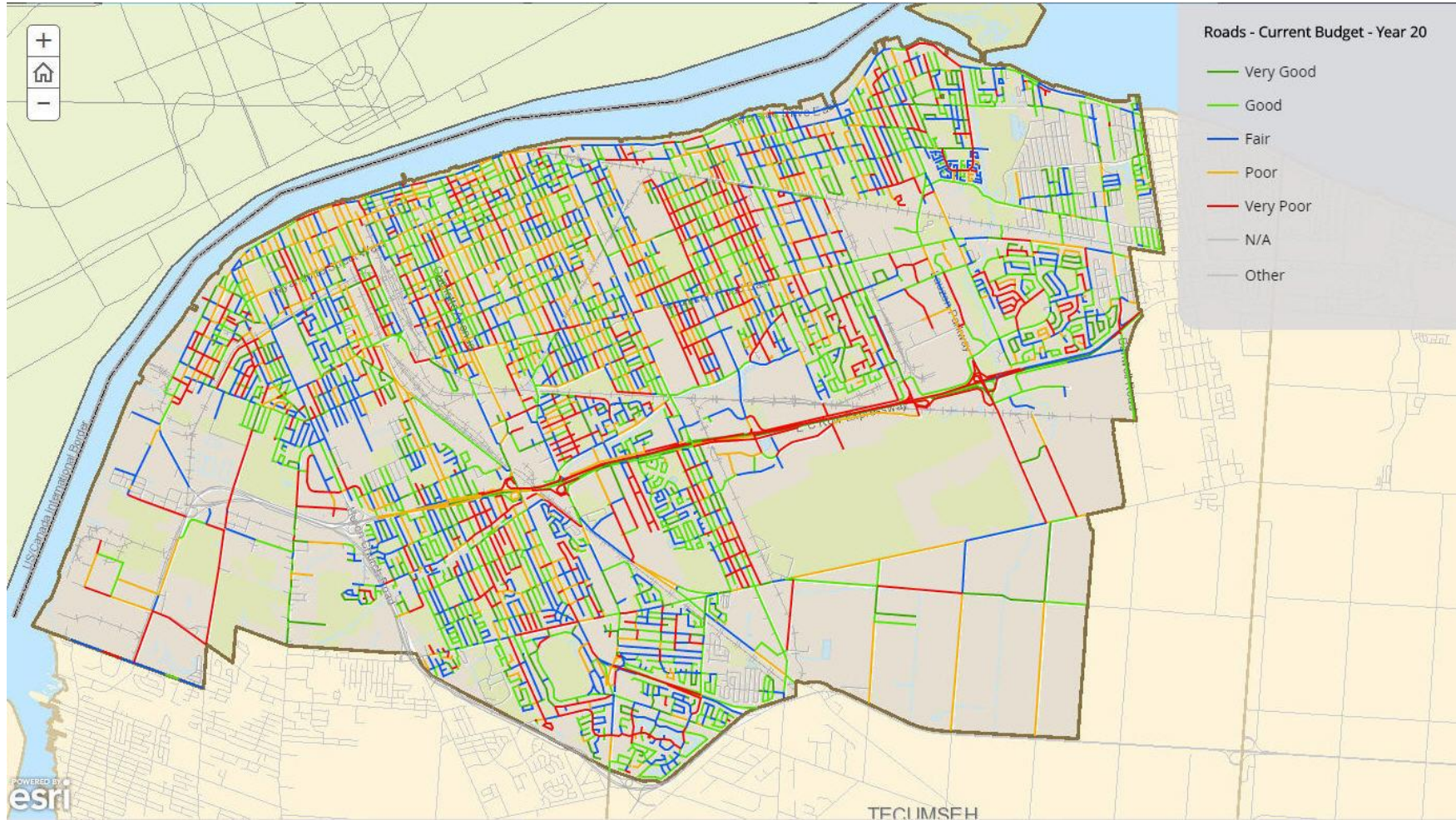


Source: City of Windsor ON





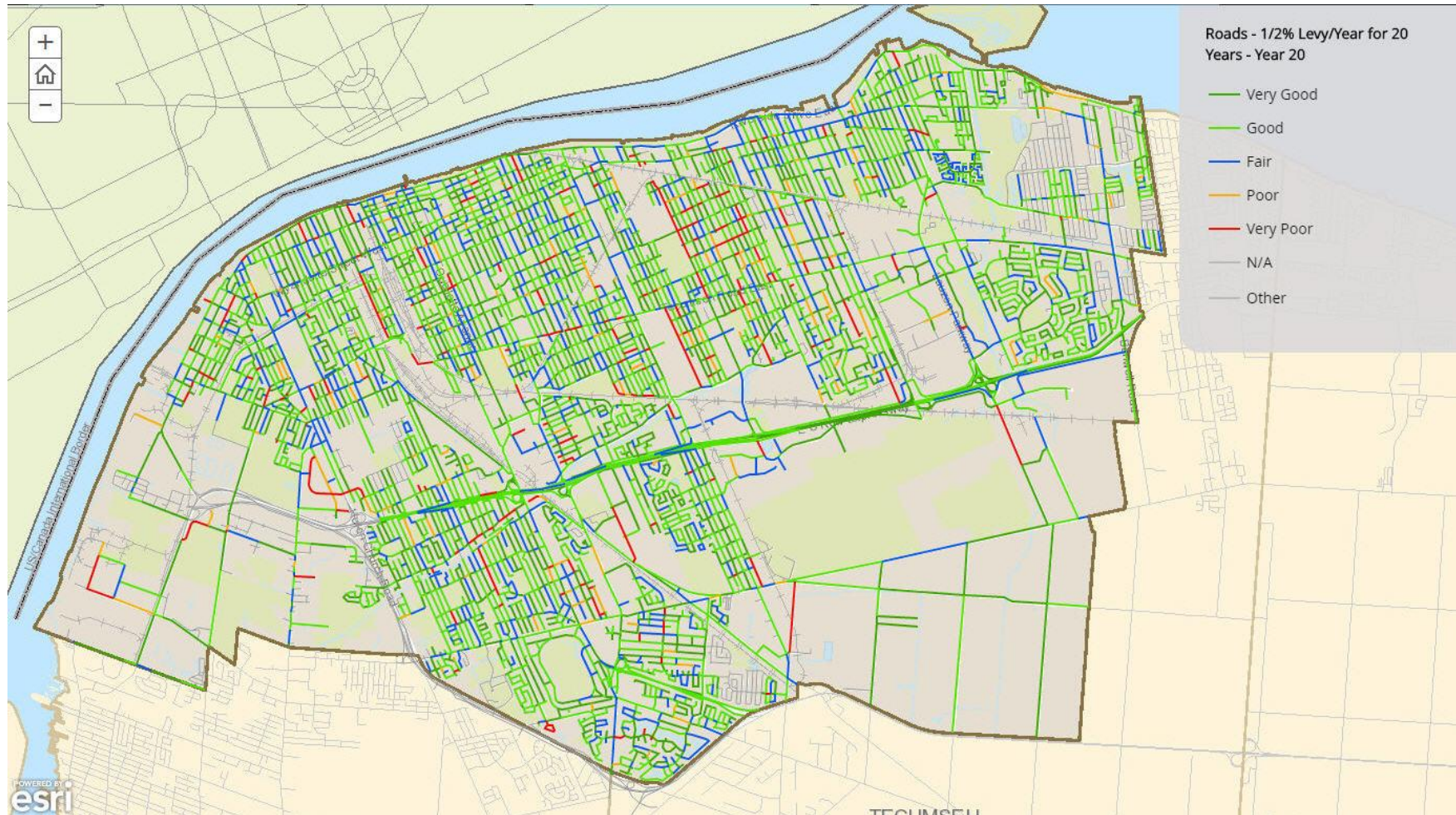
# Windsor-Year 20, current spend



Source: City of Windsor ON

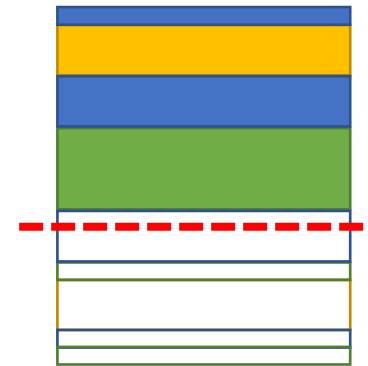
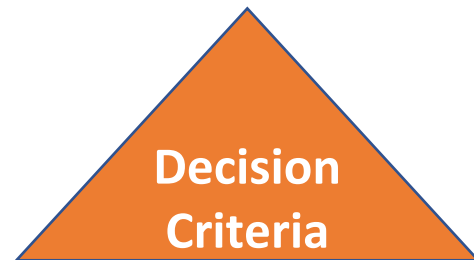
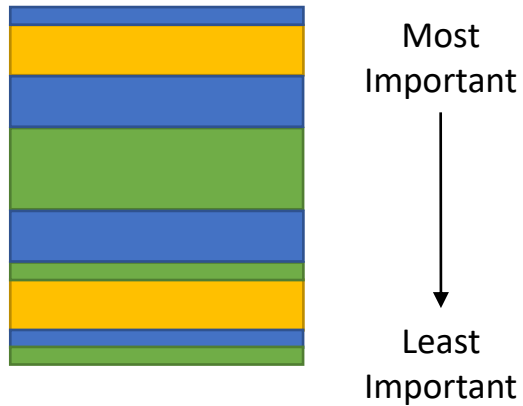
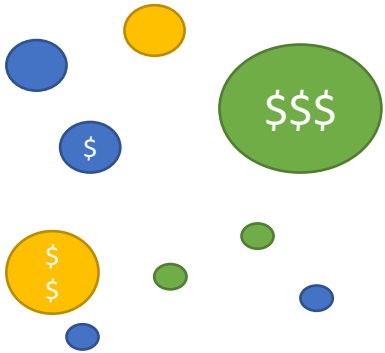


# Windsor-Year 20, 0.5% levy

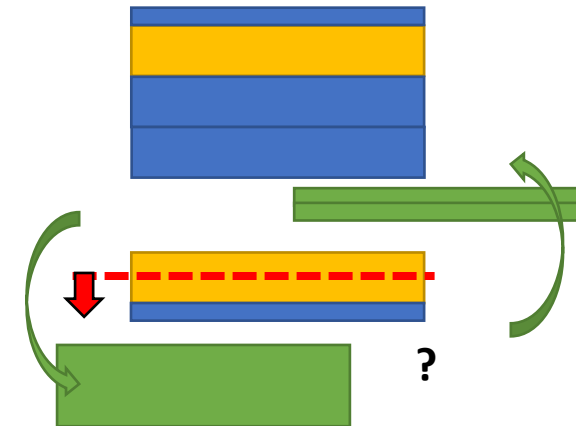


Source: City of Windsor ON

# Planning and Decision-Making



Financial / Budget Constraints  
Resourcing / Staff Constraints

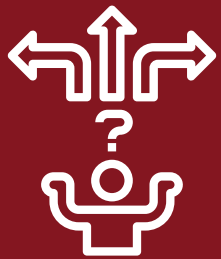


Project Shuffling from  
Political Pressure

Additional funding?

Residual Risk from projects  
not done?



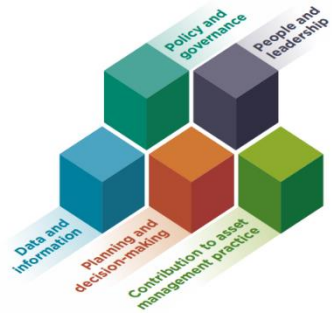


# THIS FEELS LIKE A LOT...

Where do we start? You're not starting from scratch!



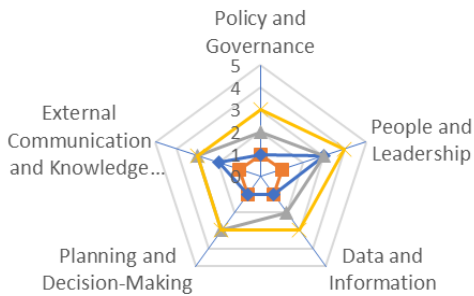
# Where are we now?



# FCM



- ◆ Gap Assessment Tool for organization AM practices
  - ◆ Identify good/bad with your ‘Steering Committee’
- ◆ Federation of Canadian Municipalities’ AMRS
  - ◆ AMRS = Asset Management Readiness Scale
  - ◆ Foundation of “MAMP” program
- ◆ Michigan Infrastructure Council’s AM Readiness Scale
  - ◆ Already American’ized
  - ◆ Free Excel tool [www.michigan.gov/mic](http://www.michigan.gov/mic)
- ◆ Use for Future Goals, Priorities, Roadmap

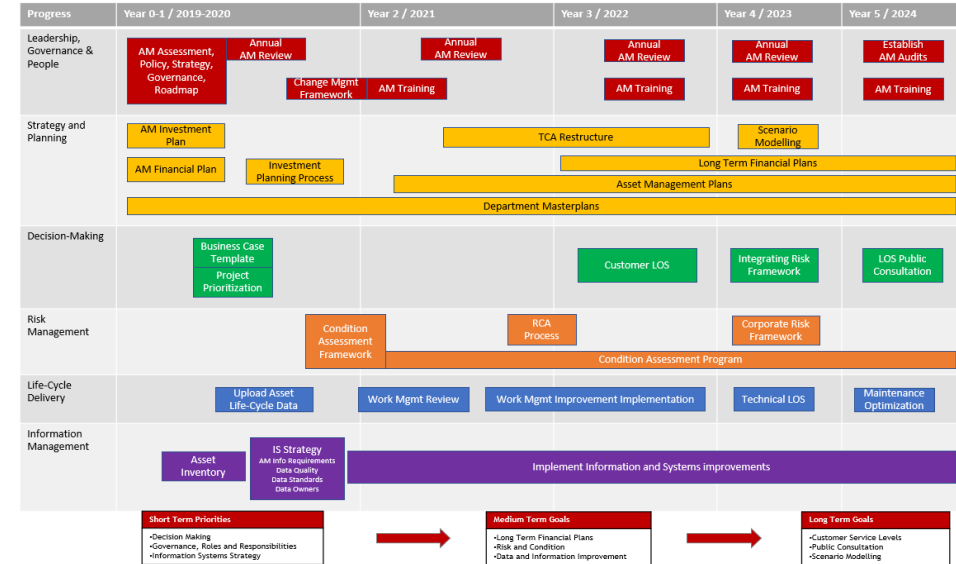


# Planning and Decision-Making

| Outcomes: Select the outcomes that your organization has achieved.  |                                     |   |                                     |   |                          |   |                          |   |                          | Current<br>(from left)  | Select the level you expect to achieve |        |        |   |
|---|-------------------------------------|---|-------------------------------------|---|--------------------------|---|--------------------------|---|--------------------------|---|--|--------|--------|---|
| Outcome areas   | Level 1                             |   | Level 2                             |   | Level 3                  |   | Level 4                  |   | Level 5                  |   | Year 1                                 | Year 3 | Year 5 |   |
| <b>A: Planning and Prioritization*</b>  | <input checked="" type="checkbox"/> | Our asset planning approaches sometimes vary on how we identify needs, design projects, and decide on priorities. | <input checked="" type="checkbox"/> | We follow a similar but at times informal asset planning approach.  | <input type="checkbox"/> | We have a structured asset planning approach (e.g. business cases and prioritization processes), but application is not fully consistent across the organization. | <input type="checkbox"/> | We employ a consistent structured asset planning approach for each of our critical / core services that aligns with evolving organizational goals and objectives. | <input type="checkbox"/> | We employ a consistent structured asset planning approach for all services that aligns with evolving organizational goals and objectives. | 2                                      | 3      | 4      | 5 |
|   |                                     |   | <input checked="" type="checkbox"/> | We evaluate investment needs and priorities based on a mix of structured and ad-hoc practices and criteria. | <input type="checkbox"/> | We set priorities using criteria based on organizational goals and objectives.  | <input type="checkbox"/> | We set priorities using criteria that are fully aligned with our organizational goals and objectives.   | <input type="checkbox"/> | We adapt our planning approach and criteria to align with evolving organizational goals and objectives.                                   |  |        |        |   |
| <b>Describe Current Actions</b>   |                                     |   |                                     |   |                          |   |                          |   |                          | <b>Describe Planned / Potential Actions</b>   |  |        |        |   |
| *If you are an organization responsible for multiple asset types (roads, drinking/wastewater, etc.) consider how you approach planning and prioritization across these assets. If you are an organization responsible for a single asset, consider how you approach planning and prioritization between teams/departments (e.g. engineering, planning, construction, etc.). |                                     |   |                                     |   |                          |   |                          |   |                          |   |  |        |        |   |

# AM Roadmap/ Implementation Plan

- This does not happen overnight
- Develop a 3 – 5 year AM Roadmap for your AM journey
- Short / Med / Long term priorities
- Expect IT and Software
- Path (and pace) yours to decide
- Steering Committee to look after



Do we have the right resources / staff / capacity?

Buy in from Leadership.  
Training and Competency planning.



# KEY TAKEAWAYS

Recap - The Bigger Picture



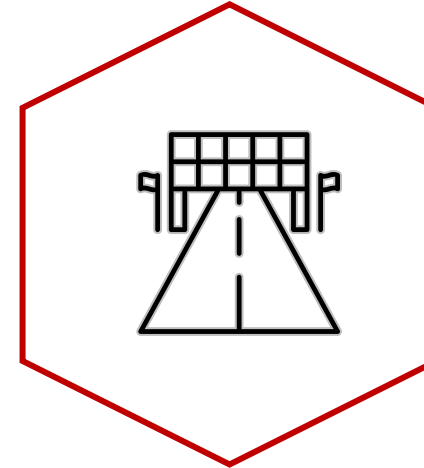
# Key Takeaways



Come Together.



Where are we now?



Next Steps. How. Who.



# Want more?

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**AML is considering developing more Asset Management training and capacity building programs, voice your support to the AML team!**

**Ideas for what you would like to see? Let's talk!**

Thanks for your time! Any Questions?

**Iain Cranston**

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