

# Making Progress in Asset Management: Achieving 2025 Regulatory Compliance

**Municipal Asset Management Webinar Series**

March-April 2025

# Four-Part Webinar Series on Asset Management in the Context of Ontario Regulation

❖ Objective: Enable municipalities to meet regulatory requirements and advance their asset management programs for effective infrastructure management and long-term financial planning.

❖ Four sessions:

- ❖ Proposed Levels of Service & Performance
- ❖ Risk Assessment
- ❖ Lifecycle Management & Financial Strategy
- ❖ Growth

# Asset Management Compliance

## Canada Community-Building Fund (CCBF)

- ❖ Permanent, predictable, and upfront
- ❖ [Administrative Agreement](#) and [Municipal Funding Agreement](#)
- ❖ Develop and implement an asset management culture, methodology, and plan in accordance with Ontario regulation

## O. Reg. 588/17

- ❖ **2019**: Asset Management Policy
- ❖ **2022**: Asset Management Plan for Core Assets
- ❖ **2024**: Asset Management Plan for All Assets
- ❖ **2025**: Asset Management Plan with Proposed Levels of Service

# AMO Support

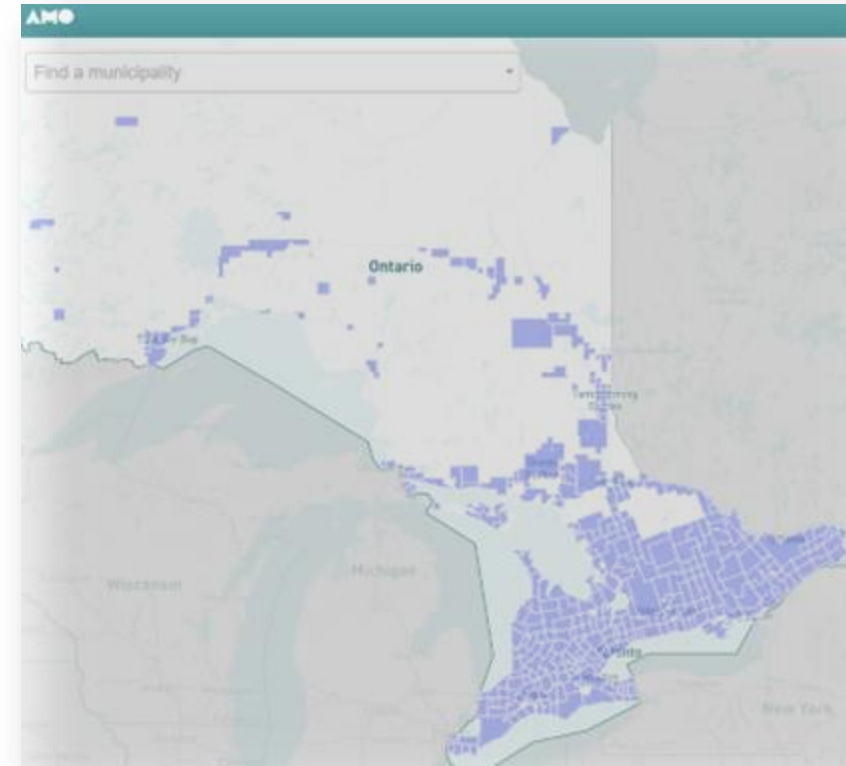
❖ [Webinars](#)

❖ [Research](#)

- ❖ Ongoing AMP analysis

- ❖ Asset management questionnaire  
(2024 CCBF reporting)

❖ Contact us at: [ccbf@amo.on.ca](mailto:ccbf@amo.on.ca)



# Session 2: Risk Assessment

Date: March 20, 2025



# Thank you!

For more questions or support, please reach out.

AMO: [ccb@amo.on.ca](mailto:ccb@amo.on.ca)

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Session 2: Risk Assessment  
Part A

Mayuri Bharkhada, AMONTario



# Risk Assessment in AMPs

Preparing for Compliance with O.Reg 588/17 by July 1st, 2025



# O.Reg 588/17 Compliance Requirement

Earlier requirements focused more on current levels of service, asset conditions, and high-level risk management. The 2025 update requires a forward-looking approach that directly connects risk, lifecycle planning, and financial strategies to proposed levels of service.

## Key additions:

- **Proposed Levels of Service** – Define future service targets for each asset category
- **Risk Assessment Tied to Service Levels** – Risks must be evaluated in relation to their impact on achieving proposed service levels.
- **Lifecycle Management Strategy** – Plans must detail how assets will be maintained, rehabilitated, and replaced to sustain proposed service levels.
- **Financial Strategy for Service Sustainability** – Outline how asset needs will be funded while meeting service targets over the long term.

# Risk

# What is Risk Management?

## ISO 31000:

- Risk is “the **effect of uncertainty on objectives**”
  - An effect is a positive or negative deviation from what is expected
  - Positive effect = opportunity
  - Negative effect = threat
- Risk Management is the coordinated set of activities and methods that is used to direct an organization and control the many risks that can affect its ability to achieve its objectives
  - It uses structured methods to manage uncertainties, make informed decisions, and prioritize resources effectively. This approach is essential for asset management and is widely used by leading public and private organizations

# Why Risk Management Matters



Risk =  Consequence  $\times$  Probability 



Assets failing ALOS Targets = Higher Risk

**Unacceptable Risk**



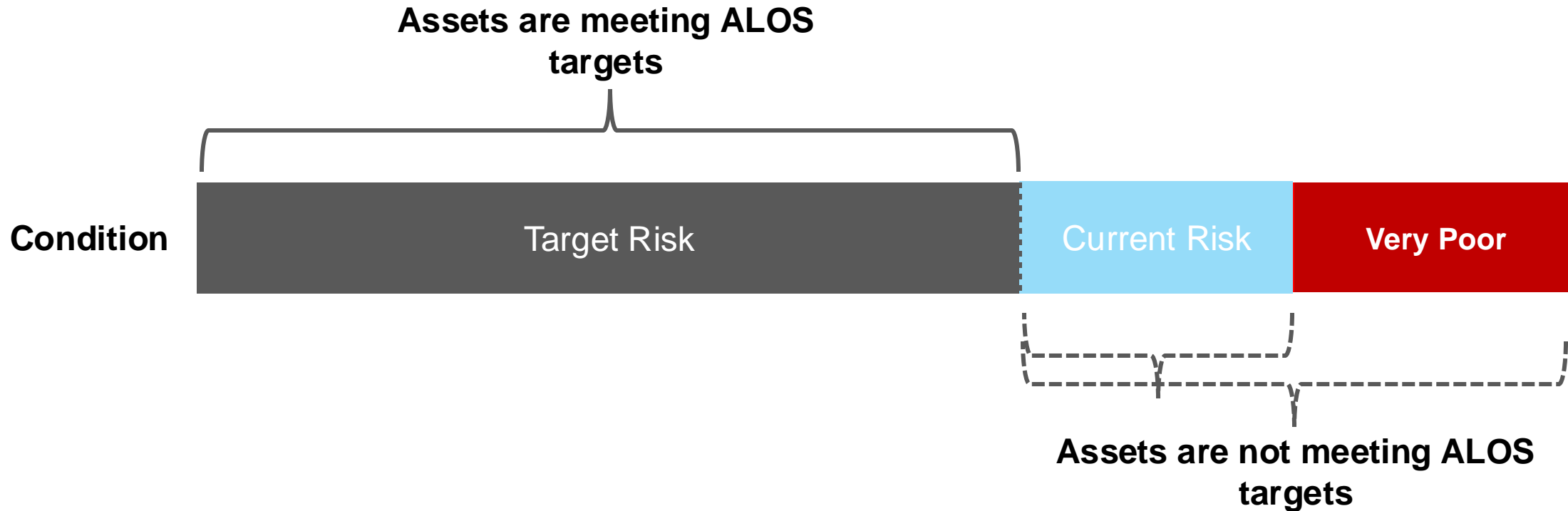
Assets meeting ALOS Targets = Lower Risk

**Acceptable Risk**

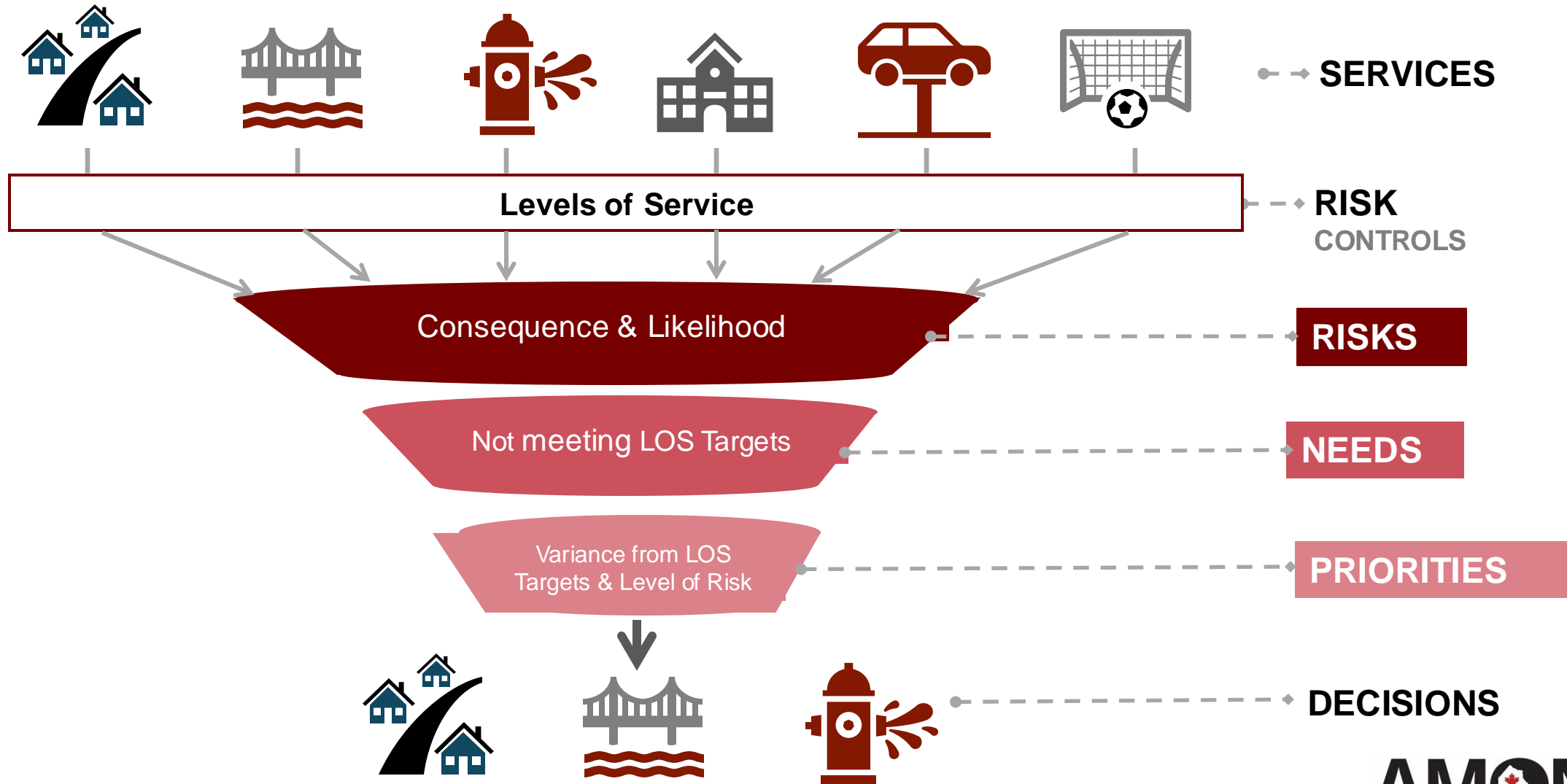
# Example: Connection between Risk & LOS

Asset Current Condition = "Poor"

ALOS target = "Fair"



# Risk Management Process for Asset Management



# Risk Assessment Process





# O.Reg 588/17 Compliance

## O.Reg 588/17 Compliance for Risk Management

1. Define Proposed Levels of Service
2. Assess Risks to Service Delivery
3. Prioritize Critical assets
4. Develop Mitigation Strategies
5. Integrate Risk into Financial Planning

This approach ensures that municipal infrastructure planning is **proactive, sustainable, and service-oriented.**

# O.Reg 588/17 Compliance for Risk Management

- 1. Define Proposed Levels of Service:** *What level of service do we want to provide?*
  - CLOS: provide reliable, clean drinking water at all times with adequate pressure
  - ALOS: No transmission main breaks - Replace before it is anticipated to break
  - OMLOS – electromagnetic pipe inspections every 5-10 years
- 2. Assess Risks to Service Delivery:** *What could go wrong?*
  - A 50-year-old transmission main is at risk of failing due to corrosion.
  - A failure could cause a 24-hour water outage in half the city.
- 3. Prioritize Critical assets:** *Which assets are the most important to maintain service?*
  - The transmission main is critical because it supplies water to 50,000 people.
  - Other assets like pumps and valves are important but have backups.

# O.Reg 588/17 Compliance for Risk Management

4. **Develop Mitigation Strategies:** *How can we reduce or manage the risk?*
  - Short-term: Increase monitoring and maintenance of the pipe.
  - Long-term: Plan for pipe replacement in the next 5 years.
  - Emergency Plan: Have alternative supply routes and water trucks ready.
  
5. **Integrate Risk into Financial Planning:** *How do we budget for risk management?*
  - Allocate \$2 million over 5 years for pipe replacement in the capital plan.
  - Set aside emergency funds to handle unexpected failures.

This approach ensures that municipal infrastructure planning is **proactive, sustainable, and service-oriented.**

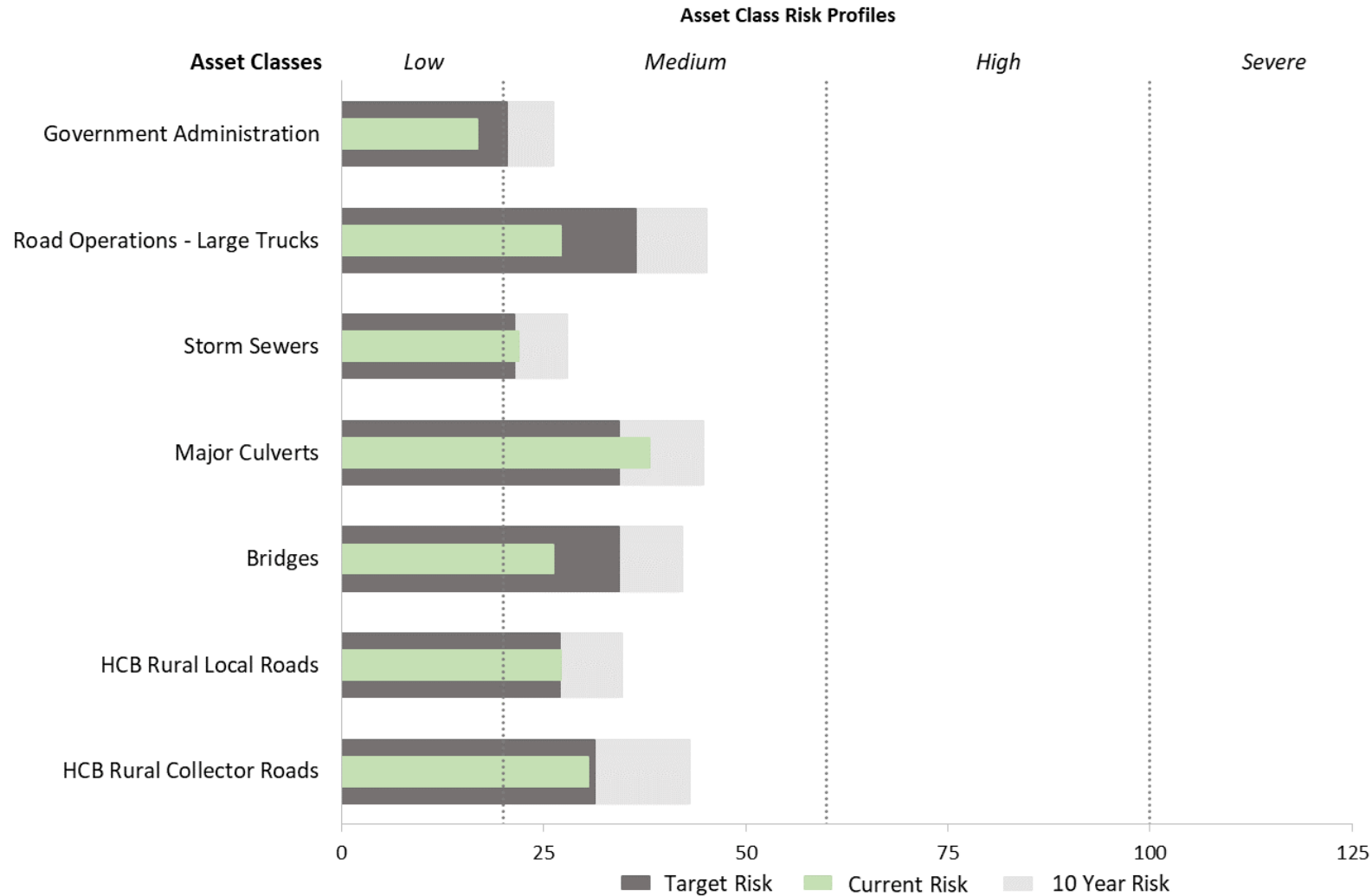
# What This Means for Your Municipality

- **Proactive Planning:** Anticipate and address challenges before they happen
- **Informed Decision Making:** Know the risks and trade-offs of each choice
- **Long Term Sustainability:** Protect your infrastructure and financial health
- **Safe, Reliable Services:** Protect the health and safety of the community

# AMONTario Risk & Priority Models\_Risk Assessment

Asset Level of Service Information		Consequences					Risk Targets		Current State Risk Analysis				10-Year Risk						
		Health & Safety	Community Services	Financial	Environment	Reputation	Total Consequence	Target Likelihood of Failure (Based on Target ALOS)	Target Risk	Asset Levels of Service (ALOS) Measures	ALOS Distribution within the Asset Class (%)	Current Likelihood of Failure (Based on Current ALOS)	Current State Risk	Variance from Target Risk	ALOS Distribution within the Asset Class (%)	10-Year Likelihood of Failure	10-Year Risk	Variance from Target Risk	
HCB Rural Collector Roads	<b>Pavement Condition</b>	4	3	5	2	3	17	2	34	PCI >95	44%	1	17	50.0%		1	0		
	PCI=70										PCI = 70 - 95	22%	2	34	0.0%	45%	2	34	0.0%
	PCI=50										PCI = 51 - 69	33%	3	51	-33.3%	7%	3	51	-33.3%
	PCI=30										PCI = 45 - 50		4	0		15%	4	68	-50.0%
	PCI=20										PCI <45		5	0		33%	5	85	-60.0%
	PCI=10											100%		32	5.5%	100%		57	-40.6%
	Average Condition ALOS Risks and Total Costs												32	5.5%			57	-40.6%	
	Overall Average Condition ALOS Risks and Total Costs												32	5.5%			57	-40.6%	
HCB Rural Collector Roads	<b>Operational Functionality</b>	4	3	4	2	2	15	2	30	Very Good		1	0			1	0		
	Good										96%	2	30	0.0%	96%	2	30	0.0%	
	Fair										4%	3	45	-33.3%	4%	3	45	-33.3%	
	Poor											4	0			4	0		
	Very Poor											5	0			5	0		
	Average ALOS Performance Risks and Total Costs											100%		31	-2.0%	100%		31	-2.0%
HCB Rural Collector Roads	<b>Capacity to Meet Demands</b>	3	3	3	1	3	13	2	26	Very Good		1	0			1	0		
	Good										100%	2	26	0.0%	100%	2	26	0.0%	
	Fair											3	0			3	0		
	Poor											4	0			4	0		
	Very Poor											5	0			5	0		
	Average ALOS Performance Risks and Total Costs											100%		26	0.0%	100%		26	0.0%
HCB Rural Collector Roads	<b>Environmental Resiliency</b>	3	3	4	2	3	15	2	30	Very Good		1	0			1	0		
	Good										100%	2	30	0.0%	100%	2	30	0.0%	
	Fair											3	0			3	0		
	Poor											4	0			4	0		
	Very Poor											5	0			5	0		
	Average ALOS Performance Risks and Total Costs											100%		30	0.0%	100%		30	0.0%
	Overall Average Performance ALOS Risks and Total Costs												29	-0.7%			29	-0.7%	
	Combined Average Condition & Performance ALOS Risks and Total Costs												30	2.7%			43	-27.2%	

# AMONTario Risk & Priority Models\_Risk Assessment



# AMONTario Risk & Priority Models\_Risk Assessment

Current State Risk Priorities: Individual Asset Levels of Service										
From Tab 1: Filter Column 'S' by 'Red' then Column 'B' by 'C' & 'P' (NOT 'C&P') then Copy & Paste Column 'A' into this Column	Asset Class	ALOS Type	ALOS Description	ALOS Target	Current ALOS	Target Risk	Current State Risk	Risk Point Variance	Current Risk + Risk Variance	Current State Risk Priority Ranking (Higher Number = Higher Priority)
254	Major Culverts	C	Structure Condition	BCI = 70	BCI <40	40	100	60	160	1
409	Road Operations - Heavy Equipment	C	Equipment Condition	Condition = Fair	Very Poor	54	90	36	126	2
169	Gravel Collector Roads	P	Operational Functionality	Good	Very Poor	30	75	45	120	3

- Asset Levels of Service (Condition & Performance) Priorities
- Asset Levels of Service (Condition & Performance) Priorities within Asset Class
- Asset Class Priorities (Core & Non-Core)





# Thanks!

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Session 2: Risk Assessment  
Part B

Leanne Brannigan, Region of Peel

# Asset Management



## It's a Way of Business

Leanne Brannigan  
A/Director, Enterprise Asset Management  
Region of Peel



# Peel's Asset Management Status

Asset management is a way of business at Peel:

- Asset Management Policy
- Approved asset levels of service
- AM embedded in our Long Term Financial Planning Strategy
- Enterprise Asset Management Strategy
- Asset Class Strategy Library
- Enterprise Asset Management Plan issued annually
- The annual Infrastructure Status & Outlook Report
- Regular reporting to Executive Management:
  - State of the infrastructure
  - Infrastructure investment needs
  - Updates on key infrastructure issues & risks
- Regular risk assessments for all asset classes
- Regular condition assessments for all assets
- Program asset management plans in progress

# The Asset Management Challenge

How to determine asset priorities?:

- Dissimilar asset types across Peel
- Function to differing LOS
- Differing criticalities
- Serving different programs & LOS

The Goal:

- *Develop a way to prioritize assets across the organization*

# Peel's Answer – Risk!

- The chance of something happening that will impact the achievement of objectives
  - Used the Australian & New Zealand frameworks (AS/NZS 4360) to start
  - Developed impact & likelihood measurement tools customized to the Peel business environment
  - Triple Bottom Line risk assessment (Social, Environmental & Financial)

*“Other risk frameworks could be applied within the RMS developed at Peel”*

# What's missing?

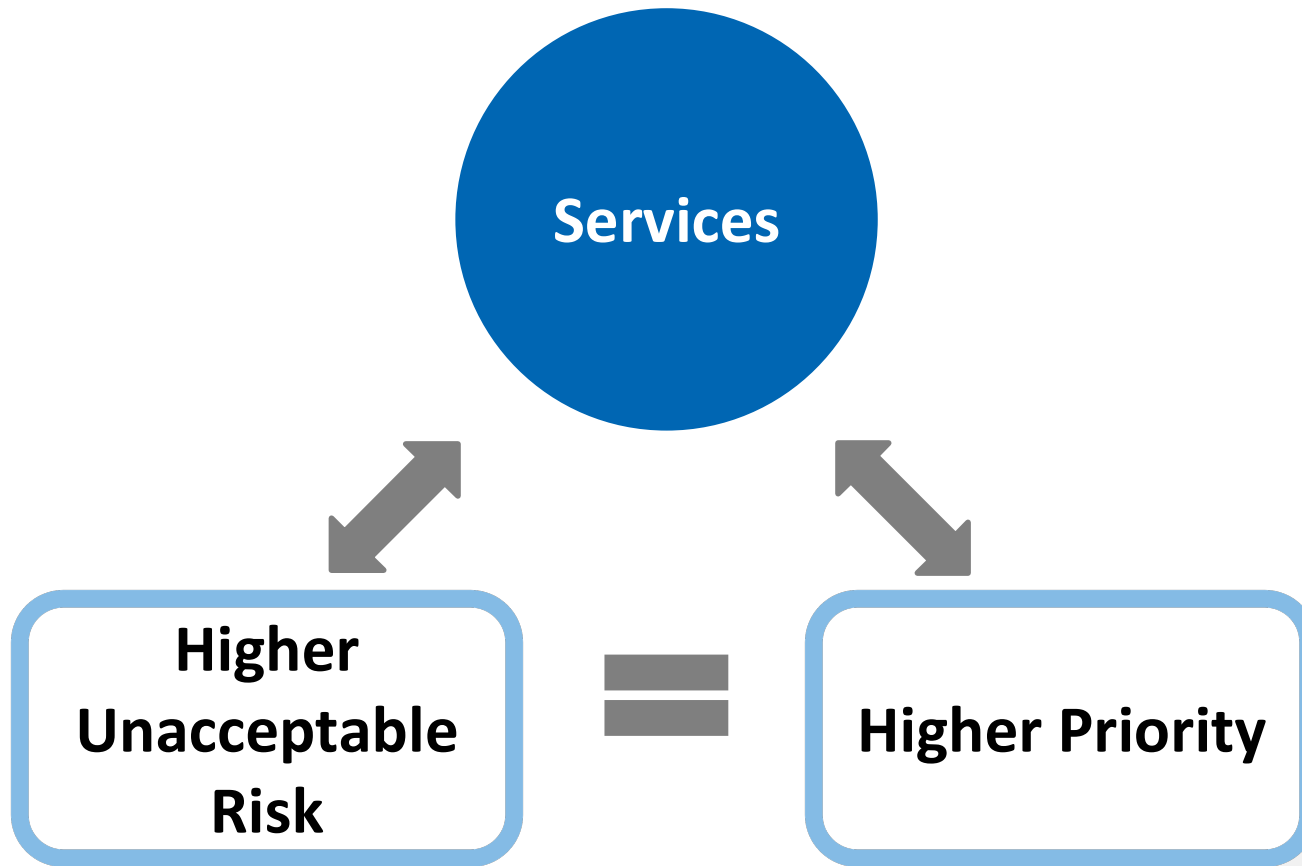
- Gaps in other existing methodologies to meet all of the needs.
- Highest Risk Score ~~≠~~ Funding Priority
- Detailed asset risk scores DO NOT roll up to support organizational cross-asset/service prioritization
- Peel developed a methodology that:
  - Determines level of additional organizational risk that a group of assets are imparting on the organization
  - Indicates where the most cost effective risk reductions can be made
  - ID's the amount of risk can be mitigated

# Goals of Peel's Risk Approach

- ✓ Risk is measured relative to the end services
- ✓ An organizational context on the level of risk
- ✓ Correlation between the asset LOS needs & risk it imparts on the services
- ✓ A dynamic comparative basis for prioritization across diverse assets
- ✓ A connection between comparative risk & funding



# The Core Principle



We only own assets to support the delivery of services!

“Critical” assets are not necessarily the highest priority if their level of risk is acceptable.

# Peel's Organizational AM Framework



<https://committee.iso.org/files/live/sites/tc251/files/guidance/ISO%20TC251%20OWG4%20MACAM%20May%202017%20EN2.pdf>

# Strategic Risk Management for AM

- Focus on technical levels of service (TLOS), risks and L/C strategies relating to the condition & performance of assets
- Strategic AM is done at the “Asset Class” Level of the asset hierarchy
- ALOS & the risk profile are identified for each **asset class**
- Programs leverage our **Organizational Risk** to evaluate their detailed asset risks

# Advantages...

1. The establishment of a link between an asset's current LOS and current risk,
  - Allows performance monitoring of assets across the organization
  - If you can forward model LOS, you can forward model Risk accordingly
2. The Risk gaps can be used to prioritize asset needs across many classes.
3. Applying cost to LOS needs enables a direct relationship between Risk and \$. Dollars can be optimized for Risk Reduction.

## Advantages...

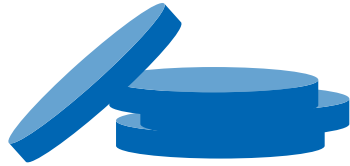
4. Performance measures can be established to track improvements in LOS and risk over time.
5. Boundary risk scores can be adjusted at any time, as programs & the environments in which they operate change.
6. This holistic view of the asset infrastructure enables the establishment of risk tolerances & changes to LOS
7. Proven beneficial at a portfolio basis as evidence to support program level decision making.

# The Risk Profile

- A Risk Profile is required to establish:
  - Risk tolerance or appetite
  - Key risk areas
  - Risk priorities
  - Options to deal with risks
- Does not necessarily indicate that a risk will occur, but is more of an indicator of the relative criticality & potential vulnerability of the asset classes
- Risk Profiles are the basis for our:
  - Risk Analysis
  - Organizational Prioritization and recommendations
  - Many of the State of the Infrastructure and Asset Management reporting metrics

**So how do we do it?**

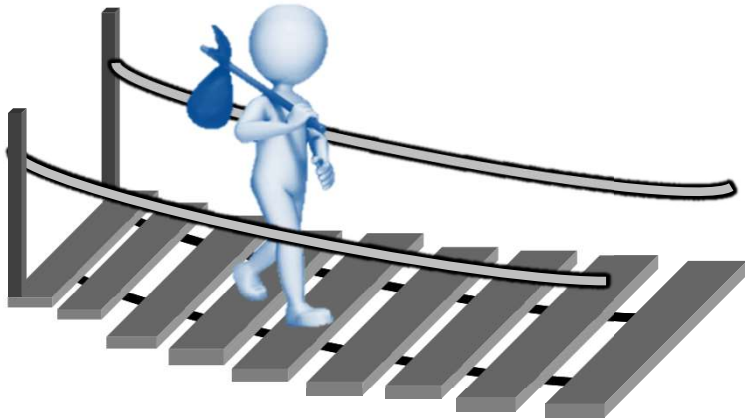
# Risk Boundaries



Consequence



Probability



## Residual (Target) Risk

Reasonable Mitigation in place  
Asset is Meeting ALOS Targets

**Min. Asset Risk to Service**



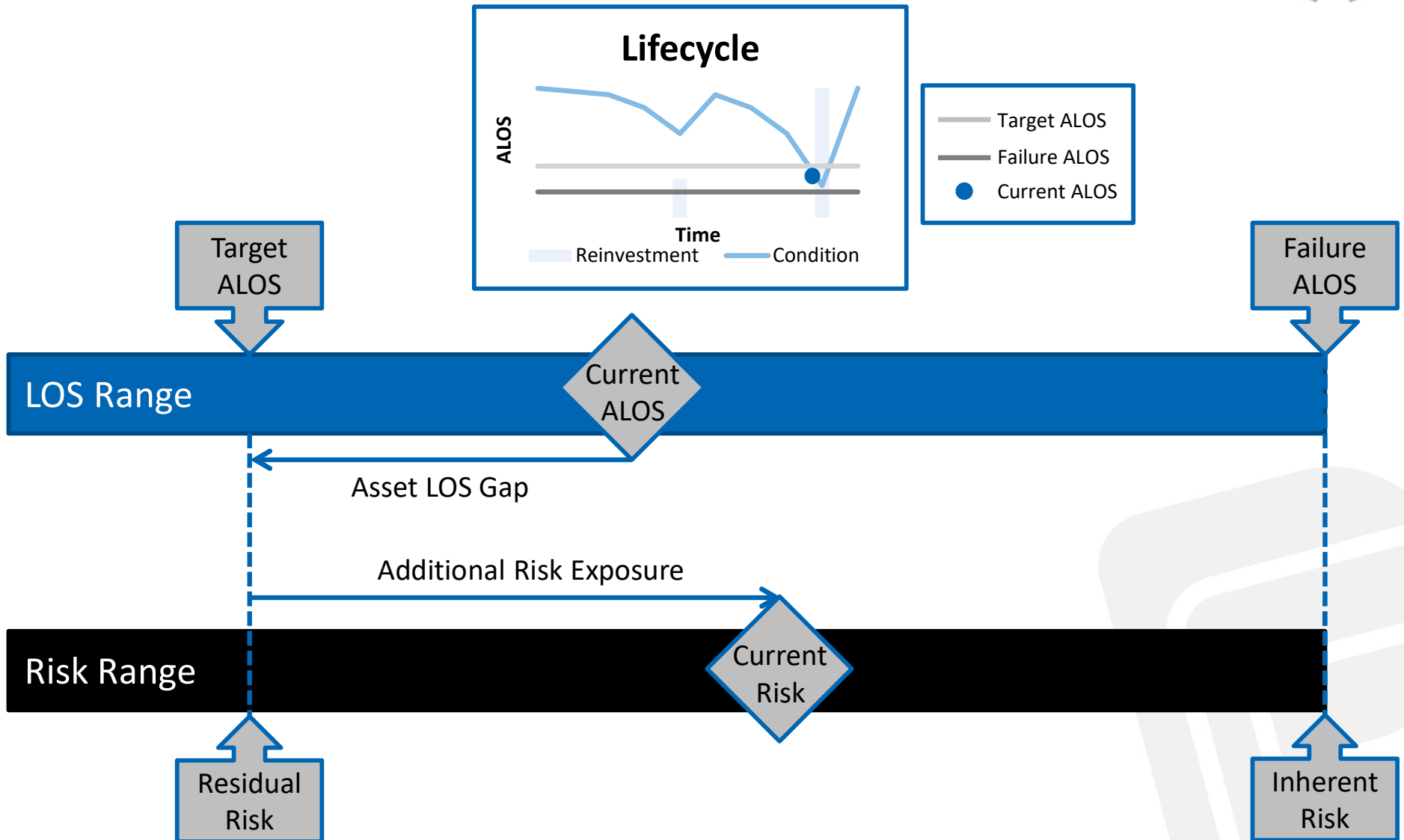
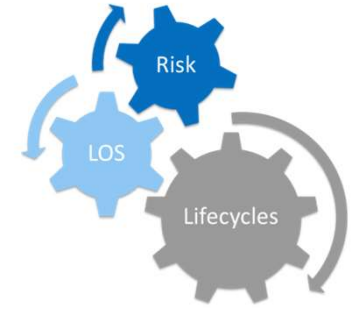
## Inherent (Max) Risk

No Risk Mitigation in place  
Asset is Failing ALOS Targets

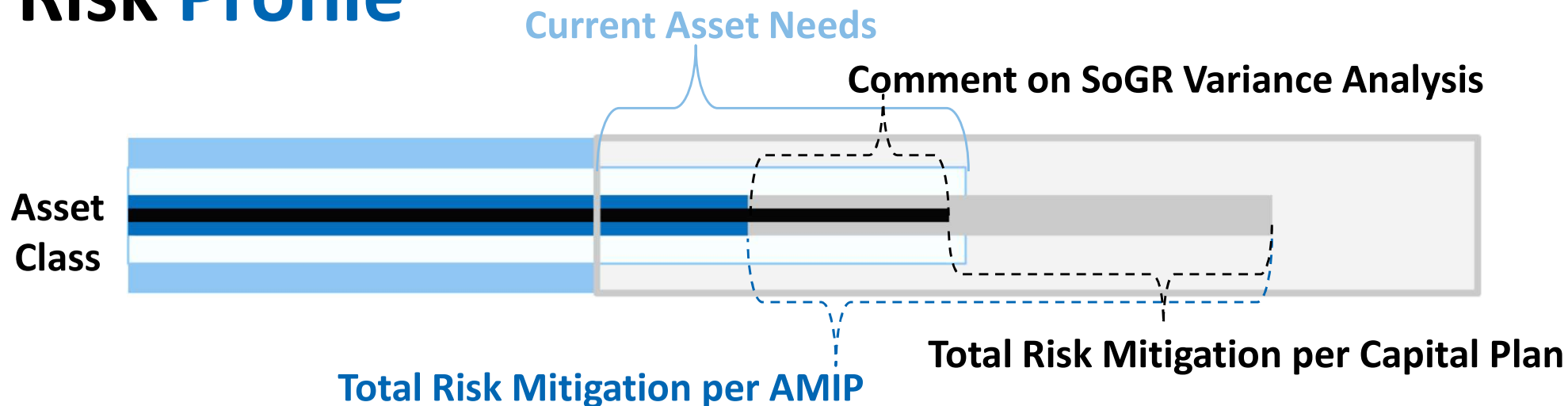
**Max. Asset Risk to Service**



# Lifecycle, LOS, & Risk Connected



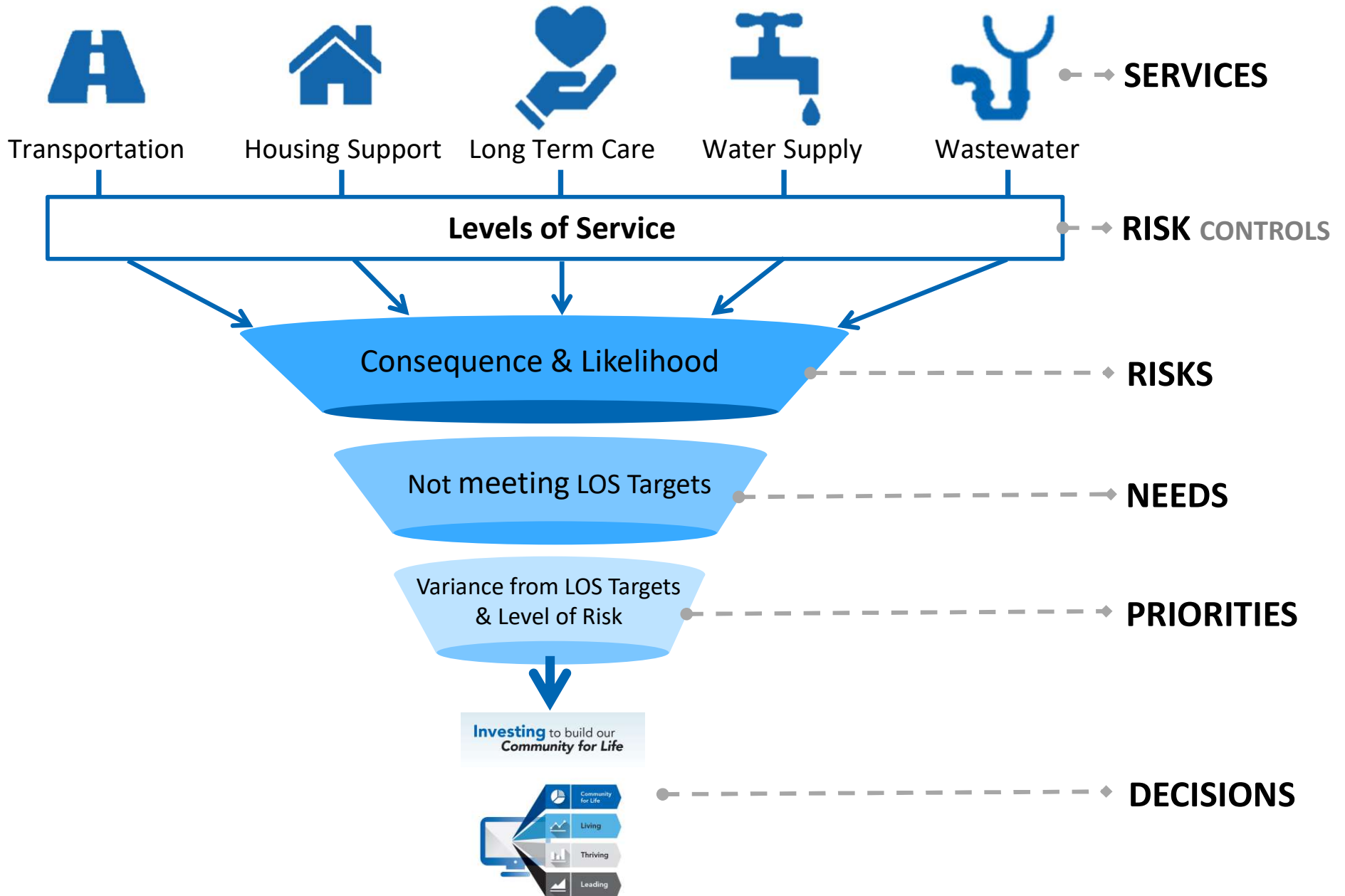
# Risk Profile



- Inherent (Unmitigated) Risk** – Maximum estimated level of risk. No ALOS controls.
- Residual (Target) Risk** – Desired risk after implementing all Practical ALOS controls.
- Risk Range** (Inherent to Residual) – The Range of risk achievable through varying levels of ALOS controls.
- Current Risk** – Estimated level of risk under Present level of ALOS controls.
- Projected 10-Yr Risk (No Reinvestment)** – Forecasted level of risk in 10 years assuming no capital reinvestment in ALOS controls.
- 10-Yr Risk per AMIP** – Forecasted level of risk in 10 years assuming the recommended capital reinvestments in the Asset Management Investment Plan are implemented.
- 10-Yr Risk per Capital Plan**- Forecasted level of risk in 10 years assuming the reinvestments in the Capital Plan are implemented.

**What does this do for us?**

# PEEL'S ASSET MANAGEMENT STRATEGY



# FROM CLOS TO BUDGET

## Customer Levels of Service

Potable water at an appropriate pressure and quality.

Efficient delivery of water services.

## Asset Levels of Service

Maintain Equipment at a Condition Rating = B (Good)

Backup capacity for all critical equipment

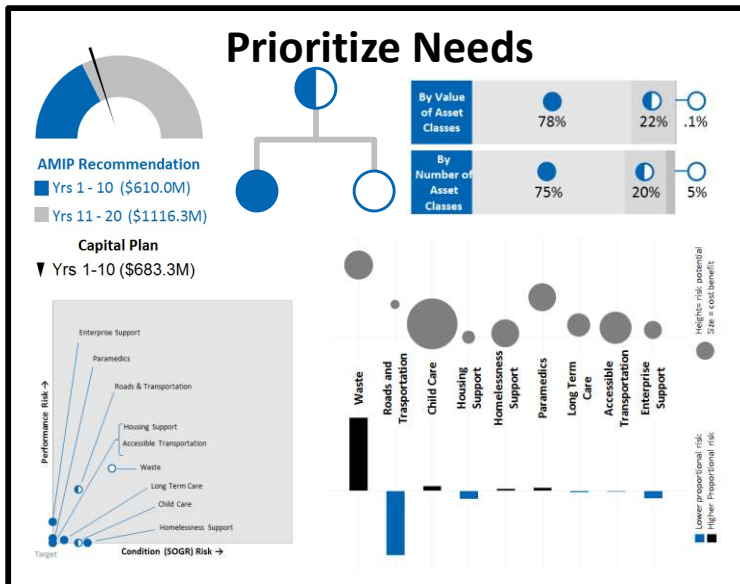
Provide Standby Power

Redundant power supply

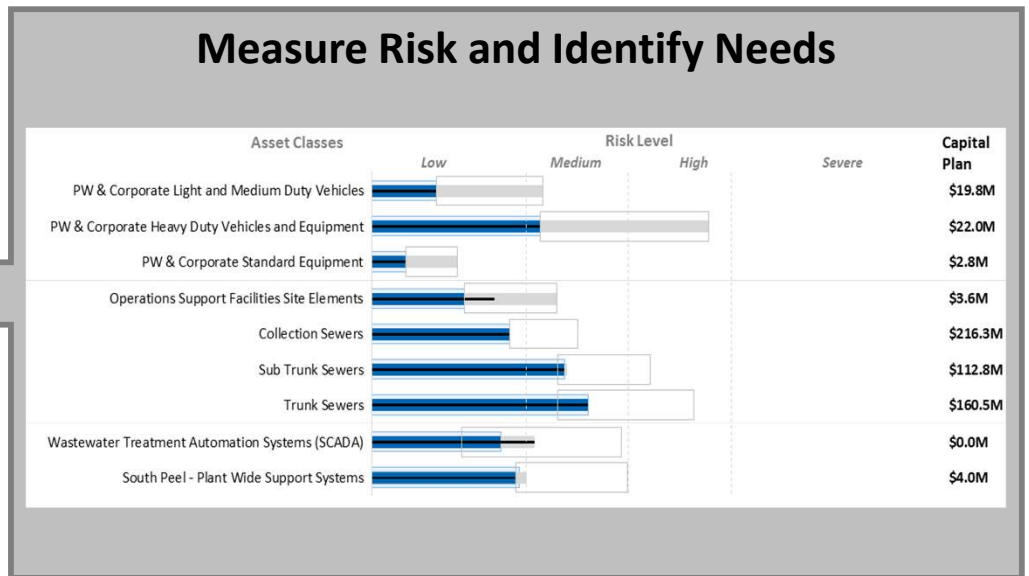
Capacity and technology to produce water of suitable quality

Automated monitoring systems in place

## Prioritize Needs



## Measure Risk and Identify Needs



**Break Asset Management down to the Decisions Council has to make**

# What are the benefits?

- Clear & defensible strategic information:
  - state of the infrastructure
  - asset & service risks
  - organizational asset needs & priorities
  - financing requirements
- Shifts the discussion from “where are we?” to “where do we go?”
- Capital Plans are aligning with SoGR needs
- Program experts are driving their detailed plans and managing their assets
- Puts the information and decisions in the proper hands

**TRANSPARENCY** and **OBJECTIVITY**



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