Risk Assessment in AMPs

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

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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.

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Risk

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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

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Why Risk Management Matters

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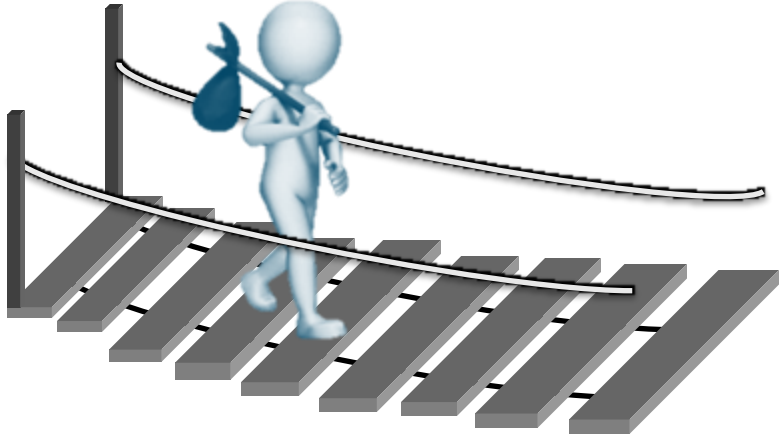
Risk =  Consequence ✕ Probability 

Assets failing ALOS Targets = Higher Risk

Unacceptable Risk



Assets meeting ALOS Targets = Lower Risk

Acceptable Risk

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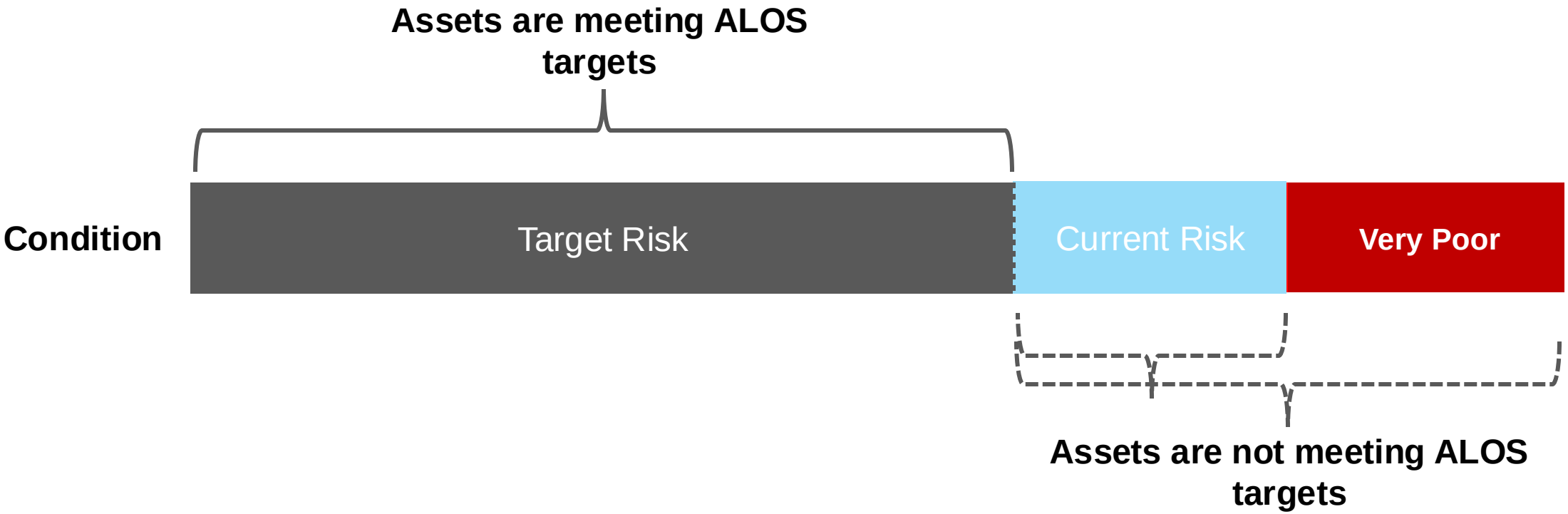
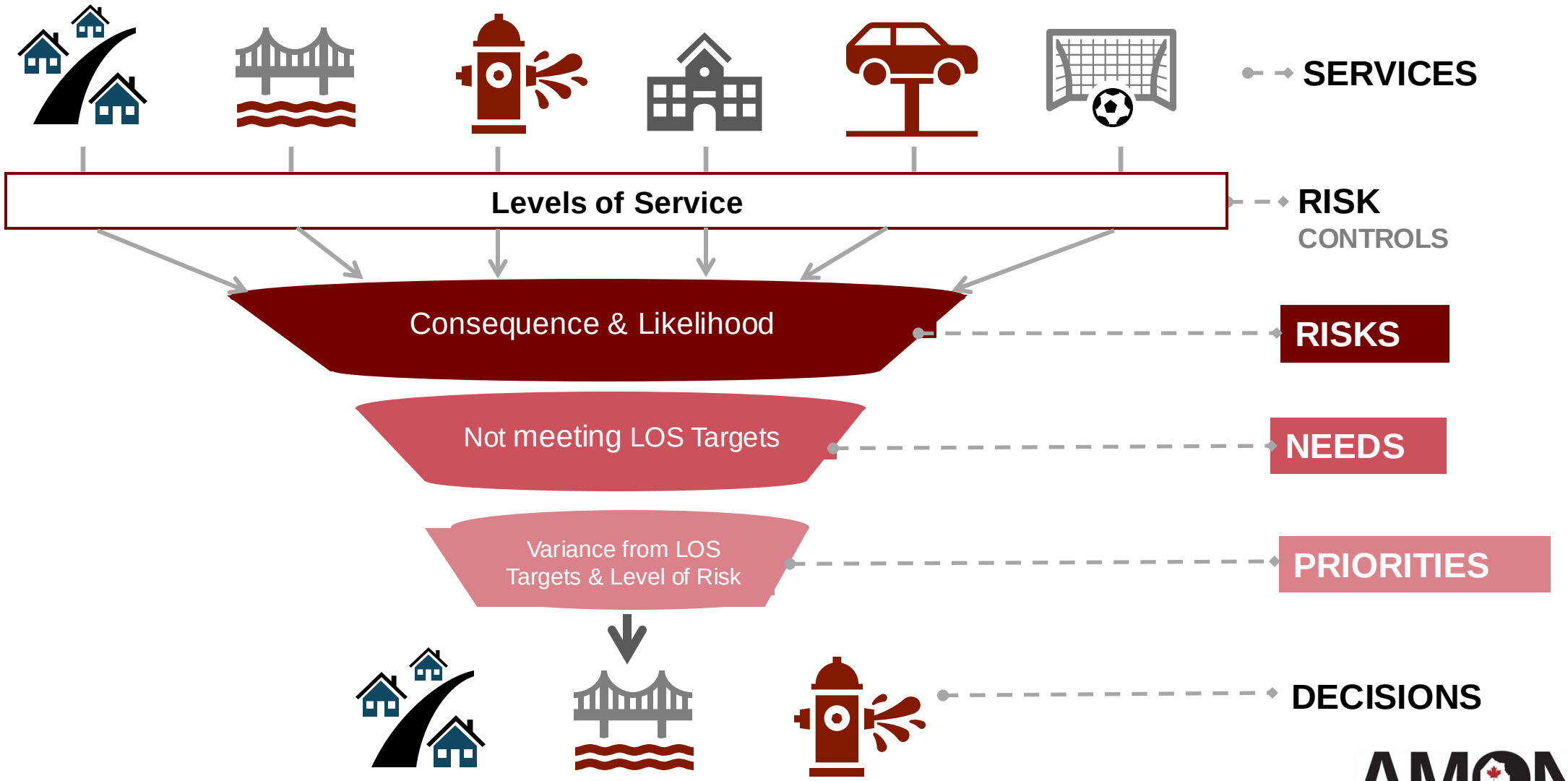
Example: Connection between Risk & LOS

Asset Current Condition = “Poor”

ALOS target = “Fair”



Risk Management Process for Asset Management



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Risk Assessment Process

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O.Reg 588/17 Compliance

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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**.

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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.

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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**.

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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

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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	**Pavement Condition**	**4**	**3**	**5**	**2**	**3**	**17**											
	PCI=70							**2**	**34**	**PCI >95**	44%	1	**17**	50.0%		1	**0**	
										PCI = 70 - 95	22%	2	**34**	0.0%	45%	2	**34**	0.0%
										PCI = 51 - 69	33%	3	**51**	-33.3%	7%	3	**51**	-33.3%
										PCI = 45 - 50		4	**0**		15%	4	**68**	-50.0%
										PCI <45		5	**0**		33%	5	**85**	-60.0%
Average Condition ALOS Risks and	**Average Condition ALOS Risks and Total Costs**										**100%**		**32**	5.5%	**100%**		**57**	-40.6%
Overall Average Condition ALOS I	**Overall Average Condition ALOS Risks and Total Costs**								**34**				**32**	5.5%			**57**	-40.6%
HCB Rural Collector Roads	**Operational Functionality**	**4**	**3**	**4**	**2**	**2**	**15**											
	Good							**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	**Average ALOS Performance Risks and Total Costs**										**100%**		**31**	-2.0%	**100%**		**31**	-2.0%
HCB Rural Collector Roads	**Capacity to Meet Demands**	**3**	**3**	**3**	**1**	**3**	**13**											
	Good							**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	**Average ALOS Performance Risks and Total Costs**										**100%**		**26**	0.0%	**100%**		**26**	0.0%
HCB Rural Collector Roads	**Environmental Resiliency**	**3**	**3**	**4**	**2**	**3**	**15**											
	Good							**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	**Average ALOS Performance Risks and Total Costs**										**100%**		**30**	0.0%	**100%**		**30**	0.0%
Overall Average Performance ALO	**Overall Average Performance ALOS Risks and Total Costs**								**29**				**29**	-0.7%			**29**	-0.7%
Combined Average Condition & P	**Combined Average Condition & Performance ALOS Risks and Total Costs**								**31**				**30**	2.7%			**43**	-27.2%

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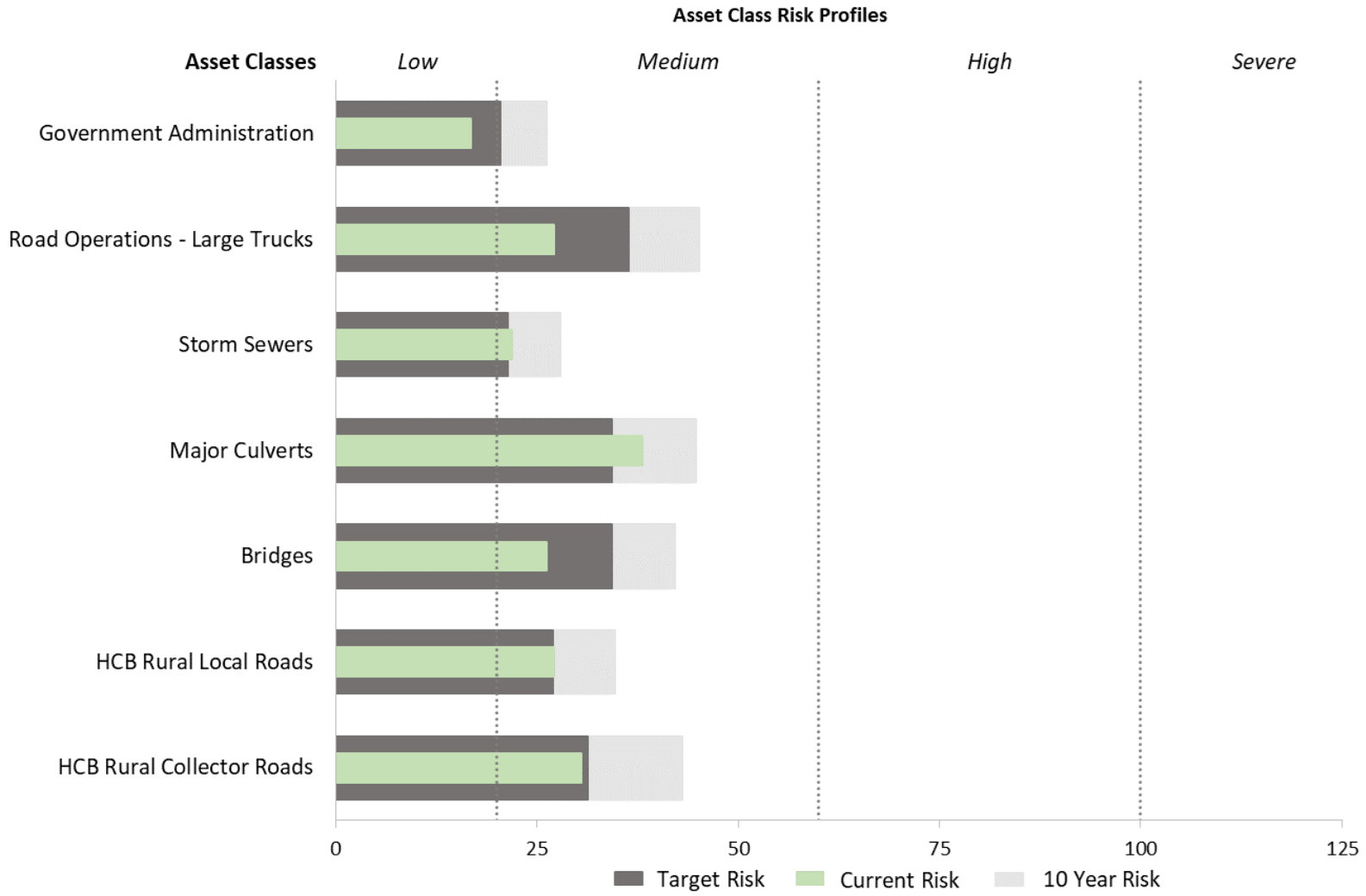
AMONTario Risk & Priority Models_Risk Assessment



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)

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Thanks!

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