



**USING RESERVES AND RESERVE  
FUND STRATEGIES TO MEET  
YOUR CHALLENGING NEEDS  
AHEAD!**

2017 FONOM/MMA NORTHEASTERN MUNICIPAL CONFERENCE  
NORTH BAY, ON MAY 11, 2017

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## FIRM PROFILE

SERVING CLIENTS ACROSS BORDERS -  
WHERE AND WHEN THEY NEED US.



**BDO IN CANADA**

**AS OF 12/31/2015**

**100+** Offices  
**442** Partners  
**2,382** Staff

**CDN \$534** million gross revenue

\*BDO Canada LLP revenue updated annually in April



**BDO INTERNATIONALLY**

**AS OF 09/30/2016**

**158** Countries  
**1,400+** Offices  
**67,700** Staff

**5<sup>th</sup>** largest  
accounting firm

**US \$7.6** billion global gross revenue

BDO's strength is derived from our structure as a cohesive global network and dedication to internal integration. In each country, BDO Member Firms are comprised of professionals who are knowledgeable about national laws and business customs, and familiar with local and international business methods.

As our clients expand globally, our access to our international network can help them do business with a depth of experience in international matters, significant resources and international client service capabilities.



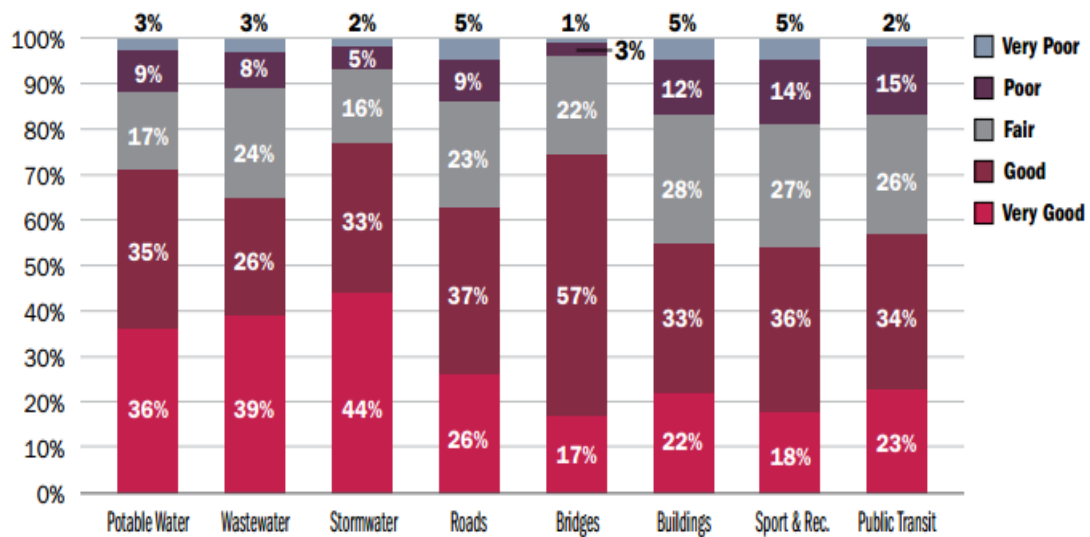
## BDO CANADA LLP MUNICIPAL CLIENTS

City of Clarence-Rockland	Nation Municipality	Township of Georgian Bluffs	Municipality of Meaford
City of Dryden	Town of Aurora	Township of Hilton	Municipality of Neebing
City of Elliot Lake	Town of Bracebridge	Township of Hornepayne	Municipality of North Perth
City of North Bay	Town of East Gwillimbury	Township of Ignace	Municipality of Powassan
City of Orillia	Town of Essex	Township of Jocelyn	Municipality of Red Lake
City of Owen Sound	Town of Fort Frances	Township of King	Municipality of Strathroy-Caradoc
City of Sarnia	Town of Hanover	Township of Lake of the Woods	Municipality of West Grey
City of Thunder Bay	Town of Kingsville	Township of Lake of Bays	Municipality of West Perth
County of Bruce	Town of Newmarket	Township of LaVallee	Township of Dawn-Euphemia
County of Dufferin	Town of Orangeville	Township of Morley	Township of Dawson
County of Grey	Town of Petrolia	Township of Muskoka Lakes	Township of Dubreuilville
County of Lambton	Town of Rainy River	Township of North Dundas	Township of North Dumfries
County of Perth	Town of Saugeen Shores	Township of Papineau Cameron	Township of Ear Falls
Haliburton County	Town of Shelburne	Township of Pelee Island	Township of East Zorra - Tavistock
Lambton Shores	Town of Whitchurch-Stouffville	Township of Perth East	Township of Emo
Municipality of Arran-Elderslie	Township of Adjala-Tosorontio	Township of Pickle Lake	Township of Georgian Bay
Municipality of Brighton	Township of Aliberton	Township of Plummer Additional	Township of South Stormont
Municipality of Dysart et al	Township of Atikokan	Township of Puslinch	Township of St. Joseph
Municipality of Grey Highlands	Township of Bonfield	Township of Prince	Township of the Archipelago
Municipality of Killarney	Township of Chapple	Township of Red Rock	Village of Casselman
Municipality of Machin	Township of Chisholm	Township of Scugog	Village of Hilton Beach
Municipality of Mattawan	Township of Cockburn Island	Township of Southgate	Village of Oil Springs



## WHY ARE RESERVES IMPORTANT

Summary of the average physical condition of types of infrastructure as reported in the "Canadian Infrastructure Report Card 2016"



[http://www.canadainfrastructure.ca/downloads/Canadian\\_Infrastructure\\_Report\\_Card\\_Key\\_Messages\\_2016.pdf](http://www.canadainfrastructure.ca/downloads/Canadian_Infrastructure_Report_Card_Key_Messages_2016.pdf)

## WHY ARE RESERVES IMPORTANT

Summary of the physical condition of the infrastructure studied, by replacement value, extrapolated to the entire county as reported in the "Canadian Infrastructure Report Card 2016"

Infrastructure	Extrapolated Replacement Value of All Assets	Assets in Very Poor and Poor Condition	Assets in Fair Physical Condition	Anticipated Condition Based on Reported Reinvestment Levels (Improving, Stable, Declining)
		Replacement Value	Replacement Value	
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 and Recreation 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>	
<b>Replacement Value per Household</b>	<b>\$80,000</b>	<b>\$10,000</b>	<b>\$18,000</b>	



## RESERVE PROGRAM ELEMENTS

- Strategy and Plan
- Modelling and Analysis
- Documentation
- Communications
- Validation, Reinforcement and Risk Management

# STRATEGY AND PLAN





## RESERVES POLICY

Reserves are resources set aside to provide **financial flexibility**

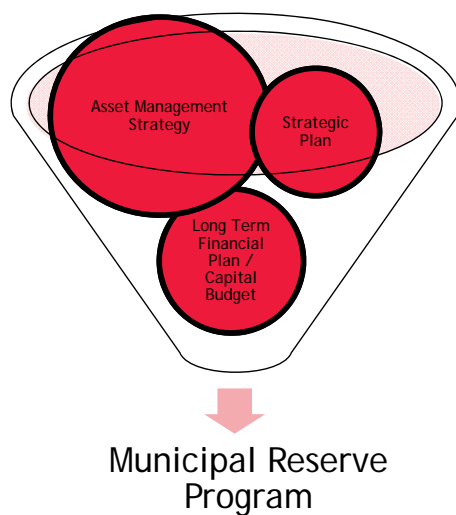
- saving for future needs and buffer shocks and manage risks
- enabling opportunities as they arise

Rationale for having a reserve policy:

- ensure stable and predictable levies
- safeguard and optimize existing assets
- determine financing requirements and options for new capital assets
- provide for operating emergencies
- balance sheet stability and flexibility

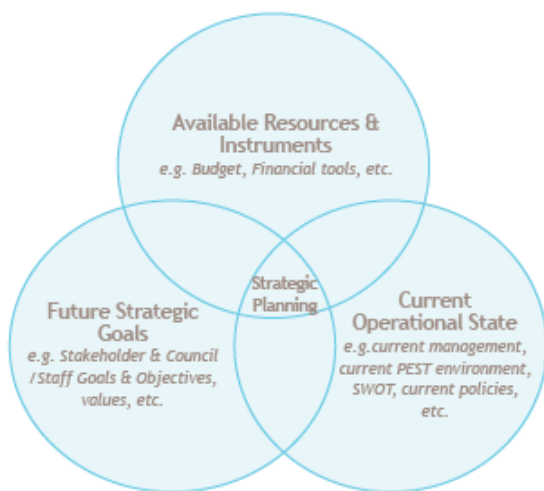


## LINKING YOUR MUNICIPAL RESERVE PROGRAM



- Reserve program is a small component of the asset management strategy/plan of any municipality
- It must consider asset conditions, expected level of service, strategic planning, forecasted growth, policy directions, long-term financial and capital budgeting plans etc...

## LINKING STRATEGIC PLANNING & YOUR ASSET MANAGEMENT STRATEGY



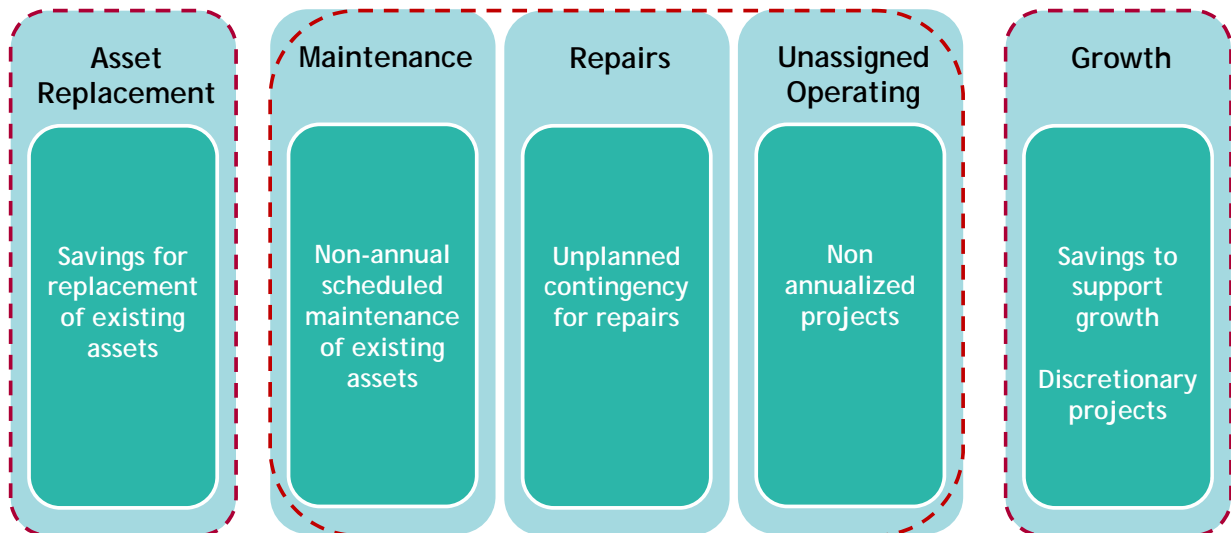
- Start your financial assessments early within your Strategic Planning initiatives.
- Develop financial models and scenario analyses to help determine reserve funds.
  - Development of a financial model to assist with long term planning of capital assets
  - Integration with Asset Management Plan and key strategic objectives of the municipality.
  - Scenario analyses on funding of assets, asset gentrification, revenue options (e.g., taxes, debt, etc.)

- A strategic and proactive approach that places a premium on data, information, collaboration and interdisciplinary management.
- A comprehensive long-term view of infrastructure performance and cost.
- An explicit, visible and transparent approach that requires effective communication among all stakeholders.

## LINKING ASSET MANAGEMENT STRATEGY & RESERVE FUNDING

Traditionally looked at as Capital and Operating.

Redefine based on segregating cash uses.



Projects that are recurring on an annualized basis - are not funded from reserves, but to be considered in annual operating budgets - net zero impact on annual budgets.

## WHY MAKE THESE LINKS?

- Allows for better decision making regarding resource allocation.
- Leads to more effective communication with ratepayers, elected officials, financial rating organizations and regulatory agencies.
- Provides consistent levels of service to the public.
- Better management of risk to the municipality.
- Allows for more effective financial planning.
- Reduces lifecycle costs.
- Leads to more efficient data management.
- Facilitates the establishment and subsequent implementation of policy objectives and the related measurement of performance.
- Avoids problems and potential crises.
- Results in positive institutional change.



# FINANCIAL MODELLING



## DETERMINING YOUR RESERVE FUNDING THROUGH YOUR FINANCIAL MODEL (AMP/AMS)

- Establish a financial plan and model to support municipal infrastructure/service needs.
- Incorporate debt elements, perform sensitivity analyses, determine the most optimal debt for the municipality in a given scenario.
- Determine the optimal level of debt vs. equity available for the municipality in funding its capital infrastructure assets including scenario analyses.

(e.g., varying scenarios to determine optimal debt/funding sources; request for funding amount based best on revenue/funding options for the township, financial sustainability of the municipality as it relates to asset replacement or repair, etc.)

- Assessment of existing processes and systems and identification.

### These should link to:

- Council goals and strategies
- Community service expectations
- Growth and demand projections
- Asset life-cycle management
- Operating and maintenance programs
- Annual and long term financial planning

## DATA SOURCES

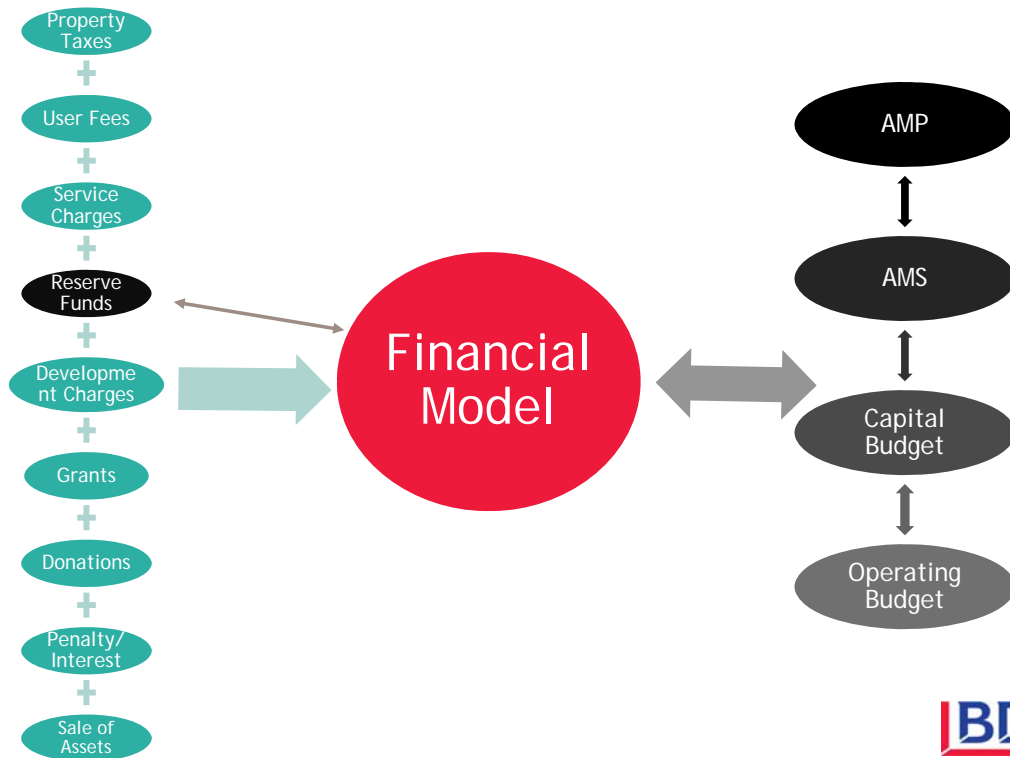
In order to build an effective model it must be aligned with the following:

- Assessment of the state of local infrastructure
- Expected levels of service
- Asset management strategy

### ILLUSTRATIVE EXAMPLE

ASSET TYPE	AGE	CONDITION
Water Distribution	PSAB Records, Master Plans, CAD Drawings	Maintenance, Repair Records
Sanitary Sewer	PSAB Records, Master Plans, CAD Drawings	Maintenance, Repair Records, CCTV Inspections
Storm Sewer	PSAB Records, Master Plans, CAD Drawings	Maintenance, Repair Records, CCTV Inspections
<b>ROADS</b>		
Roads (Surface and Bed)	PSAB, GIS, Road Needs Study, CAD Drawings	Right-of-Way Video Log / Visual Inspection / PCI
Bridges (Bridges and Large Culverts)	PSAB, GIS, OSIM	OSIM Reports
Sidewalks	PSAB, GIS, Visual Field Inspection	Right-of-Way Video Log / Visual Inspection
<b>BUILDINGS</b>		
Sub-Systems	PSAB, Master Plans, Insurance, ...	Master Plans, Maintenance, Repair Records
Internal Equipment (Pumps, Valves)	PSAB, CAD drawings, Insurance, ...	Master Plans, Maintenance, Repair Records

## SOURCES OF FUNDS





# SAMPLE FINANCIAL MODEL

Reserve funds are a determinable amount through sensitivity analysis of a AMP financial model. They are but one type of funding within a model.

## SCREEN SHOTS FROM AMP MODEL

CASH FLOW SUMMARY

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2	<b>TOWN OF ABC</b>													
3	<b>CASH FLOW SUMMARY</b>													
4														
5			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023		
6	<b>Revenue (including Inflation)</b>													<b>Check</b>
7	Property taxes		20,000,000	20,000,000	-	-	-	-	-	-	-	-	40,000,000	40,000,000
8	User Fees		5,000,000	5,000,000	-	-	-	-	-	-	-	-	10,000,000	10,000,000
9	Service Charges		10,000,000	10,000,000	-	-	-	-	-	-	-	-	20,000,000	20,000,000
10	Reserves/Reserve Fund		-	-	-	-	-	-	-	-	-	-	-	-
11	Development Charges		15,000,000	15,000,000	-	-	-	-	-	-	-	-	30,000,000	30,000,000
12	Grants		3,000,000	3,000,000	-	-	-	-	-	-	-	-	6,000,000	6,000,000
13	Donations		3,000,000	3,000,000	-	-	-	-	-	-	-	-	6,000,000	6,000,000
14	Penalty/Interest		500,000	500,000	-	-	-	-	-	-	-	-	1,000,000	1,000,000
15	Sale of Assets		-	-	-	-	-	-	-	-	-	-	-	-
16	Other		500,000	500,000	-	-	-	-	-	-	-	-	1,000,000	1,000,000
17			57,000,000	57,000,000	-	-	-	-	-	-	-	-	114,000,000	114,000,000
18	<b>Other Funding Sources</b>													
19														
20	Cash on hand		500,000	-	-	-	-	-	-	-	-	-	-	-
21	Debt Financing		-	-	-	-	-	-	-	-	-	-	-	-
22	Annual Debt Principal Payment		(20,000)	-	-	-	-	-	-	-	-	-	-	-
23	Annual Interest Payments		(55,000)	-	-	-	-	-	-	-	-	-	-	-
24			425,000	-	-	-	-	-	-	-	-	-	-	-
25														



## OPTIONS & SENSITIVITY ANALYSES

Option analysis should be done to determine the optimal mix of funding sources for the municipality. It should be long term and tie into the long-term financial plan and asset management plan of the municipality. These can include:

- ❖ Data, Inputs, Sensitivities
- ❖ Historical financial information (e.g. revenues, operating costs)
- ❖ Projections (e.g. future revenues, operating costs, capital expenditures)
- ❖ Externalities (e.g. congestion, encroachment on natural habitats)
- ❖ Outputs
- ❖ Implied NPV/IRR
- ❖ NPV, Indices (CPI) and other financial factors
- ❖ Summary information
- ❖ Reasonability tests and sensitivity analysis
- ❖ Supporting schedules
- ❖ Toll rate/user fees/taxes/subsidies
- ❖ Capital expenditures
- ❖ Granularity | Use of averages, accuracy
- ❖ Risk Factors | Condition, capacity, functionality
- ❖ Funding / Borrowing / Debt

## MODELLING TO DETERMINE RESERVE AMOUNTS

High Level Framework to calculate annual reserve amounts:

Annual Reserve Amount = Replacement Value/Life Remaining

-i.e. Sewer trunk Main -

Age = 12 years

Lifespan = 50 years

Life remaining = 38 year (current age subtracted by lifespan)

Current Year Replacement Cost = \$150,000 (Original cost x Construction Index)

Annual Reserve amount required = \$3,947

**Note:** This is a very high level example and 38 years remaining may not be an accurate reflection of when the asset needs to be replaced.

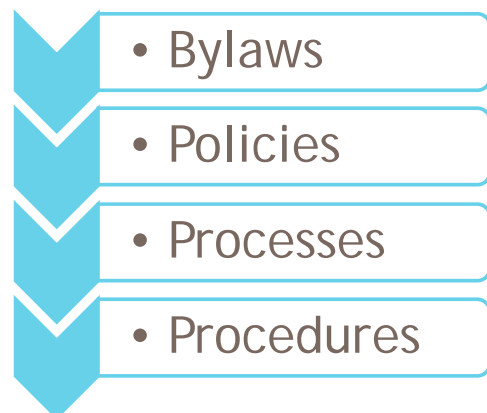
At a certain point in time, it may be better for the municipality to replace rather than rehabilitate/maintain over the long-term, so an assessment of what is financially better should be done.

# DOCUMENTATION



## DOCUMENTATION - KEY AUDIT ISSUES

- Review current bylaws regarding reserves
- May not be aligned with asset types
- New bylaws or amendments may be required
- Policies and procedures may need to be revised
- Roles and responsibilities may need to be revised





## BYLAWS

- Review current bylaws regarding reserves
- Current amounts may be tied to specific uses
- May not be aligned with asset types
- Some may be currently over or under funded
- New bylaws or amendments may be required



## PROCESSES AND PROCEDURES

- Tells us how to calculate annually
  - Generates specific numbers
- Roles and responsibilities of administration
- Risk Management

# COMMUNICATIONS







## STAKEHOLDERS

- Public
- Council
- Administration
  - ❖ Department Heads
  - ❖ Asset owners
  - ❖ Finance

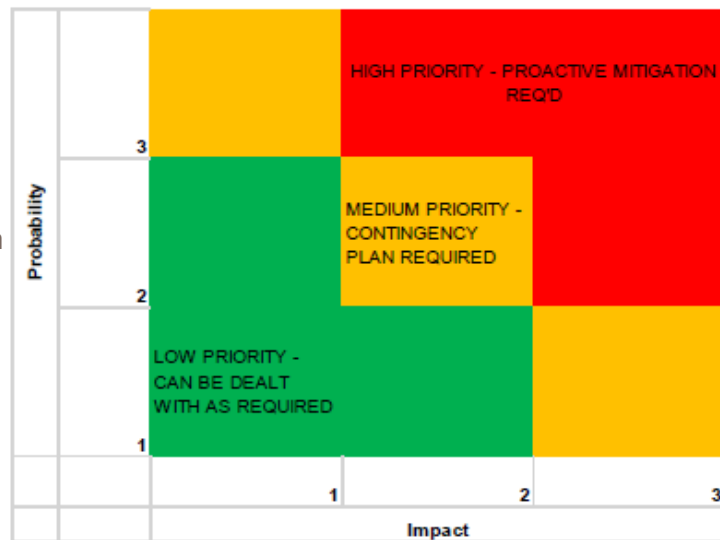
# MANAGING RISK



## ENTERPRISE RISK MANAGEMENT AND AMP

### Examples:

- Weather may have an impact on lifespan
- Demographics may have an impact on functionality
- Economy may have an impact on replacement values
- Impact can be based on direct and indirect costs - potential litigation, reputational, etc.





## DATA INTEGRITY & INTERNAL AUDIT

Analysis of the data quality and suitability to support reserve policy for:

- Completeness - assess with sampling of assets in inventory appearing in data
- Currency - when was the data entered? Updated?
- Accuracy - compare with other asset reports and information

# SUMMARY





## RESERVE APPROACH

### Understand your current environment

- Integration and strategies
- Data
- Bylaws
- Policies
- Processes

### Model the requirements

- Types
- Values
- Ages
- Life spans

## RESERVE APPROACH - CONTINUED

### Document

- Reserve Model
- Bylaws, Policy, Process

### Involve the right people - Communicate

- Council
- Asset Managers
- Finance
- Public

### Manage Risk

- ERM
- Internal Audit



## KEY MESSAGES

### ❖ Benefits

- Stability and predictability
- Resilience
- Continuity of service levels
- Efficiency

### ❖ Risks and Impact of doing nothing

- Asset failure
- Decreased service levels
- Public safety
- Higher costs

### ❖ Pay as you go philosophy

- This is not to be left for future generations!





## QUESTIONS?

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