

Owning Your Asset Management System

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Move your city forward by connecting your people, services, and data

Consulting

- Asset Management
- Budgeting & Finance
- GIS

Software

- Asset Management
- Budgeting & Financial Reporting
- Permitting
- GIS
- CMMS



Asset Management is Service Management

The Asset is the conduit for the service

Infrastructure provides services that bring our cities and towns to life

- Roads and Bridges provide a transportation service
- Pipes and Treatment Plants provide a water and wastewater service
- Facilities / Parks provide recreation programs and services





Insight Report

The Global Risks Report 2019

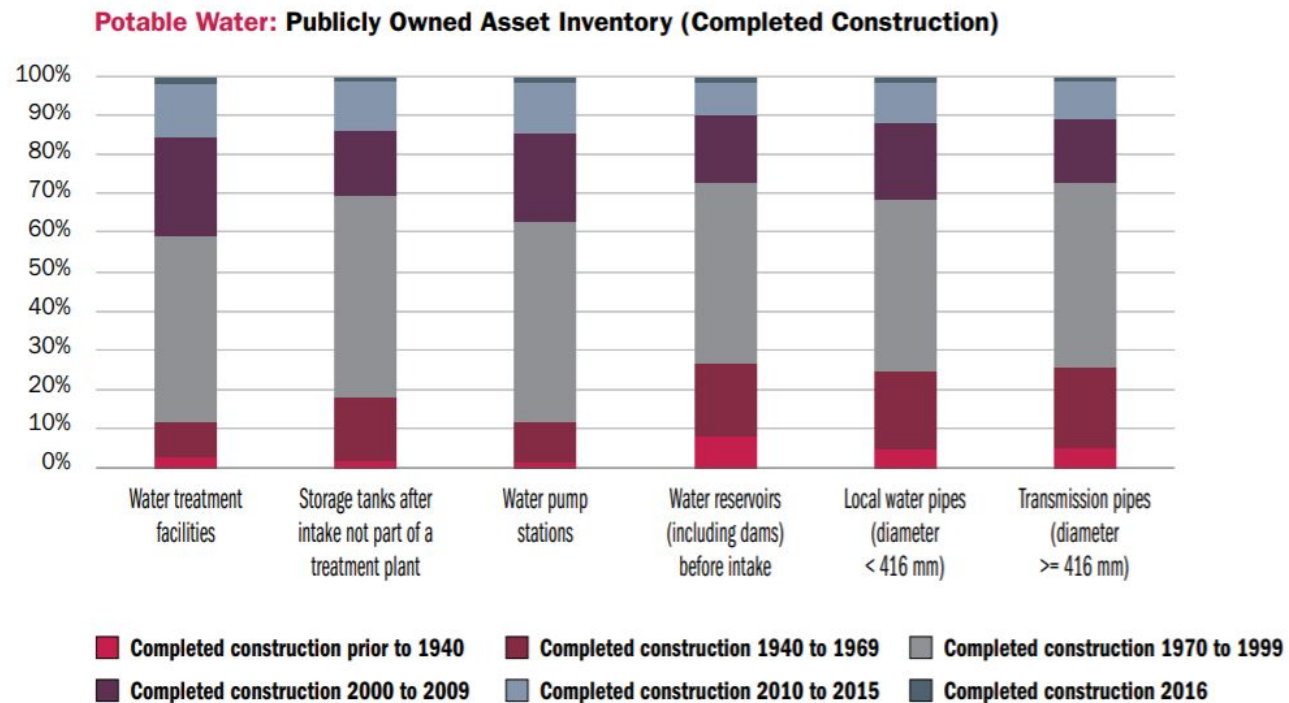
14th Edition

In partnership with Marsh & McLennan Companies and Zurich Insurance Group



Water – Not of This Millennium

- Over 60% water infrastructure constructed prior to year 2000
- Nearly 30% of water reservoirs constructed before 1970

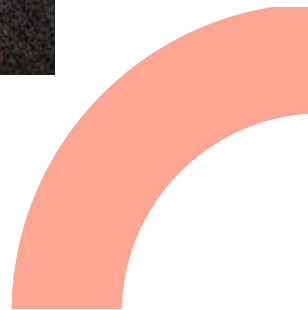


Roads and Bridges – Poor to the Moon

- There are nearly enough Canadian roads in poor or very poor condition to get us halfway to the moon

ASSET CATEGORY	SUBCATEGORY	POOR / VERY POOR	FAIR
ROADS, BRIDGES AND TUNNELS	Roads	146,255 km (16.4%)	201,283 km (22.6%)
	Bridges and Tunnels	9,661 Structures (12.4%)	20,502 Structures (26.3%)

2019 Canadian Infrastructure Report Card

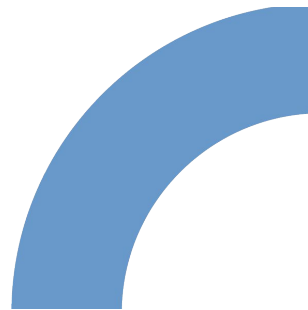


Recreation Facilities – Investments this Decade

- One in three recreation facilities will require a significant capital investment to address deteriorating conditions

ASSET CATEGORY	SUBCATEGORY	POOR / VERY POOR	FAIR
CULTURE AND RECREATION	Ice Arenas/Pools	564 Facilities (12.7%)	883 Facilities (19.8%)
	Arts and Culture Facilities	380 Facilities (8.6%)	721 Facilities (16%)
	Other Facilities	1,886 Facilities (8.6%)	4,972 Facilities (22.7%)

2019 Canadian Infrastructure Report Card



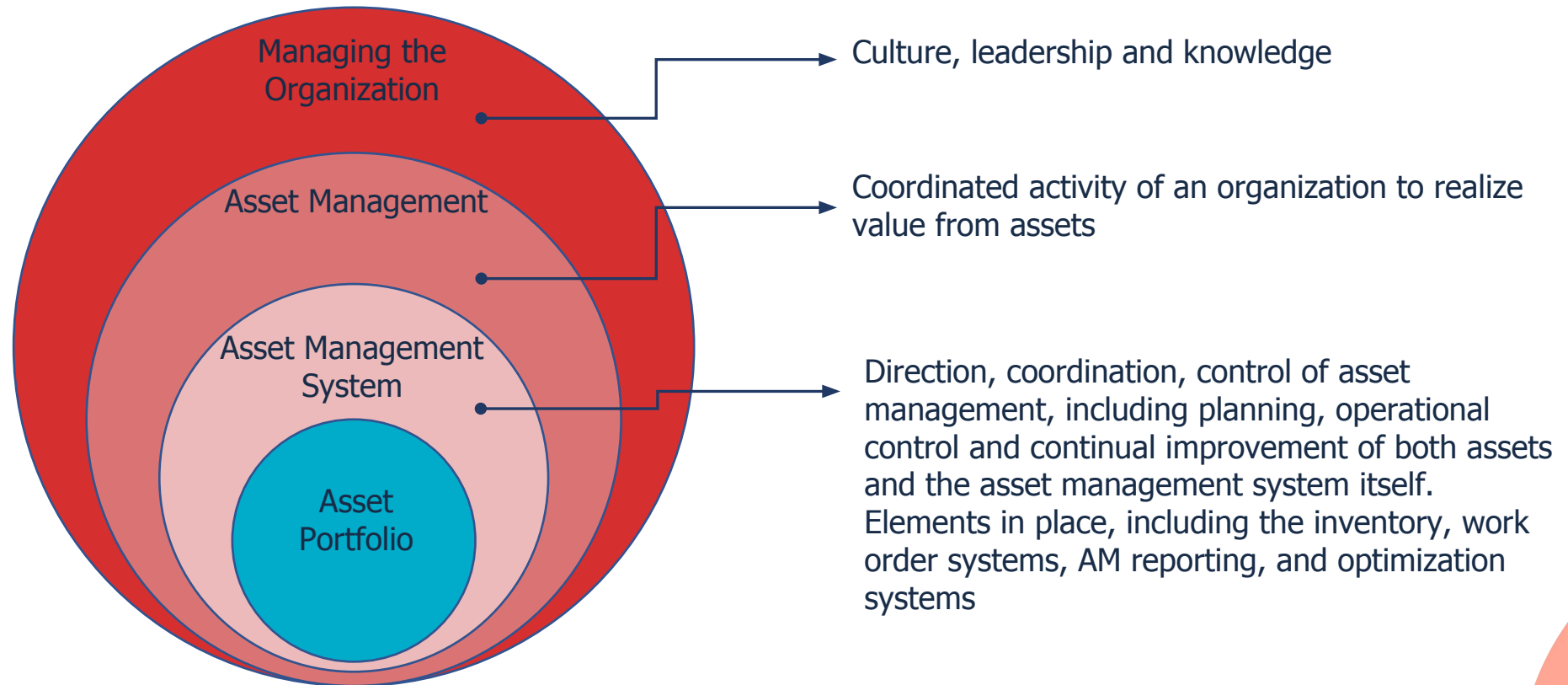
Underground Infrastructure – An Unseen Problem

- Nearly 30% of water, storm and sewer mains are in fair or worse condition
- Extreme weather may place additional constraints on these hidden systems

ASSET CATEGORY	SUBCATEGORY	POOR/VERY POOR	FAIR
POTABLE WATER	Linear	17,788 km (9.6%)	32,641 km (17.7%)
	Non-Linear	573 Facilities (6.4%)	1,333 Facilities (15%)
WASTEWATER	Linear	16,350 km (10.8%)	26,211 km (17.3%)
	Non-Linear	1,386 Facilities (10%)	2,896 Facilities (20.6%)
STORM	Linear	50,251 km (11.3%)	84,614 km (19%)
	Non-Linear	700 Facilities (4.4%)	1,866 Facilities (11.8%)



How to Manage Your Asset Management System



What is the AM system?

It is the way people, processes, data and information is used to manage assets and **services.**

Key Principle of an AM system

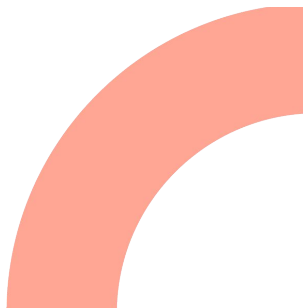
Is that there is **continuous improvement** and can help improve effectiveness and efficiency.

Benefits of an AM system

Improved Service delivery

Reduced risk

Improved financial planning



AM Terminology

AM Systems



AM Information Systems

A set of interrelated or interacting elements of an organization, including the AM policy, A objectives, AM Strategy/Strategic AM Plan, AM Plans, and the processes to achieve these objectives.

A combination of processes, data, software, and hardware applied to provide the essential outputs for effective AM.

AM Framework



AM Practices

The overarching AM hierarchy including the AM Policy, Objectives, Strategy and the AM Plan.

The AM Processes and techniques that an organization undertakes, such as demand forecasting, developing and monitoring levels of service, risk management, etc.

AM Strategy



Maintenance Strategy



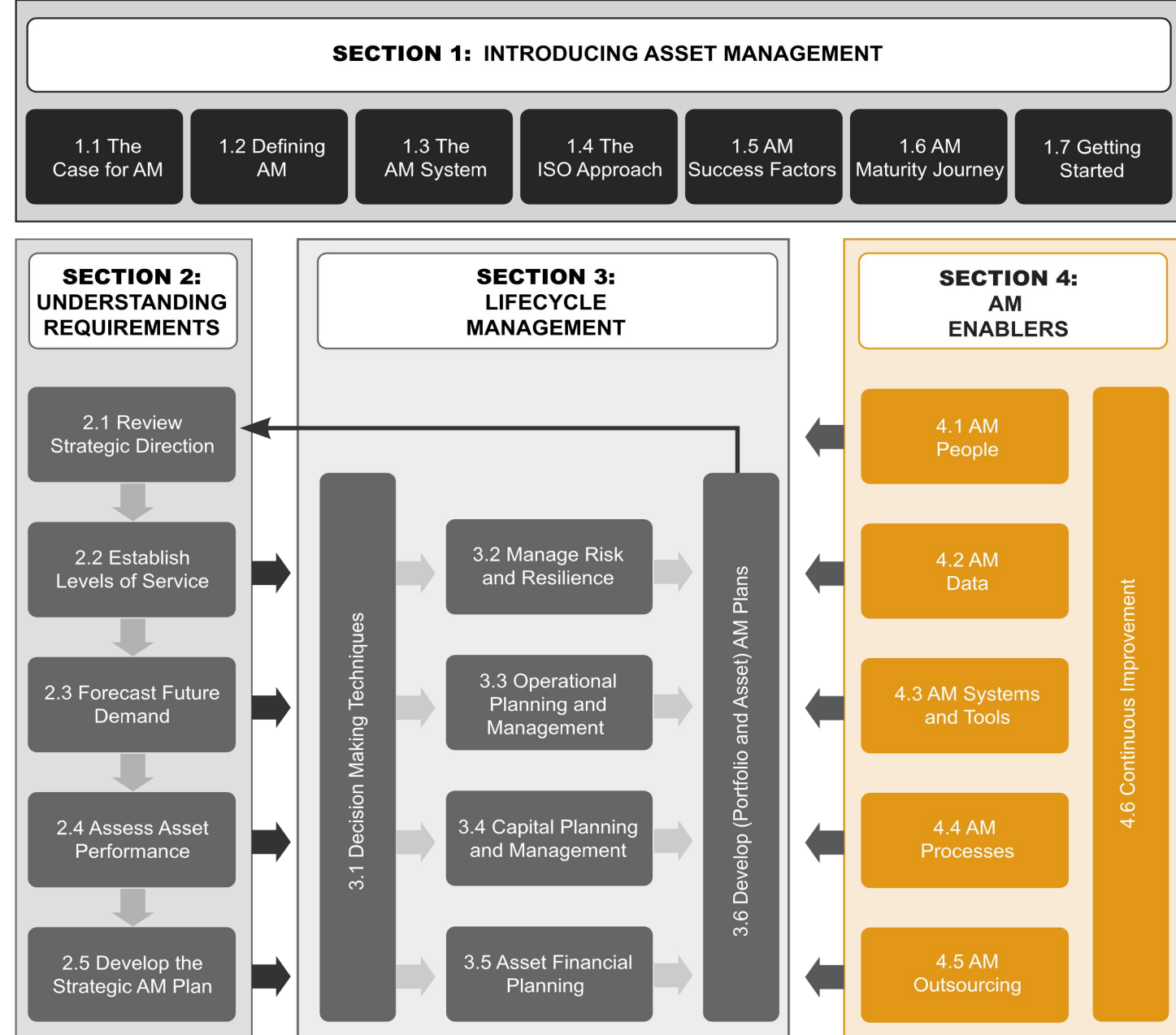
Asset Management Plan

A high level action plan that gives effect to an organization's AM Policy.

The tactics and tools that will be used to deliver the maintenance plan, as well as defining the maintenance roles and responsibilities.

Long-term plan that outlines the asset activities and programs for each service area and resources applied to provide a defined level of service in the most cost effective way.

- **Policy**
- **Key Stakeholders**
- **Maturity / Strategy**
- **Data & Knowledge**
- **Tools (Software)**
- Business Processes
- Outsourcing, Working with External Partners
- Levels of Service (Trends/Expectations)
- Forecasting and managing future trends
- Lifecycle Management
- Risk Management
- Financial forecasting
- Operational planning
- Communication - AM plans





AM Case Study

Township of Centre Wellington:

Governance, Culture, & External Partners

Dan Wilson, Managing Director of Corporate Services & Treasurer



Current Situation

- Strategic Asset Management Policy passed in June 2019
- Asset Management Plan (all assets)
 - Last updated in 2016 (using external consultant)
 - <https://www.centrewellington.ca/en/township-services/reports-studies-and-plans.aspx#>
 - 2021 Asset Management Plan in development (internally by staff)
- Use of Asset Management Plan
 - Used when recommending funding levels during budget deliberations
 - Use of risk/criticality ratings (especially for bridges/culverts)
- Currently implementing an AM System (including CityWide software)

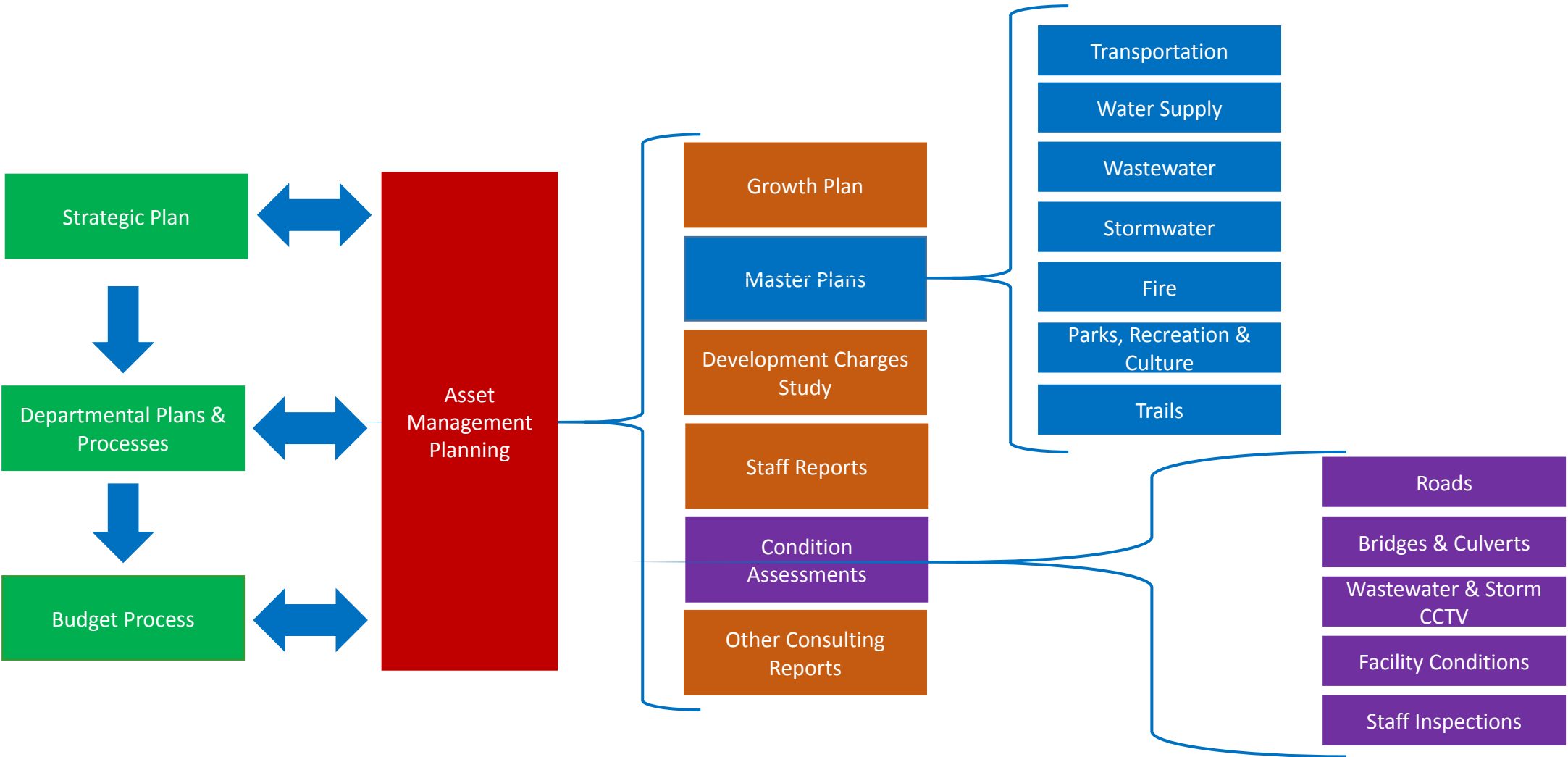
Asset Management Planning

Investment in Assets

Area	Replacement Cost (2016 \$)	Replacement Cost (2021 \$)
Tax Supported	\$ 602,300,000	\$698,200,000
Water Supported	\$ 114,100,000	\$132,300,000
Wastewater Supported	\$ 127,000,000	\$147,200,000
Total	\$ 843,400,000	\$977,700,000

Asset Value per Resident in Centre Wellington	\$ 32,590
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Asset Management Process



AM Governance & Culture

- Critical to consider before implementing an AM System.
 - How is asset management controlled or directed?
 - Structure?
 - Decision Making?
 - Accountability?
 - Behaviour?
 - Way of Life?
 - Values?

**Strategic Asset
Management Policy**

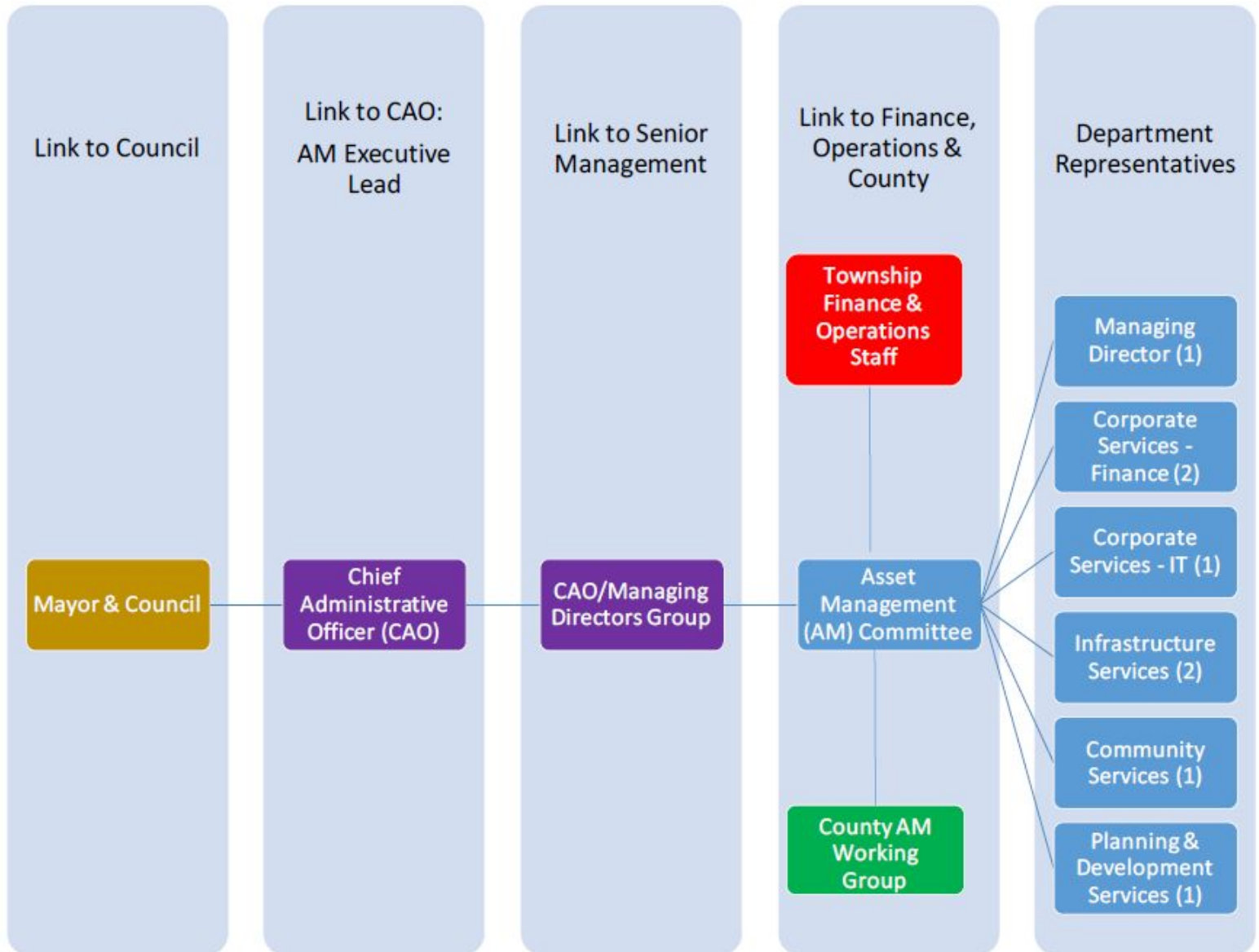
Strategic Planning



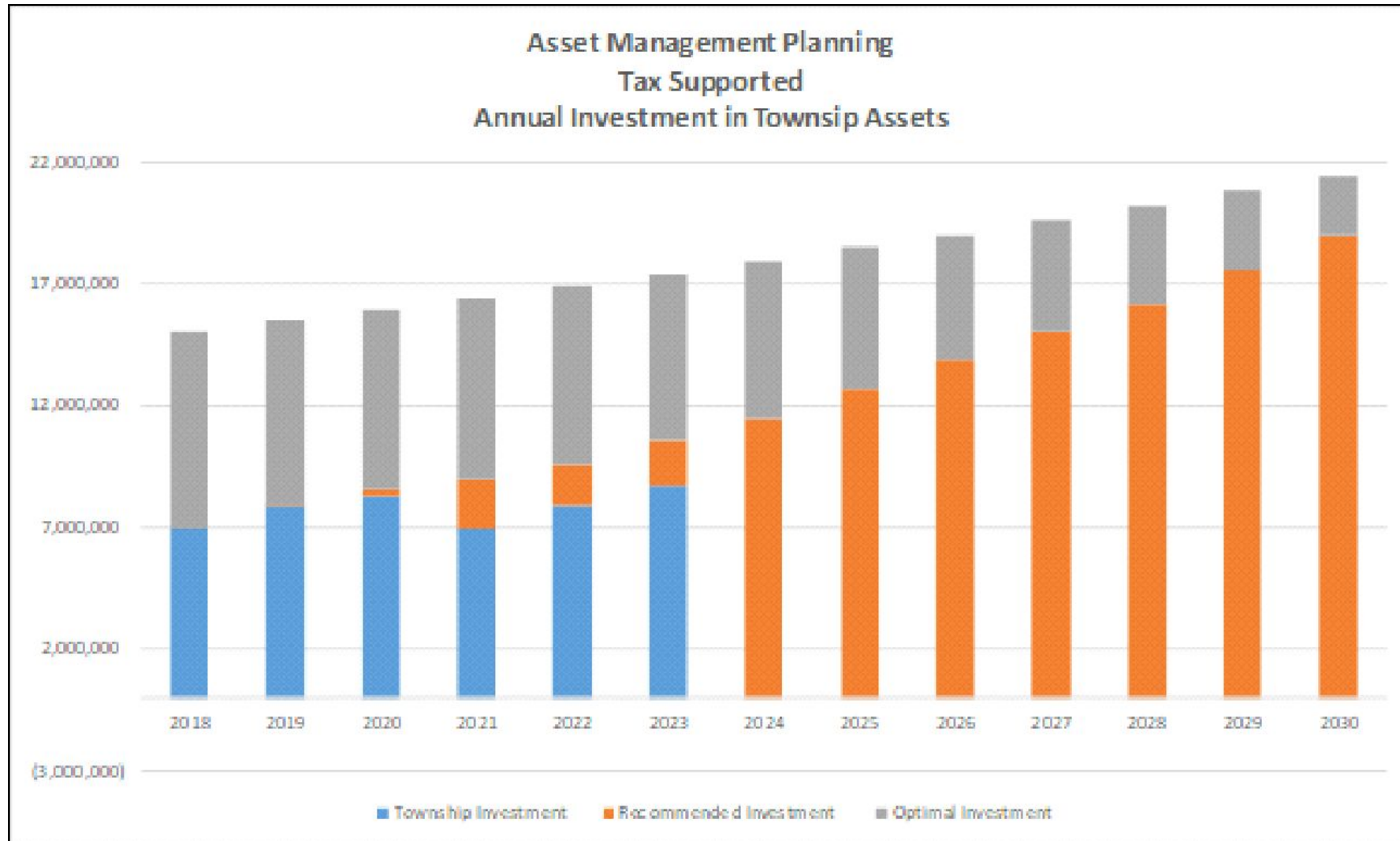
2021 BUDGET

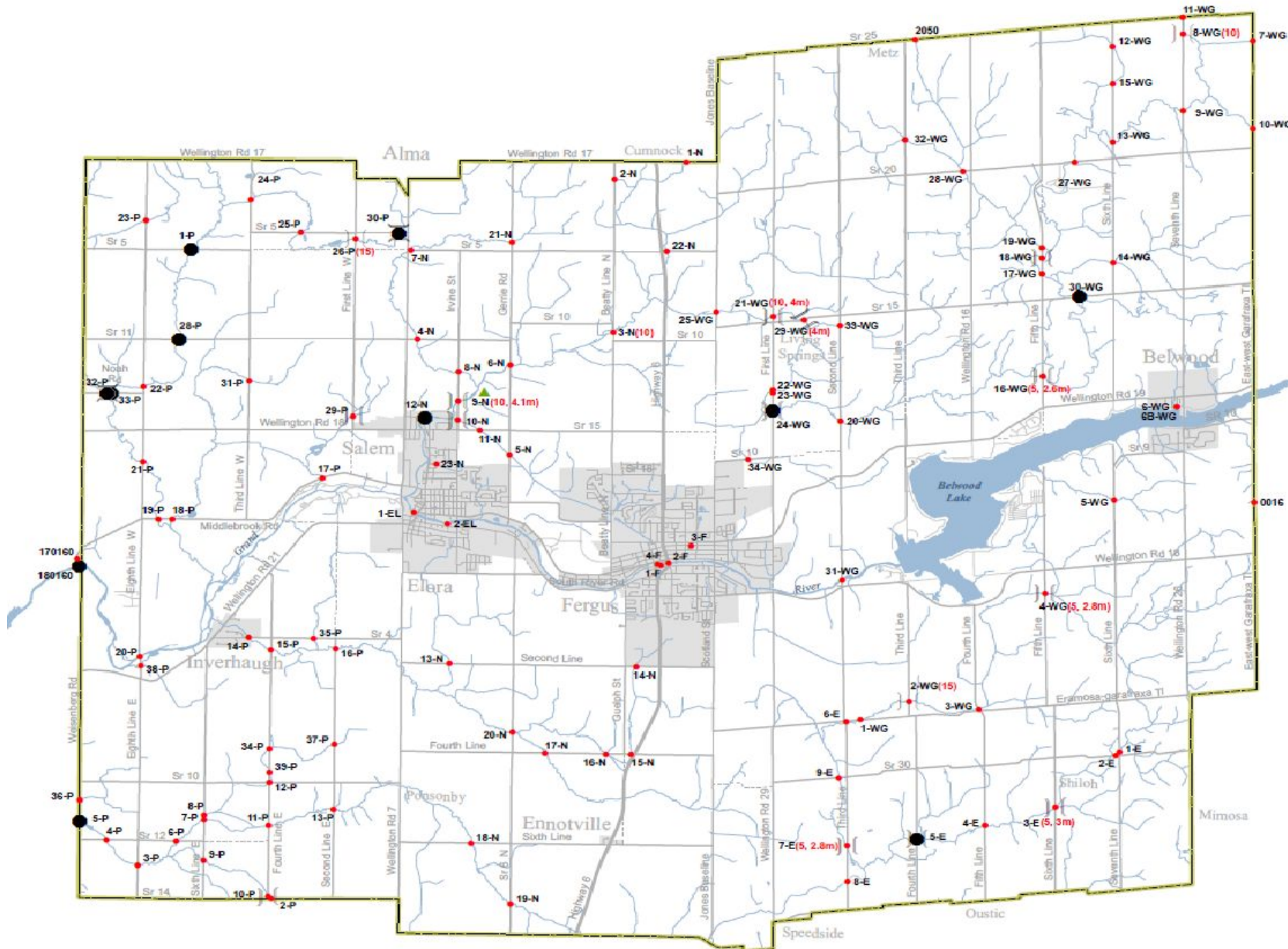
Centre Wellington

Internal Governance & Ownership



Asset Management: Investment in Assets





Bridges & Major Culverts:

- 111 Structures
- 10 closed
- 6 height restricted

Bridge Prioritization: Risk & Criticality

Structure ID	Type	Status	Road	Year Constructed	Replacement Structure	Estimated Replacement Cost ¹	Estimated Rehab Cost ²	Rank	Score ³
10-P	Bridge	Closed	Fourth Line East	1935	Bridge	\$ 1,100,000		1	92.63
23-P	Culvert	Open	Eighth Line West	1950	Culvert	\$ 320,000		2	86.64
24-WG	Bridge	Load Limit	First Line	1922	Bridge	\$ 1,905,000		3	85.30
24-P	Bridge	Closed	Third Line West	1930	Bridge	\$ 1,700,000		4	84.23
31-WG	Bridge	Open	Second Line	1962	Bridge	\$ -	\$ 2,000,000	5	80.48
2-F	Bridge	Open	St. David St	1969	Bridge	\$ -	\$ 3,145,000	6	79.55
32-P	Bridge	Closed	Noah Road	1926	Bridge	\$ 1,065,000		7	79.24
33-P	Bridge	Closed	Noah Road	1922	Bridge	\$ 1,110,000		8	79.24
30-WG	Bridge	Closed	Sideroad 15	1942	Bridge	\$ 2,005,000		9	78.57
28-P	Bridge	Closed	Sideroad 11	1925	Bridge	\$ 1,125,000		10	77.62
22-P	Bridge	Open	Eighth Line West	1960	Bridge	\$ -	\$ 220,000	11	77.53
4-WG	Bridge	Load Limit	Fifth Line	1923	Culvert	\$ 415,000		12	77.24
13-N	Culvert	Open	Second Line	1970	Culvert	\$ -	\$ 65,000	13	77.04
4-E	Bridge	Open	Fifth Line	1957	Bridge	\$ -	\$ 580,000	14	77.01
30-P	Bridge	Closed	Sideroad 5	1929	Culvert	\$ 480,000		15	76.71
16-WG	Bridge	Load Limit	Fifth Line	1910	Bridge	\$ 1,410,000		16	76.55
5-E	Bridge	Closed	Fourth Line	1923	Bridge	\$ 1,245,000		17	75.49
3-N	Bridge	Load Limit	Beatty Line North	1942	Bridge	\$ 2,025,000		18	74.90
1-P	Bridge	Closed	Sideroad 5	1925	Bridge	\$ 1,155,000		19	74.37
3-WG	Bridge	Open	Fourth Line	1978	Bridge	\$ -	\$ 390,000	20	73.44
5-P	Bridge	Closed	Weisenberg Road	1920	Bridge	\$ 635,000		21	73.14
3-E	Bridge	Load Limit	Sixth Line	1919	Bridge	\$ 1,315,000		22	72.06
29-WG	Bridge	Open	Sideroad 15	1928	Bridge	\$ 1,800,000		23	70.90
14-P	Bridge	Open	Sideroad 4	1936	Bridge		\$ 105,000	24	70.71
7-E	Bridge	Load Limit	Third Line	1920	Bridge	\$ 865,000		25	70.59

Dedicated Capital Levy (DCL)

- How the DCL works:
 - 2% increase in base taxation levy, compounding annually
 - Average assessed residential property:

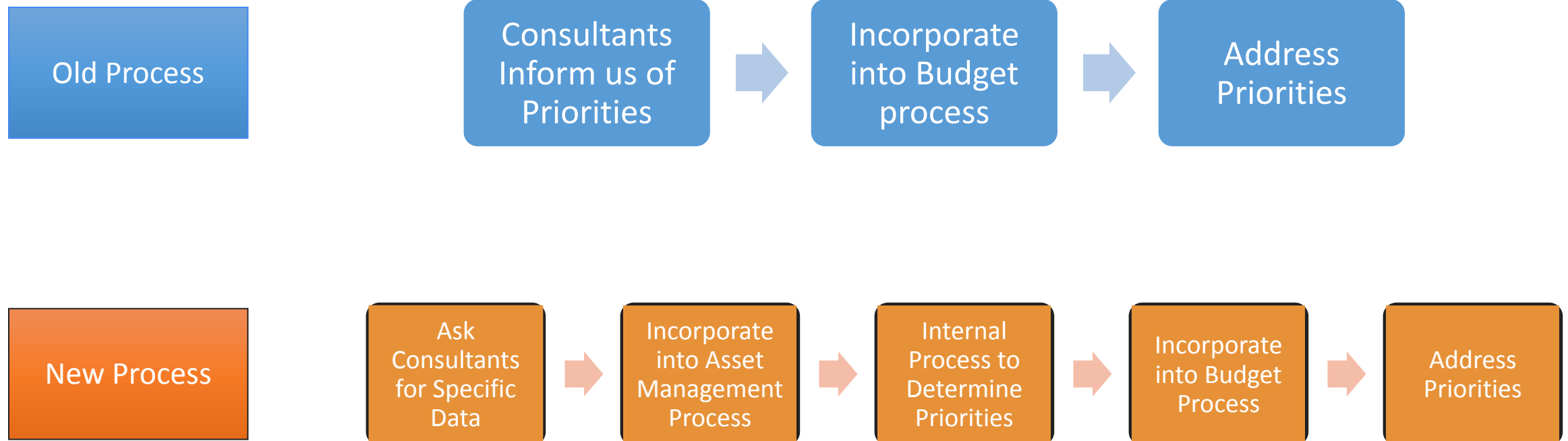
Year	Impact	Annual DCL Impact						Total
		Y1	Y2	Y3	Y4	Y5	Y6	
• 2015	2% increase in base taxation	\$17						= \$17
• 2016	2% increase in base taxation	\$17	+\$18					= \$35
• 2017	2% increase in base taxation	\$17	+\$18	+\$19				= \$54
• 2018	2% increase in base taxation	\$17	+\$18	+\$19	+\$20			= \$74
• 2019	2% increase in base taxation	\$17	+\$18	+\$19	+\$20	+\$21		= \$95
• 2020	2% increase in base taxation	\$17	+\$18	+\$19	+\$20	+\$21	+\$22	= \$117

2021 Levy: \$1.53 million

Bridge/Culvert Forecast

Change From Prior Year Budget	Project	Project #	Project Type												Total
				2021	2022	2023	2024	2025	2026	2027	2028	2029	2030		
	Repayment of Loan from General Capital Reserve			265,275	265,275	-	-	-	-	-	-	-	-	-	530,550
	Bridge Repairs and Remediation	2021-001, 2019-006		90,000	60,000	140,000	50,000	50,000	100,000	100,000	100,000	100,000	100,000	100,000	890,000
	Pre-Engineering	2021-002, 2019-087		190,000	175,000	150,000	150,000	50,000	150,000	150,000	150,000	150,000	150,000	150,000	1,465,000
No Change	Structure 4-WG (Fifth Line)	301-0831	Culvert Replacement	1,350,000											1,350,000
-1	Structure 24-WG (First Line Bridge over Irvine Creek)	301-0830	Bridge Replacement	200,000	2,700,000										2,900,000
No Change	Structure 14-P (Sideroad 4)	2018-047	Bridge Rehabilitation		170,000										170,000
No Change	Structure 4-E (Fifth Line)	301-0711	Bridge Rehabilitation		190,000										190,000
-1	Middlebrook Place Boundary Road Culvert - 170160	2017-080	Culvert Replacement		300,000										300,000
-1	Structure 16-WG (Fifth Line Bridge over Irvine Creek)	2014-040	Bridge Replacement		100,000	1,300,000									1,400,000
No Change	Structure 4-F (Pedestrian Bridge behind Fergus Grand Theatre)	2019-089	Bridge Rehabilitation			135,000									135,000
-1	Structure 3-WG (Fourth Line)	2017-081	Bridge Rehabilitation			370,000									370,000
-1	East West Garafraxa Townline Culvert - 0016	2020-058	Culvert Replacement			300,000									300,000
1	Structure 18-P (Middlebrook Road)	2019-088	Culvert Rehabilitation			90,000									90,000
-1	Structure 32-P & 33-P (Noah Road)	2016-049	Culvert Replacements			100,000	2,100,000								2,200,000
No Change	Structure 5-P (Weisenberg Road Bridge)	F0116	Bridge Replacement				635,000								635,000
No Change	Structure 5-E (Fourth Line)	2014-073	Culvert Replacement					1,300,000							1,300,000
-1	Structure 30-WG (Sideroad 15 - Queen Mary)	2010-076	Bridge Replacement					2,005,000							2,005,000
No Change	Structure 3-N (Beatty Line Bridge)	2015-056	Bridge Replacement						2,025,000						2,025,000
-3	Structure 11-WG (Sideroad 25)	2017-084	Bridge Rehabilitation						131,000						131,000
-3	Structure 8-E (Third Line)	2017-085	Bridge Rehabilitation						150,000						150,000
No Change	Structure 31-WG (Second Line Bridge over Grand River)	2012-096	Bridge Deck Replacement							2,000,000					2,000,000
No Change	Structure 1-E (Seventh Line) [6]	2017-082	Bridge Rehabilitation							75,000					75,000
No Change	Structure 29-WG (Sideroad 15)	2017-089	Bridge Replacement							1,800,000					1,800,000
-2	Structure 30-P (Sideroad 5)	2016-060	Culvert Replacement							480,000					480,000
No Change	Structure 21-WG (First Line) [2]	2016-064	Bridge Replacement									1,310,000			1,310,000
New	Middlebrook Place Boundary Bridge Removal - 180160	2021-070	Bridge Removal									350,000			350,000
-1	Structure 28-P (Sideroad 11)	2011-043	Culvert Replacement									1,125,000			1,125,000
-1	Structure 3-E (Sixth Line) [2]	2016-063	Bridge Replacement										1,315,000		1,315,000
-3	Structure 23-P (Eighth Line W)	2018-049	Culvert Replacements										320,000		320,000
-5	Structure 1-P (Sideroad 5)	2016-061	Culvert Replacement										1,155,000		1,155,000
	Total			2,095,275	3,960,275	2,585,000	2,935,000	3,405,000	2,556,000	2,325,000	2,530,000	3,035,000	3,040,000	28,466,550	
	Opening Balance			572,170	1,296,895	406,620	621,620	486,620	82,120	326,120	801,120	1,071,120	836,120		
	Add: Dedicated Capital Levy Allocation			1,528,441	1,528,441	1,528,441	1,528,441	1,528,441	1,528,441	1,528,441	1,528,441	1,528,441	1,528,441		
	Add: OCIF Funding Allocation			1,271,559	1,271,559	1,271,559	1,271,559	1,271,559	1,271,559	1,271,559	1,271,559	1,271,559	1,271,559		
	Add: Development Charges Allocation (10% Growth)			20,000	270,000	-	-	200,500	-	-	-	-	-		
	Less: Transfer to Capital			(2,095,275)	(3,960,275)	(2,585,000)	(2,935,000)	(3,405,000)	(2,556,000)	(2,325,000)	(2,530,000)	(3,035,000)	(3,040,000)		
	Ending Balance			1,296,895	406,620	621,620	486,620	82,120	326,120	801,120	1,071,120	836,120	596,120		

Evolution in Use of External Partners



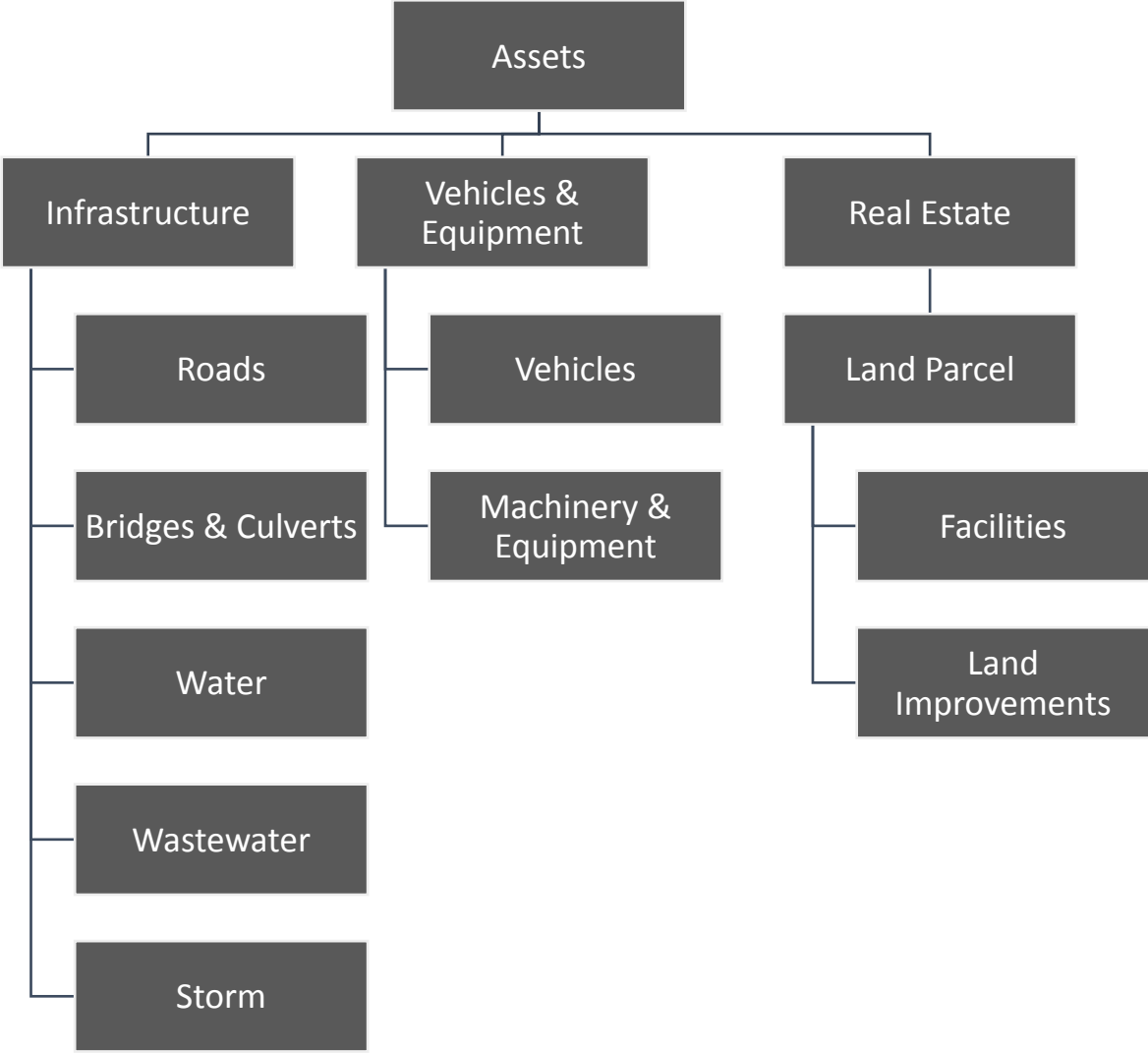
Evolution in Use of External Partners

- Change in what external partners are doing:
 - **Strategic Plan** – connection to asset management.
 - **Condition Assessments** – gathering of data for internal analysis.
 - **Master Plans & DC Studies** – growth and expansion needs.
 - **Lifecycle Activities** – rules around what to do to your assets and when.
 - **Levels of Service** – meet legislative requirements and serve internal needs.
- **AM Systems are useful in this evolution.**
 - Systems are only as good as the information
 - Garbage in / garbage out

Asset Data Gap Analysis

Data	Infrastructure								Real Estate			Vehicles & Equipment	
	Transportation Services				Environmental Services			Fibre	All Departments			All Departments	
	Road Base	Road Surface	Bridges	Culverts	Water Main	Wastewater Main	Stormwater Main	Fibre Optic	Land	Land Improvements	Structures	Vehicles	Equipment
Asset ID (Unique)	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✗
GIS ID	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓/✗	✓	n/a	n/a
Department	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Asset Class	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Asset Name	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Asset Description	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗
Component Breakdown	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	n/a	n/a
Asset Location	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓/✗	✓	n/a	n/a
In Service Date/Asset Age	✓	✓	✓	✓	✓	✓	✗	✓	n/a	✓	✓	✓	✓
Asset Measures (qty, length, width, diameter)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓/✗	✓/✗	✓	✓
Useful Life	✓	✓	✓	✓	✓	✓	✗	✓	n/a	✓	✓	✓	✓
Condition Rating	✗	✓	✓	✓	✓	✓	✗	✗	n/a	✗	✗	✗	✗
Risk Rating	✓	✓	✓	✓	✓	✓	✗	✗	n/a	✗	✗	✗	✗
Functionality	✗	✓	✓	✓	✓	✗	✗	✗	n/a	✗	✗	✗	✗
Replacement Cost	✓	✓	✓	✓	✓	✓	✗	✗	n/a	✓	✓	✓	✓
Historical Cost	✓	✓	✓	✓	✓	✓	✗	n/a	n/a	✓	✓	✓	✓
Accumulated Amortization	✓	✓	✓	✓	✓	✓	✗	n/a	n/a	✓	✓	✓	✓
Net Book Value	✓	✓	✓	✓	✓	✓	✗	n/a	n/a	✓	✓	✓	✓
Annual Amortization	✓	✓	✓	✓	✓	✓	✗	n/a	n/a	✓	✓	✓	✓

Asset Hierarchy



Asset Management Systems Cont'd



AM system components

- AM policy
- Strategic AM plan AKA AM strategy
- Communication methods
- AM objectives
- Tools / Software applications
- Governance Structure (data)
- External Partners
- Risk Management
- Life Cycle Management



A.M. Policy Development

- The Problem /issue that needs to be addressed
 - “The purpose of this policy is to ensure the development of the city’s asset management program, including roles and responsibilities, to facilitate logical and informed decision making for the management of the city’s infrastructure to support the delivery of sustainable community services.”
- The Players - the individuals and/or groups involved
- A course of action and/or principles
- Alignment to organizational objectives and goals




Roles and Responsibilities

Leadership Team

- Development of policy and policy updates
- Provide corporate oversight to goals and directions and ensure the AM program aligns with the municipalities strategic plan
- Ensure that adequate resources are available to implement and maintain core AM practices
- Develop and monitor levels of service and make recommendations to Council
- Track, analyze and report on AM program progress and results
- Provide organization-wide leadership in AM practices and concepts
- Provide departmental staff coordination

Council

- Approve the AM policy and direction of the AM program
 - Prioritize effective stewardship of assets in adoption and ongoing review of policy and budgets
 - Approve capital and operating budgets delivered by Staff
 - Maintain adequate organizational capacity to support the core practices of the AM program
 - Approve levels of service metrics and KPIs
 - Pass the asset management plans (AMPs) by resolution
- 

Roles and Responsibilities

Departmental Staff

- Utilize the new business processes and technology tools developed as part of the AM program
- Participate in implementation task teams to carry-out AM activities (ex: CAMSC)
- Implement and maintain levels of service
- Manage budgets based on lifecycle activities and financial management strategies
- Track and analyze AM program progress and results

Public

- Engage and voice level of service expectations and concerns to Council and Staff through surveys and public engagement opportunities
- Understand dynamic relationship between performance, cost, and risk of assets to deliver desired services
- Engage in discussions about strategic priorities and target levels of service for next 10 years

Asset Management Strategy



Asset Management Strategy



What is your current state of asset management maturity?

- Asset Data and Structure
- Asset Processes
- Data Processes

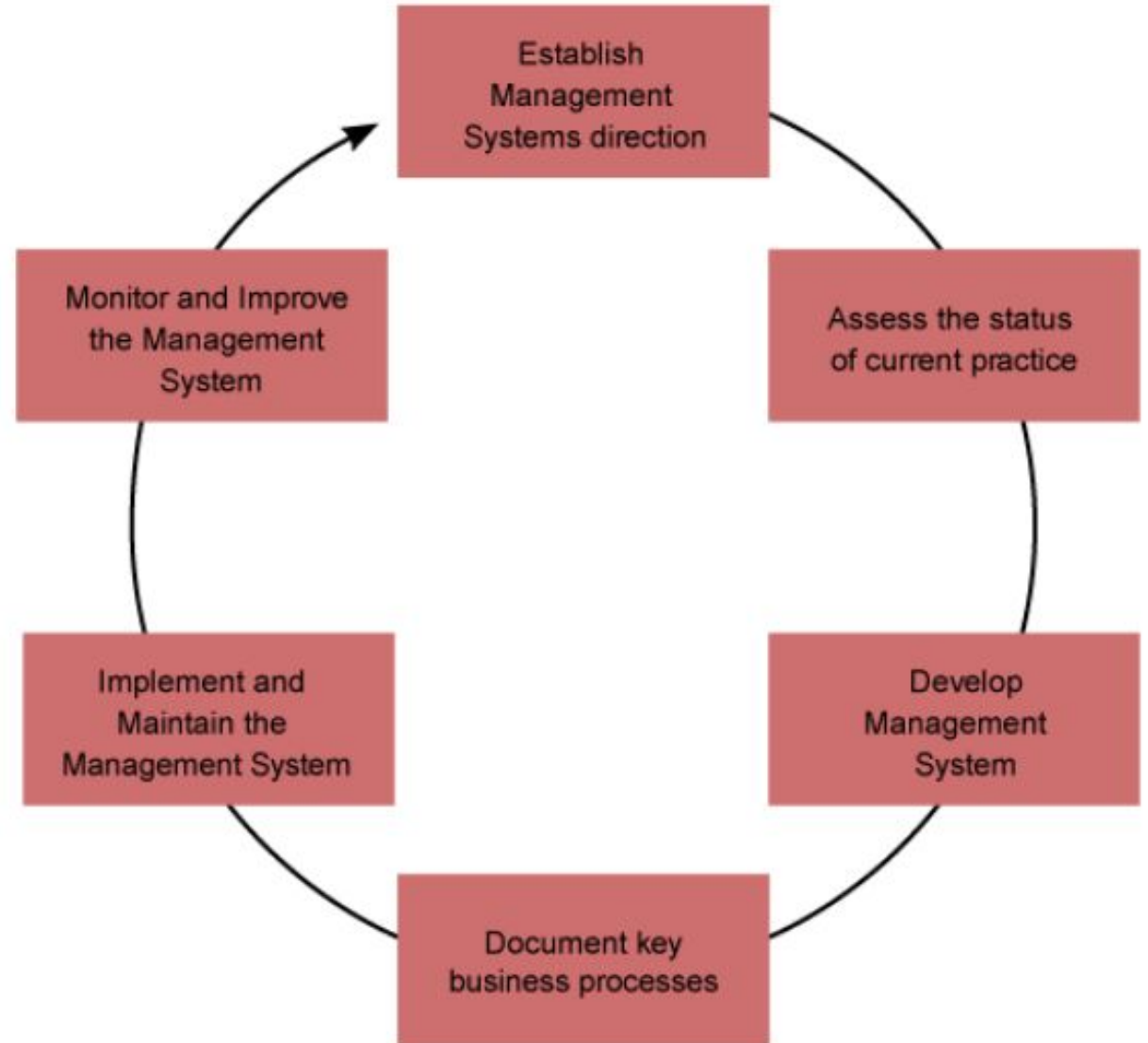
How to measure?

- Self Assessment Tests
- Departmental Interviews
- Collaborative Project



Process for the AM system

- Information/Data Refinement: What data and/or level of detail do you need to have?
- Business Process: Who, How, and When does data collection occur?
- Software/Tools: Where is the information stored? Who has access to it?
- Monitoring: When is the information updated/monitored?
- QA/QC: Who/When is asset information verified and updated when necessary?
- Benchmarking: Do you compare yourself to similar-size organizations to identify areas of improvement?



AM Information System

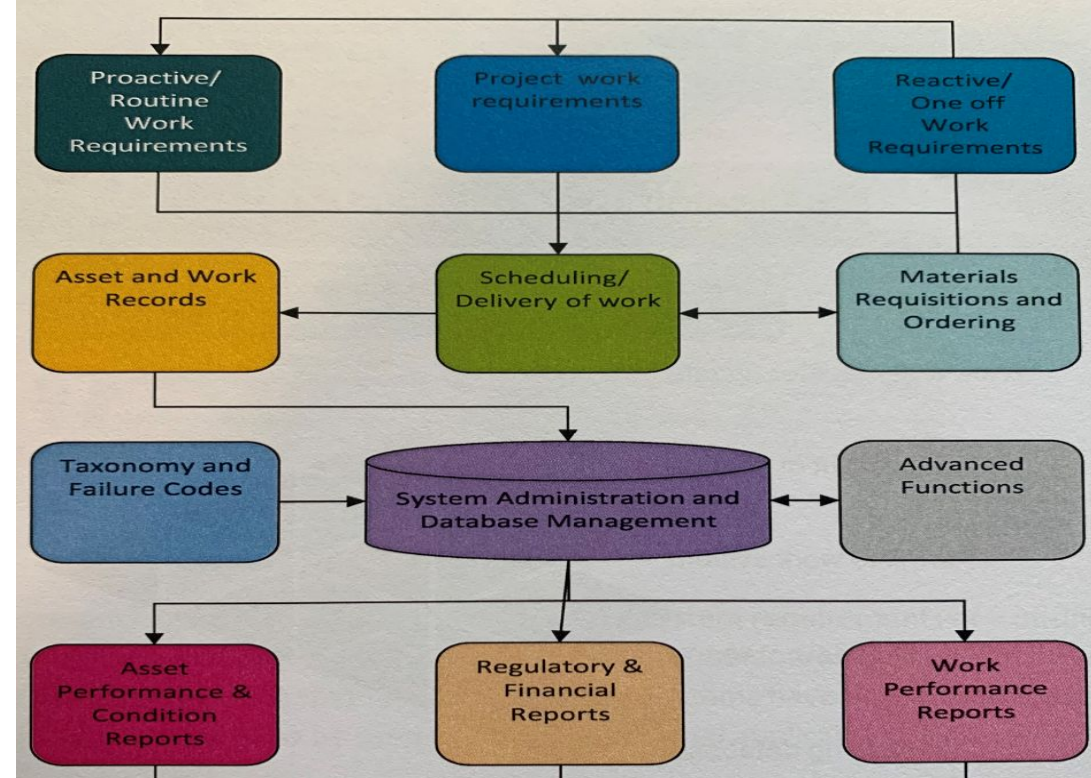
*Is a computer-based tool which supports asset management functions .
Stores asset data that should flexible, provides complex analyses and reporting functions.*

Information Systems:

- Work Order Management - Operational Information
- Asset Management System - Planning
- GIS mapping - Visual
- Scada systems
- Collection tools - Mobile, Templates

Some desirable capabilities:

- Select Items on a map and get details
- See items in a target area
- Trigger activities on items
- Show which items are related
- Analytics / Reporting
- Import / Export formats
- Scenario based
- Inventory
- Lifecycle management
- Risk management
- Level of Service reporting
- Performance reporting



Asset management software CAN...	Asset management software CANNOT...
<ul style="list-style-type: none"> ✓ Store data in a central place ✓ Process large amounts of information ✓ Help link data across functional groups (e.g. finance and public works) ✓ Incorporate geo-spatial data into your analysis ✓ Facilitate the modeling of different scenarios ✓ Help conduct standard asset management analysis of your data (e.g. risk, life-cycle costs) ✓ Flag events to support decision-making ✓ Present data in a way that supports decision-making ✓ Support corporate memory 	<ul style="list-style-type: none"> ✗ Make decisions for you ✗ Define your asset management processes ✗ Collect data or keep your data up to date ✗ Ensure the quality of your data ✗ Develop an asset management plan ✗ Tell you what information is useful in your decision-making process ✗ Test the logic of your outcomes ✗ Innovate or improve your asset management practices ✗ Provide leadership on asset management in your organization

Inventory System

- The place the inventory is “housed”
- A good inventory will enable the user to better retrieve and use the inventory, regardless of the data



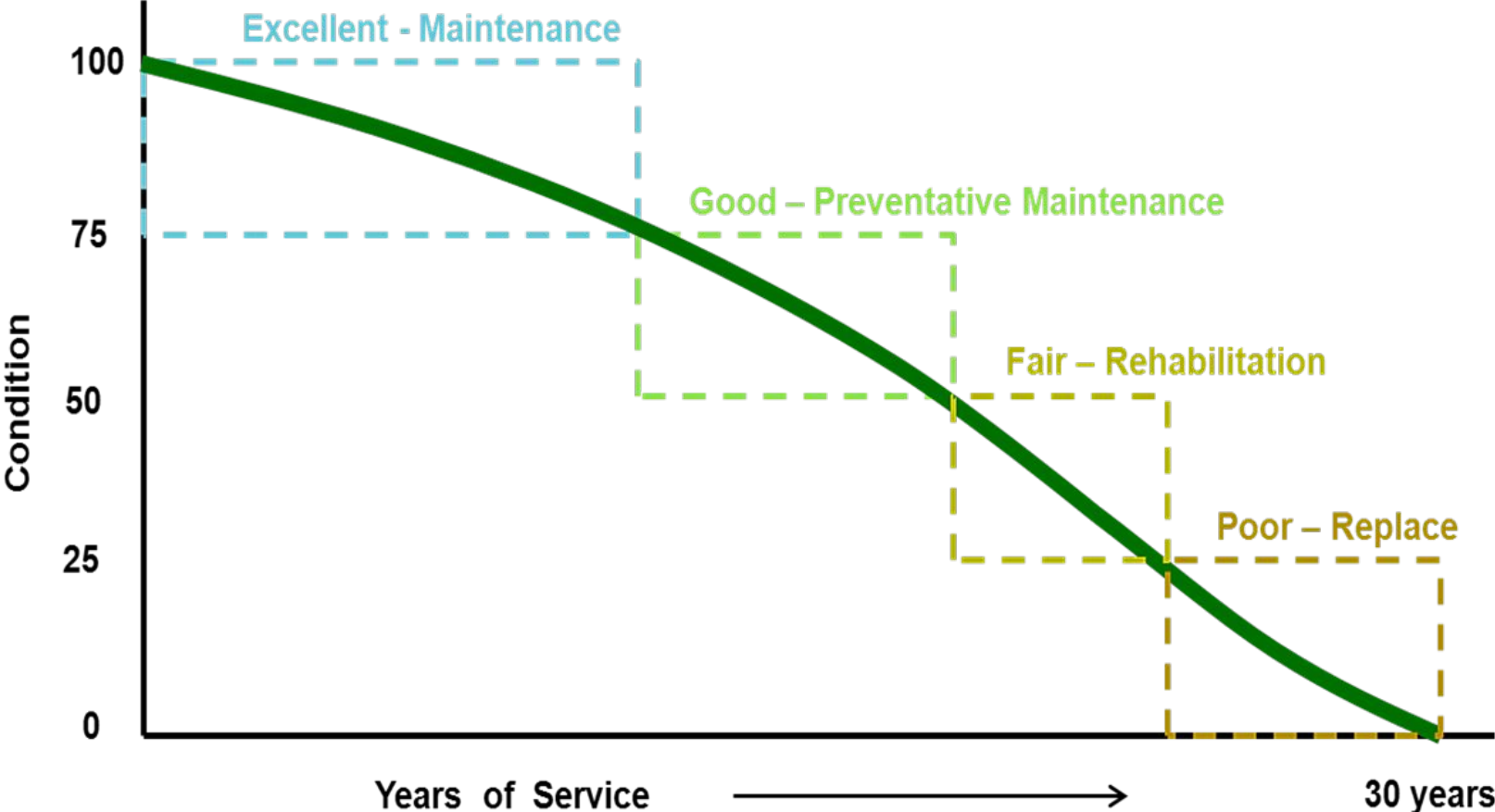
The Evolution of Asset Data



- Asset ID, location, description data
- Valuation data
- Condition data
- Performance (demand and capacity) data
- Risk data
- Maintenance data
- Life cycle activity data
- Optimized decision data
- Service based data



Capital Planning - Life Cycle Management



Capital Planning - Risk Management

A good risk model will prioritize available resources.

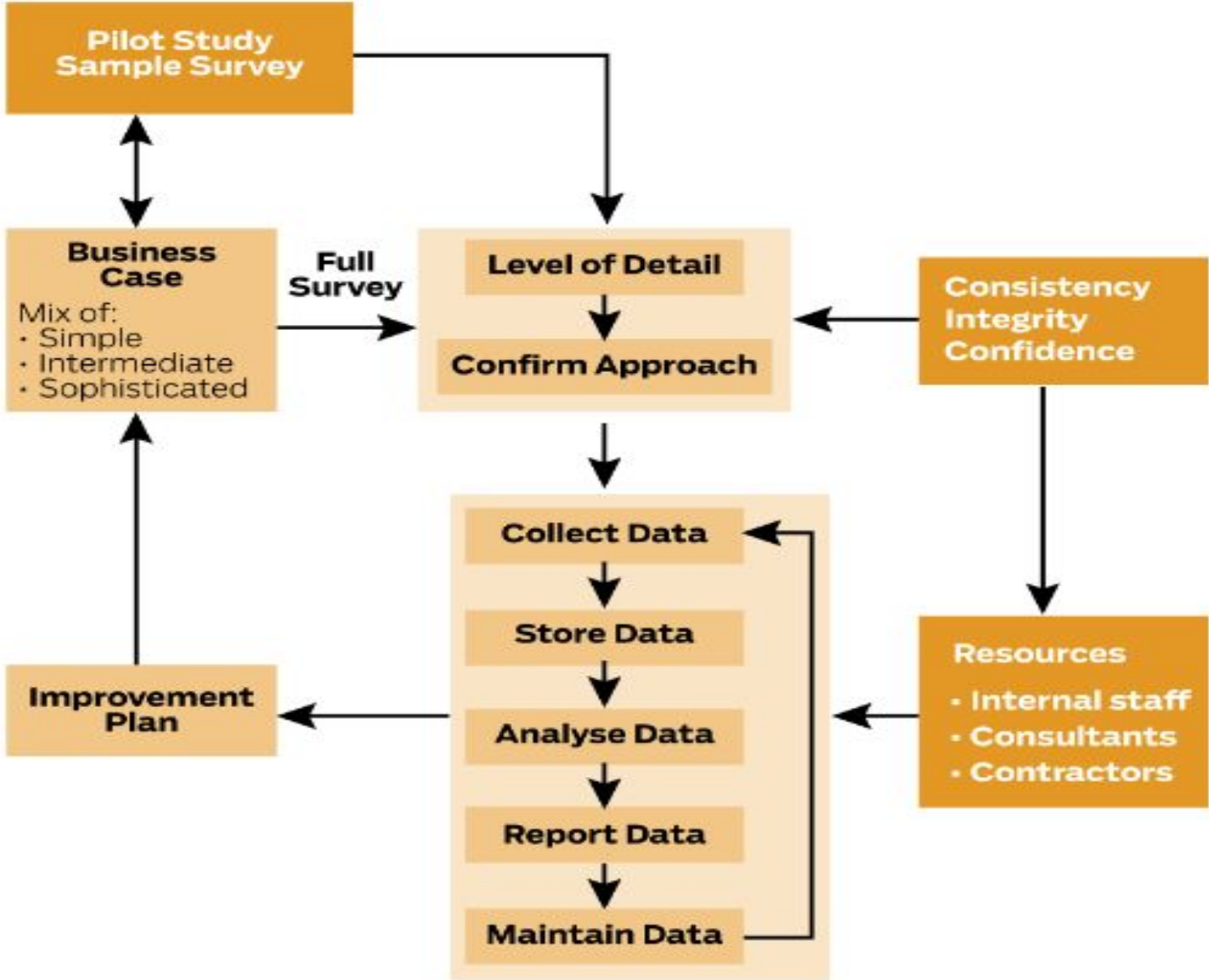
- Ensure vital services are available
- Prioritize inspection programs
- Prioritize maintenance programs
- Prioritize capital budget
- Ensure available resources are applied to the right asset at the right time
- Establishes attainable levels of service

	1	2	3	4	5
5	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
4	0 Assets - \$0.00	1 Assets 98.50 m \$65,699.50	0 Assets - \$0.00	0 Assets - \$0.00	1 Assets 348.50 m \$232,449.50
3	10 Assets 1,729.00 m \$1,153,243.00	13 Assets 4,307.00 m \$2,872,769.00	31 Assets 5,928.00 m \$3,953,976.00	0 Assets - \$0.00	4 Assets 721.50 m \$481,240.50
2	69 Assets 10,548.50 m \$7,035,849.50	35 Assets 6,092.00 m \$4,063,364.00	147 Assets 24,421.50 m \$16,289,140.50	0 Assets - \$0.00	64 Assets 11,986.20 m \$7,994,795.40
1	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00

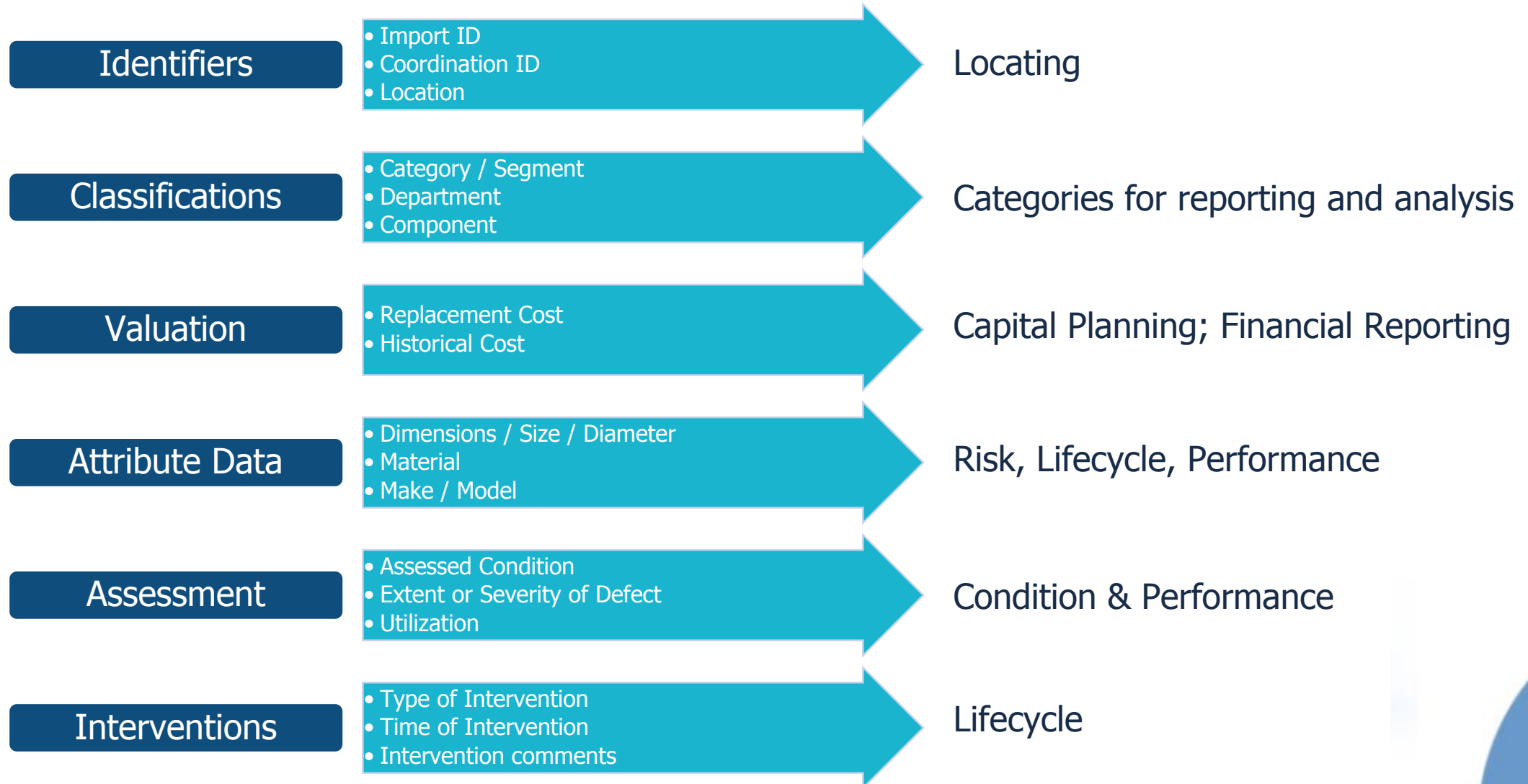
Governance & Leadership



Figure 4.2.6.1: Data Collection Strategy Flowchart

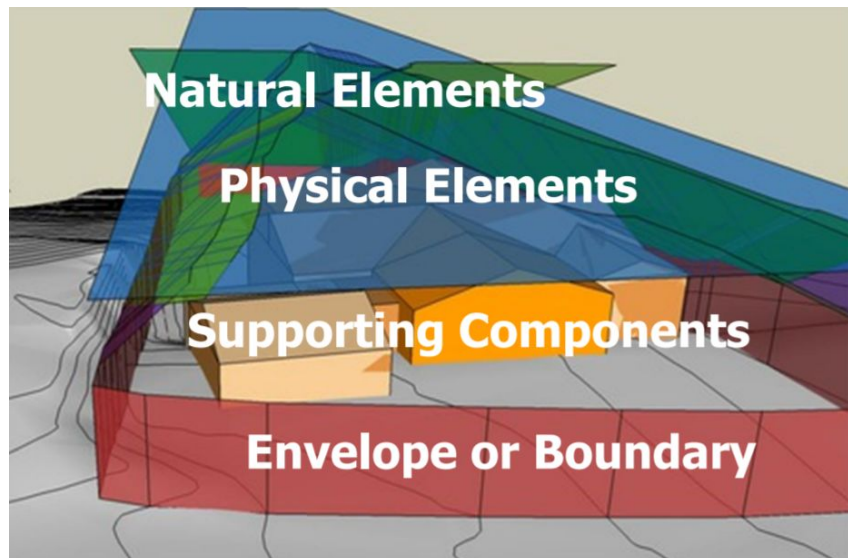


Categories of Data



Complex Assets: Componentization

- An **“asset”** can be represented at different levels:
 - Entire structure or site
 - Major components
 - Individual minor components
- An entire facility or park may be composed of several components / assets
- The level of detail should match assessments, and should be useful to decision-makers
 - Too much detail is difficult to maintain
 - Too little detail may not serve operations (e.g. identifying that a roof is in poor condition, rather than the building as a whole)



Working with External Partners

In determining how to provide resources to deliver AM objectives, organizations should consider the relative costs, benefits, and risks of undertaking the work internally versus outsourcing various aspects of their AM activities.

- Issues such as supplier availability, staff resourcing and competency, local purchasing agreements, past experiences, or collaboration with neighboring municipalities can impact whether a municipality outsources its various activities.
 - Municipalities in remote areas have the added challenge of not having many suppliers/contractors to choose from.



Working with External Partners Cont'd

It is important when outsourcing AM activities to ensure that your organization's expectations and requirements are clearly outline.

- Ensure that the format in which the information is provided is accessible and easy to manipulate.
- Ensure that the necessary level of detail is captured for the asset class in question.
- Ensure that the raw data/calculations are also provided to you as opposed to just the end-product.



RECAP



- Team / Players
 - Staff / Council
 - CAO
 - Planning
 - Finance
 - Operations
 - Engineering
 - Asset Coordinator
 - Knowledge/ Training / Capacity
 - Roles and Responsibilities (policy)
 - Strategic Direction
- Service levels defined and understood
- Asset Portfolio
 - current performance identified
 - **Data gaps**
 - Data requirements
 - Data that is desired
 - Develop workplan and resourcing strategy to close the gap
- Linking in External Partners
- Information systems identified
 - **Gaps in functionality**
 - Improved process management
 - Linking of data



- Processes and Procedures
- Communication
- **Review of Frameworks**
 - Lifecycle, Risk
- Project and Program Prioritization
- **Continuous Improvements**



Light Reading - Asset Management Systems:

- BSI Pas 55: 2008 Specification for the optimized management of physical assets.
- ISO 31000: 2009 Risk management - Principles and guidelines.
- ISO 31010: 2009 Risk management - Risk assessment techniques
- ISO 55000: Asset management - Overview, principles & terminology
- ISO 55001: Asset management - Management systems - requirements
- ISO 55002: Asset management - Management systems - Guidelines on the application of ISO 55001.



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