# Town of Newmarket

Integrated Asset Management Strategy
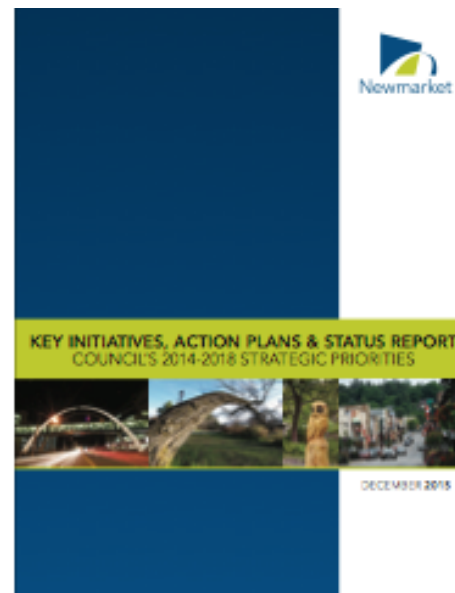
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# Agenda – Review of Integrated Asset Management Strategy

**Why this project?**
- Strategic initiatives of Council

1

**How was the IAMS developed?**
- The project approach

2

**Why asset management?**
- The case for asset management

3

Integrated Asset Management Strategy

The Corporation of the Town of Newmarket

October 2016

**Context**
- What is our vision and challenges for asset management?

4

**Best Practice**
- What is the benchmark for asset management practice?

5

**Current State**
- What is our current state of practice?

6

**Gap Analysis**
- What are our Needs to fill the gaps in practice?

7

**Framework Synthesis**
- How do we match our priorities with our Needs?

8

**Implementation Plan**
- What is the plan towards our vision?

9

# Why this project?

- Development of an asset management strategy (plan, policy & program) is an initiative adopted under the theme of Efficiency / Financial Management.

## Council's 2014-2018 Strategic Priorities



- Economic Development / Jobs
- Enhanced Recreational Opportunities
- Community Engagement
- Efficiency / Financial Management
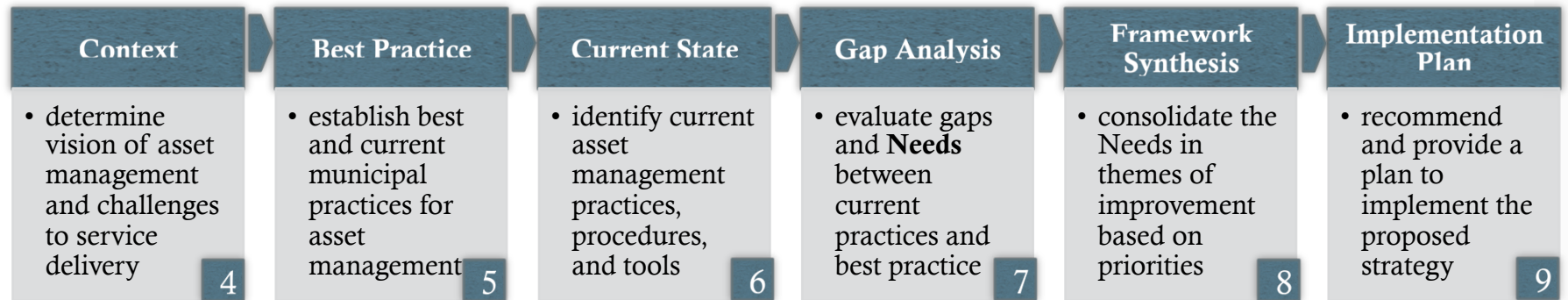- Traffic Safety & Mitigation

# Project Objectives

- The Town views this project as:
  - an essential first step in implementing an Integrated Asset Management Strategy
  - Leads to a more comprehensive deployment of a fulsome municipal - wide asset management program
  - Program expected to balance leading practices with the needs, requirements and expectations of the municipality as a whole
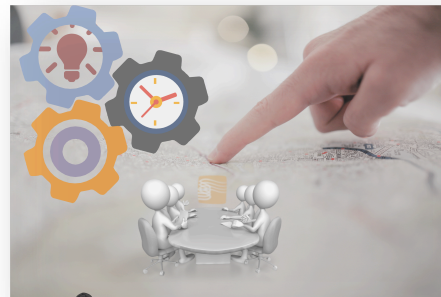
Why this project?

- Strategic initiatives of Council

1

# Project Approach

| Context | Best Practice | Current State | Gap Analysis | Framework Synthesis | Implementation Plan |
|---------|---------------|---------------|--------------|---------------------|---------------------|
| • determine vision of asset management and challenges to service delivery | • establish best and current municipal practices for asset management | • identify current asset management practices, procedures, and tools | • evaluate gaps and **Needs** between current practices and best practice | • consolidate the Needs in themes of improvement based on priorities | • recommend and provide a plan to implement the proposed strategy |
| 4 | 5 | 6 | 7 | 8 | 9 |

**How was the IAMS developed?**

• The project approach

2

# Project Approach

Context 4

Best Practice 5

Current State 6

Gap Analysis 7

Framework Synthesis 8

Implementation Plan 9

High Priority Tasks
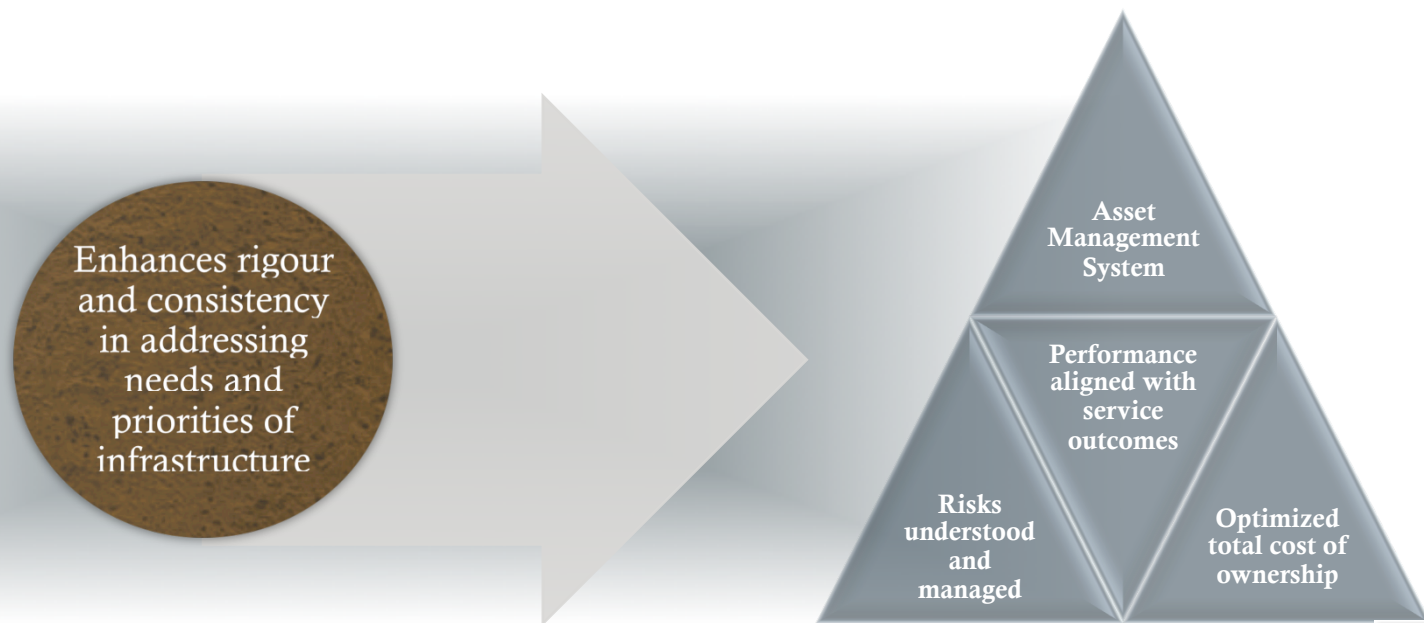
Urgency Index

Importance Index

Low Priority Tasks

- Build awareness and participation through workshops
- Discovery through cross functional reviews across Town services
- Evaluate opportunities or gaps that can be systematically addressed
- Identify priorities using Town objectives
- Develop plan for implementation based on vision and resources

How was the IAMS developed?

- The project approach

2

# The case for asset management

- Competing priorities
  - Where funding is limited
  - Bias towards lowest initial cost rather lowest whole-life cost
- External factors
  - Understanding and adapting assets to climate change (extremes of temperature, more frequent flood events, etc.)
  - Changes in demography and the way customers interact with infrastructure
- Economic challenges
  - increasingly difficult to fund infrastructure in a period of economic uncertainty
- Shortage of critical skills and knowledge
  - Limited ability to detect deterioration unless visible
  - Difficult to understand relationship between condition and probability of failure
  - Ineffective data capture and knowledge management

Why asset management?

- The case for asset management

3

# Systematically address issues



Enhances rigour and consistency in addressing needs and priorities of infrastructure

Asset Management System

Performance aligned with service outcomes

Risks understood and managed

Optimized total cost of ownership

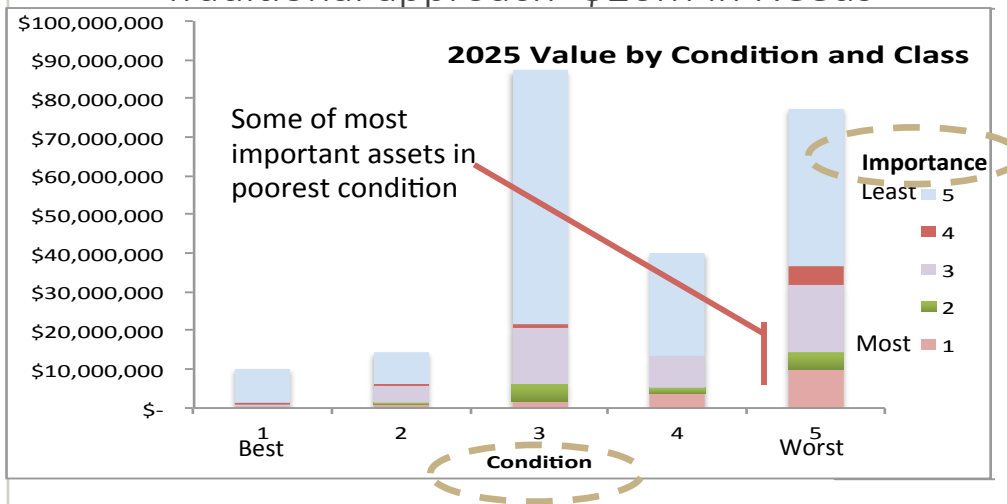Why asset management?
- The case for asset management

3

# Asset management core activities

- Assets organized for effective management
- Asset condition and importance used to assess risk
- A defined level of service
- Asset strategy to define interventions tied to LOS
- Capital plan optimized by budget and risk to support service levels

- Result is transparent evidence of service level achieved and the outcome with full or partial funding

**Service Levels**
- Community Expectations
- Technical LOS

**Asset Strategy**
- Non-Infrastructure
- Maintenance
- Renewal

Predictive Analytics

**Asset Portfolio**
- Asset Hierarchy
- Tombstone
- Risk

**Project Portfolio Optimization**
- Project Prioritization
- Portfolio Optimization
- Scenario Analysis

Capital Plan

Why asset management?
- The case for asset management

3

# Example: Current Capital Planning

Traditional approach- $26M in Needs

**2025 Value by Condition and Class**

Some of most important assets in poorest condition

Importance
Least 5
4
3
2
Most 1

Condition
1 Best
2
3
4
5 Worst

- Condition of Roads in 2025 based on current plan
  – Cost of road assets on Y axis
  – Condition of Road assets on X axis
  – Importance of Road assets based on colour

- Decisions based primarily on condition
- Essentially worst first approach
- Reliance on judgment / expert opinion

Why asset management?
• The case for asset management
3

# Example: Current Capital Planning
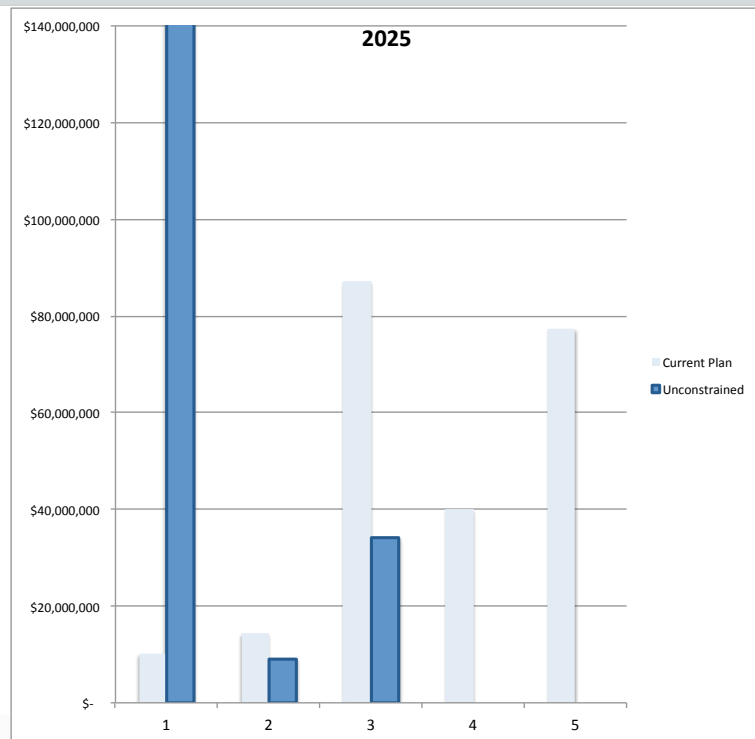


- Light blue is current plan (same information as previous slide)
- Dark blue is applying decision logic of current plan with predictive analysis
- Required spending is $64M

# Example: Modeled Capital Planning



Traditional approach- $26M in Needs
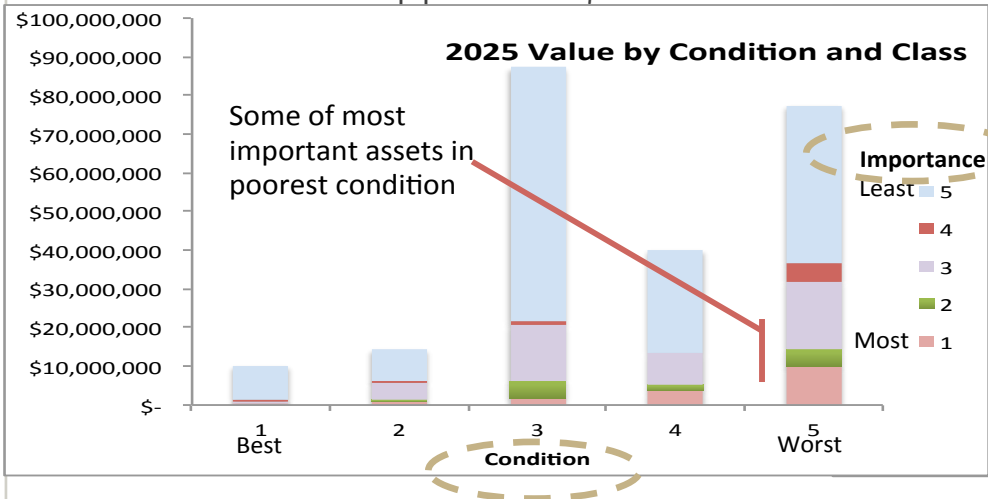
Lifecycle modeling approach - $37M
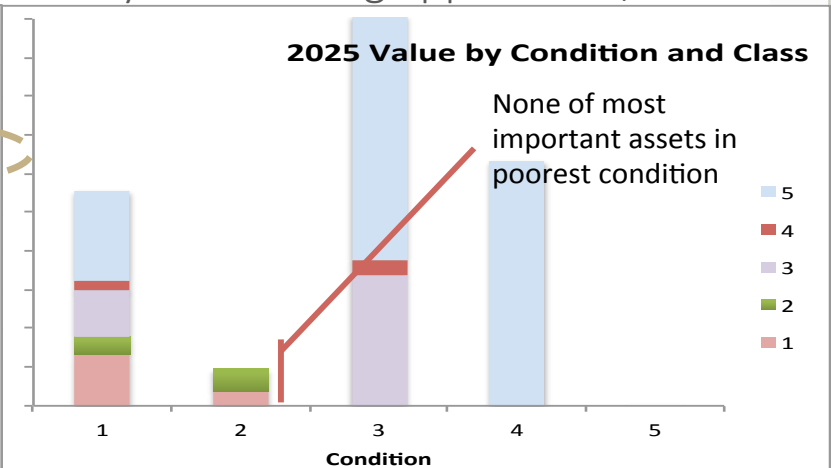
- Decisions based primarily on condition
- Reliance on judgment / expert opinion

- Decisions based on condition and CoF
- Use of predictive analysis & scenarios

# Vision for Asset Management

**Managing service delivery through asset management**

Our vision for asset management is to be innovative and fiscally responsible stewards of our infrastructure assets for the benefit of the community we serve and the people we employ, now and in the future. We will develop and continuously improve how we manage our infrastructure assets throughout their lifecycle to ensure they support our goal of a healthy, happy, thriving, dynamic and extraordinary community in which to live, work and play.

We seek to:

1. Reach out and build understanding among residents, business, staff and elected officials about the role infrastructure plays in providing services that make our quality of life even better.

2. Recognize and respond to current and emerging trends in regulations, society and environment.

3. Maintain a balance between an acceptable level of service and a cost that is sustainable for residents and businesses now and into the future.

4. Ensure that funding levels and revenue sources are sufficient to meet current and future infrastructure demands.

We will put best practices in asset management into effect, including an asset management strategy that links disciplines and departments, integrates data and software resources and coordinates decision-making so that we will be able to invest capital resources wisely and make informed choices about how we maintain our assets and deliver our services.

| Context | Best Practice | Current State | Gap Analysis | Framework Synthesis | Implementation Plan |

# Influences on Newmarket

| Rank | Asset Management Driver | Why this may be a driver |
|------|------------------------|--------------------------|
| 1 | **Asset Replacement/Renewal or Ageing Infrastructure** | Ageing Infrastructure drives rehabilitation and replacement needs, this could be significant if the predominant age of the assets is more than half useful life, or there is significant value of assets that have less than 50% useful life remaining. Asset renewal also could be a concern where detailed knowledge of assets is lacking or where renewal spending has consistently been cut back. |
| 2 | **Asset Maintenance** | Maintenance practices may not be formalized in a strategy, or for other reasons there is a predominance of reactive maintenance, or if it's necessary to focus more on short term lower spending maintenance practices than on more expensive but longer term needs. |
| 3 | **Operational Efficiency** | When facing resource constraints a way organizations respond is to look for efficiencies in current operations. Efficiency in current operation may also be a part of a continuous improvement program. |
| 4 | **Sustainability** | Sustainability can be driven by resource constraints but it may also reflect an organization's limited understanding of their long-term asset needs. |
| 5 | **Service Level Improvement - customer expectation** | A common belief is that the public is increasingly demanding higher levels of service. While customer surveys may be employed and even indicate satisfaction, a lack of full understanding customer expectations limits ability to increase customer satisfaction |
| 6 | **Regulation and Compliance** | All organizations are driven by regulations with some services more heavily regulated than others. This is a specific driver when the organization is challenged to meet its requirements whether because of current operational performance or because of new or impending legislative changes. |
| 7 | **Knowledge of Assets** | Most organizations have a good degree of confidence in the basic inventory. Beyond this data needed to support comprehensive asset management plans may be missing. In some cases inventory knowledge may be good for major assets but not for all. |

# Standards and Best Practices for AM

- ISO 55000 - 2014
- BSI PAS 55 – 2008 (withdrawn January 2015)
- Global Forum on Maintenance and Asset Management (GFMAM) The Asset Management Landscape - 2014
- The International Infrastructure Management Manual (IIMM) - 2011

Context | Best Practice | Current State | Gap Analysis | Framework Synthesis | Implementation Plan

# Asset Management Maturity Assessment

- Maturity Assessment is the process of measuring asset management capability against standards and/or best practices.
- It is a tool to identify asset management maturity level and helps to determine gaps between current and desired practice.

# AM Maturity Assessment
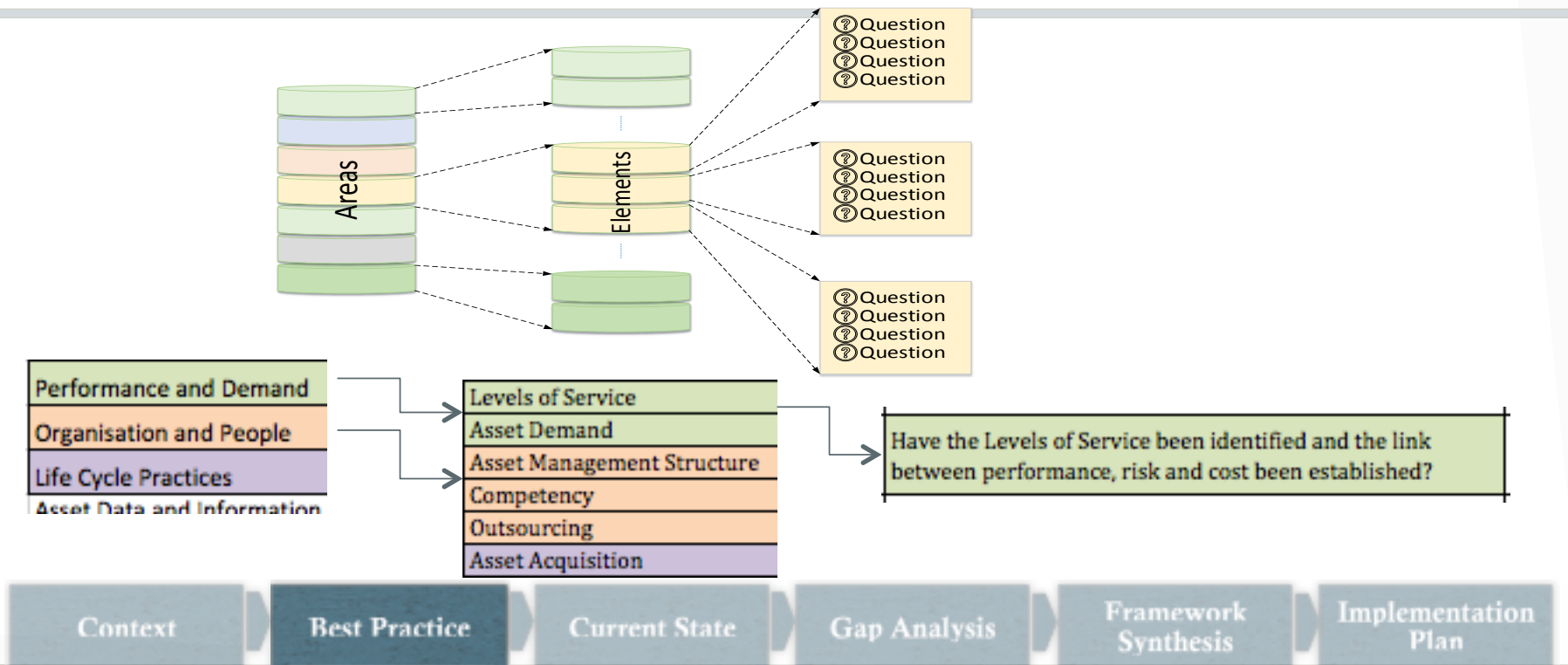


| | | Question |
|---|---|---|
| Areas | Elements | Question |
| | | Question |

Performance and Demand → Levels of Service → Have the Levels of Service been identified and the link between performance, risk and cost been established?

| Areas | Elements |
|---|---|
| Performance and Demand | Levels of Service |
| Organisation and People | Asset Demand |
| Life Cycle Practices | Asset Management Structure |
| Asset Data and Information | Competency |
| | Outsourcing |
| | Asset Acquisition |

Context | Best Practice | Current State | Gap Analysis | Framework Synthesis | Implementation Plan

# Measuring Maturity

Fully complies with standard

| Maturity Level | 1 Aware | 2 Establishing | 3 Developing | 4 Competence | 5 Optimizing and Excelling |
|---|---|---|---|---|---|

**AM Structure**

**Is there an established including defined roles and responsibilities, appointing AM manager, providing sufficient resources, acceptance by senior management, and elected officials of the importance of asset management?**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| No defined AM roles or support | Some AM responsibilities defined | Defined roles and functional responsibilities identified | Roles and responsibilities reflected in cross asset activities | Asset management functions included and supported at all levels and positions |

Results

| Context | Best Practice | Current State | Gap Analysis | Framework Synthesis | Implementation Plan |
|---|---|---|---|---|---|

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# Asset Management Vision

Managing service delivery through asset management

Our vision for asset management is to be innovative and fiscally responsible stewards of our infrastructure assets for the benefit of the community we serve and the people we employ, now and in the future. We will develop and continuously improve how we manage our infrastructure assets throughout their lifecycle to ensure they support our goal of a healthy, happy, thriving, dynamic and extraordinary community in which to live, work and play.

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- Maintain a balance between an acceptable level of service and a cost that is sustainable for residents and businesses now and into the future.
- Ensure that funding levels and revenue sources are sufficient to meet current and future infrastructure demands.

We will put best practices in asset management into effect, including an asset management strategy that links disciplines and departments, integrates data and software resources and coordinates decision-making so that we will be able to invest capital resources wisely and make informed choices about how we maintain our assets and deliver our services.
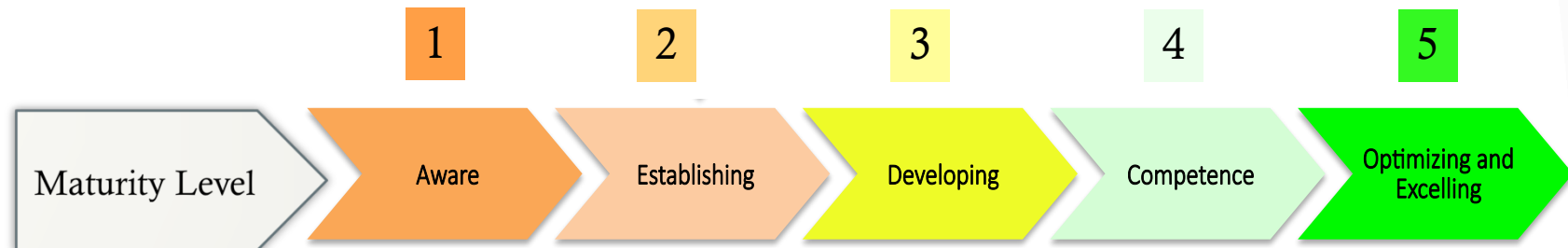
| Context | Best Practice | Current State | Gap Analysis | Framework Synthesis | Implementation Plan |

# Vision for asset management

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Maturity Level | Aware | Establishing | Developing | Competence | Optimizing and Excelling |

Vision: high maturity level of practice

**Results**

| Context | Best Practice | Current State | Gap Analysis | Framework Synthesis | Implementation Plan |
|---|---|---|---|---|---|

# State of practice in North America

**Barrier to Asset Management**

Complexity, Effort and Cost of Implementation — **54%**

Lack of Adequate Data for Rigorous Analysis and Planning — **45%**

Difficulty in Developing Useful Service-Level Measures and Targets — **30%**

**Drivers for Asset Management**

**42%** — Need to Increase System Reliability

**39%** — Need to Understand Risk of Asset Failures

**24%** — Need to Improve Service Levels at Same or Lower Cost

- According to research by McGraw Hill

Context | Best Practice | **Current State** | Gap Analysis | Framework Synthesis | Implementation Plan

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# Findings

- The Town is at an early state of maturity of asset management practice
- Many of the asset lifecycle processes are in place but
  - not fully developed
  - documented
  - or applied consistently throughout the asset lifecycle or across the entire asset portfolio
- This state of maturity is consistent with many other municipal organizations in Ontario although many are working to improve their current level of practice
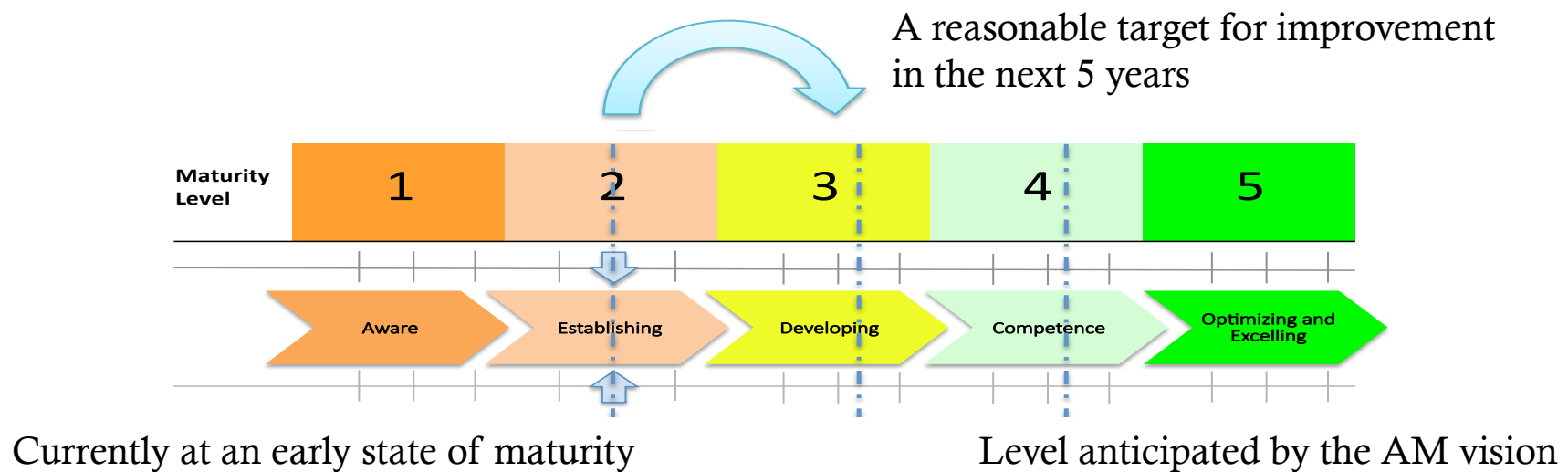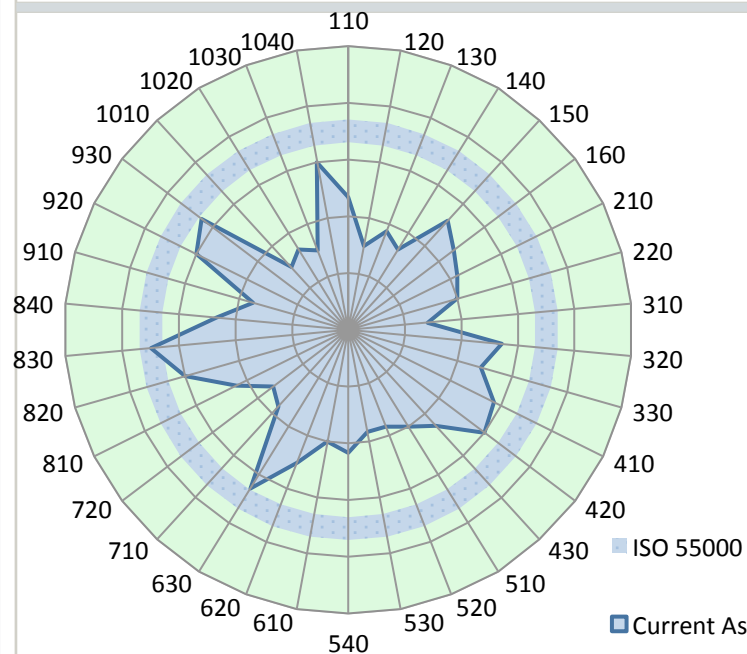
Context | Best Practice | **Current State** | Gap Analysis | Framework Synthesis | Implementation Plan

# Maturity Assessment Results

A reasonable target for improvement in the next 5 years

| Maturity Level | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| | Aware | Establishing | Developing | Competence | Optimizing and Excelling |

Currently at an early state of maturity — the AM vision

Results

| | | | | | |
|---|---|---|---|---|---|
| | The need for an asset management system has been recognized and there is evidence of the organizations intent to progress it. | The organization has identified the means of systematically and consistently achieving the asset management require... | The organization is developing its asset management system, and can demonstrate that asset management practices are being ... with credible ...ed plans in | The organization's asset management activities are fully developed, embedded and are effective for its purposes. The organization can demonstrate that it systematically and consistently achieves relevant requirements set out in PAS 55/ ISO 55001. | The organization can demonstrate that it is systematically and consistently optimizing its asset management practices, employs leading practices, and achieves maximum value from its assets, all in alignment with the organization's objectives and operating context. |

Context    Best Practice    Current State    Gap...    ...Synthesis    Implementation Plan

# Composite results for Newmarket



| 100 Strategy and Planning | 500 Asset Data and Information | 900 Finance |
|---|---|---|
| 110  Asset Management Policy | 510  Asset Hierarchy | 910  Financial and Funding Strategy |
| 120  Asset Management Strategy | 520  Asset Management Data | 920  Reserve Fund |
| 130  Master Plan | 530  Asset Management Data Availability | 930  PS315 |
| 140  Asset Management Plan | 540  Information Systems | |
| 150  Contingency Planning | | |
| 160  Asset Strategy | | |
| **200 Performance and Demand** | **600 Monitoring & Improvement** | **1000 Data Management** |
| 210  LOS | 610  Performance Assessment | 1010  Data Standards |
| 220  Asset Management Strategy | 620  Condition Assessment | 1020  Data Owner |
| | 630  Performance Improvement | 1030  Information Quality |
| | | 1040  Communication |
| **300 Organisation and People** | **700 Risk Management** | |
| 310  Asset Management Structure | 710  Risk Management | |
| 320  Competency | 720  Risk Assessment | |
| 330  Outsourcing | | |
| **400 Life Cycle Practices** | **800 Decision Making** | |
| 410  Acquisition | 810  Optimized Decision Making | |
| 420  Operations & Maintenance (O&M) | 820  Capital Plans | |
| 430  Performance Modelling | 830  Capital Projects Integration | |
| | 840  Non-Capital Projects | |

# Visualizing the Gap

**The Corporation of the Town of Newmarket**
**Needs Assessment and Gap Analysis**

| ID | Assessment Area | ID | Score | Assessment Element | Score | 1 | 2 | 3 | 4 | 5 |
|----|-----------------|-----|-------|--------------------|-------|---|---|---|---|---|
| 800 | Decision Making | 840 | 47 | Non-Capital Projects | 55 | | | | | |
| 900 | Finance | 910 | 35 | Financial and Funding Strategy | 52 | | | | | |
| | | 920 | 60 | Reserve Fund | | | | | | |
| | | 930 | 60 | PS3150 | | | | | | |
| 1000 | Data Management | 1010 | 30 | Data Standards | 38 | | | | | |
| | | 1020 | 33 | Data Owner | | | | | | |
| | | 1030 | 30 | Information Quality | | | | | | |
| | | 1040 | 60 | Data Sharing | | | | | | |
| | Overall Average | | 45 | | 45 | 1 | 2 | 3 | 4 | 5 |
| | | | | | | Aware | Establishing | Developing | Competence | Optimizing & |

Easy to visualize the gap

Context    Best Practice    Current State    **Gap Analysis**    Framework Synthesis    Implementation Plan

# Identifying the Needs

| Score | Assessment Element | Score | | 2 | Needs Assessment |
|---|---|---|---|---|---|
| | Asset Management Program | | | | Formal improvement program has not been established |
| 47 | Asset Management Policy | | 1 | | |
| 30 | Asset Management Strategy | | | | Completion and adoption of a formal Asset Management Stra |
| 37 | Master Plan | | | | Master planning process not linked with AM Plan |
| 33 | Asset Management Plan | 41 | | | AM Plan not developed for all asset classes; weak link betwee for Stormwater not well defined |
| 52 | Contingency Planning | | | | Business continuity and asset specific contingency plans not i |
| 47 | Asset Strategy | | | | Current AM practice not fully reflected in AMP asset strategy |
| 43 | LOS | 41 | | | Limited formal customer LOS, and no link between customer |
| 40 | Asset Demand | | | | Asset demand not formally captured for many assets |

What the Need is for the Gap

Context    Best Practice    Current State    **Gap Analysis**    Framework Synthesis    Implementation Plan

# Strengths and Opportunities

| ID | Area | Description of Results |
|---|---|---|
| 100 | Strategy and Planning | The Town has recently developed or is completing the major AM documents (policy, strategy, plan) as a result of a Corporate strategy. Although developed, the AM policy has not yet been fully communicated, and the AM Plan has only been developed for major asset classes. Although there are a few gaps, the Town has a solid foundation from which to progress. |
| 200 | Performance and Demand | Within its AMP, performance indicators have been identified for the major service assets (e.g. roads, water). There is limited formal customer levels of service, and no link between customer LOS and technical performance indicators (KPIs) or program KPIs. On a positive note the Town regularly conducts customer surveys including questions about the services delivered and their cost. |
| 300 | Organisation and People | Like many of the smaller Town's and Cities, Newmarket has yet to formally identify and develop its asset management team through dedicated or defined roles. The Town has however formed an Asset Management Committee to oversee its AM program and initiatives. This is an important step in program development already accomplished. |
| 400 | Life Cycle Practices | Operations and maintenance activities are relatively well formulated although formal cost models linked with the asset strategy (e.g. the trade-off between O&M and capital rehabilitation) are not in place. In addition deterioration curves to understand future performance based on current state or condition have not been developed. |

Context  Best Practice  Current State  **Gap Analysis**  Framework Synthesis  Implementation Plan

# Strengths and Opportunities

| ID | Area | Description of Results |
|---|---|---|
| 500 | Asset Data and Information | The Town uses JD Edwards as its financial system and asset register. While essential, it lacks data and capability of a comprehensive asset management system to track asset condition and performance. The asset hierarchy, asset identification, and asset attribute systems are not well defined for asset management purposes. |
| 600 | Monitoring & Improvement | There is no standard framework for condition measurement (e.g. 1 to 5) across asset classes and frequency of data collection, depending on asset class, may not be optimal for asset management purposes. Whereas condition is measured for most assets, overall performance assessment framework is not in place, e.g. asset capacity, reliability, etc. |
| 700 | Risk Management | A risk management framework applicable for the Town as a whole is not in place or a standard method to assess risk. Critical assets have not been formally identified nor asset specific plans to address risks. |
| 800 | Decision Making | There is good practice for capital planning and integration in place. What the Town lacks is a coordinated and developed process to identify and define optimal alternatives at the project, program and service level. |
| 900 | Finance | Within the context of available asset and service information, the Town's financial planning (contained in Capital Financing Strategy/Asset Replacement Fund (ARF) Study) appears well developed and comprehensive.  As asset information is improved the Town should easily be able to update and improve their financial planning. |
| 1000 | Data Management | For the formal hallmarks of robust data management practice, the Town does not achieve a high level of practice. The Town has not adopted a data management strategy, standards or for the most part identified data stewards. The legislated requirements such as FIR and PSAB are well met, as well as the GIS system in particular for water and wastewater. |

# Opportunity to fill the Gap

| ID | Assessment Area | ID | Score | Assessment Element | Needs Assessment | Project Action |
|----|----|----|----|----|----|----|
| 300 | Organization and People | 310 | 28 | Asset Management Structure | Organization and responsibility for Asset Management not formally defined | 310-1 Develop AM roles and responsibility matrix and incorporate into job descriptions |
| | | | | | | 310-2 Create or designate Asset Manager position to provide guidance and oversee implementation of AM within the Town |
| | | 320 | 54 | Competency | Limited AM specific training | 320-1 Identify required AM specific training and develop learn |
| | | 330 | 49 | Outsourcing | | |
| 400 | Life Cycle Practices | 410 | 57 | Acquisition | | Improvements due to other elements |
| | | 420 | 60 | Operations & Maintenance (O&M) | O&M activities not integrated with asset strategy including costs | 420-1 Document current O&M practices, coordinate with asset strategy, and evaluate and document O&M costs |
| | | 430 | 46 | Performance Modeling | Formal deterioration curves have not been developed | 430-1 Develop asset performance lifecycle (deterioration) model |
| 500 | Asset Data and Information | 510 | 40 | Asset Hierarchy | Asset hierarchy, asset identification, and asset attribute systems are not well defined for asset management purposes | 510-1 Develop asset hierarchy from FIR reporting to the maintenance managed item level |
| | | 520 | 37 | Asset Management Data | Very likely that the data collected is not all the required data for asset management purposes | 520-1 Evaluate data collected after identifying required and critical data and identify gaps |
| | | 530 | 37 | Asset Management Data Availability | | Improvement due to Asset Hierarchy, Data Standards |
| | | 540 | 43 | Information Systems | Lack of a comprehensive asset management system which tracks assets condition and performance; difficult user interface on JDE work management module and not deployed for all asset classes | 540-1 Evaluate needs, develop user requirements for software and develop TOR for procurement (Phase 2 of this project) |
| | | | | | | 540-2 Procure asset management software, and configure and implement, and identify key integration points with JDE |
| 600 | Monitoring & Improvement | 610 | 40 | Performance Assessment | No formal performance assessment system in place | 610-1 Develop asset performance assessment framework and system |
| | | 620 | 50 | Condition Assessment | There is no standard framework for condition measurement (e.g. 1 to 5) across asset classes and frequency of data collection may not be optimal | 620-1 Establish standard condition assessment framework and align to asset class condition scales |
| | | | | | | 620-2 Evaluate and establish condition assessment frequency |

Projects needed to fill the gap

31 initiatives in total

# Projects to fill the gap - partial

| WBS | Assessment Area | Assessment Element | ID | Project |
|---|---|---|---|---|
| **1** | **Governance** | | | |
| 1.1 | Strategy and Planning | Asset Management Strategy | 120-1 | 120-1 Adopt Newmarket Asset Management Strategy (this project) |
| 1.3 | Strategy and Planning | Asset Management Plan | 140-1 | 140-1 Define and assign responsibility for stormwater assets |
| 1.4 | Strategy and Planning | Asset Management Plan | 140-2 | 140-2 Develop AMP for missing asset classes |
| 1.2 | Organization and People | Asset Management Structure | 310-2 | 310-2 Create or designate Asset Manager position to provide guidance and oversee implementation of AM within the Town |
| 1.6 | Organization and People | Asset Management Structure | 310-1 | 310-1 Develop AM roles and responsibility matrix and incorporate into job descriptions |
| 1.9 | Organization and People | Competency | 320-1 | 320-1 Identify required AM specific training and develop learning plan for the organization |
| 1.5 | Asset Data and Information | Asset Hierarchy | 510-1 | 510-1 Develop asset hierarchy from FIR reporting to the maintenance managed item level |
| 1.7 | Data Management | Data Owner | 1020-1 | 1020-1 Establish data roles - owners, users, collectors |
| 1.8 | Performance and Demand | LOS | 210-1 | 210-1 LOS Model: define LOS and KPIs, and model associated activities and costs associated with it. |
| **2** | **Capital Program Decision Making** | | | |
| 2.1 | Decision Making | Capital Plans | 820-1 | 820-1 Optimize the current capital plan with updated asset information |
| 2.2 | Monitoring & Improvement | Condition Assessment | 620-1 | 620-1 Establish standard condition grading framework and align to asset class/sector condition scales |
| 2.3 | Strategy and Planning | Asset Strategy | 160-1 | 160-1 Evaluate and document lifecycle practices |

# Outcome from project implementation

| ID | Assessment Area | ID | Score | Future | Assessment Element | Score | Future | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 800 | Decision Making | 840 | 47 | 60 | Non-Capital Projects | 55 | 66 | | | | |
| 900 | Finance | 910 | 35 | 60 | Financial and Funding Strategy | 52 | 63 | | | | |
| | | 920 | 60 | 70 | Reserve Fund | | | | | | |
| | | 930 | 60 | 60 | PS3150 | | | | | | |
| 1000 | Data Management | 1010 | 30 | 65 | Data Standards | 38 | 65 | | | | |
| | | 1020 | 33 | 65 | Data Owner | | | | | | |
| | | 1030 | 30 | 65 | Information Quality | | | | | | |
| | | 1040 | 60 | 65 | Data Sharing | | | | | | |
| | | | 45 | 62 | | 45 | 62 | 1 Aware | 2 Establishing | 3 Developing | 4 Competer |

The Corporation of the Town of Newmarket
Needs Assessment and Gap Analysis

Future

Current state score

Score after completion of projects

Context | Best Practice | Current State | Gap Analysis | Framework Synthesis | Implementation Plan

# Rank and Order

- Priority considered by:
  - Importance of asset management element
  - Link between driver and AM element
  - Current state
  - Predecessor logic or natural order
  - Town input

- Projects and priority rank (sample)
  - 140-1 Define and assign responsibility for stormwater assets - Rank 1
  - 140-2 Develop AMP for missing asset classes Rank - 2
  - 210-1 LOS Model: define LOS and KPIs, and model associated activities and costs associated with it Rank - 14
  - 310-2 Create or designate Asset Manager position to provide guidance and oversee implementation of AM within the Town Rank- 1

Context | Best Practice | Current State | Gap Analysis | Framework Synthesis | Implementation Plan

# Summary of project requirements

| Item | Effort (months/ $) | Annual (% or $) | Annual (% or $) |
|---|---|---|---|
| Total Duration | 87 | 87 months | 60 months |
| Management  (5) | 15 | 3% | 5% |
| Technical staff (1 PM+ support) | 31 | 28% | 40% |
| Stakeholders (15) | 29 | 2% | 3% |
| External Cost (Town staff not included) | $1,060,000 | $146,207 | $212,000 |

# Themes for Implementation



- **Governance**: building Town wide asset management frameworks such as risk and levels of service, and building organizational capacity such as through skills development
- **Capital Program Decision-Making**: improving the decision-making process for capital spending by developing lifecycle models and incorporating into the asset strategy tying spending with service levels
- **Data and Information**: improving data and information standards including new technology and integration of existing systems to support the asset management system
- **Maintenance Management**: improving maintenance practices and implementation of a new computerized maintenance management system (CMMS)
- **Optimizing Asset Management**: ongoing works to further advance asset management practices and incorporate results of previous improvements into long-range financial plans including rates and reserves

| Context | Best Practice | Current State | Gap Analysis | Framework Synthesis | Implementation Plan |

# Resource requirements

## For the plan

- Average of ~$200,000/year over 5 years for various projects
- Several new positions
  - AM Manager
  - Technical staff
  - It staff

## Available from Town

- OCIF grant funding for <u>eligible</u> asset management activities including capital, asset management planning, and salaries
- Total OCIF grant ~ $318,000/year
- 1 vacant position for asset management

# Recommended new positions and responsibilities

- Asset Manager (1 immediately):
  - oversee and provide direction across the Town to implement asset management practices in a coordinated and integrated fashion.
- Technical staff (2-3 in 2018/19):
  - technologists or engineers to develop asset specific programs to measure and monitor asset performance, collect, manage and analyze asset data and support the program
- Information Technology staff (1 in 2019):
  - support the configuration and ongoing maintenance of asset management software including a computerized maintenance management system (CMMS)

In lieu of hiring consider outsourcing: but there is limits to how much vendors can be relied on as ultimately Town staff must manage data and decisions, and requirement is ongoing rather than project based

Context | Best Practice | Current State | Gap Analysis | **Framework Synthesis** | Implementation Plan

# Schedule Details by Program Theme

| Program Theme | Project Costs | Start | End | Months |
|---|---|---|---|---|
| Governance | $140,000 | 09-Jan-17 | 26-Dec-17 | 12 |
| Capital Program Decision-Making | $150,000 | 05-Jun-17 | 29-Aug-18 | 15 |
| Data and Information | $110,000 | 04-Jun-18 | 02-Apr-19 | 10 |
| Maintenance Management | $320,000 | 29-Oct-18 | 22-Nov-19 | 13 |
| Optimizing the Asset Management program | $340,000 | 25-Nov-19 | 21-Dec-21 | 25 |
| Total | $1,060,000 | | | |

Context  Best Practice  Current State  Gap Analysis  Framework Synthesis  Implementation Plan

# Schedule

**Governance** — Organization / Frameworks

**Capital Decision-Making** — Lifecycle model / Asset Strategies

**Data & Information** — Data Standards

**Maintenance Management** — O&M practices / CMMS

**Optimizing AM** — Advanced AM model / Updated Financial plan

| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 |

| **2017** | **2018** | **2019** | **2020 – 2021** |
|---|---|---|---|

| **New Resources** | Asset Manager | Technologists (2-3) IT Support (1) | | |
|---|---|---|---|---|
| **Project Cost (excluding staffing)** | $170,000 | $200,000 | $370,000 | $320,000 |

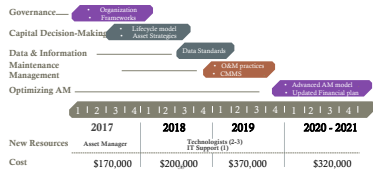Context → Best Practice → Current State → Gap Analysis → Framework Synthesis → **Implementation Plan**

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# Success Factors



1. **Project management** to develop and monitor detailed work plans
2. **Leadership** and endorsement from Council and management
3. Regular and focused **communications** on progress of the asset management program
4. **Staff development** to improve technical capabilities for delivery of asset management practices
5. **Managing change** and disruption to existing operations while transitioning to new practices and fostering commitment of staff to program development
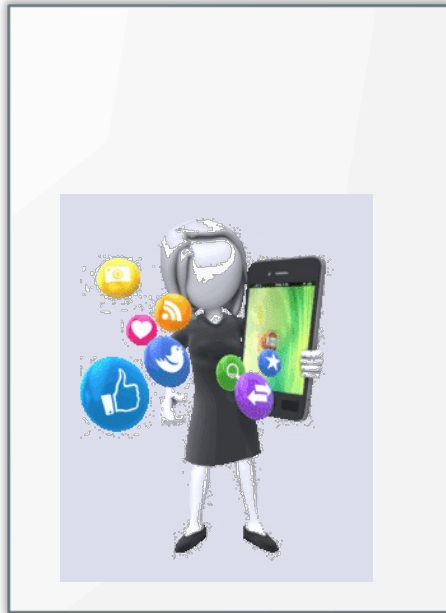


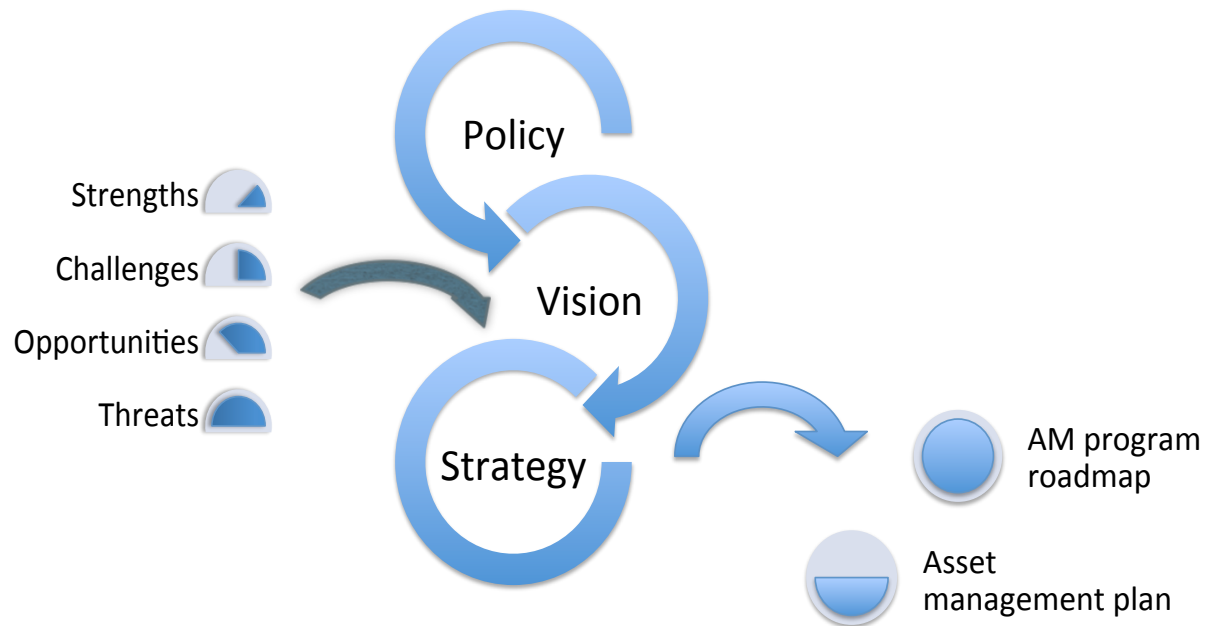| Context | Best Practice | Current State | Gap Analysis | Framework Synthesis | Implementation Plan |

# Appendices

# Link between Policy and Strategy

# Asset Management Assessment Framework

| ID | Assessment Area | ID | Assessment Element |
|---|---|---|---|
| 100 | Strategy and Planning | 110 | Asset Management Policy |
| | | 120 | Asset Management Strategy |
| | | 130 | Master Plan |
| | | 140 | Asset Management Plan |
| | | 150 | Contingency Planning |
| | | 160 | Asset Strategy |
| 200 | Performance and Demand | 210 | LOS |
| | | 220 | Asset Demand |
| 300 | Organisation and People | 310 | Asset Management Structure |
| | | 320 | Competency |
| | | 330 | Outsourcing |
| 400 | Life Cycle Practices | 410 | Acquisition |
| | | 420 | Operations & Maintenance (O&M) |
| | | 430 | Performance Modeling |
| 500 | Asset Data and Information | 510 | Asset Hierarchy |
| | | 520 | Asset Management Data |

| ID | Assessment Area | ID | Assessment Element |
|---|---|---|---|
| 600 | Monitoring & Improvement | 610 | Performance Assessment |
| | | 620 | Condition Assessment |
| | | 630 | Performance Improvement |
| 700 | Risk Management | 710 | Risk Management |
| | | 720 | Risk Assessment |
| 800 | Decision Making | 810 | Optimized Decision Making |
| | | 820 | Capital Plans |
| | | 830 | Capital Projects Integration |
| | | 840 | Non-Capital Projects |
| 900 | Finance | 910 | Financial and Funding Strategy |
| | | 920 | Reserve Fund |
| | | 930 | PS3150 |
| 1000 | Data Management | 1010 | Data Standards |
| | | 1020 | Data Owner |
| | | 1030 | Information Quality |
| | | 1040 | Communication |