OAKVILLE

Town of Oakville

Asset Management Strategy

Revised May 2021

Executive Summary

Ontario Regulation 588/17 (Infrastructure for Jobs and Prosperity Act, 2015- Asset Management Planning for Municipal Infrastructure) sets out some key requirements for Asset Management over the coming years. Specifically;

1) Every municipality shall prepare its first strategic asset management policy by July 1, 2020 and shall review and, if necessary, update it at least every five years.

2) Every municipality shall prepare an asset management plan in respect of its core municipal infrastructure assets by July 1, 2022, and in respect of all of its other municipal infrastructure assets by July 1, 2024.

Core infrastructure assets are defined in the Regulation as Water, Wastewater, Storm Water, Roads, Bridges and Culverts.

The Regulation has been developed in response to greater demands for improved transparency and scrutiny around investment decisions in infrastructure assets both by the Province and by municipal residents and other customers. It incorporates some key concepts that have been embodied in the established discipline of Asset Management and which have now been formalized in an international standard called ISO 55000.

Asset Management as defined in ISO5500 is the "coordinated activities of an organization to realize value from its assets". In a municipal context, this value is realized through the delivery of levels of service at the lowest achievable whole life cost and with an acceptable level of risk. The Town of Oakville has been managing its assets since its inception but has adopted this more holistic Asset Management philosophy as a key method in realizing value for the community and in addressing the various challenges that exist both now and in the future.

With this in mind, over the last five years the Town has been developing and implementing an asset management improvement program which is aligned with the requirements of ISO55000 and includes fundamental aspects that are now required by Regulation 588 including policy, levels of service and asset management plans. The Town has also been growing an Asset Management culture through the ongoing delivery of Asset Management Training courses and education awareness.

This Asset Management Strategy sets out the Town's approach to managing municipal assets and delivering upon the commitments made in the Town's Asset Management Policy. Together, the Town's Asset Management Policy and Asset Management Strategy will fulfill regulatory requirement (1) above and provide a framework for successful delivery of regulatory requirement (2).

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1. Introduction

This Asset Management Strategy is intended to support the implementation and ongoing sustainment of the Town of Oakville's Asset Management Policy as shown below. (The Policy has a related online learning video)

Town of Oakville
Asset Management Policy

The Town's asset management mission is to protect and enhance the quality of life in Oakville by making the best possible decisions regarding Town of Oakville (town) assets in a way that provides targeted levels of service and manages risk in a cost-effective manner throughout the entire asset life cycle in order to create customer value through enhancing community asset management.

The town will manage infrastructure assets in a strategic, comprehensive, enterprise-wide manner through an integrated business approach that relies on well-devised strategies, trained knowledgeable staff, and good communication with all stakeholders to achieve desired levels of service. This requires that all assets be treated as interrelated components in a unified system, rather than as isolated parts.

This Policy supports our four Key Strategic Directions, as detailed in our Strategic Plan, and defines the principles by which we will develop our asset management capability, ensuring we understand our asset needs and develop effective solutions. Successfully delivering these principles will drive the required service and value from our assets, meeting or exceeding our customer expectations.

The scope of this Policy covers the management of all of the Town's infrastructure asset portfolio. The principles below have been established in line with leading practices.

Our Key Strategic Directions

Create it! How we will create our community

Live it! How we will live in our community

Preserve it! How we will preserve our environment

Afford it! How we will afford our future

Our Asset Management Principles

Forward Looking and Sustainable
We will incorporate social, legislative, environmental and financial considerations into decisions, taking into account present and future service commitments, giving due attention to the long-term stewardship of assets

Sound Asset Information
We will collect, collate, control, and circulate the right asset information, at the right time, informing the right asset management decision-making.

Robust, Repeatable, & Transparent Decision-Making
We will utilize a formal but scalable, consistent, and repeatable approach to manage infrastructure assets, enabling services to be provided in the most efficient and cost-effective manner.

Whole Life Cycle Cost Perspective
We will consider the combined impact of all aspects of the asset life-cycle – acquiring, operating, maintaining, renewing, and retiring assets. No new assets will be constructed/acquired without considering future operating and maintenance costs. Asset performance will be monitored throughout the asset life cycle and will be used to inform recommendations on future asset acquisition.

Risk-Based Perspective
We will direct resources, expenditures, and priorities to achieve the agreed service outcomes and benefits, at acceptable levels of risk and proactively plan for climate related impacts that have the potential to compromise town assets.

People-Focused(Customers and Staff)
We will adopt a serviceability-based approach to managing our assets and will only accommodate additional demand for services without detriment to current levels of service. The town will recruit, train, and retain the right staff.

1.1 Scope of the AM Strategy

The AM Strategy is intended to apply to all Services within the Town of Oakville that rely upon physical assets for successful delivery to residents, customers and stakeholders. The Services currently defined within the Town of Oakville are illustrated below:

Roadway Network   Active Transportation Network   Transit   Fire and Emergency Management   Parks & Outdoor Leisure   Storm Water Management   Natural Space   Recreation / Culture / Library

In essence all asset categories and types of assets are to be included in the Asset Management Plans. The following table provides a summary of assets by classification.

Summary of Assets Included in the AMP

Asset classes	In-Scope Assets	Data Confidence
Road Network	Roads (incl. various sub-types), bridges, sidewalks, major culverts, traffic signaling, street lights, transit shelters, acoustic walls, multi-use trails/ walkways, guiderails, retaining walls	High
Land Improvement Network	Parks, sports fields and courts, trails, walkways, parking lots, minor buildings, minor structures, lighting, stairs, irrigation, retaining walls, bus terminal	High
Environmental Network	Erosion control structures, catchbasins, foundation drain collectors, house connections, outlet structures, laterals, maintenance holes, minor culverts, pond retaining walls, storm mains, water quality control devices, pond in/ outfalls, underground storage	High
Facilities and Related Equipment Asset Class	Major and Minor Buildings, fitness equipment, library collections, large, generators, and small equipment.	High
Transit Assets	Transit equipment, transit service vehicles, heavy trucks, care-a-vans, and conventional busses, bus shelters, and transit facilities.	High
Fleet Assets	Fire Trucks, Heavy Trucks, All Terrain Vehicles (ATV), Tractor, Light Auto/ Trucks, Heavy Trucks, Zambonis, boats, small tools small equipment, heavy construction equipment, specialized municipal equipment, blowers and vacuums, sanders, generators, trailers, small	High

The Town's asset inventory has been captured in its asset information systems at a reasonable level of granularity and, therefore, the overall data confidence for the asset inventory is considered "high".

2. Town of Oakville Context

The Town of Oakville's stated Vision is "To be the most livable town in Canada". The Town's 2057 Sustainable Community Framework sets high level direction and strategic objectives and provides guidance for decision making towards this unified vision for the future. The framework is illustrated below.
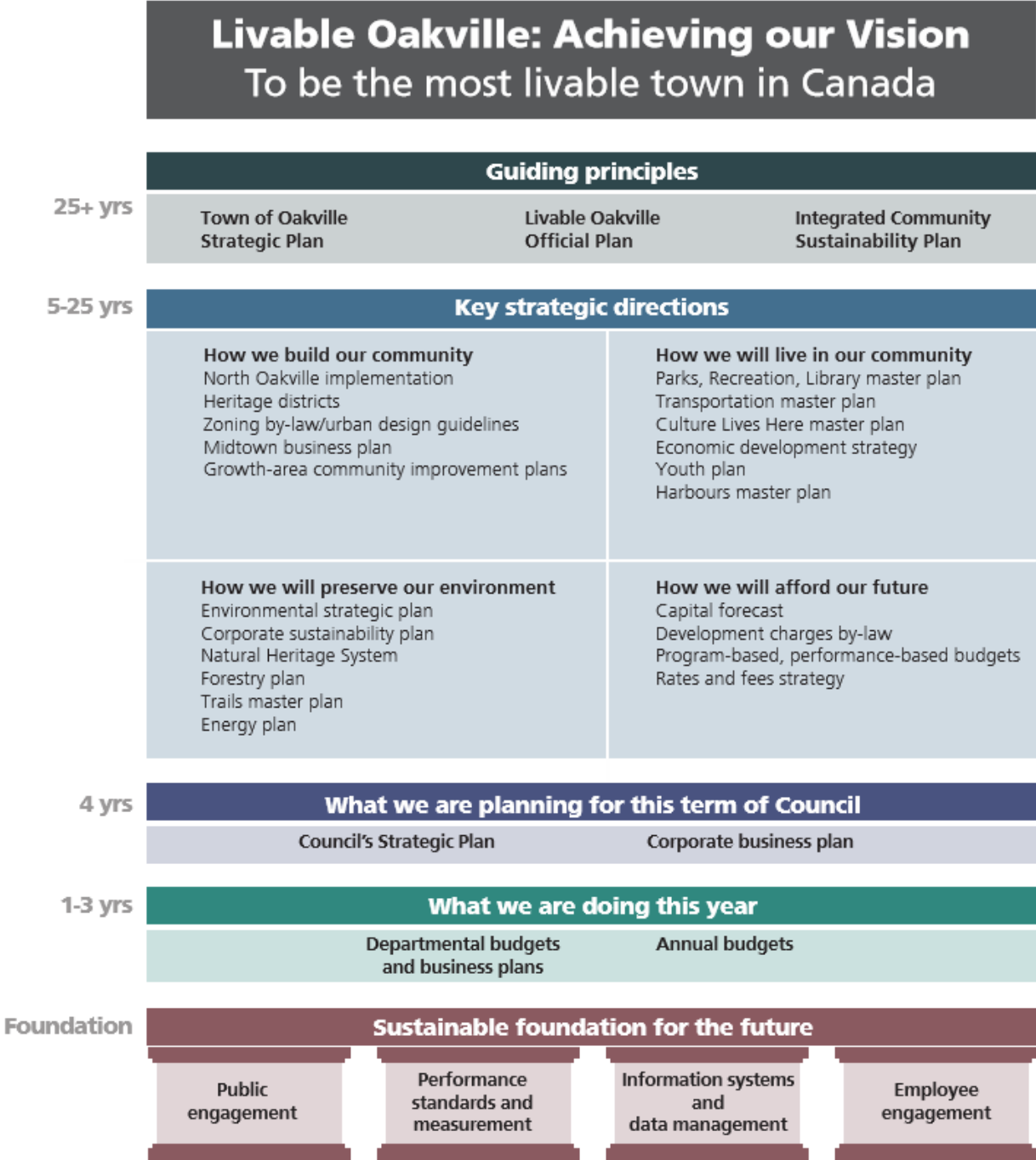
2.1   Town of Oakville Guiding Principles

The Town's overarching and long-term guiding principles towards achieving the vision are set out in key documents:

- **Strategic Plan (2019 - 2022)**

    Sets out the strategic direction for the Town over the term of Council in line with the long-term vision and mission. It serves as the framework to help guide Council's decision-making and resource allocation during the four-year term of office. The 2019-2022 Strategic Plan defined five focus areas:

    Each area of focus is connected to specific action items, key measures and targets which drive the plan towards Council's vision to be the most livable town in Canada. Asset Management is interwoven throughout the five focus areas.

- **Livable Oakville Official Plan**

    The Livable Oakville Plan (2009 Town of Oakville Official Plan) applies to all lands within the town except the North Oakville East and West Secondary Plan areas. It sets out Council's policies on how the lands should be used and growth should be managed through to 2031.

- **Let's Be Livable Community Sustainability Plan**

    The Community Sustainability Plan recognizes that social, cultural, environmental and economic factors contribute to the livability of the Town for current and future generations. The Town uses the following definition of "sustainable development" *from the World Commission on Environment and Development (often called the Brundtland Report): "development that meets the needs of the present without compromising the abili ty of future generations to meet their own needs.".* This includes consideration of the effects of Climate Change.

- **Climate Projections Report**

    This report was completed in 2020 and depicts the expected trends in climate related to temperature, precipitation, wind, snow and ice under both high and low GhG emission scenarios. Each climate variable is compared to the baseline years of 1976-2005 and projected into the two fu ture timeframes of 2021 -2050 and 2051 -2080. The findings of this report are being used to inform the town's asset and emergency management programs.

- **Climate Change Strategy**

    This report was endorsed by Council in 2014 and presents the town's initial climate change risk and vulnerability assessment conducted by an inter-departmental staff team. This report pinpoints the town's highest vulnerabilities relate d to climate change and identifies key actions that the corporation can take to increase resilience.

- Energy Conservation and Demand Management Plan 2020-2024

  Sets out the targets and areas of focus that corporate operations will focus on to reduce energy use and greenhouse gas (GHG) emissions from all of our corporate operations, including facilities. Work related to this plan will include the development of studies and standards that will determine the direction of the Town's efforts to greatly reduce energy use and GHG emissions, in alignment with our corporate commitment to GHG emissions reductions. Energy efficiency and GHG emissions will become more important as our facilities are renewed.

  Corporate Energy and Greenhouse Gas (GHG) Reduction Goals

  Goal 1: 20 per cent reduction in overall energy consumption by 2024 based on 2014 baseline

  Goal 2: 30 per cent reduction in GHG Emissions by 2024 based on 2014 baseline

- Development Charge Study

  Municipalities are required to complete a Development Charges Background study every 5 years which helps translate the population and employment growth identified in the Livable Oakville Official Plan into housing and commercial/industrial unit forecasts thus enabling the town to anticipate and plan future demand for town services and the related assets required. The DC study allows the town to impose development charges (D.C.) to recover capital costs arising from growth and ensures service levels are maintained and are financially sustainable as the town grows.

2.2 Asset Management within the Sustainable Community Framework

Asset Management is fully complementary to and supports the delivery of the Sustainable Community Framework. A key concept of Asset Management is the development of a "line of sight" between the Town's strategic objectives, its associated asset management objectives and the related asset management plans which set out the specific activities (e.g capital projects, operation and maintenance regimes) that are to be carried out on the asset portfolio. With this in mind the international standard for Asset Management, ISO 55000, recommends the following framework be put in place:

Organizational Strategic Plan
- Sometimes also referred to as a "Business Plan"
- Sets out organizations high level vision and mission
- Defines overarching Organizational Objectives

Council Decisions

Asset Management Policy
- Articulates senior management commitment to Asset Management and Continual Improvement
- Provides "top down" direction regarding expectations and mandatory requirements for Asset Management and defines the key principles that underpin Asset Management at the organization.

SMART Objectives

Strategic Asset Management Plan (SAMP)
- Translates Stakeholder Needs into AM Decision Making Criteria
- Confirms the Scope of AM System
- Expands on how the AM Policy will be delivered through the AM System
- Defines a suite of AM Objectives that align with Organizational Objectives

Executive Management Team Decisions

Asset Management Plans (AMPs)
- Sets out the specific life cycle related activities for managing the assets over the short, medium & long term including consideration of asset condition, service expectations, timelines, funding and other resource requirements

Line of Sight

The "Organizational Strategic Plan" should be considered to be the Guiding Principles and Strategic Directions as set out in the Sustainable Community Framework.

The Asset Management Policy sets out the principles that are going to be adopted from an asset management perspective in order to deliver these organizational objectives.

The Asset Management Strategy (this document) then sets out how these asset management principles are to be delivered within the organization and how the high-level strategic objectives are to be translated into more meaningful asset management objectives which drive asset management decision making.

Asset Management Plans then set out the activities, timescales and resources (including capital and operational expenditures) required to deliver the previously defined asset management objectives.

In practice, the line of sight works in both directions and drives somewhat iterative planning and decision making throughout the organization. Top down guiding principles and strategic directions shape decision making on the asset portfolio. However, the bottom up realities of the asset portfolio (i.e risks to service

delivery, refurbishment and renewal needs, maintenance requirements and associated resources etc) also influence high level priorities such as those set out in the 4 year updates of the Strategic Plan.

2.2.1 The Asset Management Policy within the Sustainable Community Framework

To build this line of sight, the Town has already developed an Asset Management Policy. This Policy sets out key principles that are to be observed and embedded into the Town's Asset Management protocols and reflect core aspects of recognized good practice. The principles also closely align with key aspects of the Vision 2057 Sustainable Community Framework as shown in the table below.

Key Asset Management Principles	Vision: To be the most livable town in Canada												
	How we will create our community	How we will live in our community	How we will preserve our environment	How we will afford our future	Livability	Engaged Community	Accountable Government	Environment	Mobility	Public engagement	Performance standards and measurement	Information systems and data management	Employee engagement
	Key Strategic Directions				Key Focus Areas					Sustainable Foundation for the Future			
Forward-Looking & sustainable	●	●	●	●	●	●	●	●	●	●			
Sound Asset Information							●	●	●	●	●	●	●
Robust, Repeatable & Transparent Decision-Making			●				●	●	●		●	●	●
Whole Life-Cycle cost Perspective				●		●	●	●	●		●	●	
Risk-Bask Perspective	●		●	●	●	●		●		●	●	●	
People-Focused (Customers & Staff)	●	●		●	●	●			●	●			●

2.3   Influencing Factors for Asset Management at Town of Oakville

A high-level PESTLE analysis illustrates some of the considerations driving an increased focus on Asset Management at the Town.

Political	▪ There is a Provincial requirement and drive to implement Asset Management embodied in Reg 588 ▪ Provincial/Federal funding for infrastructure requires Asset Management Plans. ▪ Town of Oakville Council is already bought in to Asset Management principles
Economic	▪ There is a clear commitment to fiscal sustainability in the Strategic Plan ▪ The Town is experiencing pressure to limit property tax increases with associated tightening of budgets ▪ Customers are placing increased scrutiny on spending plans ▪ The Town expects scrutiny to increase further with Reg 588 making more data publicly available and shifting the spotlight onto to cost of service. ▪ The implications of growth within Oakville need to be coordinated with neighbouring municipalities.
Social	▪ There is a clear commitment to outstanding service in Strategic Plan ▪ O.Reg. 588/17 requires development of, and reporting on, current and target Level of Service performance ▪ The Town expects that this information will be required to be made publicly available ▪ There will be a need to demonstrate value for money compared to peer Municipalities ▪ Changing demographics are affecting demand for services
Technological	▪ The development of Smart Cities and Internet of Things: The Town is currently piloting various technologies (e.g LED street lights sensors etc) ▪ Autonomous Vehicles: The Province are thinking about the implications of this technology but it is still in its infancy and implications are currently unclear ▪ Mobile Solutions –The Town is continuing to upgrade mobile solutions and apps (i.e phone based) for work management purposes ▪ There may be increasing expectations from customers around communication and quality of data/decisions. This requires better definition of data requirements. ▪ Social Media is being more commonly used to highlight perceived service delivery failings of the Town.
Legal	▪ There are clear asset management requirements stipulated in O.Reg. 588/17 with associated implementation deadlines ▪ ISO 55000: The Town's current aspiration is alignment to the standard, but the ultimate goal would be to be able to demonstrate compliance
Environmental	▪ There is a clear commitment to environmental leadership in the Strategic Plan, Lets be Liveable plan etc. ▪ There is therefore a need to demonstrate and embed sustainability thinking in Asset Management ▪ Council's 2019 Climate Emergency Declaration calls for the integration of climate considerations in asset management planning ▪ Climate change and resilience: coordination of Asset Management with climate change and resilience planning is required ▪ Natural assets: How should the Town manage these in the Asset Management system?

2.4 Stakeholder Needs and Requirements

There are a range of key internal and external stakeholders that have needs and expectations relating to Asset Management at the Town of Oakville and these are summarized in the tables below.

External Stakeholders

Stakeholder	Asset Management Expectations	Potential Influences on Asset Management
Provincial Government	▪ Appropriate activities are carried out to meet all legal and regulatory requirements and address any gaps	▪ Potential requirement for more stringent legal and regulatory requirements
Customers (Residential)	▪ Service reliability and quality ▪ Perceived value for money ▪ Clear communication of LOS performance and costs ▪ Engagement in setting priorities, objectives and associated plans/expenditures	▪ Input to target levels of service through consultation ▪ Ability to influence Council with regard to priorities and rates ▪ Level of willingness to adopt demand management initiatives, etc.
Customers (Commercial)	▪ Service reliability and predictability ▪ Reasonable rate increases (Competitive) ▪ Equitable tariff framework	▪ Input to target levels of service through consultation ▪ Ability to influence Council with regard to priorities and rates
Community Organizations (mostly Recreation related)	▪ Engagement in objectives and spending plans ▪ Predictability in charges	▪ Input to target levels of service through consultation ▪ Ability to influence Council with regard to priorities and rates
Neighbour Municipalities	▪ Town asset management plans are coordinated and aligned with wider plans for the Region ▪ Coordination with Ontario land use planning frameworks	▪ Regional growth not happening as predicted may change affordability of proposed investment plans and timing of other asset management activities
Developers	▪ Development to be accommodated in a timely manner ▪ Changes in developer requirements or priorities to be communicated at the appropriate time	▪ Local growth not happening as predicted may change affordability of proposed investment plans and timing of other asset management activities

Internal Stakeholders

Stakeholder Groups and Individuals	Asset Management Expectations	Potential Influences on Asset Management
Council	- Council's Strategic Objectives & Priorities are reflected in decision making practices - Robust rationale behind investment plans & budgets - No surprises	- Sets expectations for asset management capability and practices - Sets expectations for asset management plans (rigour/ timing) - Changes to strategic objectives, priorities and associated AM objectives
Senior Leadership Team	- Sufficient information is provided to explain decision rationale and implications to Council - Information is accurate to best of current abilities - Confidence that good practices have been followed	- Clear communication of Council Objectives & Priorities - Support and resources for AM Policy & AM Roadmap implementation
Finance	- Expenditure requests are driven by asset need and based on sound reasoning - Certainty and transparency around budgets and expenditures - No surprises	- Language and structure around asset accounting practices - Expenditure reporting requirements - Procurement policies affect life cycle decision making
Corporate Asset Management Team	- Evidence that corporate AM practices are being followed as required - Evidence that required improvements to AM capabilities and practices are being advanced in line with defined timescales	- Defines AM improvement plan objectives and timelines - Defines corporate AM Practice requirements
Asset Managers	- Clear AM objectives - Clear roles & responsibilities - Clarity and consistency of practices and processes	- Alignment of asset management decision making criteria with overarching objectives - Consideration of full asset life cycle in decision making
Operations & Maintenance Staff	- Clear AM objectives - Clear roles & responsibilities - Clarity and consistency of practices and processes	Provide knowledge on asset risks and performance issues to Asset Managers

For all identified internal and external stakeholders, the Town is committed to clear, consistent, and timely engagement and communications, and to incorporating their expectations as far as reasonably practicable in the development of the AM Strategy and related asset management plans.

3. Creating Value for the Town of Oakville through Asset Management

The Town's assets deliver value through the delivery of the various municipal services to its customers and stakeholders and by the related application of asset management techniques to manage and optimize performance, cost and risk. (Below is list of services that utilize physical assets)

Roadway Network | Active Transportation Network | Transit | Fire and Emergency Management | Parks & Outdoor Leisure | Storm Water Management | Natural Space | Recreation / Culture / Library

The value realized from the Town's assets are the Levels of Service that they provide to Customers and Stakeholders in exchange for the fees and charges levied. A fundamental aspect in effective Asset Management decision making is therefore to measure and report upon Level of Service performance in a way that Customers and Stakeholders can understand, and to build these Level of Service considerations into Asset Management decision making. This main principle provides a guideline to help manage town assets in way that balances customer expectations, long-term sustainability and affordability of town services. The Town has therefore developed a Service Level Profile Framework where each of the above services will have a profile comprised of the following:

Customer Expectations	*The primary expectations of customers or stakeholders regarding service delivery i.e what is important to them?*
Service Mission Statement	*A short statement which sets out at a high level what the City will do, who it will do it for, and why*
Service Values	*Keywords which identify aspects of service important to Customers and which will be expanded upon in service outcome statements Such as Quality, Reliable, Protect, Preserve, Accesible. Each service has defined a minimum of 3 Service Values*
Service Outcome Statements	*A set of 3 or 4 succinct statements for each service value which expand upon the mission statement to clearly state what the town commits to deliver with regards to certain aspects of service*
Customer Level of Service Measures	*A suite of metrics which allow the Town to measure and report upon performance against the service outcomes in a way that is meaningful to customers and stakeholders*
Technical Performance Measures	*A range of metrics which allow Town staff to track asset and operational performance characteristics and how they may contribute to delivery of both current and target Customer Level of Service*

The intent of the Service Profile Framework is that each Town Service shall have a succinct set of Customer Level of Service Measures which are clearly linked to straightforward language that customers, stakeholders and staff can understand.

Where appropriate a limited set of Technical Performance Measures will be aligned to the Customer LOS measures which reflect the key technical parameters that influence the delivery of service to customers. These technical measures may change over time depending on what the underlying drivers of LOS performance are considered to be at that time. Refer to table below for an example Service Profile.

Example Service Profile

Fire and Emergency Management	
Customer Expectations	*Quick response, resolution and recovery to emergency incidents*
Service Mission Statement	*To Protect People Property and Environment from emergency incidents through education, enforcement and <u>reliable</u> emergency response by highly trained professionals.*
Service Values(1 example)	*Reliable*
Service Outcome Statement (1 example)	*The first truck will be on scene within a set time period followed by a full complement of responders within a further defined time period any time of day.*
Customer Level of Service Measures	*% of calls where First response on site less than or equal to 6Mins 20 secs from time of call*
Technical Performance Measure	*% Availability of Fire Trucks per year*

Through implementation of this framework the Town will be able to clearly demonstrate a line of sight from Customer Expectation to Technical Performance measures in a consistent format for each service area. Asset Management Plans will then be able to explain how asset lifecycle management activities, and their associated capital or operational expenditures, affect technical performance measures which in turn deliver a benefit to the customer through either maintaining or enhancing service performance. It is anticipated that, upon satisfactory development of the Service Profiles, the Town will be in a position to better engage with its Customers and Stakeholders regarding appetite and willingness to pay for changes to Service objectives.

4. Asset Management Objectives and Performance Management

Based upon the above, and in accordance with the recommendations of ISO 55000, the Town will have two key sets of Asset Management Objectives

a) Asset Management System objectives

  ▪ These will be set based on assessment of Asset Management Maturity against recognized good practice. See section 8.

  ▪ These will be determined on a 4-5 year basis and re-assessed approximately every 2 years

  ▪ Objectives will be achieved through the implementation of the Town's Asset Management Improvement Plan

b) Level of Service objectives

  ▪ Measures will be determined based on the Service Profile Framework explained in section 4 above

  ▪ Performance objectives will be set through iterative engagement with Council based upon current understanding of the status of the Asset Portfolio and associated Asset Management Plans

- ▪ Performance will be measured and reported upon on a yearly basis

- ▪ Objectives will be set on an interval to be determined by the Town in line with the requirements of Regulation 588

- ▪ Objectives will be achieved through the consistent application of the Town's evolving Asset Management System

5. The Town of Oakville Asset Management System

The Town's Asset Management System is a set of interconnected practices, processes and documentation which controls and directs the way that the wider discipline of Asset Management is applied. It should not be confused with a specific software system such as the Town's work management software system (currently JD Edwards) which is simply a part of the overall Asset Management System.

The Institute of Asset Management defines the Asset Management System using the following conceptual model.
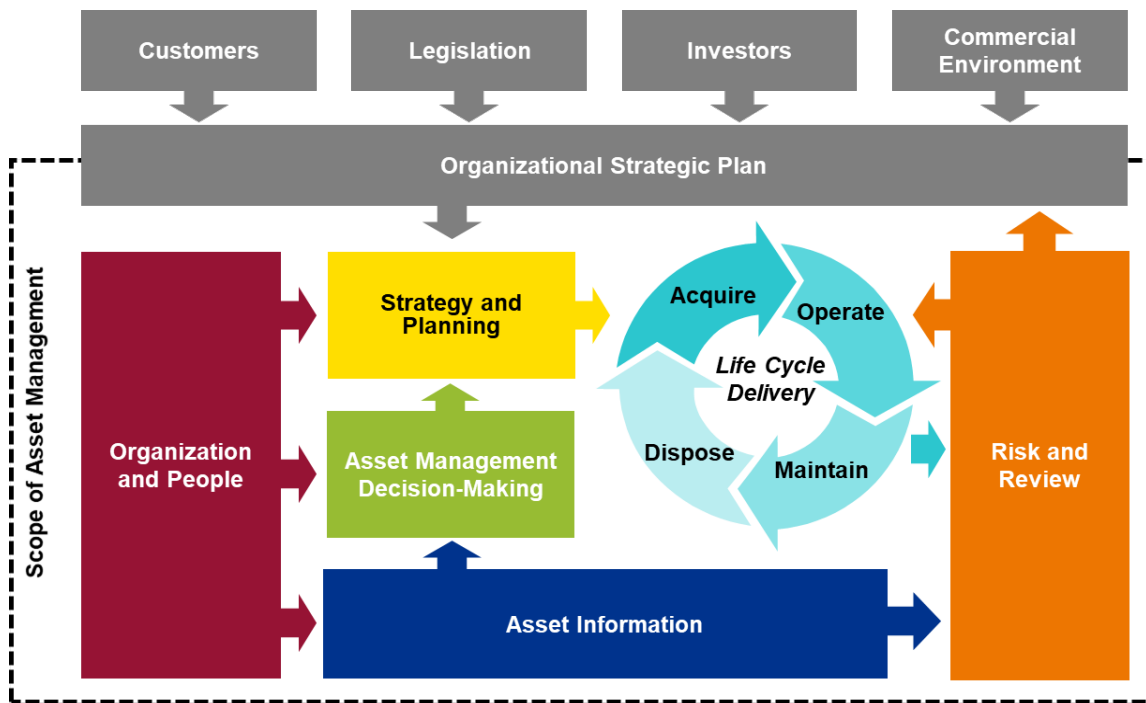
Source: IAM Anatomy: 2012

Each of the six coloured boxes refers to a subject group and each subject group contains several distinct subjects. In total there are 39 distinct subjects which comprise the recognized discipline of Asset Management (shown below). The colour codings of the AM System and associated 39 subjects are consistent with the AM Policy principles as shown in the figure below.

Group 1 – Strategy & Planning
1. Asset Management Policy
2. 2. Asset Management Strategy & Objectives
3. Demand Analysis
4. Strategic Planning
5. Asset Management Planning

Group 2 – Asset Management Decision-Making
6. Capital Investment Decision-Making
7. Operations & Maintenance Decision-Making
8. Lifecycle Value Realization
9. Resourcing Strategy
10. Shutdowns & Outage Strategy

Group 3 – Life Cycle Delivery
11. Technical Standards & Legislation
12. Asset creation & Acquisition
13. Systems Engineering
14. Configuration Management
15. Maintenance Delivery
16. Reliability Engineering
17. Asset Operations
18. Resource Management
19. Shutdown & Outage Management
20. Fault & Incident Response
21. Asset Decommissioning & Disposal

Group 4 – Asset Information
22. Asset Information Strategy
23. Asset Information Standards
24. Asset Information Systems
25. Data & Information Management

Group 5 – Organization & People
26. Procurement & Supply Chain Management
27. Asset Management Leadership
28. Organizational Structure
29. Organizational Culture
30. Competence Management

Group 6 – Risk & Review
31. Risk Assessment & Management
32. Contingency Planning & Resilience Analysis
33. Sustainable Development
34. Management of Change
35. Asset Performance & Health Monitoring
36. Asset Management System Monitoring
37. Management Review, Audit & Assurance
38. Asset Costing & Valuation
39. Stakeholder Engagement

The Asset Management System is therefore the mechanism to control and direct the application of the various subjects to ensure that the Town is maintaining "line of sight" throughout its decision making and other asset management activities.

The Town currently does not have a formalized Asset Management System as would be defined in ISO 55000. However, the Town is seeking to align with the core requirements of the ISO 55000 standard and this means that some key practices are being developed and appropriately documented to ensure robust and repeatable application. These improvement initiatives are defined in the Asset Management Improvement Plan (see section 7)
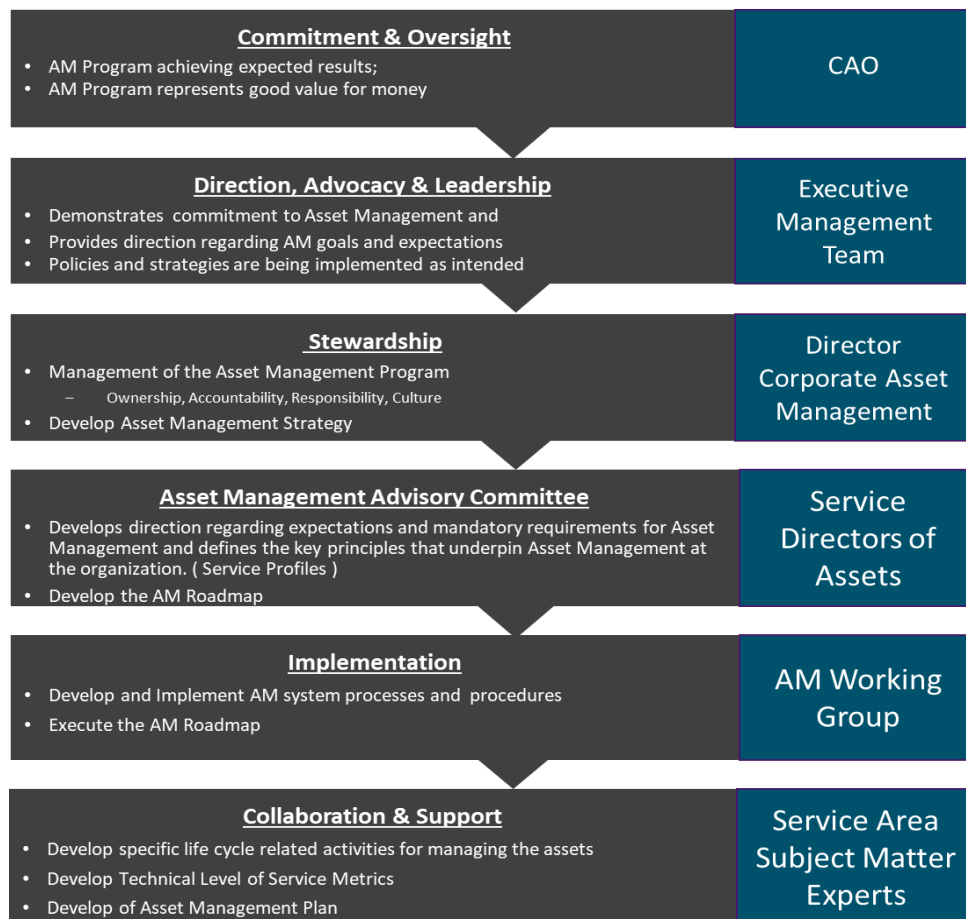
6. Asset Management Governance Framework

An Asset Management Governance Framework is required in order to:

- Formalize asset management as a discipline that is consistently applied across the Town of Oakville

- Promote and foster a culture which supports asset management and continuous improvement

- Ensure that appropriate functions and departments are involved in the development and implementation of the Asset Management Improvement Plan

- Guide managers in the implementation of the Asset Management Improvement Plan and application of the Asset Management System

- Maintain oversight and control of development, implementation and improvement of the Asset Management Improvement Plan and Asset Management System;

- Monitor the ongoing contribution of the Asset Management System to the Town's goals and adjust content and direction if necessary; and

- Refine the definition of success and associated Asset Management objectives to maintain alignment with evolving corporate Strategy.

6.1 Asset Management Governance Structure

The following Governance Structure exists at the Town

Commitment & Oversight	CAO
• AM Program achieving expected results; • AM Program represents good value for money	

Direction, Advocacy & Leadership	Executive Management Team
• Demonstrates commitment to Asset Management and • Provides direction regarding AM goals and expectations • Policies and strategies are being implemented as intended	

Stewardship	Director Corporate Asset Management
• Management of the Asset Management Program – Ownership, Accountability, Responsibility, Culture • Develop Asset Management Strategy	

Asset Management Advisory Committee	Service Directors of Assets
• Develops direction regarding expectations and mandatory requirements for Asset Management and defines the key principles that underpin Asset Management at the organization. (Service Profiles) • Develop the AM Roadmap	

Implementation	AM Working Group
• Develop and Implement AM system processes and procedures • Execute the AM Roadmap	

Collaboration & Support	Service Area Subject Matter Experts
• Develop specific life cycle related activities for managing the assets • Develop Technical Level of Service Metrics • Develop of Asset Management Plan	

## 6.2   Asset Management Coordination and Benchmarking

The Town participates in the Halton Region Asset Management Working Committee which meets quarterly. The purpose of the group is to share and coordinate the application of Asset Management good practice across the Region.

The Town also participates in Asset Management Ontario which is a forum for sharing the experiences and good practices developed by Municipalities across the Province.

The Town also attends the Canadian Network of Asset Managers (CNAM) workshops and AM Ontario conferences and workshops which are National and Provincial forums for sharing good practices within the Asset Management field.

7.   Asset Management Planning Framework

The Town is committed to a service focused Asset Management planning approach and this is to be embedded in decision making through application of the framework as shown in the diagram below.

Investment linked to Customer and Stakeholder outcomes
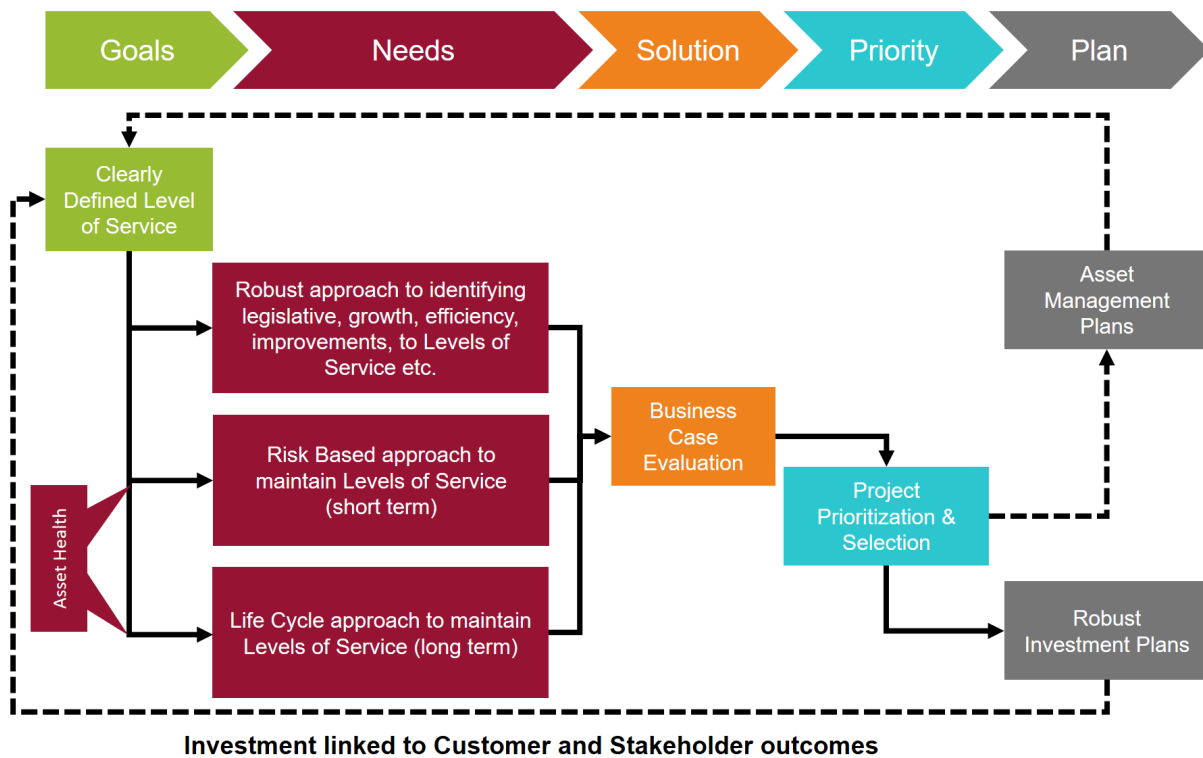
Fundamental aspects of this framework will be explained further in the following sections. However, the key concept is that the Customer Level of Service objective is always at the forefront of the Asset Management decision making process.

The key output of application of this Framework are Asset Management Plans which meet the requirements of Regulation 588 and explain the holistic suite of lifecycle management activities required to meet Level of Service objectives and the associated collective costs of these activities. Where affordability or other relevant constraints are in place, the Asset Management Plan will then explain the projected effects of these constraints upon the Town's ability to deliver Levels of Service.

7.1 Role of Master Plans

Each Service Area within the Town typically prepares Master Plans which are focused upon:

- Growth and change in demand requirements
- Legislative requirements
- Efficiency opportunities
- Service improvement opportunities

Asset Management Plans typically provides input into the Master Planning process as well as utilize the outputs of the Master Planning process where appropriate and seek to overlay these outputs upon the underlying requirements for maintaining Levels of Service – i.e managing the risk of asset failure and subsequent level of service degradation – to present a holistic and comprehensive view of the activities and resources necessary to deliver the Town's Level of Service objectives. The Master Plans currently can be found on the town's website: Master Plans

7.2 Maintaining Levels of Service

The Town measures and monitors a broad range of technical performance measures for each Service which provide an indication of the "health" of the asset base. Poor asset health may indicate a risk to service delivery and an associated need to intervene. This intervention could take many forms – such as an improved operation and maintenance regime, a capital project, a contingency plan or a combination of several lifecycle management approaches.

7.3 Asset Condition

Asset Condition is a commonly used indicator of overall asset health and condition data is derived from periodic asset inspections. Typically, assets in poor condition are at higher likelihood of failure with associated potential adverse impacts on Customer Levels of Service. The Town of Oakville utilizes a standard condition rating scale as one means of tracking Asset Health. The scale is shown in the table below.

Condition Table			
Rank	**Description of Condition**	**General Description**	**Asset Report Category**
A	Very Good Condition - Only Normal Maintenance Required	Well secured and operational, sound of function and appearance.	Good
B	Minor Defects Only - Minor Maintenance Required (10%)	Operational and functional, minor wear and tear.	Good
C	Maintenance Required to Return to Accepted Level of Service - Significant Maintenance Required (10 - 30%)	Generally operational. Minor breakage.	Fair
D	Requires Renewal - Significant renewal/Upgrade required (30 - 50%)	poor quality and appearance, often inoperable and damaged.	Fair
F	Asset Unserviceable - Over 50% - Asset Requires Replacement	Inoperable or damaged.	Poor

Key information on the age, condition and replacement cost profile for each asset type and associated sub-types are presented in standardized Asset Reports available from the Town's Asset Management team. For the purposes of reporting simplicity, the 5 point condition assessment scale shown above is mapped to a common Good/Fair/Poor category. This information is refreshed on a yearly basis and is presented in the format shown below in the Annual Budget and Business Plans document
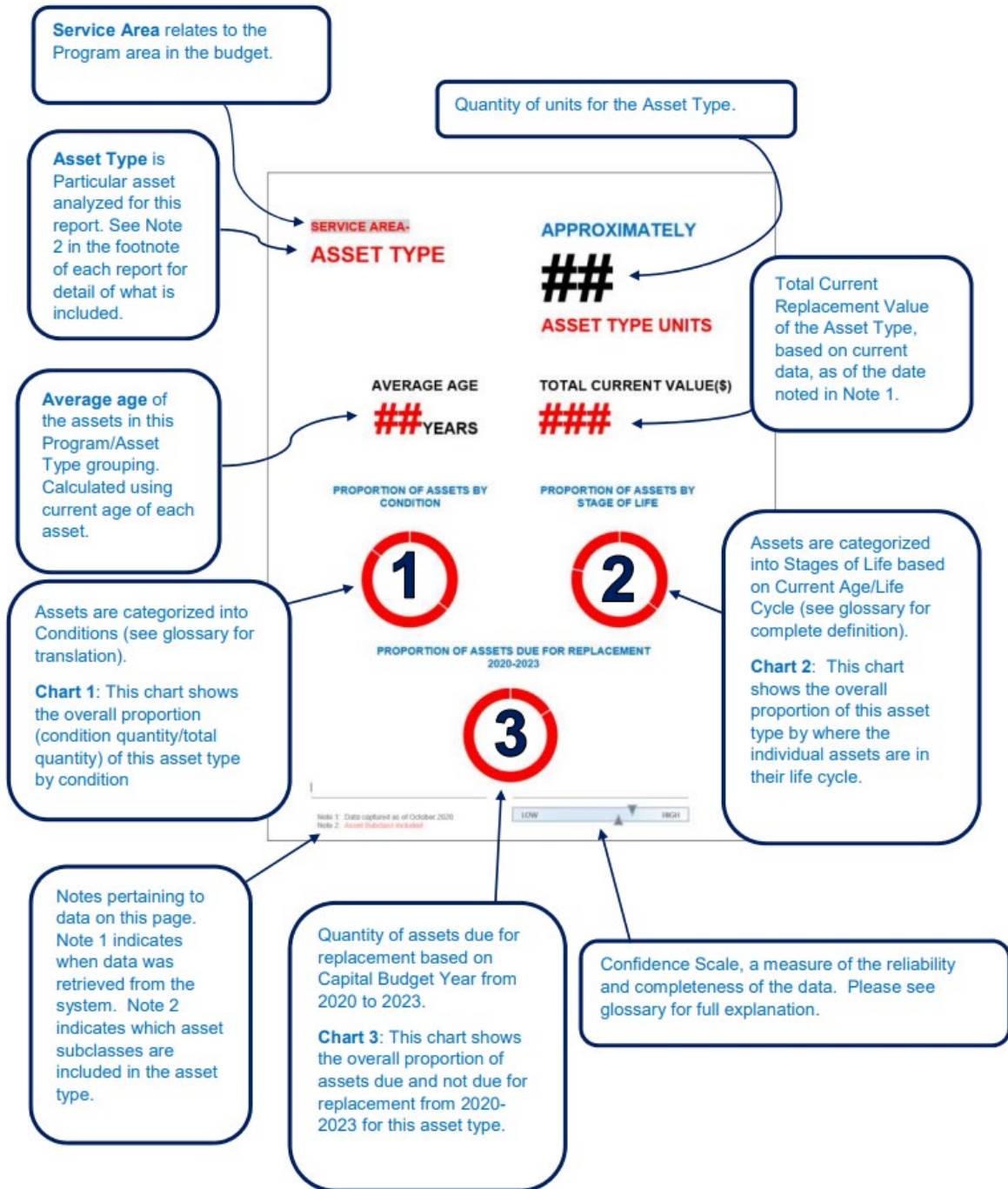

Figure 7-1. Asset Report Format

Other Asset Health related data – such as failure and work histories- is extracted on an as needed basis from the JD Edwards work management system.

7.4   Asset Risk

Asset Risk Management is a process which typically utilizes asset health and other asset data, combined with the experience and knowledge of town staff to identify, assess and evaluate risks associated with the Town's asset base. Asset Risk considers both the likelihood of asset failure but also the consequences of failure in terms of Safety, Level of Service, Compliance, Environmental Protection, Climate Change, Cost etc. Assets that exhibit high risks are typically targeted for implementation of appropriate risk mitigation actions. The town has created a scoring system to evaluate the consequence of asset failure based on a set of five criteria which have been weighted to create an overall criticality score for individual asset categories. A summary of the Consequence factors and scoring system are summarized below.

Consequence Factor	Scoring Descriptions	Score
Health / Safety / Environmental Impact 35%	Fatality / Serious Illness / Reportable Environmental Incident	5
	Disabling injury (Long Term)	4
	Lost time injury (Set Period of Time) /	3
	Minor injury	2
	No injury	1
Regulatory Impact 20%	Direct Regulatory (Legislative) effect	5
	Town Policy or Procedure	3
	No Effect	1
Customer Service Impact 25%	Major interruption in service until mitigation	5
	Moderate interruption/ break in service until mitigation	4
	Minor break in Service/ customer concerns no mitigation required	3
	Repeat occurrences/ regular complaints Constant minor	2
	No effect	1
Single Point Failure 15%	Multiple/ asset network effect	5
	One parent asset effect	3
	Single effect	1
Replacement Time 5%	Major planned replacement (potentially more than 12 months)	5
	Requires Planned replacement but can be done within 6 - 12 months	3
	Replacement within normal operations (0-6months)	1

The Condition/ Likelihood rating is then combined with the Criticality/ Consequence rating to create an overall asset level risk ranking which can be used to set the priority of the individual assets in any given year based on the consequence and likelihood of failure. For example, assets in good condition and low consequence would be ranked at the bottom of the priority scale and alternatively assets in poor condition and high consequence would rank at the top. As the asset ages and condition begins to deteriorate the priority ranking of the individual asset would increase. Below is the Priority Rating Matrix that will be used to assess the overall risk of town assets.

Currently Asset Risk is routinely but informally considered using the experience of the Town's planning and operational staff when proposing lifecycle management activities. However, with the establishment of this risk matrix a formal process to incorporate the risk framework into the planning process and begin to be able to assess risk across all town assets is the next step that has been identified in the Asset Management Improvement Plan.

7.5   Asset Registry

The Asset Registry is comprised of two systems: ERP System - JD Edwards and GIS.

JD Edwards: This system contains all the Strategic Asset Information involved in Asset Forecasting and Planning. The Asset Registry contains assets at various levels for example:

- Tangible Capital Assets as defined by PSAB3150,

- Assets critical to service provision

- Assets that have specific legislative maintenance requirements

- Assets that require maintenance tracking

GIS: This system contains the geographical location and other detail attributes.
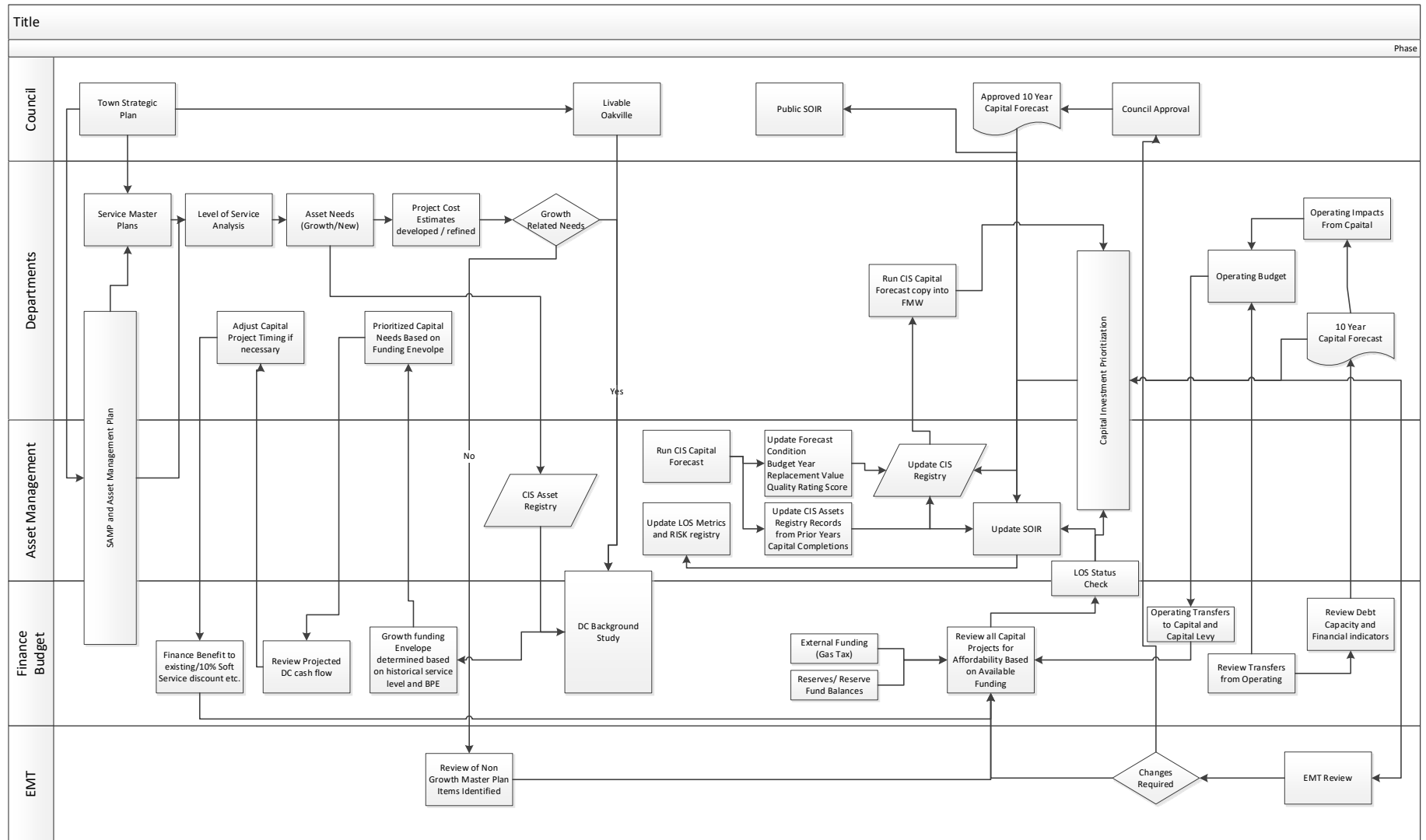
7.6   Project Prioritization and Selection

The Finance and Asset Management Departments are responsible for facilitating the development of the Capital and Operating budgets at the Town. This involves facilitating discussions on the selection of proposed capital investment projects over the long-term planning period. While a formal prioritization system does not currently exist, the Town has developed the following broad prioritization criteria to assess the different types of capital project drivers and relative weightings which are used to guide the prioritization discussions. This project prioritization system will be used in conjunction with the risk priority matrix to develop an overall strategy for prioritizing the long-term capital program needs.

Category	Criteria	Definition	Weight
Safety & Regulatory	Maintaining Safety	Maintains the safety aspects of a service.	38%
	Safety Improvement	Improves the safety aspects of a service.	
	New Regulations	Makes changes to the service to meet new regulatory requirements.	
Maintain Service	Maintaining Regulated Service Outputs	Maintains the aspects of service as set down in existing legislation/regulation or with regard to public health.	25%
	Maintaining Discretionary Service Outputs	Maintains the aspects of service as directed by current Town Policies, Strategies, etc.	
	Maintaining Aesthetic Service Outputs	Maintains aesthetic aspects of a service.	
Sustainability	Environmental Improvement	Makes changes to the service to improve environmental/sustainability aspects. May include changes staff working environment.	20%
	Financial Sustainability	Replaces existing infrastructure to improve operational efficiency. Eg (Spend to Save)	
	Resilience	Hardens the assets against natural or man-made threats or improves resiliency.	
Growth & Service Enhancements	Growth	Either supports business development or enables growth of the Town.	17%
	Enhance Aesthetic Service Outputs	Enhances aesthetic aspects of a service.	
	Enhance Discretionary Service Outputs	Enhances the aspects of service as directed by new Town Policies, Strategies, etc.	

7.7   Capital Investment Planning Process Summary

The Investment Planning process is summarized in the diagram overleaf.

Asset Management Strategy

Title

Phase

Council

- Town Strategic Plan
- Livable Oakville
- Public SOIR
- Approved 10 Year Capital Forecast
- Council Approval

Departments

- Service Master Plans
- Level of Service Analysis
- Asset Needs (Growth/New)
- Project Cost Estimates developed / refined
- Growth Related Needs
- Adjust Capital Project Timing if necessary
- Prioritized Capital Needs Based on Funding Enevolpe
- Run CIS Capital Forecast copy into FMW
- Capital Investment Prioritization
- Operating Impacts From Cpaital
- Operating Budget
- 10 Year Capital Forecast
- SAMP and Asset Management Plan
- Yes
- No

Asset Management

- CIS Asset Registry
- Run CIS Capital Forecast
- Update Forecast Condition Budget Year Replacement Value Quality Rating Score
- Update CIS Registry
- Update LOS Metrics and RISK registry
- Update CIS Assets Registry Records from Prior Years Capital Completions
- Update SOIR
- LOS Status Check

Finance Budget

- Finance Benefit to existing/10% Soft Service discount etc.
- Review Projected DC cash flow
- Growth funding Envelope determined based on historical service level and BPE
- DC Background Study
- External Funding (Gas Tax)
- Reserves/ Reserve Fund Balances
- Review all Capital Projects for Affordability Based on Available Funding
- Operating Transfers to Capital and Capital Levy
- Review Transfers from Operating
- Review Debt Capacity and Financial indicators

EMT

- Review of Non Growth Master Plan Items Identified
- Changes Required
- EMT Review

7.8   Asset Management Plans

The Town's framework for Asset Management Plans (AMP) generally follows ISO 55000 guidelines and adheres to O.Reg 588/17but with minor modifications to facilitate communication of key issues. Asset Management Plans will typically be created from a Service perspective i.e a Roads Network AMP, Storm water Management AMP, etc.

The AMPs will be structured as follows:

1. Executive Summary

2. Introduction

3. State of Infrastructure

4. Growth / Demand

5. Desired Level of Service

6. Asset Lifecycle Management Strategies

7. Financing Strategy

8. Plan Improvement

8.   Asset Management Enablers

Successful Asset Management relies upon people and their collaborative working practices to make the best decisions on behalf of Customers and Stakeholders. With this in mind the Town has implemented the following on an ongoing basis:

- **Periodic Asset Management Training**

    The Town has engaged trainers endorsed by the Institute of Asset Management to provide Principles of Asset Management training and certification for a wide range of Town staff. This training has explained and reinforced the key concepts embedded in the Town's Asset Management Policy.

- **Asset Management Awareness Videos**

    The Town has developed and published online a set of Asset Management awareness videos that are intended to be used with new staff or on an as needed refresher basis.

- **Asset Management Governance**

    The Town is committed to implementing the Asset Management Governance Framework and, in particular, the Service and Asset Management Network. This Network provides a forum for the sharing and discussion of good practice Asset Management and how this can be applied with the Town.

- **Asset Management Guidelines**

    There are a suite of fundamental practices and processes within the Asset Management System that support delivery of the Asset Management Policy and, as a result, enable staff to manage assets and

deliver asset management objectives in the most efficient and effective manner. The Town's Asset Management Team will be responsible for developing process guidance that facilitates a consistent approach across the Town.

9. Asset Management Improvement Plan

Implementing the Asset Management Policy requires improved asset management practices, competencies, and capabilities both within the individual Services and across the Town as a whole.

To advance the state of asset management practice, an asset management maturity assessment was conducted in 2016/2017 using the Comprehensive Asset Management Review and Assessment (CAMRA) tool provided by CH2M (now Jacobs). CAMRA is an assessment methodology which is fully aligned with the requirements of ISO55000. It involves the facilitated assessment of maturity against 32 facets of good practice asset management for each Service using a standard maturity scale as shown below. The 32 facets are reviewed in a workshop environment with attendees that are selected to provide both a vertical and horizontal cross section of each service area.
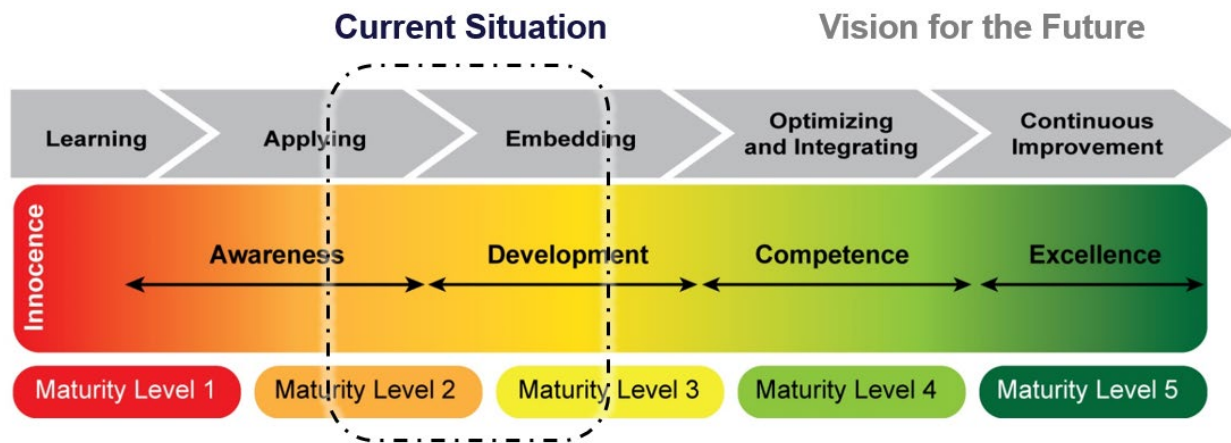
The Town conducted initial CAMRA workshops for the Road, Land Improvement, Environmental Networks, Facilities, Transit and Fleet. It should be noted that these Service names have since changed and future CAMRA assessments will utilized the new Service Profile structure.

The section below reports on the Service for which CAMRA workshops were completed in 2016/2017.

Asset Category	CAMRA Assessment Status
Road Network	Completed – January 20, 2016
Land Improvement Network	Completed – January 19, 2016
Environmental Network	Completed – January 20, 2016
Facilities	Completed – September 18, 2017
Transit	Completed – September 25, 2017
Fleet	Completed – September 28, 2017

The table below shows the current maturity level (at the time of assessment) and desired state over the short, medium and long term. At the time of assessment short term meant by mid 2018, medium term by mid 2019 and long term by end of 2022.

| #	Theme	Current			Short			Medium			Long		
		Environment	Land Improvement	Roads	Environment	Land Improvement	Roads	Environment	Land Improvement	Roads	Environment	Land Improvement	Roads
1	Organizational Strategic Plans												
2	Monitoring Performance Against The Organizational Strategic Plans												
3	Scope of the Management System												
4	Asset Management Policy & Strategic Asset Management Plan												
5	Asset Management Leadership & Governance												
6	Asset Management Roles & Responsibilities												
7	Master Plan For Dev. Of Asset Mgt Bus. Processes & Procedures												
8	Master Plan for Dev. of Asset Mgt Skills & Competences												
9	Master Plan For Dev. of Asset Mgt Information Technology												
10	Service Performance Measures/ Levels of Service												
11	Future Trends (Impact Of Growth)												
12	Legal, Regulatory & Statutory Requirements												
13	Asset Inventory												
14	Asset Information												
15	Information Management												
16	Business Applications												
17	Risk Framework - Strategic Level & Asset Level												
18	Optimized Asset Intervention Planning												
19	Asset Management Plans												
20	Capital Investment Plan Development & Governance												
21	Capital Projects - Planning, Design & Construction												
22	Operations Management												
23	Maintenance Management												
24	Investigation & Recording Of Routine Asset Failures & Reactive Work												
25	Materials Management												
26	Emergency Preparedness & Response												
27	Control of Documented Information												
28	Learning & Development												
29	Knowledge Retention & Succession Planning												
30	Asset Management Quality Assurance & Management Review												
31	Continual Improvement Culture												
32	Communication & Change Management												

Legend (maturity level): 1, 1.5, 2, 2.5, 3, 3.5, 4, 5
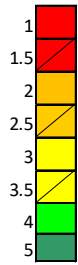
Figure 9-1. Current and Forecasted Maturity for each Asset Management Themes for the Roads, Land Improvement, and Environment Network Services
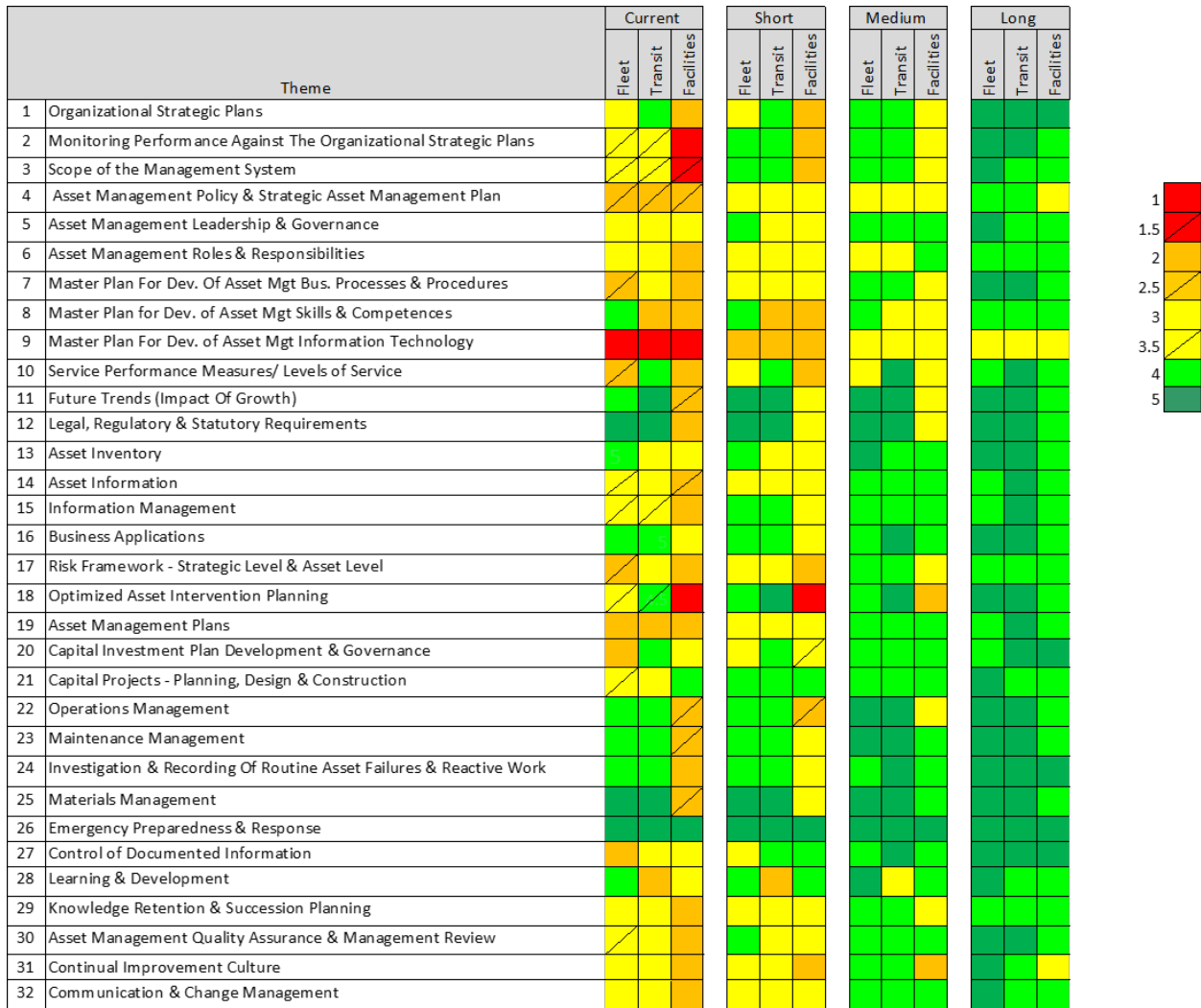
Figure 9-2. Current and Forecasted Maturity for each Asset Management Themes for the Fleet, Transit and Facilities Services

Based on this assessment, a roadmap was developed to improve the various facets of asset management across the various ServicesThere were eight priority (short-term) initiatives identified which are summarized in Table 9-1 below, along with a high-level description of the intended aims/outputs.

Table 9-1. 2016 Improvement Plan Priorities

#	Initiative	Description	Objective	Status
S1	Asset Management Policy & Strategic Asset Management Plan	Aims: ▪ Put in place a concise Asset Management Policy ▪ Develop an associated AM STRATEGY document that details how the Policy will be implemented	✓ Policy approved by Council in 2017 ✓ draft AM STRATEGY to Council in 2018 revised in 2021	▪ Completed ▪ Completed

Table 9-1. 2016 Improvement Plan Priori ties

| #	Initiative	Description	Objective	Status
S2	Asset Management Leadership & Governance	Aims: ✓ Develop asset management governance structure and process ✓ Roles and responsibilities for individuals and teams: ✓ Asset management sponsor ✓ Asset management steering committee ✓ Asset management lead ✓ Asset management committee/network ✓ Reporting requirements - progress, benefits, frequency of meetings	✓ Governance Framework defined and in place by 2018 ✓ Ongoing Implementation in 2019	✓ AM Governance Framework defined in AM STRATEGY ✓ Implementation is ongoing ✓ Objective is ongoing Service & Asset Management Network in place by Q4 2019
S3	Change Management & Communication Strategies	Aims: ▪ Develop the communications Strategy and change management Strategy ▪ Proactive approach to change management and communications ▪ Making change sustainable	▪ Implement communications Strategy in 2017 ✓ Implement AM Training program	✓ Ongoing. Awareness videos published and more in development. ✓ Several AM Training courses have been delivered and staff have taken the IAM Certificate Exam
S4	Levels of Service & Performance Metrics	Aims: ✓ Develop Customer and Asset LOS Framework and associated measures	✓ Implement LOS performance metrics by early 2021	▪ Ongoing. ✓ Service Profile Framework in development and on track to meet O.Reg. 588/17 requirements.
S5	Asset Management Plans	Aims: ✓ Define the AMP Framework ✓ Develop the AMP for Roads, Environment, and Land Improvement	✓ Implement AMPs by end of 2018	✓ Automated Asset Reports developed (age, condition, asset value etc) ✓ Some core elements of AMPs developed – i.e State of Infrastructure Report (SOIR).

Table 9-1. 2016 Improvement Plan Priori ties

#	Initiative	Description	Objective	Status
S6	Asset Information Strategy, Standards, Improvement Plan	Aims: ▪ Document Asset Information Strategy ▪ Defined Data Standards and Information Management Processes ▪ Document Information Management Improvement Plan	▪ Document Asset Information Strategy by mid 2019	▪ In very early stages of development
S7	Asset Management Risk Framework	Aims: ▪ Develop a Town-wide approach to risk management ✓ Pilot strategic and asset risk frameworks	▪ Implement risk frameworks by end of 2021	▪ In very early stages of development ▪ Services have been separately developing risk frameworks
S8	Capital Investment Plan Development and Governance	Aims: ▪ Better definition and justification of the "business need" ✓ Consistent approach to business cases ▪ More robust and transparent approach to investment prioritization ▪ Benefits-based approach ✓ Build on existing approaches	▪ Implement improved capital planning process by end of 2018	▪ Documented investment planning process ✓ Capital budget process is more service centric ▪ Developed prioritization criteria ▪ Piloted investment prioritization approach

Based on the above progress, an interim updated improvement plan (June 2019) has been developed which considers an appropriate overall phasing of the initiatives to continue to close the gaps identified in the maturity assessment.

A formal update to the Maturity Assessment, which will involve externally facilitated workshops, will take place in late 2021. A revised Asset Management Improvement Plan will be developed subsequent to this formal re-assessment.

9.1 Asset Management Improvement Plan Cycle

The following is a graphical representation of the Asset Management Improvement Plan Cycle. The Improvement Plan cycle is focused on the six principles of Asset Management contained with the AM Policy.
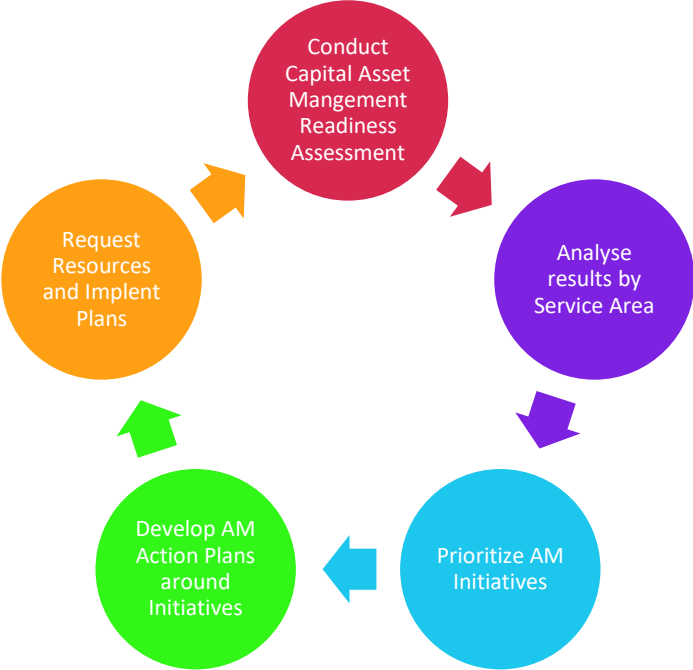
10.   Implementation, Monitoring and Continual Improvement

The Town is committed to continual improvement in all aspects of Asset Management. The Town's management will therefore ensure that the following take place:

- The AM Policy will be refreshed every 5 years maximum beginning July 2019 in accordance with the requirements of O. Reg. 588/17

- The AM STRATEGY will be subject to an interim refresh every four years to coincide with Council Strategic Plans Updates

- A Maturity Assessment update will be carried out in late 2021 (approx. 4-5 years after initial assessment)

- Asset Management Plans will be reviewed and updated on a 3 year cycle. Sections of the plan may be updated during the budget planning cycle as a result of funding or forecasting changes.

- Service Level Metrics will be reported out through the budget process on a yearly basis

- Technical Level of Services will be reported out through the budget process on a yearly basis.