TOWN OF LINCOLN

MAY 2024

ENTERPRISE SERVICES ASSET MANAGEMENT PLAN

TOWN OF LINCOLN

DATE: MAY 2024

ENTERPRISE SERVICES ASSETS

Major Inventory

- **313 Workstations**
- **269 Monitors**
- **219 Cell phones**
- **42 Software Applications**

Estimated Replacement Value

Enterprise Services assets are valued at approximately $2.9M.

Condition Rating

(Based on Lifecycle % age Elapsed)

33% of assets are in Good to Very Good condition.

36% of assets are in Poor to very Poor

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1 GOVERNANCE AND LEADERSHIP

1.1 OVERVIEW

The Enterprise Services Team consists of 4 full-time IT Professionals that are responsible for keeping all devices, infrastructure, and software applications in good working order. The dedicated team assures that the Town's IT Asset's are well managed and secure.

1.2 ROLES AND RESPONSIBILITIES

The **Chief Administrative Officer** (CAO) is responsible for oversight and administration of the Town's services. The CAO implements the policies and direction approved by Council, and with support from the senior management team, develops strategic planning initiatives for the organization.

The Enterprise Services department is responsible for the administration and maintenance of all Information Technology equipment and Enterprise Software solutions.

Enterprise Services is part of the CAO department, consists of 4 full-time IT Professionals and 1 part-time student role.

The Team is composed of the following roles:

- **Manager of IT and Enterprise Services**

  Reporting to the Director of Economic Development and Communications, the Manager is responsible for the day-to-day management of the team, strategic planning for future needs, collaboration with all other corporate departments and when necessary, provides Council updates at committee meetings.

- **IT Infrastructure Analyst**

  Reporting to the IT Manager, the Infrastructure Analyst is responsible for designing, implementing, and managing IT infrastructure, including network systems, backups, storage, telecommunications, and security devices. The Infrastructure Analyst provides support and advice to peers while handling any escalations from Help Desk. The Infrastructure Analyst is required to participate in the Town's IT on-call rotation.

- **IT Solutions Analyst**

  Reporting to the Manager of Enterprise Services, the IT Solutions Analyst effectively implements, enhances, and supports business solutions and the various integrations between systems. The IT Solutions Analyst is responsible for investigating and resolving issues pertaining the business solutions, including implementing upgrades and resolving conflicts or errors in applications.

  The IT Solutions Analyst serves as the point of escalation for software configuration or software development and is required to participate in the Town's IT on-call rotation.

- **IT Help Desk**

  Reporting to the Manager of Enterprise Services and working closely with other members of the team, this position is mainly responsible for the day-to-day operations, workstation set up and user management. Other duties include responding to problems regarding municipal hardware and software and acting as support for Council and Committee meetings. The IT Help Desk is required to participate in the Town's IT on-call rotation.

- **Part Time IT Student**

  Reporting to the Manager of Enterprise Services. The part-time student is responsible for assisting with council meetings, inventory management and day-to-day user support tasks in the department.

Enterprise Services reports to the Town's Information Technology Steering Committee who guide the department through a list of prioritized projects across the Town.

1.3 GOALS AND OBJECTIVES

The Town of Lincoln's strategic plan titled "A Future Fit Lincoln" describes its strategic priorities to build a welcoming, connected, vibrant and resilient community.

The long-term vision statement for the Town is:

A place to grow:

Youth, aging in place, agriculture – growing crops, farming, greenhouse support, business growth, early childhood development (youth), proper planning and growing smart, growing your family here in Lincoln.

A place to prosper:

A place for small/medium businesses to succeed, opportunities, job creation, tourism, destination, local markets, festivals, beautification, parks, prosperity, community vibrancy, innovation.

A place to belong:

Maintain community feeling, connectedness, more local events, support for families, history and heritage, local markets, local and unique festivals, moving around town, one community.

1.3.1 ENTERPRISE SERVICES GOALS

The Enterprise Services goals, in terms of asset management are to leverage Information Technologies to provide current, sustainable, and integrated technology to our users at the best possible value to the Town's taxpayers.

In addition, the Town's technology vision is laid out in the Corporate Systems Master Plan 2020 developed by Perry Group Consulting, and is based around four core areas of focus:

1) Offering great, digital customer services for both residents and businesses, that allow them to interact and engage with the Town using their computer, tablet, or smartphone; and

2) Digitizing and simplifying the Town's business processes by fully leveraging technology to support process efficiency and become a data-driven organization that uses data from its digitized processes to analyse and optimize efficiency and cost-effectiveness.

3) Providing staff with a modern, digital workplace - current and secure tools that help teams collaborate and be productive and by providing mobile tools for the Town's mobile workforce; and

4) Elevate the Enterprise Services to be a strategic partner in supporting the Town's vision by providing necessary investment and resources that it needs. Provide a focus on encouraging corporate coordination and planning around technology and improving outcomes of business-technology projects.

1.4 CONTEXT FOR ASSET MANAGEMENT PLAN DOCUMENT

The Town recognizes the importance of proactive and responsible management of its information technology infrastructure. Figure 1 shows the linkage and relationships between asset data and how it informs asset management plans, financial and master planning documents, corporate asset management plans, climate adaptation and mitigation plan and policy statements, which in the Utilities Service Area Asset Management Plan will strive to meet the goals of a ***Future-Fit Lincoln***. These goals are to provide a reliable, effective, and supportive service in a financially responsible way that is aligned to the community vision.

1.4.1 RELATIONSHIP WITH OTHER DOCUMENTS

The Town recognizes the importance of proactive and responsible management of the infrastructure that supports the effective and efficient delivery of the Enterprise Services. Figure 1 shows the linkage and relationships between asset data and how it informs asset management plans, financial and master planning documents, corporate asset management plans, and policy statements, which in the Enterprise Services **AMP (Asset Management Plan)** will strive to meet the goals of a Future-Fit Lincoln. These goals are to provide a reliable, effective, and supportive service in a financially responsible way that is aligned to the community vision.

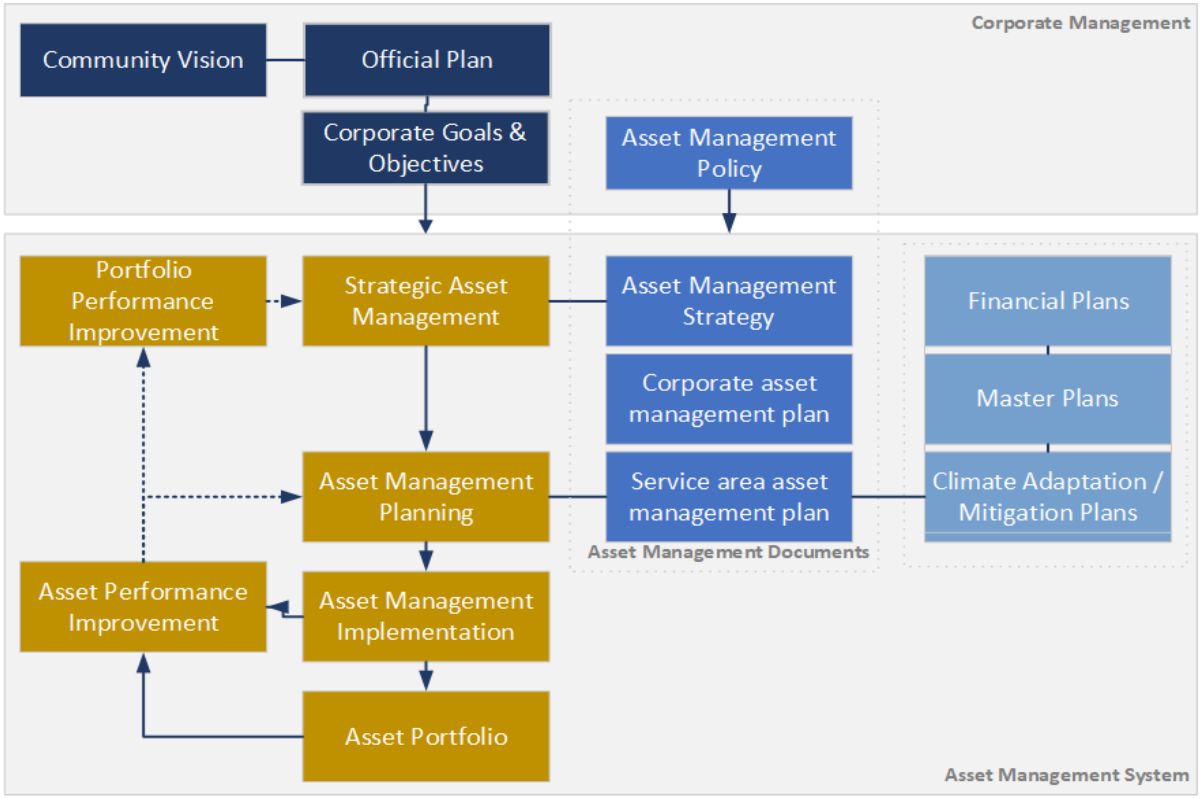


Figure 1: Relationship to Corporate Documents

1.4.2 REFERENCE DOCUMENTS

The following plans and strategies were referenced in the preparation of this Asset Management Plan

- Lincoln – Vision, Values and Mission (2018)
- Lincoln - Corporate Systems Master Plan (2020)
- Lincoln – Customer Service Strategy (2021)
- Lincoln – Municipal Technology Maturity Model

1.4.3 LIMITATIONS AND ASSUMPTIONS

This AMP has been prepared based on the best information available regarding inventory and service costs while incorporating an understanding of adequate maintenance and renewal of assets in a “whole of lifecycle” manner. Continuous improvement of Lincoln’s asset management practices is essential to collect accurate asset information that can be used to support ongoing quality planning and sustainable infrastructure management.

The limitations faced while writing this plan are summarized in Table 1. Recognizing these limitations will help inform the continuous improvement process for future versions of the AMP.

Table 1: Limitations of the asset management plan

Limitation	Impact
State of Data	The Town's inventory is stored in multiple tables and databases and contains gaps and duplicates. Assets not in the central data base would include, cells phones, and software applications
State of Inventory and Costs	The state of inventory and cost is based on current asset data.
State of the infrastructure	The state of the infrastructure is based on currently available inventory data.

1.4.4 IMPLEMENTATION AND REVIEW

The Enterprise Services AMP details current practices and information on:

- The quantity, age, condition, and value of the assets.
- Current levels of service and performance measures.
- Current practices for managing the assets.
- Risks to service delivery.
- Renewal plans and financial strategy.

The AMP also documents improvement tasks, which if addressed will increase the level of understanding of the services provided by the department. It will empower decision-makers with accurate and complete information in an easy-to-understand format that will support well-informed, evidence-based decisions that can make the best use of available funding whilst meeting the interests of the Towns residents. The implementation of this AMP should therefore include regular review to keep the plan up to date with the latest information, understanding and projections.

The review cycle for implementing and updating the AMP is based first on the type of asset and second, on the system critical nature of the asset. Consideration must also be given in each AMP update to any changes in the Ontario Requirements 588/17: Asset Management Planning for Municipal Infrastructure.

2 KNOW YOUR ASSETS

2.1 CONTEXT FOR INFORMATION IN THIS SECTION

The following sections describe the current state of infrastructure for the Enterprise Services maintained by the Town of Lincoln.

The state of infrastructure for Enterprise Services includes the following asset groups:

- **End user devices:** Computers, tablets, printers, photocopiers, cell phones, fire services - radios, and audio/video equipment.
- **Infrastructure:** network switches, routers, network systems, access points, CCTV, storage devices, batteries, and firewalls.
- **Software:** SaaS, on-premises, and cloud application solutions.

A summary of state of infrastructure statistics for each asset group is reported in the next section of this plan. These statistics include the quantity of assets in each group, their average age, the total replacement value, graphs showing the condition profile and age profile of the assets, and a long-term financial forecast for replacing existing assets as they reach the end of their useful life.

2.1.1 INFRASTRUCTURE DATA SOURCE

The inventory data for Enterprise Services shows the asset groups and their respective data source.

2.1.2 MINIMUM DATA REQUIREMENTS

Currency and accuracy of asset data is critical to effective asset management, accurate financial forecasts, and informed decision-making. To produce the state of infrastructure section of the asset management plan, the following attribute data is required (where applicable):

- Unique asset identifier
- Department
- Business Unit
- Asset status (e.g., active, abandoned, not in use)
- Asset Class
- Asset type
- Install Year
- Estimated useful life (EUL)
- Quantity

- Replacement cost or Unit rate
- Assigned to

All assets currently have the minimum attribute information available.

- Asset ID
- Brand
- Model
- Serial Number
- Purchase Price

2.1.3 ASSET REPLACEMENT COSTS

Each asset is on an end-of-life replacement schedule. At the end-of-life date, that asset is disposed of. The replacement cost of any given asset is forecasted by using the most recent purchase price plus the current rate of inflation.

2.1.4 ASSET LIFESPANS

Each asset used to deliver Enterprise Services is on an end-of-useful-life schedule which aligns with industry standards and the Enterprise Services staff experience.

2.1.5 ASSET CONDITION

The condition of assets is estimated based on the assets' age and remaining lifespan following the scale shown in Table 2.

Table 2: Age-based condition rating

Score	Condition Rating	% of Remaining Useful Life (RUL)	Rating Description
1	**Very Good:** Fit for the future	RUL ≥ 75%	The infrastructure in the system or network has greater than or equal to 75% of its remaining useful life. It is generally in very good condition, typically new or recently rehabilitated.
2	**Good:** Adequate for now	75% > RUL ≥ 35%	The infrastructure in the system or network has less than 75% (and greater than or equal to 35%) of its remaining service life. It is in good condition.

3	**Fair:** Requires attention	35% > RUL ≥ 13%	The infrastructure in the system or network has less than 35% (and greater than or equal to 13%) of its remaining service life. It is in fair condition.
4	**Poor:** At risk	13% > RUL ≥ 3%	The infrastructure in the system or network has less than 13% (and greater than or equal to 3%) of its remaining service life. It is in poor condition and mostly below standard, with many elements approaching the end of their service life.
5	**Very Poor: Unfit for sustained service**	RUL < 3%	The infrastructure in the system or network has less than 3% of its remaining service life. It is in very poor, unacceptable condition and should be replaced or rehabilitated.

2.1.6 DATA ASSUMPTIONS AND LIMITATIONS

The asset data used to produce the state of infrastructure has been sourced using PSD Citywide Asset Management Solutions. While the information was complete, there were cases where assets where incorrectly labeled and attributes where missing. Through a data cleanse process most of the missing information was gathered and populated in the appropriate fields.

It should be noted that some assets have reached the end of useful life but are in transition of being disposed of. Table 3 is a snapshot in time of the inventory at the time of writing this asset management plan.

2.2 STATE OF INFRASTRUCTURE

Table 3 shows a summary of the Enterprise Services active assets that are owned by the Town of Lincoln.

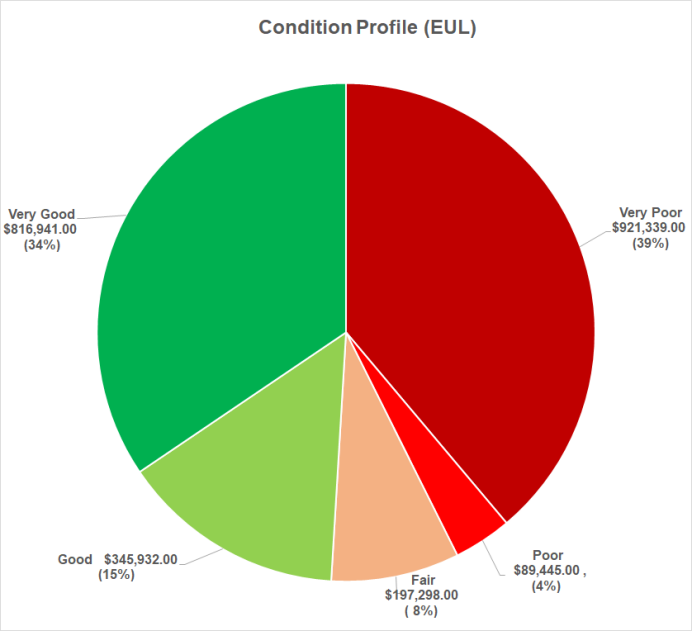
- Average Asset Condition - The average condition of the Enterprise Services assets at the Town of Lincoln is Fair (3). The average condition is weighted for asset replacement cost. Therefore, even though many assets are in good condition, the value of the fleet assets in fair condition bring the overall average condition for Enterprise Services assets down to fair rather than good.
- End of Useful Life – The years of useful life are calculated based on Industry Best Practices and the cost ratio of repairs vs replacements.
- Estimated Replacement Cost - The replacement costs were calculated using the methodology detailed in Section 2.1.3.

Table 3: Current State of the Infrastructure

Asset Type	Asset	Inventory	Average Asset Condition	End of Useful Life	Estimated Total Replacement Cost (2023 Dollars)
End User Devices and Equipment	Cell Phones	219	Very Good	3 Years	80,000
	Display Tv's	12	Fair	5 Years	$45,854
	Fire Radio's	71	Good	8 Years	$352,590
	Monitors	269	Fair	7 Years	$84,106
	Printers	9	Very Poor	5 Years	$10,577
	Workstations (desktops, laptop, & tablets)	313	Good	4 Years	$602,508
	Other (docks cases, folding machine) etc.	83	Good	5 Years	$73,105
Infrastructure	Enterprise Software	42	N/A	Varies	$476,000
	Network Access Points	22	Poor	7 Years	$12,584
	Routers	6	Fair	5 Years	$84,525
	Network Systems	11	Good	7 Years	$279,358
	Switches	36	Fair	7 Years	$239,270
	Other	22	Fair	Varies	$575,669
Total	**1005**	**1063**	**Good**		**$2,926,955**

The total current estimated replacement costs for Enterprise Serves assets is estimated at 2.9M (in 2024 dollars).

Figure 2 shows the condition and age profile for Enterprise Services assets by replacement cost. Note that this is for equipment only. Figure 2 does not include software or cell phones assets. Most of the software is subscription based in which vendors continuously release version updates. Cell phones are on a 3-year replacement cycle.



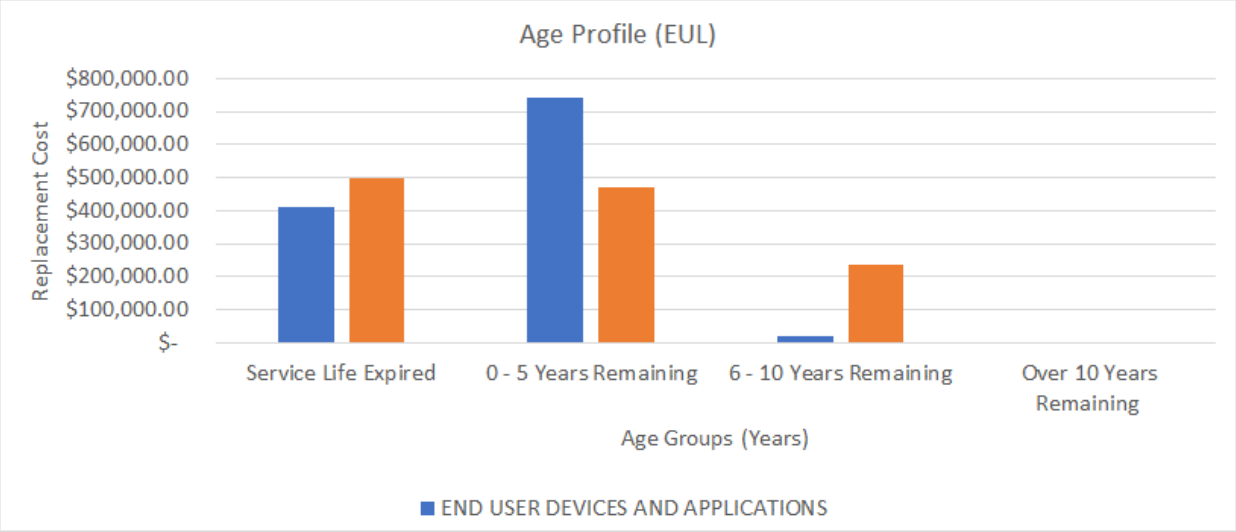


Figure 2: Condition and Age Profile – End of Useful Life (EUL)

Figure 3 shows the average 10-year renewal forecast based on age of the asset. This average renewal forecast consists of end-user devices (desktops, laptops, tablets, monitors, cell phones, and, etc.) as well as infrastructure equipment (routers, network systems, and switches, etc.). The average annual cost to sustainably fund the current assets is approximately $500 thousand per annum over the next 10 years. This information is intended to provide context to decision-makers on the overall level of investment required to sustainably fund asset renewals for the forecast period.

Information was gathered though a variety of sources such as asset management software, financial software, and vendor contracts.

Note: More detailed analysis at the asset level and assessment of project options would be required for determining budgets for individual capital asset renewals.

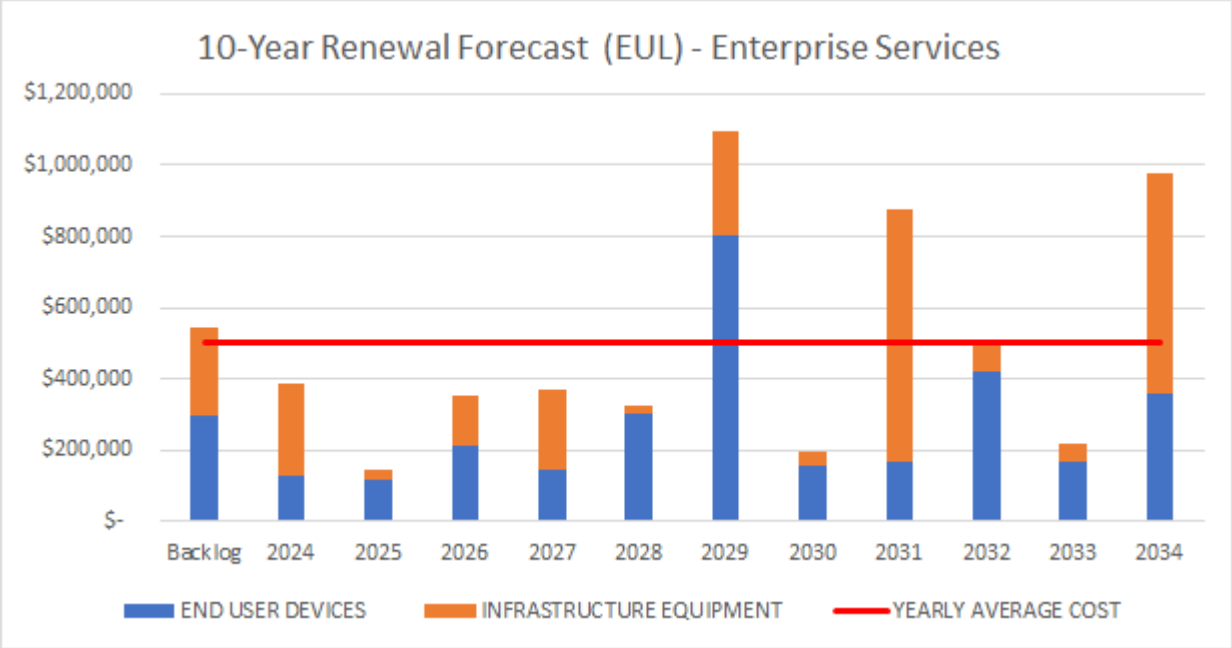


Figure 3: 10-Year Renewal Forecast - End of Useful Life

2.3 IMPROVEMENT PRIORITIES

2.3.1 PRIORITIZED IMPROVEMENTS RELATING TO ASSET DATA AND SOI

Table 4: State of Infrastructure Improvement Tasks

Task Ref	AMP Section	AM Practice Area	Task Description	Task Priority
1	2	Asset Data	Address duplicate asset identifiers by either assigning a different asset identifier if the duplicate entries are in fact unique or by removing the duplicate if they are the same asset	High
2	2	Asset Data	Address the disposal of assets from assets still in the database but have been recycled.	High
3	2	Asset Data	Retain asset attributes for assets that are out of service. This information can be used once sufficient historical data is accumulated to gain a better understanding of performance trends, for assets where the timing for replacement is not regulated.	Medium
4	2	Asset Data	The Town have completed an assessment of their asset data across all service areas and developed a data management plan that contains recommendations including: • Developing a data standard and data hierarchy to ensure consistency. • Develop a plan to populate missing asset attribute data. • Develop roles and assign responsibility of the management of data; and • Adopt a database software to host data and have a single source of truth.	High

3 MANAGE SERVICE DELIVERY

3.1 LEVEL OF SERVICE

This section describes the **Level of Service (LOS)** for the Enterprise Services that the Town of Lincoln aims to deliver and defines the criteria, measures, and targets that will be used to report achievement.

LOS are the service outcomes that an organization or department delivers. They are a key driver for decisions on future investments in infrastructure assets. As such, they need to be clearly articulated in terms that end users and decision-makers can understand. Having well defined service levels will allow the ES department to work with its internal stakeholders (other business units and service areas that use the municipal infrastructure), taxpayers and other stakeholders to find an appropriate balance between affordability and community expectations for LOS.

Performance measures indicate what the customers and stakeholders experience from the service that is delivered. Target values are set for performance measures to deliver the intended LOS. Comparison of performance delivered (measured results) to performance intended (target values) assist the Town in both strategic and operational decision making.

Enterprise Services has a Service Level Agreement and a Priority Matrix in place that outlines the details response times for the appropriate situations.

Table 6 presents a summary of the approach to describe LOS and performance measures.

Table 5: Levels of Service and Performance Measure Terminology

Concept	Definition	Example
Levels of service (LOS)	Specific attributes of the service that the Town intends to deliver from the customer point of view. LOS attributes provide the link between higher level corporate and asset management objectives and more detailed technical and operational objectives. The LOS attributes must all align to give the customer the intended experience of the service.	Adequate time frame to resolve tickets based on priorities

Concept	Definition	Example
Performance measures	Quantifiable criteria that can provide an indication of how well the Enterprise Services Department is delivering the intended LOS. This can be defined as: Customer performance measures: Measures describing **how the customer (staff) receives or experiences the service**. Technical performance measures: Technical criteria **the Town can measure to indicate the service level being achieved**.	<u>Customer (staff):</u> Number of valid complaints Usability of technology <u>Technical:</u> Maintenance records Age of assets System and device updates
Performance targets	The required value (target) for each criterion that is being used as a performance measure. The expectation is that the intended LOS will be achieved if these targets are met.	<u>Customer (staff):</u> Have adequate hardware and software to perform work requirements. <u>Technical:</u> Percentage of assets that are less than Y years of age.

3.1.1 STAKEHOLDERS

Table 6: Service Criteria and Stakeholder Key Expectations

Stakeholder Group	LOS Statement	Service Criteria
Council	Secure, reliable, and affordable infrastructure and end user devices	Risk Safety
		Availability
Service Users (Customers/Staff)	Effective Coordination and secure reliable infrastructure to mitigate cyber attacks environment	Coordination
		Risk & safety
		Availability
Residents (Tax Payer)	Secure, reliable, affordable	Risk Safety
		Affordability

The performance measures associated with the service criteria are summarized in Table 7.

Table 7: Levels of Service Performance Measures

Service Criteria	Level of Service Statement	Performance Measure	Performance	
			Current	Target
Quality & Reliable	Provide professional support for all devices, infrastructure, and software.	% IT equipment in fair or better condition	49%	55%
		Average # of monthly help desk tickets.	488	N/A
		Number of in 2023 tickets	5384	N/A
		% of one touch tickets resolved	74%	80%
Available	Enterprise Services Department service uptime.	% of uptime for all systems based on SLA	99.9%	99.92%
Compliance	Meet or exceed O. Reg 588/17 requirements	Asset Management Plan	100%	100%
Good stewardship	Good stewardship and efficient use of taxpayers' dollars	Broader sector procurement process for fair and competitive prices	100%	100%
Affordable	Providing IT services in a cost-efficient manner	Operational and Capital budgets are within the budget and does not exceed cost.	100%	100%

3.1.2 LEVEL OF SERVICE IMPROVEMENT PRIORITIES

Table 8 show the improvement priority related to levels of service.

Table 8: Levels of Service Improvement Priority

Task Ref	AMP Section	AM Practice Area	Task Description	Task Priority
5	3.1	Levels of service	Review the Level of Service statements on a regular basis to ensure they continually align with the Town of Lincoln's strategic goals and stakeholder's expectations.	High
6	3.1	Levels of service	Develop and implement a data collection strategy that will provide sufficient information for measuring levels of service performance.	High
7	3.1	Levels of service	Review levels of service and update as appropriate, at a minimum when the asset management plan is updated.	Medium

3.2 LIFECYCLE STRATEGIES

Assets of different types have different lifecycle lengths, deteriorate at different rates, and require different strategies for optimum performance and cost-efficiency over their life cycle.

A lifecycle strategy sets out the planned actions and intended maintenance management methods for an asset throughout its life. The purpose of lifecycle strategies is to maintain assets in an appropriate way that will deliver the required LOS for the least overall cost, while keeping risk at a level acceptable to the Town.

3.2.1 MANAGEMENT APPROACH

This section describes the management activities that support the LOS provided by Enterprise Services. The Town's knowledge and understanding is continually improving through the collection and utilization of data that informs decision making related to asset lifecycle system and LOS performance metrics. Enterprise Services manages the life cycle of all IT assets ensuring ongoing system reliability. Enterprise Services also coordinates major upgrades, applies fixes, responds to requests for improvements and provides general support to the user community. A core set of the systems form the foundation of the Town's critical business systems and serves

the needs of multiple service areas. Enterprise Services supports application integration to facilitate automated data transfer between business systems.

The development of appropriate and cost-effective strategies is foundational for ensuring service sustainability. Further, the lifecycle management activities reduce the risks to service delivery and performance.

Table 9 in the following section describes the lifecycle management activities currently completed or planned to be implemented by the Town for Enterprise Service assets.

3.2.1 LIFECYCLE STRATEGY TERMINOLOGY

The current business practices for lifecycle management have been identified under the following work categories.

Table 9 shows the definitions of the terminology used for the lifecycle strategy work categories.

Table 9: Lifecycle Strategy Work Categories

Activity Type	Lifecycle Management Activities	Risks Associated with Not Completing the Activities
Maintenance Activities Including regularly schedule inspection and maintenance or more significant repair and activities associated with unexpected events.	• Enterprise Services staff complete routine monitoring, and preventive maintenance on a proactive basis.	• Failure to follow maintenance plans can result in premature asset replacement and disruption of services.
Renewal/ Rehab Activities Significant repairs designed to extend the life cycle of the asset.	• Low-risk devices that perform very well until their ultimate failure like monitors, printers, two-way radios, and workstation peripherals will only be replaced after they have failed. No proactive replacement will be completed on these items. • Assets may undergo both software and hardware upgrades to ensure they remain current and fully supported. • Where applicable all associated warranties for hardware and software solutions will be used. • Assumption that all hosted solutions will utilize full contract extension at least	• Incorrect assumptions about renewals or rehabilitation activities may result in increased funding needs and premature replacement. • Failure to complete or initiate replacement activities can lead to disruption of service

	once before renewal or replacement is required where applicable.	
Replacement Activities Activities that are expected to occur once the asset has reached the end of its estimated service life and renewal/ rehab is no longer an option.	• Scheduled replacements programs of ES infrastructure are in place. Assets are replaced when they are no longer meeting operational requirements or are reaching end of support. • When applications are no longer supported by the vendor, and it is replaced with a new application. • End user devices and applications are replaced when the asset reaches end of estimated service life or unexpected event occurs with an asset	• Failure to complete or initiate replacement activities in time can lead to disruption in service.
Disposal Activities Activities that are expected to occur once an asset has reached end of life.	• When a disposed item has a significant residual value, the item will be auctioned off publicly. Resulting residual value will be used to offset the cost of the replacement item. • Items without a significant residual value can be donated to charity or recycled. • Assets go through a data sanitization (wipe process). • Hard drives are destroyed to ensure no data leaks.	• Failure to properly dispose of hardware and software assets may result in risk of data security breaches, or loss of resale revenue.
New Asset / Service Enhancements and Expansion Planned activities to improve an asset's capacity, quality, and system reliability.	• The IT Steering Committee will prioritize funding requests for new IT infrastructure, initiatives, or software systems in anticipation of future growth and technology advances. • Expansion activities pertaining to applications and software include additional licensing provisions for staff growth, or the implementation of new solutions.	• Lack of resources or delays in expansion activities may result in the loss of productivity, decrease in levels of service, or disruption of service

The lifecycle strategies for the service assets are included in Appendix A:

3.2.2 LIFECYCLE STRATEGY IMPROVEMENT PRIORITIES

Table 10 shows the improvement priority related to lifecycle strategies.

Table 10: Lifecycle Strategy Improvement Tasks

Task Ref	AMP Section	AMP Practice Area	Task Description	Task Priority
7	3.2	Lifecycle strategies	Update the lifecycle strategies with any new strategies identified as asset change or technology improves.	High
8	3.2	Lifecycle strategies	Develop lifecycle strategies for any new assets that become part of the Enterprise Services	High

3.3 RISK PROFILE

Risk is evaluated at both the **service level** and the **asset level**. The importance of this is to provide early warning of all potential issues that could adversely affect LOS delivery. When risks are known and have a rating, staff can prioritize activities to focus on assets with high-risk scores.

3.3.1 SERVICE LEVEL RISK

Service level risks are the risks that affect the delivery of services to the Town's customers. In this case, the service provision by Enterprise Services is to provide emergency response and management and of all infrastructure, devices, and applications.

The service level risks are grouped into 5 categories. The categories and examples of the risks in each category are shown in Table 11.

Table 11: Service Level Risk Categories and Risk Examples

Category	Description of Common Risk Events
Planning	Regulatory changes, changes to Council's strategic priorities, demand management, etc.
Management	Lack of resources (people, time, funding, skill gaps) to implement or advance asset management, reputational risk, data security risk, etc.

Category	Description of Common Risk Events
Service delivery	Outdated or unsupported software. Hardware failures, power outages, inadequate stakeholder communication/engagement, etc.
Assets (in general)	Security and safety of physical or information assets from theft/vandalism/cyberattacks, inadequate maintenance and rehabilitation programs to preserve asset value and longevity, etc.
Hazards and environmental	Extreme weather events, climate change, and improper storage

3.3.1.1 CONNECTION OF RISK TO LEVEL OF SERVICE

The connection between risk and LOS starts with looking at how the potential risk events from each of the five categories affect the service commitments made in section 3.1, and defining a risk outcome (i.e. stating how the risk event would affect the service commitment).

Figure 4 below shows the connection of risk to LOS.

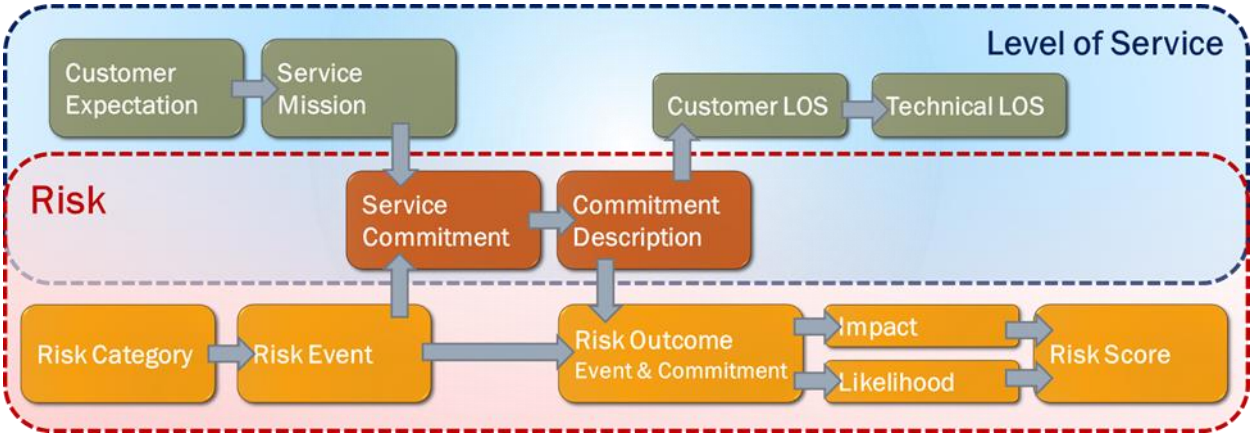


Figure 4: Connection of Risk to Level of Service

3.3.1.2 SERVICE LEVEL RISKS – ENTERPRISE SERVICES

The service risks are characterized by the impact to service delivery and the likelihood of that event occurring. The Town has assessed the service level risks in each risk category that are relevant to the Enterprise Services and has identified an appropriate action for each risk, as shown in Table 12.

Table 12: Risk Level and Action

Risk level	Recommended action
Very low	**Accept:** These risks can be tolerated. They should be assessed annually to determine whether the level of risk has changed.
Low	**Accept:** These risks can be tolerated. They should be assessed annually to determine whether the level of risk has changed.
Medium	**Monitor:** These risks require a balanced approach to management. They should be included in future risk mitigation plans and assessed at least annually to determine whether levels of risk have changed.
High	**Mitigate:** These risks should be prioritized. Existing mitigation programs and plans should be modified to include these risks, and where new risks are identified, update mitigation programs and plans. An assessment of the effectiveness of the mitigation programs and plans must be conducted annually and updated as appropriate.
Very High	**Take action:** These risks cannot be tolerated as they are critical to service delivery. Immediate corrective actions to mitigate risk should be taken. A risk level monitoring program should be developed to reduce or prevent potential reoccurrence of the risk.

3.3.2 CURRENT SERVICE RISKS

Table 13: reports the number of risks rated in each category and their respective risk scores (current). The risk ratings are also shown in a graphical format in Figure 5

Table 13: Service Level Risk Rating – Current (unmitigated) – Enterprise Services

Risk Category	Initial risks					
	Very Low	*Low*	*Medium*	*High*	*Very High*	Count
Planning	0	2	0	1	0	3
Management	1	2	0	0	1	4
Service Delivery	0	1	1	1	0	3
Physical Assets	0	3	1	1	0	5
Hazard - Environmental	1	0	1	1	0	3
Total	**2**	**8**	**3**	**4**	**1**	**18**

Figure 5: Service-Level Risk – Current (unmitigated)

3.3.2.1 MITIGATED SERVICE RISK

Table 14: Service Level Risk Rating – (Post Mitigated) – Enterprise Services

Table 14: shows the number of risks rated in each category and their respective mitigated risk scores. The results of the mitigated risk ratings are also shown in a graphical format in Figure 5.

These mitigated risk scores will be realized when the relevant mitigation measures are funded and implemented. Until then, the current risk rating applies. Details of proposed mitigation measures are given in section3.3.2.1 (Detailed Services Risks Results).

Table 15: Service Level Risk Rating – (Post Mitigated) – Enterprise Services

Risk Category	Mitigated risks					Count
	Very Low	*Low*	*Medium*	*High*	*Very High*	
Planning	0	2	0	1	0	3
Management	1	2	1	0	0	4
Service Delivery	0	2	1	0	0	3
Physical Assets	0	3	1	1	0	5
Hazard - Environmental	1	2	0	0	0	3
Total	**2**	**11**	**3**	**2**	**0**	**18**

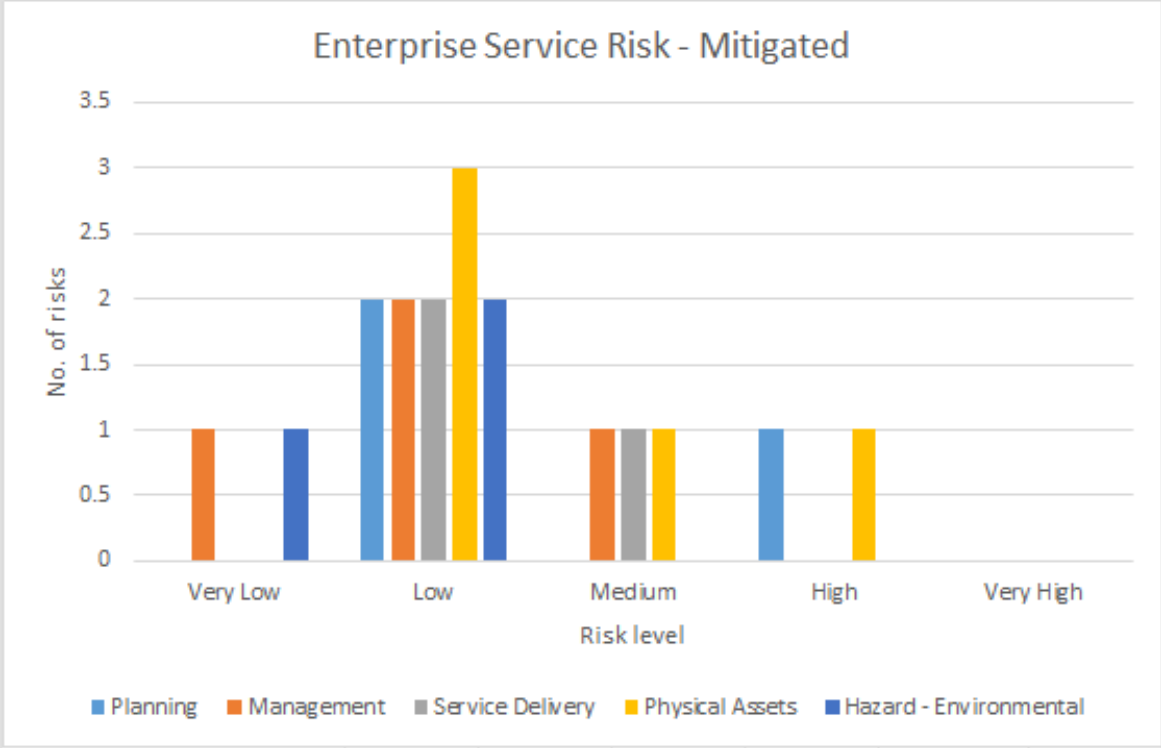


Figure 6: Mitigated Service-Level Risk – Enterprise Service

3.3.2.2 DETAILED SERVICE RISK RESULTS

PLANNING RISKS

A total of three (3) planning risks were identified and rated by the Enterprise Services department. Out of the three planning risks, one (1) was rated as high, two (2) risks were rated as low,

Table 16 lists the planning risks along with their ratings and mitigation measures, where applicable.

Table 16: Planning Risks

Risk Event / Outcome	Scoring Rational	Risk Score	Risk Rating	Mitigation Measures[1]	Mitigated Risk Score	Mitigated Risk Rating
Asset Renewal Lack of a robust asset renewal program could result in disruption of services	The Town has and continues to invest in an IT asset renewal program.	6	**Low**	No Action Required		**Low**
Rising Software Cost Without awareness of the rising cost trends licence renewals for software could be under funded	Trend of rising cost for software and licence renewals.	12	**High**	To consolidate, remove redundant software, and budget for higher software cost.		**Low**
Demand Management Not knowing the future needs of the organization could result in not being able to provide equipment and devices when required	Currently there is no official process for personal changes or new hires. The new HRIS will resolve this communication gap.	6	**Low**	No Action Required		**Low**

[1]*Note: Mitigation measures for medium, low, or very low risks were not determined.*

MANAGEMENT RISKS

A total of four (4) management risks were identified and rated by the Enterprise Services department. Out of the four management risks one (1) was rated as very high, two (2) were rated as low, and one (1) was rated very low.

Table 17 lists the management risks along with their ratings and mitigation measures.

Table 17: Management Risks

Risk Event / Outcome	Scoring Rational	Risk Score	Risk Rating	Mitigation Measures[1]	Mitigated Risk Score	Mitigated Risk Rating
Shortage of Qualified staff IT budgets in municipalities are typically minimal (often less than 0.1% of the overall budget). Skilled IT professionals demand competitive salaries, which can be challenging for municipalities.	With recent recruitment for IT professionals, salary was a factor in successfully filing empty positions.	20	**Very High**	Budget for competitive salaries that match the current job market as close as possible. Ensure all position are filled with qualified staff.	9	**Medium**
Lapse in Preventive Maintenance Neglecting regular maintenance can result in hardware failures, system downtime, and unexpected disruptions	Regular schedule events for all system updates are scheduled in advance. Staff keeps on top of all related updates and devices patch updates.	6	**Low**	No Action Required		**Low**

Risk Event / Outcome	Scoring Rational	Risk Score	Risk Rating	Mitigation Measures[1]	Mitigated Risk Score	Mitigated Risk Rating
Mismanagement of End-of-Life Hardware Improper disposal of outdated hardware poses risks. Data remnants on retired devices may be accessible to unauthorized parties.	Proper disposal protocol is in place for disposal of all IT assets to ensure there is no security breaches.	1	**Very Low**	No Action Required		**Very Low**
Mismanagement of access permission Providing unauthorized access to systems and files to user that should not have access.	Check and balances, policy, procedures, and regular audits are in place to prevent such an event	4	**Low**	No Action Required		**Low**

[1]*Note: Mitigation measures for medium, low, or very low risks were not determined.*

SERVICE DELIVERY RISKS

A total of three (3) service deliver risks were identified and rated by the Town staff. Out of the three service delivery risks, one (1) was rated as high, one (1) risk was rated as medium, and one (1) risk was rated as low.

Table 18 lists the planning risks along with their ratings and mitigation measures, where applicable.

Table 18: Service Delivery Risks

Risk Event / Outcome	Scoring Rational	Risk Score	Risk Rating	Mitigation Measures[1]	Mitigated Risk Score	Mitigated Risk Rating
Outdated Software Outdated software can result in failure to provide service to internal end users and well as a disruption in services to the public.	The Town invests in keeping all assets in good working order and on a replacement schedule that meets or exceeds industry standards.	12	**High**	Update legacy systems with modern solutions. Ensure all operating systems are supported.	6	**Low**
Stakeholder Communication Failure to communicate with departments could result in inadequate delivery of assets to end user and cause a disruption of services**.**	Monthly IT Steering Committee meetings encourage communication between Enterprise Services and all department leaders.	5	**Low**	No Action Required		**Low**
Vendor Support Vendors not providing adequate support for the products the Town uses.	Many vendors have been experiencing staffing issue which prevent them from responding quickly and effectively.	9	**Medium**	No Action Required		**Medium**

[1]*Note: Mitigation measures for medium, low, or very low risks were not determined.*

PHYISCAL ASSET RISKS

A total of five (5) physical risks were identified and rated by the Town staff. Out of the five physical risks, one (1) was rated as high, one (1) risk were rated as medium, and three (3) risk was rated as low.

Table 19 lists the planning risks along with their ratings and mitigation measures, where applicable.

Table 19: Physical Risks

Risk Event / Outcome	Scoring Rational	Risk Score	Risk Rating	Mitigation Measures[1]	Mitigated Risk Score	Mitigated Risk Rating
Cyber security Vulnerabilities Municipalities often have limited resources making them attractive targets for cyber criminals.	With many daily activates and services moving online Municipalities, like many other organizations, rely on technology. Cyber Security remains a constant threat in our day-to-day operations.	15	**High**	Investing in robust cyber security measures, employee training, and incident response plans is critical.	12	**High**
Lost or Stolen Devices Untracked assets can lead to security breaches if lost or stolen. Ensuring proper tracking and security protocols is vital.	Device can be lost or stolen at anytime. To mitigate this risk all devices require login credentials and the Town uses software that has remote device wipe capabilities.	9	**Medium**	No Action Required		**Medium**
Malicious Applications Uncontrolled access to devices poses security risks	Authorization protocol measures are in place to prevent non-approved applications	6	**Low**	No Action Required		**Low**

Risk Event / Outcome	Scoring Rational	Risk Score	Risk Rating	Mitigation Measures[1]	Mitigated Risk Score	Mitigated Risk Rating
Non-Compliance with Software Licensing Failure to comply with licensing agreements can result in legal and financial penalties	Authorization protocol measures are in place to prevent non-approved applications.	4	**Low**	No Action Required		**Low**
Unauthorized Device Access Uncontrolled access to devices poses security risks**.**	Single device model ensures staff accountability for devices and workstations.	6	**Low**	No Action Required		**Low**

[1]*Note: Mitigation measures for medium, low, or very low risks were not determined.*

HAZARD ENVIRONMENTAL RISKS

A total of three (3) hazard environmental risks were identified and rated by the Town staff. Out of the four hazard environmental risks, one (1) was rated as high, one (1) risk were rated as medium, and one (1) risk was rated as very low.

Table 20 lists the planning risks along with their ratings and mitigation measures, where applicable.

Table 20: Hazard Environmental Risks

Risk Event / Outcome	Scoring Rational	Risk Score	Risk Rating	Mitigation Measures[1]	Mitigated Risk Score	Mitigated Risk Rating
Climate Control Failures Network systems that are exposed to extreme temperatures can experience overheating and possible equipment failure.	Climate is constantly changing. Current climate control systems may not be adequate to meet future climate control demands.	8	**Medium**	Evaluate current equipment optimal temperatures and invest in systems to maintain those temperature settings.		**Medium**
Environmental Impact Improper disposal of electronic waste (e-waste) harms the environment.	The Town follows industry standards for proper disposal of electronic assets.	2	**Very low**	No Action Required		**Very low**
IT System Vulnerabilities Servers and IT systems are exposed to various physical hazards, including power surges, extreme temperatures, and physical damage.	If the systems in place fail, the impact of such a failure is extremely high and it always remains a possibility.	15	**High**	Critical infrastructures are on backup power supply units. Key facilities have backup generators.	3	**Low**

3.3.3 ASSET LEVEL RISKS

The results of **asset level risk** assessments are considered when reviewing lifecycle strategies to determine the most appropriate treatments, preventative maintenance, and frequency of inspection for a particular asset or group of assets. Both asset level risks and service risks are considered in prioritizing capital works projects and other funding decisions.

Asset level risks are calculated by multiplying the individual consequence of failure for each asset with the likelihood of that asset failing. For the initial assessment, the likelihood and consequence of failure for the assets are a 1-5 rating based on:

Likelihood of failure: uses the 1-5 score for remaining life of each asset (based on age-based condition rating).

Consequence of failure: uses the 1-5 criticality rating for each asset.

The majority of Enterprise Services assets (96% by Value) are rated as low or very low risk of failure with the remaining assets (5% by value) in the high to very high risks of failure.

Table 21: Risk Profile, by Replacement Value (EUL)

Asset Group	Current Replacement Value				
	Very Low	Low	Medium	High	Very High
End User Devices	$756k	$376K	-	$35K	-
Infrastructure Equipment	$692K	$4366K	-	$16K	$57K
Total	**$1,4M**	**$813K**	**-**	**$51K**	**$57K**
Percent of Grand Total	**62%**	**34%**	**0%**	**2.1%**	**2.4%**

3.3.4 RISK IMPROVEMENT PRIORITIES

Table 22 shows the improvements priority related to risk.

Table 22: Risk Improvement Tasks

Task Ref	AMP Section	AM Practice Area	Task Description	Task Priority
9	3	Risk	Develop a mitigation plan for all risks in the high to very high risks category.	High
10	3	Risk	Continued investment and monitoring of infrastructure asset to mitigate a possible cyber-attack.	High
11	3	Risk	Regularly update and revise service level risk register, as risk levels may change over time and new risk may be identified.	Medium

3.4 RESOURCE NEEDS

This section compares available resource demand compared to capacity and identifies whether there is enough capacity for the existing staff to take on new tasks or if additional resources are required.

The Town's Enterprise Services staff currently represent 2.2% of the Town's overall staffing. Gartner Global Research recommends Ontario Municipal IT departments make up 4% of a Town's overall staff. The IT Steering Committee will continue to advocate for more staffing, especially the immediate need for a Data/GIS Analyst moving forward. The Corporate Services Master Plan recommended that the Enterprise Services Department move from 5 FTE to 8 FTE by the end of 2024.

3.4.1 EXISTING CAPACITY AND NEEDS

For reporting purposes, the activities are grouped into the following categories:

- Administrative
- Infrastructure Management
- Support Ticket Management
- Contract/Procurement Management
- Assets Management/Deployment
- Systems Solutions Management

Table 23 shows the number of available hours for full-time and part-time employees.

Table 23: Available Hours for Staff Categories

Staff Type	Manager IT & Enterprise Services	IT Infrastructure Analyst	Solutions Analyst	Technical Support Analyst	IT Student	Total
No. of Staff	1	1	1	1	.5	4.5
Available Hours	1820	1820	1820	1820	600	7880

The next step is to record the hours spent for each of the activities that support the current levels of service in each category over a year.

3.4.2 RESOURCE NEEDS

Table 24: Resource Improvement Priorities

Task category	Resource needs (hr/yr)
Administration	910
Infrastructure Management	1820
Support Ticket Management	1365
Assets Management/Deployment	910
Contract/procurement management	455
Systems Solutions Management	1820
Geographic Information System Management	1820
Network System Management	1820
Business Enterprise Solution Management	1820
Business Enterprise Solution Analyst	910
Total	13,650

Table 25: Resource Improvement Priorities

Task Ref	AMP Section	AM Practice Area	Task Description	Task Priority
11	3.4	Resources	Review resourcing requirements and assess if current capacity is sufficient. This may include defining tasks and requirements in further detail.	High
12	3.4	Resources	Provide a business case for adequate IT staffing as recommended in the 2020 CMSP.	Medium

4 FUTURE READY

4.1 DEMAND MANAGEMENT

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, climate change, consumer preferences and expectations, technological changes, economic factors, agricultural practices, and environmental awareness.

The main source of demands for new services are created by growth and development. A critical infrastructure demand driver for most infrastructure services is growth. As such, the Town of Lincoln must not only account for the lifecycle cost for its existing asset portfolio, but those of any anticipated and forecasted capital projects associated specifically with growth.

The Town of Lincoln is one of the fastest growing municipalities in Niagara. During the 25 years between 1986 and 2011 the population of the Town increased by about 8,100 people or at an annual rate of 1.4%. Currently, the Town of Lincoln has a population of approximately 25,000 and is expected to grow by 50% by 2031.

In conjunction with raw population growth, demographics change is another force that must be considered in the allocation of the Town's infrastructure investments. As the demographics change and the Town assumes responsibility of new infrastructure, the level of strain on various critical and supplementary infrastructure services will shift to reflect the needs of the residents.

4.1.1 DEMAND ASSESSMENT

Demand is expected to grow linearly with increases to Town Staffing. The 2020 Corporate Services Masterplan (CSMP) recommends that the ES department grow by 1 FTE per year for 3 years to fill current gaps in current demand and meet future demand. 8 FTE (7 IT and 1 GIS) is expected to meet the Town's needs.

As of 2024 the Enterprise Service teams consist of

- Manager of IT & Enterprise Services
- IT Infrastructure Analyst
- IT Solutions Analyst
- IT Help Desk
- IT Student

The 2020 CSMP report suggested that the Enterprise Service Department consist of the five positions listed above with the addition of three new positions below by the end of 2024.

- IT Network Technician
- IT Business Analyst
- Data/GIS Analyst

Table 25: Demand Improvement Tasks

Action No.	AMP Section	AM Practice Area	Task Description	Action Priority
21	4.1	Demand management	Annually review and revise demand risk to reflect when mitigation measures have been implemented and if additional demand drivers are identified.	Low

Due to restraints in the 2024 budget new full-time positions have not been added to the complement of IT Professionals in the Enterprise Service department for the previous two year as well as this calendar year.

New positions requests to serve future demands will be considered over the next few years during the budget approval cycle.

4.2 RESILIENCY AND ADAPTATION

The Town has completed a Corporate Climate Adaptation Plan (CCAP) as a guideline to support and inform climate adaptation at the Corporate municipal level. It outlines how the municipality will adapt its assets, operations, and services to the current and future impacts of climate change.

The development of a CCAP for the Town of Lincoln is supported by the 2016 AMP which states, “infrastructure is inextricably linked to the economic, social and environmental advancement of a community” and that “broader environmental and weather patterns have a direct impact on the reliability of critical infrastructure services”.

The Town’s 2014 Official Plan also affirms, “reviewing opportunities for reducing the impact of climate change, meeting the challenges of climate change and other environmental issues through integrated solutions, and incorporating low impact design and other site design strategies to mitigate environmental impacts”.

The development of a CCAP is also driven and supported by the 2017 Growth Plan for the Greater Golden Horseshoe, of which a guiding principle is to “integrate climate change considerations into planning and managing growth such as planning for more resilient communities and infrastructure – that are adaptive to the impacts of a changing climate”.

Climate projections shown in

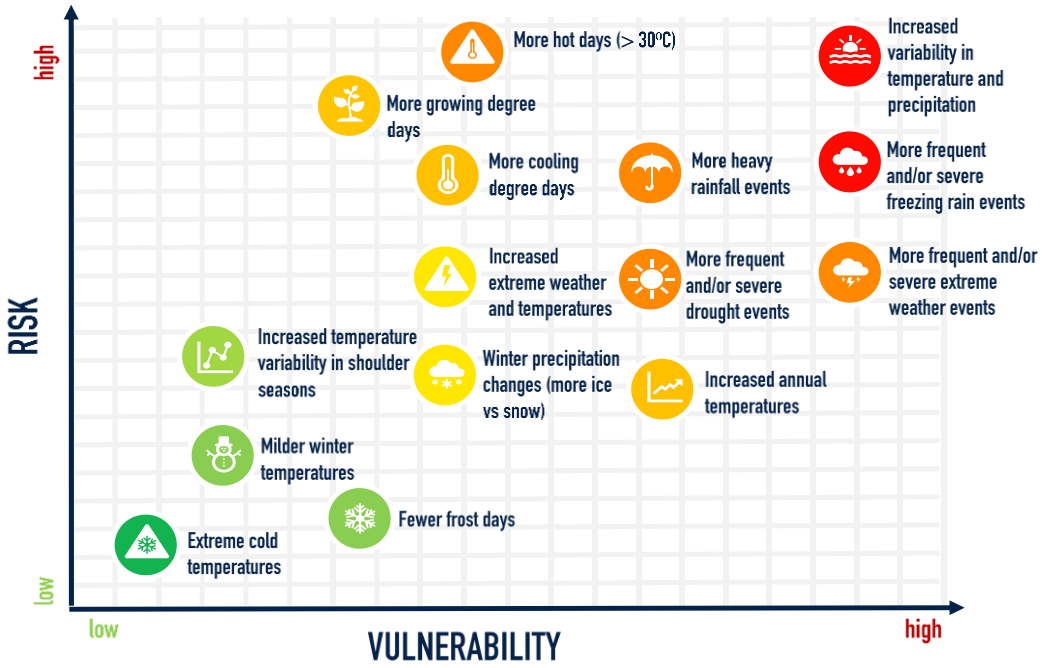
Table 26 for the Town of Lincoln are based on RCP 8.5 climate models from climatedata.ca, a collaboration between Environment and Climate Change Canada, the Computer Research

Institute of Montréal, Ouranos, the Pacific Climate Impacts Consortium, the Prairie Climate Centre, and Habitat Seven.

Table 26: Climate Projections for the Town of Lincoln based on RCP 8.5 models from climatedata.ca.

Variable	Sub-Variable	Average (1976-2005)	2050 Projection	2100 Projection	Trend
Temperature	Hottest day °C	33	37	40	↑
	Mean Temp °C	9	12	15	↑
	Min. Temp °C	4	7	11	↑
	Max. Temp °C	13	16	19	↑
	Days Over 30 °C	11	47	91	↑
	Coldest Day °C	-20	-13	-8	↑
	Days Below -15°C	8	0	0	↓
	Days Below -25°C	0	0	0	↓
	Frost Days	124	85	46	↓
	Cooling Degree Days	328	670	1200	↑
	Growing Degree Days 10°C	1390	1996	2725	↑
	Growing Degree Days 5°C	2390	3096	3977	↑
	Cumulative Degree Days >0 °C	3657	4440	5526	↑
	Heating Degree Days	3402	2669	2011	↓
	Ice Days (below 0°C)	48	24	6	↓
	Tropical Nights >18°C	26	61	106	↑
	Tropical Nights >20°C	10	39	84	↑
	Tropical Nights >22°C	2	18	60	↑
Precipitation	Total Precipitation	864	1016	955	↑
	Max 1 Day Total mm	39	39	38	↓
	Wet Days >10mm	26	33	32	↑
	Wet Days >20mm	6	9	9	↑

The overall risk and vulnerability of the Town to each projected impact was assessed to determine its priority and if action to address the impact would be taken. By assessing vulnerability and risk, the following climatic threats were identified as a top priority to the Town of Lincoln within the corporate scope.



4.2.1 MITIGATION ACTIONS

Climate change risks that have bee identified in relation to Enterprise Services infrastructure, and equipment, is excessive prolong periods of high heat or cold. Providing adequate climate control for all assets in the changing environment helps mitigate that risk. Ensuring that all cooling systems are sized properly and are connected to an uninterrupted power source or generator in case of a power failure.

5 FINANCIAL SUMMARY

5.1 CONTEXT FOR INFORMATION IN THIS SECTION

This section provides an overview of the costs to provide the Enterprise Services including the operations and maintenance forecasts, and the capital renewal and new asset forecasts. The information is based on the 2024-2033 Capital budget and the 2024 Operations Budget and includes current assets and future expansion assets.

5.2 FINANCIAL FORECASTS

5.2.1 FINANCIAL FORECAST – NEEDS-BASED BUDGET

The capital needs shown in Figure 7 for the Enterprise Services have been forecasted over the next 10 years and includes replacement of end-user and infrastructure equipment. This includes all infrastructure equipment, end user devices.

The budget for the 10-year capital forecast period is approximately $6 million based on a 3% rate of inflation over the 10-year period.

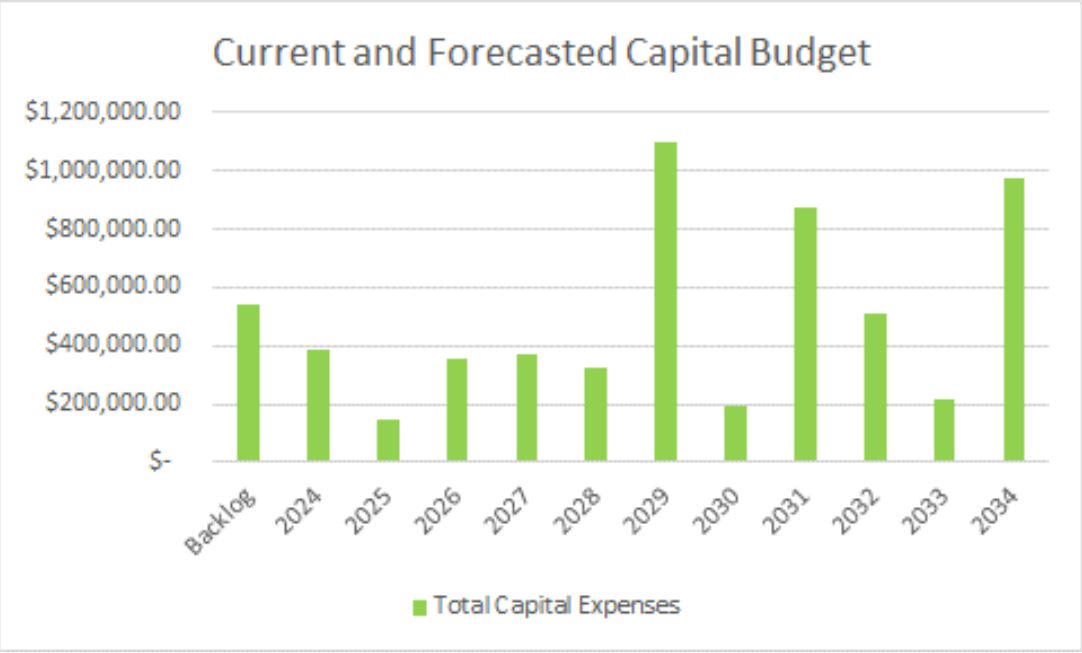


Figure 7: 10-year Capital Budget

The budget for the 10-year capital forecast period is approximately $6 million. Figure 8 shows the percentage of the budget allocated by category. Most of the Enterprise Services capital project budget is allocated to the replacement or new acquisition of IT assets.

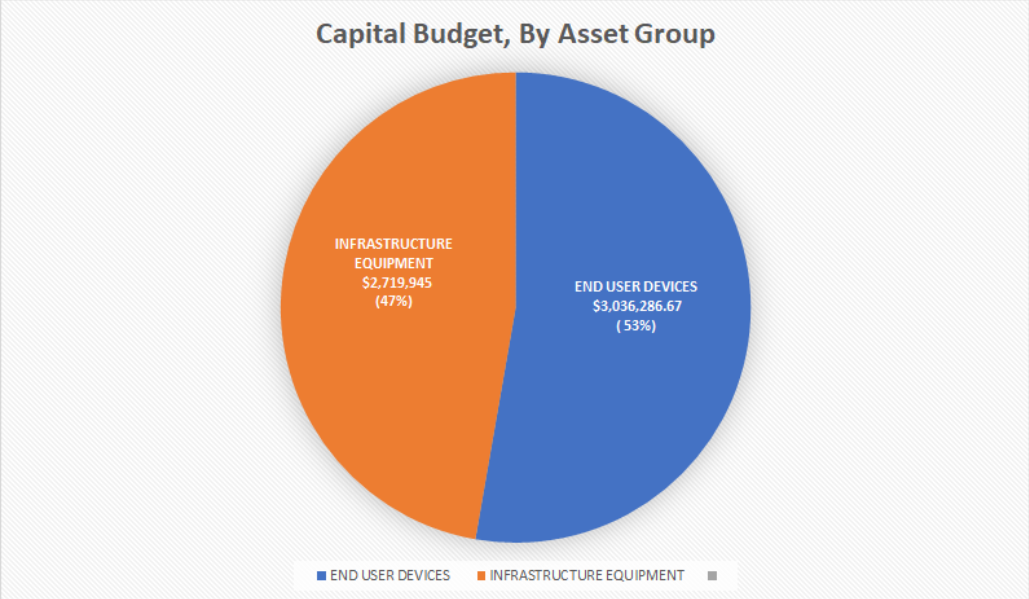


Figure 8: Distribution of Assets for the 10-year Period.

5.2.2 OPERATIONS AND MAINTENANCE

Figure 9 shows the current (2024) and forecasted operations budget. The current annual operating budget of $1,666,000 was assumed to grow 3% annually (in real terms). The Enterprise services operational budget also included software licensing and most the Town's software cost are allocated to operational costs.

The operation costs for software rate were calculated with a 5% per annum increase for inflation.

Figure 9 operation budget includes staffing levels for those listed in **Table 22**. A staffing needs study for all departments within the Town is being conducted based on future population growth predictions. Therefore, no additional staffing outside of **Table 22** has been considered in the operations forecast. This information will be added in future revisions of this AMP.

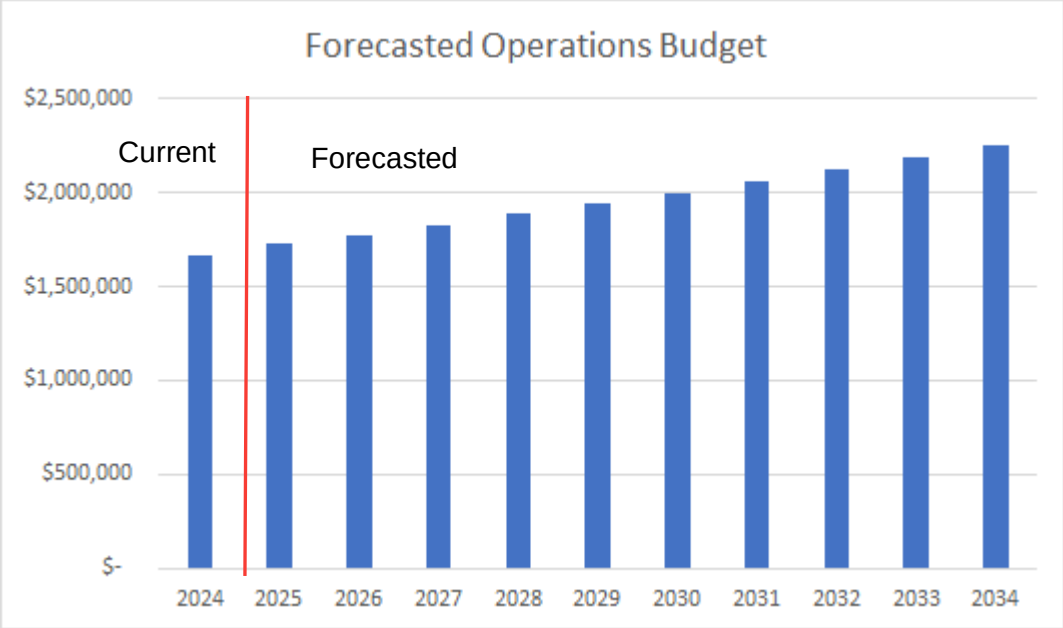


Figure 9: 10-Year Operations Budget

5.2.3 REVENUE SOURCE

Enterprise Services capital projects (system and solutions upgrades) and equipment purchases are funded through reserved funds as well as grants. The last modernization grant was in 2019 for the value of $725,000.

Currently there are no funding opportunities. Town staff will apply for grants when such opportunities are made available.

The operations budget is funded through the Town Levy.

5.3 FINANCIAL FORECAST

5.3.1 CAPITAL RENEWAL FORECAST (STATE OF INFRASTRUCTURE)

The State of Infrastructure capital renewal forecast presented in this section is limited to replacement with like-for-like of existing assets only and does not include any expenditures on new asset acquisitions/purchases or asset upgrades. It is also important to note that this renewal forecast is based on lifecycle timing only. If assets require replacement before the end of their lifecycle it will have an impact on capital renewal costs.

Figure 10 shows the State of the Infrastructure capital renewal forecast over the next 10 years (2024– 2034) by asset group. Some points to consider:

- The 10-year total forecasted capital renewal cost for Enterprise Services assets is approximately $6M. This corresponds to an annual average capital cost of $500K.
- End user devices asset replacement represent 55% of the forecasted capital costs.
- Infrastructure equipment assets represents 45%.

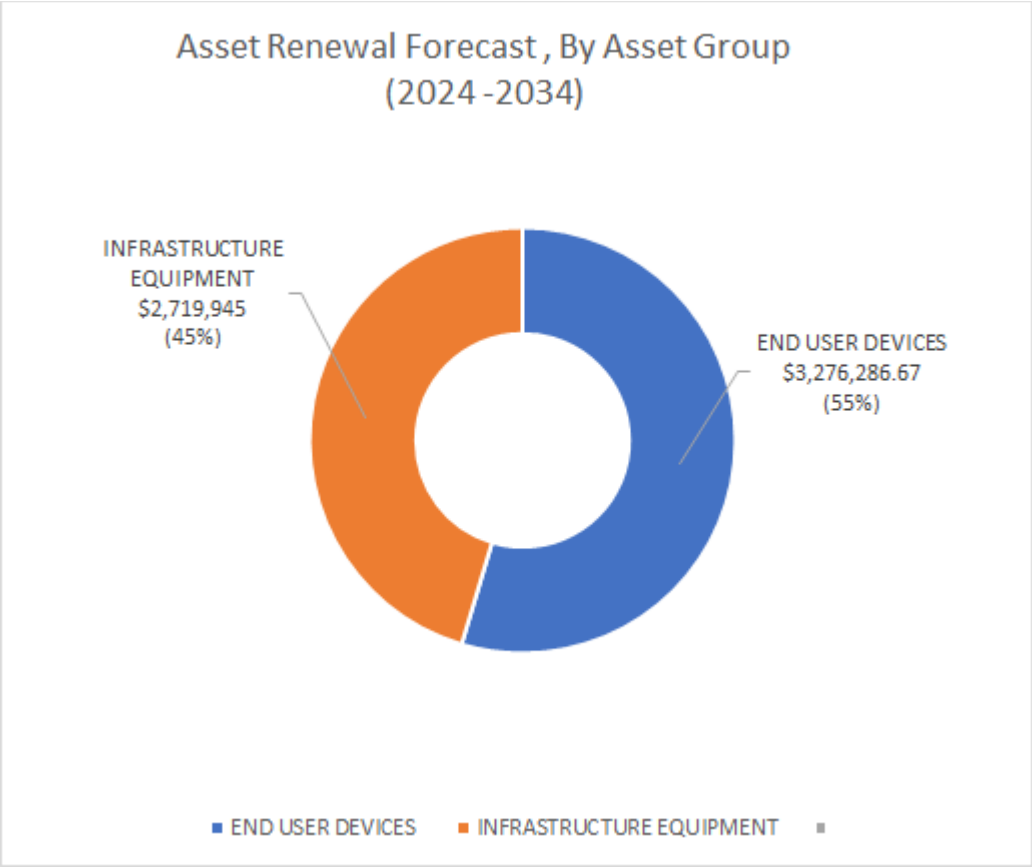


Figure 10: Total Forecast Asset Renewal Cost, By Asset Group

5.4 FINANCIAL IMPROVEMENT PRIORITIES

Table shows the improvement priority related to financial strategy.

Table 27: Financial Improvement Tasks

Task Ref	AMP Section	AM Practice Area	Task Description	Task Priority
16	5	Finance	Develop a structured process for long-term budgeting decisions to be made considering costs of service delivery and meeting LOS.	High
17	5	Finance	Regularly review and update the asset management plan with the most recent 10-year capital plan	High
18	5	Finance	Continue to review inventory, estimated lifespans, and replacement costs for all assets to improve the accuracy of the needs-based renewal financial forecasts.	High
19	5	Finance	Assess condition of assets and use the information to improve the accuracy of needs-based financial forecasts.	Medium
20	5	Finance	Develop a process to track and separate capital renewals and rehabilitation costs from capital upgrades to support growth, improvements, and new assets.	Medium

6 CONTINUOUS IMPROVEMENT

6.1 ASSET MANAGEMENT MATURITY ASSESSMENT

To evaluate service area capabilities and develop a work plan towards enhanced asset management maturity, an assessment of the Enterprise Services asset management practices was completed. The results are scored from 0 to 4 based on eight key improvement categories:

1. Leadership and Commitment
2. Financial Capacity
3. Know Your Assets
4. Know Your Financial Situation
5. Understand Decision Making
6. Manage Asset Lifecycle
7. Know the Rules
8. Monitor Sustainability

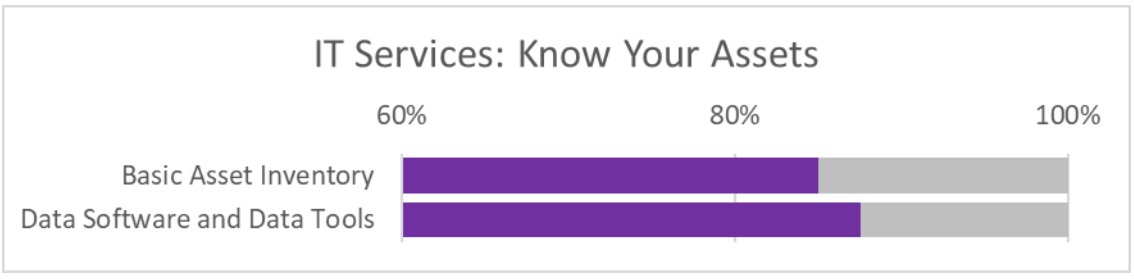
Recording the questions, scores, analysis, and results allow for benchmarking the level of asset management practices. This also allows staff to re-evaluate their business practice maturity at any time in the future, and report the progress achieved. Figure 11 provides a radar chart completed in 2020 that shows the maturity scores of Enterprise Services.

Figure 11: Maturity Assessments – Enterprise Services

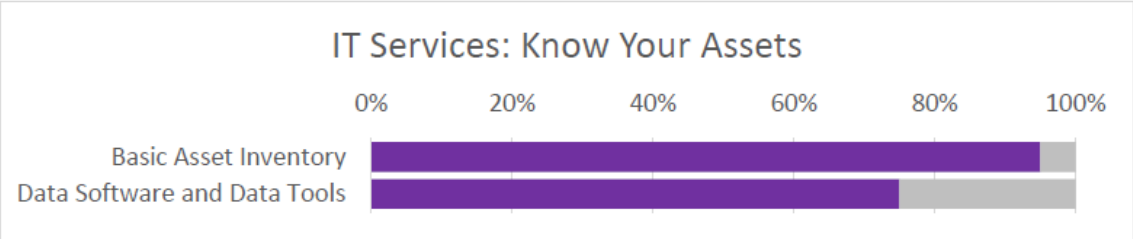
6.1.1 AM PRACTICES & INFORMATION

The assessment for the remaining six categories of Asset Management Practice and Information were completed in 2020 and as of recent in 2024 for the IT service. The following section provides comments and an asset maturity comparison between 2020 to 2024:

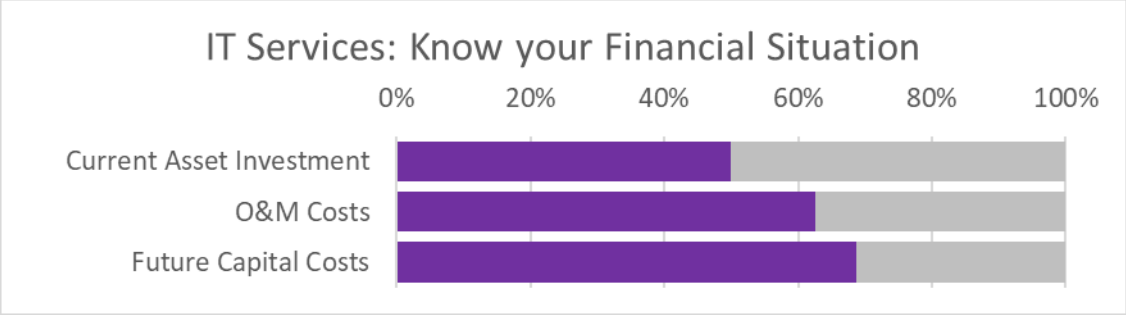
- **Know Your Assets 2020:**



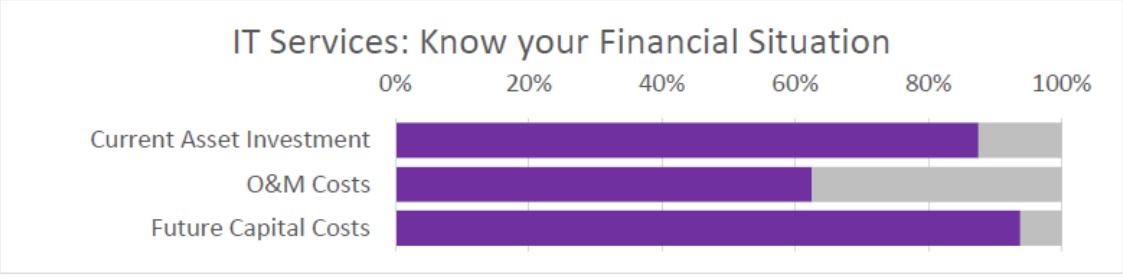
- **Know Your Assets 2024:** Effort has gone into organizing datasets and grouping assets into profiles. Consistent attribute collection process has been established. Any missing data in the active asset inventory has been added to the assets. A disposal audit of assets was conducted which resulted in the updating of the disposal of assets in Citywide.



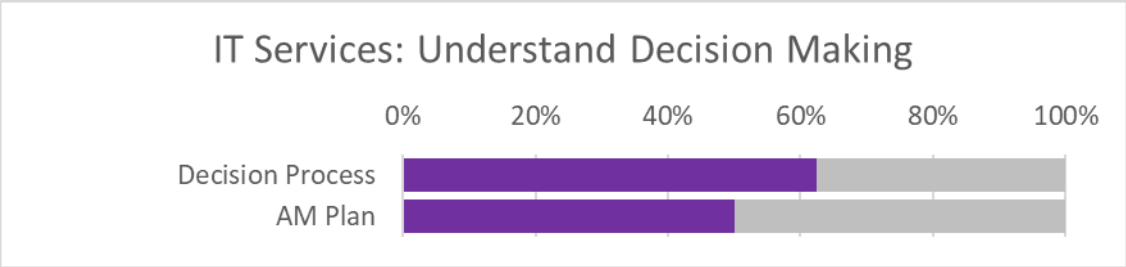
- **Know Your Financial Situation 2020:**



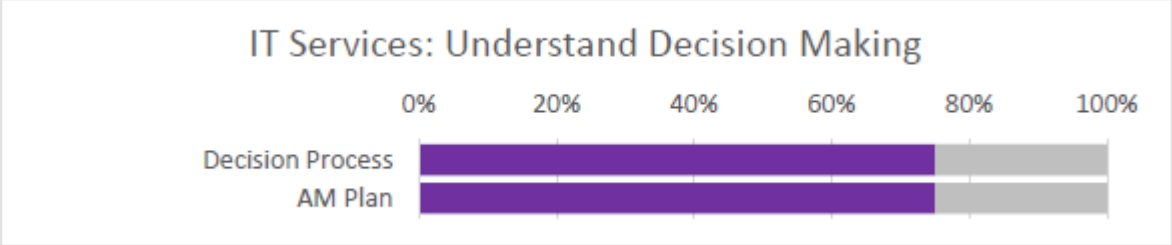
- **Know Your Financial Situation 2024:** The original lifespan of assets has historically been set 5 years for all IT assets. By grouping assets into profiles the adjusted end of useful life can be applied to entire assets groups. For a sample Workstations went from 5-year renewal cycle to 4-year renewal cycle. Network systems scheduled for 5-year replacement was extended to 7-years etc. This allows for a more precise 10-year forecasting.



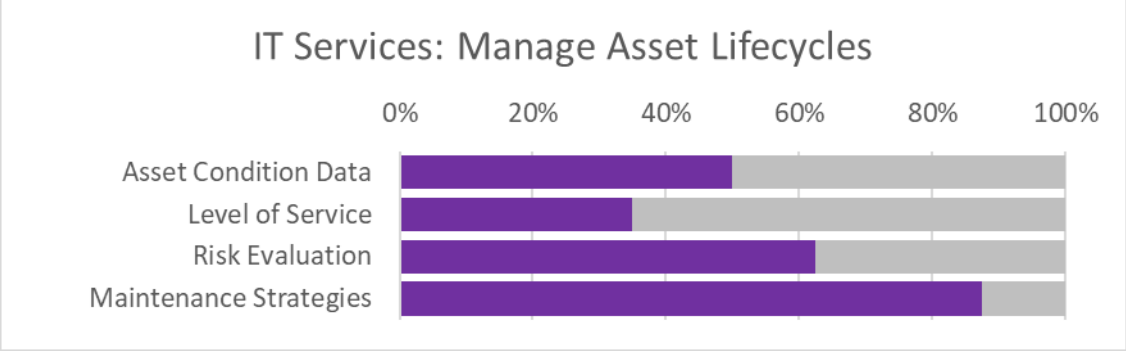
- **Understand Decision-Making 2020:**



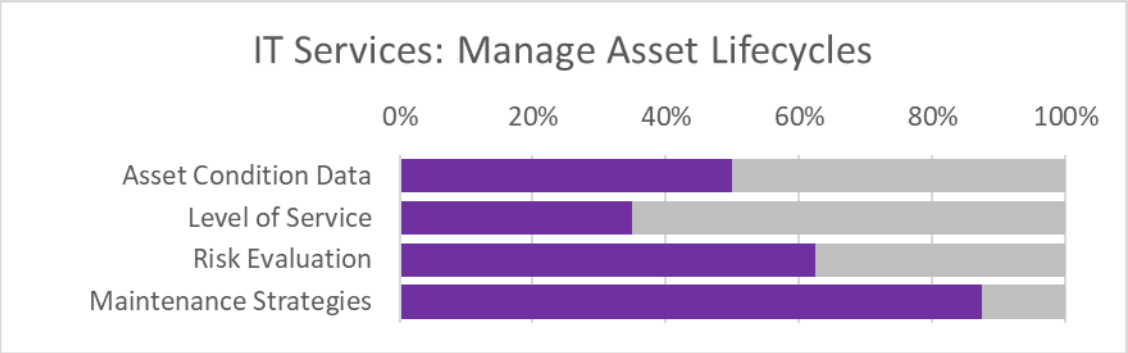
- **Understand Decision-Making 2024:** Most Enterprise assets are on a EUL renewal cycle which his a standardized method used for renewal time lines. For a sample 50 workstations would be replaced in a budget year instead of 290. This accomplishes two strategic goals, limits the workload of staff, and provides a manageable consistent budget forecast.



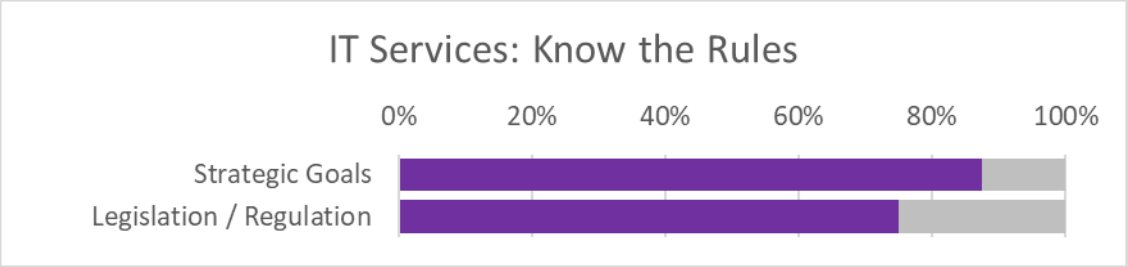
- **Manage Asset Lifecycle 2020:**



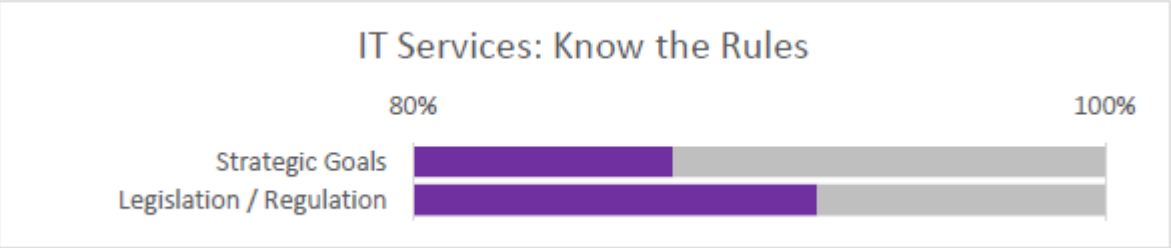
- **Manage Asset Lifecycle 2024:** Most Enterprise assets are on a EUL renewal cycle. High risks assets are known, and performance monitoring devices are in place to mitigate risks.



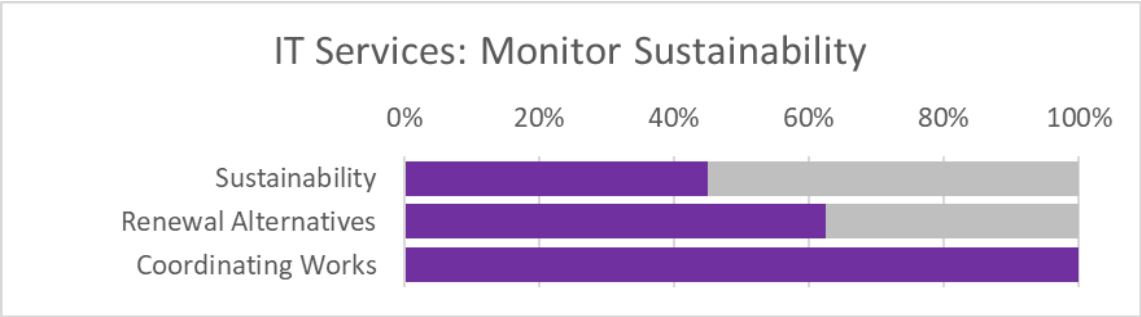
- **Know the Rules 2020:**



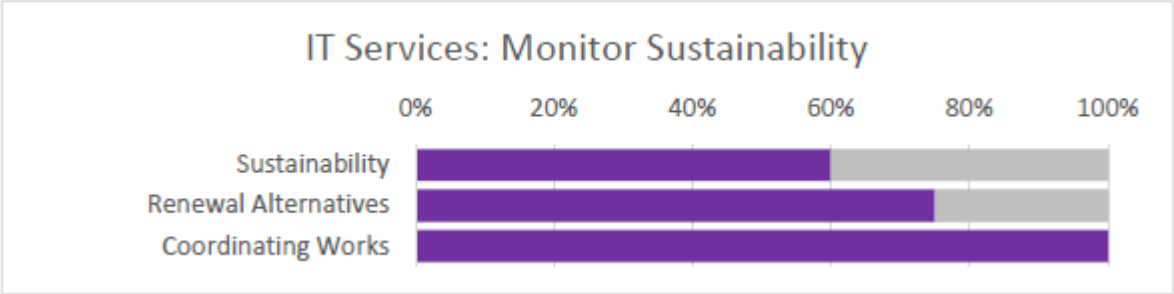
- **Know the Rules 2024:** An IT steering committee consisting of members of the Towns senior leadership team and the Enterprise Services meet once a month in a formal meeting to review strategic goals and ensure corporate priorities are being meet.



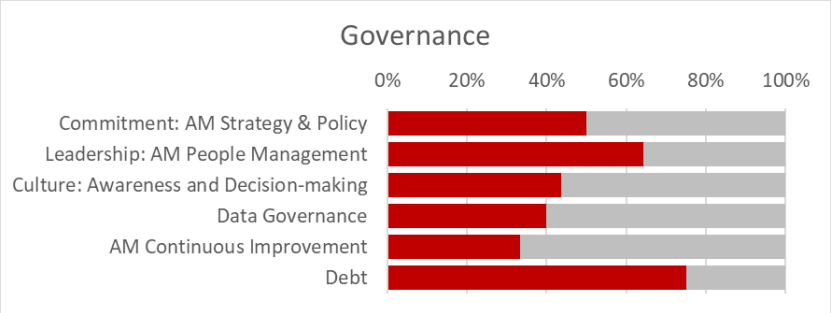
- **Monitor Sustainability 2020:**



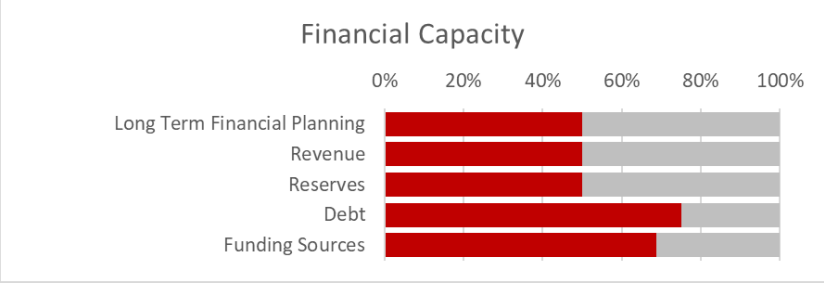
- **Monitor Sustainability 2024:** Sustainability is always at the heart of Enterprise Services. With critical infrastructure that powers the technology users rely on, assets and redundant assets, are well maintained and kept in a good working order. The goal is to have all systems operating at 99.5% efficiency.



- **Leadership and Commitment:** Lincoln has an asset management policy but does not yet have an asset management strategy or a defined asset management framework. There is an established asset management focus group and there is a strong culture of teamwork across the service areas, however the group does not have any terms of reference and the roles and responsibilities for asset management are still in the development phase. The leadership team is empowering staff to deliver asset management practices, but dedicated resources have not been established and asset management practices to identify and report on key issues are in early phases of development. There is no formalized data governance document or data structure model.



- **Financial Capacity:** Lincoln produces short term (5-10 years) financial plans. Plans rarely consider long term planning horizons of 20-30 years or more. The level of current revenue is deemed adequate in the short term but there is no supporting information available for if they are adequate for longer term financial sustainability and service delivery. Some reserves are in place but there is not sufficient information to understand if they are adequate. Similarly, there is insufficient information to determine if revenues are adequate for the long-term. Debt levels have been rated as reasonable and stable, but long-term sustainability is uncertain because a long-term assessment and plan are still to be established. Funding sources for the short to medium term are well understood and there is medium to low risk of significant change, but little is understood of longer-term risks or vulnerabilities.



6.1.2 ASSET MANAGEMENT MATURITY IMPROVEMENT PRIORITIES

Improvements were identified following the assessment, some of which have been addressed in this AMP. Table 27 lists the improvements that were identified during the assessment in addition to the improvements identified in this AMP and that haven't been completed yet.

Table 26: Asset Management Maturity Improvement Tasks

Task Ref	AMP Section	AM Practice Area	Task Description	Task Priority
20	6.1	Asset management maturity – governance	Identify the primary objectives of asset management for the Town and key goals (with measurable targets) that will help the Town achieve those objectives.	Medium
21	6.1	Asset management maturity – Procedures and decisions	Identify key decision processes that should have some controls or documentation to ensure they consider all relevant information, involve all the right people, and the decision made in a consistent way that can be explained.	Medium

6.2 IMPROVEMENT ACTIONS

Table 27 lists all improvement tasks collated from each section of the AMP and from the results of the Maturity Assessment. The Enterprise Services team will continue to review and update this improvement plan as tasks are completed or as priorities change over time or as additional needs arise.

Table 27: Asset Management Plan Improvement Tasks

Task No.	Category	Task/Activity	Description	Action No.
1	2	Data Structure	Includes defining the core attributes to be recorded, data formats, data clean up, naming conventions, etc.	Done
2	2	Data Governance	Includes the data structure and adds data roles & responsibilities plus the purpose and intended use of the data and the main standard business processes (or operating procedures) for creating, updating, and maintaining asset data.	4
3	2	Data Capture	Includes data gap assessment, prioritizing what to capture, defining method for data capture, and developing a data capture program. Single source of truth database software.	Done
4	AM	Lifecycle Strategies	Asset lifecycle policy in place for the full life cycle of the asset for each asset type. Assets for Enterprise services are on end of useful life replacement schedule.	Done
5	AMP	Basic Level of Service	This begins with a basic LOS description of expectations for each stakeholder group and identifying performance measures (what to measure and what targets to be achieved).	Done
6	AMP	Advanced Level of Service	This will build on the basic LOS details but will expand to include details on Customer LOS, Technical LOS, Operational LOS, and consider both current and future states.	7,8

Task No.	Category	Task/Activity	Description	Action No.
7	AMP	State of Infrastructure	This is an analysis of current asset data to determine the quantity, condition, and age of each asset, its expected lifespan and replacement value, its current book value, and its expected replacement year.	Done
8	AMP	Basic Lifecycle Strategies	This begins with a basic description of asset lifecycle management. Including grouping assets by the types and frequency of inspections, any preventative maintenance activities, any significant rehabilitation treatments that will be done during its life, and what happens at the end of its life.	9,10,11
9	AMP	Basic Risk Assessment	This begins with assigning a rating for the critical nature of each asset. Ratings are based on the service being delivered combined with the likelihood of the asset failing.	9
11	AMP	Advanced Risk Assessment	This builds on the basic risk rating to consider other aspects of consequence in addition to service delivery and analyses failure likelihood in more detail including failure on functionality and capacity as well as physical failure, to derive a more detailed risk analysis.	10,11
12	AMP	Service Plan Documents	This is to collate AMP components into a Service Delivery Plan for each significant service area.	No longer relevant. Potential Future Task

Task No.	Category	Task/Activity	Description	Action No.
13	AMP	Corporate Plan Document	This is to generate a summary corporate AMP document that provides highlights from each Service Delivery Plan and collated corporately significant data such as financial forecasts, state of the infrastructure, level of service performance, risk profiles and major issues or vulnerabilities.	See Corporate Asset Management Plan
14	People	Resource Plan	This is a detailed plan identifying the resources required to complete the work and comparing these to available resources to quantify the gap (i.e., resources needed). This will facilitate decisions on what tasks to prioritize and whether to use internal or external resource as well as providing evidence for requests for additional staff. This plan can be used for asset management improvement work, or it can be for all tasks required to deliver agreed levels of service.	Done
15	Software Tools	Functional Requirements	This is the first step required before considering purchase of software to assist AM. It is a process of identifying and prioritizing what each department needs the system to do. This prioritized list of requirements can then be used as a measure for objective comparison and rating of software options from vendors.	Done

Task No.	Category	Task/Activity	Description	Action No.
16	Governance	Goals and Objectives	This includes to identify the primary objectives of AM for the organization and key goals (with measurable targets) that will help the organization achieve those objectives.	Done
17	Business Management	Procedures and Decisions	The first step is to identify key decision processes that should have some controls or documentation to ensure they consider all relevant information, involve all the right people, and the decision made in a consistent way that can be explained.	Done

6.3 IMPLEMENTATION PLAN

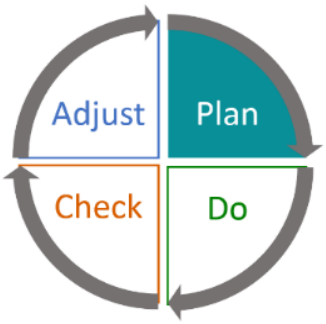
In addition to documenting current state and business practices for the management of Enterprise Services, the AMP provides recommended improvement tasks as described in section 6.2. These improvement tasks will:

- Increase the level of understanding of the assets and services provided;
- Improve the accuracy of financial forecasts and risk assessments; and
- Provide decision-makers with accurate and complete information in an easy-to-understand format to assist them with making evidence-based decisions for the best use of available funding and the best interests of the region and its communities.

6.3.1 CONTINUOUS IMPROVEMENT PROCEDURES

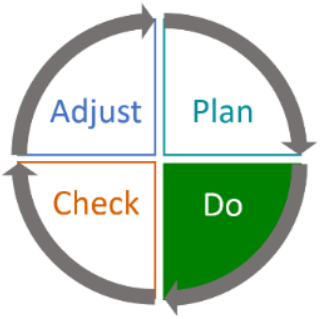
The Town will adopt a continuous improvement approach as shown in Figure 12. A continuous improvement approach includes a regular review and adjustment process to keep the AMP up to date with the latest information, understanding, and forecasts.

This can also be described as a 'Plan, Do, Check, Adjust,' process (based on the Deming Cycle).



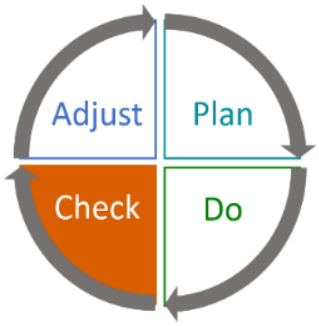
PLAN

- Collate available data and analysis results.
- Consider data and analysis results in relation to objectives.
- Document outcomes and recommendations.
- Update assessment of limitations and assumptions
- Update asset management plan, consult and confirm for implementation.



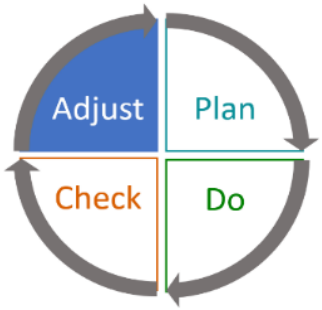
DO

- Schedule, fund, and complete improvement tasks.
- Improve asset and cost data.
- Monitor, manage, and mitigate risk.
- Manage assets and deliver required service.
- Measure and record performance.



CHECK

- Review performance results.
- Analyze asset and cost data.
- Re-assess state of infrastructure and risk ratings.
- Re-assess state of asset management practice.
- Report achievements.



ADJUST

- Update improvement tasks and plan.
- Adjust lifecycle strategies.
- Adjust priorities and targets.
- Update forecasts.

Figure 12: Continuous Improvement Cycle

This four-step process can be used to generate on-going iterative improvements to the AMP and all business processes for the management of the assets and the delivery of the service, and to facilitate responsible adaptation to change. Each phase of the four-step process is described in Figure 12, starting with the implementation or 'Do' phase for this asset management plan as the development of this asset management plan was the first iteration of the ‘Plan’ phase.

The review cycle for implementing and updating the AMP should be done annually. However, it may be done every two years where little change has occurred. Due to the AMP’s impact on the budget it is recommended to update the plan prior to the annual budget process. This will facilitate consideration of outcomes and inclusion of updated forecasts into the financial planning process.

6.3.1 CHANGE MANAGEMENT STRATEGY AND ACTION PLAN

The Town currently does not have a change management strategy and action plan. Several improvements have been identified in the AMP, in addition to the data management plan and overall asset management process currently being considered. It is recommended that a formal change management strategy is developed to provide a clear path.

General Change Management Strategy

Relationships

Managing relationships within the Town is crucial for the successful implementation of asset management practices. Helping staff see the path, providing them with the resources they need to succeed, and clear communication will support the Town on its journey to creating a cultural shift and ingraining asset management practices into all levels of the organization.

There are several strategies the Town can implement to increase the likelihood of effecting a change successfully. These strategies include:

Establishing a Clear Vision

Developing a clear and concise vision statement for how asset management will impact the organization is the first step toward general agreement on what the organization wants to achieve with the change. The vision will also support communicating the change to staff. Any communication should ultimately align with vision and will help staff to envision how their tasks align and support the organizational goal.

Mapping the Journey

One of the main reasons why implementing a change can fail is because an organization tried to implement too many change initiatives too quickly, and without prioritization. Being over ambitious can harm the process as people may need time to adjust to the change. Providing too many tasks without alignment to an objective can also confuse staff. Identifying areas of focus and mapping out the journey can help the team understand the steps needed to reach the end goal. Reviewing the implementation can provide a sense of how ambitious the Town intends to be in implement changes, what the changes are, which areas of the organization will be affected, and when. A strategy can then be prepared prior to rolling out the change to minimize staff resistance.

Prioritize People and Leverage the Champions

Change is not possible without people and changing an organization's culture takes time. People have different tolerances for embracing change so an effective strategy for change could include identifying champions for change and empowering them to deliver results. The Town can identify a sponsor and create an asset management working group which can be open to anyone who is interested in leading the change. Facilitating weekly or monthly meetings to provide updates on quick wins, and schedules can keep momentum. By creating this collective group of passionate people who have bought into the change can increase the Town's likelihood of success.

Anticipate and Manage Resistance to Change

Any change can be disruptive to a person's role, and a person may resist a change for various reasons. Being aware of the reasons why people may resist a change and having a set of prepared response strategies can help to communicate a change in a positive way. For example, some individuals may think that asset management practices create unnecessary work that provides little value. A strategy to counteract this claim is to help the individual treat it as a new challenge to be solved. One could also reiterate how the practices will support better decision making. Table 28 includes some sample reasons why people resist change, sample scenarios, as well as strategies to minimize staff resistance.

Table 28: Reasons Why People Resist Change, and Strategies to Minimize Resistance

Reasons People Resist the Change	Anticipated Scenario	Strategy to Minimize the Resistance
Parochial self interest – Individuals are concerned with the implications for themselves	Some individuals may become frustrated because they feel as though the new tasks will create unnecessary work.	It's a new challenge to be solved! Reiterate how the practices will support better decisions.
Misunderstanding due to miscommunication or inadequate information	Asset management can sound like a large undertaking, and some may not understand it.	When communicating, keep it simple. Leverage subject matter experts.
Low tolerance for change due to a sense of insecurity or lack of patience	People may fear that their jobs are being replaced by technology.	Highlight that it is an opportunity for development.
Different assessment of the situation – disagree over the need for change or the advantages.	May have a different understanding for the level of effort vs the benefit. If they don't understand the benefit, the level of effort may not seem worth the time.	Opportunity to participate and shape the outcome.
Individual challenges with implementing the change	Some field staff do not enjoy working with computers daily and may resist the requirement to input data into a computer or system.	Pairing up a senior person with a data manager will support succession planning while reducing the need for a person being forced to learn new systems.
Loss in momentum	A member may have been on-board, but over time change was not seen and interest and momentum are lost.	Submit an internal anonymous survey that asks question to gauge the level of engagement.

Assess the Town's Change Readiness

A change readiness assessment can be completed to understand how prepared an organization is to undertake a major change. The assessment can consider how an organization manages its assets, and how it adapts to change. An asset management change readiness assessment can evaluate the organization's context for change based on the components in Table 29.

Table 29: Sample Change Readiness Assessment Categories and Components

Category	Component
Employee readiness	• Awareness and perception of change. • Support for and commitment to change. • Understanding the ability to implement the required skills and behaviours.
Organizational context	• Goals and alignment • Leadership Support • Organizational structure and culture • Authority and initiative for decision-making • Communication and engagement • Residual of previous change efforts • Resources available for the change

The feedback from this assessment can then inform a change management strategy that can accompany an asset management implementation plan.

Communicate the Change

Before communicating a task to staff members, it is important to be clear on what you need them to do and how they'll succeed. Below are some considerations to help prepare and plan for discussions when implementing a change.

- **Consider who is involved** and why they may resist the change. Communicate what the AM benefits will be.
- **Align the task with the vision** to provide purpose to the change.
- **Does the team have what they need to be successful?** Do they need training, additional resources, or new software and tools?
- **Will their role change?** What do you think some of their fears will be? How can you support them through the change?

- **Be clear about the task** and communicate what is involved, what the proposed change is, why the change is needed, what the major effects will be, and how the process will be managed.

Develop a Change Management Team

Developing and implementing a change management team can support business process improvement initiatives and can help drive cultural transformation, focusing on building agility, accountability, and employee empowerment.

Provide Training to Support Staff

Implementing asset management can feel like a large undertaking to many. Providing training to introduce asset management concepts will allow staff to “speak the same language”. Training staff on what asset management can do for them creates a personal connection as they now understand how asset management will make their role more effective.

Monitoring

The Town should schedule recurring monitoring to review progress. It should include metrics on how the organization plans to measure success and review whether the organization is achieving its objectives. A process for receiving staff feedback should be established to determine focus areas for adjustment. Lastly, upon reflecting on the progress to date, the Town should review whether additional support is needed.

6.3.2 PERFORMANCE MEASUREMENT & EVALUATION

Performance Monitoring

To inform and support improvement, it is necessary to monitor current performance, and to review performance outcomes compared to the intended outcomes. Performance Monitoring & Evaluation (PME) is therefore an integral part of implementing robust Asset Management.

Monitoring and evaluating the performance of the assets and services will help to improve the reliability and consistency of service delivery.

The primary objective for performance measurement is not reporting performance; it is managing performance to achieve a specific target.

This section describes the three key performance measurement processes for asset management that will evaluate whether the Enterprise Service management team are:

- Completing the asset management improvement tasks;
- Achieving asset management and the maturity targets, and;
- Improving asset data that will support evidence-based decisions.

Reporting Progress on Improvement Tasks

Review, report and revise improvement program.

Annual review for improvement tasks and report the percent complete for each. Compare results to the schedule of work planned for completion in that year. It would also be useful to compare the hours spent on each task and the total expenses for the year compared to budget hours and expenses. This will inform whether each task is on track for completion on time and to budget and identify areas of concern for any tasks that are not on track. However, the ability to do this detailed reporting will depend on whether records are kept of staff time and expenses for work done on each task throughout the year. The minimum requirement is to report annually on the overall percent complete for scheduled improvement tasks.

At least annually the schedule for asset management improvement tasks must be reviewed and revised. Completed tasks should be removed, and new tasks added where necessary. New completion dates should be agreed for tasks that are partially complete. All other tasks in the asset management improvement plan, including tasks that were scheduled for completion during the year but have not been started, should be reassessed for priority and where appropriate assigned new start and completion dates. Any tasks that are no longer required should be removed from the plan.

This annual review and updating of the improvement program should also consider the outcomes of re-assessment of asset management maturity and re-assessment of asset data quality.

Reporting progress on asset management maturity.

The asset management maturity assessment process is described in section 6.1. To measure improvements of asset management maturity, staff should complete a re-assessment (at least annually) and compare the result from each year to the previous year. Where appropriate add a comparison to the first year of the program.

The step-by-step instruction for completing a re-assessment of asset management maturity using the assessment tool provided to the Enterprise Service team, is included in the "Notes" tab of that assessment tool. Each year a new copy of the analysis spreadsheet can be made so changes are easily tracked over time. The asset maturity assessment tool provides several automated infographics and tables for reporting current results. It also provides the ability to compare current results to previous results, and to any future targets if these have been set.

The following diagram is an example;

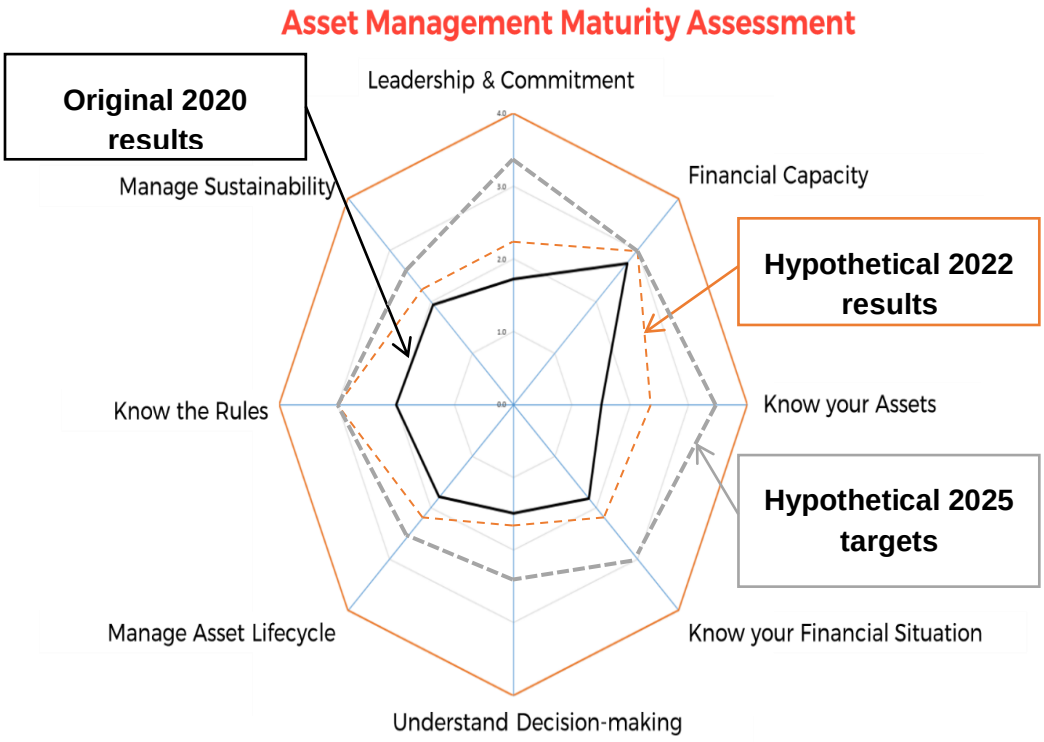


Figure *13*: – Reporting Progress on AM Maturity - Example

The assessment tool provides further detail if required, for the results within each of the categories summarized in the graph above.

The results of the annual asset management maturity re-assessment provide important input to decisions on the continued relevance and the appropriate priority for asset management

improvement tasks. Asset management maturity results should therefore be considered in the annual review and revision of the asset management improvement plan.

Reporting on the quality of asset data

The currency and accuracy of asset data is critical to effective asset management, accurate financial forecasts, and informed decision-making. However, even more important than this is knowing what the reliability of the information is. Even data that is not highly accurate can be of benefit to decision-makers provided the accuracy is declared.

The Town has yet to develop a consistent data structure for recording asset information. A data management plan has been developed to support staff in understanding the attributes required to develop asset registers for all asset groups and locations and understand the significant impact on the accuracy of assessments for when each asset may need replacing and how much it will cost to replace.

As staff build their asset register and collate available asset information, the accuracy of these key attributes can be recorded in the relevant columns for confidence rating. This will facilitate measurement of the asset data quality and reporting on improvements in data quality.

The confidence ratings for asset data are a numerical value between 1 and 5, as appropriate to each asset record and each key attribute. A score of 1 indicates high confidence and 5 indicates low confidence. An example of how this is used would be, if the size of an asset (such as a hose) is known but its material type is not known, and its install date is not certain but has been reasonably assumed from the age of other assets in the station, then its confidence ratings would be 1 for the size attribute, 4 or 5 for material type and a 2 or 3 for install date depending on how compelling the supporting data is.

The general description for each confidence level is:

1. Data is verified as factual (accurate).
2. Data is known with a high level of certainty, but it may not be verified as factual (there is a small possibility of error).
3. Data has been reasonably assumed or determined from other known facts. There is a moderate level of certainty and a moderate possibility for error.
4. Data has been assumed or determined from some indicator, but the opportunity for error (at an asset level) is high.
5. Data is a default value assigned as a temporary measure until better information is available, because at this time, the correct data is not known, nor can it be reasonably assumed from known facts or some indicator.

Annually, an assessment should be made to determine the quantity (and completeness) of recorded asset data and the confidence profile for the recorded information.

The process will include to:

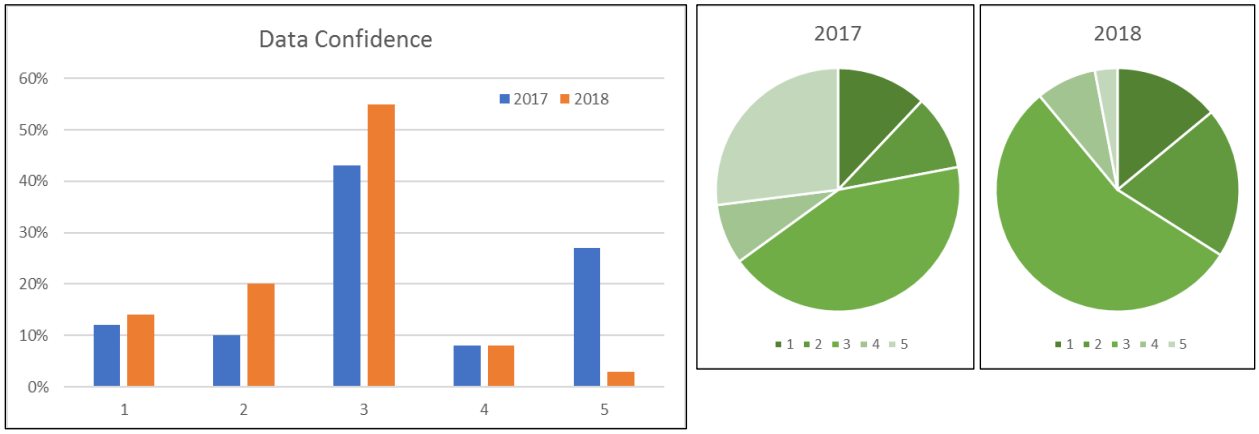
- Report the number of recorded assets;
- Calculate the percent (by value) of asset records that have confidence ratings 1 to 5; and
- Graph results with comparison to the previous year's result.

The change in the number of assets recorded in the asset register will advise decision-makers of how complete the asset data is and any analysis results that are based on current asset data.

The change in the confidence ratings for key attributes will advise decision-makers of how accurate the asset data is and therefore, how confident they can be in any analysis results that are based on that asset data.

The following are examples of data quality graphs.

Both examples quantify the change (improvement) in data confidence from one year to the next. The graphs show a reduction in very low confidence records (rating of 5) and an increase in moderate and good confidence records (ratings of 3 and 2).



While staff are building their asset register, and until confidence ratings for key attributes have been recorded in the data register, it is recommended that a high-level data quality assessment is done.

Table 30 describes a set of data confidence grades (class A to class E) that can be used by the Enterprise Services team for classifying data reliability at a high-level. This is different to the 1 to 5 confidence ratings that would be entered against each asset record in the asset register. The 1 to 5 ratings are for asset-level assessments whereas the A to E ratings are for an overall view when detailed data for asset-level assessments is not available.

The data quality assessment using the A to E ratings is a subjective assessment but based on knowledge of the accuracy and completeness of the data set (e.g. it is a judgement call made by

a suitably experienced person or team who are very familiar with the dataset).

Table 30: High-Level Data Confidence Ratings

Data Grade	Data Confidence	Description
A	Highly Reliable	An asset inventory exists and is appropriately structured with asset type and sub-type classifications; the inventory includes key attribute* information for every asset and this information is highly reliable.
B	Reliable	An asset inventory exists and is appropriately structured with asset type and sub-type classifications; the inventory includes reliable information for most key attributes of most assets; where information is missing or unreliable, a reasonable estimate can be made based on known values (i.e. based on values for similar assets connected to or located close to the asset, or an average of known values for assets of the same type etc.).
C	Some Uncertainty	An asset inventory exists but it may not be complete and it may or may not have an appropriate structure with asset type and sub-types, or these may not be fully populated; the inventory has a mixture of reliable and unreliable (or missing) information for key attributes for many assets; replacement costs may be based high-level average values or derived from purchase cost multiplied by an annual default percentage; useful life values may also be based on high-level average values or a default assumption.
D	Very Uncertain	An asset inventory exists but may not be complete and it may or may not have an appropriate structure; most key attribute information is missing or has low reliability; but some known, default, or assumed values do exist for some assets.
E	Unknown	An asset inventory does not exist, or it contains very little data.

* *Key attribute information includes asset type and sub-type classification, install date, relevant size information, material type, and estimated unit cost and useful life values. Table 31 is an example of a high-level data quality report for facilities:*

Table 31: Data Confidence Ratings Example

Asset Group	Asset Type	Acquisition Date	Make	Model	EUL	EUC
End User Devices	A	A	A	A	A	A
Infrastructure Equipment	A	A	A	A	A	A

The results for one year can be compared to previous year(s) and the change in data quality can be shown graphically (in the same way as reporting for asset-level data quality).

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APPENDIX

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