

TOWN OF LINCOLN

# CORPORATE ASSET MANAGEMENT PLAN 2021



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## *APPENDICES*

### **A** SERVICE AREA IMPROVEMENT PLANS

# 1 GOVERNANCE AND LEADERSHIP

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## 1.1 OVERVIEW

This Corporate Asset Management Plan (CAMP) sets out the overarching goals and performance measures for asset management practices within the organization as well as providing a summary of service delivery for the following service areas:

- Fire Rescue
- Road R.O.W. Service
- Utilities (Water and Wastewater)
- Parks and Recreation Facilities (future)
- Community Services (Buildings and Cemetery) (future)

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### 1.1.1 GENERAL DESCRIPTION OF SERVICES

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#### *FIRE RESCUE*

Lincoln Fire Rescue is a composite fire department that relies on four full time staff and paid on-call volunteer firefighters from the community. The administration of the Fire Service is completed from Fire Station #1 and the service is covered from 4 locations throughout the Town. The services provided by Lincoln Fire Rescue are:

- **Emergency Response** - Lincoln Fire Rescue responds to approximately 900 emergency calls per year town-wide, with individual station responses ranging from about 100 calls to 500 calls annually per station.
- **Emergency Management** - Lincoln's fire department plays a crucial role in the ongoing process of emergency management.
- **Fire Prevention** - One of the main functions of the Town of Lincoln Fire Service is to actively promote fire prevention in the community.

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#### *ROAD ROW*

Road Right-of Ways are Lincoln's largest service area group with the highest number and value of assets. These assets support the community's quality of life and its dynamic economy including agriculture, agrotourism, viniculture, wineries, breweries, and other industries.

The Town of Lincoln's Right-of-way is comprised of the follow core asset categories and asset types:

- Roads
- Bridges
- Culverts
- Active Transport Facilities (i.e., sidewalks, paths, trails)
- Stormwater management (i.e., storm sewers, ponds, watercourses)
- Traffic control and roadside safety (i.e., signage, markings, guardrails)
- Streetlights

The municipal road allowance, or road right-of-way (ROW), is a network of land owned and operated by the municipality and is primarily used for the transportation of people as well as goods and services that are essential to the community's ability to function, grow and prosper.

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## UTILITY

The water distribution system and wastewater collection system are part of a network of infrastructure and operated by the municipality and is primarily used for supplying clean safe drinking water and collecting wastewater primarily within the urban boundary are essential to a community's ability to function, grow and prosper. In Lincoln, the water and wastewater system is a two-tier system with the majority of watermains and sanitary sewers being under the jurisdiction of the Town of Lincoln. However, large diameter transmission mains, forcemains, sewage pumping stations, reservoirs and water and wastewater treatment plants are typically owned and operated by the Niagara Region.

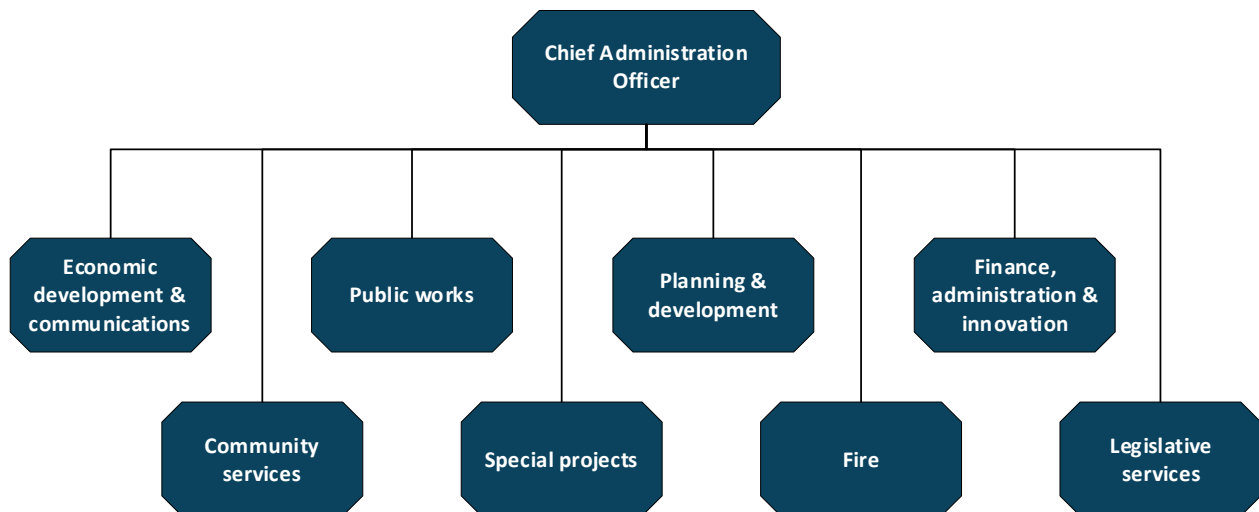
The Town of Lincoln's water and wastewater services are comprised the follow core asset categories and asset types:

- Water includes watermains, valves, curbstops, hydrants, pumping and booster stations
- Wastewater includes sanitary sewer mains and maintenance holes

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### 1.1.2 MANAGEMENT STRUCTURE (FOR ORGANIZATION)

Figure 1 shows the management structure of the organization relevant to delivery of core services.



**Figure 1: Management structure**

### 1.1.3 ROLES AND RESPONSIBILITIES FOR SERVICE DELIVERY

Each service delivery asset management plan has details of the roles and responsibilities for delivery of that service. Table 1 provides a high-level overview of key roles.

**Table 1: Roles and responsibility**

Service Area	Management Role	Responsibility
<b>Fire Rescue</b>	Fire Gear & Equipment	Fire Rescue & Emergency Services
	Fire Trucks & Vehicles	
<b>Road ROW</b>	Roads & Bridges	Public Works
	Sidewalks	
	Parking Lots (except parks/facilities)	
	Street Signs & Streetlights	
	Roads Vehicles	
<b>Utility</b>	Water & Wastewater	Public Works
	Water Vehicles	
<b>Public and Open Spaces</b>	Parks & Facilities	Community Services
	Playground & Equipment	
	Trails and Pathways	
	Trees	
	Splash Pad / Swimming Pool	
	Outdoor Ice Pad	
	Parks/Facilities Parking Lots	
	Parks/Facilities Signs	
	Buildings & Structures	
	Parks/Facilities Vehicles	Public Works
	Cemetery	Public Works
	Library Books & Video	Lincoln Public Library Board

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## 1.2 GOALS AND OBJECTIVES

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### 1.2.1 ORGANIZATIONAL GOALS

The Town of Lincoln's strategic plan "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, industrial 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.

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### 1.2.2 ASSET MANAGEMENT POLICY AND VISION

The Town has a current Asset Management Policy (FA-2018-01 October 1, 2018) that outlines a broad strategic framework for asset management for the entire organization. In this policy the Town's aspiration for Asset Management is stated as:

*Asset Management aims to leverage the lowest total lifecycle cost of ownership with appropriate regard for required service levels that best meets the needs of the community and an understanding about an acceptable risk of failure.*

The policy implements the requirements of Ontario Regulation 588/17 Asset Management Planning for Municipal Infrastructure.

### 1.2.3 ASSET MANAGEMENT GOALS

Included in the Town's Asset Management Policy are 9 policy statements which can be understood as the Town's Asset Management Goals. These are:

- a. The Town of Lincoln will comply with the requirements of O.Reg 588/17, alignment with ISO 55000 standards where appropriate and applicable, and use the Asset Management Framework developed by the Municipal Finance Officers Association of Ontario (MFOA) as a basis for developing an ongoing asset management process.
- b. The Town of Lincoln will maintain and manage infrastructure assets at defined levels to support public safety, community well-being and community goals.
- c. The Town of Lincoln will monitor standards and service levels to ensure that they meet/support community and Council goals and objectives.
- d. The Town of Lincoln will maintain asset inventories of all its infrastructure.
- e. The Town of Lincoln will establish infrastructure replacement strategies through the use of full life cycle costing principles.
- f. The Town of Lincoln will plan financially for the appropriate level of maintenance of assets to deliver service levels and extend the useful life of assets as determined by industry best practices and evaluation frameworks.
- g. The Town of Lincoln will plan for and provide stable long-term funding to replace and/or renew and/or decommission infrastructure assets.
- h. Where appropriate, The Town of Lincoln will consider and incorporate asset management in its other corporate plans
- i. The Town of Lincoln will report to citizens regularly on the status and performance of work related to the implementation of this asset management policy.

### 1.2.4 ASSET MANAGEMENT TARGETS

Table 2 shows the performance measures and targets proposed for the Town's asset management goals:

**Table 2: Asset management performance measures**

#	Asset Management Goal	Performance Metric	Service	Target	Status	Trend
A	Use MFOA Asset Management Framework	# Service AMPs aligned with MFOA AM Framework	All services	6		
		# Service AMPs compliant with current O.Reg 588/17	All services	6		
B	Maintain and manage infrastructure assets at defined levels	% of assets (by value) in fair or better condition (updated annually in AMP's)	Fire Rescue	70%	Met	TBD
			Road ROW	90%	Met	TBD
			Water			
			Wastewater			
C	Monitor standards and service levels	% of level of service targets being met (reported annually in AMP's)	Fire Rescue			
			Road ROW			
			Water			
			Wastewater			
D		Quality rating for asset inventory data	Fire Rescue			
			Road ROW			



#	Asset Management Goal	Performance Metric	Service	Target	Status	Trend
	Maintain asset inventories of all infrastructure		Water			
			Wastewater			
<b>E</b>	Maintain asset inventories of all its infrastructure	Asset data quality rating (updated annually in AMP's)				
<b>F</b>	Plan financially for the appropriate level of maintenance of assets to deliver service levels and extend the useful life of assets	% approved OMI <sup>1</sup> budget compared to required OMI investment forecast in Service AMPs.	All services	90%		
		% of level of service targets being met (reported annually in AMP's)				
<b>G</b>	Plan for and provide stable long-term funding to replace and/or renew and/or decommission infrastructure assets	% approved Capital Renewal budget compared to required Renewal investment forecast in Service AMPs.	All services	90%		
		% approved Reserve contribution compared to required Reserve forecast in Service AMPs.	All services	50%		
<b>H</b>	Where appropriate, incorporate asset management in other corporate plans	# of corporate documents that incorporate asset management				
<b>I</b>	Report to citizens on the status and performance of work related to implementation of the asset management policy	# reports to citizens per annum on measured asset management performance	Corporate reporting	1 (minimum)		

### 1.2.5 ASSET MANAGEMENT PERFORMANCE

In this first CAMP, few comparisons can be made between current performance and historical performance against asset management goals and targets. Most targets are still to be determined and very few are currently measured. It is recommended that a simple traffic light or tachometer type of infographic be used with a trending arrow to compare asset management performance for each asset management goal in the table above. An example is provided in Table 3.

The example gauge indicates measured performance for goal B is fair for Fire Rescue and very good for Road ROW. The trend arrow shows that it has improved from the previous CAMP for Fire Rescue and is

<sup>1</sup> OMI = Operations, Maintenance, and Inspections

being maintained for Road ROW. This form of reporting assists readers to understand at a glance, the performance of the Town’s asset management practices, across many goals and service areas.

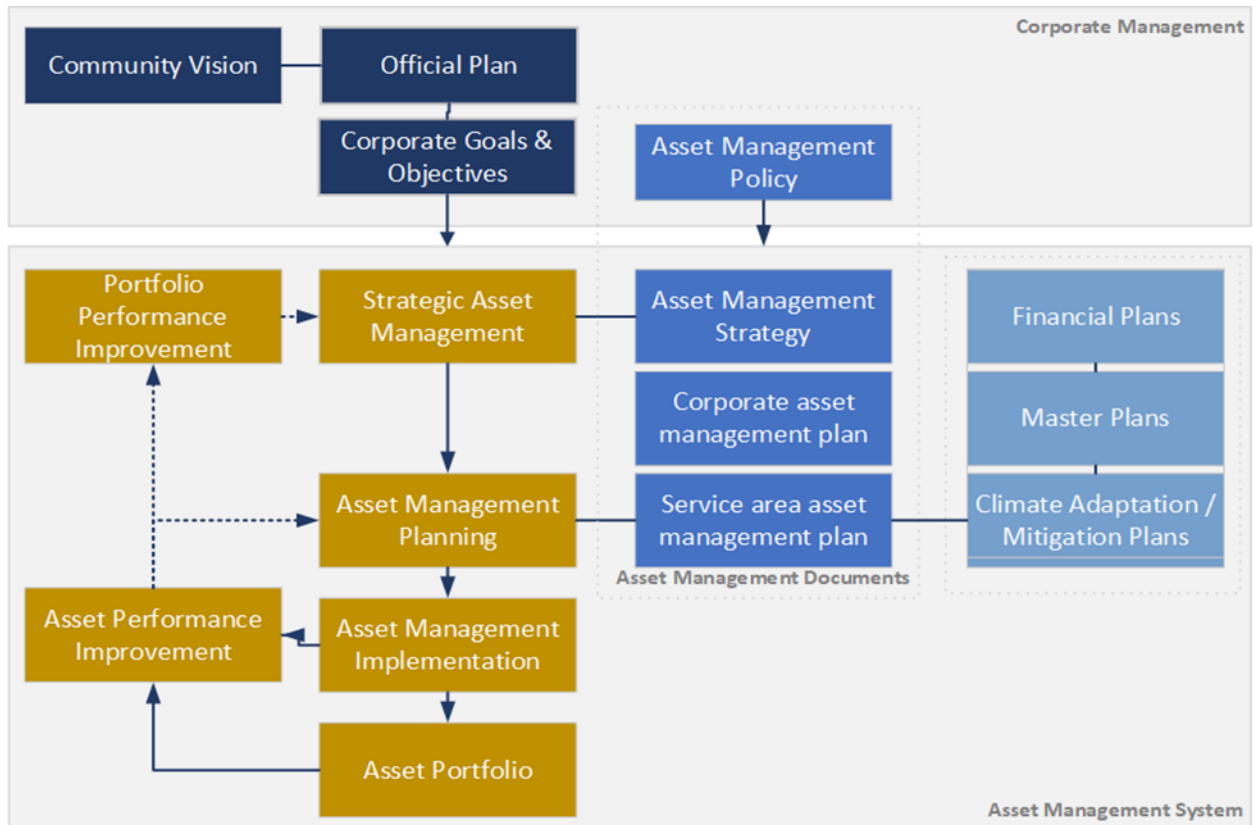
**Table 3: Asset management performance example**

#	Asset Management Goal	Performance Metric	Service	Target	Status	Trend
B	Maintain and manage infrastructure assets at defined levels	% of assets (by value) in fair or better condition (updated annually in AMP's)	Fire Rescue	70%		
			Road ROW	90%		

## 1.3 CONTEXT FOR AMP DOCUMENT

### 1.3.1 RELATIONSHIP OF CORPORATE AMP TO OTHER DOCUMENTS

The Town recognizes the importance of proactive and responsible management of its service delivery and the infrastructure needed to provide services. Figure 2 shows the linkage and relationships between asset data and how it informs asset management plans, financial and master planning documents, this corporate asset management plan, climate adaptation and mitigation plans and policy statements.



**Figure 2: Relationship to Corporate Documents**

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### 1.3.2 KEY LIMITATIONS AND ASSUMPTIONS

This CAMP has been prepared based on the best information available from completed Service Delivery AMPs. Continuous improvement of Lincoln's asset management practices is essential to support quality planning, informed decision-making, and sustainable service delivery.

The limitations faced while writing this CAMP are summarized in Table 4. Recognizing these limitations will help inform the continuous improvement process for future versions of the CAMP.

**Table 4: Limitations and Assumptions of the AMP**

<b>Limitation</b>	<b>Impact</b>
<i>State of the infrastructure (and quality of asset data)</i>	The state of the infrastructure in each Service AMP is based on currently available inventory data. The Town's inventory is stored in multiple databases and contains gaps and limitations as detailed in each AMP. A data management plan was developed in 2021 and recommended that a centralized database be adopted for all asset inventory data. Over time as data is improved, the outcome reporting in the CAMP will also improve.
<i>Financial</i>	The costs reported in this CAMP are based on details from each Service AMP. Construction costs are known to have increased at a higher rate than average annual inflation. It is recommended that asset replacement costs are reviewed as part of future updates to Service AMPs and to this CAMP to improve accuracy in financial forecasts and investment planning recommendations.
<i>Service AMPs</i>	Not all Service AMPs are completed therefore summaries in this CAMP are limited to outcomes from the Fire Rescue, Utility and Road ROW services. A further limitation is that not all AM analysis are completed in both Service AMPs (for example there was insufficient available information to complete the resource plan analysis for the Road ROW service).
<i>Performance measures</i>	There is little measured performance data available for asset management performance and for service delivery performance. Service levels are defined in the Service AMPs, however performance against most service criteria has not been measured yet, and performance targets have not therefore been set. When measured data is available, reasonable targets can be set and comparative performance and performance trends can be reported in future Service AMPs and a future CAMP.
<i>Local experience</i>	Some components of the current Service AMPs (such as the assessment of service level risks and resource demands) have been completed based on the experience and skilled judgement of appropriate Town staff. The Service AMPs include improvement tasks to measure, analyse and verify these components. In the interim, the outputs of these components have been included in the CAMP as they are the most accurate information currently available.
<i>Third party reports</i>	Some components of the current Service AMPs are based on provided information from third party reports. This information has not been verified by independent analysis or audit. It has been included on the assumption that it is accurate and appropriate in the form and detail provided.

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### 1.3.3 IMPLEMENTATION AND REVIEW PROCESS FOR THE CAMP

The review cycle for implementing and updating the CAMP should be consistent with review cycles for the input Service AMPs. This would typically be annually, except where minimal change has occurred it

could be done every second year, prior to the annual budget process. This will facilitate consideration of outcomes and inclusion of updated renewal forecasts into the financial process.

Ontario Requirements 588/17: Asset Management Planning for Municipal Infrastructure should also be considered when timing updates.

## 2 KNOW YOUR ASSETS

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### 2.1 CONTEXT FOR INFORMATION IN THIS SECTION

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#### 2.1.1 DATA ASSUMPTIONS AND LIMITATIONS

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##### *FIRE RESCUE*

The asset data used to produce the state of infrastructure has been sourced from multiple tables. While the information was complete, there were cases where two assets had the same asset ID, with one of the assets being removed from service and the other in service.

It should also be noted that recent updates to the assets may not have been captured in the inventory tables. Additionally, short-lived assets such as flashlights, pagers and tablets have been excluded from the asset management plan as the replacement of these assets is considered an operational expense.

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##### *ROAD ROW*

The road data had some assets that had multiple installation dates. Where multiple values existed, an average install date from those values was used.

The sidewalk data had some missing attributes such as installation year, width, or material and these were filled with assumed values of 2016 for install date, 1.5m for width and concrete for material. Some bridges did not have an installation date recorded and an assumed value of 2017 was used. Each bridge was also reported as one combined asset at this time and assigned a default estimated useful life value of 70 years. In the future each bridge component should be recorded with its separate details, replacement value, and expected lifespan. Stormwater pipes with missing data were assigned an assumed install date of 1970, diameter of 300mm and length of 50m. For signs, the assumed values used to fill missing attribute data were install dates of 2000 and lifespan of 15 years.

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##### *UTILITY*

The asset data used to produce the state of infrastructure has been sourced from multiple data sources. Recent updates may not have been captured in the inventory. Multiple install dates were missing and were estimated based on the install date of the closest road. Additionally, all pipes were assumed to be replaced with PVC, the size of valves was assumed to be 200mm and the size of maintenance holes to be 1200mm.

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### 2.2 ASSET DATA ASSESSMENT

In this first CAMP, there is no comparison of the quality and completeness of current asset data to previous asset data. It is recommended that a simple traffic light or tachometer type of infographic be used with a trending arrow to compare data for each Service AMP.

The following is provided as an example only. The gauge indicates the combined data quality and completeness is very good and the trend arrow shows that it has improved from the previous CAMP. This allows understanding at a glance across many service areas.



## 2.3 STATE OF INFRASTRUCTURE (SOI)

The total value of infrastructure assets supporting delivery of Fire Rescue, Utility and Road ROW services is \$592.2M. The total asset value for the Town will increase as other Service AMPs are completed and summary values can be updated in the future CAMP.

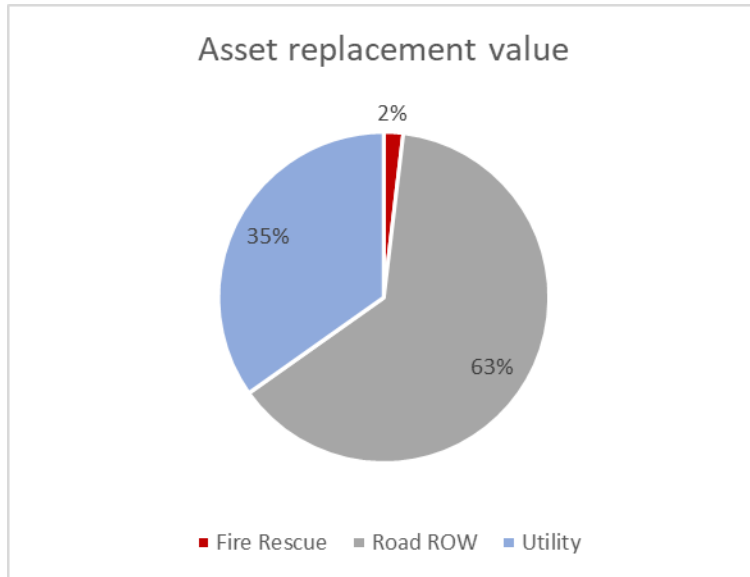


Figure 3: Comparative replacement value of Infrastructure Assets by Service Delivery

### 2.3.1 QUANTITY AND VALUE OF ASSETS

The following table provides a summary of the quantity and value of assets by asset type and by service.

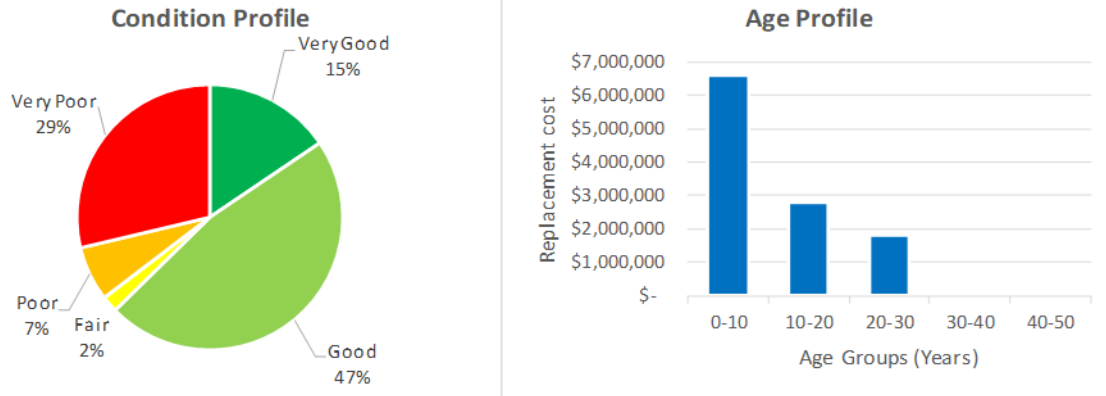
Table 5: Summary of Quantity and Value of Assets by Service

Category	Asset	Quantity		Current avg asset age (yr.)	Avg expected useful life (yr.)	Average asset condition	Current replacement cost
<b>Fire Rescue</b>							
<i>Firefighting Equipment</i>	<i>Hose</i>	6,218	m	9	15	Good	\$94,400
	<i>SCBA Mask</i>	121	No.	4	10	Good	\$140,400
	<i>SCBA Regulator</i>	81	No.	8	10	Good	\$607,500
	<i>SCBA Cylinder</i>	263	No.	7	10	Fair	\$473,400
	<i>Nozzle</i>	31	No.	1	15	Very good	\$37,200
	<i>Jaws of Life</i>	13	No.	3	10	Very good	\$240,500
	<i>Thermal Imager</i>	10	No.	7	10	Fair	\$100,000
<i>Personal Protective Equipment</i>	<i>Helmet</i>	115	No.	5	10	Good	\$46,000
	<i>Bunker Gear</i>	368	No.	5	7	Fair	\$345,200
<i>Fleet</i>		22	No.	12	17	Fair	\$8,813,300
<i>Communications</i>		71	No.	0	8	Very good	\$285,700
<b>Asset Total (Fire Rescue)</b>				<b>11</b>	<b>16</b>	<b>Fair</b>	<b>\$11,183,600</b>

Category	Asset	Quantity		Current avg asset age (yr.)	Avg expected useful life (yr.)	Average asset condition	Current replacement cost
<b>Road ROW</b>							
	<i>Local Road – Pavement</i>	2,076,600	m <sup>2</sup>	-	-	-	\$187,659,100
	<i>Local Road – Surface</i>	1,646,300	m <sup>2</sup>	20	20	Good	\$40,932,500
	<i>Collector Road - Pavement</i>	557,100	m <sup>2</sup>	-	-	-	\$50,346,500
	<i>Collector Road - Surface</i>	426,500	m <sup>2</sup>	17	20	Very Good	\$8,977,100
	<i>Sidewalks</i>	71	km	33	30	Poor	\$8,383,400
	<i>Bridges</i>	45	No.	57	70	Good	\$26,125,000
	<i>Major Culverts</i>	192	m	41	98	Good	\$3,567,300
	<i>Culverts</i>	2483	m	76	94	Fair	\$3,127,500
	<i>Storm Pipes</i>	58	km	34	96	Good	\$27,797,700
	<i>Storm Boxes</i>	711	m	27	100	Very Good	\$3,555,000
	<i>SWMF</i>	14	No.	16	100	Very Good	\$13,140,900
	<i>OGS</i>	4	No.	9	100	Very Good	\$210,100
	<i>Signs</i>	3804	No.	10	15	Fair	\$1,141,200
<b>Asset Total (Road ROW)</b>				<b>32</b>	<b>59</b>	<b>Good</b>	<b>\$374,963,300</b>
<b>Utility</b>							
Water Service	Water Lines	81,378	m	26	78	Good	\$85,997,600
	Service Lines	1,453	m	28	79	Good	\$953,000
	Pressure Reducing Valves	17	No.	39	60	Fair	\$2,284,800
	Water Station	3	No.	4	19	Very good	\$2,850,000
	Water Valves	971	No.	35	50	Good	\$4,660,800
	Check Valves	14	No.	22	50	Good	\$112,000
Wastewater Service	Pipes	85,072	m	32	78	Good	\$86,680,500
	Maintenance Holes	1,127	No.	29	75	Good	\$22,540,000
<b>Asset Total (Utility)</b>				<b>29</b>	<b>76</b>	<b>Good</b>	<b>\$206,078,700</b>

## 2.3.2 CONDITION AND AGE PROFILE OF INFRASTRUCTURE

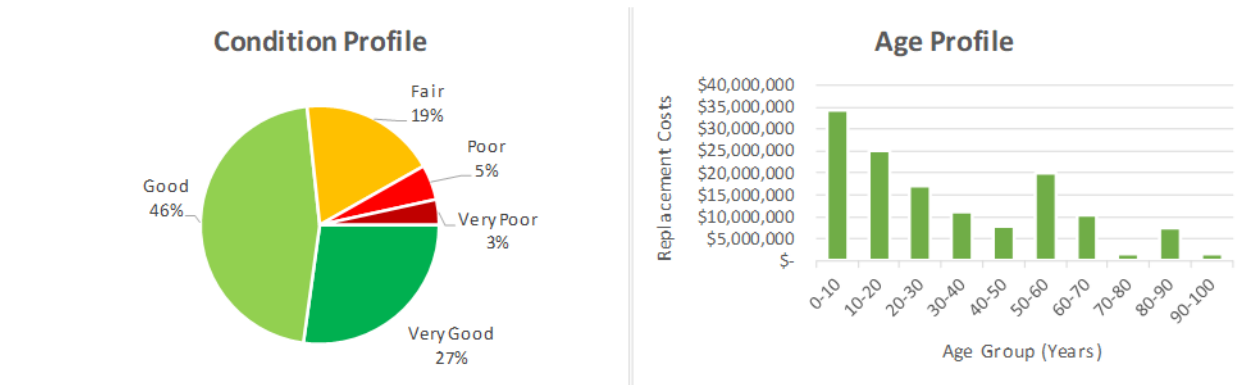
### FIRE RESCUE



**Figure 4: Condition and Age Profile - Fire Rescue Assets**

Although 29% (by value) of Fire Rescue assets are indicated to be in very poor condition, the majority of these are fleet assets that are due for replacement this year.

### ROAD ROW



**Figure 5: Condition and Age Profile – Road ROW Assets**

73% of all road ROW assets (by value) are in good or very good condition.



UTILITY

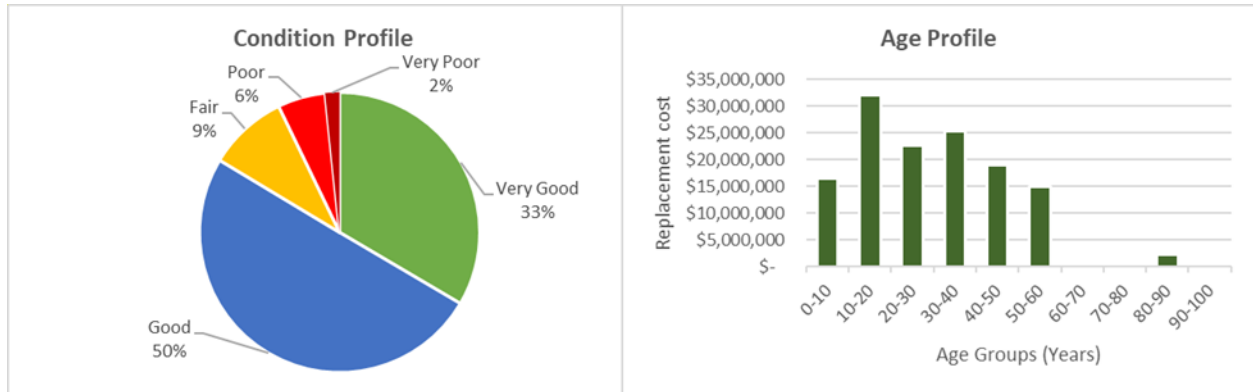


Figure 6: Condition and Age Profile – Utility Assets

83% of utility assets (by value) are in good or very good condition.

2.3.3 LONG-TERM RENEWAL FORECAST

The following graph provides a high-level summary of forecast asset renewal costs by year and by service delivery. This information is intended to provide context to decision-makers on the overall level of investment required to sustainably fund asset renewals for any forecast period up to 100-years. Note that more detailed analysis at the asset level and assessment of project options would be required for determining budgets for individual capital renewal projects. Note also, that this forecast is based on the age and condition of the assets and includes only renewals and not capital improvement projects or capital new assets.

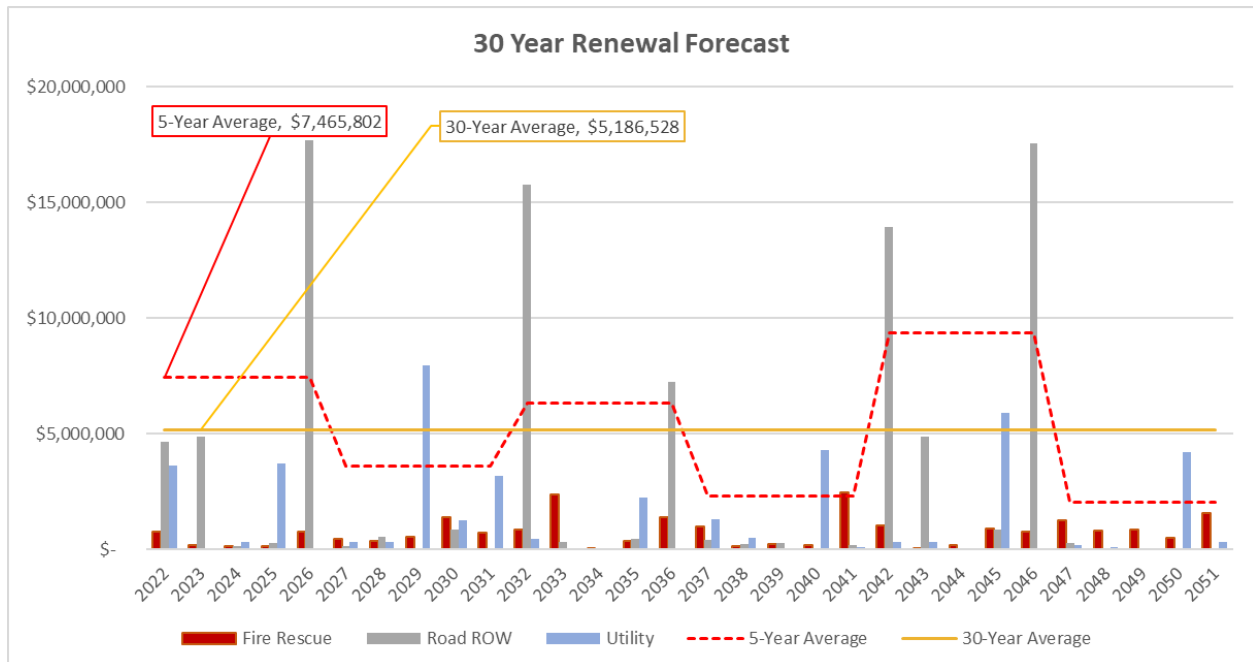


Figure 7: 30-year Forecast for Asset Renewals by Service

The current estimated backlog of asset replacements is approx. \$7.5M.

For Fire Rescue assets, based on the current inventory and condition estimates, there are over \$2.5M worth of assets to be replaced in the first year of the forecast period. The renewals comprise of \$2.5M of fleet, \$60k of SCBA cylinders and \$40k of thermal imagers.

For Road ROW assets, based on the condition results, there is approximately \$5M worth of assets to be replaced in the first year of the forecast period. The renewals comprise of \$1.2M worth of road renewals, \$300K worth of sign renewals, and \$3.5M worth of sidewalk replacements. Note however, that the condition assessments for signs and sidewalk is based on age and not a measured condition from inspections, therefore the actual renewals required might be significantly less. It is recommended the Town invest time in completing physical condition assessments of signs and sidewalks to confirm renewal requirements and expected lifespan and remaining life of these assets.

# 3 MANAGE SERVICE DELIVERY

## 3.1 LEVEL OF SERVICE

Details for stakeholders and level of service needs are provided in the Service AMPs. The following sections provide a corporate summary of key service criteria, performance measures, targets, and results.

### 3.1.1 KEY SERVICE CRITERIA AND PERFORMANCE TARGETS

#### FIRE RESCUE

**Table 6: Levels of service performance measures (Fire Rescue)**

Service Criteria	Performance Measures			
	Technical	Current	Customer	Current
Availability	Average response time	TBD	Average firefighter turnout	TBD
Compliance	Annual report	TBD	Training records	TBD
	PPE annual inspection	TBD	Firehouse statistics Inspection reports	TBD TBD
Coordination	Call response time	TBD	Stakeholder feedback	TBD
Good Stewardship	Cost per capita	TBD	Asset management plan	TBD
			Injury statistics	TBD
			# of fatality of staff	TBD
Risk & Safety	# public education events	TBD	# inspections at locations with high risks	TBD
			# of fire	TBD
Service Reliability	Arrival rate	TBD	Appropriate gear on site for event	TBD

#### ROAD ROW

**Table 7: Levels of service performance measures (Road ROW)**

Service criteria	Performance measure			
	Customer	Current	Technical	Current
Availability	Percentage of bridges with loading or dimensional restrictions	5%		
Compliance			Logs	
Connectivity	Customer feedback	TBD		
Consistency and effective coordination			Integrated projects	
Good stewardship			Asset management plan	Available
Quality			Average PCI Average BCI	Avg PCI = 72 Avg BCI = 71
Reliability	Travel time			

Service criteria	Performance measure			
	Customer	Current	Technical	Current
Safety			Crash history	

UTILITY

Water

Table 8: Levels of service performance measures (Water)

Service Criteria	Performance Measures			
	Technical	Current	Customer	Current
Cost efficiency	Operating budget for water service	\$2,323,540	Annual cost to provide water service (\$/household)	\$648
Cost efficiency	10-year average water linear asset renewal budget as a % of replacement value	TBD		
Safety	# of watermains attributed to causing a fire flow deficiency	0	% of community with sufficient fire flow protection	100%
Safety	% compliance with all applicable water quality regulations	100%	% of community with acceptable risk of experiencing adverse water quality	100%
Safety	# of confirmed adverse water quality tests	0		
Quality	% of system serviced by sources that provide substandard water	0%		
Quality	% of system that is unlined CI/DI	0%	# of complaints due to rusty/discoloured water	1
Quality	% of system with low pressure	0%	# of complaints due to low pressure	4 (since 2016)
Reliability	% of watermains in poor or very poor condition	9.2%	% of customers where service is interrupted above target frequency	TBD
Reliability	% of facility assets in poor or very poor condition	0%		
Reliability	% of critical assets below target condition	TBD		
Reliability	% of non-critical assets below target condition	TBD		
Reliability	# of WM breaks	15		
Reliability	# of watermains above target break rate	5		
Reliability	# of watermains prone to frozen water services	1		

Service Criteria	Performance Measures			
	Technical	Current	Customer	Current
<i>Reliability</i>	# of unplanned failures resulting in service interruption/reduction	15		
<i>Environmentally conscious</i>	Infrastructure Leakage Index (ILI)	TBD	Water consumption L/cap/day	262
<i>Scope</i>			% of residents satisfied with water services	TBD

### Wastewater

**Table 9: Levels of service performance measures (Wastewater)**

Service Criteria	Performance Measures			
	Technical	Current	Customer	Current
<i>Cost efficiency</i>	Operating budget for wastewater services	\$1,195,375	Cost to provide service (\$/household)	\$533
<i>Cost efficiency</i>	Annual operating and maintenance cost/km of sewer	\$1,937		
<i>Cost efficiency</i>	10 Year average wastewater linear asset renewal budget as a % of replacement value	29.0%		
<i>Reliability</i>	km of sewers in poor or very poor condition	3.04km	# of customers that experience a service interruption	15
<i>Reliability</i>	% of sewers in poor or very poor condition	4%		
<i>Reliability</i>	% of the system surcharged within 1.8 m of the ground elevation during a 25-year wet weather event	TBD		
<i>Reliability</i>	% of the system with adequate resiliency to accommodate the impacts of climate change	TBD		
<i>Reliability</i>	# of sewers with operational issues likely to cause service interruptions	0%		
<i>Reliability</i>	% of preventative maintenance activities completed on schedule	TBD		
<i>Reliability</i>	# of locations with FOG issues or prone to blockages	TBD		
<i>Environmentally conscious</i>	# of overflow occurrences	2	% of wastewater flows that meet environmental objectives when discharged	100
<i>Environmentally conscious</i>	Total volume of untreated wastewater discharged into the natural environment via sewer network overflows within past 12 months	2995.8m <sup>3</sup>		
<i>Environmentally conscious</i>	% compliance with all applicable regulatory requirements	100		

Service Criteria	Performance Measures			
	Technical	Current	Customer	Current
Scope			% of residents satisfied with the wastewater system	TBD

### 3.1.2 LEVEL OF SERVICE PERFORMANCE RESULTS

In this first CAMP, few comparisons can be made between current level of service performance and historical performance. Some of the level of service criteria have not previously been measured. It is recommended that a simple traffic light or tachometer type of infographic be used with a trending arrow to compare LOS performance for each Service AMP. The following is provided as an example only. The gauge indicates the overall LOS performance is very good and the trend arrow shows that it has improved from the previous CAMP. This allows understanding at a glance across many service areas.



## 3.2 RISK PROFILE

Details for assessment of service risks and asset criticality are provided in the Service AMPs. The following sections provide a corporate summary of results for service-level risks and asset-level risks.

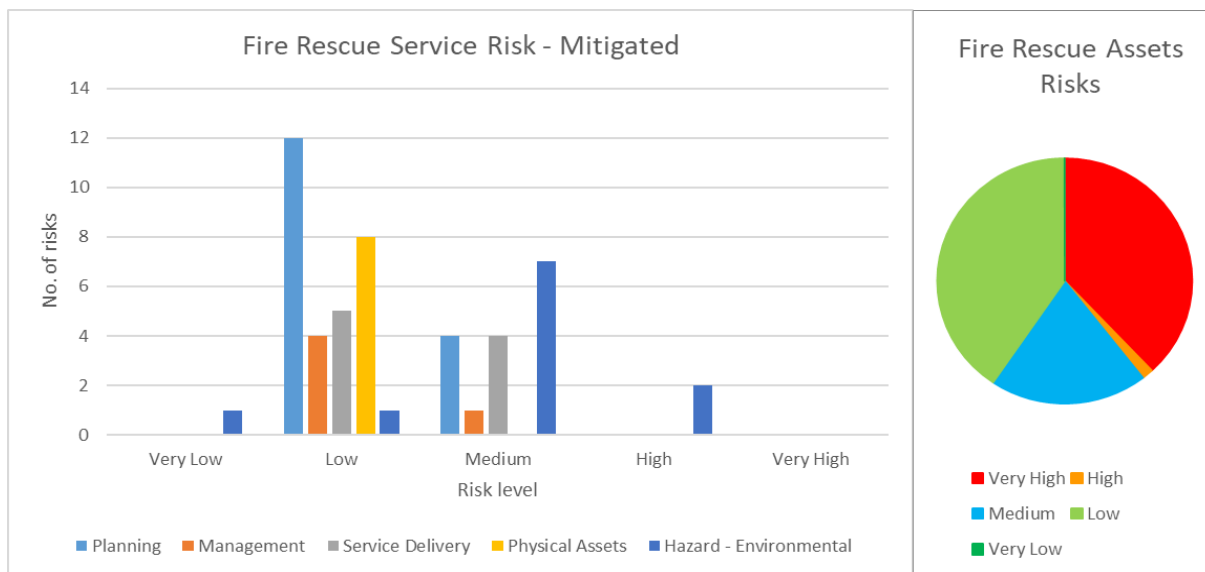
### 3.2.1 SERVICE-LEVEL AND ASSET-LEVEL RISK

Service risks are characterized by the impact to service delivery and the likelihood of that impact event occurring. The Town assessed the service level risks that are relevant to each service and where appropriate, identified mitigation measures to be implemented to reduce risks.

Asset level risks are calculated by multiplying the consequence of failure for each asset with the likelihood of that asset failing.

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

#### FIRE RESCUE



**Figure 8: Mitigated service level risk and Asset level risk– Fire Rescue**

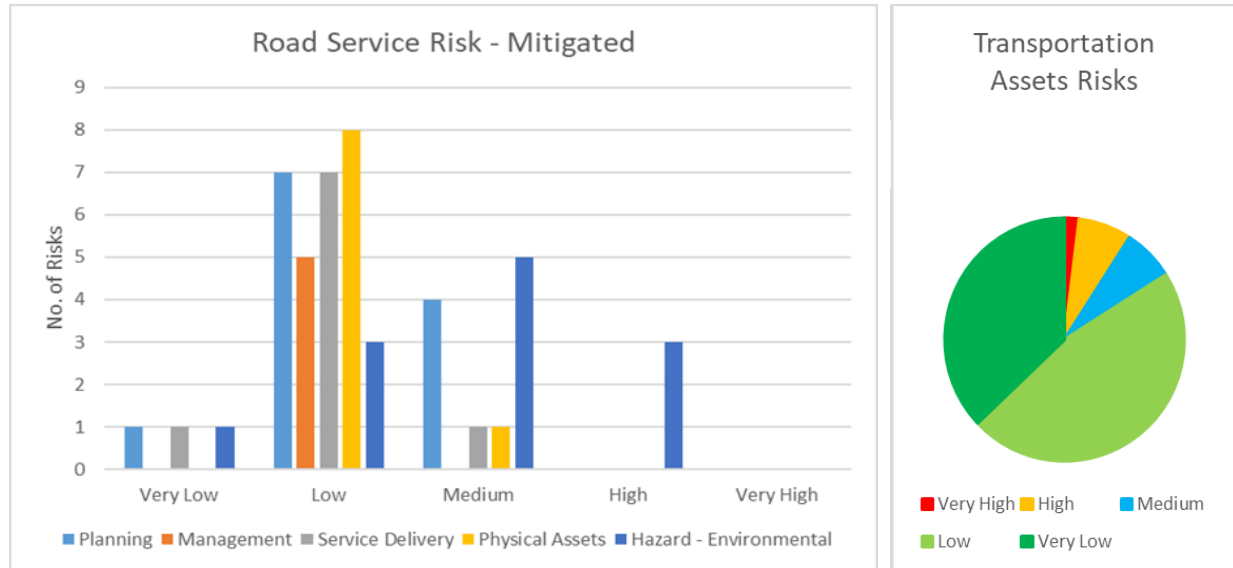
Figure 8 shows Fire Rescue’s residual service risks following planned mitigation. The two remaining high-risk events are related to flooding and extreme snowfall. The Town has protocols in place to activate Fire Service from neighbouring authorities to assist with service delivery in an extreme weather or other emergency event. However, these two remaining high-risk events require further mitigation planning.

The asset risk results shown in Figure 8 indicate a notable number of high-risk assets. these are in the firefighting and personal protective equipment, and fleet assets. Almost all Fire Service assets have the same criticality rating, so the high-risk rating typically reflects assets that are nearing the end of their expected useful life and therefore have a higher likelihood of failure than other Fire Service assets.

The assets at high risk are mitigated through a replacement program driven by regulation. However, highly critical assets that are in the last 1-3 years of their expected lifespan will always show as being high risk, even with the mitigation of the replacement program. This is appropriate as it promotes awareness and active management of those assets to prevent unexpected failure in those last few years before replacement.

## ROAD ROW

### Road



**Figure 9: Mitigated service level risk and Asset level risk– Road**

Figure 9 shows the road's mitigated service risks following the planned mitigation. The remaining 2 high-scoring service risks relate to the potential of extreme or prolonged wet weather, snow and cold temperatures affecting the road and associated assets such as signals and signs. These risks are mitigated in part through the Town's minimum maintenance standards, but further mitigation measures are required. The 2 risks that scored very high relate to potential flooding events due to lake level rise. These risks still require mitigation planning.

The results of the asset risk ratings in Figure 9 show that there are some very high-risk assets in roads, sidewalks, and signs. Most of these high-risk assets are sign assets that are estimated to be older than their useful lifespan. However, this estimation is based on install dates that for most signs have been assumed and are not known with certainty. The high and very high risks associated with roads and sidewalks has been determined by their remaining life based on physical condition and are therefore deemed accurate.

To mitigate the sign assets rated high and very high for asset level risks, it is recommended that the Town review the condition of all signs and update expected lifespan and remaining life values.

### Storm

Figure 10 shows the storm's mitigated service risks following the planned mitigation. The Town has plans in place for development growth to mitigate planning risks and currently monitors resource levels to manage needs. For the management, delivery, asset, and environmental risks, the Town plans to increase condition inspections and operational activities on some of the key stormwater assets. These actions may further mitigate some of the high risks, but this will not be evident until the inspections and activities have been implemented and the risks are re-assessed.

Asset-level risks for stormwater assets is included in Figure 9.



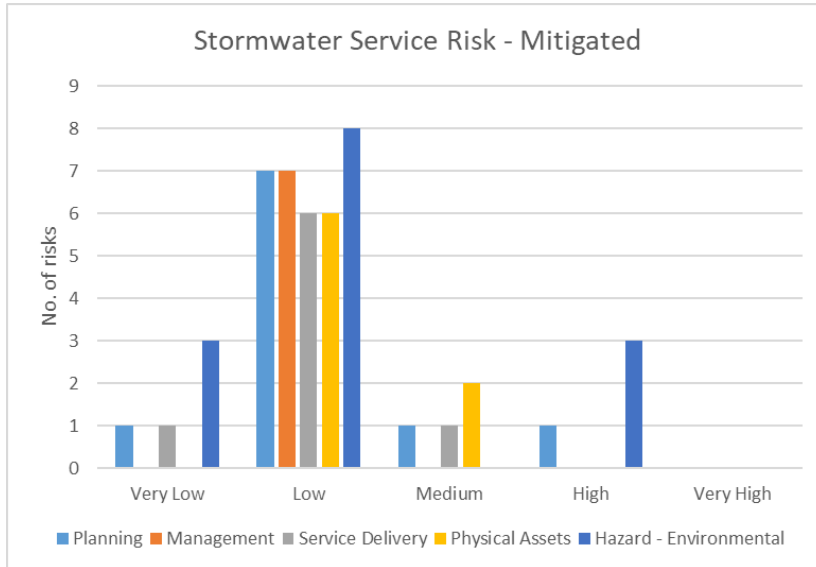


Figure 10: Mitigated service-level risk and asset risk– Storm

UTILITY

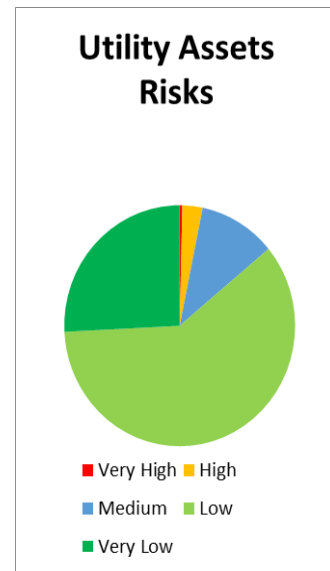
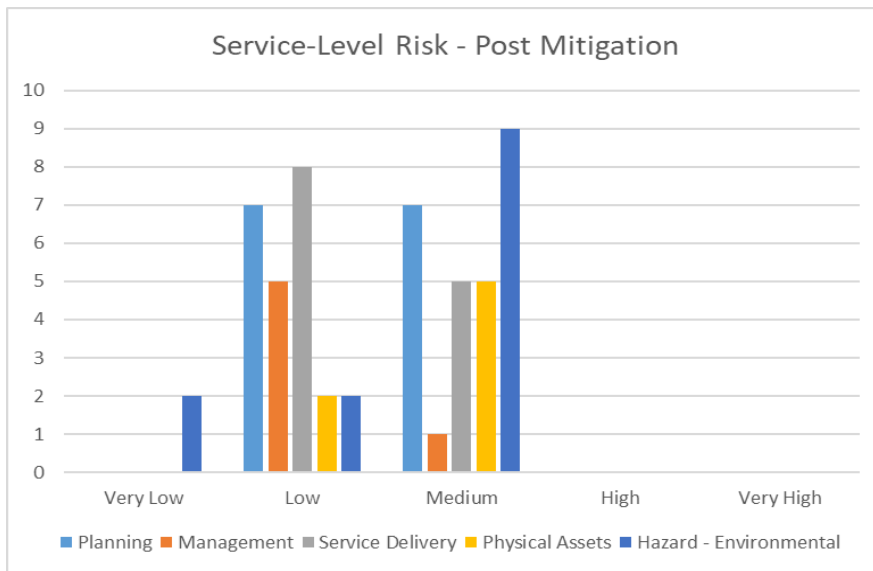


Figure 11: Mitigated service level risk and Asset level risk– Utility

Figure 11 shows the Utility’s residual service risks following planned mitigation. If all mitigation actions are undertaken, there will be no remaining high or very high service level risk.

The asset risk results shown in Figure 11 indicate a small number of very high and high risk assets (4%). These are mostly large mains and mains that connect to long-term care homes, pressure reducing valves and sewer pipes and maintenance holes that service long-term care home that are nearing the end of their useful life. The assets at high risk are mitigated through a replacement program

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## 3.3 RESOURCE NEEDS

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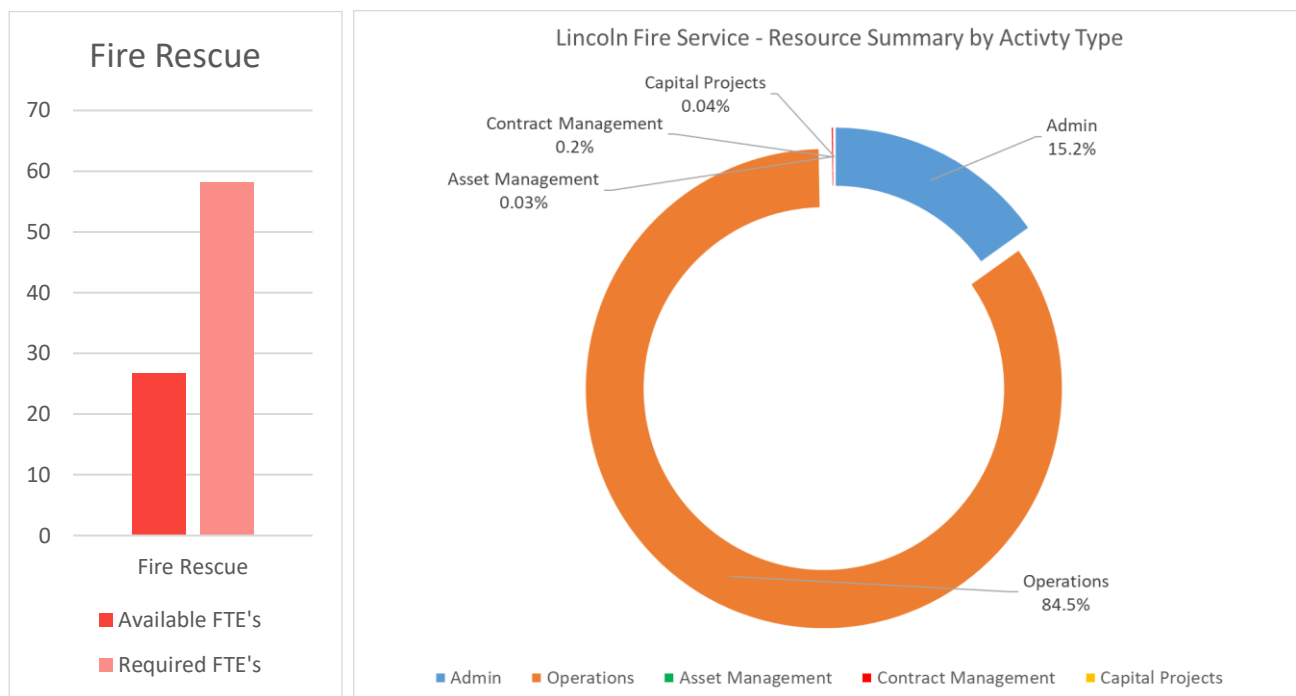
### 3.3.1 CURRENT RESOURCE REQUIREMENTS

The following diagrams report the comparison between required resources to deliver the level of service and current resource availability.

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#### FIRE RESCUE

Approximately 85% of Fire Rescue resources are required for operational activities and 15% for administration to maintain delivery of the required level of service.



**Figure 12: Summary of resource needs and activity type**

Although resources for fire prevention are very close to requirements for current service levels, there are insufficient volunteer fire fighters. Also, other activities assigned to the Fire Chief, Deputy Chief, and Emergency Manager that are required to deliver service levels cannot be completed within the current capacity (available hours).

The Town is currently piloting a project to share Fire Services with Grimsby and a Fire Safety Master Plan will be developed that could address some of the estimated resource gap.

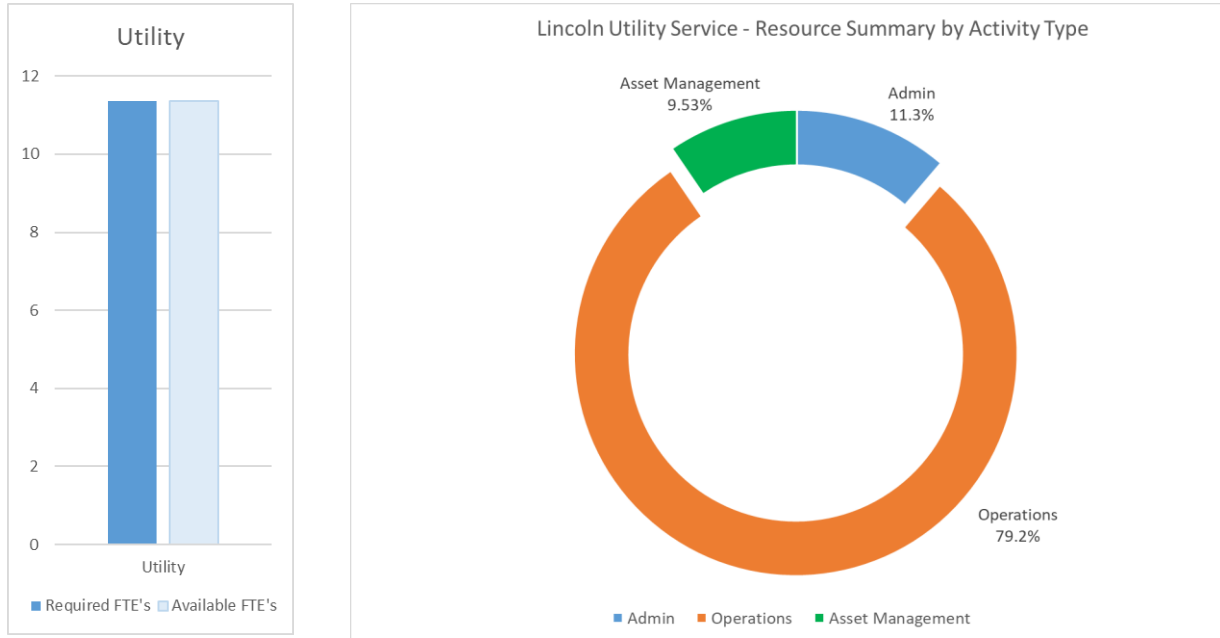
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#### ROAD ROW

The resource planning tool has not been used by Road ROW to define resource needs yet. This is a proposed improvement activity for the next Road ROW AMP and when completed the results will be reported in the next CAMP update.

## UTILITY

Approximately 80% of Utility resources are required for operational activities, 11% for administration and the remaining 9% is allocated to asset management.



**Figure 13: Summary of Resource Needs and Activity Type**

Current resourcing for the Utility Service is sufficient to meet the requirements to deliver the service.

### 3.3.2 RESOURCE STRATEGY AND ACTION PLAN

The following table summarizes the resource strategy and action plans collated from the available Service AMPs

**Table 10: Resource Strategy and Action Plan**

Service	Strategy	Task	Priority
<i>Fire Rescue</i>	Confirm resource gap from measured data.	Compare the estimated hours allocation against actual recorded hours from recent years to confirm if the Fire Chief, Deputy Fire Chief and the volunteers are under-staff.	High
	Resolve resource gap using a combination of approaches	<ul style="list-style-type: none"> <li>- Reassess activities and reduce resource demand wherever possible</li> <li>- Obtain additional resources and reassign activities</li> <li>- Outsource some activities under contract</li> <li>- Share activities with neighbouring authorities or agencies</li> </ul>	High

Service	Strategy	Task	Priority
		<ul style="list-style-type: none"> <li>- Reduce service level (usually this is not desired, and reduction is limited under legislation)</li> </ul>	
<i>Road ROW</i>	TBD	TBD	
<i>Utility</i>	Continue monitoring resources needs	Refine resourcing needs further and compare the estimated hours allocation against actual recorded hours from recent years to confirm if current allocation is sufficient.	High

# 4 FUTURE READY

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## 4.1 DEMAND MANAGEMENT

The following table provides a summary of high demand risks for each service and the mitigation strategies to manage these.

Service	High Demand Risks	Mitigation Strategy
<i>Fire Rescue</i>	Aging population	<ul style="list-style-type: none"><li>- New firehall is currently being designed to address the forecasted change in demand</li><li>- Town is piloting a project to share Fire Services with Grimsby and a Fire Safety Master Plan will be developed</li></ul>
	Increase in population	
<i>Road ROW</i>	Increase in assets to service growth and development.	<ul style="list-style-type: none"><li>- No specific mitigation measure identified at this stage</li><li>- General mitigation includes to annually revise the demand risk as mitigation measures are implemented and at least annually to update for changes in demand drivers.</li></ul>
<i>Utility</i>	Increase in population	<ul style="list-style-type: none"><li>- Upgrading affected areas of the network to cope with increased demand</li><li>- Reviewing sources of I/I and identifying appropriate mitigation</li></ul>

## 4.2 RESILIENCY AND ADAPTATION

The resilience of our critical infrastructure is vital to our customers and the services we provide. To adapt to changing conditions and grow over time we need to understand our capacity to respond to possible disruptions and be positioned to absorb disturbance and act effectively in a crisis to ensure continuity of service. Resilience is built on aspects such as response and recovery planning, financial capacity and crisis leadership.

### Growth

Asset management planning must consider potential future impacts on the services being delivered. Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices can include non-asset solutions, insuring against risks and managing failures.

### Climate Change

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 following climatic threats were identified as top priority for the Town of Lincoln:

- Increased variability in temperature and precipitation
- More frequent and/or severe freezing rain events
- More frequent and/or severe extreme weather events
- More heavy rainfalls
- More frequent and/or severe drought events
- More days above 30C

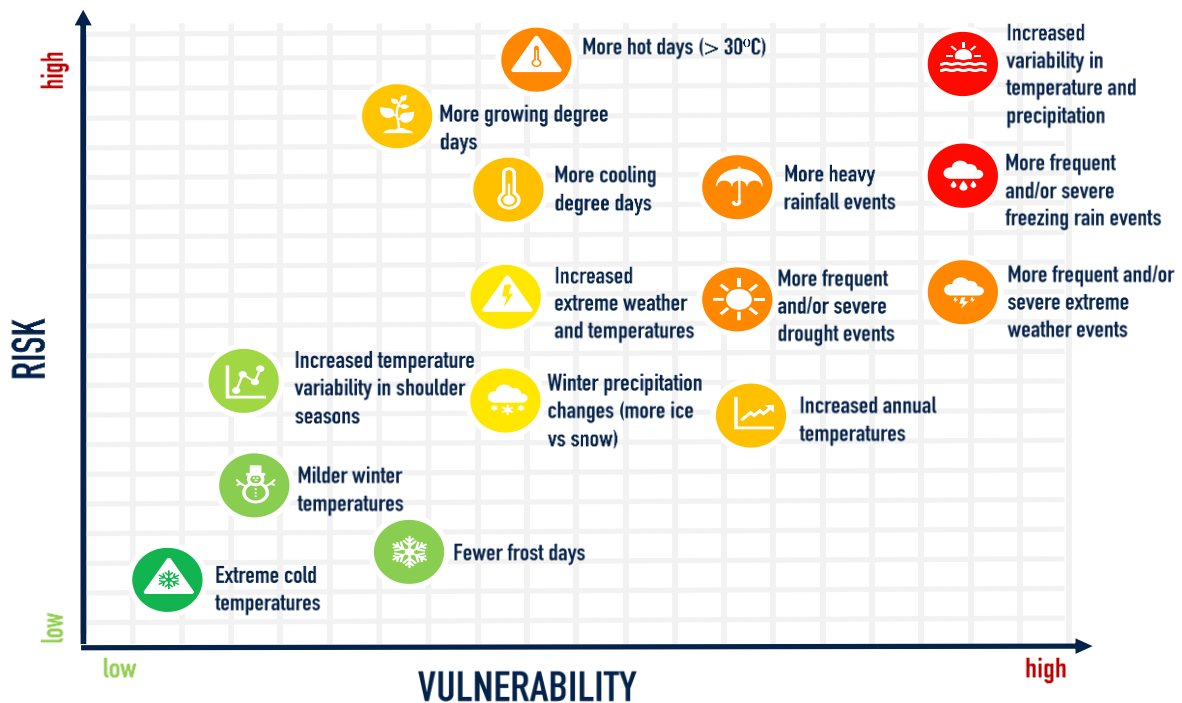


Figure 15: Risk and Vulnerability











Resiliency and Adaptation Strategies

High Demand Risks	Mitigation Strategy
<i>Growth</i>	<ul style="list-style-type: none"><li>- Extend service life of assets by increased maintenance techniques</li><li>- Apply earlier intervention treatments with lower cost to increase asset service lives</li><li>- Accept reduced service level</li><li>- Eliminate non-essential services</li><li>- Obtain additional / alternate revenues</li></ul>
<i>Climate</i>	<ul style="list-style-type: none"><li>- Integrate climate change consideration into Town strategies, plans, policies, procedures, and operations</li><li>- Increase resiliency &amp; adaptive capacity within economic development, community services, parks, &amp; recreation</li><li>- Protect natural resources, promote ecosystem services, &amp; minimize environmental degradation</li><li>- Mitigate harmful consequences of extreme weather &amp; emergency events</li><li>- Consider climate change impacts in built infrastructure &amp; asset management</li><li>- Increase climate change literacy among staff &amp; public</li></ul>

## 4.3 SUSTAINABILITY

Service Sustainability has been determined using an assessment tool (SSAT) which reviews and rates key aspects of service delivery, good governance, and strong finances. The assessment highlights where service sustainability may be threatened and provides feedback on performance of business practices that contribute to service sustainability.

The assessment results are summarized below.

Service Area		Current Performance	Preparedness for the Future	Overall Sustainability
	Water	78%	79%	
	Wastewater	72%	82%	
	Drainage and Flood Protection	56%	37%	
	Transportation	70%	46%	
	Fire Protection	76%	83%	

**Figure 16: Current Sustainability Status**

### *FIRE RESCUE*

#### **Current Sustainability**

The results for the Town's current sustainability performance for fire rescue scores 76%. This current performance is based on the following key themes:

- Training is up-to-date, equipment is well maintained, and stations are appropriately distributed
- Water supply is reliable
- Proactive approach to fire prevention is performed in the community
- The emergency communication system is reliable
- There is sufficient revenue and reserves to fund capital projects
- There is citizen engagement for major infrastructure projects with very few complaints

#### **Future Preparedness**

The results for the Town's future preparedness for fire rescue scores 83%. The preparedness for the future is based on the following key themes:

- There is a recruitment and retention strategy in place
- The Town follows a formal preventative maintenance program
- Comprehensive long-term financial plan based on up-to-date information
- Policies are in place to guide decision making



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## ROAD ROW

### Drainage and Flood Protection (Stormwater)

#### **Current Sustainability**

The results for the Town's current sustainability performance for drainage and flood protection scores 56%. From a service delivery perspective, the drainage network is of a size that meets current demands, but the condition of half the drainage infrastructure is fair. Financially, there are enough reserves to fund improvements and renewals.

#### **Future Preparedness**

The results for the Town's future preparedness for drainage and flood protection scores 37%. Whilst there are existing processes and procedures to manage water run-off and limits to impervious areas, a number of plans require updates to better manage flood protection and renewal forecasting.

### Road

#### **Current Sustainability**

The results for the Town's current sustainability performance for transportation scores 70%. From a service delivery perspective, the transportation network is in good condition, and provides multi-modal transportation options. There are sufficient reserves to fund improvements and renewals, and citizen engagement is well planned.

#### **Future Preparedness**

The results for the Town's future preparedness for transportation scores 46% and 37% for stormwater. Existing community and transportation master plans are in place to support active transportation and increase multi-modal transportation options throughout the Town.

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## UTILITY

### Water

#### **Current Sustainability**

The results of the Service Sustainability Assessment show that the current level of sustainability of the water service is 78%. From a service delivery perspective, the water service is reliable with no major disruptions occurring and water quality meets legislative requirements. Water supply is accessible for Town residents, but greenbelt restrictions prevent accessibility for rural residents. Financially, there are sufficient reserves to fund renewals and there are reliable revenue sources to ensure sustainable operations.

#### **Future Preparedness**

The results for preparedness for the future for the water service is 79%. The Town has an up-to-date master water plan and a formal preventative maintenance plan in place. Both of these are fully funded. Climate change impacts have been considered in design standards and operations and maintenance practices.

## Wastewater

### **Current Sustainability**

The results of the Service Sustainability Assessment show that the current level of sustainability of the wastewater service is 72%. For service delivery, the wastewater service is reliable and a high proportion of the system in good condition but there are rural residents that do not have access to the wastewater system due to greenbelt restrictions. Financially, there are sufficient reserves to fund the financial plan and the Town has a reliable source of revenue for sustainable operations.

### **Future Preparedness**

The results for future preparedness for the wastewater system are 82%. The Town has an up-to-date wastewater master plan and a formal GHG reduction plan in place, and funding sufficient to fully implement plans is available.

# 5 FINANCIAL SUMMARY

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## 5.1 CONTEXT FOR INFORMATION IN THIS SECTION

This section provides an overview of the forecasted expenditures for 2022-2031, including:

- Renewal of existing assets
- Upgrades
- Operations and maintenance

Three data sources have been used for the financial summary.

1. The Town's proposed 2022-2031 Capital Plan includes proposed asset renewals and upgrades already identified by the Town. Upgrade projects include upsizing and improvements of existing assets as well as new assets to support growth. This proposed Capital Plan is currently being reviewed and has not been approved by Council yet.
2. The forecasted renewal of existing assets from the state of infrastructure analysis in each service area AMP is included for comparison purposes with the Town's proposed 2022-2031 Capital Plan. The state of infrastructure asset renewal forecasts are based on the current asset inventory and estimated remaining service life for each asset.
3. The forecasted operational costs were sourced from the 2021 Operational Budget.

A financial plan and review of forecasted revenues is currently underway and will be included in the next iteration of this plan and compared with forecasted expenditures.

## 5.2 FINANCIAL FORECAST AND STRATEGY

### FIRE RESCUE

#### Proposed 2022-2031 Capital Plan

The proposed Capital Plan includes a total budget for the 10-year capital forecast period of \$7 million for renewal of existing assets as shown in Figure 17.

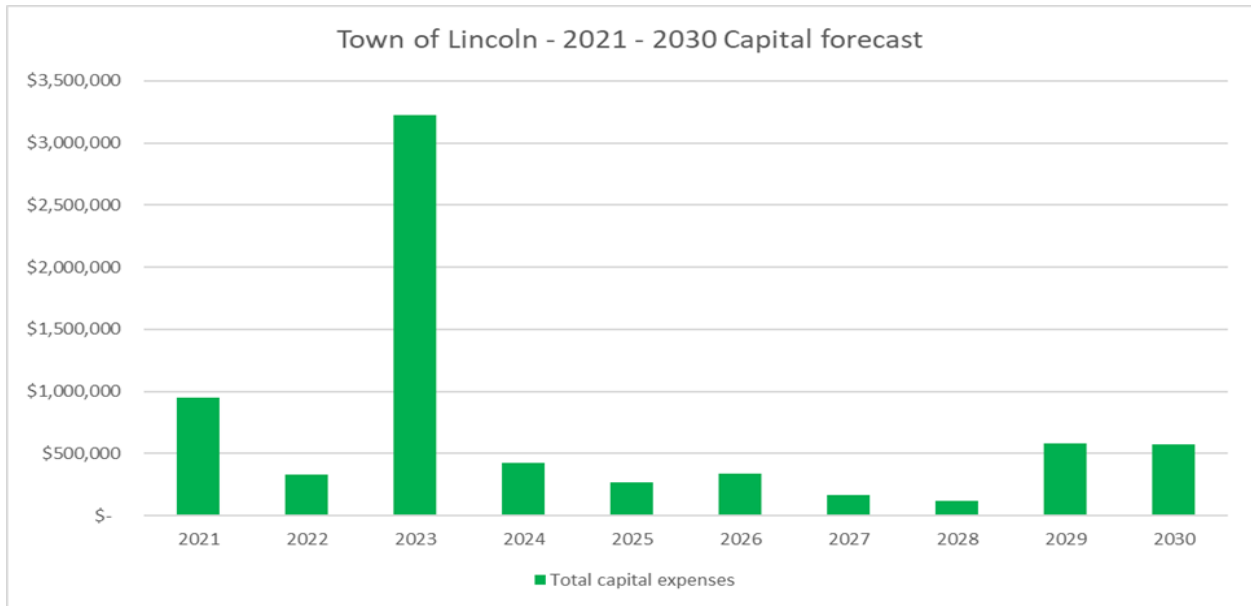


Figure 17: Fire Rescue 10-year renewal forecast (Proposed Capital Plan)

#### State of Infrastructure Asset Renewal Forecast

Figure 18 shows a comparison of the forecast renewal and rehabilitation projects in the 2022-2031 proposed Capital Plan to the forecast asset renewals identified in the State of Infrastructure.

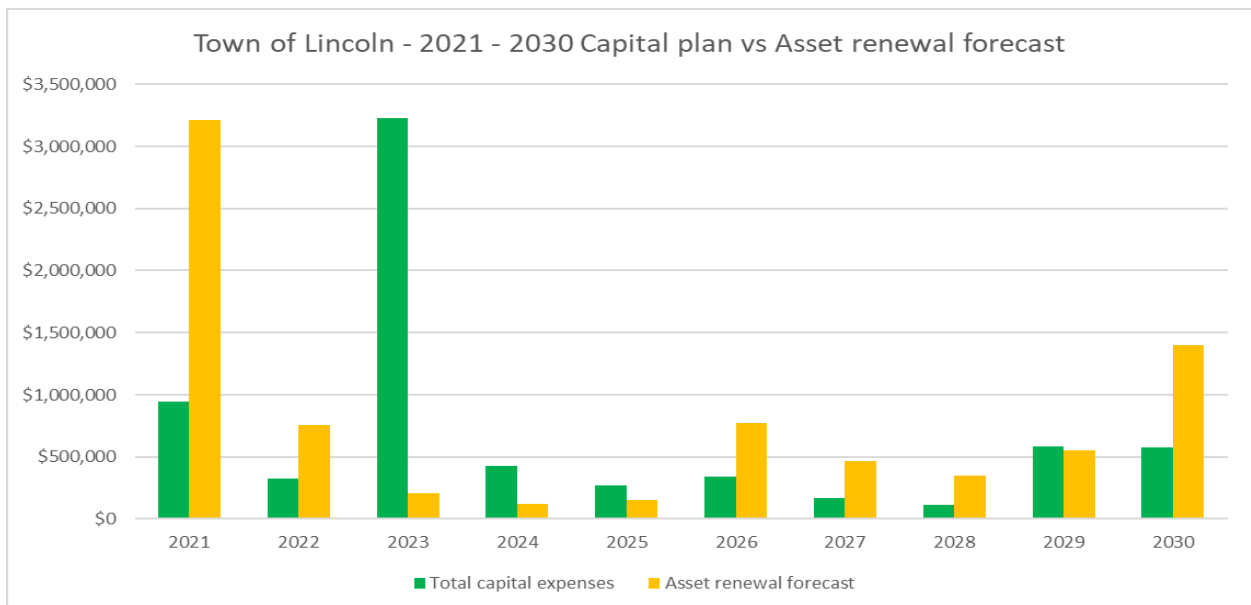


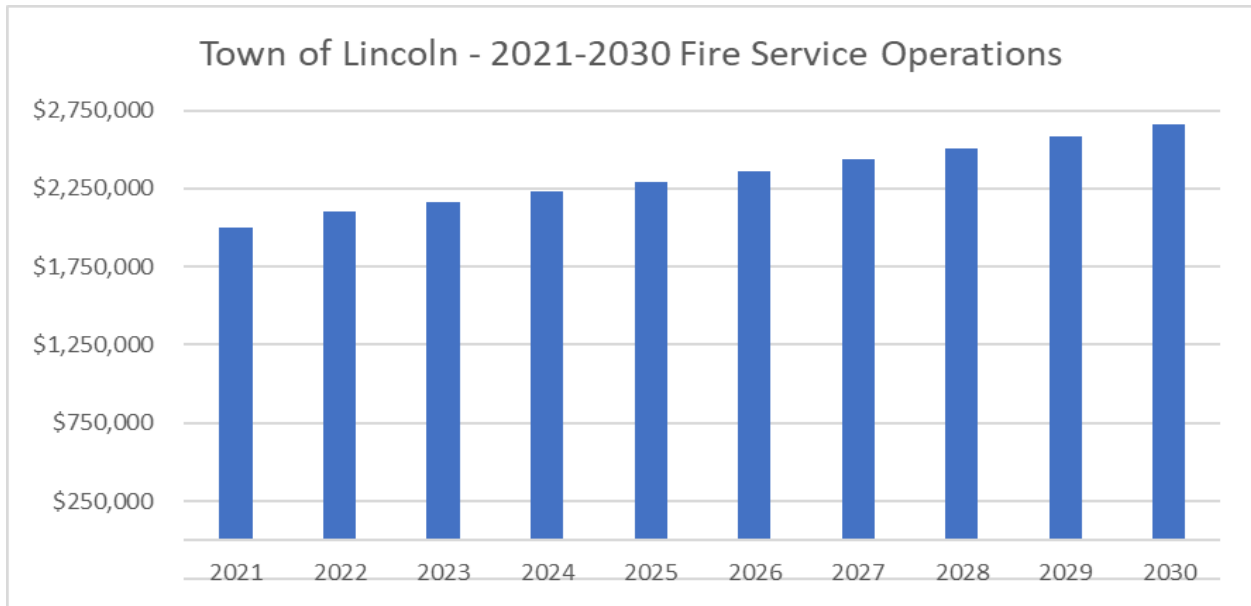
Figure 18: Fire Rescue - Comparison between the 10-year proposed capital plan and the SOI renewal forecast

The Proposed Capital Plan includes projects based on lifecycle and renewals based on observed condition or operational concerns while the State of Infrastructure forecast is based on current inventory and remaining useful life.

The total 10-year Proposed Capital Plan for renewals of existing assets is very similar to the 10-year renewal forecast from the State of the Infrastructure forecast with minor variations on timing of renewals.

*2021-2030 Operations and Maintenance Forecast*

The operations and maintenance forecast in Figure 19 shows the proposed funding allocated for operations and maintenance activities to be completed on Fire Rescue assets over the next 10 years. The values have been estimated using an escalation factor of 3% per annum to reflect expected growth.



**Figure 19: Fire Rescue – 10-year operations and maintenance budget**

ROAD ROW

Proposed 2022-2031 Capital Plan

The proposed Capital Plan includes a total budget for the 10-year capital forecast period of \$125 million for renewal of existing assets as shown in Figure 20.

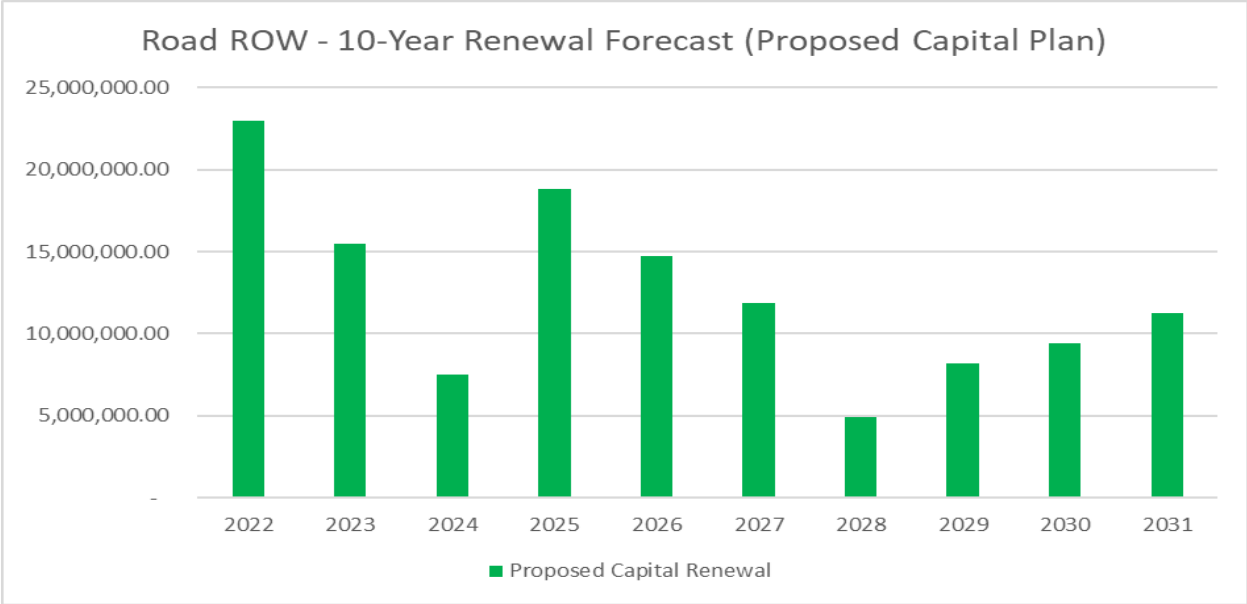


Figure 20: Road ROW 10-year renewal forecast (Proposed Capital Plan)

Figure 21 shows the 10-year forecasted upgrades of existing and new assets as identified in the proposed Capital Plan. These include new assets added to the road ROW network as well as upgrades to support growth, improvements, and augmentation of the existing infrastructure.

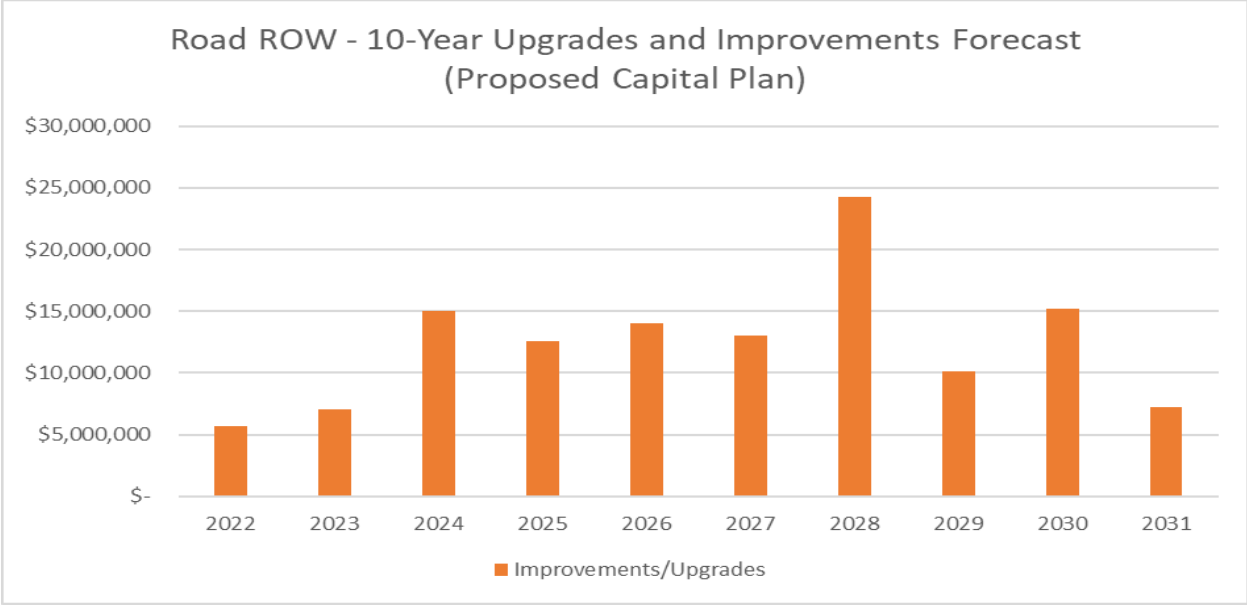
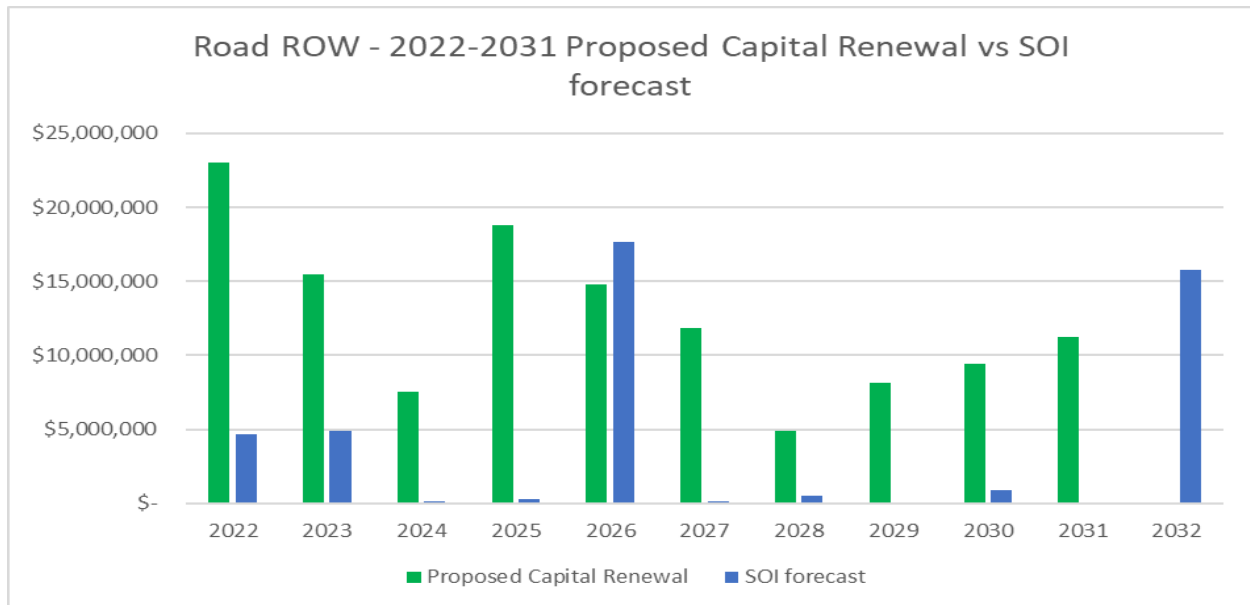


Figure 21: Road ROW 10-year upgrades and new assets forecast (Proposed Capital Plan)

### State of Infrastructure Asset Renewal Forecast

Figure 22 shows a comparison of the forecast renewal and rehabilitation projects in the 2022-2031 proposed Capital Plan to the forecast asset renewals identified in the State of Infrastructure. The Proposed Capital Plan includes projects based on lifecycle and renewals based on observed condition or operational concerns while the State of Infrastructure forecast is based on current inventory and remaining useful life.

The total 10-year Proposed Capital Plan for renewals of existing assets is approximately 4 times higher than the 10-year renewal forecast from the State of the Infrastructure forecast (\$125M vs \$29M). Some of the renewal projects have been driven by growth, expansion, or coordination with wider renewal projects. It is recommended that completeness and accuracy of the inventory is reviewed, and the age-based renewal forecast updated.



**Figure 22: Comparison between the 10-year proposed capital plan and the SOI renewal forecast**

### 2021-2030 Operations and Maintenance Forecast

The operations and maintenance forecast in Figure 23 shows the proposed funding allocated for operations and maintenance activities to be completed on road ROW assets over the next 10 years. The values between 2023 and 2031 have been estimated using an escalation factor of 3% per annum to reflect expected growth.

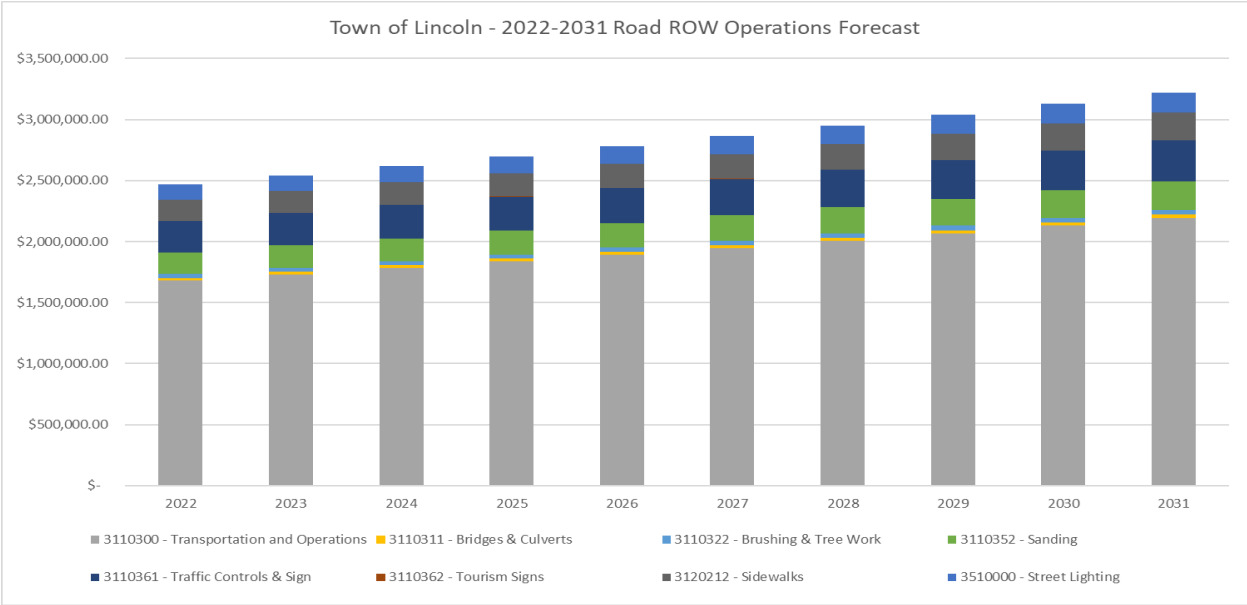


Figure 23: Road ROW – 10-year operations and maintenance budget

UTILITY

Proposed 2022-2031 Capital Plan

The proposed Capital Plan includes a total budget for the 10-year capital forecast period of \$55.4 million for renewal of existing assets as shown in Figure 24, with \$20.4 million allocated to wastewater related renewals and \$34.8 million to water related renewals.

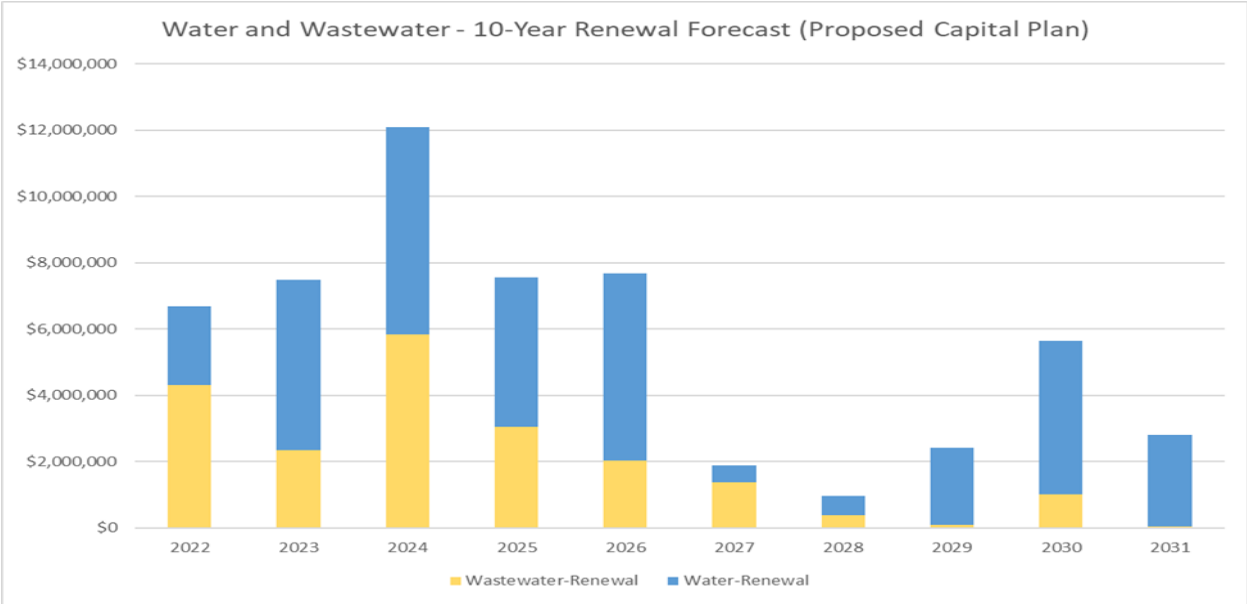


Figure 24: Utility 10-year renewal forecast (Proposed Capital Plan)

Figure 25 shows the 10-year forecasted upgrades of existing and new assets as identified in the proposed Capital Plan. These include new assets added to the Utility network as well as upgrades to support growth, improvements, and augmentation of the existing infrastructure.



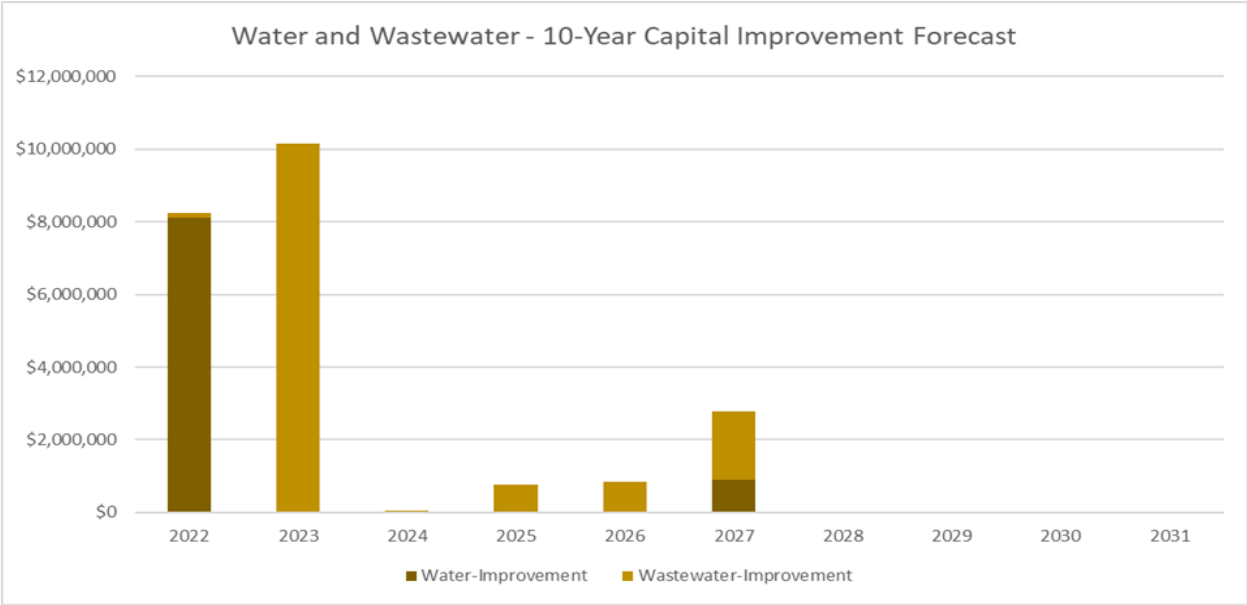


Figure 25: Utility 10-year upgrades and new assets forecast (Proposed Capital Plan)

State of Infrastructure Asset Renewal Forecast

Figure 26 shows a comparison of the forecast renewal and rehabilitation projects in the 2022-2031 proposed Capital Plan to the forecast asset renewals identified in the State of Infrastructure. The Proposed Capital Plan includes projects based on lifecycle and renewals based on observed condition or operational concerns while the State of Infrastructure forecast is based on current inventory and remaining useful life.

The total 10-year Proposed Capital Plan for renewals of existing assets is approximately 2.5 times higher than the 10-year renewal forecast from the State of the Infrastructure forecast (\$55.2M vs \$20.7M). Some of the Utility renewal projects have been driven by growth, expansion, or coordination with wider road renewal projects. In these instances, the water or wastewater asset may not be at the end of its useful life but to minimize disruption to users and avoid duplicating reinstatement efforts, the water or wastewater assets may be renewed before the asset reaches the end of its useful life.

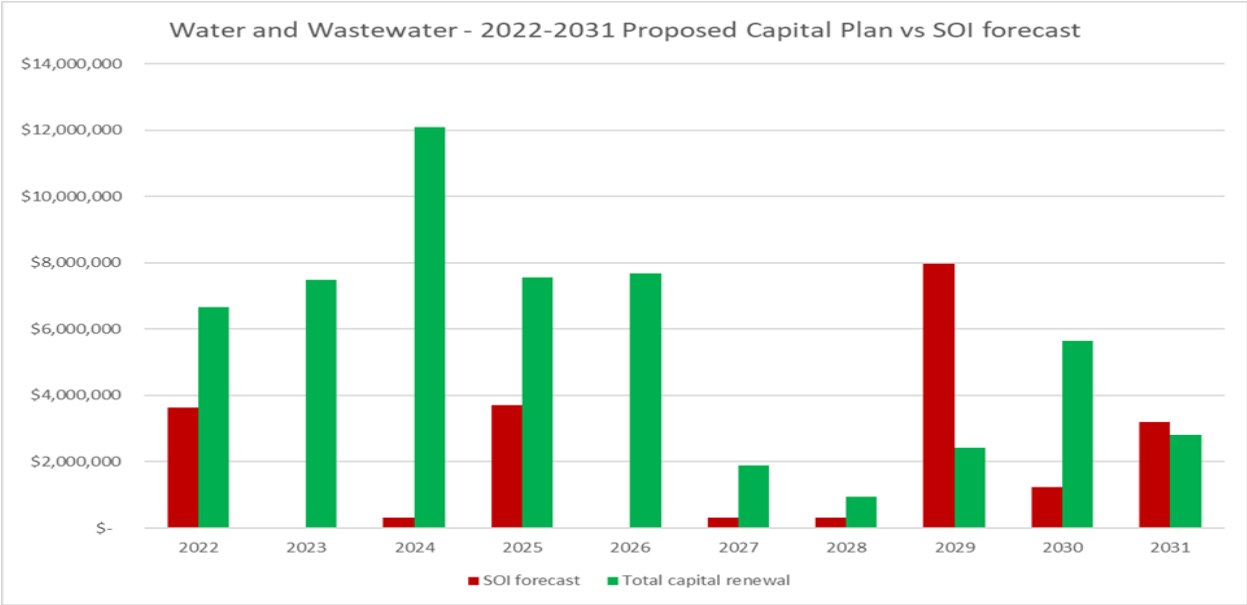
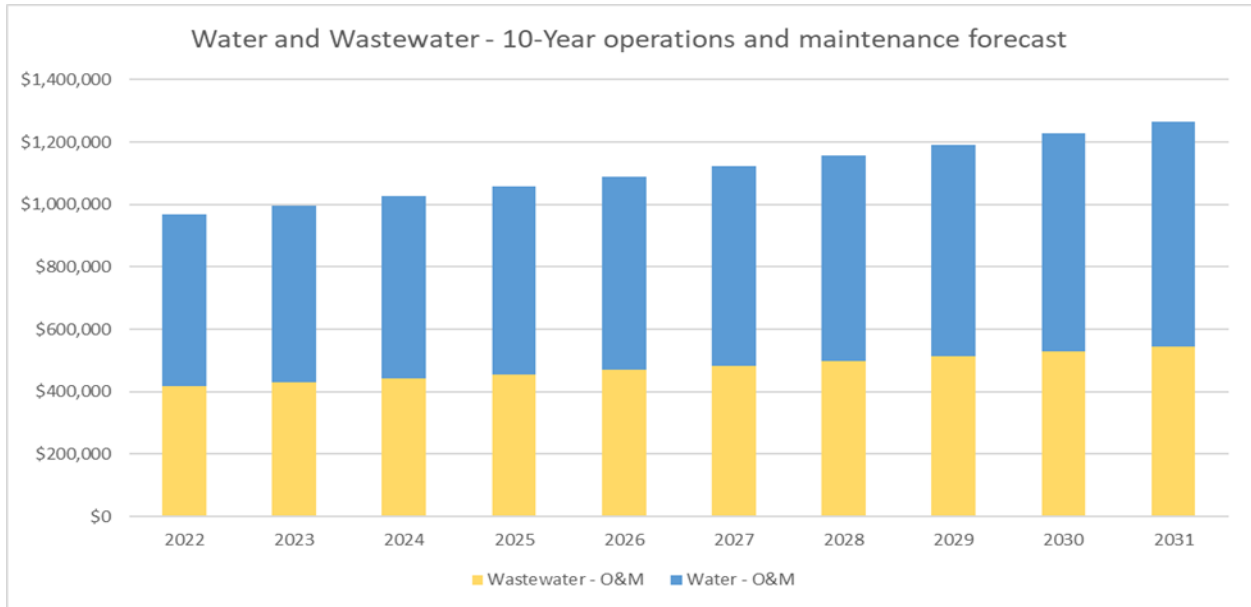


Figure 26: Utility - Comparison between the 10-year proposed capital plan and the SOI renewal forecast

2021-2030 Operations and Maintenance Forecast

The operations and maintenance forecast in Figure 27 shows the proposed funding allocated for operations and maintenance activities to be completed on Utility assets over the next 10 years. The values between 2023 and 2031 have been estimated using an escalation factor of 3% per annum to reflect expected growth.



**Figure 27: Utility – 10-year operations and maintenance budget**

# 6 CONTINUOUS IMPROVEMENT

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## 6.1 AM MATURITY ASSESSMENT & IMPROVEMENT TASKS

To evaluate service area capabilities and develop a work plan to improve asset management maturity, an assessment of asset management practices was completed in 2020. The results are scored from 1 to 4 based on eight key improvement categories:

- Leadership and Commitment
- Financial Capacity
- Know Your Assets
- Know Your Financial Situation
- Understand Decision Making
- Manage Asset Lifecycle
- Know the Rules
- Monitor Sustainability

The assessment method facilitates benchmarking the level of asset management practices across service areas. It also allows staff to re-evaluate their asset management business practice maturity at any time in the future, and report progress achieved.

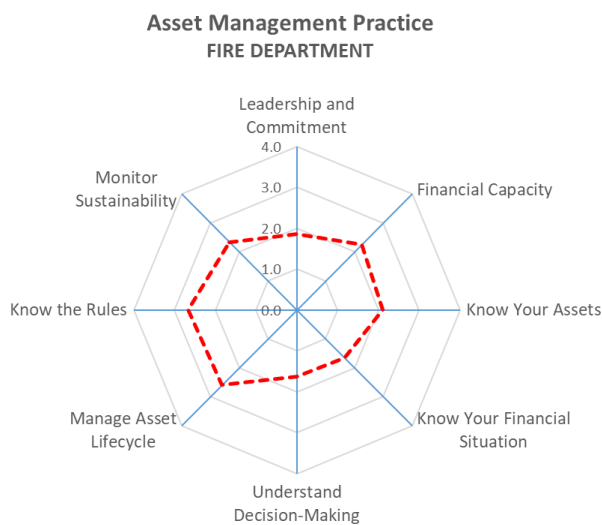
In addition to documenting current state and business practices, the asset management plan for each service provides recommended improvement tasks. These improvement tasks will:

- Increase the level of understanding of the assets and services provided
- Improve the accuracy of financial forecasts and risk assessments
- 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.

Results for the AM maturity assessment for each service and the high priority improvement tasks identified during the development the Asset Management Plans are provided in the following sections.

## Fire Service

Figure 28 provides a radar chart completed in 2020 that shows the maturity scores of the Fire Service.



**Figure 28: Maturity assessment - Fire Service 2020**

Table 11 reports the high priority improvement tasks identified in the Asset Management Plan for Fire Rescue.

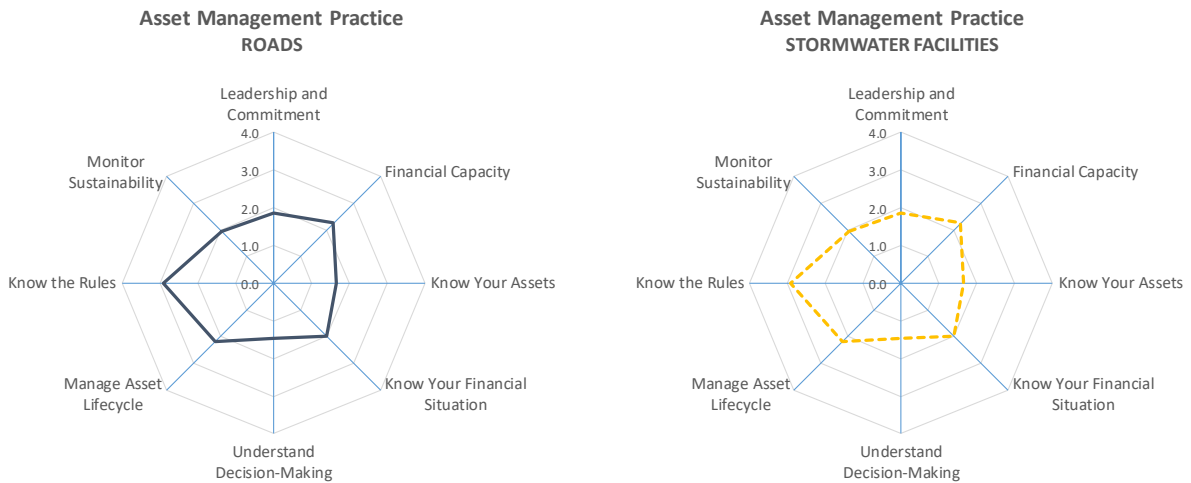
**Table 11: Asset management plan improvement tasks – High priorities (Fire Rescue)**

Task Ref from AMP	AM Practice Area	Task Description	Task Priority
1	Asset Data	Address duplicate asset identifiers by either assigning a different asset identifier if the duplicate entries are in fact different asset or by removing the duplicate if they are the same asset	High
3	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: <ul style="list-style-type: none"> <li>Developing a data standard and data hierarchy to ensure consistency</li> <li>Develop a plan to populate missing asset attribute data</li> <li>Develop roles and assign responsibility of the management of data</li> <li>Adopt a database software to host data and have a single source of truth</li> </ul>	High
4	Levels of service	Collect and collate a minimum of one year of data for each performance measure that has been identified	High
5	Levels of service	Set targets for each performance measure based on measured results or regulatory requirements as appropriate	High
7	Lifecycle strategies	Update the lifecycle strategies with any new strategies identified as asset change or technology improves	High
8	Lifecycle strategies	Develop lifecycle strategies for any new assets that become part of the Fire Service.	High

Task Ref from AMP	AM Practice Area	Task Description	Task Priority
11	Resources	Compare the estimated hours allocation against actual recorded hours from recent years to confirm if the Fire Chief, Deputy Fire Chief and the volunteers are under-staff.	High
15	Finance	Develop a process to long-term budgeting decisions to be made that consider costs of service delivery and meeting levels of service.	High
18	Finance	Review unit rates at a minimum for each new iteration of the asset management plan and update replacement costs as appropriate	High

**ROAD ROW**

Figure 29 provides radar charts completed in 2020 for the maturity scores for Road ROW services.



**Figure 29: Maturity assessment – Road and Stormwater 2020**

Table 12 reports the high priority improvement tasks identified in the Asset Management Plan for Road ROW.

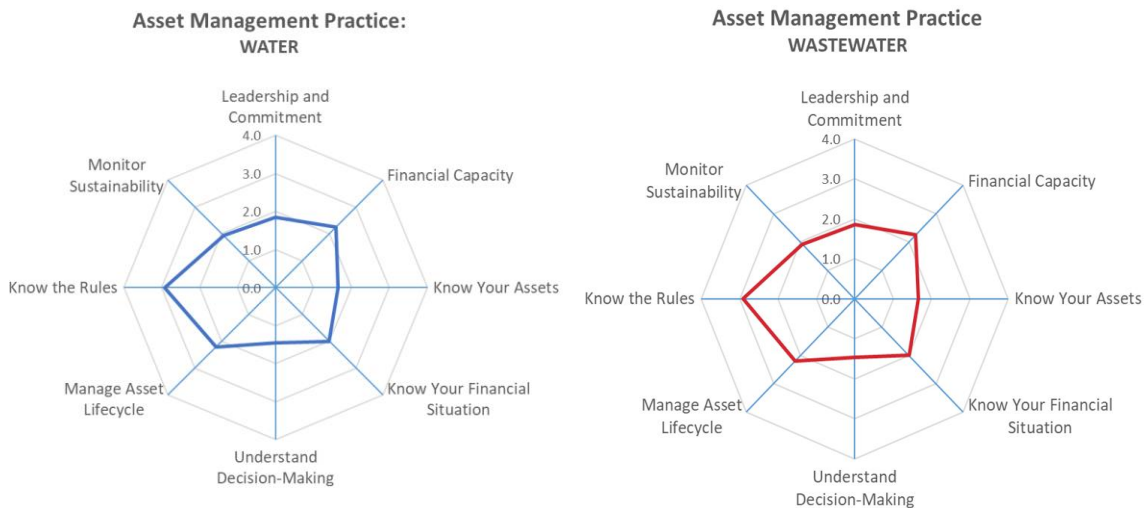
**Table 12: Asset management plan improvement tasks – High priorities (Road ROW)**

Task Ref from AMP	AM Practice Area	Task Description	Task Priority
1	Asset Data	Assign the RIMS identifier to all datasets so that asset groups are better aligned.	High

Task Ref from AMP	AM Practice Area	Task Description	Task Priority
2	Asset Data	<p>The Town have completed an assessment of their asset data across all service areas and developed a data management plan that contains recommendations including:</p> <ul style="list-style-type: none"> <li>• Developing a data standard and data hierarchy to ensure consistency</li> <li>• Develop a plan to populate missing asset attribute data</li> <li>• Develop roles and assign responsibility of the management of data</li> <li>• Adopt a database software to host data and have a single source of truth</li> </ul>	High
4	Level of Service	Collect and collate a minimum of one year of data for each performance measure that has been identified	High
5	Level of Service	Set targets for each performance measure based on measured results or regulatory requirements as relevant.	High
7	Level of Service	<p>Identify appropriate analysis to satisfy the requirements from OReg 588/17 pertaining to stormwater management, namely:</p> <ul style="list-style-type: none"> <li>• areas protected from flooding</li> <li>• properties resilient to a 100-year storm</li> <li>• percentage of the stormwater management system resilient to a 5-year storm</li> </ul>	High
10	Risk	Develop and implement mitigation strategies for all high or very high service level risks and track their effectiveness.	High
11	Risk	Complete condition assessments on assets to improve understanding of likelihood of failure for asset level risks. Where asset level risks remain high or very high, add assets into renewal or rehabilitation programs.	High
13	Resources	Complete resource assessment as described in this section and populate the asset management plan.	High
20	Finance	Develop a process to track and separate operations, preventative and reactive maintenance, and inspections costs.	High
21	Finance	Develop a process to track and separate capital renewals and rehabilitation costs from capital upgrades, improvements, and new assets.	High
22	Finance	Review possible source of funding sources to allow sufficient availability for capital projects.	High

Utility

Figure 30 provides radar charts completed in 2020 for the maturity scores for Water and Wastewater services.



**Figure 30: Maturity assessment Water and Wastewater Service 2020**

Table 13 reports the high priority improvement tasks for Water and Wastewater services identified in the Asset Management Plan.

**Table 13. Asset management plan improvement tasks – High priorities (Water and Wastewater)**

Action No.	AMP Section	AM Practice Area	Task Description	Action Priority
1	2	Asset Data	Align asset identifiers for sewer mains in sanitary asset data with identifiers in condition assessment information. Update asset register with condition data every 5 years as per the asset management policy and revise the state of infrastructure section in the next iteration of asset management plan.	High
2	2	Asset Data	Update water asset inventory to componentize water booster stations (e.g., building or chamber assets, electrical and controls, pumps, valves, flow monitor, generator).	High
3	2	Asset Data	Update inventory to reflect current assets, including addressing any data gaps in the current inventory and adding any assets not captured, for example hydrants and sewer laterals.	High

Action No.	AMP Section	AM Practice Area	Task Description	Action Priority
4	2	Asset Data	<p>Implement the recommendations included in the Data Management Plan, in particular:</p> <ul style="list-style-type: none"> <li>• Developing a data standard and data hierarchy to ensure consistency</li> <li>• Develop a plan to populate missing asset attribute data</li> <li>• Develop roles and assign responsibility of the management of data</li> </ul> <p>Adopt a database software to host data and have a single source of truth.</p>	High
7	2	Asset Data	Review unit costs against recent construction projects and market rates relevant at the time of the update.	High
8	3.1	Level of service	Review levels of service to determine if they are relevant and useful to support decision-making, in particular the ones where performance is not currently measured.	High
9	3.1	Level of service	Develop an approach for collecting and collating data / information for each performance measure that has been identified.	High
10	3.1	Level of service	Review existing targets and set targets for the performance measure where a target is currently not defined based on measured results or regulatory requirements as appropriate. This may include improving work order management system to support identification of LOS targets.	High
13	3.3	Risk	Complete condition assessments on assets to improve understanding of likelihood of failure for asset level risks. Where asset level risks remain high or very high, add assets into renewal or rehabilitation programs.	High
14	3.3	Risk	Review and revise asset level risks in State of Infrastructure Dashboard and report in next iteration of this Asset Management Plan. This includes considering 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.	High
20	5	Finance	Incorporate the financial sections with update revenues, including reserves forecast once the financial plan is completed.	High
21	5	Finance	Develop a structured process for long-term budgeting decisions to be made considering costs of service delivery and meeting levels of service.	High



Action No.	AMP Section	AM Practice Area	Task Description	Action Priority
22	5	Finance	Review unit rates at a minimum for each new iteration of the asset management plan and update replacement costs as appropriate.	High
23	5	Finance	Update the asset management plan with the 10-year capital forecast once approved by Council.	High

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## 6.2 IMPLEMENTATION PLAN

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### 6.2.1 IMPLEMENTATION PLAN APPROACH AND GOALS

The Town will adopt a continuous improvement approach. A continuous improvement approach includes a process for regular review and adjustment to keep the asset management plan 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).

Each phase of this four-step process is described below, starting with the implementation or 'Do' phase for this asset management plan as the development of this AMP was the first iteration of the 'Plan' phase.

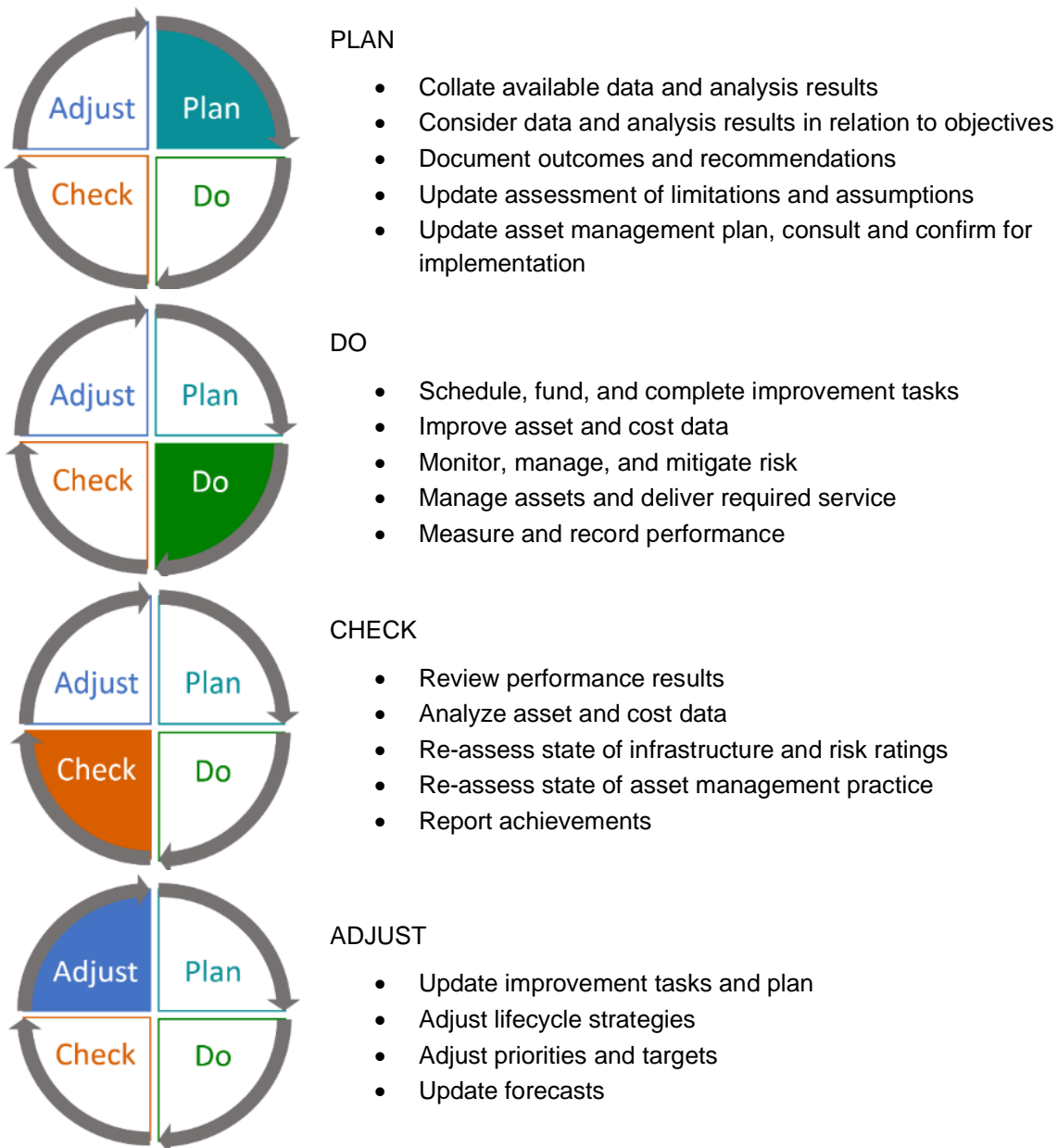


Figure 31: Continuous Improvement Cycle

The four-step continuous improvement process outlined in Figure 31 can be used by the Town as a guide to generate on-going iterative improvements to the asset management plan and all business processes for the management of the assets and the delivery of the service, and to facilitate responsible adaptation to change.

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. The timing for the asset management plan update is preferably prior to the annual budget process. This will facilitate consideration of outcomes and inclusion of updated forecasts into the financial planning process.

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## **6.2.2 CHANGE MANAGEMENT STRATEGY AND ACTION PLAN**

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### **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 path 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 its people and changing an organization's culture takes time. People have different tolerances for embracing change and by identifying champions for change and empowering them to deliver results can be an effective strategy for change. 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 14 includes some sample reasons why people resist change, sample scenarios, as well as strategies to minimize staff resistance.

**Table 14: Reasons why people resist change, and strategies to minimize resistance**

Reasons People Resist the Change	Anticipated Scenario	Strategy to Minimize the Resistance
<i>Parochial self interest – Individuals are concerned with the implications for themselves</i>	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.
<i>Misunderstanding due to miscommunication or inadequate information</i>	Asset management can sound like a large undertaking, and some may not understand it.	When communicating, keep it simple. Leverage subject matter experts
<i>Low tolerance for change due to a sense of insecurity or lack of patience</i>	People may fear that their jobs are being replaced by technology.	Highlight that it is an opportunity for development.
<i>Different assessment of the situation – disagree over the need for change or the advantages.</i>	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.
<i>Individual challenges with implementing the change</i>	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.
<i>Loss in momentum</i>	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.

## GENERAL CHANGE READINESS ASSESSMENT

### 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 15.

**Table 15: Sample change readiness assessment categories and components**

Category	Component
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<i>Employee readiness</i>	<ul style="list-style-type: none"> <li>-Awareness and perception of change</li> <li>-Support for and commitment to change</li> <li>-Understanding the ability to implement the required skills and behaviours</li> </ul>
<i>Organizational context</i>	<ul style="list-style-type: none"> <li>-Goals and alignment</li> <li>-Leadership Support</li> <li>-Organizational structure and culture</li> <li>-Authority and initiative for decision-making</li> <li>-Communication and engagement</li> <li>-Residual of previous change efforts</li> <li>-Resources available for the change</li> </ul>

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

*GENERAL CHANGE COMMUNICATION*

**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.

*GENERAL CHANGE PROCESS*

**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 AM can do for them creates a personal connection as they now understand how AM will make their role more effective.

## **Monitoring**

The Town should schedule a recurring monitoring schedule 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.

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### ***6.2.3 IMPROVEMENT PROGRAM SUMMARY***

The high-priority improvement items identified in the Asset Management Plans for individual service areas have been collated into a high-level summary roadmap for Corporate Asset Management improvements. Figure 32 shows the corporate improvement program summary for 3 years. Improvement plans for individual service areas are shown in Appendix A-1.

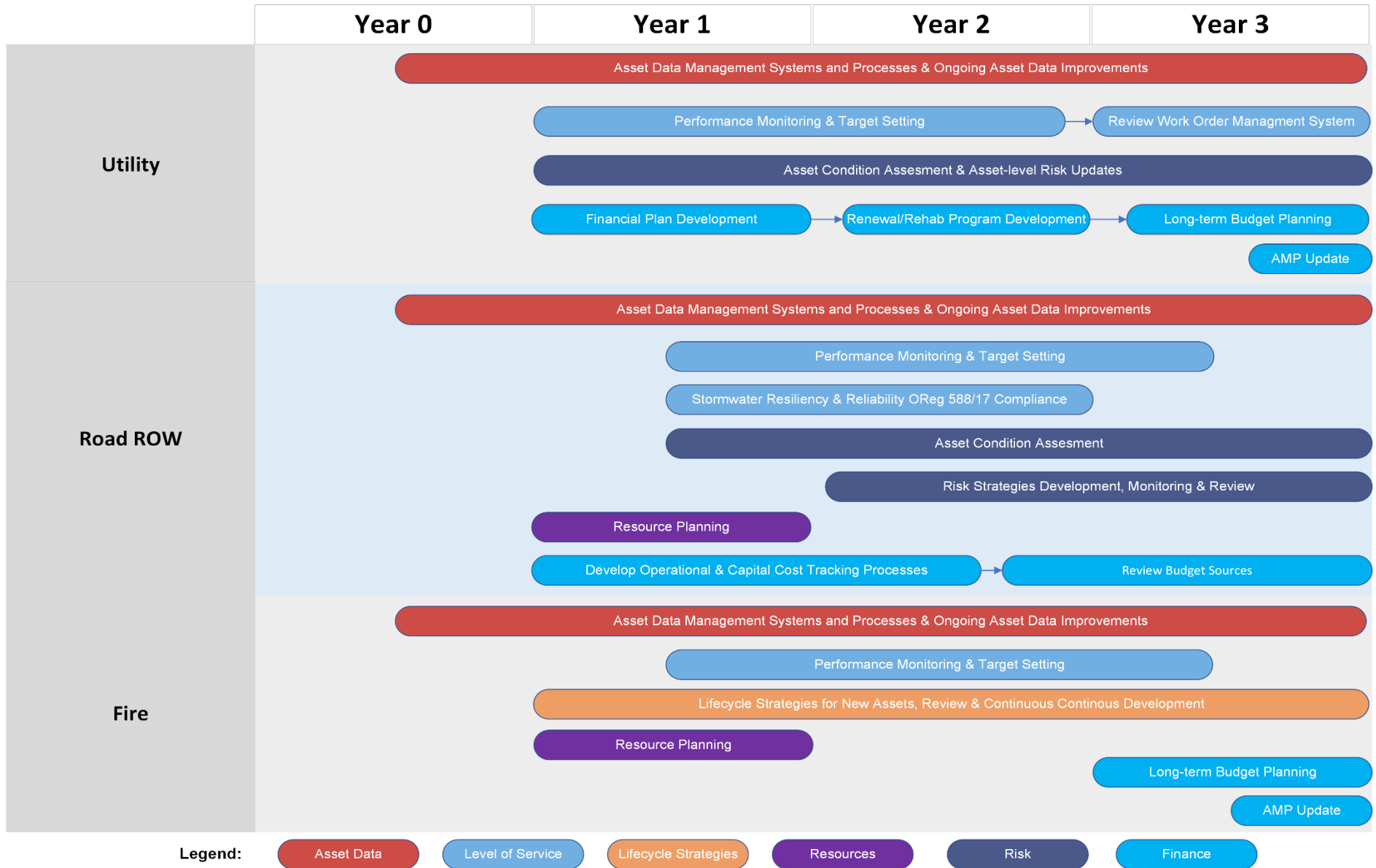


Figure 32: AM Improvement Program Summary





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# APPENDIX

# A SERVICE AREA IMPROVEMENT PLANS



