Asset Replacement Funding Plan Report

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Prepared For:

Final

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Introduction

Context

Before reviewing your asset replacement funding plan, it is important to understand the asset management environment across Canada to help provide context for this project and your local government. Historically, local governments have been very effective at financial planning for operation and maintenance costs, but many do not fully plan for the replacement of their capital assets. As a result, many local government assets are now nearing or at the end of their life and officials are left asking how they can financially plan for the replacement of these assets in a responsible manner. In short, you are not alone in your desire to improve the way you think about and plan for asset replacements.

Asset management has gained significant traction in recent years and national recognition across Canada, with organizations such as UBCM, GFOA, and FCM developing education and grant subsidy programs to support local governments in increasing their asset management capacity.

Improving your asset management capacity will present Village of Lions Bay with the invaluable opportunity to leave your community better than you found it, setting it up for long-term success and affording future generations the opportunity to continue to enjoy the great infrastructure your community enjoys today.

Introduction

What Is Asset Management?

Asset management is the process of integrating people, skills, and actions with information about the community's physical assets and financial resources to ensure long-term sustainable service delivery.

Figure A shows the BC Asset Management Framework, which is used to help guide local governments along their asset management journey. We will explore the Asset Management Framework in greater detail in subsequent sections of this report.

It is important to recognize that asset management involves many moving pieces, including financials, people, the assets, and information, which all work together to help sustainably deliver services.

It is also important to recognize that asset management is a continual improvement process. There is no right place to start or end on the framework; rather, the progression of the process is entirely based on the current state of the community and your unique objectives. Asset management capacity takes time to improve, but with time, investment, and dedication the development of solid asset management practices will enable you to set your community up for long-term success. Use this framework as a guide as you begin improve your AM capacity.

Figure A: Asset Management For Sustainable Service Delivery; A BC Framework

Introduction

Why is Asset Management Important?

There are many reasons why asset management is critical to local governments. Listed below are the five reasons that the Village of Lions Bay may find most significant:

1. Ensures that current and future community services needs are met.
2. Supports delivery of municipal services in a socially, environmentally, and economically responsible way.
3. Reflects a balance of trade-offs between available resources and desired services.
4. Helps prevent the need for large, one-off tax increases and encourages consistent tax increases.
5. Helps you leave your community better than you found it and ensures future generations have the opportunity to enjoy the same quality of infrastructure you enjoy today.

Asset Replacement Funding Plan

Background

After assessing Village of Lions Bay's strengths and weaknesses as it relates to asset management planning, it was determined that developing the Asset Replacement Funding Plan would have the highest impact on the organization based on current work to date and desired end goals.

The Project	The goal of this project is to achieve the following outcomes:
The Asset Replacement Funding Plan is focused on identifying the average annual replacement budget required to meet future risk and level of service performance targets. The asset replacement funding plan directly informs the funding levels in your five-year financial plan, five-year capital plan, and ~~your~~ long-term asset replacement financial strategy (Phase 2).	• Awareness: You will understand the importance of asset management and long-term financial planning. • Understand Risk and Level of Service: You will understand how to measure the trade-offs between risk, level of service, and funding levels. • Clarity: You will have clarity on the average annual asset replacement budget required to meet your future risk and level of service performance targets and achieve the desired future state of your community. • Confidence In Your Financial Future: You will be able to visualize the impact today's funding decisions have on your future.

Asset Replacement Funding Plan

Background

After working with various local governments across BC, we have identified some common challenges local governments faced when developing their asset management plans and long-term financial strategies:

Challenge 1: Unrealistic budgets	Challenge 2: Asset Management Plans remained unfunded	Challenge 3: Difficult to show trade-offs between risk and level of service	Challenge 4: Difficult to make funding decisions
We found that a majority of plans focused on setting unrealistic budgets, which left local government staff and council struggling to bridge their current funding gap.	We found that a majority of plans focused on setting replacement budgets, but these budgets were rarely integrated into a financial strategy, meaning the plans remained unfunded.	We found that significant analysis was needed to understand the trade-offs between risk, level of service, and funding targets, analysis that was often unaffordable for small and medium-sized local governments.	We found that most plans did not properly illustrate the future impact of funding decisions, which made it difficult to think long-term and instill confidence in the financial future.

After repeatedly confronting these challenges, we were inspired to explore potential solutions. From these efforts, we discovered a method to successfully eliminate these common challenges -- our Asset HealthScore Framework.

Asset Replacement Funding Plan

Background

Our Approach

The Asset HealthScore Framework (Figure B) is a unique and proven process that allows you to integrate and visualize the trade-offs between risk, level of service, and funding so you can set replacement budgets with confidence. The framework allows your organization to see the future impact of today's funding decisions and is ultimately a proven approach that helps local governments bridge their asset funding gap faster.

The framework consists of two core phases:

- Phase 1: **Asset Replacement Funding Plan** is focused on identifying the average annual investment required to meet your future risk and level of service goals. Phase 1 is focused on answering the question "What is our required funding level to sustain our assets based on our desired future state?".
- Phase 2: **Asset Replacement Financial Strategy** is focused on developing the financial strategy to bridge the funding gap. This strategy will help the organization understand how to move from current funding levels to the proposed funding levels developed in Phase 1 by considering reserves, debt, and affordability. Phase 2 will focus on answering the question "How will we move from our current funding levels to the set levels from the Asset Replacement Funding Plan (Phase 1).

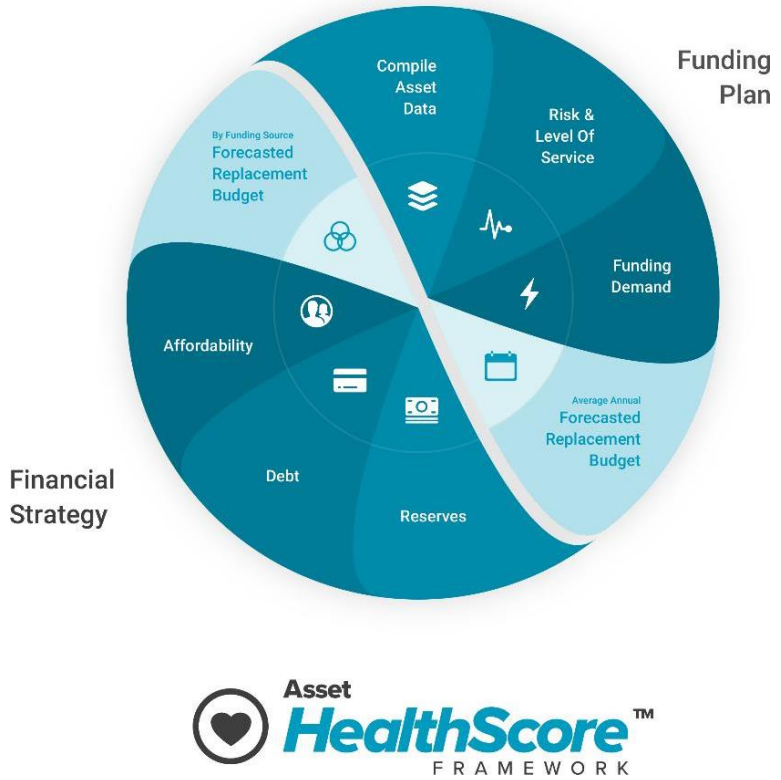


Figure B: Asset HealthScore Framework

Asset Replacement Funding Plan

Introduction

Phase 1: Asset Replacement Funding Plan Framework Steps & Outcomes

Below are the outcomes for each step of the Asset Replacement Funding Plan.

Step 1: Compile Asset Data	Step 2: Funding Demand	Step 3: Risk and Level of Service	Step 4: Forecasted Asset Replacement Budget
There will be an established and streamlined process to import your existing asset inventory data into the asset replacement funding model.	You will have a clear understanding of when assets are expected to pass their estimated life and how funding demand changes over time. This will help inform the forecasted asset replacement budget and how your risk and level of service KPI's will change over time.	Key performance indicators (KPI's) will be identified, calculated, and used to better understand risk and level of service. These KPI's will be used to help you measure and monitor progress over time and be used to show the impact funding decisions today have on your future risk & level of service	You will have clarity on the average annual asset replacement budget required to meet your future risk and level of service performance targets. This will provide a deeper understanding of the required funding levels to meet your desired future risk and levels of service.

Phase 2: Asset Replacement Financial Strategy

This phase is not a focus of this project but could be a consideration as your organizations moves forward with its asset management planning initiatives and continues to build its capacity. If you have questions about the specific steps of phase 2 please refer to Figure B Asset HealthScore Framework or feel free to reach out.

Over the next pages we will explore each of the Asset Replacement Funding Plan framework steps, 1 to 4 in more detail.

Asset Replacement Funding Plan

Background

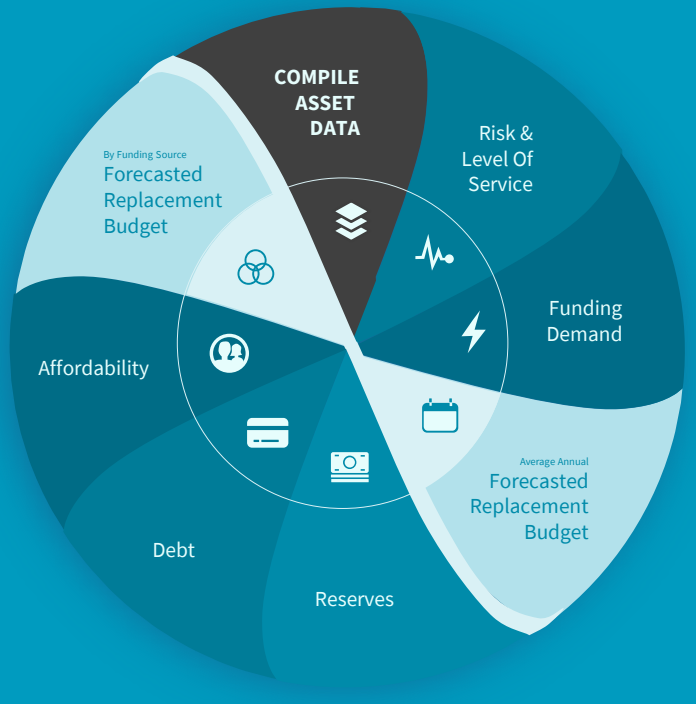
Important Assumptions

Before we explore the results of this plan, the following are assumptions to consider when reviewing the results from your Asset Replacement Funding Plan.

1. Like for Like Replacement Only: This plan was developed only considering like for like replacements and does not consider level of service increases, regulatory requirements, or technology changes. It is important to note that there are many asset replacement projects that are new but required to sustain service levels to the citizens, including:

2. Constant Dollar Analysis: The model was developed using constant dollar analysis. This means that inflation is not accounted for in future costs.

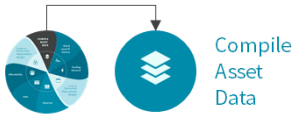
3. Assets Included: The assets that are included in this study include; water, sewer, transportation, land improvements (i.e. parks), fleet, and equipment.



Step 1:
Compile Asset Data

YourCity

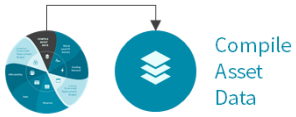
Asset Replacement Funding Plan



Compile Asset Data

Why It's Important	What it is	Outcome
Asset data is the foundation that informs the funding demand, risk, and level of service key performance indicators and forecasted asset replacement budget.	List of assets that are owned by the local government, including attribute information that is needed to build the asset replacement funding plan such as replacement cost, installation year, and estimated life. Note: A detailed list of the asset inventory can be found in the Excel-based Asset Replacement Funding Model.	Asset inventory that can be used to develop the Asset Replacement Funding Plan.

Asset Replacement Funding Plan

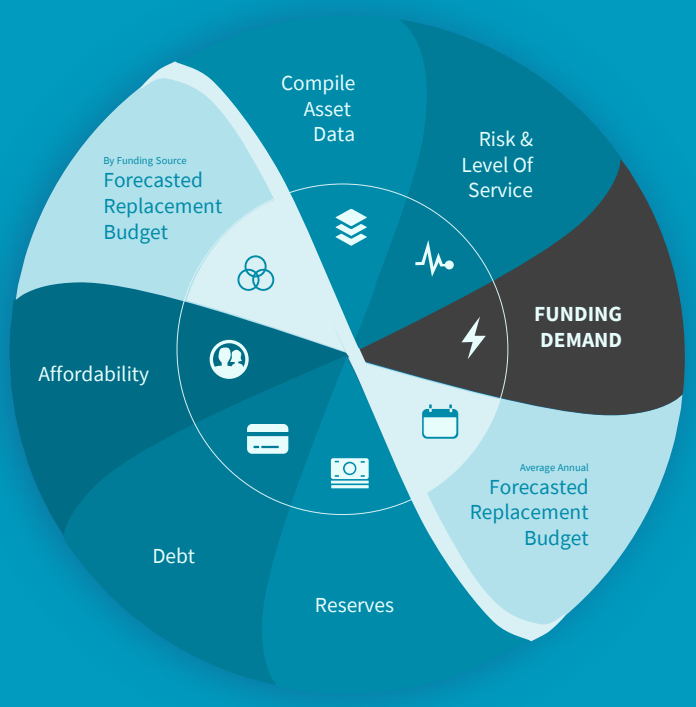


Compile Asset Data

The steps we followed to compile and build the asset inventory for this project were as follows:

1. Identify & Compile Existing Inventory	2. Bridge The Data Gap	3. Clean Asset Data and Integrate Into the Model
• Tangible Capital Asset (TCA) data. • Statement of Values.	• Indexed historical costs to current costs using ENR cost indices. • Updated replacement costs with statement of values and current budgets are available from staff.	• Existing asset inventory data was cleaned into a data format that can be integrated into the Asset Replacement Funding Model (i.e. converted to a database format).

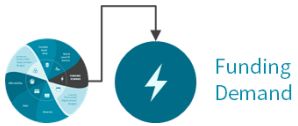
Note: A compiled list of assets can be found in the Asset Replacement Funding Plan Excel Model. Please refer to this model for a detailed list of assets.



Step 2:
Funding Demand

YourCity

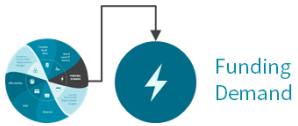
Asset Replacement Funding Plan



Funding Demand

Why It's Important	What it is	Outcome
• Inform how risk and level of service performance measures change over time. • Informs your asset replacement budget.	• The average annual investment required to replace assets when they reach the end of their estimated life over the planning period. This funding demand does not account for assets that have already passed their expected life (these assets are part of the Past Life Assets KPI). • It is important to note that the funding demand is not a capital plan but rather a five-year rolling average which can be used to understand generally when assets are nearing the end of their estimated life. This can help with understanding when large waves of expenditures might be occurring (i.e. short-term, medium term or long-term), which can inform planning decisions. • A planning horizon of 30 years was selected for this analysis.	• Understand how asset replacement funding demand changes over time. • Gain clarity on major asset replacement cost drivers over the planning period.

Asset Replacement Funding Plan



Funding Demand

Average Annual Funding Demand By Asset Category

Figure 1.0 below illustrates the average annual funding demand by asset category over the set planning horizon.

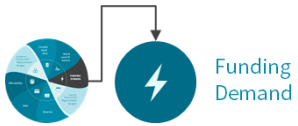
	Avg Funding Demand		% of Total
Total	**$**	**792,507**	**100%**
Water Capital Fund	**$**	**231,236**	**29%**
Sewer Capital Fund	**$**	**37,055**	**5%**
General Capital Fund	**$**	**524,217**	**66%**
Building	$	101,476	13%
Drainage	$	5,269	1%
Equipment	$	231,896	29%
Roads and Bridges	$	185,575	23%

Figure 1.0: Average Annual Funding Demand by Asset Category

Observations

- General Capital Fund represents majority of the funding demand (66%).
- Within the General Capital Fund, Equipment, Roads and Bridges is a major driver of funding demand costs (52%).
- The funding demand for Water Capital Fund is almost 6 times that of the Sewer Capital fund.

Asset Replacement Funding Plan



Funding Demand

Next, we will explore how the funding demand will change over time by studying the five-year rolling average. Figure 1.1 below shows an example of what the five-year rolling figure will look like for each capital fund & asset category with a brief explanation of what each figure is trying to illustrate.

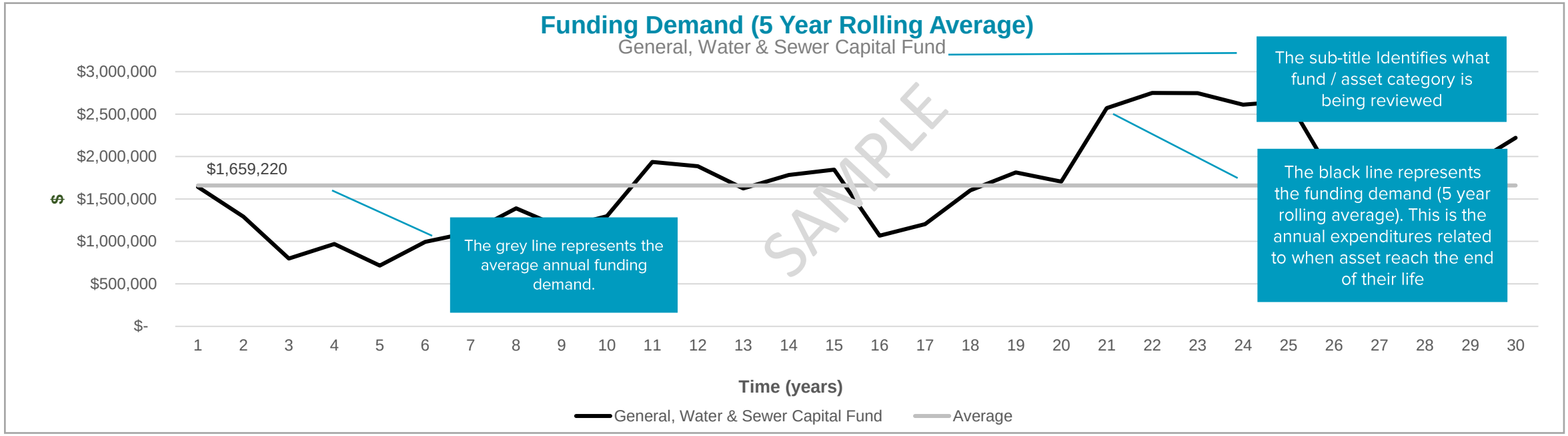


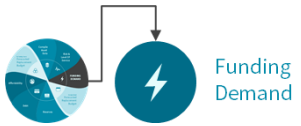
Figure 1.1: Funding Demand For General, Water & Sewer Fund (5 Year Rolling Average)

Observations

- The subtitle “General, Water & Sewer Capital” will illustrate what capital fund the data in the graph represents. In this example it shows the general, water, and sewer capital funds.
- The grey line is the average annual funding demand over the period, which is simply a summation of all capital expenditures over the planning period (excluding the assets already past their estimate life) divided by the planning period.
- The black line represents the five-year rolling average of when assets are expected to pass their estimated lives.

Next, we will explore the same graph as above but with the Village of Lions Bay data.

Asset Replacement Funding Plan



Funding Demand

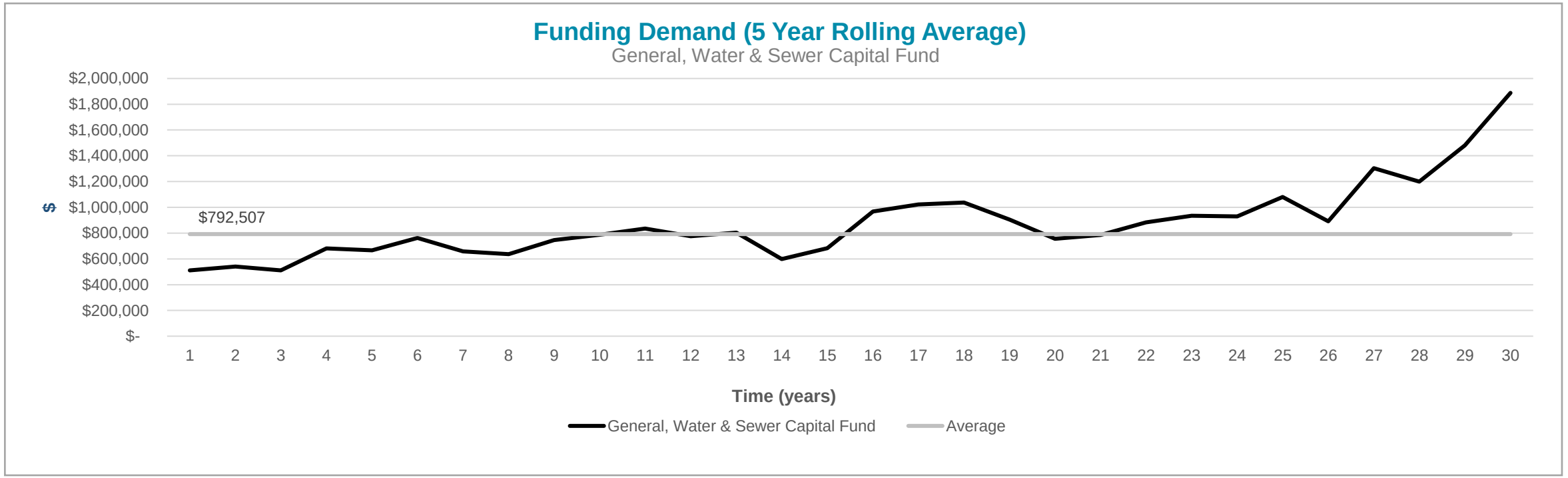
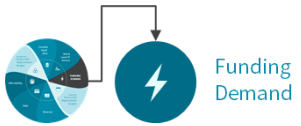


Figure 1.2 Funding Demand For General, Water & Sewer Capital Fund (5 Year Rolling Average)

Observations

- The average annual funding demand is $792,507 over a 30 year planning horizon
- For the first 10 years the 5 year rolling average of the funding demand is below the average annual funding demand.
- Funding demand is trending upwards.

Asset Replacement Funding Plan



Funding Demand

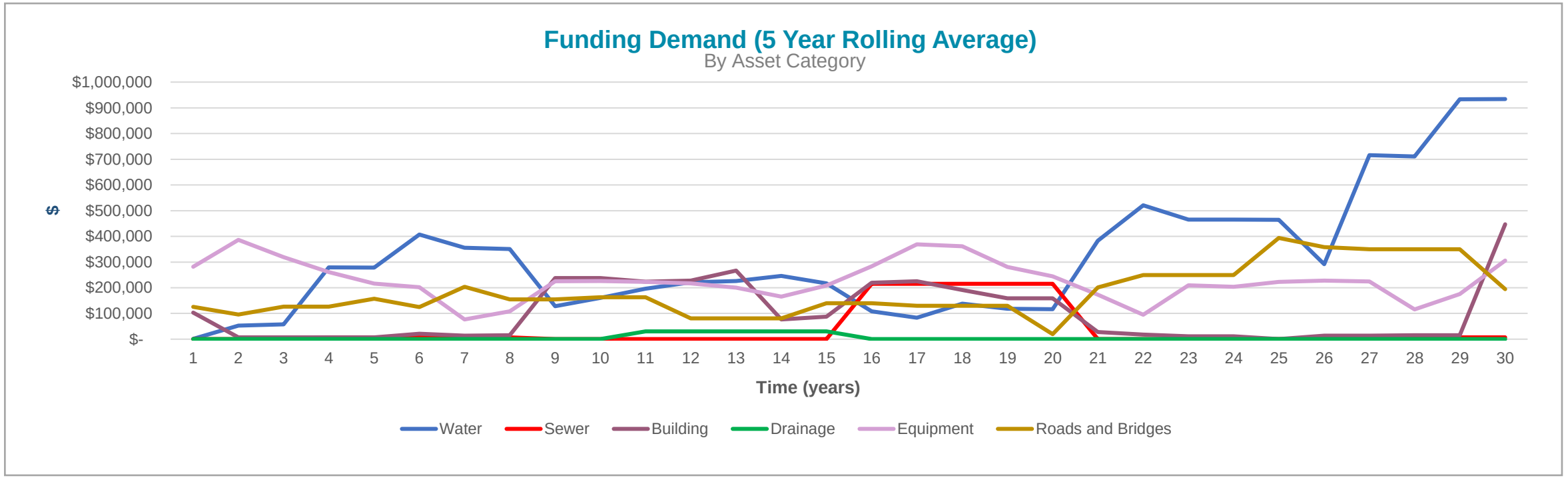
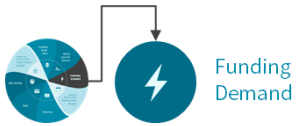


Figure 1.3: Funding Demand by Asset Category (5 Year Rolling Average)

Observations

- Funding demand is quite different for each asset category. The up and down nature of the funding demand illustrates the importance of having reserve funds & debt available to finance the replacement of assets.

Asset Replacement Funding Plan



Funding Demand

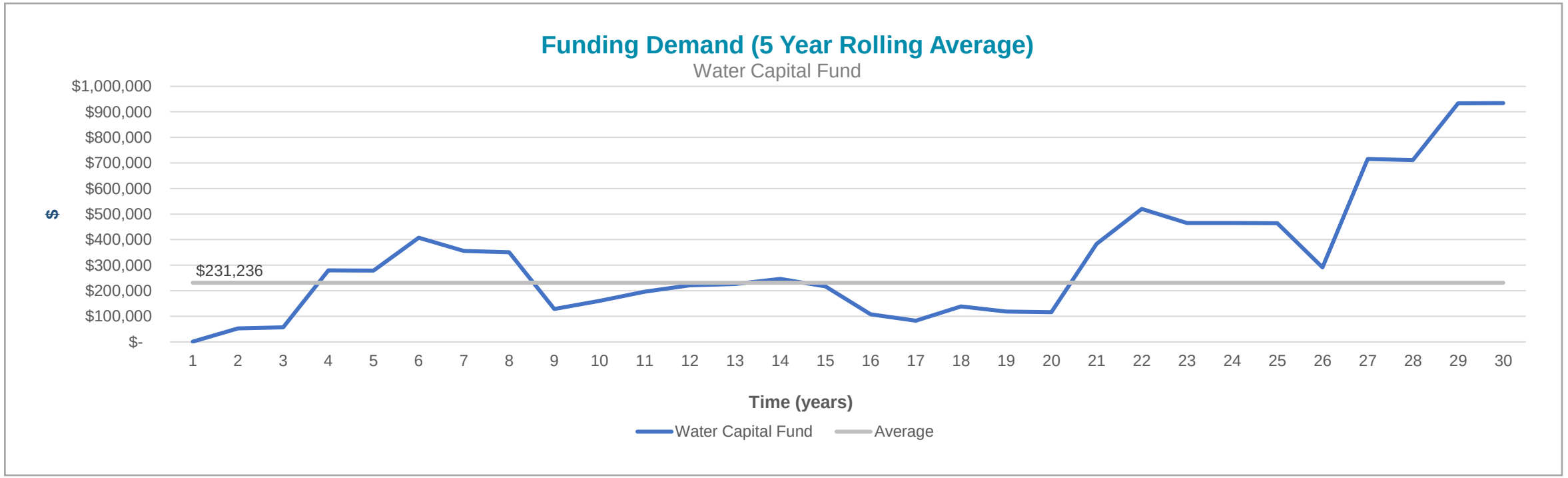
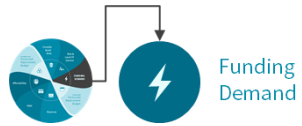


Figure 1.4: Funding Demand for Water Capital Fund Assets (5 Year Rolling Average)

Observations

- The average annual funding demand for water assets is $231,236 over the planning period of 30 years.
- There is anticipated increase in average annual funding demand short term (year 4 to year 9) and then another increase later in the planning period (20 – 30 years). There is more of an increase in funding demand near the end of the planning period.
- Funding demand is trending upwards over the planning period.

Asset Replacement Funding Plan



Funding Demand

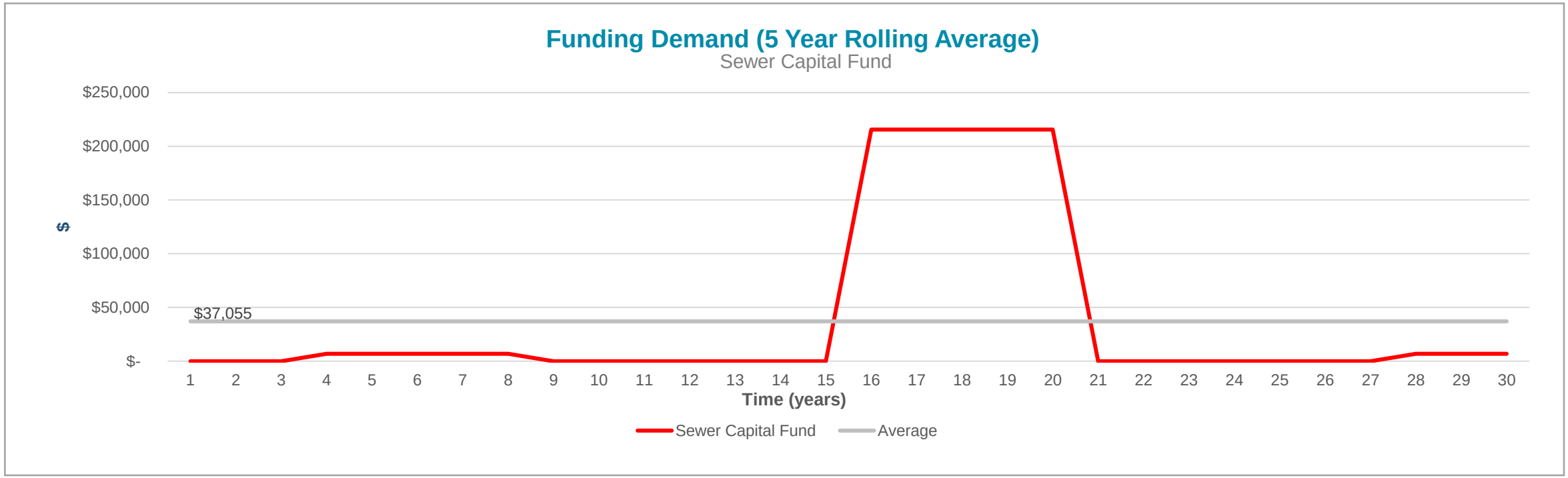
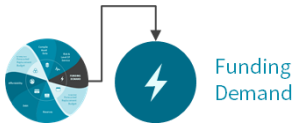


Figure 1.5: Funding Demand for Sewer Capital Fund Assets (5 Year Rolling Average)

Observations

- The average annual funding demand over the planning period is $37,055.
- The 5 year rolling average funding demand is below the average with the exception between years 15 – 21. A major driver for this increase in funding demand is a group of sewer pipes which are estimated to reach the end of their estimated life. This wave of expenditures illustrates the importance of putting funds aside today so that those expenses do not come as a surprise one day in the future.

Asset Replacement Funding Plan



Funding Demand

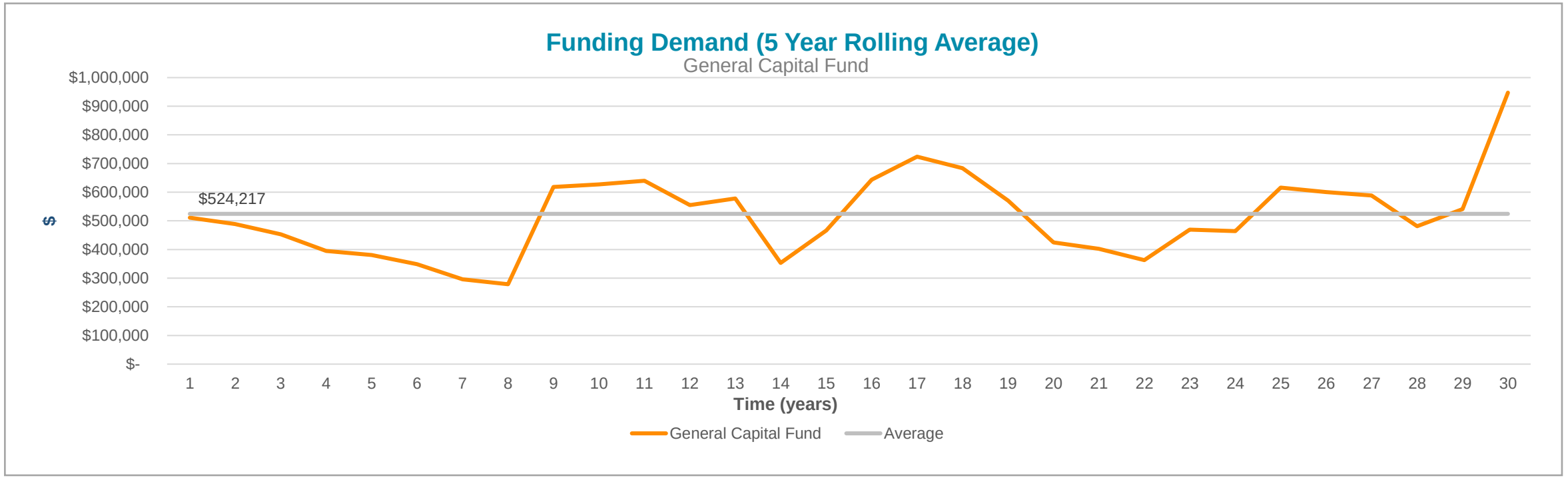
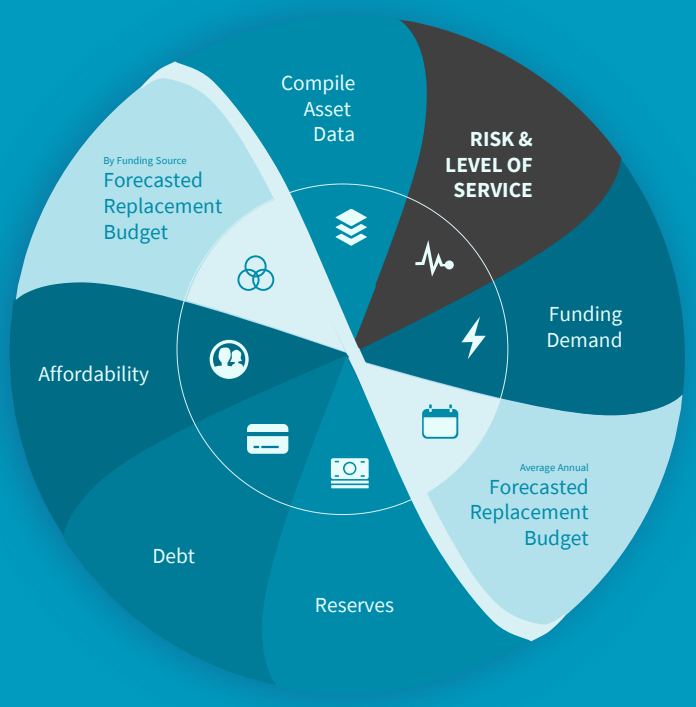


Figure 1.6: Funding Demand for General Capital Fund Assets (5 Year Rolling Average)

Observations

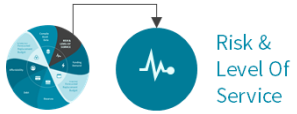
- The average annual funding demand for the General Capital Fund is $524,217.
- The 5 year rolling average funding demand is below the average for the first 8 years.
- The funding demand is trending in an upwards direction over the planning period.



Step 3:
Risk & Level of Service

YourCity

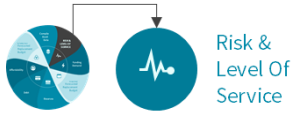
Asset Replacement Funding Plan



Risk & Level of Service

Why It's Important	What it is	Outcome
• Helps inform and prioritize asset replacement budgets. • Helps show the impact today's decisions have on future risk and service levels.	• Risk and level of service can be interpreted in many ways, but one perspective is that it is a set of performance measures that can be used to provide a high-level ~~of~~ understanding of the relative risk of a disruption of the service and quality of a service provided. • Risk and level of service performance measures that will be used for this project are the Asset HealthScore, Past Life Asset, Consumption Ratio.	• Understand how risk and level of service will be measured and how it changes over time. • Have clarity on the relative importance of each asset category from risk and level of service lens. • Be able to track changes in asset risk and level of service over time.

Asset Replacement Funding Plan



Risk & Level of Service

Risk and Level of Service Performance Measures

Risk and level of service will be measured using three key performance indicators (KPI's) that we call your **Asset VitalSigns. Asset VitalSigns** provide direct insights into risk and level of service and can be directly corelated to the Asset Replacement Budget. Each of the **Asset VitalSigns** is explained below and illustrated in Figure 2.0.

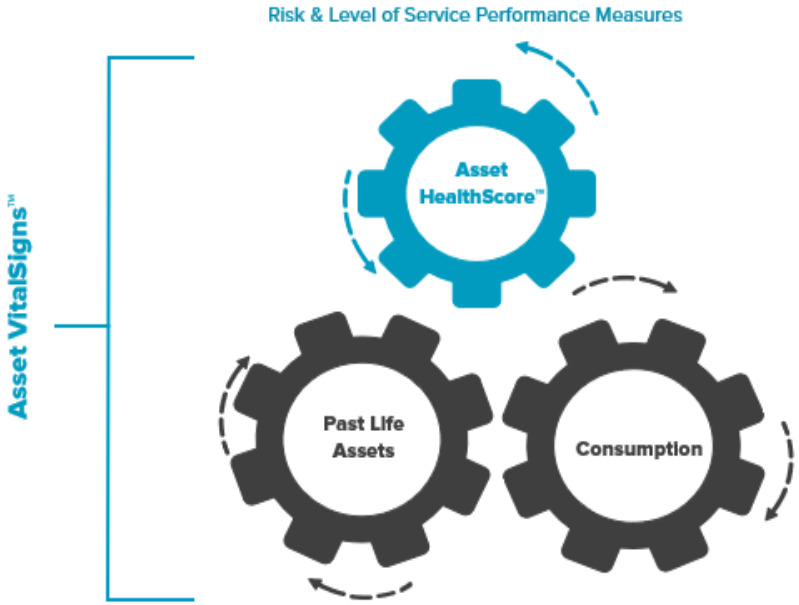


Figure 2.0: Risk & Level of Service Performance Measures

Past Life Assets - represents the percentage of assets portfolio's value that is past its estimated service life.

Example: If you owned $100 in assets and $10 of those assets are past their estimated life, this means 10% of your assets are past their expected life.

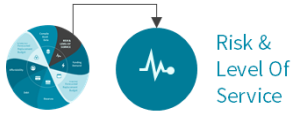
Consumption - represents how far you are into the asset's estimated life.

Example: if you own an asset that lasts ten years and you are five years into the asset's estimated life span, the consumption ratio (5/10) is 50%. This means the asset is about halfway through its life.

Asset HealthScore - represents the overall health of assets and is informed by considering both past life assets and consumption ratio.

Example: If an asset category such as water has 10% of its assets past their estimated life span and has a consumption ratio of 50%, its Asset HealthScore would be 82. More details provided on the next page.

Asset Replacement Funding Plan



Risk & Level of Service

Risk and Level of Service Performance Measures

Figure 2.1 below illustrates how the Asset HealthScore is calculated using the past life assets & consumption ratio.

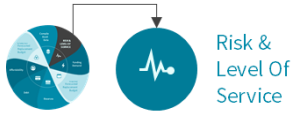
		Asset HealthScore Table									
		Past Life Assets									
		0% to 5%	5% to 10%	10% to 15%	15% to 20%	20% to 25%	25% to 30%	30% to 40%	40% to 50%	50% to 75%	75% to 100%
Consumption	<0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	0% to 10%	99%	98%	97%	96%	95%	94%	93%	92%	91%	90%
	10% to 20%	98%	96%	94%	92%	90%	88%	86%	84%	82%	80%
	20% to 30%	97%	94%	91%	88%	85%	82%	79%	76%	73%	70%
	30% to 40%	96%	92%	88%	84%	80%	76%	72%	68%	64%	60%
	40% to 50%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%
	50% to 60%	94%	88%	82%	76%	70%	64%	58%	52%	46%	40%
	60% to 70%	93%	86%	79%	72%	65%	58%	51%	44%	37%	30%
	70% to 80%	92%	84%	76%	68%	60%	52%	44%	36%	28%	20%
	80% to 90%	91%	82%	73%	64%	55%	46%	37%	28%	19%	10%
	90% to 100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%

Figure 2.1: Correlation Between Past Life Assets, Consumption & Asset HealthScore

Let's move the budget conversations away from “lets keep taxes low” to “lets keep assets healthy”

(While considering affordability)

Asset Replacement Funding Plan



Risk & Level of Service

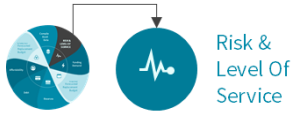
Correlation Between Asset VitalSigns and Risk and Level of Service

Next, we need to better understand how the **Asset VitalSigns** provide us insights into risk and level of service so that we can better understand the assets within the community.

In general, as the **Asset HealthScore** goes up, the past life assets and consumption ratio would go down. This means that less assets are past or nearing the end of their estimated life. This would result in the assets having a lower risk of failure and means that they would provide a higher level of service. The opposite is also true. As the **Asset HealthScore** goes down, more assets are past or nearing the end of their life. This translates to an increased risk level and lower level of service that can be expected from that asset category.

Figure 2.2: Correlation between Asset VitalSigns, Risk & Level of Service

Asset Replacement Funding Plan



Risk & Level of Service

Example

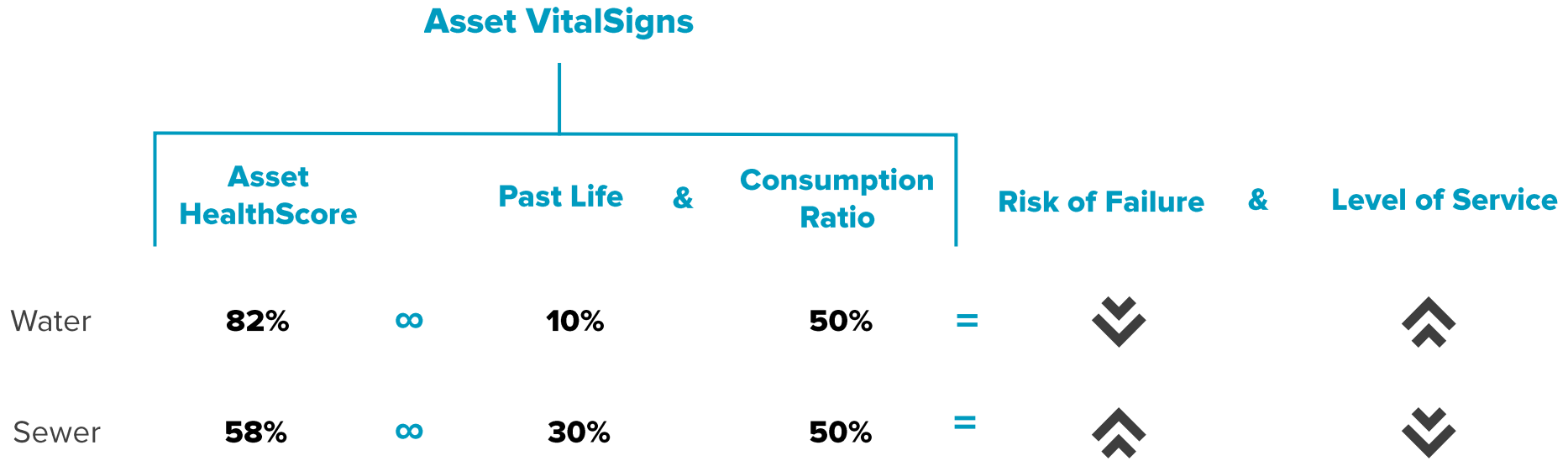
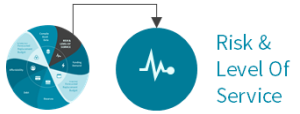


Figure 2.3: Example correlation between Asset VitalSigns, Risk & Level of Service

In the example above, water assets have a higher **Asset HealthScore** than sewer assets because water and sewer assets have the same consumption ratio (50%) but only 10% of the water assets are past their estimated life while 30% of the sewer assets are past their estimated life. This means that water assets would have a lower risk of experiencing a failure because less of the water assets are past their expected life. This also means there would be a lower likelihood of a disruption to service, which means those assets would be providing a higher level of service. This correlation provides a better understanding of risk and level of service for all asset categories and will be the foundation for prioritizing asset replacement budgets in step 4 of the framework (Forecasted Asset Replacement Budget).

Asset Replacement Funding Plan



Risk & Level of Service

Current Risk and Level of Service Performance Measures

The current Asset VitalSigns are summarized in figure 2.4 below.

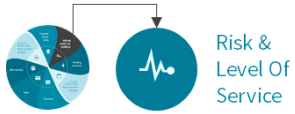
		Asset VitalSigns		
	Replacement Cost	Past Life Assets	Consumption Ratio	Asset HealthScore
Total	**$ 46,886,087**	**8%**	**51%**	**88%**
Water Capital Fund	**$ 24,107,437**	**6%**	**46%**	**90%**
Sewer Capital Fund	**$ 2,237,582**	**0%**	**32%**	**98%**
General Capital Fund	**$ 20,541,068**	**11%**	**59%**	**82%**
Building	$ 5,576,981	0%	50%	97%
Drainage	$ 309,324	50%	96%	10%
Equipment	$ 2,538,565	1%	61%	93%
Roads and Bridges	$ 12,116,198	18%	63%	72%

Figure 2.4: Current Risk & Level of Service Key Performance Indicators

Observations

- The total value of infrastructure that the Village of Lions Bay is responsible for managing is $46.9 million.
- A little less than half of the asset value ($20.5M) is represented by the General Capital Fund.
- Approximately 8% ($3.7M) of the assets are past their expected life.
- Assets are a little over halfway into their life span (51% consumption ratio).
- The Water Capital Fund and Sewer Capital Fund assets have a higher Asset HealthScore than the General Capital Fund.

Asset Replacement Funding Plan



Risk & Level of Service

Sustainable Service Delivery Score

Now that we understand where your Asset VitalSigns sit today, we need to begin to think about how you would ideally like these Asset VitalSigns to change into the future. Would you like your Asset VitalSigns to improve, stay the same or be reduced? Should the Asset VitalSigns for water assets be higher than sewer assets? In order to guide your thought process, we need a systematic way of prioritizing what asset categories you would desire to provide higher levels of service and have lower risks of asset failure.

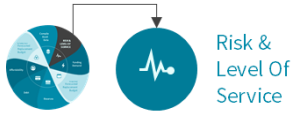
Figure 2.5: Future State

In order to perform this prioritization, we will use the sustainable service delivery score. The sustainable service delivery score is a measure that represents the relative quality and reliability that is desired from the service. It is calculated by looking at the impact an asset failure (impact risk) would have on public safety, environment, finances, and reputation in combination with the desired quality of service as it relates to citizen well-being and supporting the local economy.

Sustainable Service Delivery	=	**Impact Risk**	x	**Level of Service (LOS)**
Measure that represents the relative quality and reliability that is desired from the service		Measure that represents the **relative impact an asset failure would have on** public safety, environment, finances, and reputation		Measure that represents the **relative quality desired from the service based on** citizens well-being and support of the local economy

Figure 2.6: Sustainable Service Delivery Score

Asset Replacement Funding Plan



Risk & Level of Service

Impact Risk

The impact risk framework is used to measure the relative impact of an asset failure, which can be used to help inform the asset replacement budget. The outputs of this framework will help you understand what assets have a higher impact if a failure would occur.

To better understand the impact risk associated with a failure, we considered the following criteria:

- Public Safety: If an asset were to fail, what would be the relative impact on public safety
- Environment: If an asset were to fail, what would be the relative impact on the environment
- Financial: If an asset were to fail, what would be the relative impact on the organization's finances
- Reputation: If an asset were to fail, what would the be the relative impact on the organization's reputation.

Each of the criteria listed above were assigned a weighting factor based on their relative importance level using the weighting descriptions in figure 2.8

Next, an impact risk score (1 to 5) was assigned for each asset category using Figure 2.9.

The weighting score and impact risk scores were assigned by Village of Lions Bay staff in a workshop setting.

Weighting Descriptions

The weighted descriptions are used to illustrate how the organization values each of the evaluation criteria for risk & level of service.

Weighting Descriptions	
Scores	**Description**
1	Very Low Importance
2	Low Importance
3	Medium Importance
4	High Importance
5	Very High Importance

Figure 2.8: Consequence of Failure weighting descriptions

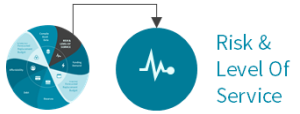
Impact Risk Descriptions

The consequence of failure risk descriptions are used to illustrate how the organization values each of the evaluation criteria

Impact Level	
Score	**Description**
1	No Impact
2	Minimal Impact
3	Moderate Impact
4	Significant Impact
5	Irreversible Impact

Figure 2.9: Consequence of Failure risk descriptions

Asset Replacement Funding Plan



Risk & Level of Service

Impact Risk Framework

Figure 2.10 below summarizes the impact risk criteria and their associated importance, impact risk scores, and weighted scores by asset category.

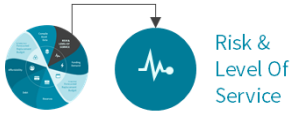
Impact Risk Framework					
Measure that represents the relative impact an asset failure would have on public safety, environment, finances & reputation					
	Public Safety	**Environment**	**Financial**	**Reputation**	**Weighted Score**
Weight (1 to 5)	**5**	**3**	**4**	**2**	**14**
Description	if an asset were to fail, what would be the relative impact on public safety?	if an asset were to fail, what would be the relative impact on the environment?	if an asset were to fail, what would be the relative impact on the organizations finances ?	if an asset were to fail, what would be the relative impact on the organizations reputation?	Weighted consequence of failure risk score
Water	5	4	5	4	**5**
Sewer	4	5	4	4	**4**
Drainage	3	4	3	3	**3**
Roads and Bridges	4	3	4	3	**4**
Building	4	3	4	3	**3**
Equipment	3	2	3	2	**3**

Figure 2.10: Impact Risk Framework

Observations

- Water assets have the highest impact risk score.
- Sewer and Roads / Bridges has the second highest impact risk score.
- Drainage, buildings, and equipment assets have the lowest impact risk score.

Asset Replacement Funding Plan



Risk & Level of Service

Level of Service

Level of service represents the relative quality desired from the service based on the citizens desires, wellbeing, and support of the local economy.

Level of service provides a much different perspective than the impact risk previously explored. Level of service was assessed through the following lens:

- Benefit: How much do our citizens benefit from this service?
- Criticality: How critical is this service in the well-being of our citizens?
- Economy: How important is this service in supporting our local economy?

Each of the criteria listed above was assigned a weighting factor based on its relative importance level using the weighting descriptions in figure 2.11.

Weighting Descriptions

The weighting descriptions in Figure 2.11 are used to illustrate how the organization values each of the evaluation criteria for risk and level of service.

Weighting Descriptions	
Scores	**Description**
1	Very Low Importance
2	Low Importance
3	Medium Importance
4	High Importance
5	Very High Importance

Figure 2.11: Level of Service Framework

Next, level of service scores were assigned to each category using figures 2.12 to 2.14 as a guide. The weighting score and level of service scores were assigned by Village of Lions Bay staff in a workshop setting.

Benefit How many people benefit from this service?	
Score	**Description**
1	5% of the population values / benefits from this service
2	25% of the population values / benefits from this service
3	50% of the population values / benefits from this service
4	75% of the population values / benefits from this service
5	90% of the population values / benefits from this service

Figure 2.12: Level of Service Importance Descriptions

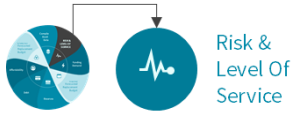
Economy What impact does this service play in helping our economy?	
Score	**Description**
1	This service does not provide much value to the local economy
2	
3	This service provides moderate value to the local economy
4	
5	This service provides major value to the local economy

Figure 2.13: Level of Service Importance Descriptions

Criticality How critical/essential is this service to the well-being of our citizens?	
Score	**Description**
1	This service is non-essential service
2	
3	This service is semi-essential
4	
5	This service is essential

Figure 2.14: Level of Service Importance Descriptions

Asset Replacement Funding Plan



Risk & Level of Service

Level of Service Framework

Figure 2.15 summarizes the level of service criteria and their associated importance, level of service scores, and weighted scores by asset category.

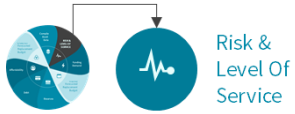
Level of Service Framework				
Measure that represents the relative quality desired from the service based on the citizens desires, well-being & the local economy				
	Benefit	**Criticality**	**Economy**	**Weighted Score**
Weight (1 to 5)	**4**	**5**	**2**	**11**
Description	How much do our citizens benefit from this service?	How critical is this service to the well-being of our citizens?	How important is this service in supporting our local economy?	Weighted level of service score
Water	5	5	5	**5**
Sewer	3	4	2	**3**
Drainage	4	4	2	**3**
Roads and Bridges	5	5	5	**5**
Building	4	4	3	**4**
Equipment	4	4	3	**4**

Figure 2.15: Level of Service Framework

Observations

- Water and Roads / Bridges have the highest level of importance when it comes to level of service.
- Building and Equipment assets have the second highest level of service score.
- Sewer and Drainage assets have the lowest level of service score.

Asset Replacement Funding Plan



Risk & Level of Service

Sustainable Service Delivery Score Summary

The sustainable service delivery score represents the quality and reliability that is desired from the service.

The sustainable service delivery scores takes into consideration the impact risk score and level of service score. The correlation matrix that is used to calculate the sustainable service delivery score is shown in figure 2.16. The sustainable service delivery score is then categorized as low, medium, or high based on the following groupings.

1 to 6 = Low

7 to 15 = Medium

16 to 25 = High

		Level of Service (LOS)				
		1	2	3	4	5
Impact Risk	1	1	2	3	4	5
	2	2	4	6	8	10
	3	3	6	9	12	15
	4	4	8	12	16	20
	5	5	10	15	20	25

Low Medium High

Figure 2.16: Sustainable Service Delivery Score Matrix

Figure 2.17 summarizes the impact risk score, level of service score (LOS), and service sustainability scores for each asset category.

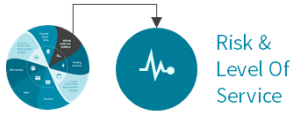
Sustainable Service Delivery Score				
Measure that represents the relative quality & reliability that is desired from the service.				
ASSET	SERVICE DELIVERY SCORE			
Category	Risk	LOS	SD Score (/25)	Category
Water	5	5	23	HIGH
Sewer	4	3	12	MEDIUM
Drainage	3	3	10	MEDIUM
Roads and Bridges	4	5	17	HIGH
Building	3	4	13	MEDIUM
Equipment	3	4	10	MEDIUM

Figure 2.17: Service Sustainability Score

Observations

- Water, Roads and Bridges have the highest service sustainability score when compared to other asset categories which means these asset categories should have lower risks of asset failure & provide higher levels of service (i.e have higher HealthScores).
- Sewer, Drainage, Buildings and Equipment assets have the lowest service sustainability score. This means these asset categories can have higher risks of asset failure and provide lower levels of service than the other asset categories.
- Water assets have both a high impact of failure & high desired level of service.

Asset Replacement Funding Plan



Risk & Level of Service

Correlation Between Sustainable Service Delivery Score, Risk, and Level of Service

The service sustainability score can help provide guidance into what levels of service and risk are desired from each asset category, which in turn will provide guidance for prioritizing the asset replacement budget.

In general, assets with a higher sustainable service delivery score should have a lower risk of failure and provide a higher level of service. This means that those assets should have better Asset VitalSigns. The figure below graphically explains this concept.

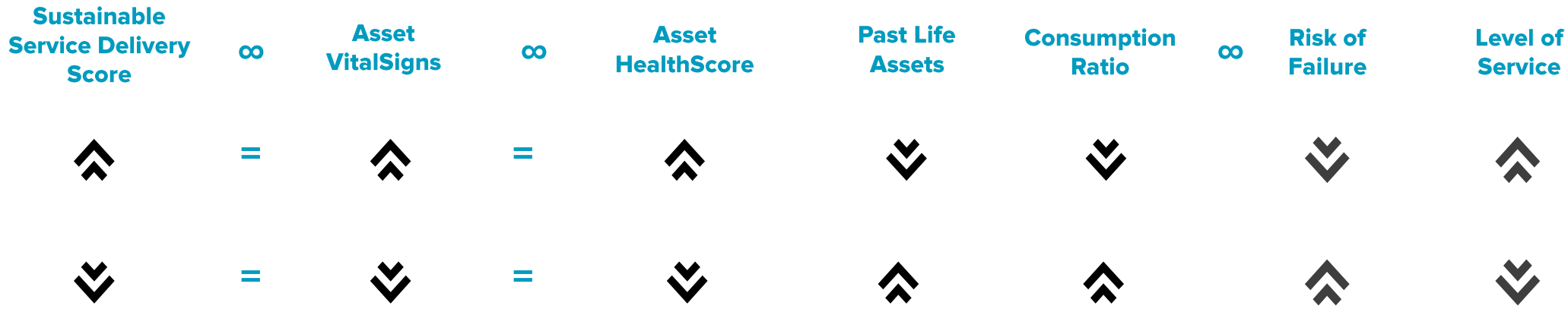
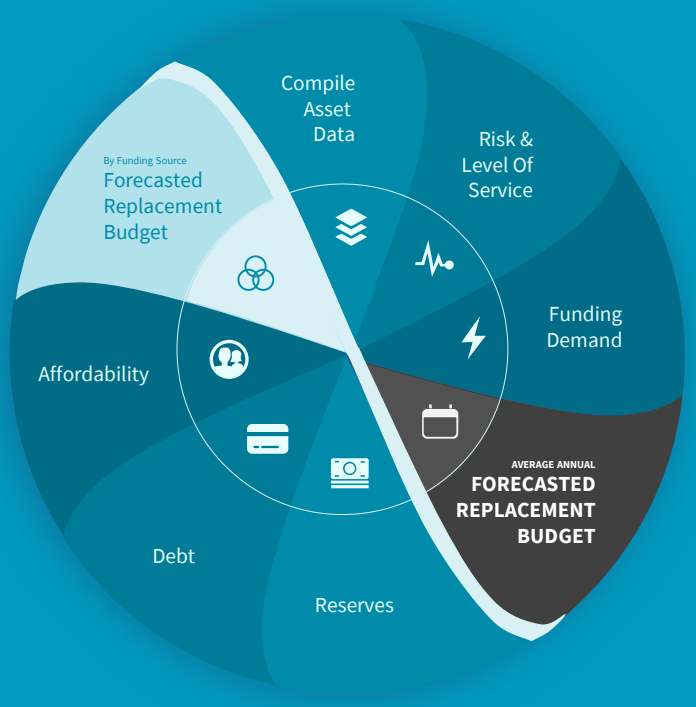


Figure 2.18: Correlation between sustainable service delivery score, risk & level of service



Step 4:
Forecasted Asset Replacement Budget

YourCity

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Why It's Important	What it is	Outcome
• Provides confidence in your financial future and promotes long-term financial sustainability.	• The average annual investment into asset replacement, which includes tax / rate funded asset replacement as well as debt funded replacements (total replacement budget).	• Understand the impact different asset replacement budgets have on the future risk and level of service performance measures . • Gain clarity on the future risk and level of service of the community's assets.

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Correlation Between Forecasted Asset Replacement Budget, Asset VitalSigns, and Risk and Level of Service

The forecasted replacement budget has direct impact on the Asset VitalSigns and how they change over time. As the asset replacement budget increases, the Asset Health Score will improve (i.e. past life asset and consumption ratio go down), which means assets have a lower risk of failure and provide a higher level of service. The opposite is also true -- as we decrease our asset replacement budget, Asset VitalSigns will be reduced and more assets will near the end of their estimated life (i.e. Asset HealthScore score goes down and past life assets and consumption go up). As a result, risk of asset failure increases, and the level of service provided by the asset declines.

Figure 3.0 below illustrates this concept graphically.

Figure 3.0: Correlation between sustainable service delivery score, risk & level of service

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Brining It All Together ("The Model")

Figure 3.1 below summarizes the core concepts previously discussed into a single picture. As illustrated, your asset data is used to calculcate your consumption and past life asset ratio, which then can be used to calculate the Asset HealthScore. Next, we need to determine how we want the Asset HealthScore to change over time. To do this, we use the sustainable service delivery score which is informed by the impact of risk failure score and the level of service failure score. In general, we know that assets that have a higher sustainable service delivery score should have a higher Asset HealthScore because those assets should be providing higher levels of service and have a lower risk of failure. We also know that the Asset Health Score is directly impacted by the forecasted budget. In general, more investment into asset replacement results in higher health scores and vice versa.

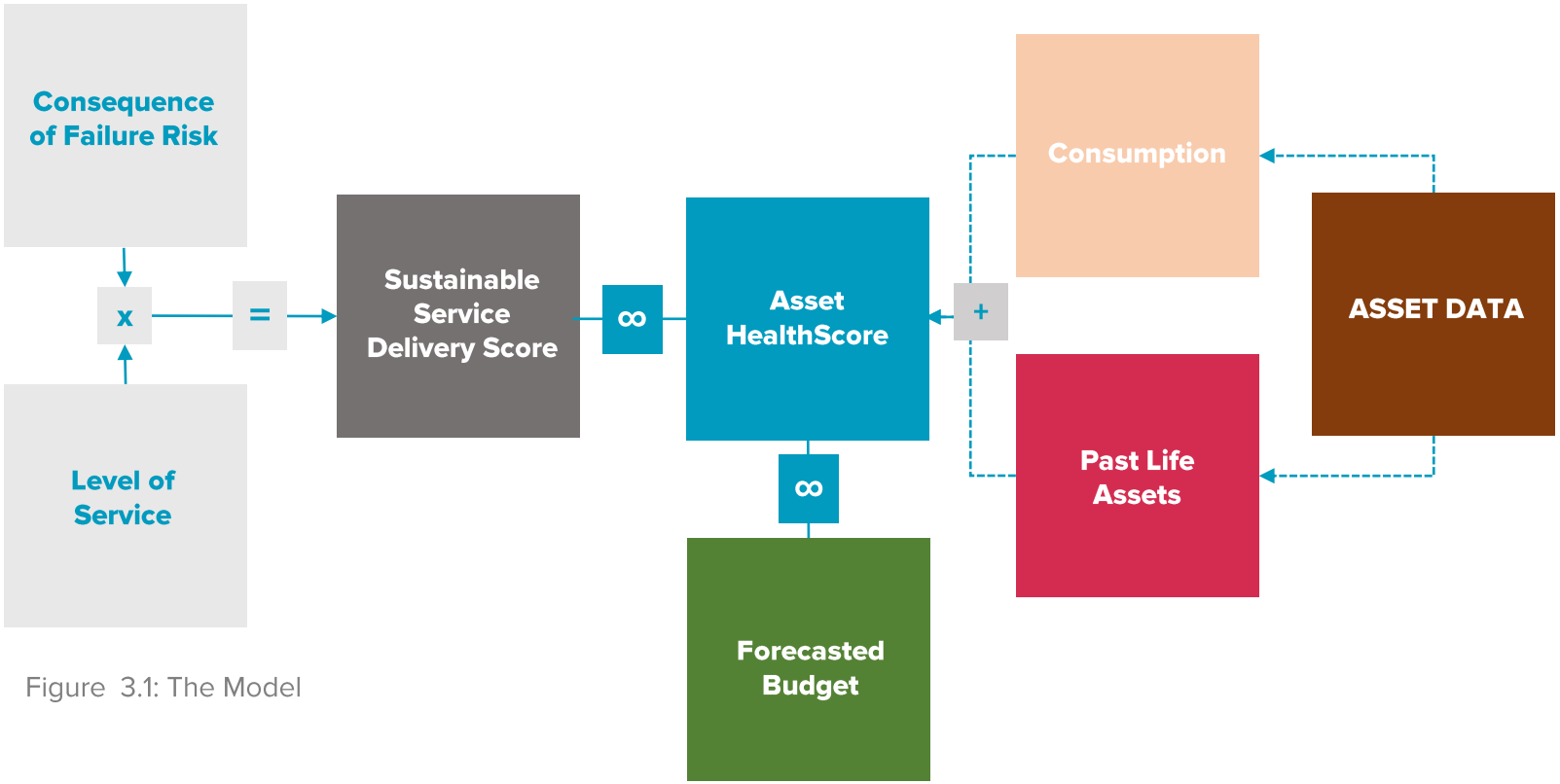


Figure 3.1: The Model

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Asset Replacement Budget Scenario Summary

Now that we understand the correlation between risk, level of service, and your asset replacement budget, we need to create a set of asset replacement budget scenarios to model. A summary of the forecasted asset replacement scenarios that were developed in conjunction with Village of Lions Bay staff are summarized in the figure 3.2 below:

Scenario Name	Scenario Description
Scenario 1: Status Quo	All net cashflow is allocated for asset replacement.
Scenario 2: Risk & Level of Service Remains Similar	Risk and level of service today is similar to risk & level of service at the end of the planning period (30 years).
Scenario 3: Prioritize Forecasted Budget based on Service Sustainability Score	Asset replacement budget is prioritized based on service sustainability score (High = 5% - 10% Past Life, Medium = 15% past life, Low = 20% past life)
Scenario 4: Prioritize Forecasted Budget based on Service Sustainability Score (5% added to past life assets)	Asset replacement budget is prioritized based on service sustainability score (High = 15%-20% Past Life, Medium = 20% past life, Low = 25% past life)

Figure 3.2: Forecasted Asset Replacement Budget Scenario Summary

Each of the replacement budget scenarios summarized in Figure 3.2 was modeled to determine the forecasted replacement budget required to meet the scenario outcomes as well as illustrate how the Asset VitalSigns change from the beginning of the planning period (Asset VitalSigns Starting) to the end of the planning period (Asset VitalSigns Final).

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

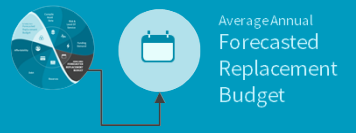
Figure Descriptions

For each of the forecasted budget scenarios we will summarize the forecasted budget, its impact on the Asset VitalSigns over time, and the associated funding gap. Below is a description of each of the figures that will be shared for each of the forecasted asset replacement budget scenarios:

- Forecasted Asset Replacement Budget Summary [Figure 4.1]: This figure illustrates the average annual investment into asset replacement on an annual basis. It is important to note this does not take into account how these budgets will be funded but simply illustrates the target. Phase 2 (Asset Replacement Financial Strategy) will answer this question.
- Impact of Forecasted Budget on Starting and Final Asset VitalSigns [Figure 4.2]: This figure illustrates the starting point of the Asset VitalSigns (i.e. what they are today) and illustrates where the Asset VitalSigns will be at the end of the planning period based on the forecasted budget . This table allows you to easily see the starting and ending point of the Asset VitalSigns in one summary table.
- Impact of Forecasted Budget on Asset HealthScore and Asset VitalSigns Over Time [Figure 5.0 – Figure 5.4]: These figures are a more visual representation of how the Asset VitalSigns change over the planning period based on the forecasted replacement budget. You not only see the beginning and ending point of the Asset VitalSigns, but also the changes from year to year.
- Asset Replacement Funding Gap: This figure illustrates the funding gap between the current replacement budget and the forecasted budget. This figure will help give a sense of magnitude of how your budget would need to change to meet the forecasted budget. It is important to note that a detailed financial analysis would need to be performed to determine how to bridge the funding gap (Phase 2 Asset Replacement Financial Strategy).

The goal of each of these scenarios is to summarize the forecasted budget and show the impact this budget would have on the Asset VitalSigns over the planning period to help you better understand what budget would be best for your community.

Each of the forecasted asset replacement budget scenarios will be further explored over the following pages using Figures 4.1 to 5.4 described above.



Scenario 1

Asset Replacement Funding Plan

Scenario 1

Forecasted Asset Replacement Budget

Asset Replacement Budget Scenario Summary

Scenario Name: Status Quo

Scenario Description

- All net cashflow is allocated for asset replacement

	Forecasted Budget		% of Total
Total	**$**	**199,207**	**100%**
Water Capital Fund	**$**	**72,461**	**36%**
Sewer Capital Fund	**$**	**8,859**	**4%**
General Capital Fund	**$**	**117,887**	**59%**

Figure 4.1: Forecasted Asset Replacement Budget Summary

Observations

- Forecasted budget is mostly made up of the General Capital Fund assets .
- Water Capital Fund forecasted budget is about half that of the General Capital Fund.

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Budget on starting & final Asset VitalSigns

	Forecasted Budget	Starting Asset VitalSigns			Final Asset VitalSigns		
		Past Life	Consumption	Health Score	Past Life	Consumption	Health Score
Total	**$199,207**	**8% ($3.2M)**	**51%**	**88%**	**46% ($21M)**	**112%**	**20%**
Water Capital Fund	**$72,461**	**6%**	**46%**	**90%**	**25%**	**96%**	**40%**
Sewer Capital Fund	**$8,859**	**0%**	**32%**	**98%**	**38%**	**78%**	**44%**
General Capital Fund	**$117,887**	**11%**	**59%**	**82%**	**71%**	**135%**	**10%**

Figure 4.2: Impact of Forecasted Budget on starting & final Asset VitalSigns

Observations

- There is a drop in the Asset HealthScore (88% to 20%) over the planning period.
- General Capital Fund shows the largest drop in Asset HealthScore (82% to 10%) when compared to other capital funds.
- Overall the expected assets past their life will move from 8% ($3.2M) to 46% ($21M) which could mean that risk would increase, and level of service would decrease at the end of the planning period with the forecasted budget.

The figures 5.0-5.4 on the following pages illustrate how the Asset HealthScore and Asset VitalSigns change over the planning period year to year (This is a visual representation of figure 4.2 above).

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

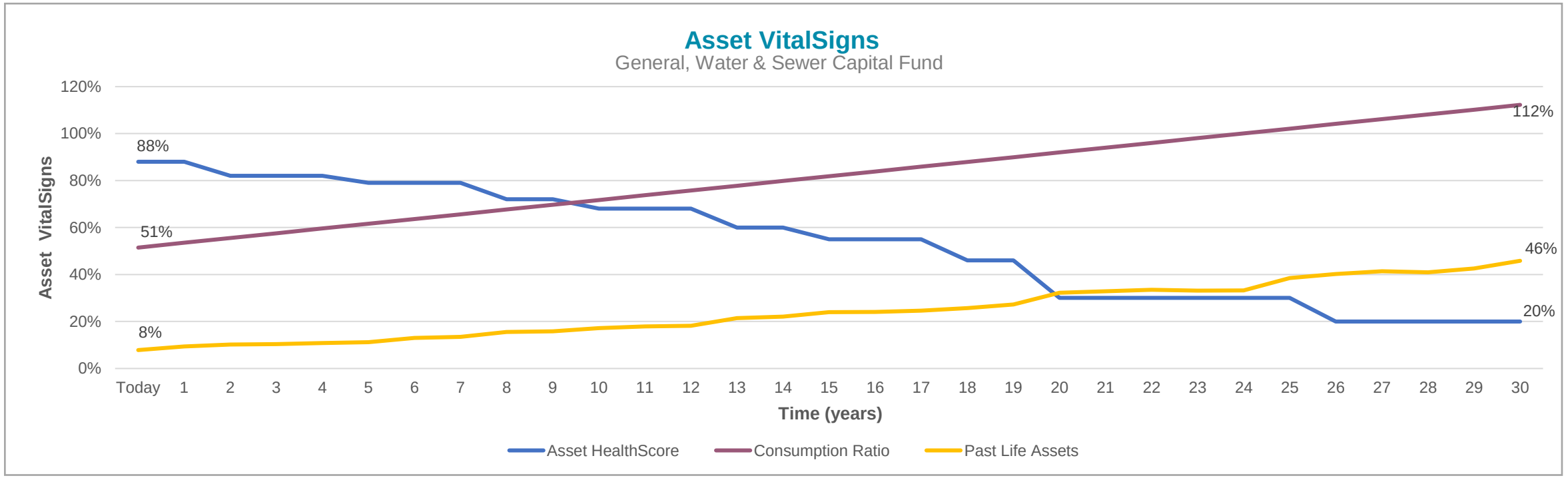


Figure 5.1: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for General, Water & Sewer Capital Funds

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

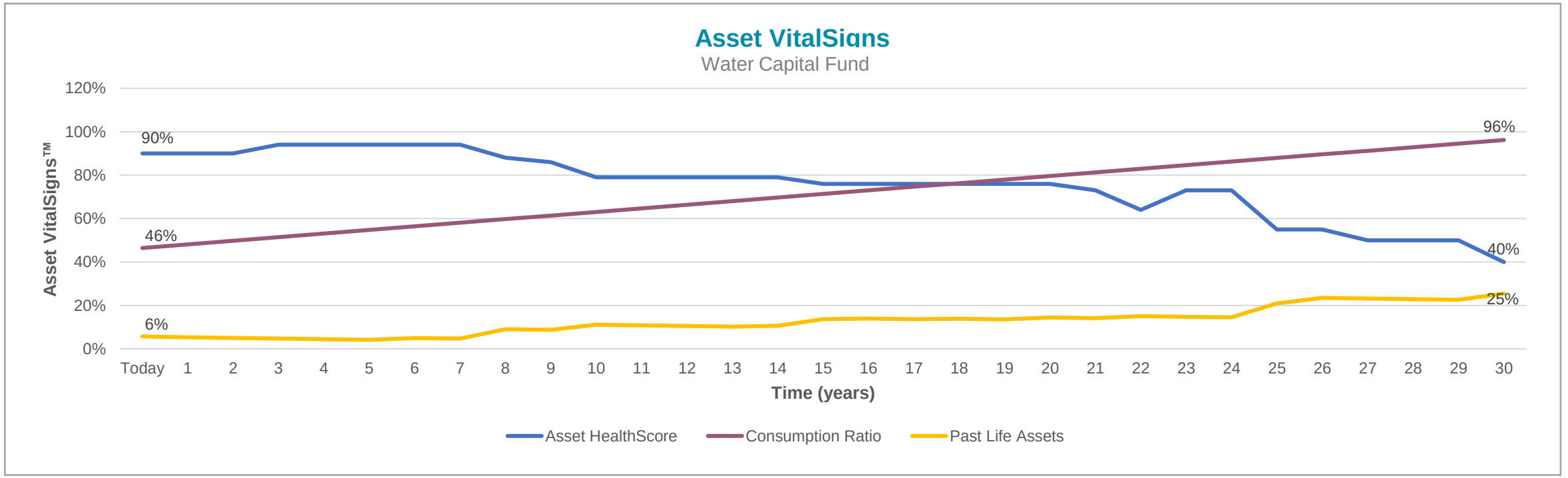


Figure 5.2: Impact of Forecasted Replacement Budget on Asset VitalSigns For Water Capital Fund Assets

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

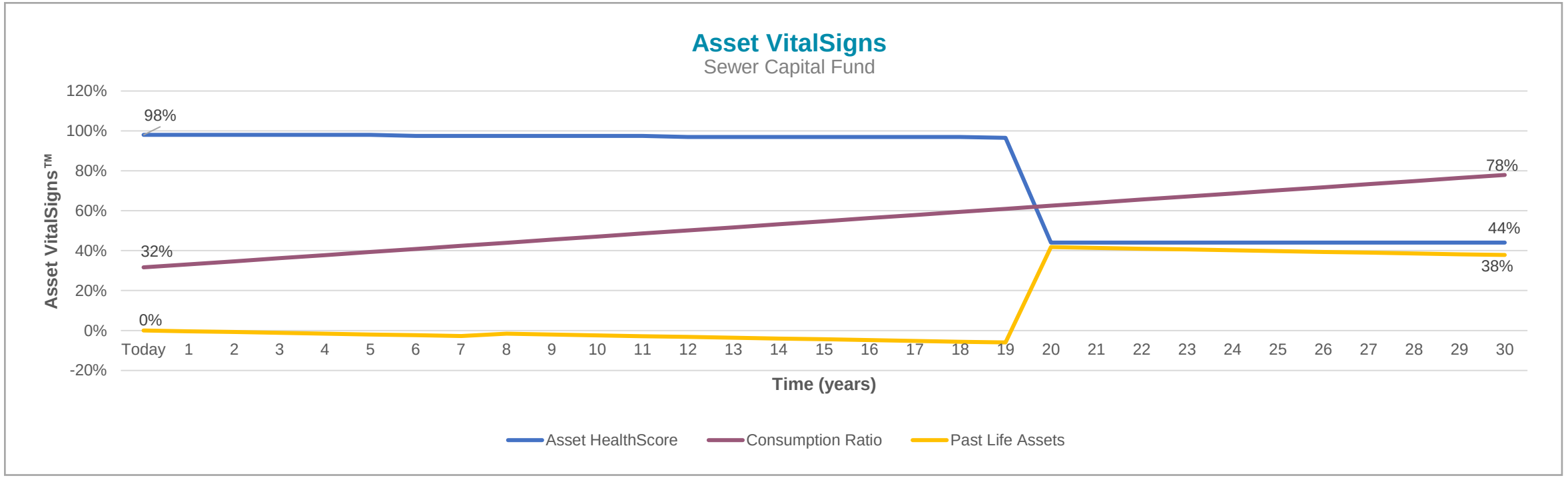


Figure 5.3: Impact of Forecasted Replacement Budget on Asset VitalSigns For Sewer Capital Fund Assets

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

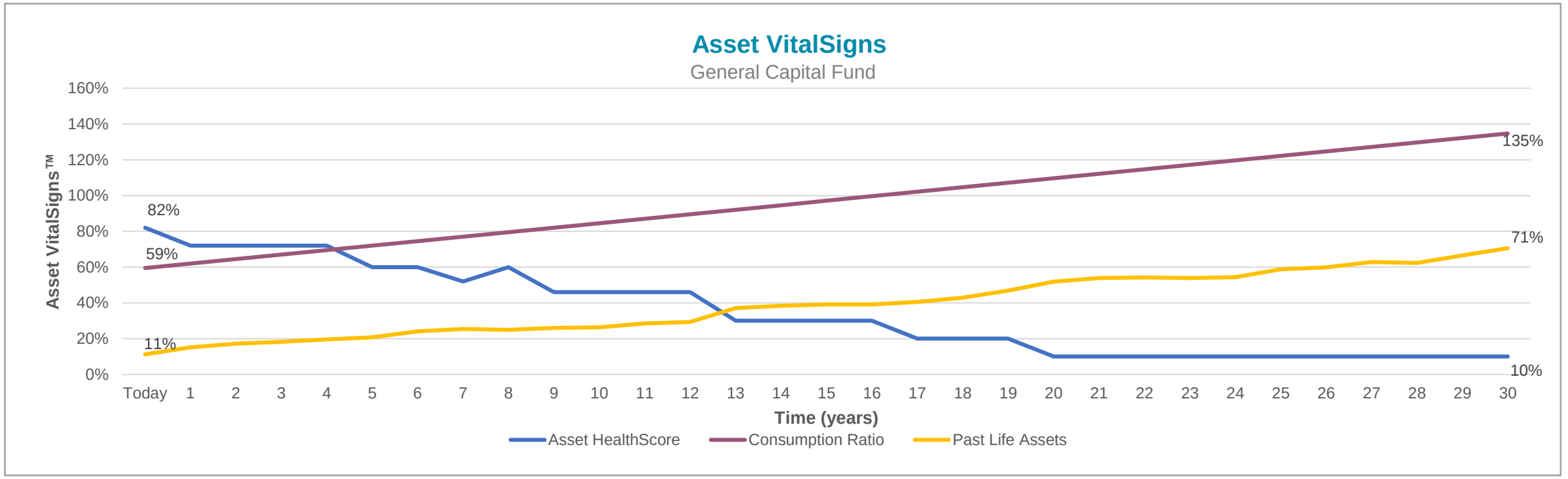


Figure 5.4: Impact of Forecasted Replacement Budget on Asset VitalSigns for General Capital Fund Assets

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Asset Replacement Funding Gap

	Current Budget	Forecasted Budget	Funding Gap
Total	**$ 199,207**	**$ 199,207**	**$ 0**
Water Capital Fund	**$ 72,461**	**$ 72,461**	**$ 0**
Sewer Capital Fund	**$ 8,859**	**$ 8,859**	**$ 0**
General Capital Fund	**$ 117,887**	**$ 117,887**	**$ 0**

Figure 6.0: Asset Replacement Funding Gap

Observations

- There is no funding gap because the current budget is the same as the forecasted budget in this scenario.

Scenario 2

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Asset Replacement Budget Scenario Summary

Scenario Name: Risk & Level of Service Remains Similar

Scenario Description

- Risk and level of service today is similar to risk & level of service at the end of the planning period (30 years).

	Forecasted Budget		% of Total
Total	**$**	**840,000**	**100%**
Water Capital Fund	**$**	**245,000**	**29%**
Sewer Capital Fund	**$**	**40,000**	**5%**
General Capital Fund	**$**	**555,000**	**66%**
Building	$	110,000	13%
Drainage	$	5,000	1%
Equipment	$	230,000	27%
Roads and Bridges	$	210,000	25%

Figure 4.1: Forecasted Asset Replacement Budget Summary

Observations

- Majority of the forecasted budget (66%) is driven from the General Capital Fund.
- Within the General Capital Fund, equipment and roads and bridges is the major driver of the forecasted budget (52%).
- Water Capital Fund forecasted budget is about half of the General Capital Fund forecasted budget.

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Budget on Asset VitalSigns Over Time

	Forecasted Budget		Starting Asset VitalSigns			Final Asset VitalSigns			Service Sustainability	
			Past Life	Consumption	Health Score	Past Life	Consumption	Health Score	Score	Category
Total	**$**	**840,000**	**8%**	**51%**	**88%**	**5%**	**71%**	**92%**	**-**	**-**
Water Capital Fund	**$**	**245,000**	**6%**	**46%**	**90%**	**4%**	**75%**	**92%**	**23**	**HIGH**
Sewer Capital Fund	**$**	**40,000**	**0%**	**32%**	**98%**	**<0%**	**36%**	**98%**	**12**	**MEDIUM**
General Capital Fund	**$**	**555,000**	**11%**	**59%**	**82%**	**7%**	**71%**	**84%**	**-**	**-**
Building	$	110,000	0%	50%	97%	<0%	59%	97%	13	MEDIUM
Drainage	$	5,000	50%	96%	10%	53%	122%	10%	10	MEDIUM
Equipment	$	230,000	1%	61%	93%	3%	59%	94%	10	MEDIUM
Roads and Bridges	$	210,000	18%	63%	72%	11%	78%	76%	17	HIGH

Figure 4.2: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

Observations

- Asset HealthScore starts and ends in a similar position for all asset categories. This means that a similar risk & level of service could be expected at the beginning & end of the planning period.

The figures 5.0-5.4 on the following pages illustrate how the Asset VitalSigns change over the planning period year to year (This is a visual representation of figure 4.2 above).

Scenario 2

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Budget on Asset HealthScore Over Time

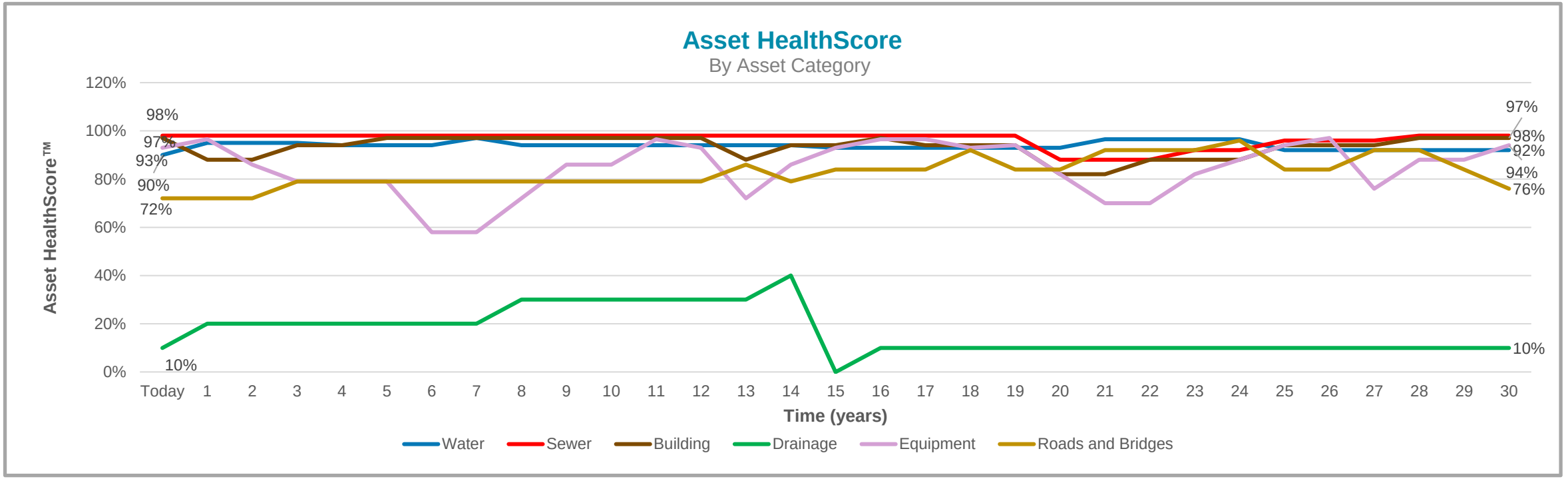


Figure 5.0: Impact of Forecasted Replacement Budget on Asset HealthScore Over Time by Asset Category

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Asset Replacement Budget on Asset VitalSigns Over Time

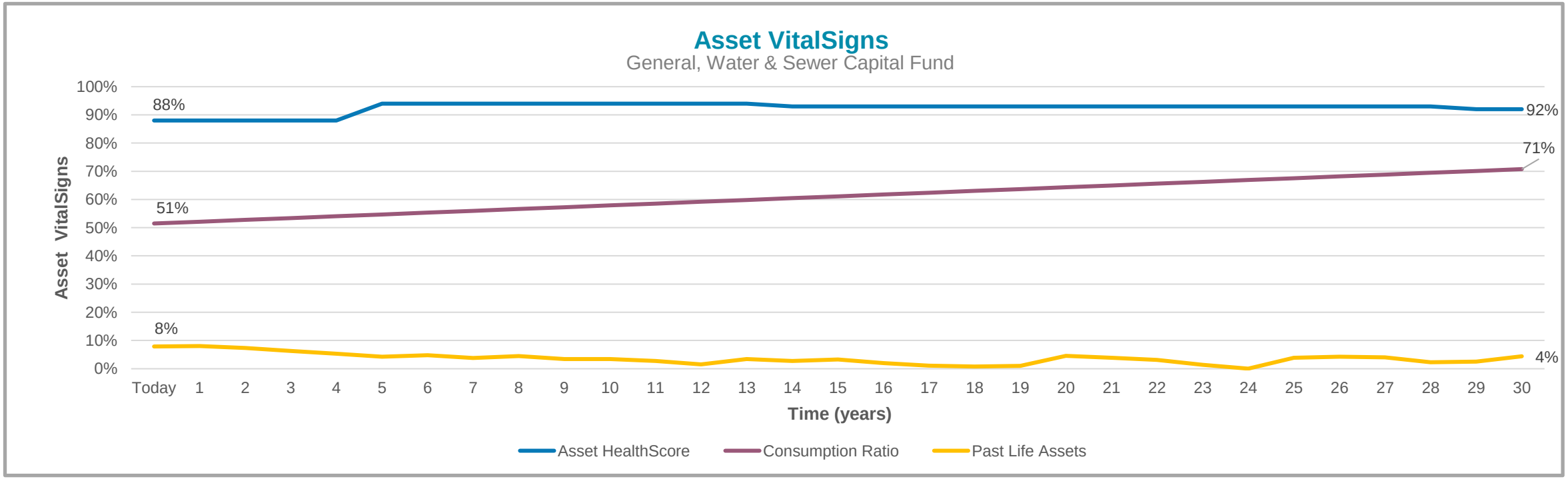


Figure 5.1: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for General, Water & Sewer Capital Funds

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Asset Replacement Budget on Asset VitalSigns Over Time

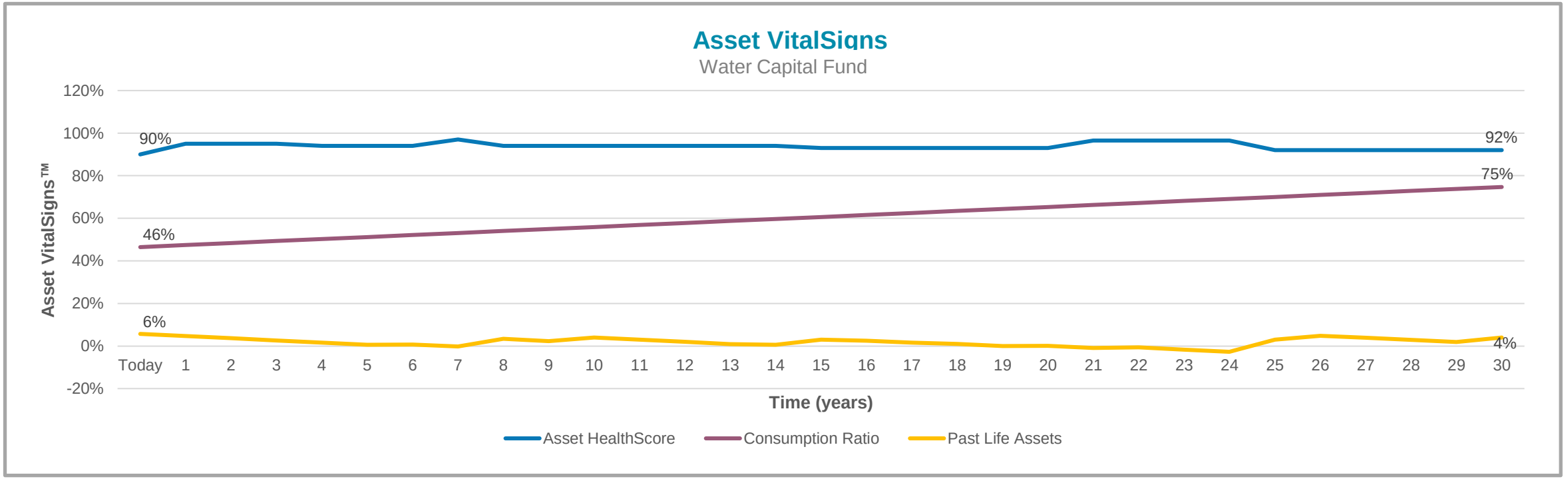


Figure 5.2: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for Water Capital Fund Assets

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Asset Replacement Budget on Asset VitalSigns Over Time

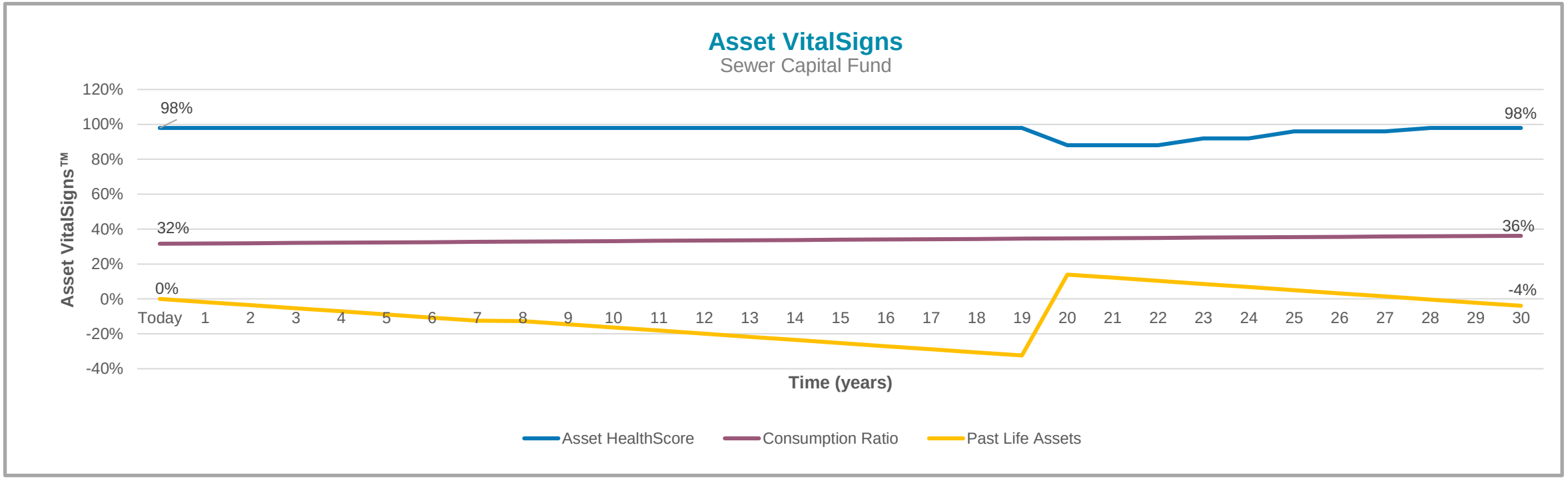


Figure 5.3: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for Sewer Capital Fund Assets

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Asset Replacement Budget on Asset VitalSigns Over Time

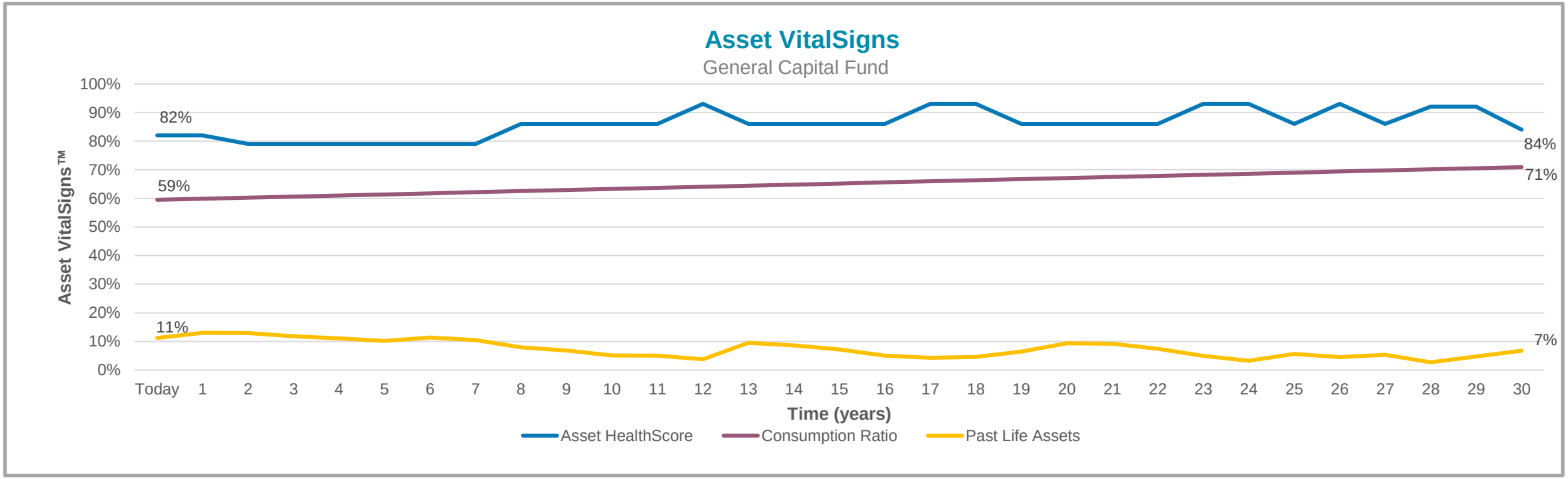


Figure 5.4: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for General Capital Fund Assets

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

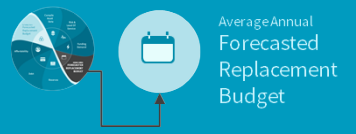
Asset Replacement Funding Gap

	Current Budget	Forecasted Budget	Funding Gap
Total	**$ 199,207**	**$ 840,000**	**$ (640,793)**
Water Capital Fund	**$ 72,461**	**$ 245,000**	**$ (172,539)**
Sewer Capital Fund	**$ 8,859**	**$ 40,000**	**$ (31,141)**
General Capital Fund	**$ 117,887**	**$ 555,000**	**$ (437,113)**
Building	$ -	$ 110,000	$ 7,887
Drainage	$ -	$ 5,000	$ (5,000)
Equipment	$ -	$ 230,000	$ (230,000)
Roads and Bridges	$ -	$ 210,000	$ (210,000)

Figure 6.0: Asset Replacement Funding Gap

Observations

- The funding gap is $640,793 with majority of the funding gap driven from the General Capital Fund (68% of the Total).
- The second largest funding gap exists within the Sewer Capital Fund (27% of the total).



Scenario 3

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Asset Replacement Budget Scenario Summary

Scenario Name: Prioritize Forecasted Budget based on Service Sustainability Score

Scenario Description

- Asset replacement budget is prioritized based on service sustainability score (High = 10% - 15% Past Life, Medium = 20% past life, Low = 25% past life)

	Forecasted Budget		% of Total
Total	**$**	**703,171**	**100%**
Water Capital Fund	**$**	**196,732**	**28%**
Sewer Capital Fund	**$**	**22,137**	**3%**
General Capital Fund	**$**	**484,302**	**69%**
Building	$	64,296	9%
Drainage	$	8,377	1%
Equipment	$	215,858	31%
Roads and Bridges	$	195,771	28%

Figure 4.1: Forecasted Asset Replacement Budget Summary

Observations

- Majority of the forecasted budget (approx. 69%) is driven by the General Capital Fund.
- Water represents about 28% of the forecasted budget which is a little less than half the General Capital Fund
- Within the General Capital Fund, Equipment and Transportation Assets are a major drive of the general fund forecasted budget (58%).

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Budget on Asset VitalSigns Over Time

	Forecasted Budget	Starting Asset VitalSigns			Final Asset VitalSigns			Service Sustainability	
		Past Life	Consumption	Health Score	Past Life	Consumption	Health Score	Score	Category
Total	**$ 703,171**	**8%**	**51%**	**88%**	**14%**	**80%**	**76%**	**-**	**-**
Water Capital Fund	**$ 196,732**	**6%**	**46%**	**90%**	**10%**	**81%**	**82%**	**23**	**HIGH**
Sewer Capital Fund	**$ 22,137**	**0%**	**32%**	**98%**	**20%**	**60%**	**65%**	**12**	**MEDIUM**
General Capital Fund	**$ 484,302**	**11%**	**59%**	**82%**	**17%**	**81%**	**64%**	**-**	**-**
Building	$ 64,296	0%	50%	97%	20%	83%	55%	13	MEDIUM
Drainage	$ 8,377	50%	96%	10%	20%	89%	55%	10	MEDIUM
Equipment	$ 215,858	1%	61%	93%	20%	76%	68%	10	MEDIUM
Roads and Bridges	$ 195,771	18%	63%	72%	15%	81%	73%	17	HIGH

Figure 4.2: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

Observations

- There is a drop in the Asset HealthScore (88% to 76%) over the planning period.
- Sewer Capital Fund shows the largest drop in Asset HealthScore (98% to 65%) when compared to other capital funds.
- It could be expected that risk would increase, and level of service would decrease at the end of the planning period with the forecasted budget.

The figures 5.0-5.4 on the following pages illustrate how the Asset HealthScore and Asset VitalSigns change over the planning period year to year (This is a visual representation of figure 4.2 above).

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Budget on Asset HealthScore Over Time

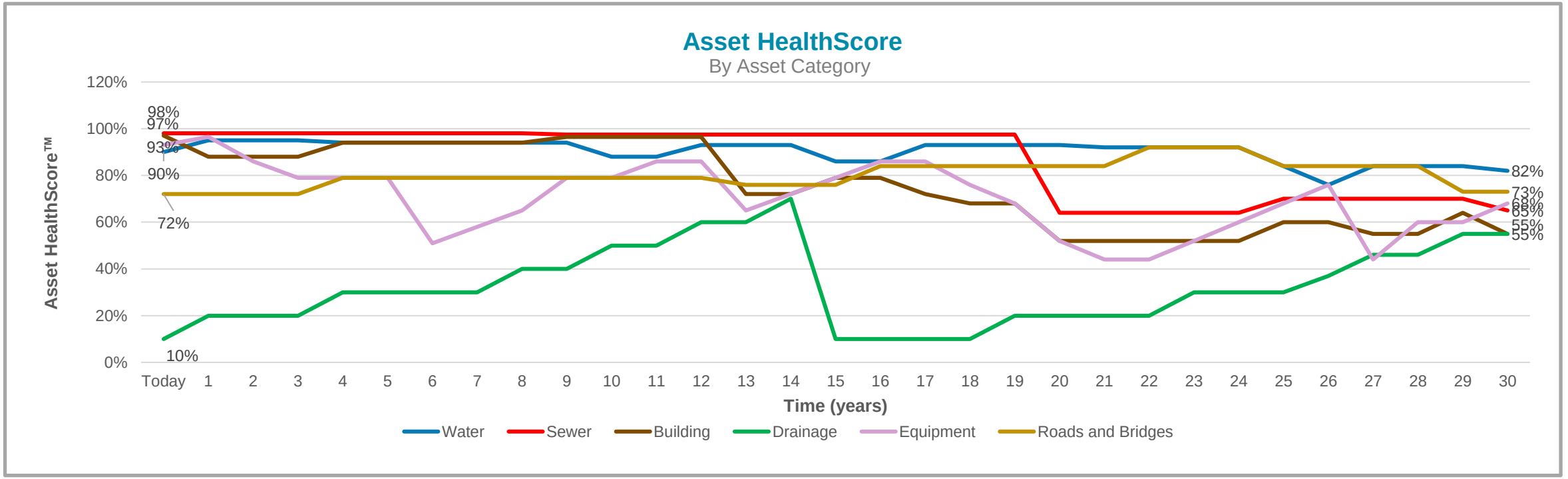


Figure 5.0: Impact of Forecasted Replacement Budget on Asset HealthScore Over Time by Asset Category

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Asset Replacement Budget on Asset VitalSigns Over Time

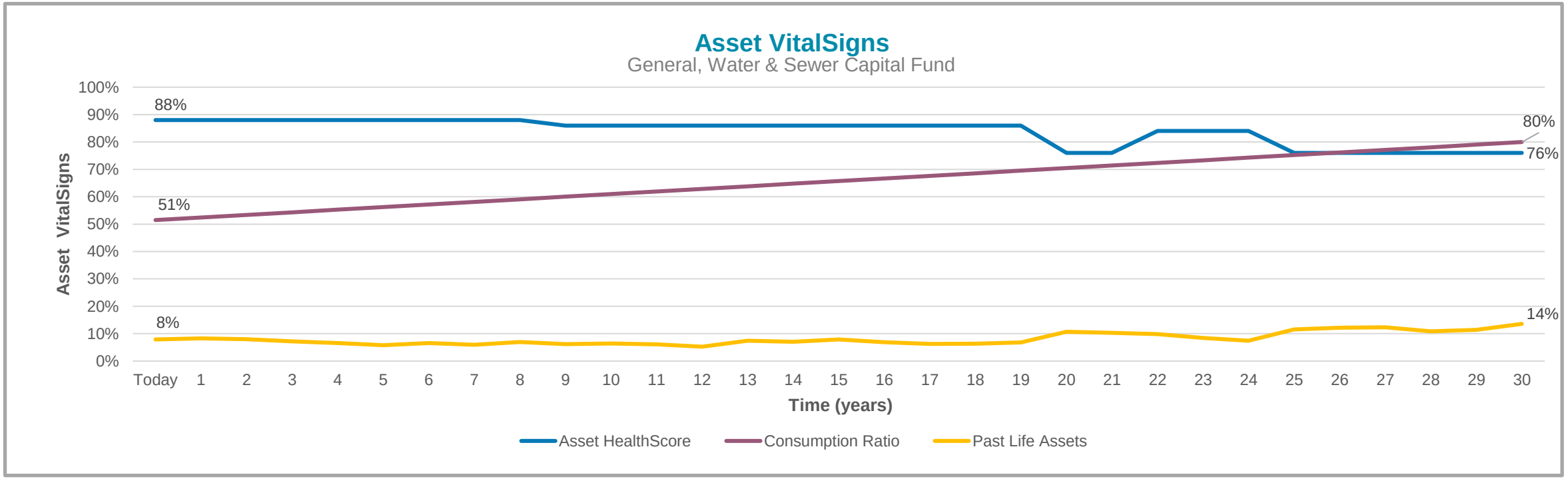


Figure 5.1: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for General, Water & Sewer Capital Funds

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Asset Replacement Budget on Asset VitalSigns Over Time

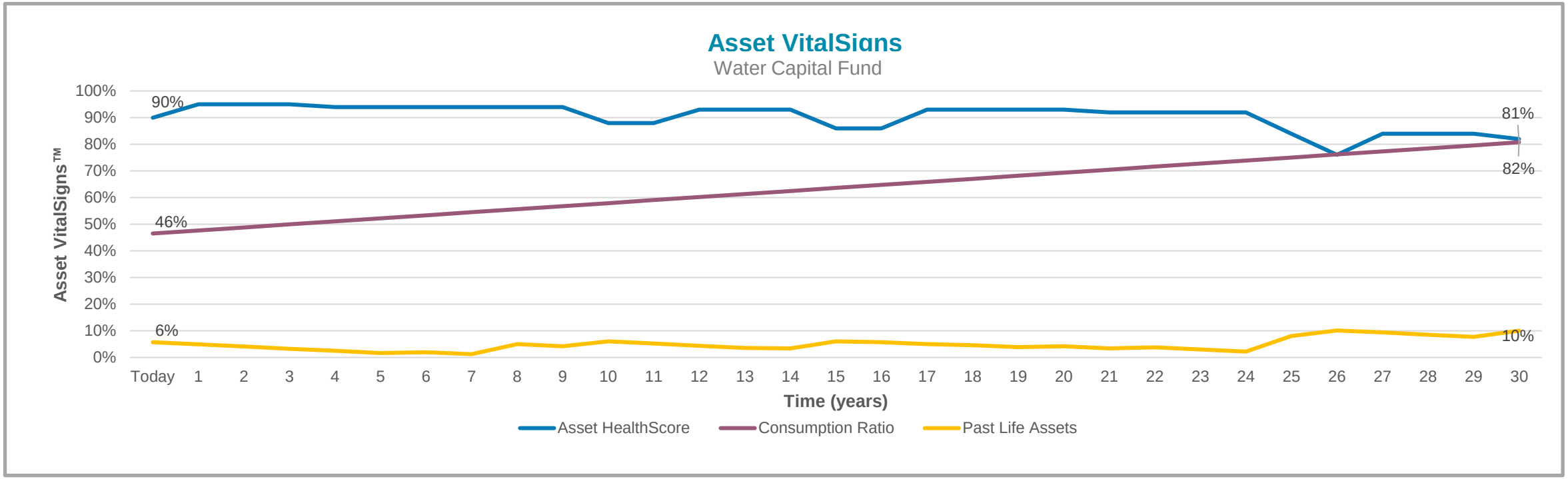


Figure 5.2: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for Water Capital Fund Assets

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

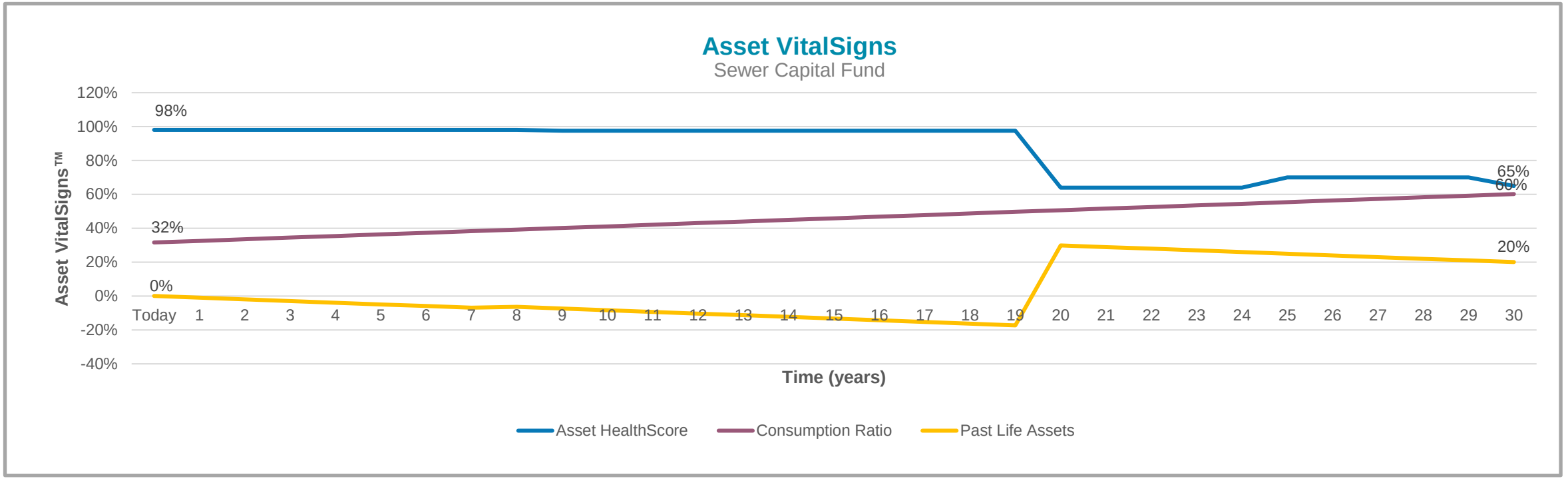


Figure 5.3: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for Sewer Capital Fund Assets

Observations

Scenario 3

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

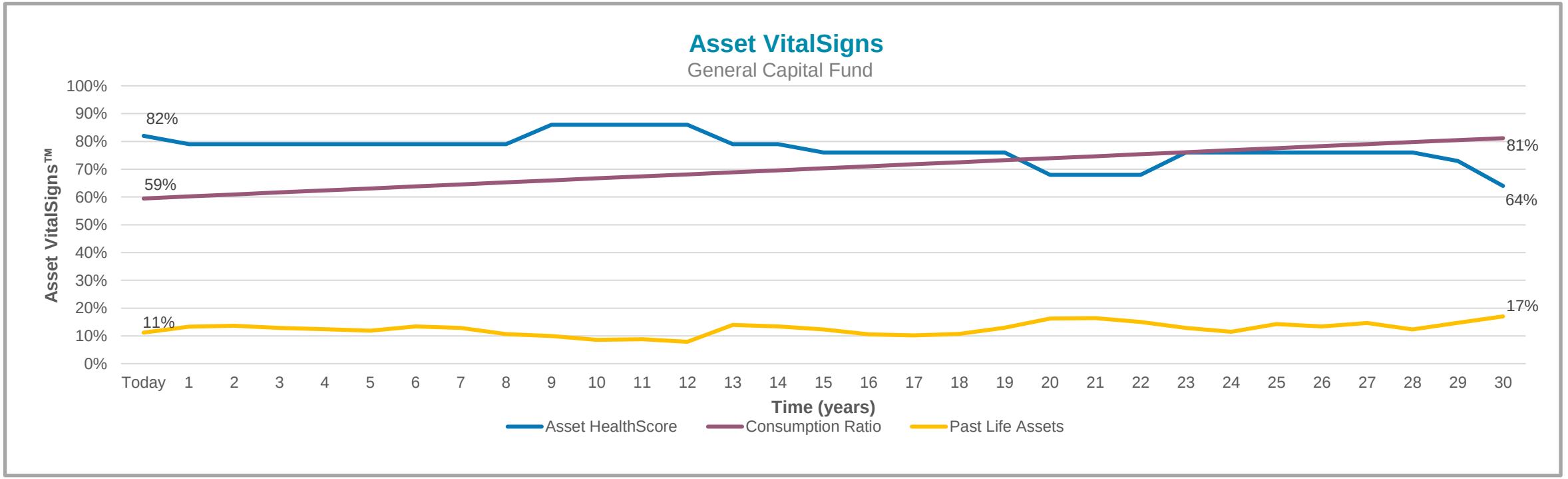
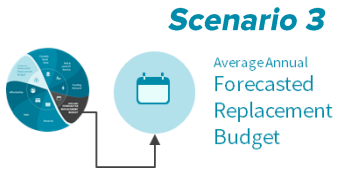


Figure 5.4: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for General Capital Fund Assets

Observations

Asset Replacement Funding Plan



Forecasted Asset Replacement Budget

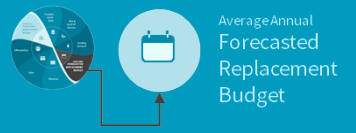
Asset Replacement Funding Gap

	Current Budget	Forecasted Budget	Funding Gap
Total	**$ 199,207**	**$ 703,171**	**$ (503,964)**
Water Capital Fund	**$ 72,461**	**$ 196,732**	**$ (124,271)**
Sewer Capital Fund	**$ 8,859**	**$ 22,137**	**$ (13,278)**
General Capital Fund	**$ 117,887**	**$ 484,302**	**$ (366,415)**
Building	$ 117,887	$ 64,296	$ 53,591
Drainage	$ -	$ 8,377	$ (8,377)
Equipment	$ -	$ 215,858	$ (215,858)
Roads and Bridges	$ -	$ 195,771	$ (195,771)

Figure 6.0: Asset Replacement Funding Gap

Observations

- The overall funding gap is $503,964
- The General Capital Fund represents majority of the funding gap (72%)
- The Water Capital fund funding gap is just under half of the General Capital Funds funding gap.



Scenario 4

Scenario 4

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Asset Replacement Budget Scenario Summary

Scenario Name: Prioritize Forecasted Budget based on Service Sustainability Score (5%-10% added to past life assets)

Scenario Description

- Asset replacement budget is prioritized based on service sustainability score (High = 15%-20% Past Life, Medium = 20% past life, Low = 25% past life)

	Forecasted Budget		% of Total
Total	**$**	**625,027**	**100%**
Water Capital Fund	**$**	**156,552**	**25%**
Sewer Capital Fund	**$**	**18,407**	**3%**
General Capital Fund	**$**	**450,068**	**72%**
Building	$	55,002	9%
Drainage	$	7,862	1%
Equipment	$	211,627	34%
Roads and Bridges	$	175,577	28%

Figure 4.1: Forecasted Asset Replacement Budget Summary

Observations

- General Capital Fund drives majority of the forecasted budget (approx. 72%).
- Within the General Capital Fund, Equipment, Roads and Bridges represent majority of the forecasted budget (62%).

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Budget on Asset VitalSigns Over Time

	Forecasted Budget	Starting Asset VitalSigns			Final Asset VitalSigns			Service Sustainability	
		Past Life	Consumption	Health Score	Past Life	Consumption	Health Score	Score	Category
Total	**$ 625,027**	**8%**	**51%**	**88%**	**19%**	**85%**	**64%**	**-**	**-**
Water Capital Fund	**$ 156,552**	**6%**	**46%**	**90%**	**15%**	**86%**	**64%**	**23**	**HIGH**
Sewer Capital Fund	**$ 18,407**	**0%**	**32%**	**98%**	**25%**	**65%**	**58%**	**12**	**MEDIUM**
General Capital Fund	**$ 450,068**	**11%**	**59%**	**82%**	**22%**	**86%**	**55%**	**-**	**-**
Building	$ 55,002	0%	50%	97%	25%	88%	55%	13	MEDIUM
Drainage	$ 7,862	50%	96%	10%	25%	94%	50%	10	MEDIUM
Equipment	$ 211,627	1%	61%	93%	25%	81%	55%	10	MEDIUM
Roads and Bridges	$ 175,577	18%	63%	72%	20%	86%	64%	17	HIGH

Figure 4.2: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

Observations

- There is a drop in the Asset HealthScore (88% to 64%) over the planning period.
- Sewer Capital Fund shows the largest drop in Asset HealthScore (98% to 58%) when compared to other capital funds.
- Assets with a Medium service sustainability score allow for about 25% of the assets to past their estimated service life.
- Assets with a High service sustainability score allow about 15%-20% of the assets to past their estimated service life.
- It could be expected that risk would increase, and level of service would decrease at the end of the planning period with the forecasted budget.

The figures 5.0-5.4 on the following pages illustrate how the Asset HealthScore and Asset VitalSigns change over the planning period year to year (This is a visual representation of figure 4.2 above).

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Budget on Asset HealthScore Over Time

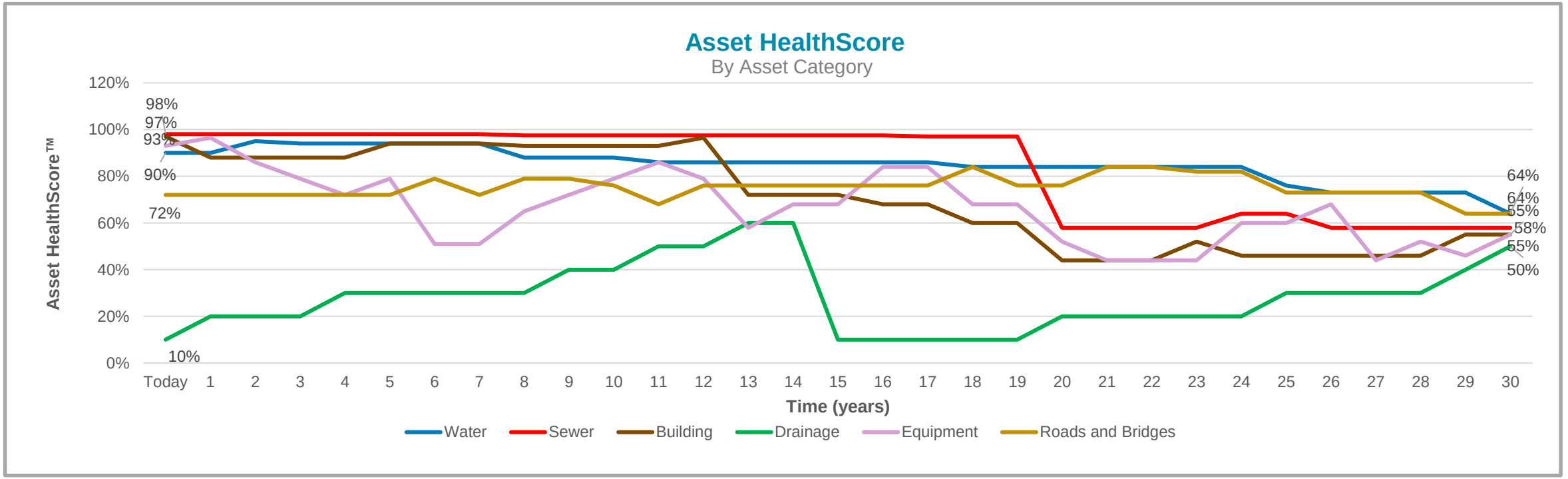


Figure 5.0: Impact of Forecasted Replacement Budget on Asset HealthScore Over Time by Asset Category

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

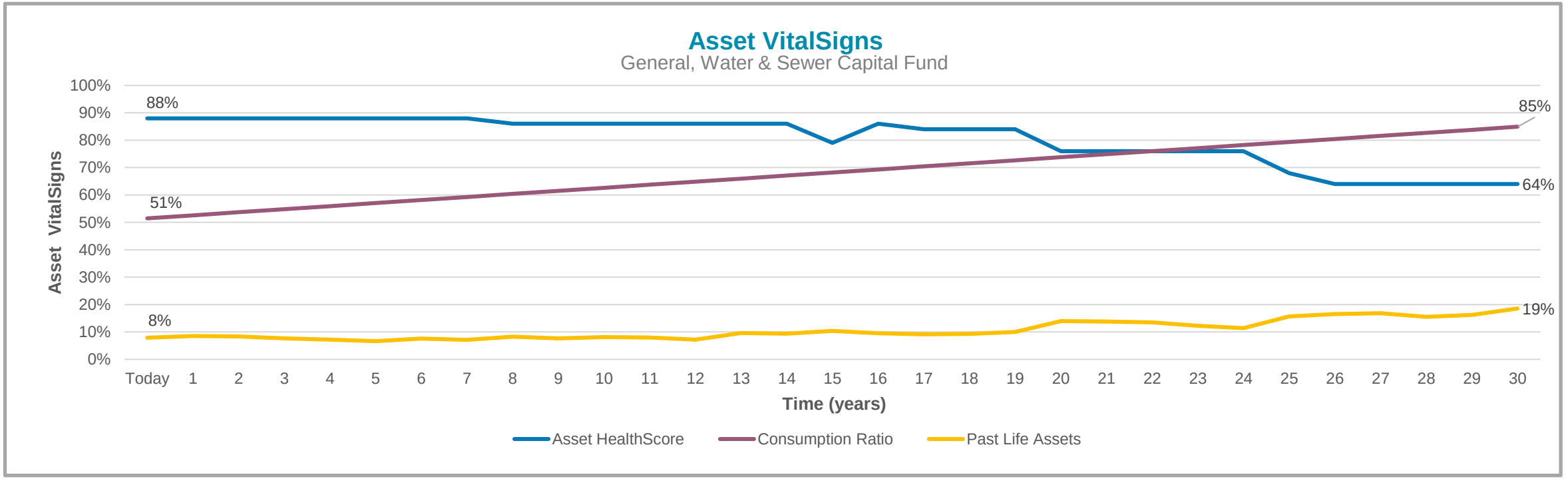


Figure 5.1: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for General, Water & Sewer Capital Funds

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

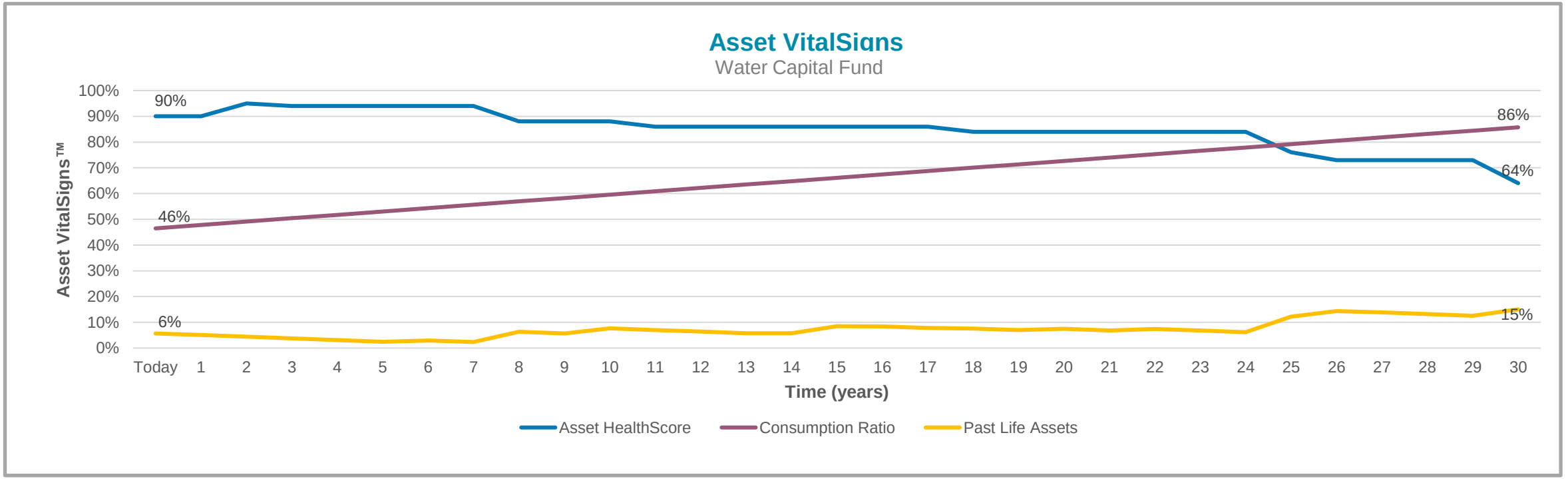


Figure 5.2: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for Water Capital Fund Assets

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

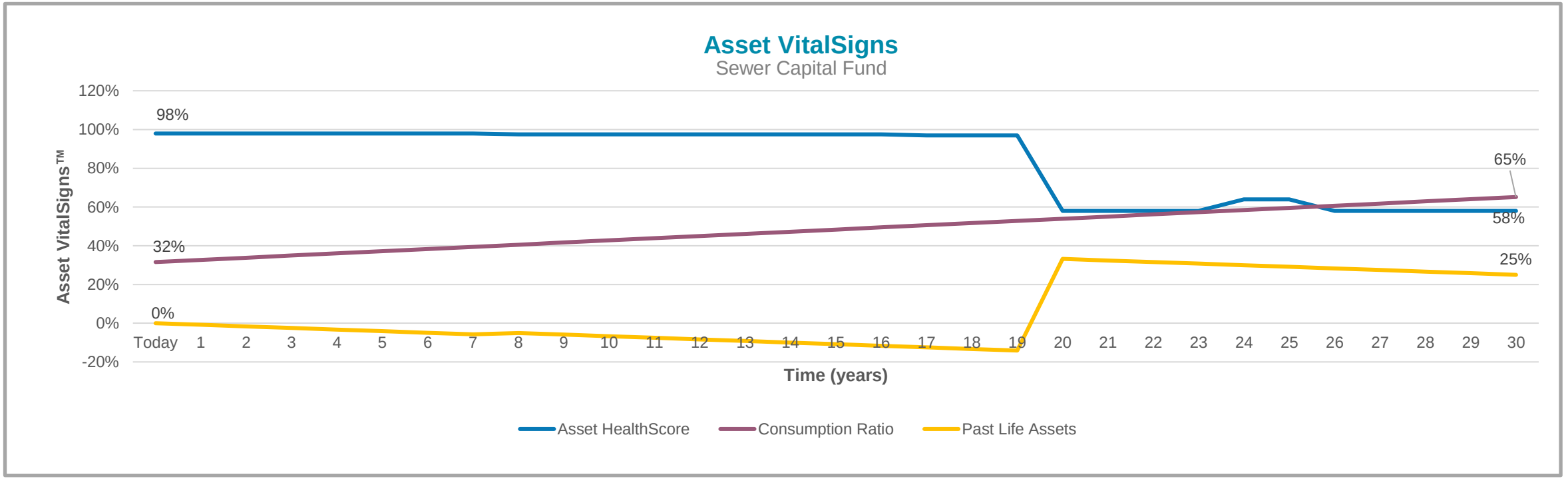


Figure 5.3: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for Sewer Capital Fund Assets

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time

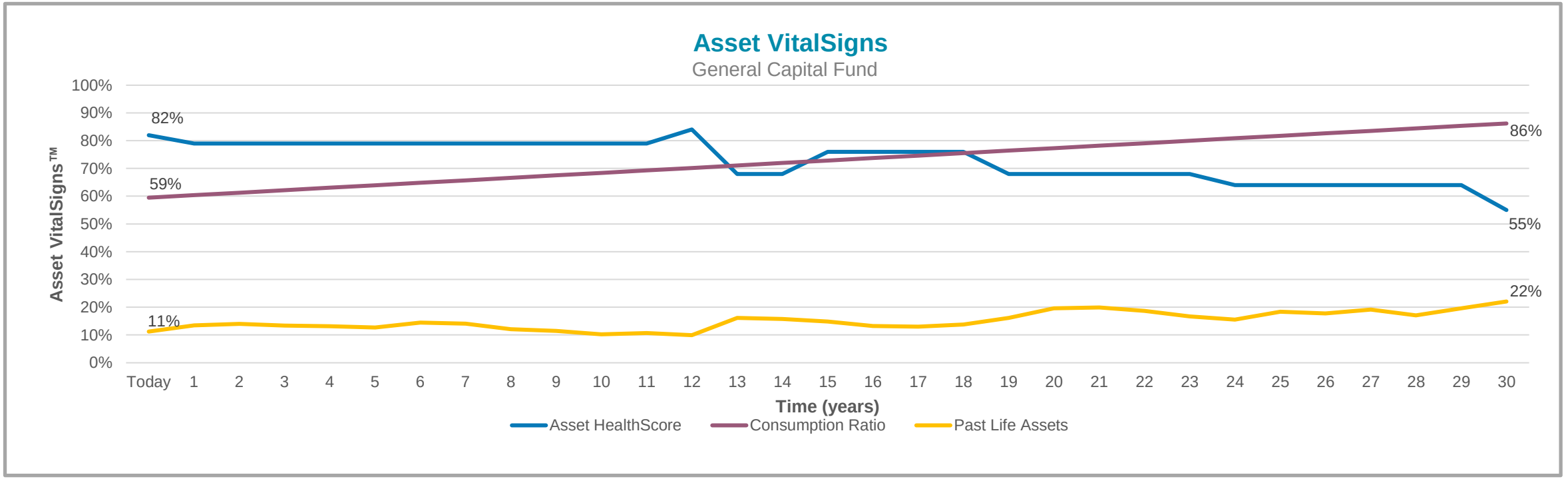


Figure 5.4: Impact of Forecasted Replacement Budget on Asset VitalSigns Over Time for General Capital Fund Assets

Observations

Asset Replacement Funding Plan

Forecasted Asset Replacement Budget

Asset Replacement Funding Gap

	Current Budget	Forecasted Budget	Funding Gap
Total	**$ 199,207**	**$ 625,027**	**$ (425,820)**
Water Capital Fund	**$ 72,461**	**$ 156,552**	**$ (84,091)**
Sewer Capital Fund	**$ 8,859**	**$ 18,407**	**$ (9,548)**
General Capital Fund	**$ 117,887**	**$ 450,068**	**$ (332,181)**

Figure 6.0: Asset Replacement Funding Gap

Observations

- The overall funding gap for this scenario is $425,820.
- General Capital Fund has the largest overall funding gap of $332,181 (represents 78% of the overall funding gap)

Summary

YourCity

Asset Replacement Funding Plan

Summary

Historically, local governments have been very effective at financial planning for operation and maintenance costs, but many do not fully plan for the replacement of their capital assets. As a result, many local government assets are now nearing or at the end of their life and officials are left asking how they can financially plan for the replacement of these assets in a responsible manner. In short, you are not alone in your desire to improve the way you think about and plan for asset replacements.

In order to begin to better understand what asset replacement budget is best for the community, a set of key performance indicators (KPI's) were calculated to help Village of Lions Bay better understand the impact the replacement budgets have on the future risk and level of service. These KPIs include Asset HealthScore, Past Life Assets, and Consumption Ratio.

Village of Lions Bay owns $ 46. million dollars in infrastructure which is about 51% into its life span and approximately 8% of the assets are past their estimated life with a health score of 88% today. Five funding scenarios were developed to help council and staff better understand the impact various asset replacement budgets will have the risk & level of service of the community's assets.

Scenario 1: Status Quo – All net cashflow is allocated for asset replacement

Scenario 2: Risk & Level of Service Remains Similar– Risk and level of service today is similar to risk & level of service at the end of the planning period (30 years).

Scenario 3: Prioritize Forecasted Budget based on Service Sustainability Score – Asset replacement budget is prioritized based on service sustainability score (High = 5% - 10% Past Life, Medium = 15% past life, Low = 20% past life)

Scenario 4: Prioritize Forecasted Budget based on Service Sustainability Score (5% added to past life assets) – Asset replacement budget is prioritized based on service sustainability score (High = 15%-20% Past Life, Medium = 20% past life, Low = 25% past life)

The starting and final Asset Vitalsigns, forecasted asset replacement budget, and asset funding gap is summarized in figures 7.1 to 7.3 on the following pages for each of the funding scenarios described above.

Asset Replacement Funding Plan

Summary

Starting & Final Asset VitalSigns Scenario Comparison

Figure 7.0 illustrates the starting & final Asset VitalSigns for each of the forecasted asset replacement budget scenarios and provides insights into how risk and level of service will change over the planning horizon. The final Asset VitalSigns are represented at the end of the planning period (i.e 30 years)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Starting Asset HealthScore	88%	88%	88%	88%
Final Asset HealthScore	20%	92%	76%	64%
Change	-68%	4%	-12%	-24%
Starting Past Life Asset	8%	8%	8%	8%
Final Past Life Asset	46%	5%	14%	19%
Change	38%	-3%	6%	11%
Starting Consumption Ratio	51%	51%	51%	51%
Final Consumption Ratio	112%	71%	80%	85%
Change	61%	20%	28%	33%
Forecasted Budget	**$199,207**	**$847,000**	**$780,239**	**$625,588**
Funding Gap	**$0**	**($647,793)**	**($581,032)**	**($426,381)**
Risk	Increase	Similar	Increase	Increase
Level of Service	Decrease	Similar	Decrease	Decrease

Figure 7.0: Asset VitalSign Scenario Comparison

Observations

- Scenario 1 could result in the largest potential increase in risk and largest potential drop in level of service.
- Scenario 2 risk and level of service levels should be similar today into the future.
- Scenario 3 could result in higher risk levels & lower levels of service in the future but better than scenarios 1 & 4
- Scenario 4 could result in higher risk of failure & lower level of service in the future but would be better than scenario 1 but not as good as scenario 2 or 3.

Asset Replacement Funding Plan

Summary

Forecasted Asset Replacement Budget Scenario Comparison

Figure 7.1 summarizes the average annual forecasted asset replacement budgets for each scenario. These figures represent the average annual investment.

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Total	**$ 199,207**	**$ 840,000**	**$ 703,171**	**$ 625,027**
Water Capital Fund	**$ 72,461**	**$ 245,000**	**$ 196,732**	**$ 156,552**
Sewer Capital Fund	**$ 8,859**	**$ 40,000**	**$ 22,137**	**$ 18,407**
General Capital Fund	**$ 117,887**	**$ 555,000**	**$ 484,302**	**$ 450,068**
Building		$ 110,000	$ 64,296	$ 55,002
Roads and Bridges		$ 210,000	$ 195,771	$ 175,577
Drainage		$ 5,000	$ 8,377	$ 7,862
Equipment		$ 230,000	$ 215,858	$ 211,627

Figure 7.1: Forecasted Asset Replacement Budget Scenario Comparison

Observations

- Asset replacement budgets ranges from $199,207 to $840,000 depending on the scenario modeled.
- General Capital Fund drives majority of the forecasted replacement budget in all scenarios.
- Within General Capital Fund, roads and bridges and equipment drive majority of the forecasted budget.

Asset Replacement Funding Plan

Summary

Asset Funding Gap Scenario Comparison

Figured 7.3 summarizes the asset funding gap for each the forecasted asset replacement budget scenarios.

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Total	**$ -**	**$ (640,793)**	**$ (503,964)**	**$ (425,820)**
Water Capital Fund	$ -	$ (172,539)	$ (124,271)	$ (84,091)
Sewer Capital Fund	$ -	$ (31,141)	$ (13,278)	$ (9,548)
General Capital Fund	$ -	$ (437,113)	$ (366,415)	$ (332,181)

Figure 7.3: Asset Funding Gap Scenario Comparison

Observations

- There is a funding gap for all scenarios modeled except scenario 1.
- The largest funding gap exists within scenario 2.
- The funding gap is mostly driven by the General Capital Fund.

Asset Replacement Funding Plan

Concluding Remarks

Village of Lions Bay has done an exceptional job at keeping your infrastructure maintained to date and now has an opportunity to look into the future to plan for long-term capital asset replacements. By planning for future asset replacements today, you will help ensure the community can continue to provide great services to your citizens and promote stable and consistent taxes and rates, today and into the future.

In this report we explored how to measure risk and level of service as well showed how it can be corelated to a forecasted budget. We explored the impact various forecasted budgets would have on the risk and level of service and shared the funding gap of each of those scenarios.

Now, as community leaders, it is time to reflect and discuss the scenarios and information presented within this report. Through these discussions, it is important to determine your desired future state and from there the required asset replacement budget will become clear. There is no right or wrong way to think about this, rather, the emphasis should be on what you as leaders believe is best for your community. After clarity is gained on the desired future state and the respective asset replacement budgets, it is important to consider a long-term financial strategy which will provide the road map for the organization to move from its current asset replacement budget to the identified asset replacement budget. This will ultimately help the community bridge its funding gap and move toward a financially sustainable future, which will provide confidence that funds will be available to replace assets when needed and assurance that you have the financial means to support your desired future state. If this can be achieved, know that you as community leaders will have left your community better than you found it.

Asset Management is a continual improvement process that requires time, investment, and champions within the organization to ensure it lives beyond the current staff and council. As you explore how to continue to improve your asset management capacity, I would welcome you to consider the following possible next steps.

1. **Asset Replacement Financial Strategy:** The financial strategy would provide you the road map of how to move from current asset replacement budget to the set asset replacement budget from phase 1. The financial strategy will answer the question “how will we fund the replacement budget?” by considering reserves, debt, and affordability.
2. **Annual Reporting Template:** An annual reporting template would allow the Asset Replacement Funding Plan information to be presented annually to staff and council in standard format. This would allow the you to be able to monitor and measure progress over time and observe trends.
3. **Improve Data:** Over time, it is always important to improve your asset inventory data, which could include collecting a more detailed inventory, improving replacement costs and estimated life spans. In particular, Village of Lions Bay could benefit from having more detailed facility inventory data.

If you have any questions feel free to contact the undesigned,

Cory Sivell, CEO @ YourCity