VILLAGE OF BELCARRA

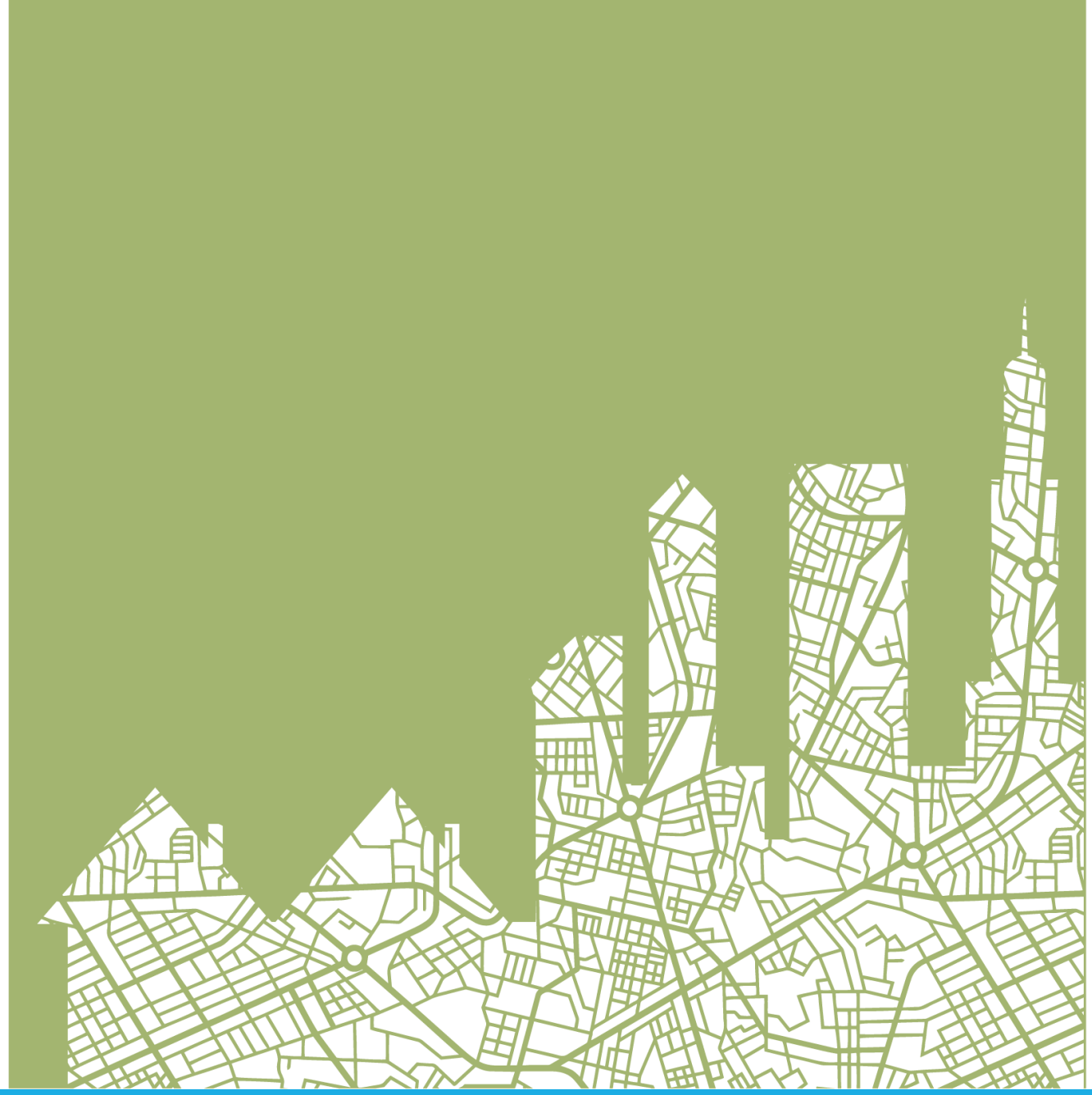
ASSET REPLACEMENT FORECAST

PHASE 2 - SUMMARY REPORT

MARCH 2022

PREPARED BY:

JW INFRASTRUCTURE PLANNING



PROJECT OVERVIEW

Phase 1 – strategy and roadmap	• Assess current AM practices at Belcarra • Develop AM Strategy and Roadmap
Phase 2 - assess the current state of the Village's infrastructure	• Update the asset inventory • Assess the condition of the assets • Develop the asset replacement forecast
Phase 3 – financial forecast	• Understand current capital needs • Evaluate current financial capacity • Develop financial projection

WHAT IS ASSET MANAGEMENT?

Asset Management (AM) is an integrated process that combines the skills, expertise, and activities of people with information about the Village's physical assets and finances, so that planning and decision making support sustainable service delivery

Asset Management was identified as the 2020 Top Priority for Belcarra

THE VILLAGE OF BELCARRA'S MISSION

The Village of Belcarra's mission is to enhance the quality of life for citizens, visitors and future generations in our municipality and the region

Asset Management is a key component of making Belcarra's mission statement a reality

REPORT OVERVIEW

1. Objectives
2. Assessment Framework Overview
3. Assessment Results
4. Strategy and Roadmap

OBJECTIVES

PHASE 2 OBJECTIVES

The objective of phase 2 was to:

- Update and consolidate the Village's asset inventory
- Assess the condition and remaining life of the assets
- Develop an asset replacement forecast

ASSET INVENTORY UPDATE

INVENTORY – INFORMATION SOURCES

Roads Assets – Information on the roads network, replacement values and condition was derived from the 2018 Roads Asset Management Plan.

Water System Assets – Information on the water network was derived from the Village's water system plan prepared by Beesley Engineering. Information on the reservoirs and pumping facilities was derived from the tangible capital asset (TCA) ledger and field inspection.

Drainage Assets – Information on the drainage assets was derived from the 2017 Drainage Study prepared by Opus Engineering.

Recycling Compound Assets - Information on the recycling compound assets was derived from the TCA ledger, field inspection and discussions with Village staff.

Village Hall and Public Works Buildings - Information on the Village Hall and Public Works buildings was derived from the TCA Ledger, 2020 Insurance appraisal, field inspection and discussions with Village staff.

Vehicles, Equipment and Misc. Assets – Information on vehicles, equipment and other miscellaneous assets was TCA Ledger, and discussions with Village staff.

INVENTORY – REPLACEMENT VALUES

The replacement values of the Villages assets were derived from the following sources:

Roads Assets –2018 Roads Asset Management Plan escalated to 2021 values based on consumer price index (CPI).

Water System Assets – Historical cost from the TCA ledger escalated to 2021 values based on CPI

Drainage Assets – 2017 Drainage Study escalated to 2021 values based on CPI

Recycling Compound Assets – Historical cost from the TCA ledger escalated to 2021 values based on CPI, and discussions with Village staff.

Village Hall and Public Works Buildings - 2020 Insurance appraisal escalated to 2021 values based on CPI

Vehicles, Equipment and Misc. Assets – TCA ledger escalated to 2021 values based on CPI, and discussions with Village staff

REPLACEMENT VALUE OF VILLAGE ASSETS

FUND	REPLACEMENT VALUE
WATER	$ 11,120,000
GENERAL	$ 10,170,000
TOTAL	**$ 21,290,000**

BREAKDOWN OF WATER SYSTEM ASSETS

WATER FUND ASSETS		REPLACEMENT VALUE
WATER PIPES	$	6,940,000
OTHER WATER	$	4,180,000
TOTAL	**$**	**11,120,000**

BREAKDOWN OF GENERAL FUND ASSETS

GENERAL FUND ASSETS	REPLACEMENT VALUE	
BUILDINGS	$	1,260,000
EQUIPMENT	$	990,000
ROADS*	$	2,900,000
STORMWATER	$	4,720,000
VEHICLES	$	300,000
TOTAL	**$**	**10,170,000**

* Roads surface value only (the base should last 100 years+ with proper road maintenance)

ANNUAL SUSTAINABLE INVESTMENT

The annual sustainable investment is the replacement value of the assets divided by their estimated lifespan. This reflects the amount that would need to be put aside annually so that the asset could be replaced at the end of its useful life.

For example, if you were to purchase the latest iphone for $800 and you believe it will last 4 years then the annual sustainable investment would be $200 per year ($800 divided by 4 years). So if you were to save $200 a year you would have the money in your bank account to replace that phone at the end of the 4 years.

The annual sustainable investment is a useful guide to understanding the lifecycle costs of your infrastructure so that user fees and taxation can be determined in a manner that is equitable for current and future generations.

It should be noted that the annual sustainable investment only considers the replacement of existing assets and not new assets that may be desired in the future.

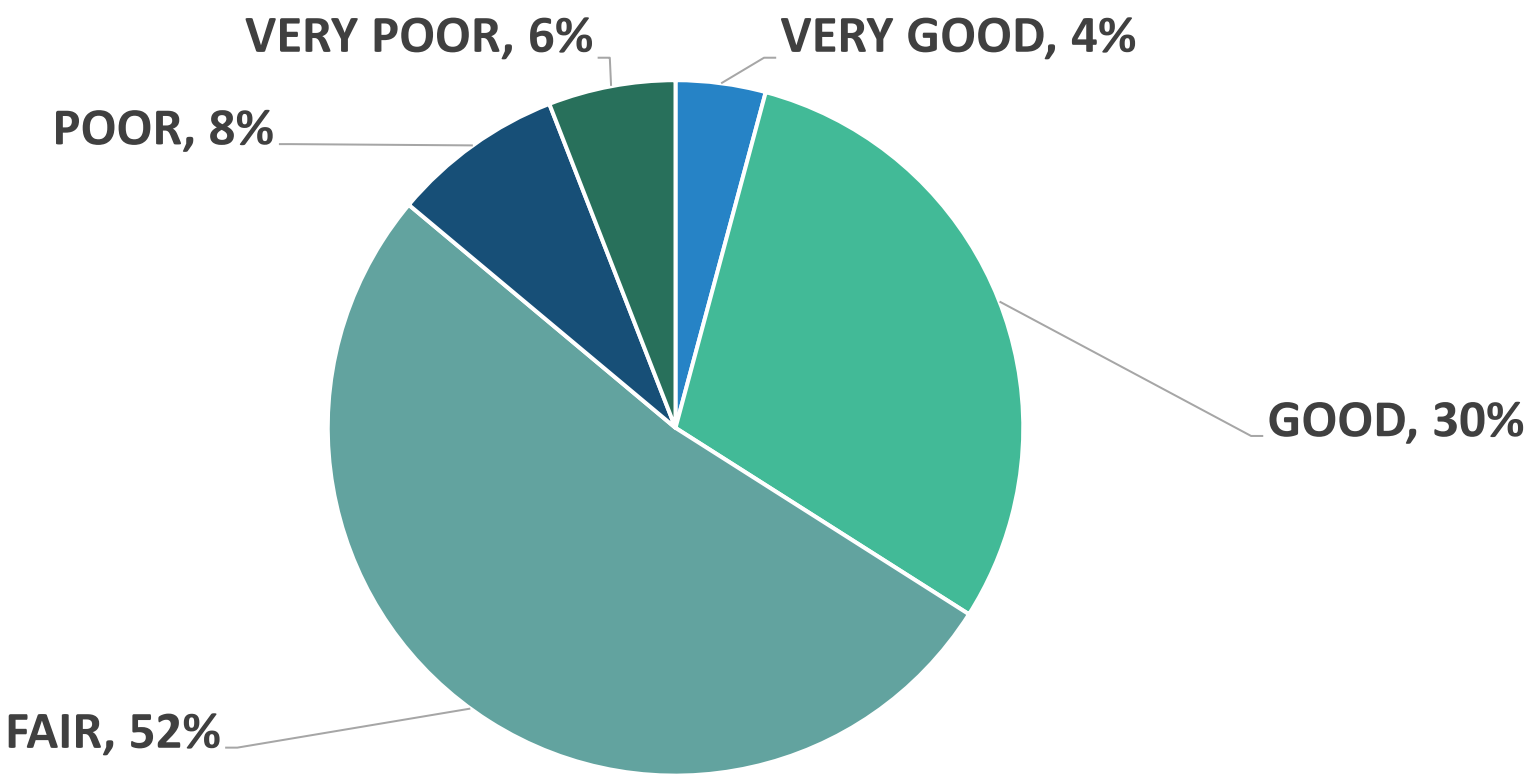
ANNUAL SUSTAINABLE INVESTMENT

GENERAL FUND ASSETS	ANNUAL SUSTAINABLE INVESTMENT	
BUILDINGS	$	30,000
EQUIPMENT	$	70,000
ROADS	$	60,000
STORMWATER	$	80,000
VEHICLES	$	20,000
TOTAL	**$**	**260,000**

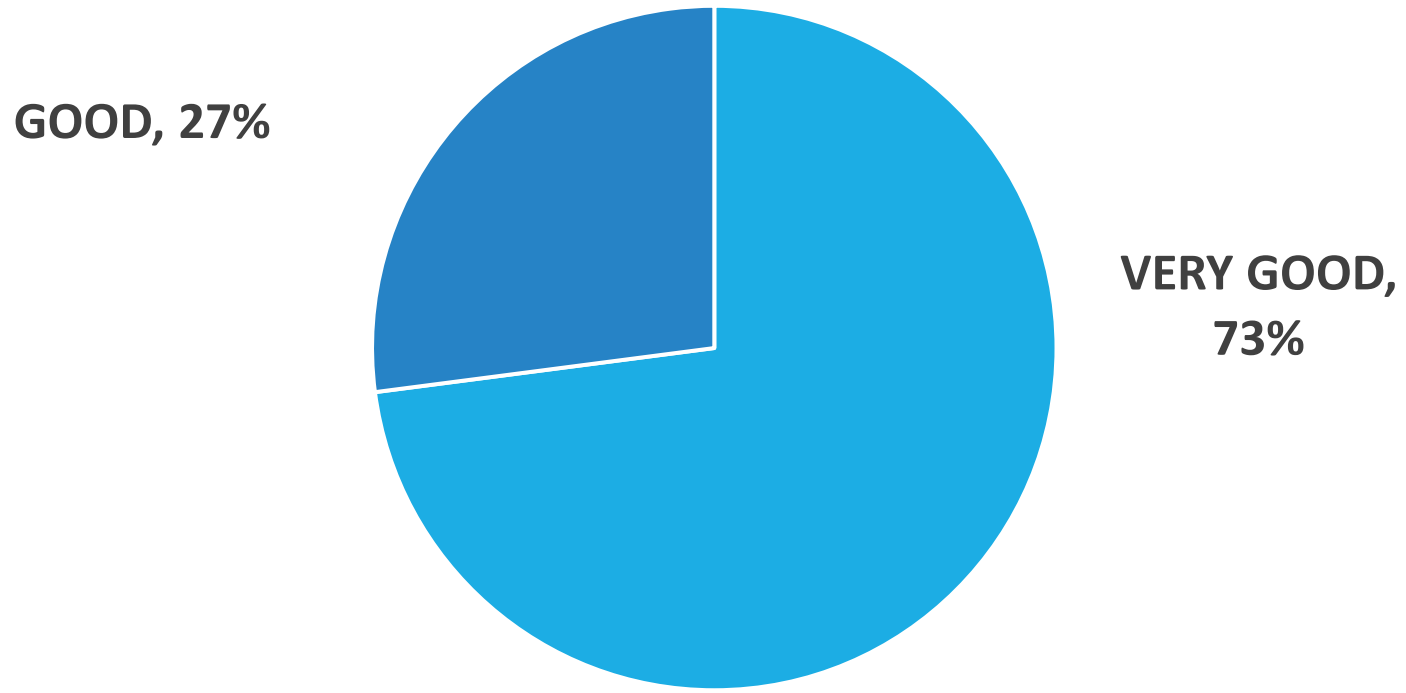
ANNUAL SUSTAINABLE INVESTMENT

WATER FUND	ANNUAL SUSTAINABLE INVESTMENT	
WATER PIPES	$	80,000
OTHER WATER	$	100,000
TOTAL	**$**	**180,000**

GENERAL FUND ASSET CONDITIONS



WATER FUND ASSET CONDITIONS



ASSET REPLACEMENT FORECAST

The Asset Replacement Forecast (ARF) is a useful way to understand and visualize the timing of asset replacements. The ARF is simply the sum of all replacement values that occur in any given year.

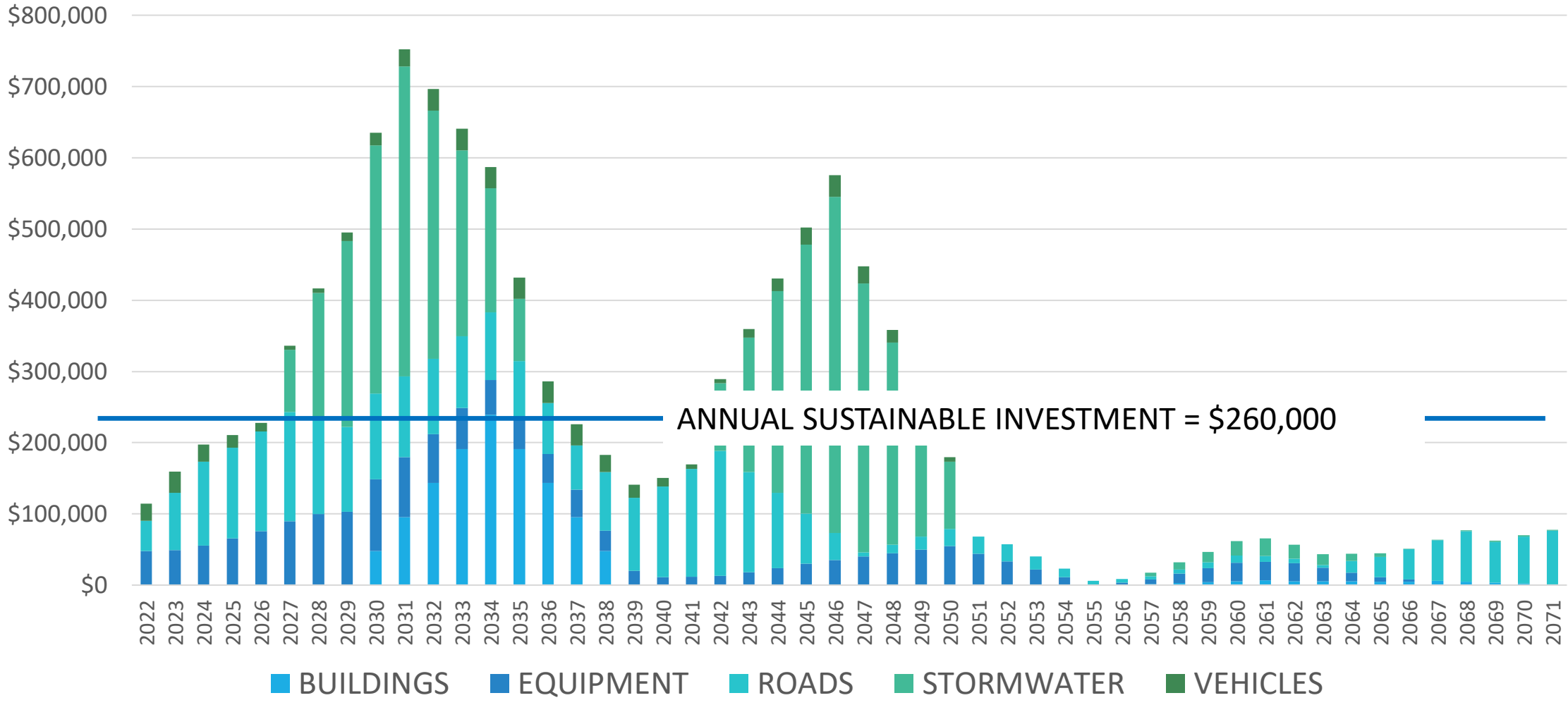
The asset replacement date is derived by adding the estimated remaining life to the current date. For example, if a vehicle is estimated to have 8 years of useful life remaining then the forecast replacement date would be the year 2030 (2022 plus 8 years).

For the Village of Belcarra the replacement dates for the assets were based on the best information available. Where actual condition information was known this was used to estimate the remaining life. Where no condition information was available then the age of the asset together with a best practice estimated lifespan was applied.

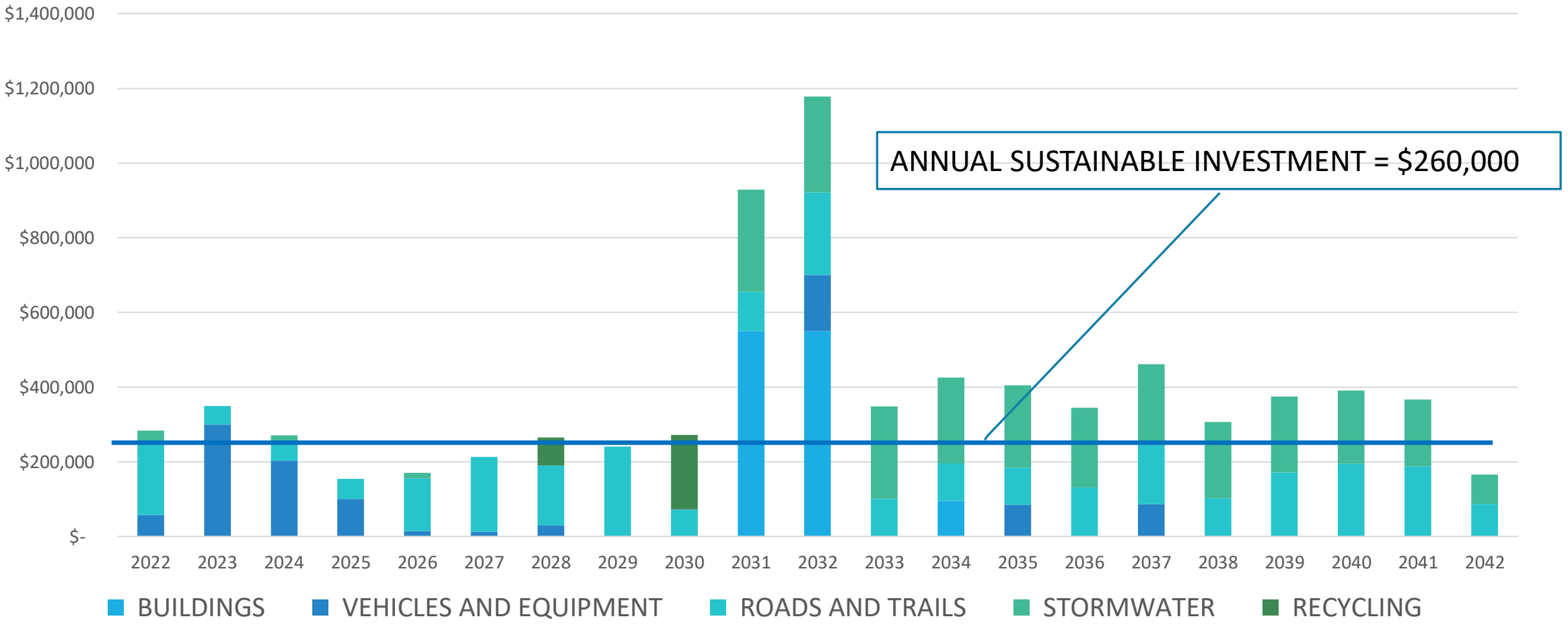
Since the replacement dates are an estimate and the costs are distributed statistically in the 50 year forecasts, this will smooth out any large spikes over several years. The 20 year forecasts have not been statistically smoothed.

It should be noted that these types of forecasts are high level and for general decision-making purposes and do not replace the need for long term capital plans.

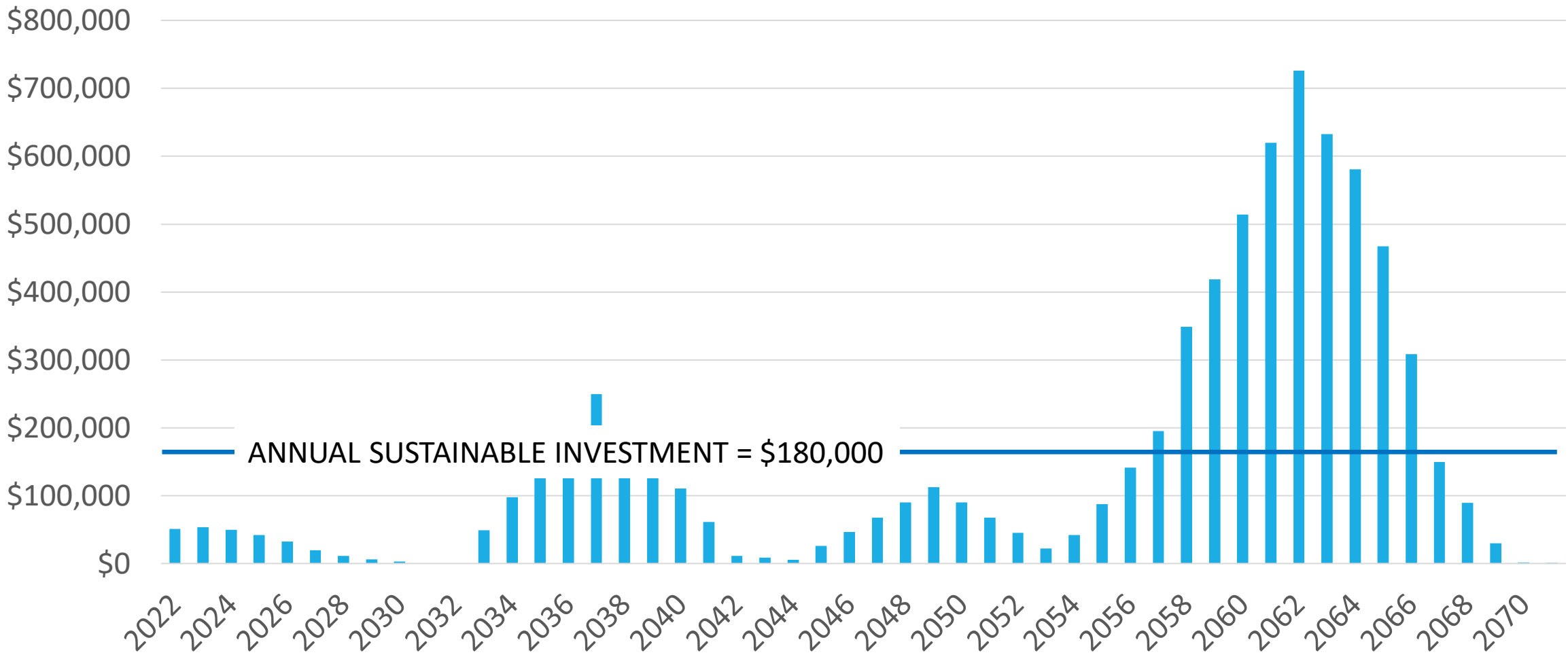
GENERAL FUND ASSET REPLACEMENT FORECAST



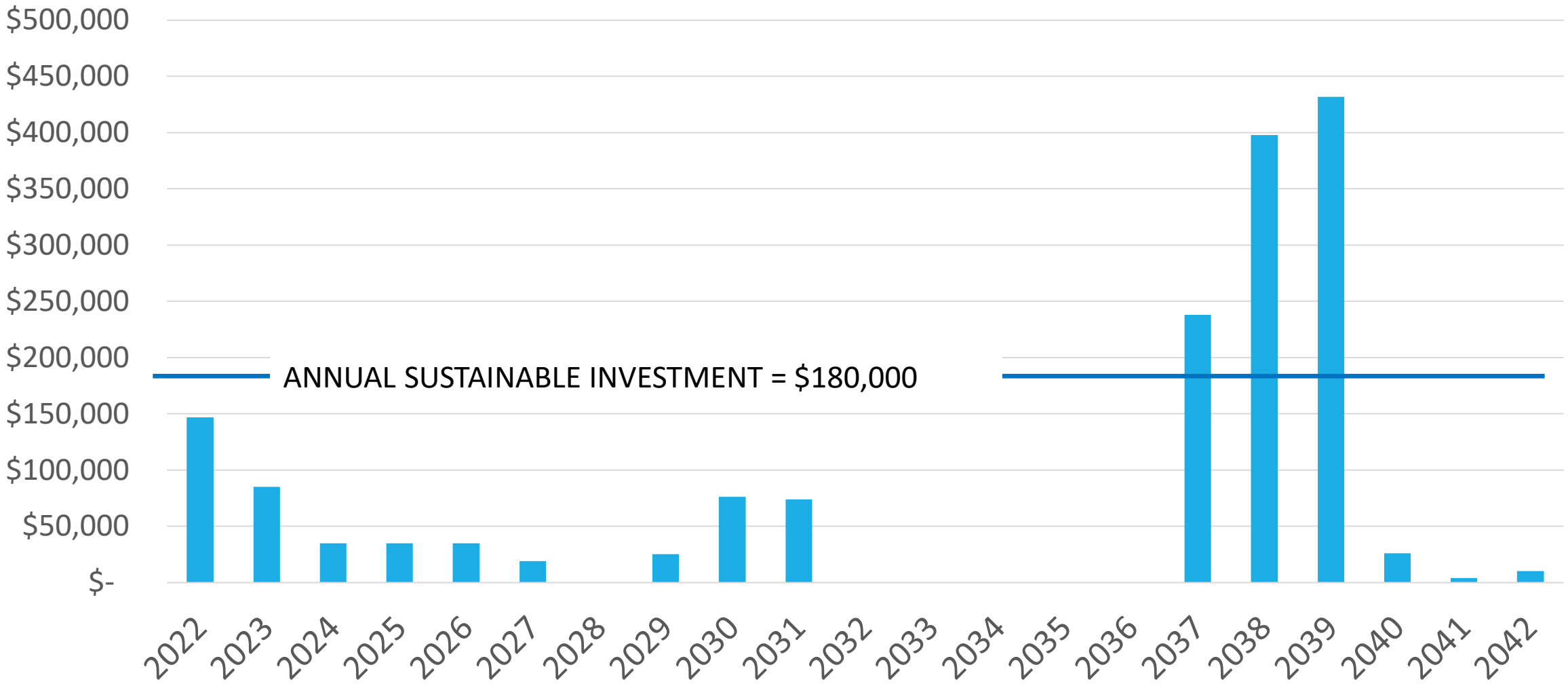
GENERAL FUND 20 YEAR FORECAST



WATER FUND ASSET REPLACEMENT FORECAST



WATER FUND 20 YEAR FORECAST



ASSET REPLACEMENT FORECAST OBSERVATIONS

The General Fund asset replacement forecast (ARF) shows two pronounced “humps”, one centered around the year 2031 and a smaller hump centered around 2046. The 2031 hump is primarily related to corrugated metal drainage pipes and culverts. These materials have lifespans in the order of 50 years so in theory many of these assets will need replacing in the next 2 decades. The second hump is related to the concrete drainage pipes and culverts which were assigned a lifespan of 65 years. It is recommended that actual condition of these assets be assessed to gain a better estimate of remaining life.

The Water Fund ARF shows three pronounced humps centered around 2037, 2049 and 2062. The first hump reflects the replacement of mechanical and electrical equipment at the Tatlow and Midden stations. The second hump is related to the Tatlow reservoir and Dutcham Creek water tower. The last hump is the replacement of PVC pipe which has an expected lifespan of 80 to 100 years.

The preparation of this project was carried out with assistance from the Government of Canada and the Federation of Canadian Municipalities. Notwithstanding this support, the views expressed are the personal views of the authors, and the Federation of Canadian Municipalities and the Government of Canada accept no responsibility for them.