

# 2020 UPDATE

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## Asset Management Investment Report Version 3

Maureen Peatfield, Manager of Financial Services  
Resort Municipality of Whistler.  
T: 604-935-8123  
[mpeatfield@whistler.ca](mailto:mpeatfield@whistler.ca)

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## 1.0 Executive Summary

In 2018 the Resort Municipality of Whistler (RMOW) undertook an Asset Management study in order to obtain greater understanding of municipal assets. In particular the goal of the work undertaken was to establish best practices for asset management by answering the following questions:

- 1) *How much are RMOW assets worth?*
- 2) *How much remaining life do the assets have?*
- 3) *How much value of the assets are consumed?*
- 4) *What is the RMOW infrastructure deficit?*
- 5) *What are the life cycle costs?*
- 6) *When do the assets need to be replaced?*

By understanding the answers to these questions, the community will be able to budget and plan for the replacement of their infrastructure. Failure to plan would put the community at risk of service disruptions, decreased level of service, emergency repairs and sudden and significant tax and user fee increases. By being proactive today, the community can ensure that services are sustainable so that current and future generations can enjoy the same levels of service with reasonable tax rates and user fees. The assets included in this study area are Water, Sewer, Drainage, Buildings, Transportation, Land Improvements (Parks) & Equipment.

In summary, the total value of assets included in this study is \$859 million, up from \$827 million in 2019. On average, these assets have 52% remaining life (down from 54% in 2019), which means they approximately halfway through their lifespan and 13% (\$114 million versus \$115 million in 2019) of the community's assets has passed its expected lifespan (a.k.a. deficit). In order to ensure these assets can continue to provide service, decision makers must determine the appropriate funding target for asset replacement.

In 2019/20 management undertook a smaller project to improve some of the data, understand risk & level of service and review funding levels. This work was delayed due to COVID-19 and is expected to be completed by the end of October 2020. Management intends to apply for additional grant funding to continue improving asset management practices in 2021.

### What is Asset Management?

The process of bringing together the skills and activities of people; with information about the community's physical infrastructure assets and financial resources to ensure long term sustainable service delivery.

Sound asset management practices support sustainable service delivery by considering community priorities, informed by an understanding of the trade-offs between the available resources, risk and the desired services.

Sustainable service delivery ensures that current community services are delivered in a social, economic, and environmentally responsible manner that does not compromise the ability of future generations to meet their own needs.



**Figure 1-1.1 Asset Management Framework**

Table 1.1. Below summarizes several key infrastructure metrics that can be used to help the community understand the state of their infrastructure

Table 1.1.1 Asset Management Investment Plan V2.0 Results

Description	Replacement Cost	Infrastructure Deficit	Remaining Life	Asset Consumption	Life Cycle (IBP)
<b>General Capital</b>	<b>\$460M</b>	<b>23%</b>	<b>47%</b>	<b>\$244M</b>	<b>\$20.9M</b>
Equipment	\$31M	40%	29%	\$22M	\$4.6M
Land Improvement	\$74M	9%	62%	\$28M	\$2.1M
Transportation	\$111M	8%	59%	\$46M	\$3.3M
Building	\$196M	39%	36%	\$125M	\$10.0M
Drainage	\$49M	0%	52%	\$23M	\$874K
<b>Sewer Capital</b>	<b>\$198M</b>	<b>2%</b>	<b>56%</b>	<b>\$87M</b>	<b>\$4.0M</b>
<b>Water Capital</b>	<b>\$170M</b>	<b>3%</b>	<b>59%</b>	<b>\$70M</b>	<b>\$3.3M</b>
<b>Solid Waste Capital</b>	<b>\$31M</b>	<b>0%</b>	<b>62%</b>	<b>\$12M</b>	<b>\$1.0M</b>
<b>Total</b>	<b>\$859M</b>	<b>14%</b>	<b>52%</b>	<b>\$413M</b>	<b>\$29.3M</b>

\*Refer to Terms and Definitions of replacement cost, infrastructure deficit, % remaining life, value consumed, life cycle

Each of the metrics above (replacement cost, remaining life percentage, consumption, deficit, life cycle) provides key insights into the state of the community's infrastructure and can be used to assist with setting long-term funding targets for asset replacement. Setting an appropriate long-term funding target is critical to the future health of the community's infrastructure and directly affects the level of service, risk and fees paid by its stakeholders. In order to assist the community with setting the long-term funding targets for asset replacement, the life cycle funding target was calculated. The life cycle funding target represents the average annual investment required to replace assets at the end of their life span. It was determined that there is a funding gap between the life cycle funding target of \$29.3 million and the current funds available for capital works in 2019 of \$19.5 million. This gap provides insights that over the long-term, RMOW is not investing enough to sustain assets at the current level of service.

The RMOW received approval for a small grant through UBCM to further refine the life cycle funding target based on risk, level of service, and develop a revenue strategy to meet that target. In 2020 management intends to apply to two grants through FCM and UBCM in order to improve our asset management systems by streamlining data collection and monitoring systems; including natural assets into the asset inventory; integrating asset funding targets into financial planning; developing a funding strategy for assets; and strengthening organizational capacity through comprehensive asset management policies, training, clarifying roles and responsibilities, and developing a framework for prioritizing capital projects.

## TERMS AND DEFINITIONS

### ASSET

A physical component of a system that has value, enables services to be provided, and has an economic life greater than 1 year.

### FUNDS AVAILABLE FOR CAPITAL (A.K.A Transfers to Reserves)

Represents the total annual funds that are available for capital projects after all operation and maintenance expenditures are paid (a.k.a. transfers to reserves).

### REPLACEMENT COST

The cost required to replace all assets in current dollars, based on a like-for-like replacement.

### INFRASTRUCTURE DEFICIT

Infrastructure deficit is a measure of the amount of infrastructure that has passed its theoretical service life, but still provides service to the community. This is typically represented as a percentage of the total infrastructure replacement value:

**Infrastructure Deficit**

**Replacement Cost**

### REMAINING LIFE PERCENTAGE

Remaining life is an estimate of the percentage of life left in an asset before it needs to be theoretically replaced and can be used as a proxy for condition. The remaining life percentage is calculated by taking the number of remaining years before replacement and dividing it by its estimated service life.

### ASSET CONSUMPTION

Asset consumption is a measure of the financial value of the asset that has been consumed to date.

#### **Example:**

*Asset Value: \$10*

*Service Life: 10 Years*

*Life Cycle (Amortization): \$1/yr*

*Age: 5 Years Old*

*Asset Consumption: 5 Years old x Life Cycle (\$1) = \$5*

### LIFE CYCLE

Represents the average annual life cycle investment required to sustain the assets over the long term, based on service life estimates that were derived from Industry Best Practice (IBP) documentation. These service life estimates are typically conservative and often lead to unrealistic funding targets. The formula used to calculate the Life Cycle is:

$$\sum \frac{\text{Replacement Cost}}{\text{Industry Best Practice}}$$

## LEVEL OF SERVICE

A measure of the quality and reliability of a service from the perspective of residents, businesses, and customers in the community.

## REVENUE

The income received from taxes, user fees, government transfers and other sources.

## RISK(S)

Events or occurrences that will have an undesired impact on services (Risk = Consequence of Failure x Likelihood of Failure).

## CONSEQUENCE OF FAILURE (COF)

A measure of the impact that an asset failure would have relative to other assets. Typically, Consequence of Failure (COF) considers triple-bottom-line thinking, which considers the environmental, social and financial aspects.

## LIKELIHOOD OF FAILURE (LOF)

A measure of the probability of an asset failure relative to other assets. Typically, Likelihood of Failure (LOF) considers rating it on a three-level system.

## SERVICE LIFE INDUSTRY BEST PRACTICE (IBP)

The length of time an asset will last before it requires replacement or rehabilitation, based on published industry standards.

## TOTAL ADJUSTABLE REVENUE

The revenue currently collected through taxation or user fees that could be directed towards capital asset replacement.

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## 2.0 What is Asset Management?

Asset management is a continual improvement process that focuses on bringing together the skills and activities of people, combined with information about assets and finances, to enable long-term sustainable service delivery. Sustainable service delivery ensures that current community services are delivered in a socially, economically, and environmentally responsible manner that does not compromise the ability of future generations to meet their own needs. Sound asset management practices support sustainable service delivery by considering community priorities and understanding the trade-offs between the available resources, risks and desired service levels. In order to help guide communities through their asset management journeys, the Ministry of Community Sport and Health, UBCM and Asset Management BC developed the “Asset Management for Sustainable Service Delivery Framework.”

It is important to note there is no right spot to start on the framework; rather, it is up to each community to determine their specific asset management needs and build their program based on their individual priorities.

### 2.1 Why Is Asset Management Important?

Communities across Canada are currently faced with infrastructure and organizational challenges. Many are realizing that most of their infrastructure was installed decades ago and has continually provided service to the community with little-to-no service disruption. These assets, which have provided significant value to the community, are now nearing the end of their service life; however, many local governments have not fully planned for their replacement.

With increasing cost pressures and unsustainable funding approaches, communities are beginning to realize they need to change the way they think about managing their assets, recovering revenues, and delivering services. Communities are now embracing the need to integrate asset management principles and thinking about their organization with the following goals in mind:

- » Be financially sustainable over the long term.
- » Reduce the need to place a large financial burden on future generations.
- » Increase the likelihood that user fees and property taxes are stable and consistent to reduce the need of large ‘one-off’ fee increases.
- » Increase the likelihood that service levels can be maintained over the long term.

With this understanding, the RMOW invested in improving their understanding of long-term costs associated with asset replacement through the development their Asset Management Investment Plan Version 1 (AMIP V1).



**Figure 2-1 Asset Management for Sustainable Service Delivery, ABC Framework**

## 2.2 Background

The RMOW strives to be a sustainable and resilient community with a diverse and affordable infrastructure base to deliver services for its residents. The key to sustainably delivering services lies in how a community invests in its infrastructure. The RMOW first completed a financial report in 2008 that provided information on its tangible capital assets, or “TCA.” The “TCA” exercise was backward looking, in that it used historical costs to calculate the life cycle costs required to replace infrastructure (also known as amortization). Although this exercise was helpful, the community understands the need to move towards a forward-looking approach, which will focus on setting long-term funding targets based on replacement costs rather than historical costs. With this in mind, the community invested in developing their Asset Management Investment Plan Version 1 (AMIP V1), which has been updated in 2019 and again in 2020 (version 3). The following sections summarize the approach used to develop this plan.

### Step 1: Establish Inventory

The inventory is the foundation of the AMIP in that it represents the information that directly informs the outputs of the AMIP. It has been found, through working with numerous communities across Canada, that having perfect information is not the best strategy to get a community’s AMIP off the ground. Taking a bottom-up approach to the inventory results in costly fact finding exercises and doesn’t necessarily have a large impact on the outcomes of the project. Keeping this in mind, the focus of the inventory establishment was based on compiling readily available information and transforming it into a format that supports asset management and that could be repeated on an annual basis.

It is recommended that a community improves its inventory information regularly, replacing old inventory as needed and updating the AMIP results. This will help ensure that the community can track progress over time

### Step 2: Update Replacement Costs

The 2020 replacement costs were developed using a combination of the 2019 statement of values, current unit costs and indexing historical costs to current costs using the ENR cost index.

### Step 3: Service Lives

Majority of the service life estimates were assigned based on industry best practices from the Tangible Capital Asset (TCA) report and where possible condition-based service lives were utilized. It is important to note that industry best practice service lives are not community-specific; they are identical across communities and often considered to be conservative estimations. Over time, it is important to refine the industry best practice service life estimates to community-specific lifespans which are grounded in local understanding of infrastructure and condition.

### Step 4: Develop Asset Investment Management Report Version 1 (AMIR V1)

The last step of this process was to integrate the inventory, replacement costs and the service lives into the AMIP model. The results and findings from the model are detailed in the Asset Management Investment Report Version 1.

### Step 5: Update Asset Investment Management Report Version 2 & 3 (AMIR V2)

The asset management investment report will be updated annually, version 2 is the 2019 report with the 2018 additions and deletions taken into account. Version 3 is the 2020 report with 2019 addition and deletions.



### 3.0 Asset Management Investment Plan V2.0

The Asset Management Investment Plan (AMIP) is an asset replacement forecast that can be used to inform long-term funding decisions for each of the major asset categories. The AMIP is developed based on like-for-like replacement and does not consider any demand for new infrastructure. Adequate asset replacement funding will ensure services can be reliably provided into the future.

The AMIP is designed to answer the following best practice asset management questions:

- 1) *How much are RMOW assets worth?*
- 2) *How much remaining life do the assets have?*
- 3) *How much value of the assets is consumed?*
- 4) *What is the RMOW deficit?*
- 5) *What are the life cycle costs?*
- 6) *When do the assets need to be replaced?*

<b>An Asset Management Investment Plan can:</b>	<ul style="list-style-type: none"> <li>» Build awareness with staff, council and the community on the magnitude and timing of potential infrastructure investments;</li> <li>» Identify revenue requirements over the long term;</li> <li>» Assist with setting rates and taxes and;</li> <li>» Inform the urgency of investments.</li> </ul>
<b>Asset Management Investment Plan is not:</b>	<ul style="list-style-type: none"> <li>» A capital plan that sets out specific projects for the community to undertake;</li> <li>» An infrastructure cost tool that can be used for construction tenders and provides accurate project costing; or</li> <li>» A complete asset management program.</li> </ul>

Each of the best practice asset management questions are further explained in the following sections.

#### 3.1 How Much Are RMOW Assets Worth?

Knowing the replacement value of a community's assets provides an organization with a deeper understanding of the magnitude of infrastructure that it is responsible for managing and replacing. These cost figures directly affect the life cycle and are a driver for future revenue requirements. Asset replacement costs are in current dollars, are based on like-for-like replacement and do not consider new infrastructure required to satisfy regulatory requirements, growth, safety improvements, or economic development.

#### 3.2 How Much Remaining Life Do The Assets Have?

Remaining life percentage provides an estimate of the amount of life left in an asset before it needs to be theoretically replaced. The remaining life is calculated by taking the number of remaining years before replacement and dividing it by its estimated service life.

**Example:***# of Remaining years before replacement: 50 years**Estimated Service Life: 100 Years**% Remaining life:  $50/100 = 50\%$  (approx. half way through the assets life)*

Asset remaining life is one indicator that can be used to understand the condition of an asset and can be used to inform replacement and inspection programs.

**3.3 How Much Value of The Asset Is Consumed?**

Asset consumption is a measure of the financial value of the asset that has been consumed to date.

**Example:***Asset Value: \$10**Service Life: 10 Years**Life Cycle (Amortization): \$1/yr**Age: 5 Years Old**Asset Consumption:  $5 \text{ Years old} \times \text{Life Cycle } (\$1) = \$5$* 

Asset consumption gives an idea of how much funding would need to be set aside if the community chooses to replace the asset at the end of its estimated service life on a 'pay as you go' basis. For the example above, the community would need \$5 in a reserve today and would need to continue to place one dollar per year for the next five years in a reserve in order to replace the asset with cash on its estimated expiration date. Although it is not always feasible to fund all assets on a 'pay as you go' basis and replace every asset at the end of its estimated service life, this parameter can help guide discussions when considering the organizations willingness to take on risk and can be used to guide reserve contribution discussions.

**3.4 What Is The RMOW Deficit?**

The infrastructure deficit is a measure of the infrastructure value that has passed its estimated service life but still provides a service to the community. The infrastructure deficit can be presented as a dollar value or as a percentage of the total infrastructure value.

**Example:***Infrastructure Deficit (Expressed as a dollar value): \$10*

*Infrastructure Deficit (expressed as a % of total value) =  $\text{Infrastructure Deficit } (\$10) / \text{Replacement Cost } (\$50) = 20\%$*

It's important to note that an infrastructure deficit to a certain point is healthy, as it provides insights that assets are lasting longer than estimated. This could be resulting from good maintenance practices or estimated service lives being too conservative. It is recommended that assets within a deficit be inspected to determine if replacement is required or if the service life can be further extended.

### 3.5 What Are The Life Cycle Costs?

Estimating and setting long-term funding targets for asset replacement is critical to the health of a community's infrastructure and directly affects the future level of service, risk and fees paid by its stakeholders. In order to assist the community with setting these targets, the life cycle funding target was calculated. The life cycle funding target represents the average annual investment required to replace assets at the end of their life span with cash. Although it is not often possible for the community to meet the life cycle funding target, this measure provides a great starting point to understand the stretch funding target and forms a basis for its refinement. Over time, the community should work on refining the life cycle funding target based on risk, level of service, willingness of customers to pay and the financial capacity of the organization to meet that target.

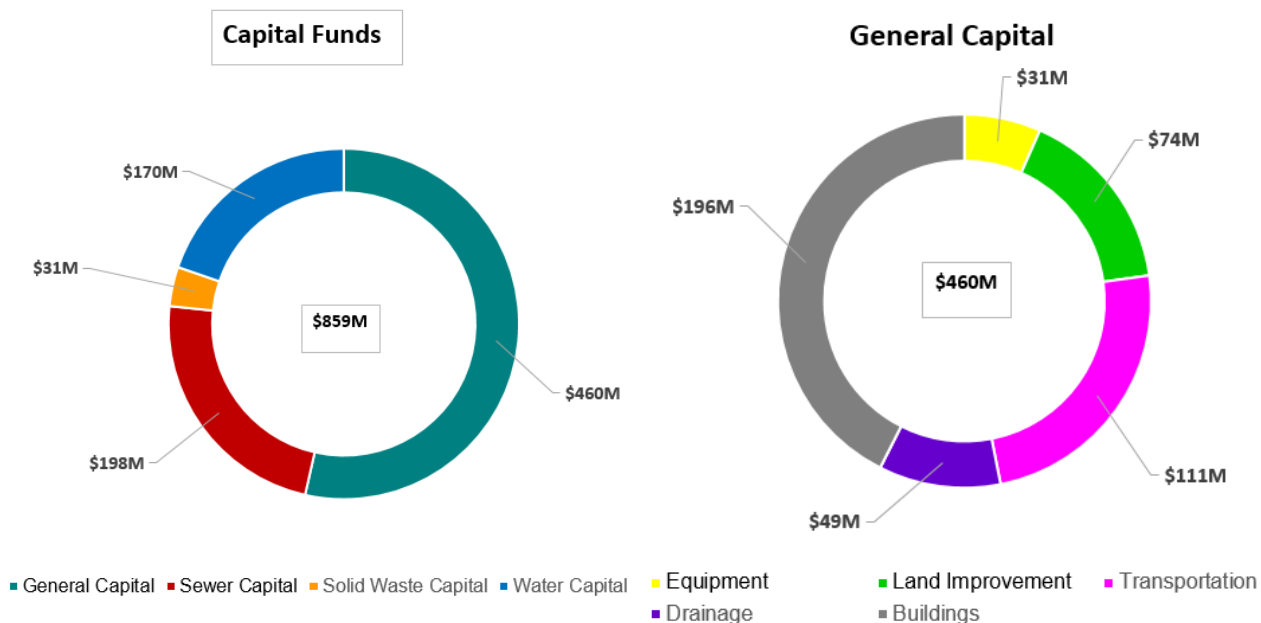
### 3.6 When Do The Assets Need To Be Replaced?

Understanding the general timing of when assets need to be replaced is important when financially preparing for the future. The replacement schedule can provide insights into the magnitude of investment required in the short, medium and long term, which can inform the urgency of investment. It is important to note that the replacement schedule is not a capital plan but rather shows the general timing of individual assets. Grouping individual asset replacements into a consolidated project and performing a condition assessment is the recommended practice for determining capital project priorities.

## 4.0 The Results

The inventory, replacement costs and service life data were directly input into the AMIP model to answer the asset management best practice questions.

### 4.1 How Much Are RMOW Assets Worth?



**M:** million

Figure 4-1 How Much Are RMOW Assets Worth?

**Observations:**

- *General Capital represents 54% of the replacement value (same as 2019)*
- *Sewer Capital represents 23% of the replacement value (same as 2019)*
- *Water Capital represents 20% of the replacement value (same as 2019)*
- *Solid Waste Capital represents 4% of the replacement value (same as 2019)*
- *Within the General Capital; Transportation and Buildings represent, 67% of the replacement value (same of 2019)*

## 4.2 How Much Remaining Life Do RMOW Assets Have?

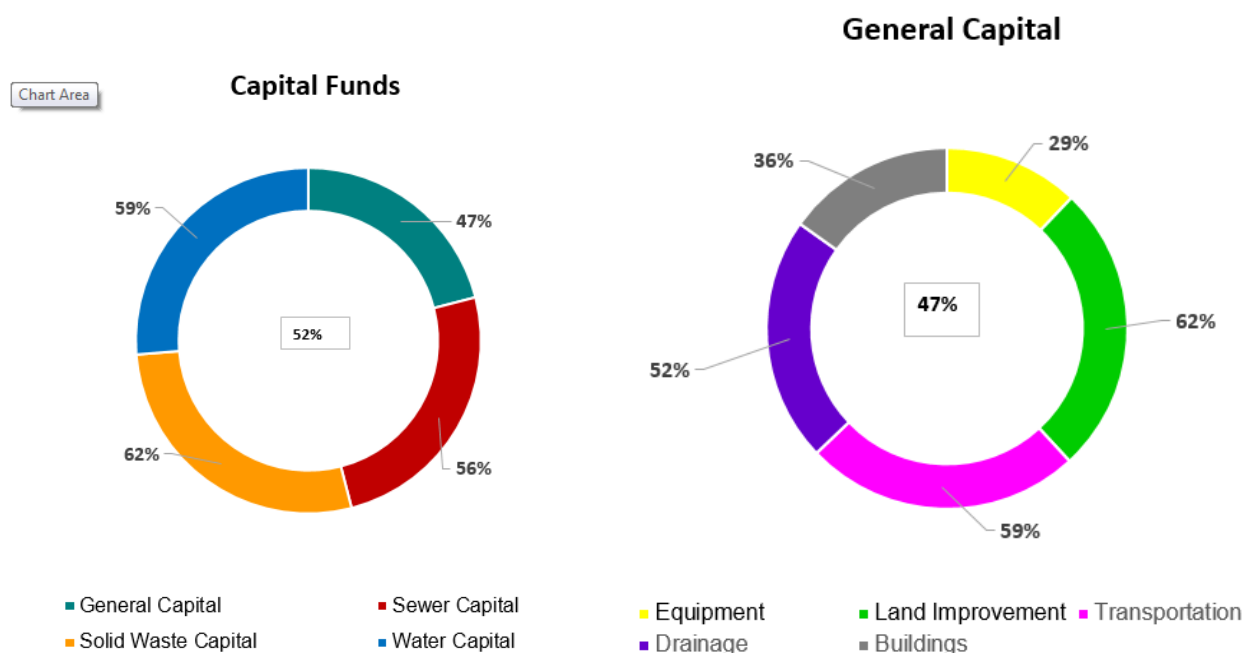


Figure 4-2 How Much Remaining Life Do RMOW Assets Have?

### Observations:

- On average, assets are approximately halfway through their estimated life span (52% remaining life versus 54% in 2019)
- General Capital assets have approximately 47% of its life remaining (versus 49% in 2019)
- Water Capital assets have approximately 59% of its life remaining (versus 60% in 2019)
- Sewer Capital assets have approximately 56% of its life remaining (versus 57% in 2019)
- Solid Waste Capital assets have approximately 62% of its life remaining (versus 65% in 2019)
- Buildings and equipment assets have the lowest remaining life (36% & 29%, respectively down from 38% and 30% in 2019) which provides insights that these assets could be in worst condition than other asset categories.
- Other assets in the General Capital fund outside of buildings and equipment have between 52% and 62% remaining life
- The remaining life for each asset class declined between 2019 and 2020 indicating that the amount invested in municipal assets in 2019 was not enough to prevent further erosion of municipal assets and slightly decreased the remaining life.

### 4.3 How Much Value of the Asset Is Consumed?

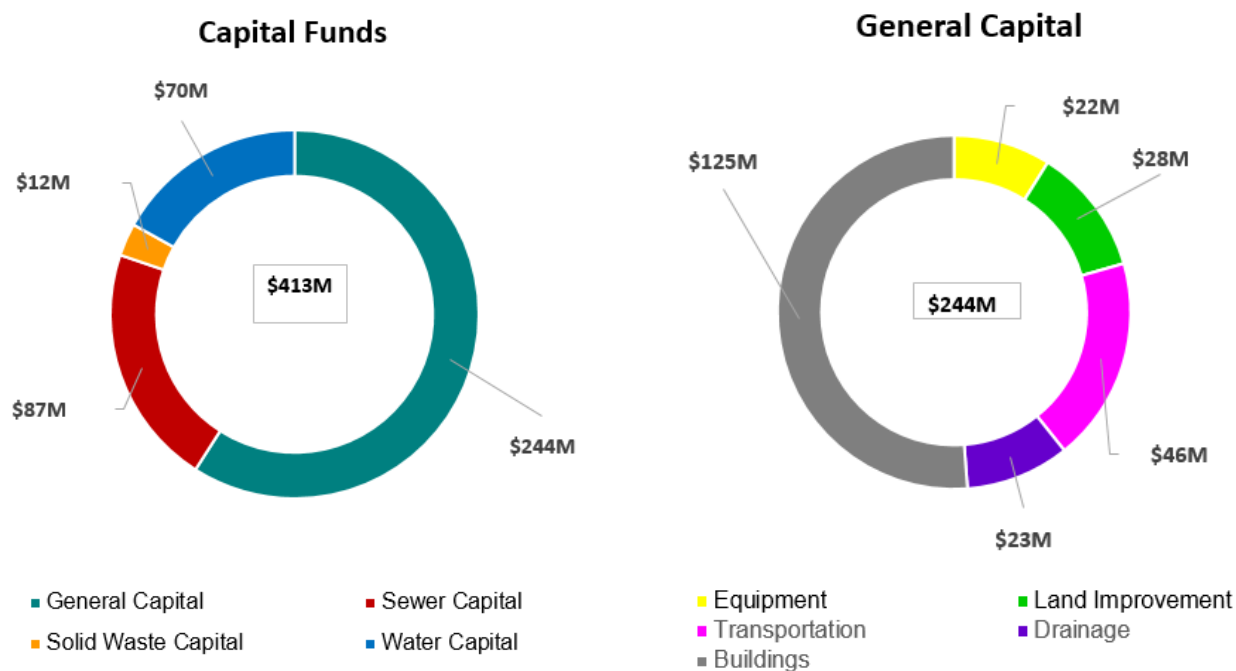


Figure 4-3 -How Much Value of the Asset Is Consumed?

#### Observations:

- Approximately half the asset value is consumed in most asset categories (48% on average, versus 46% in 2019)
- Building and Transportation assets represent 70% (\$171M) of the consumed value within the general fund
- Buildings, sewer and water represent 63% (\$282M) of the consumed value for all assets (down from 69% in 2019)

#### 4.4 What Is the RMOW Deficit?

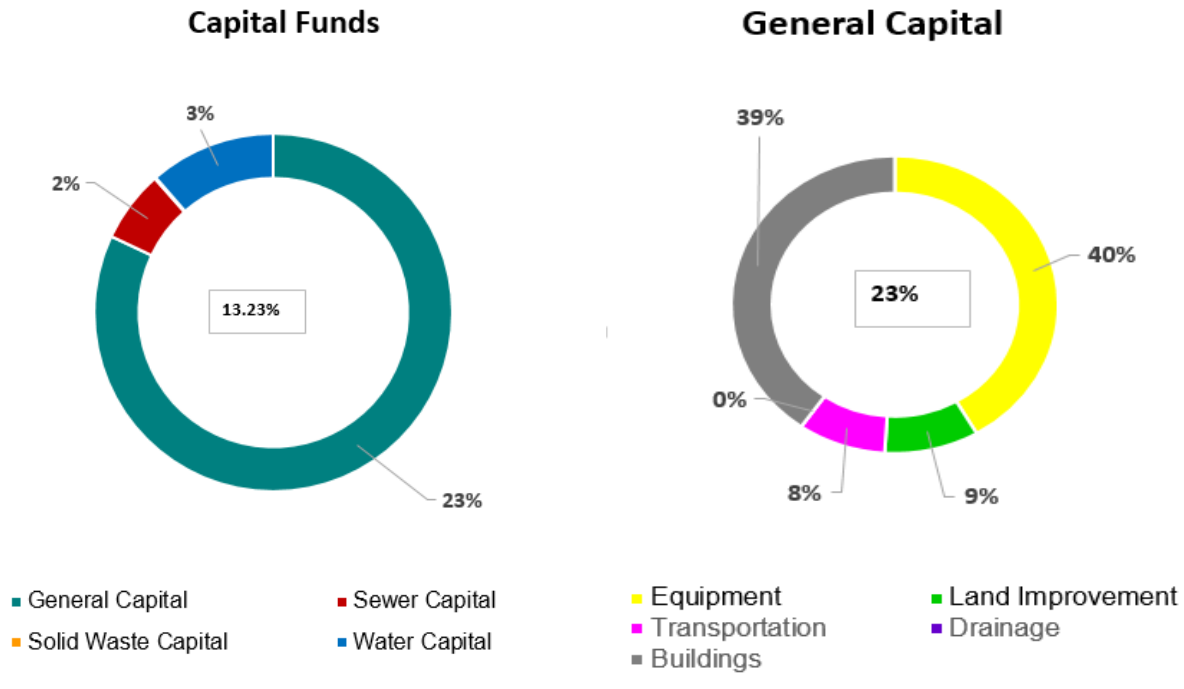


Figure 4-2 What Is The RMOW Deficit?

##### Observations:

- 13% of the assets are past their estimated service life (down from 14% in 2019)
- 23% of the General Capital assets have passed their estimated service life (no change from 2019)
- 2% of Sewer Capital assets have passed their estimated service life (down from 6% in 2019)
- 3% of Water Capital assets have passed their estimated service life (no change from 2019)
- Within General Capital; building & equipment assets have the largest deficit (39% and 40% respectively, up from 38% and 36% in 2019). This could provide insights that these assets may be at most risk of failure and could be providing a lower level of service relative to other assets
- Land Improvements (parks), transportation & sewer assets have the lowest deficit when compared to other assets. This could provide insights that these assets are in least risk of failure when compared to other asset categories.
- The deficit fell from 14.93% in 2019 to 13.23% indicating that the 2019 level of infrastructure spending improved the health of RMOW assets slightly

## 4.5 What Are The RMOW Life Cycle Costs?

Table 4.1 How Much Do We Need to Invest to Sustain RMOW Assets?

Funding Summary	
Description	Life Cycle (\$/yr) (IBP)
<b>General Capital</b>	<b>\$20.9M</b>
Equipment	\$4.6M
Land Improvement	\$2.1M
Transportation	\$3.3M
Building	\$10.0M
Drainage	\$874K
<b>Sewer Capital</b>	<b>\$4.0M</b>
<b>Water Capital</b>	<b>\$3.3M</b>
<b>Solid Waste Capital</b>	<b>\$1.0M</b>
<b>Total</b>	<b>\$29.3M</b>

**Note:** Life Cycle funding does not take into account communities' willingness to pay, decreases to level of service & financing ability (debt, reserves, grants etc.)

### Observations:

- 71% of the life cycle funding costs are represented by General Capital (no change from 2019)
- 14% of the life cycle funding costs are represented by Sewer Capital (no change from 2019)
- 11% of the life cycle funding costs are represented by Water Capital (no change from 2019)
- 4% of the life cycle funding costs are represented by Solid Waste Capital (no change from 2019)
- Within General Capital; 70% of the life cycle funding costs are represented by buildings and equipment assets
- Although the deficit declined slightly in 2020, the amount needed to sustain our assets has increased from \$28.1M to \$29.3M indicating new assets were added in 2019 and these come with future replacement costs.



4.6 When Do RMOW Assets Need to Be Replaced?

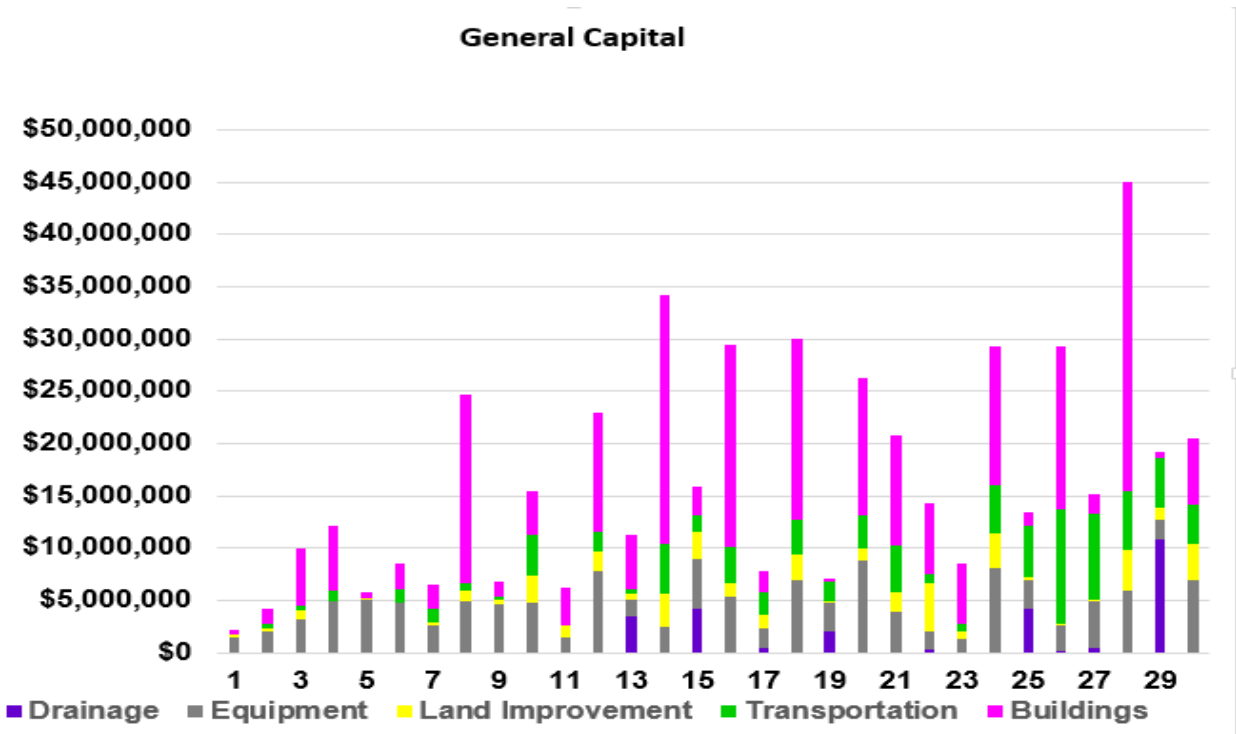
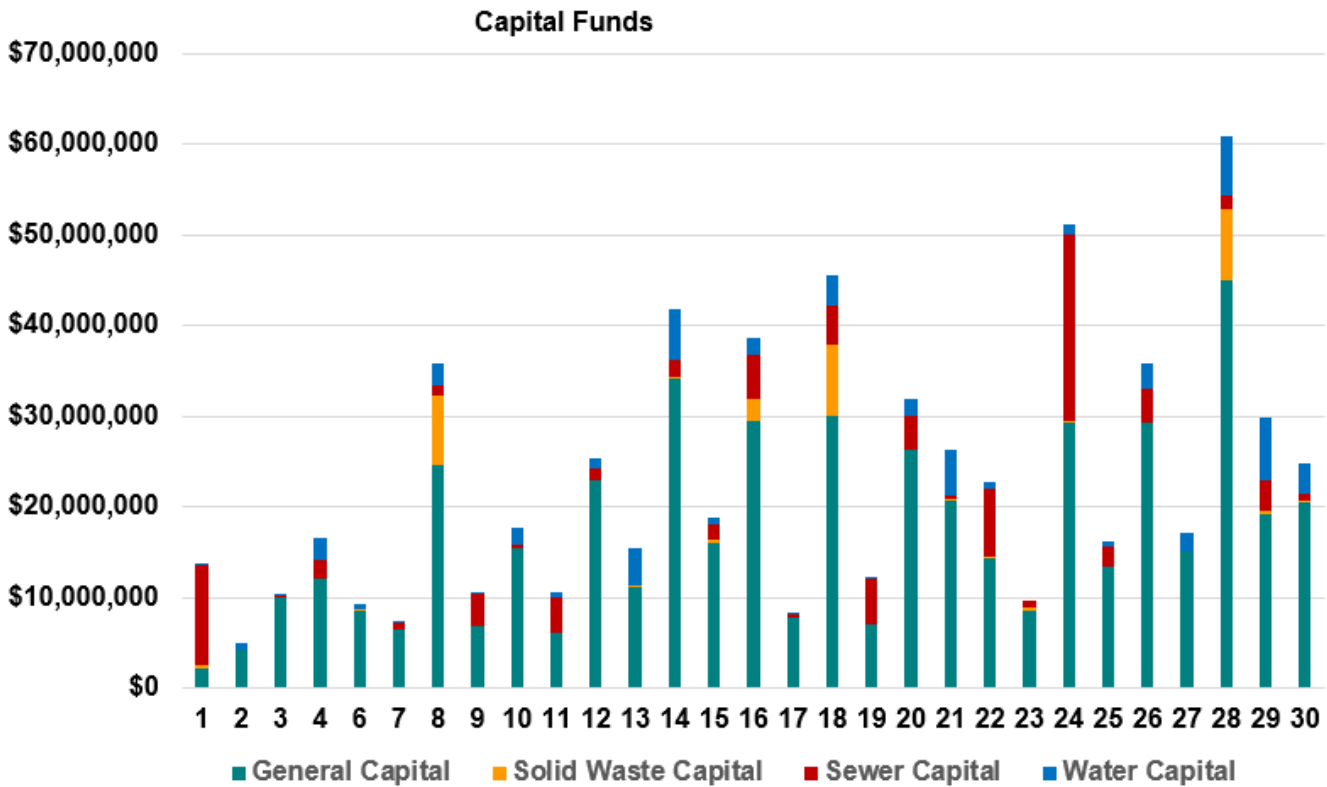


Figure 4-3 When Do RMOW Assets Need To Be Replaced?

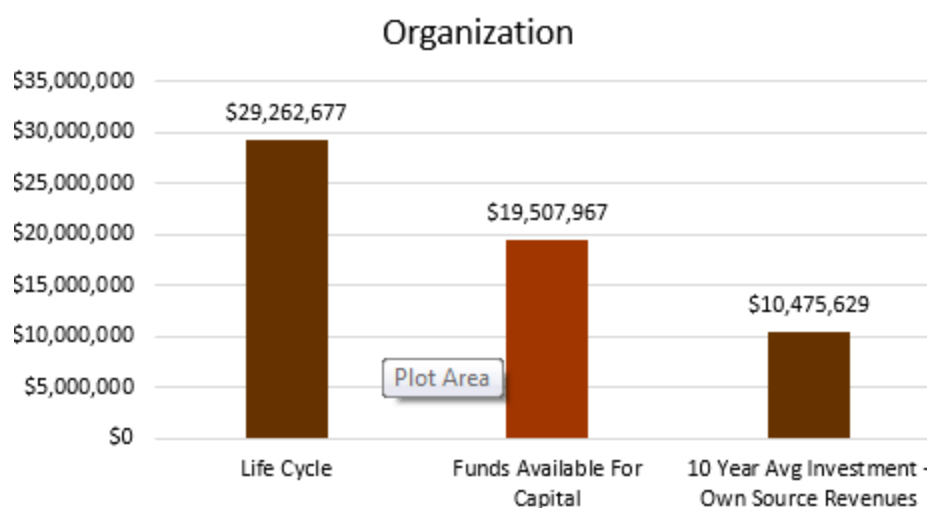
**Observations:**

- Overall, asset replacement expenditures are increasing over time
- 74% of the total 30 year asset replacement expenditures are represented by General Capital
- 13% of the total 30 year asset replacement expenditures are represented by Sewer Capital
- 8% of the total 30 year asset replacement expenditures are represented by Water Capital
- 4% of the total 30 year asset replacement expenditures are represented by Solid Waste Capital

## 5.0 What Is the RMOW Life Cycle Funding Gap?

Life cycle funding gap is the difference between the life cycle funding target and the current capital available for asset replacement. The life cycle funding target represents the average annual investment required to replace the assets at the end of their estimated lifespan, and the current capital available for asset replacement illustrates the total annual funds that are available for capital projects after all operation and maintenance expenditures are paid (A.K.A. transfers to reserves). **Figure 5-1** below illustrates the life cycle funding gap for each fund

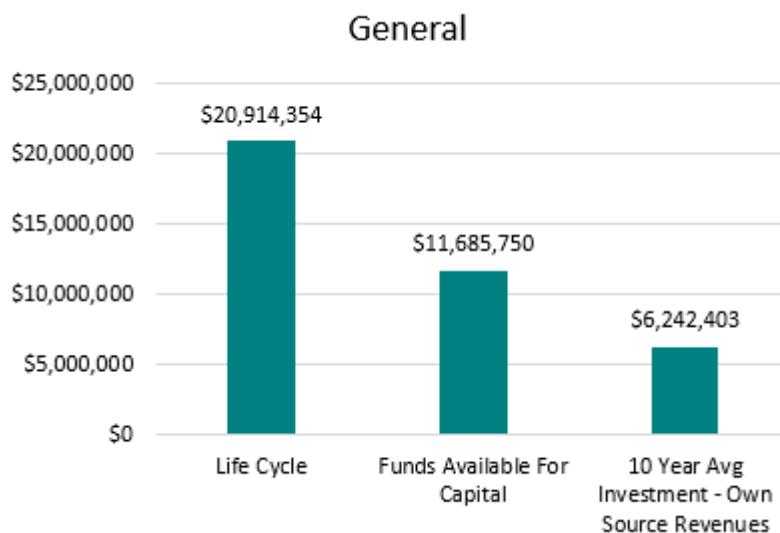
Figure 5-1: Life Cycle Funding Gap



**Figure 5.0 Organizational Life Cycle Funding Gap**

### Observations:

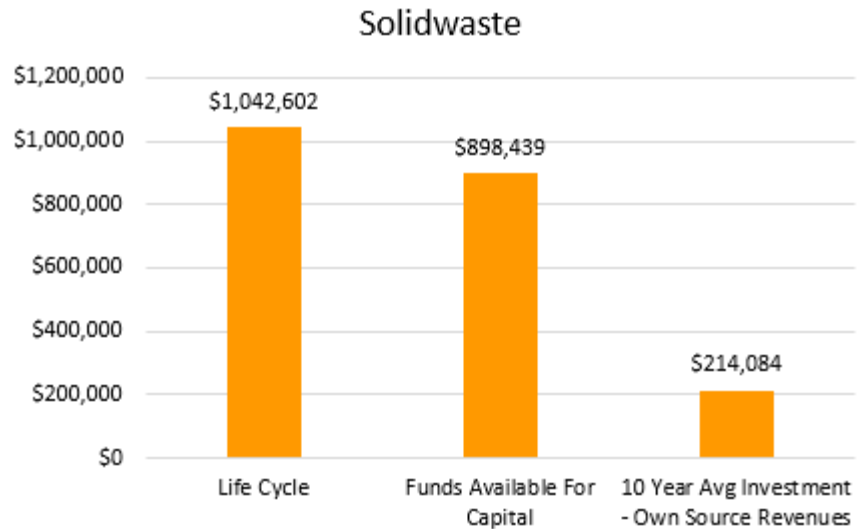
- Life cycle funding target for the organization (all asset categories) is \$29.3 million (\$28.1M prior year)
- The funds available for capital for the organization (all asset categories) was \$19.5 million in 2019 (down from \$29.7M in 2018 boosted by the \$16.9 reallocation from unallocated surplus)
- The 10 year average investment more accurately reflects the current spending over the past 10 years and includes the 2018 reallocation from unallocated surplus
- The gap between the life cycle funding target and the funds available for capital provides insights that RMOW may not be able to sustain the same level of service over the long-term.



**Figure 5.1 General Capital Life Cycle Funding Gap**

**Observations:**

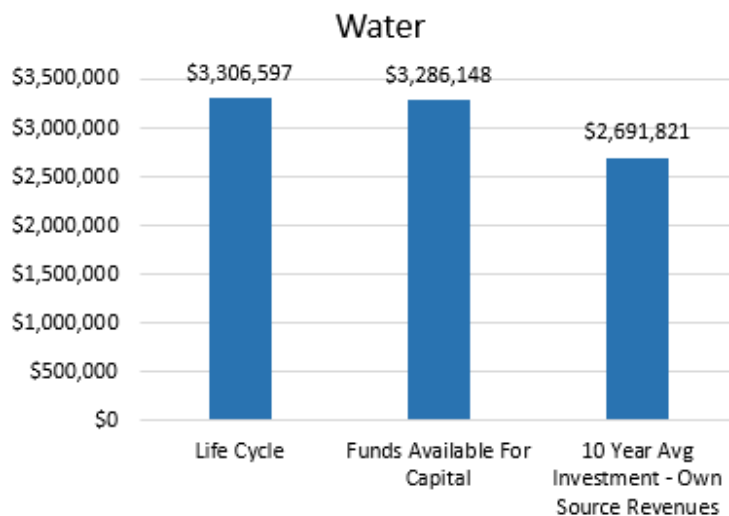
- Life cycle funding target for General Capital is \$20.9 million (up from \$20.0M in 2019)
- The funds available for capital for General Capital was \$11.7 million, down the \$17.7 million in 2018 due to reallocating \$11.3M from unallocated surplus in 2018
- The 10 year average investment more accurately reflects the current spending over the past 10 years and includes the 2018 reallocation from unallocated surplus
- The gap between the life cycle funding target and the funds available for capital suggests that the RMOW may not be able to sustain the same level of service over the long term.
- General Capital has the largest funding gap when compared to other funds.



**Figure 5.2 General Capital Life Cycle Funding Gap**

**Observations:**

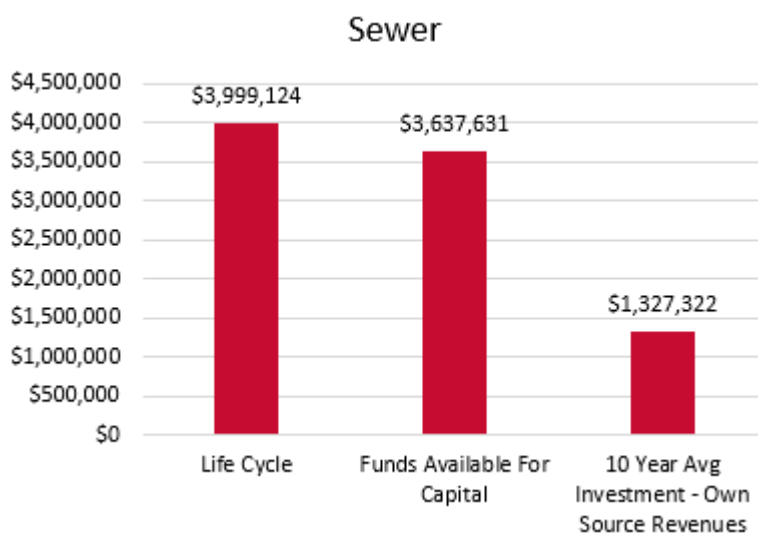
- Life cycle funding target for Solid Waste Capital is \$1.0M (no change from 2019).
- The funds available for capital for Solid Waste Capital was \$898K, down from the \$966 in the prior year which included a reallocation of \$593K from unallocated surplus.
- The 10 year average investment more accurately reflects the current spending over the past 10 years and includes the 2018 reallocation from unallocated surplus
- The gap between the life cycle funding target and the funds available for capital provides insights that RMOW may not be able to sustain the same level of service over the long term.



**Figure 5.3 Water Capital Life Cycle Funding Gap**

**Observations:**

- Life cycle funding target for Water Capital is \$3.3M (up from \$3.2M in 2019)
- The funds available for capital for Water Capital in 2019 was \$3.3M
- Water capital has the smallest funding gap and is close to meeting the life cycle funding target.



**Figure 5.4 Sewer Capital Life Cycle Funding Gap**

**Observations:**

- Life cycle funding target for Sewer Capital is \$4.0M (up from \$3.9M in 2019)
- The funds available for capital for Sewer Capital in 2019 was \$3.6M, down from 2018's \$7.2M this was due to reallocating \$5.0K from unallocated surplus
- The 10 year average investment more accurately reflects the current spending over the past 10 years and includes the 2018 reallocation from unallocated surplus
- The gap between the life cycle funding target and the funds available for capital provides insights that the RMOW may not be able to sustain the same level of service over the long-term.

Overall, there is an organizational funding gap between the total life cycle funding target (\$29.3 million) and the ten year average amount available for capital works (\$10.5 million) which provides insights that the RMOW is not investing enough to sustain assets over the long-term.

## 6.0 Impact to Revenues to Bridge the Life Cycle Funding Gap (Financial Model)

In order to understand the impact that bridging the life cycle funding gap would have on the RMOW's revenue, a simple financial model was developed. The goal of this model was to estimate the increase to the total adjustable revenue for each capital fund that would be required to meet the life cycle funding target. This information will help the RMOW understand the magnitude of the funding gap within reach capital fund and could also provide insights into which fund may require more attention than others, which could help prioritize efforts. The total adjustable revenue is defined as the revenue currently collected through taxation or user fees that could be directed towards capital asset replacement & adjusted with increases. For a detailed breakdown of total adjustable revenue please refer to Appendix C. Table 6.1 summarizes the results from the financial model.

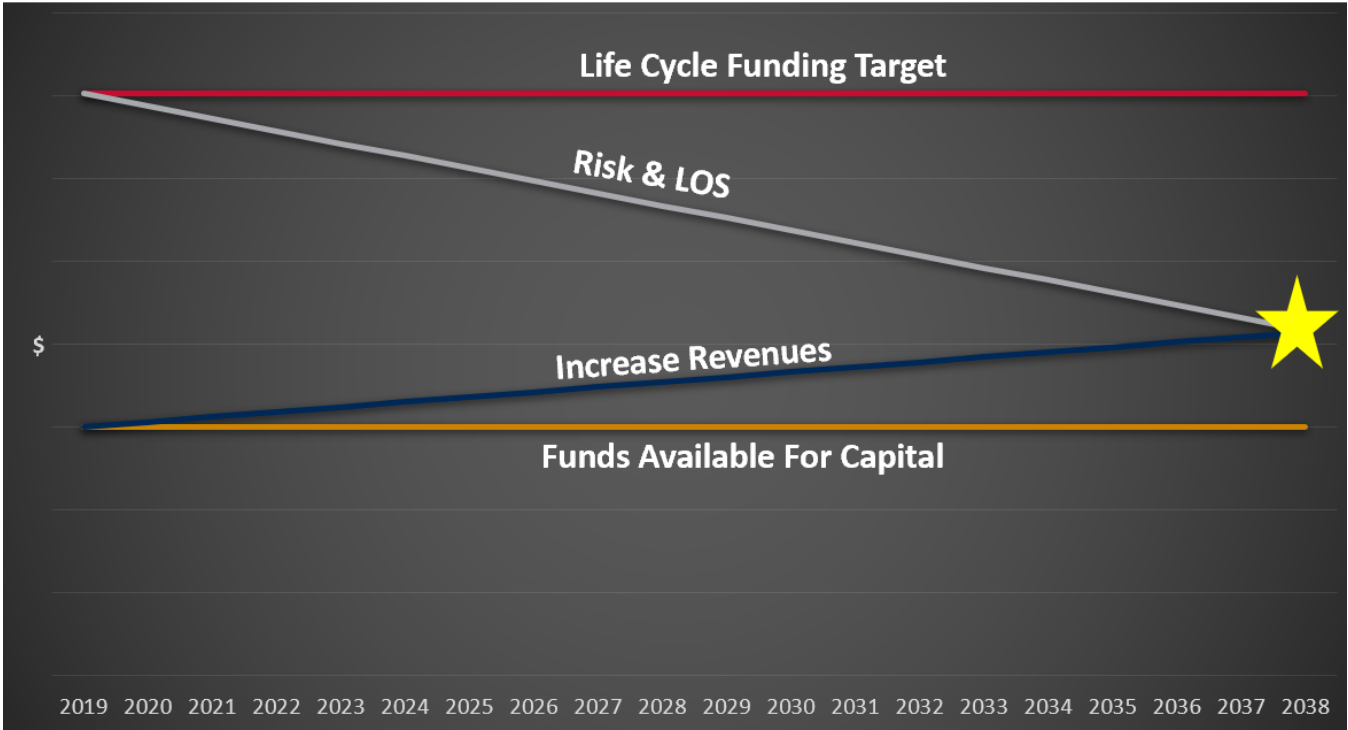
**Table 6.1 Impact to Revenues to Bridge the Life Cycle Funding Gap (Financial Model Outputs)**

Capital Fund	Life Cycle Funding Target	Funds Available for Capital 10 Yr. Avg	Funding Gap	Total Adjustable Revenue	% Increase to Revenue
<b>General Capital</b>	\$20.9M	\$6.2M	\$14.7M	\$39.1M	37%
<b>Solid Waste Capital</b>	\$1.0M	\$214K	\$828.5K	\$5.7M	14%
<b>Water Capital</b>	\$3.3M	\$2.7M	\$614.8K	\$7.2M	1%
<b>Sewer Capital</b>	\$4.0M	\$1.3M	\$2.7M	\$8.1M	33%
<b>Total</b>	<b>\$29.3M</b>	<b>\$10.5M</b>	<b>\$18.8M</b>	<b>\$60.1M</b>	<b>31%</b>

### Observations:

- General Capital requires the largest increase in total adjustable revenue if the life cycle funding target was met (37% versus 35% in 2019)
- Water Capital requires the smallest increase in total adjustable revenue to meet the life cycle funding target (1% - no change from 2019)
- Sewer Capital requires a 33% increase (up from 28% in 2019) increase to the total adjustable revenue to meet the life cycle funding target
- Solid Waste Capital requires a 14% (down from 15% in 2019) increase to the total adjustable revenue to meet the life cycle funding target

Although it is not often possible for the community to meet the life cycle funding target, this measure provides a great starting point to understand the stretch funding target and forms the basis for its refinement. Over time, the community should work on refining the life cycle funding target based on risk, level of service, willingness of customers to pay and the financial capacity of the organization to meet that target, as shown in Figure 6-1 below.



**LOS = Level of Service**

**Figure 6-1: Refining the Life Cycle Funding Target**



## 7.0 Conclusion

In summary, the total replacement cost of assets included in this study is \$859 million (\$827 in 2019) in infrastructure. On average, the assets have 52% remaining life (54% in 2019) which means they are approximately halfway through their lifespan, and 13% of assets in this study have passed its expected lifespan (a.k.a. deficit).

Each of the metrics above (replacement cost, remaining life percentage, consumption, deficit, life cycle) provides key insights into the state of the community's infrastructure and can be used to assist with setting long-term funding targets for asset replacement. Setting an appropriate long-term funding target is critical to the future health of the community's infrastructure and directly affects the level of service, risk and fees paid by its stakeholders. In order to assist the community with setting these targets, the life cycle funding target was calculated. The life cycle funding target represents the average annual investment required to replace assets at the end of their lifespan. It was determined that there is a funding gap between the life cycle funding target (\$29 million versus \$28 million in 2019) and the current funds available for capital works (\$19.5 million). This gap provides insights that, over the long term, the RMOW is not investing enough to sustain assets at the current level of service.

The RMOW has been approved for grant funding in 2019 in order to further refine the life cycle funding target based on risk, level of service, and develop a revenue strategy to meet that target. This will provide RMOW with the confidence that future generations can enjoy the same levels of service as well as reasonable tax rates and user fees. Also, consideration will be given to developing an annual reporting template that would assist with communicating and understanding the infrastructure metrics provided in this report. This would provide staff with a standardized way to present this information annually to councils, staff and citizens and serve as a common document to discuss the future of the RMOW's community infrastructure. This work was delayed due to COVID-19 and is expected to be completed by the end of October 2020.

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# APPENDIX A

## Data Sources

Table A.1 below summarizes the sources of information where the asset inventory was exported from for the development of the AMIP V1. For a detailed list of the asset inventory, please refer to the AMIP excel model.

**Table A.1: Asset Inventory Source Summary**

Asset Category	Source
Water (All assets, except facilities)	TCA Inventory (Financial System)
Water (Facilities)	Excel Spreadsheet provided to Urban by RMOW. Spreadsheet was reviewed with staff and updated based on recent replacements.
Sewer (WWTP)	Excel Spreadsheet provided to Urban by RMOW Staff. Spreadsheet was reviewed with staff and updated based on recent replacements.
Building (All assets)	TCA Inventory (Financial System)
Transportation: (All assets except roads)	TCA inventory (Financial System)
Transportation (Roads)	GIS file provided to Urban from RMOW. Data was compiled from “Resort Municipality of Whistler – 2013 Pavement Network Present and Future Status Summary” completed by Stantec. Inventory information was already within the RMOW GIS system and then updated and reviewed by RMOW staff.
Drainage (All assets)	TCA Inventory (Financial System)
Equipment (All assets)	TCA Inventory (Financial System)
Solid Waste (All assets)	TCA Inventory (Financial System)
Land Improvement (All assets)	TCA Inventory (Financial System)

Detailed inventory is shown in Appendix B & the Asset Management Excel Model

Replacement cost estimates were developed for each asset using the following source of information.

**Table A. 2: Replacement Cost Source Summary**

Asset Category	Source
Water (All assets, except facilities)	Historical Cost from the RMOW financial system were Indexed to current replacement cost (2018) using the Engineering News Records Cost Indices
Water (Facilities)	Replacement cost from AECOM Spreadsheet were indexed to current replacement cost (2018 values) using the Engineering News Records Cost Indices
Sewer (WWTP)	Excel Spreadsheet provided to Urban by RMOW Staff with current replacement costs
Building (All assets)	Historical Cost from the RMOW financial system were Indexed to current replacement cost (2018) using the Engineering News Records Cost Indices
Transportation: (All assets except roads)	Historical Cost from the RMOW financial system were Indexed to current replacement cost (2018) using the Engineering News Records Cost Indices
Transportation (Roads)	Recent Tender unit prices from the region were provided by RMOW staff
Drainage (All assets)	Historical Cost from the RMOW financial system were Indexed to current replacement cost (2018) using the Engineering News Records Cost Indices
Equipment (All assets)	Historical Cost from the RMOW financial system were Indexed to current replacement cost (2018) using the Engineering News Records Cost Indices
Solid Waste (All assets)	Historical Cost from the RMOW financial system were Indexed to current replacement cost (2018) using the Engineering News Records Cost Indices
Land Improvement (All assets)	Historical Cost from the RMOW financial system were Indexed to current replacement cost (2018) using the Engineering News Records Cost Indices

Detailed replacement costs are shown in Appendix B & the Asset Management Excel Model

Service life estimates were assigned based on industry best practice documents as shown Table A. 2 below.

**Table A. 3: Service Life Sources**

Asset Category	Source
Water (All assets, except facilities)	TCA Inventory (Financial System)
Water (Facilities)	Excel Spreadsheet provided to Urban by RMOW
Sewer (WWTP)	Excel Spreadsheet provided to Urban by RMOW
Building (All assets)	TCA Inventory (Financial System)
Transportation: (All assets except roads)	TCA inventory (Financial System)
Transportation (Roads)	Service lives were estimated based on the “RMOW– 2013 Pavement Network Present and Future Status Summary” completed by Stantec. The Pavement condition scores were updated based on conversations with staff based on when assets were replaced
Drainage (All assets)	TCA Inventory (Financial System)
Equipment (All assets)	TCA Inventory (Financial System)
Solid Waste (All assets)	TCA Inventory (Financial System)
Water (All assets, except facilities)	TCA Inventory (Financial System)

Detailed service life estimates are shown in Appendix B & the Asset Management Excel Model

## APPENDIX B

### Total Adjustable Revenue

General Capital (2019)		
Account #	Name	Adjustable Revenue
3101	Property Tax	\$39,145,339
Total		\$39,145,339

Solid Waste Capital (2019)		
Account #	Name	Adjustable Revenue
3701	Flat Rate User Fees	\$755,076
3707	Solid Waste User Fees	\$1,583,767
3708	Tipping Fees	\$3,336,428
Total		\$5,675,271

Sewer Capital (2019)		
Account #	Name	Adjustable Revenue
3105	Parcel Tax	\$3,971,032
3701	Flat Rate User Fees	\$4,001,817
3705	Metered User Fees	\$92,738
Total		\$8,065,587

Water Capital (2019)		
Account #	Name	Adjustable Revenue
3105	Parcel Tax	\$4,018,126
3701	Flat Rate User Fees	\$3,105,037
3705	Metered User Fees	\$84,844
Total		\$7,208,007