



# 2023/24 to 2025/28 Five-Year Capital Program

Town of Annapolis Royal  
April 2024



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# 1 EXECUTIVE SUMMARY

This document provides the basis for capital programming strategies from an asset management perspective. The Town of Annapolis Royal (The Town) manages infrastructure in the following service areas:

- Wastewater
- Potable Water
- Stormwater
- Solid Waste (under a third-party service contract)
- Streets and Transportation
- Protective Services
- Recreation and Cultural Services
- General Government Services

This capital program focuses on long-term asset management planning. The goal is to provide short term capital works projects and identify any critical issues with long-term (generational) infrastructure demands based on projections of anticipated revenue.

Asset management planning requires assessing risk and target levels of service to prioritize infrastructure spending. This document will outline the basis for that decision making and the outcomes of the capital program. It provides a balanced budget in the short term (five-year) that will require changes to municipal revenue.

Looking beyond the five-year target capital works, the plan identifies potential infrastructure deficits in the medium term (20-year) so that the Town can balance the requirement for additional capital investment (which requires increased revenue from taxes and other sources) with the potential loss of service levels if the investment is not increased.

This capital program will also highlight potential infrastructure deficits in a general sense on a generational scale (80+ years) to capture the complete life cycle demands of all infrastructure.

The Town is committed to developing capital programs that are open, transparent and consider levels of service and risk in infrastructure decision making. Capital planning decisions will be based maintaining level of service over the long term and planning for future infrastructure needs.

The financial assessment contained in **Section 7** has identified that the Town has an inflation adjusted 20-year projected infrastructure deficit of **\$21.7M** annualized to approximately **\$1.1M** per year. The projections are based on current infrastructure condition and level of service requirements.

To meet the projected deficit, the Town will need to plan for a minimum current investment of **\$851k** annually and plan to increase this target in pace with inflation. With an average anticipated funding from

other sources of **60%**, this requires **\$340k**, annually increasing with inflation. Current investment levels are not sufficient to meet this demand, and the Town has a proposed plan for the next 20-years that does not need to rely heavily on debentures to support the municipal contribution to capital projects. Borrowing will only be required for special projects that exceed the annual target spend. Further details on this infrastructure deficit are detailed in **section 7.2**.

Based on the long-term analysis and spending projected in this 5-year plan, annual infrastructure spending will be targeted at **\$1.7M** annually, due to significant investments in rehabilitation of the Wharf, St George Street, and sea wall upgrade. These projects would be expected to secure a higher portion of grant funding than the 20-year horizon, with an average anticipated funding from other sources of **75%**, which requires a municipal contribution (average 25% of project cost) of **\$430K** annually from revenue sources.

Annapolis Royal is committed to making investment decisions that are based on asset management principles. Decisions will be evidence based and consider:

- long term sustainability of financial investment,
- an infrastructure delivery plan that is supported by level of service commitments to its residents, and
- transparent and consistent decision-making processes.

## **2 POLICY AND GOVERNANCE**

This capital program has been developed in accordance with applicable municipal plans and asset management principles with reference to the following guidance documents:

- Strategic Plan
- Municipal Planning Strategy
- Land Use Bylaws
- Municipal Climate Change Adaptation Plan
- Active Living Strategy
- Financial Policies

The decisions, recommendations and analysis contained in this five-year capital plan align with the Town's guidance documents and the guiding principles found in the Town of Annapolis Royal's Asset Management Policy.

### **3 CURRENT REVENUE STRUCTURES**

The Town generates revenue for capital maintenance, renewal and upgrades through rate payments, general revenue from taxation, reserve funds, gas tax and special use funding from provincial and federal sources. Information in this document supports strategies adopted to manage infrastructure with the lowest long-term life cycle costs and deliver committed levels of service at the lowest user cost possible. Level of service basis for the planning in this document is itemized in detail in the Asset Management Program **Level of Service Assessment**.

#### **3.1 RATE PAYMENT**

The Town is responsible for property taxes and water services. The current residential tax rate is 1.70% and commercial tax rate is 3.20% of the assessed value of the property. All properties are charged a flat fee water change based on meter size with an additional consumption rate of \$0.90 per cubic meter.

#### **3.2 TAX LEVIES**

The remainder of services provided by the Town are supported by general tax revenue. Tax rates are set based on yearly budgets and projections of sustainable infrastructure investment. This capital program supports decisions related to capital infrastructure works to maintain, renew, and replace infrastructure. **Section 7.2**, provides commentary on potential capital infrastructure tax levies.

#### **3.3 RESERVE FUNDING**

The Town does not have a formal reserve funding strategy. Any annual surpluses are transferred to operating or capital reserves at council's discretion. There is no minimum amount mandated to be retained in reserves, but reserve funding will be used for maintaining existing service infrastructure as a priority over building new infrastructure.

#### **3.4 DEBT STRATEGY**

The Town does not currently rely on limited debt spending for capital works. There is an existing debt for one major capital projects, the Comfort Center which had an original value \$250k, with \$150k remaining at the end of 2023/2024 fiscal year. There is an additional debt carried for a 2012 sewage project with a \$27k remaining at the end of 2023/2024 fiscal year.

#### **3.5 FUNDING POTENTIAL**

Capital infrastructure works funding is supplemented by applications to provincial and federal levels of government, as well as governmental agencies and non-profits that direct funding to municipal government to support capital works projects. Funding from these sources is not typically released according to long term plans, so availability of funding used in this planning document is, by necessity speculative and based on historical availability. Sources of funding that can be pursued to support capital works projects primarily included, but are not limited to:

- Gas Tax Agreements
- Special Assistance Funds

- Municipal Capital Works and Cost-Shared Funding Programs
- Federation of Canadian Municipalities Green Municipal Fund
- Efficiency Nova Scotia and Department of Energy
- Atlantic Canada Opportunities Agency

The Town has a target funding threshold of **60%** of capital project spending over the long term. For example a **\$100k** project will target **\$60k** from outside sources, and **\$40k** from town revenue. This is a target average across all capital projects depending on the funding programs available for the applicable work.



## 4 REGULATORY ENVIRONMENT

### 4.1 WASTEWATER SYSTEM EFFLUENT REGULATIONS

Current service levels are based on the Wastewater System Effluent Regulations (WSER) enacted in June of 2012 under the Fisheries Act. The regulations implement those aspects of the Canadian Council of the Ministers of the Environment [CCME] Strategy for the Management of Municipal Wastewater Effluent which fall under federal jurisdiction, namely the discharge of deleterious substances to fish habitat. Technical performance of the wastewater treatment system is regulated under the Nova Scotia Water and Wastewater Act.

The WSER sets these national standards for their discharge:

- Carbonaceous Biochemical Oxygen Demand [CBOD]: 25 mg/L
- Total Suspended Solids [TSS]: 25 mg/L
- Total Residual Chlorine [TRC – for facilities using chlorine disinfection]: 0.02 mg/L Un-ionized
- Ammonia: 1.25 mg/L as Nitrogen, at 15°C ± 1°C.

Wastewater treatment facilities [WWTFs] are authorized to discharge these substances at levels below the defined limits provided that the effluent is not acutely lethal to trout as determined by standard toxicity testing. If non-compliant, municipalities were able to apply for a Transitional Authorization (TA) to discharge effluent exceeding those limits for 10, 20 or 30 years.

Wastewater treatment facilities having effluent which is acutely lethal due to un-ionized ammonia must apply for a TA to discharge un-ionized ammonia. Authorizations are valid for three years and may be renewed. Effluent which is acutely lethal due to substances other than un-ionized ammonia is not authorized under the WSER and is in contravention of the Fisheries Act.

As required under the WSER, an Identification Report was submitted by February each year for each WWTF, documenting various data and information including the location of all overflow points. In addition, for those systems which include Combined Sewer Overflows (CSO), a CSO report is submitted by February of each calendar year for the prior year. The report documents the occurrence, duration and measured or estimated volume of each CSO overflow event.

Reports, Approvals and Transitional Authorizations are held by Public Works.

The level of service assessment identified a regulatory service gap in that Total Suspended solids exceed in Spring to Fall due to algal growth. There is an RFP underway to assess the root cause and potential remediation activities to address the issue. There are four potential options to deal with this regulatory issue and a decision on the preferred option is underway. Capital expenses will be included in this plan once a preferred option is selected.

## **4.2 STORMWATER REGULATIONS**

Currently there are no adopted guidelines in Nova Scotia that regulate stormwater management. Stormwater will be managed in accordance with The Town policies, planning documents and guidelines.

## **4.3 FACILITIES REGULATIONS**

Municipally owned and operated facilities are to, at a minimum, be maintained in compliance with the Nova Scotia Building Code (NSBC) Regulations at the time that they were constructed. Continuous updates to the NSBC related to safety and accessibility occur over time and require significant funding to achieve with upgrades to existing buildings.

The Town's hierarchy of performance for facilities is as follows:

- Facilities will be upgraded for code compliance issues that pose an imminent risk to life and safety as soon as possible;
- All new construction will comply with the latest version of the NSBC;
- Existing facilities will be maintained such that performance meets at a minimum the code requirements at the time they were built;
- Existing facilities or parts of facilities that require renovation to continue providing services will incorporate the latest NSBC requirements;
- Existing facilities will be assessed for code compliance issues and upgraded to meet the latest version of the NSBC as soon as funding can be made available without impacting other asset levels of service.

## **4.4 CLIMATE CHANGE REGULATIONS**

Currently there are no adopted guidelines in Nova Scotia that regulate climate change adaptation or mitigation. Climate change adaptation and mitigation will be managed in accordance with The Town's policies, planning documents and guidelines.

The climate risk assessment identified several services that are at risk from climate changes. This section identifies the risks identified and the community plans to monitor and address those risks.

Higher and more frequent storm surges could pose a risk to infrastructure near the coastline and has begun to impact infrastructure, particularly wastewater lift stations. Installation of flap gates to protect connecting sewer are proposed at this time. Staff will continue to monitor for incidences of service disruption and monitor developments in predictions of the magnitude and severity of potential impacts from the scientific community.

Similarly, sea level rise will increase risk to flooding vulnerable infrastructure in low-lying areas. There is tolerable risk to infrastructure in the short to medium term, staff will continue to monitor for incidences of service disruption and monitor developments in predictions of the magnitude and severity of potential impacts from the scientific community. No capital works are proposed at this time.

The final climate change related is increased frequency and severity of windstorms that risk damage to

municipal buildings. Damage to municipal buildings will be mitigated by managing exterior envelope maintenance (walls and roof coverings) and including life-cycle design specifications related to climate change projections when exterior envelope components require replacement. The incidence of wind damage is reduced by minimizing the incidence of loose flashing, gaps in exterior wall finishes and gaps in roof coverings.

## 5 RISK AND LEVEL OF SERVICE

The Town has adopted a risk management approach in prioritizing infrastructure capital and operational investment. This approach is based on the principle that risk cannot be eliminated but it can be managed to an acceptable level. This risk-based approach seeks to balance continuation of service levels with capital investment that is acceptable to residents and stakeholders.

Our commitment is to managing risk by providing robust, low risk level of service stability while minimizing cost impacts to residents. The Town aims to sustain targeted levels of service with our current revenue streams without borrowing.

### 5.1 RISK AND MITIGATION STRATEGIES

Risk is defined by two factors:

- a) Probability of Failure (PoF): the likelihood that an asset will fail to provide the service for which it was constructed.
- b) Consequence of Failure (CoF): the impact of an asset failing to provide the service for which it was constructed.

PoF is linked to an asset's condition and expected useful life. CoF is defined by staff and approved by elected officials. CoF is based on potential social, political, economic, legal, safety and environmental impacts.

Assets are prioritized from high to low risk. **Figure 5-1** indicates general definitions of PoF and CoF on a 1 to 5 scale.

**Figure 5-1: PoF and CoF Rating Definitions**

Probability of Failure		Consequence of Failure	
1	Rare	1	Minor
2	Unlikely	2	Moderate
3	Possible	3	Significant
4	Likely	4	Major
5	Almost Certain	5	Catastrophic

The Town has adopted a risk profile shown in **Figure 5-2**. This risk profile was developed to balance level of service considerations with infrastructure demands within a sustainable financial program. Capital projects are prioritized using the priority scale in **Figure 5-3**. Extreme risk is, by definition, a combination of probability and consequence of failure that cannot be accepted and needs to be addressed immediately. High risk is, by definition, a combination of probability and consequence of failure that can be accepted for a maximum of 5 years.

**Figure 5-2: The Town Risk Matrix**

Probability	Consequence				
	1	2	3	4	5
1	1	3	6	10	15
2	2	5	9	14	19
3	4	8	13	18	22
4	7	12	17	21	24
5	11	16	20	23	25

Risk Class	Risk Tolerance	
	Low	High
Lowest	1	6
Low	7	15
Medium	16	19
High	20	22
Extreme	23	25


**Figure 5-3: Priority Definition**

Risk Class	Priority
None	Beyond 20 Year
Lowest	Year 16-20
Low	Year 11-15
Medium	Year 6-10
High	Year 1-5
Extreme	Immediate

**Probability of Failure** is the likelihood that an asset will stop delivering the service it provides *at the target level of service*. An asset can fail without ceasing to provide the service (e.g., a corroding water line experiences pressure reduction below target levels and turbidity in the water above target levels). **Figure 5-4** shows a possible relation between the likelihood of failure and the remaining life of an asset. Assigning PoF involves some level of subjective judgement and will be conducted by qualified staff.

**Figure 5-4: Probability of Failure**

PoF	Likelihood
0	New
1	Negligible
2	Unlikely
3	Possible
4	Very Likely
5	Extremely Likely
6	Failed



PoF	Percent of Lifespan
0	New
1	0 - 25%
2	25 - 60%
3	60 - 70%
4	70 - 80%
5	80 - 100%
6	Beyond Expected

**Table 5-1** shows the impacts of several consequence of failure categories to quantify anticipated impacts of CoF rankings.



**Table 5-1: Consequence of Failure Matrix**

RISK LEVEL	RANK	SOCIAL / CULTURAL / POLITICAL	ECONOMIC	LEGAL	ENVIRONMENTAL
INSIGNIFICANT	1	Public will not notice. No impact to cultural resources or groups. No impact to relations with other levels of government.	Costs are minor and expected within ongoing operational budget.	No regulatory or legal impacts.	No impact to the environment.
MINOR	2	Minor public notice, public contacts Town. Interruption of service less than 12-hour(s) No impact to cultural resources or cultural groups. No impact to relations with other levels of government.	Property damage greater than \$1K but less than \$5K. Unexpected operational cost can be accommodated by redistribution of yearly budget.	Failure may result in small claims.	Short term effects to the environment requiring one-time remediation of mitigation to restore the system to its original state.
MODERATE	3	Moderate public notice. Interruption of service greater than 12 hours. Coverage in local news, requires official municipal response. Cultural resources threatened but not destroyed, impact to cultural groups limited.	Property damage greater than \$5K but less than \$15K. Unexpected operational cost requires cancellation of minor planned activities accommodate. No long-term financial impacts.	Failure may result in litigation and informal inquiry.	Short term effects to the environment requiring temporary remediation or mitigation which restore the system to its original state.
MAJOR	4	Potential for injury. Public notice is widespread. Interruption of service greater than 3-day(s) Coverage in national news. Cultural resources may be unrecoverable. Impact to cultural groups widespread.	Property damage greater than \$15K but less than \$100K. Unexpected operational cost requires cancellation of major planned activities to accommodate. Long term financing required to accommodate.	Failure may result in class action litigation and formal inquiry.	Long term effects to the environment requiring sustained remediation or mitigation. System may not ultimately reach its original state.
CATASTROPHIC	5	Potential for loss of life. Interruption of service greater than 7 day(s).	Property damage greater than \$100k Loss commercial service greater than 7 day(s). Financing requirements may render the Town insolvent.	Failure results in contravention of laws, significant litigation, court action and multiple litigations.	Permanent or long-term environmental effects that cannot be remediated or mitigated.

## 5.2 CONDITION ASSESSMENT POLICY

The Town understands that there is a balance between having accurate data to make decisions, the ease of collecting condition data, the cost of collecting and maintaining that data and the time cost of allowing detailed condition assessment to fall out of date. Staff has adopted a condition assessment policy that seeks to align with the adopted risk management strategies and to take a cost-effective approach to collecting and maintaining the condition dataset.

**Table 5-2: Condition Assessment Categories**

	Level	Assessment Strategy	Notes	
 MORE ACCURACY	1	Preliminary (Age Based)	Condition determined by Age / Expected Useful Life Condition = Probability of Failure	 LOWER COST
	2	Anecdotal Reports from Staff	Based on undocumented/anecdotal historical rates of failure	
	3	Known Site Conditions	Adjustments to condition based on ground conditions, soil corrosion rates, water chemistry, etc.	
	4	Visual Assessment	Operator or trained staff inspection using consistent, documented, non-intrusive visual assessment of infrastructure	
	5	Data Based Operations Reports	Operator or trained staff assessment using consistent, documented, operations data	
	6	Engineering Assessment	Inspection and reporting by a certified professional in the field	
	7	Life Cycle Cost Assessment of Repair, Rehabilitate or Replace	A detailed engineering study of the cost / benefit analysis of extending the life with repairs, partial system rehabilitation or full replacement	

As the level of detail and technical expertise required to collect data increases, so does the cost. Many risk decisions can be made using more cost-effective approaches to data collection. **Table 5-2** shows the levels of condition assessment, from least expensive and least accurate to most expensive and most reliable. This table represents a general rule, and for high-risk or high-cost projects, a more detailed assessment of condition requirements is undertaken prior to proceeding with infrastructure decisions.

The condition assessment program is the responsibility of the **Director of Municipal Operations and Planning**, who will be responsible for approving the risk class of an asset, assigning condition assessment tasks and ensuring that the capital asset inventory is up to date to the standards identified in this document.

The capital asset inventory data storage system estimates asset conditions based on an install date, inspection date and useful life of the asset. **Table 5-3** shows target condition assessment categories for different classes of asset risk. This is a general guide to be used in determining when to invest resources

in condition assessments and how in depth to go with condition assessments.

**Table 5-3: Condition Assessment by Risk Class**

<b>Condition Assessment Category</b>	<b>Risk Class / Description</b>
Level 1	Very Low to Low risk. Age is less than 50% of expected useful life, no operational issues identified. Consequence of Failure 3 or lower.
Level 2	Low to Medium risk. Age is greater than 50% of expected useful life. Failure mode has occurred at least once in the past.
Level 3	Medium to High risk. Age is greater than 50% of expected useful life. Historical experience, construction data, geotechnical reports or other information has identified a site condition that could impact the effective life of the asset. Cost of replacement is less than 10% of average annual capital budget.
Level 4	Medium to Extreme risk. Age is greater than 50% of useful life. Consequence of Failure is greater than 3. Assets are accessible for visual assessment. Assessment is conducted using a standardized visual inspection guide and record form. Cost of replacement is less than 25% of average annual budget.
Level 5	Medium to Extreme risk. Operations and maintenance data is documented against target performance. Qualified individual (operator, vendor representative or consultant) is monitoring the performance data against expected performance. There is a documented predictive maintenance framework to link probability of failure to performance data.
Level 6	Medium to Extreme risk. Age is greater than 90% of expected useful life. Cost of engineering study is less than 10% of the anticipated project construction cost.
Level 7	High to Extreme risk. Significant cost savings could be realized by assessing life cycle performance or novel technologies for extending the asset life. Operational cost represents a significant portion of the asset life cycle cost.



### 5.3 ASSET INVENTORY

Table 5-4 lists a summary of assets owned and managed by the Town along with projected sustainable annual investment levels for each asset class.

**Table 5-4: Asset Summary**

Asset Class/Sub-Class	Cost (\$)	Cost (%)	Annual Reserve (\$)	Annual Maintenance (\$)
<b>Water Supply</b>	<b>\$ 27.0 M</b>	<b>29.5%</b>	<b>\$ 407.8 K</b>	<b>\$ 0.8 K</b>
Pipes	\$ 22.8 M	24.9%	\$ 348.4 K	\$ 0.0 K
Pumping Station	\$ 0.0 K	0.0%	\$ 0.0 K	\$ 0.0 K
Valves	\$ 1.4 M	1.6%	\$ 20.8 K	\$ 0.8 K
Hydrants	\$ 967.2 K	1.1%	\$ 11.9 K	\$ 0.0 K
Water Treatment	\$ 200.3 K	0.2%	\$ 5.9 K	\$ 0.0 K
Other	\$ 1.6 M	1.8%	\$ 20.7 K	\$ 0.0 K
<b>Transportation</b>	<b>\$ 6.7 M</b>	<b>7.3%</b>	<b>\$ 295.5 K</b>	<b>\$ 81.4 K</b>
Roads	\$ 3.7 M	4.1%	\$ 178.5 K	\$ 72.9 K
Sidewalks and Trails	\$ 2.9 M	3.2%	\$ 117.0 K	\$ 8.5 K
Bridges	\$ 0.0 K	0.0%	\$ 0.0 K	\$ 0.0 K
Signs and Signals	\$ 0.0 K	0.0%	\$ 0.0 K	\$ 0.0 K
Barriers and Fences	\$ 0.0 K	0.0%	\$ 0.0 K	\$ 0.0 K
Lights	\$ 0.0 K	0.0%	\$ 0.0 K	\$ 0.0 K
Other	\$ 0.0 K	0.0%	\$ 0.0 K	\$ 0.0 K
<b>Waste Water</b>	<b>\$ 35.8 M</b>	<b>39.1%</b>	<b>\$ 529.9 K</b>	<b>\$ 6.0 K</b>
Pipes	\$ 25.0 M	27.4%	\$ 337.0 K	\$ 0.0 K
Pumping Station	\$ 4.5 M	4.9%	\$ 113.6 K	\$ 6.0 K
Manholes	\$ 3.5 M	3.8%	\$ 43.7 K	\$ 0.0 K
Valves	\$ 0.0 K	0.0%	\$ 0.0 K	\$ 0.0 K
Wastewater Treatment	\$ 2.3 M	2.5%	\$ 29.6 K	\$ 0.0 K
Other	\$ 483.6 K	0.5%	\$ 6.1 K	\$ 0.0 K
<b>Storm Water</b>	<b>\$ 7.7 M</b>	<b>8.4%</b>	<b>\$ 99.9 K</b>	<b>\$ 0.0 K</b>
Pipes	\$ 6.3 M	6.9%	\$ 83.2 K	\$ 0.0 K
Pumping Station	\$ 0.0 K	0.0%	\$ 0.0 K	\$ 0.0 K
Manholes	\$ 0.0 K	0.0%	\$ 0.0 K	\$ 0.0 K
Catch Basins	\$ 1.2 M	1.3%	\$ 14.5 K	\$ 0.0 K
Other	\$ 219.3 K	0.2%	\$ 2.2 K	\$ 0.0 K
<b>Facilities</b>	<b>\$ 12.9 M</b>	<b>14.1%</b>	<b>\$ 215.5 K</b>	<b>\$ 0.0 K</b>
Outdoor Parks and Rec	\$ 192.5 K	0.2%	\$ 9.1 K	\$ 0.0 K
Indoor Parks and Rec	\$ 0.0 K	0.0%	\$ 0.0 K	\$ 0.0 K
Municipal Offices	\$ 4.9 M	5.4%	\$ 60.0 K	\$ 0.0 K
Public Works	\$ 562.3 K	0.6%	\$ 14.0 K	\$ 0.0 K
Firehall	\$ 1.6 M	1.8%	\$ 41.2 K	\$ 0.0 K
Other	\$ 5.7 M	6.2%	\$ 91.3 K	\$ 0.0 K
<b>Fleet</b>	<b>\$ 1.4 M</b>	<b>1.6%</b>	<b>\$ 60.4 K</b>	<b>\$ 0.0 K</b>
Vehicles	\$ 1.4 M	1.6%	\$ 60.4 K	\$ 0.0 K
Other	\$ 0.0 K	0.0%	\$ 0.0 K	\$ 0.0 K
<b>Grand Total</b>	<b>\$ 91.5 M</b>	<b>100.0%</b>	<b>\$ 1.6 M</b>	<b>\$ 88.1 K</b>

## 5.4 PRIORITIZATION

Infrastructure replacement is prioritized by risk. The following strategies are adopted in generating this capital plan:

Infrastructure with a combination of probability and consequence of failure in the Extreme Risk category are scheduled for immediate (i.e., as soon as possible) replacement. This is because in setting the risk tolerance, this combination of probability and consequence of failure is unacceptable and must be mitigated, repaired, replaced, or otherwise addressed to decrease the consequence or the probability of failure. During this planning period, there is no infrastructure that falls within this category.

Infrastructure with probability and consequence in the High-Risk category has been scheduled to be replaced in this five-year capital plan. The infrastructure projections in the Capital Planning tool forecast when infrastructure will become high risk based on the condition degrading over time. Infrastructure forecasted to need replacement within the five-year planning period has a consequence of failure of moderate or greater.

These projects have been addressed within this five-year capital plan. All other projects proposed in the five-year capital plan are for assets that are expected to reach high risk in the next five years, reach very poor condition in the next five years, or have been identified as a level of service gap.

Following the five-year planning period, infrastructure is scheduled to be replaced in the five-year period that it becomes High Risk or reaches its worst possible condition. Any infrastructure currently at its worst possible condition with a consequence ranking of minor or insignificant is scheduled in year six to ten, and these projects are not included in the five-year plan unless:

- There are insufficient extreme or high-risk projects to meet the target infrastructure investment thresholds in **Section 7**, or
- There is substantial operational or inspection evidence that indicates imminent service failure.

## 5.5 LEVEL OF SERVICE

PoF and CoF of individual assets are refined based on level of service priorities. Level of service commitments, along with current gaps and future risks to service are identified in the Asset Management Program **Level of Service Assessment**. Current and future gaps have been identified as capital priorities based on the timelines included in the Level of Service assessment. The level of service assessment identified the following priority projects to be included in this capital planning period:

## 6 CAPITAL WORKS RECOMMENDATIONS

Much of the attention and focus of public commentary and complaints is based on the condition of infrastructure. With finite capital funds and administrative resources available it is necessary to prioritize how funds are spent with respect to all infrastructure classes. Our commitment is to managing risk to a level that is acceptable to the public with financial investment that is sustainable over the long-term.

This capital program contains projections of infrastructure demands over a twenty-year period based on probability and consequence of failure of infrastructure components. These projections are used for four key tasks:

- 1) Amortized twenty-year capital funding requirements are used to set reasonable reserve and spending targets for capital expenditures. Year to year expenditures may vary, but by targeting this annual projection, The Town achieves its policy goal of maintaining target levels of service in a fiscally sustainable manner.
- 2) Short term, five-year capital funding requirements are used to plan capital projects and near-term expenditures. This plan provides the rationale for budgetary expenditures.
- 3) Risk based assessment of infrastructure demands provide the data required to develop combined infrastructure projects (such as which stormwater infrastructure to replace with roads) with maximum efficiency and minimize the risk of re-mobilizing to the same site in successive years.
- 4) Assessing life cycle cost-benefit ratios of increasing maintenance activities to extend the expected useful life of infrastructure to assess management options.

The capital program has been developed based on non-intrusive testing and visual inspections. All infrastructure was accessible for the inspections and no further detailed engineering studies or reports are recommended at this time to support the capital planning decisions.

Capital projects are identified along with Opinion of Possible Cost estimates in **Section 7**.

If there is not enough revenue to support replacements, the work can be deferred. Deferring the work brings with it the risk of lowered level of service in the form of greater frequency of service outages, more unplanned outages and greater risk of sewage backups. These risks must be weighed against the need to determine alternate sources of revenue to accelerate needed replacements.

Pending a formal decision to invest capital at a greater rate than currently, the Town will construct infrastructure projects only when funding is available to offset the cost, with municipal contributions sourced from a combination of gas tax and municipal reserve funding.

## 6.1 Decision Making

Potential projects are identified through two primary lenses, risk and level of service. Selecting projects through risk manages our existing infrastructure through probability of failure and the consequence of that failure as discussed in **Section 5.1**. Level of service monitors the improvements or reductions to existing services driven by regulatory or resident requirements, as well as mitigating risk to the sustainability of a service due to outside forces such as population growth or climate change.

### 6.1.1 RISK PRIORITIZATION

Risk based projects are identified and prioritized within the 5-year capital program through the following;

- Risk Classification of Extreme require immediate intervention.
- Condition = 6 (asset has failed)
  - Risk = Extreme, year 1
  - Risk = High, year 2
  - Risk = Medium, year 3
  - Risk = Low, year 4
  - Risk = Very Low, year 5
- High Risk
  - Set in year 1 to 5 based on useful life
- Other
  - Worst Risk (project within planning period of 5 years) = Extreme, 60% of useful life
  - Worst Risk = High, 75% of useful life
  - Worst Risk = Medium, 90% of useful life
  - Worst Risk = Low, 100% of useful life
  - Worst Risk = Very Low, 120% of useful life

Projects may then be moved to other years within the 5-year capital program to for reasons such as; evenly distributing funding, reduce excessive construction, availability of grant funding, reliance on other projects completion etc.

Projects identified through these processes are often through level one or two condition assessment strategies, as presented in **Table 5-2**. Detailed engineering assessments should be performed prior to execution of capital works to refine the probability of failure of the asset and be re-assessed within the holistic risk prioritization to compare with other competing infrastructure demands. The following high-risk priority projects were identified:

- Wharf Reconstruction
- Town Hall Roof
- Fire Hall Roof
- Fire Hall Parking Lock
- St. George Street Reconstruction

### 6.1.2 LEVEL OF SERVICE

Level of service commitments, along with current gaps and future risks to service are identified in the Asset Management Program **Level of Service Assessment**. Current and future gaps have been identified as capital priorities based on the timelines included in the Level of Service assessment. The level of service assessment identified the following priority projects to be included in this capital planning period:

- Seawall Design
- Seawall Construction
- Incorporate enzyme to wastewater treatment process

## 6.2 WASTEWATER

The Town collections wastewater through primarily gravity mains and some pressurized force mains to a lagoon treatment system. The underground sewer network is in good condition comprised of mainly PVC and concrete pipe. The sewer system within the downtown remains in excellent condition, well outperforming its expected useful life. Any works performed near this system should take steps to avoid disturbing the mains and supporting earth fill.

A level of service activity was identified in the level of service assessment to better manage odors at the treatment lagoons. A natural enzyme will be piloted to control these odors, neighbouring communities in the Annapolis Valley have seen success with this approach.

## 6.3 POTABLE WATER

The Town purchase treated water from the County which enters the Town along the causeway. Replacement of old service connections along St- George Street as part of the road reconstruction has been recommended including replacement of some valves. The water main should be assessed at the time of excavation to determine if replacement is necessary.

The water main along the causeway entering Town is the highest consequence of failure as it would interrupt all Town customers in the event of a breakage. This risk in addition to the cloudy jurisdictional responsibility of the surrounding infrastructure on the causeway presents a significant risk. Political action is required to establish who is responsible for all infrastructure along the causeway.

## 6.4 STORMWATER

The Town identified through the level of service assessment that there is a risk to coastal flooding, a risk that is increased from the pressures of climate change. A flood assessment study was completed in 2023 to determine options to address this risk. An allowance for detailed design and construction of a seawall detailed in this assessment as been made in the capital program as a level of service upgrade. See **section 7.2** for further discussion on the impact of this project of future projections.

## 6.5 TRANSPORTATION

Th Town manages 8.8km of roads and 12km of sidewalks and trails. Replacement of these assets account for 31% of the 20 year capital projections, 46% when excluding replacements of the wharf and

installation of a seawall.

Since asphalt roads typically have a useful life of 15 – 25 years, road works will often account for a significant portion of spending over this 20 year horizon as a majority of the inventory will reach failure during the planning period. Pavement management strategies can significantly impact this through maintenance practices such as crack sealing, and rehabilitations such as overlays and micro-surfacing. There is however less opportunities to secure grant funding for these practices and they require staff capacity to effectively manage. A collaborative approach with neighboring communities, investing in maintenance activities or pavement management plans is often the preferred approach for smaller communities investing in these practices.

The 5-year capital program accounts for the reconstruction of St. George Street, from St Anthony Street to Drury Lane. The condition of the gravel sub structure does not allow for surface rehabilitations such as mill and pave or overlay. Replacement of potable water customer service connections, and sidewalks is also made within this project. The condition of underground utilities is expected not necessitate replacement during this project and may be deferred.

## **6.6 FACILITIES**

The 5 year capital program is carrying a replacement of the Firehall parking lot, and roof, Town hall roof, and rehabilitation of the Wharf. The roof replacements may incorporate the additional of solar power to open access to additional grant funding. Replacement of the Wharf as a high risk and high cost asset has a significant impact on financial projections, see [section 7.2](#).

## **6.7 Fleet**

No fleet vehicles or equipment were identified to be replaced in the 5 year capital program. The town regularly invests in periodically fleet upgrades to maintain the current service level. The high cost and risk asset within the fleet is the replacement of the fire service pumper truck. A shared services approach to fire protection with neighbouring communities should be investigated to determine if it would result in a reduction of cost while maintaining desired service levels.

## 7 FINANCIAL PROGRAMS & PRO FORMA BUDGETS

The pro-forma budgets include capital and operational programs defined by:

- a) Capital programming priorities from previous council-ratified plans,
- b) Capital projects identified with priority of “high” from a risk-based assessment,
- c) Maintenance or rehabilitation activities to manage infrastructure with priority of “high” from a risk-based assessment, and
- d) Capital projects identified in the next five years from the Level of Service gap assessment.

### 7.1 CAPITAL PROJECTIONS AND CAPITAL PROGRAM

All capital investments presented here are gross values that do not consider funding from outside sources. This summary of capital projections (20 year) includes **\$21.7M** in core capital upgrades. **Figure 7-1** shows a twenty-year inflation adjusted forecast of infrastructure demands in five-year planning blocks. The average targeted expenditure is shown as a red line on the chart, with a comparison of anticipated municipal revenue and target municipal contributions shown as the green and brown line respectively. The average annual requirement is **\$1.1M** and The Town does not expect to be able to meet the twenty-year demand with annual expenditures without relying on debt spending or increasing revenue. With a targeted **60%** funding threshold, see **section 3.5** for more details, there is a municipal contribution of **\$111k** annually to meet the twenty-year capital demands.

A detailed project breakdown from the infrastructure assessment is shown in **Table 7-1**. Based on the long-term analysis and spending projected in this 5-year plan, annual infrastructure spending will be targeted at **\$1.7M** annually, due to significant investments in rehabilitation of the Wharf, St George Street, and sea wall upgrade. These projects would be expected to secure a higher portion of grant funding than the 20-year horizon, with an average anticipated funding from other sources of **75%**, which requires a municipal contribution (average 25% of project cost) of **\$430K** annually from revenue sources.

The estimated annual requirements for long-term (50 year) management of asset renewal based on the risk assessment is **\$2.2M** per year. This is larger than the medium term demands because infrastructure needs will raise as the newer infrastructure ages. A chart of the risk-based forecast for a one hundred-year planning period, shown in five-year blocks is shown in **Figure 7-3**. This projection is not suitable for detailed project planning given the uncertainty of costs and technologies over this period. However, it is the best present estimate of a long-term investment target.

If there is insufficient municipal revenue to support the infrastructure plans in the short term, the shortfall can be addressed by accepting a lower level of services or accepting higher risks of service disruption. Alternately the tax and utility rates can be adjusted to provide the necessary funding to maintain the existing level of service by investing more in infrastructure.

### 7.2 Revenue Assessment

Current investment levels are not sufficient to meet the forecasted demand. Typical options to bridge this

funding gap are;

- Absorb more risk and deferring projects.
- Reduce levels of service by investing less in infrastructure.
- Regionally sharing services
- Increase target funding threshold by secure additional grant funding (this delays projects and increase staffing requirements)
- Increase revenues through tax adjustments.

**Figure 7-1**, presents the baseline scenario; standard risk tolerance, existing tax structure, and all level of service upgrades performed. The annual municipal revenue required to support this spending is **\$350k** in year one, increasing with inflation yearly (average annual of \$436k over 20 years). The Town's current annual investment into capital projects, from its own revenue, is approximately **\$70k**. This leaves a funding gap of approximately **\$280k** in annual spending.

**Figure 7-2**, incorporates several of the previously mentioned options to bridge this gap. Firstly, in order to bring the annual demand down the following was performed;

- Increase risk tolerance, defers several projects, reduction in annual demand approximately **\$7k**
- Defer seawall project indefinitely, reduction in annual demand approximately **\$85k**
- Defer wharf project indefinitely<sup>1</sup>, reduction in annual demand approximately **\$61k**

These changes bring the annual municipal revenue required to support this spending is **\$222k** in year one, increasing with inflation yearly (average annual of \$283k over 20years). This reduces a funding gap in year one by \$128k to a value of **\$152k** in new annual revenue required.

The nova scotia capped assessment program increases by 3.2% this year, if all residential tax accounts were to be subject to the full increase, the new additional revenue available would be approximately **\$32k** annually, however this is not traditionally invested exclusively into capital and is utilized to cover increases to operating expenses due to inflation.

Assuming an increase in property valuation of 3.2% for all residential and commercial properties, there will be an additional **\$45k** in revenue, and additional take rate increase of 0.15%, increasing residential rates from 1.7% to 1.85%, and commercial from 3.2% to 3.35% would be required to close the remaining funding gap. This increase property valuation, and tax rate increase represents an average of, \$33 monthly per residential and commercial tax account, approximately \$400 annually.

There are a wide array of variables that affect capital demand, and revenue forecasting. It is the responsibility of town staff, and elected officials to find the right balance for residents. A bulk of the forecasted work is beginning in year 8. This gives the Town opportunity to develop the most appropriate strategy, allow the recent inflation to stabilize, and gather more information.

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<sup>1</sup> Decommissioning cost not considered in projections.



**Figure 7-1: 20-Year Capital Demand Projection – Baseline Scenario**

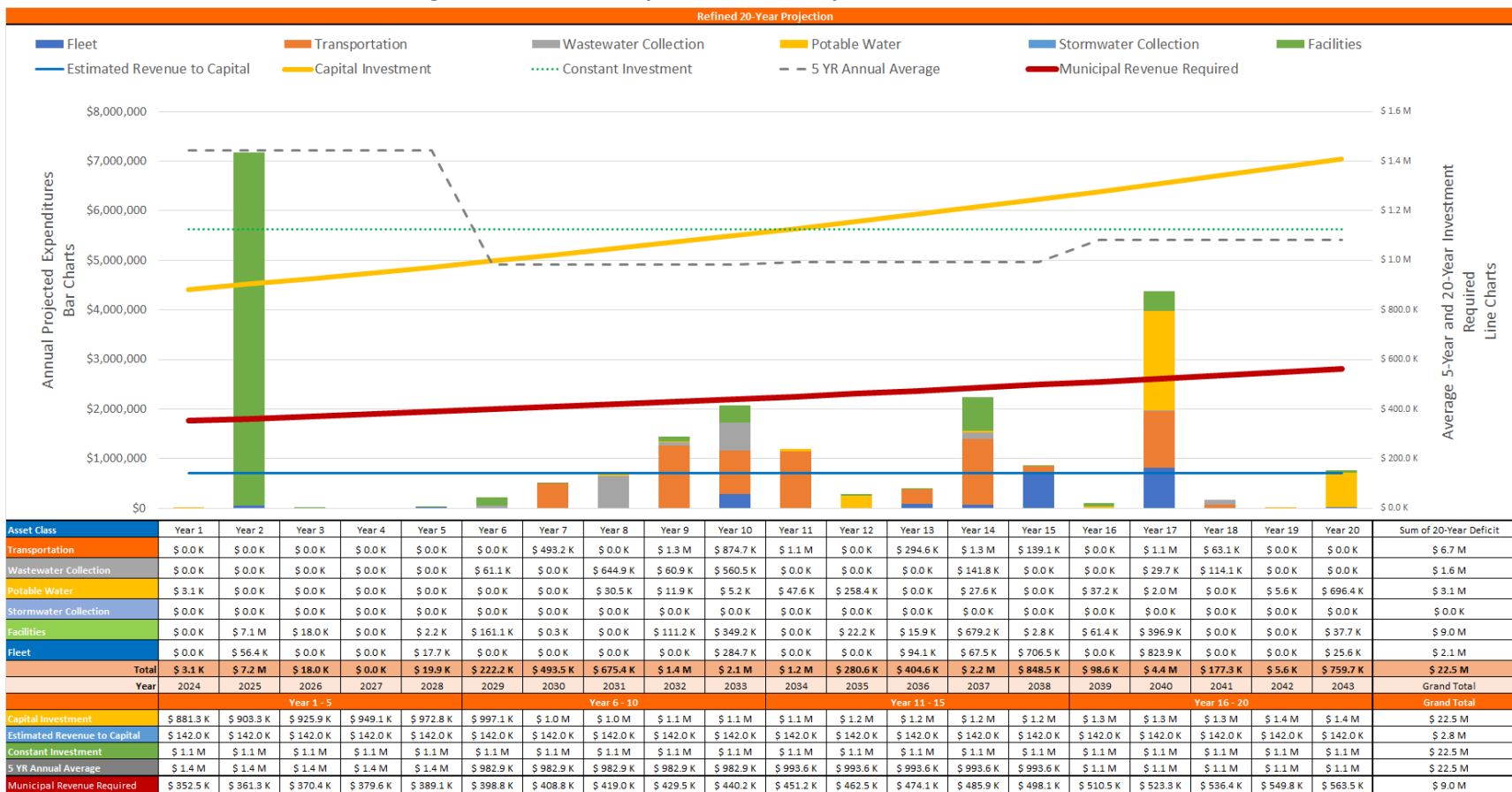
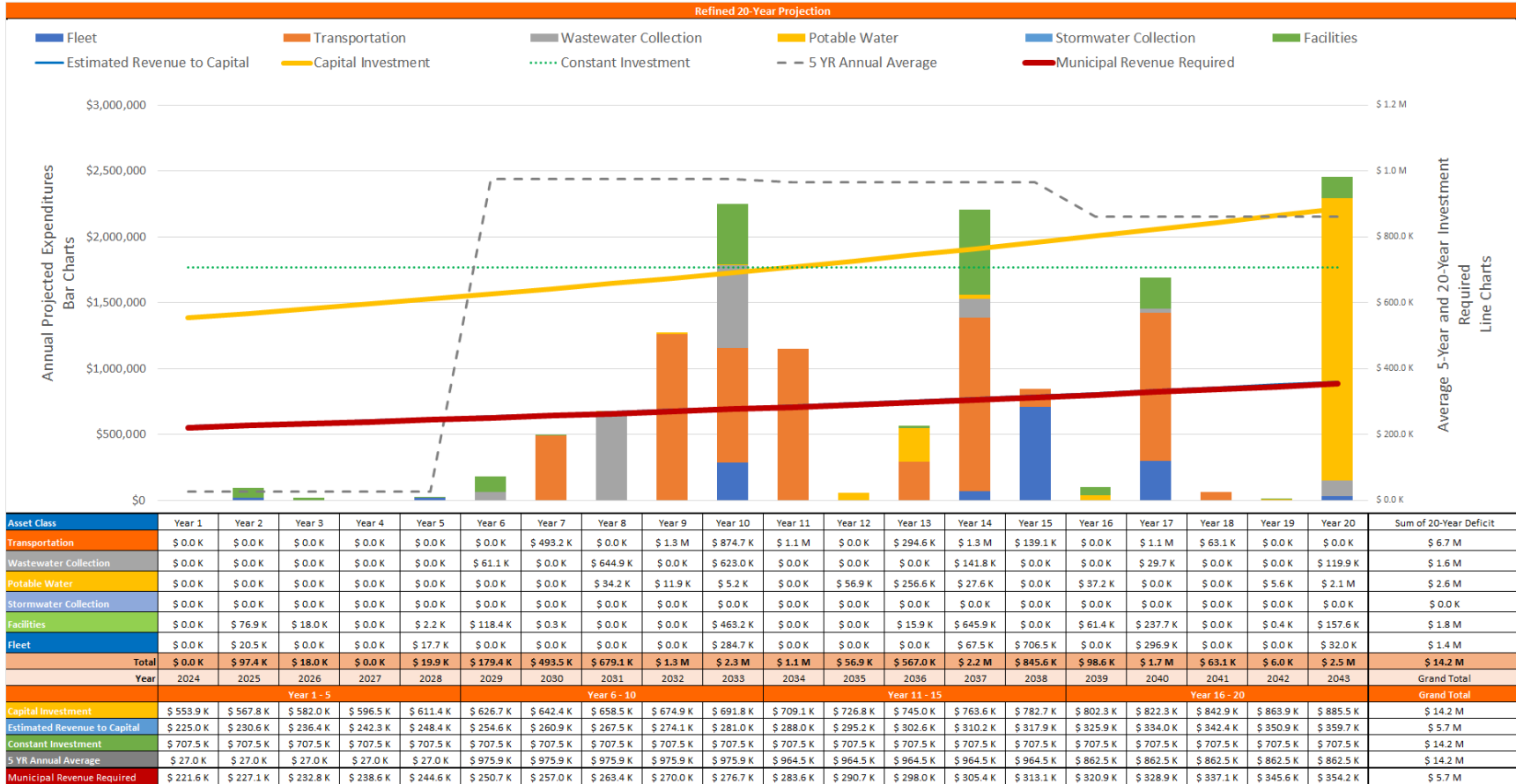
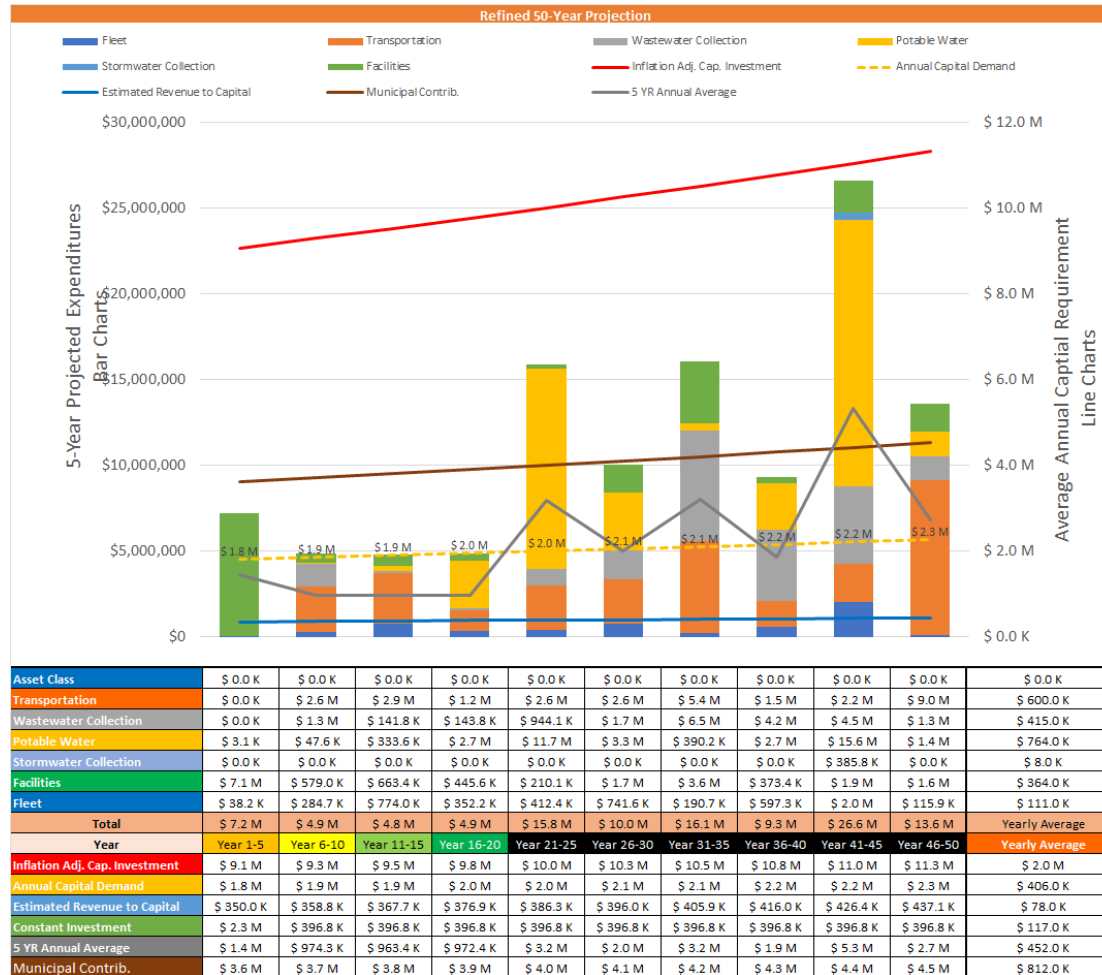


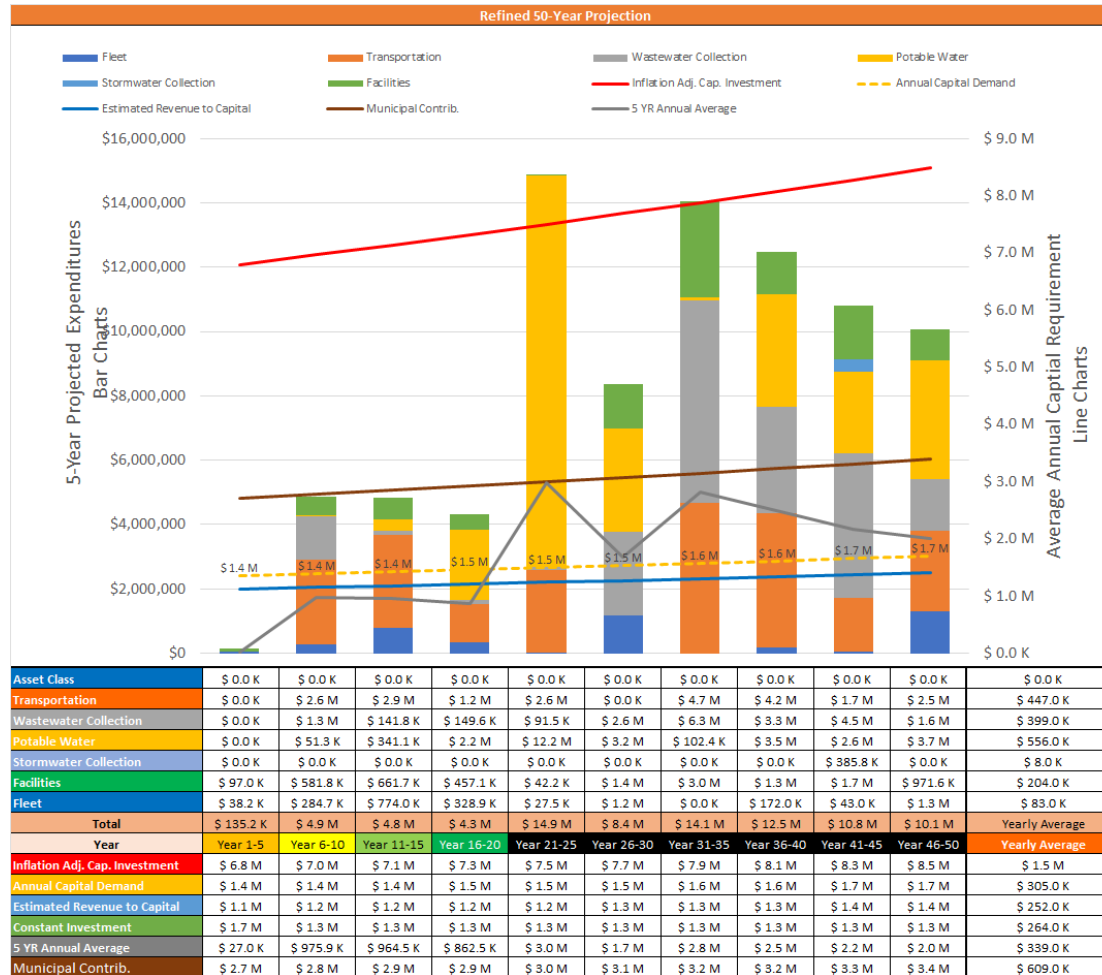
Figure 7-2: 20-Year Capital Demand Projection – Scenario 2



**Figure 7-3: 50-Year Capital Demand Projection – Scenario 1**



**Figure 7-4: 50-Year Capital Demand Projection – Scenario 2**



### 7.3 BUDGET OVERVIEW

Table 7-1 identifies the critical projects that were identified by the infrastructure risk assessment and level of service assessment in the asset management program.

**Table 7-1 Capital Investment Summary**

Project	Year 1	Year 2	Year 3	Year 4	Year 5
St George Street Reconstruction	\$ 1,326,353.80				
Wharf Rehabilitation		\$ 973,791.00	\$ 973,791.00	\$ 973,791.00	
Sea Wall Detailed Design		\$ 125,000.00			
Sea Wall Construction				\$ 1,976,500.00	\$ 1,976,500.00
Lagoon Enzymes	\$ 20,000.00				
Firehall Roof	\$ 78,650.00				
Firehall Parking Lot	\$ 165,986.00				
Town Hall Roof	\$ 33,033.00				
<b>Total:</b>	<b>\$ 1,624,023</b>	<b>\$ 1,098,791</b>	<b>\$ 973,791</b>	<b>\$ 2,950,291</b>	<b>\$ 1,976,500</b>

## **8 ENERGY MANAGEMENT AND CLIMATE CHANGE**

THIS SECTION IS A PLACE HOLDER FOR FUTURE DEVELOPMENT OF CAPITAL PROGRAM

## 9 CONTINUOUS IMPROVEMENT PROGRAM

The following tasks will be completed annually and are certified completed in support of this Short-Term Capital Program:

<b>Renew Asset Management Policy</b>	The asset management policy is current based on the sunset date.
<b>Renew Asset Management Roadmap</b>	The asset management committee has met and identified priority tasks for the coming year.
<b>Update Asset Register</b>	The asset register has been updated in GIS and the Capital Inventory spreadsheet with the previous year's capital works.
<b>Review Risk and Level of Service Assessment and Level of Service</b>	The risk and level of service assessments have been reviewed by the asset management committee and updated if needed.
<b>Update Capital Plan</b>	This five-year capital plan has been updated if applicable to the coming year's fiscal period.

Last completed on:	April 2024
Person responsible:	Sandi Millett-Campbell Chief Administrative Officer
Signature of completion:	<div style="border: 2px solid black; height: 20px; width: 100%;"></div>
Next asset management update due on:	March 2025