

# Asset Management Capital Program

Burgeo, NL | November 2023



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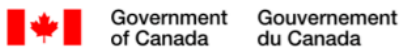
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Preliminary and Refined State of Infrastructure Reports

Asset Inventory Maps

Prioritized Asset Maps

Asset Management Policy

## 1. EXECUTIVE SUMMARY

This document provides the basis for capital programming strategies from an asset management perspective.

Challenges often arise in municipal infrastructure management when a short-term view is used to make decisions. Across Canada, there was an infrastructure boom in the mid-1900s and municipalities were subsequently required to take responsibility for operating and maintaining infrastructure. Following this infrastructure boom, however, the amount of government infrastructure investment diminished and municipal infrastructure gaps grew larger. Many municipalities are now seeing their infrastructure reaching end-of-life and are struggling to keep up with required infrastructure investment.

There has recently been a shift in government policymaking to avoid a recurrence of diminished infrastructure investment for Canada's core services and take on a more long-term management strategy. As a municipality, it is our responsibility to communicate and justify Burgeo's long-term needs to ensure sustainable service delivery.

A detailed breakdown of service areas, location of infrastructure, and risk values can be found in the maps attached to this report.

The capital program focuses on short-term planning and long-term capital targets. Short-term planning (5 year) includes selecting capital projects that target the community's highest-risk assets first. The 5-year pro-forma capital projects budget has a total proposed expenditure (funded) of \$278,125 averaged at \$55,625 per year. Funding is anticipated to come from cost sharing agreements with federal and provincial sources, as well as gas-tax funds. Long-term planning considers future infrastructure demand and expected revenue to identify potential infrastructure deficits on a medium-term (20 years) and generational scale (80 or more years). Capital funding gaps can be addressed by:

- a) examining levels of service to see if a lower level of service is acceptable, which allows for longer service life for infrastructure and defers capital spending requirements,
- b) increasing revenue to maintain service levels by meeting projected infrastructure demand timelines,
- c) accessing funding through targeted and strategized project deliveries such as incorporating energy efficiency upgrades in building renovations to access Green Municipal financing, or
- d) a combination of the above strategies.

Burgeo is committed to developing capital programs that identify capital priorities in a transparent and accountable process. Capital decisions will be based on risk management and consider:

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

## 2. ASSET REGISTER

The Town of Burgeo has a Geographic Information System (GIS)-based asset register and can be viewed at [mycivitas.ca](http://mycivitas.ca). The Town's asset data can be downloaded from the online portal as a spreadsheet to allow staff to query and produce reports from the data. The asset register is maintained online using QGIS, a free, open-source GIS application.

The asset register data was sourced throughout the Asset Management project from the following:

- Existing town records including as-builts, design drawings, funding application, insurance and tax documents.
- Anecdotal information from Town staff.
- Site visit using GPS to locate manholes, hydrants, and gate valves if visible above ground.

Location accuracy is estimated to be within 3m for GPS items and is unknown for as-built information, particularly for underground items. Historically, as-built records are often found to be inaccurate due to changes during construction and the new location often not being recorded accurately. The Town should ensure all future capital projects include a requirement for the contractor to provide coordinates via a professional surveyor for all Town infrastructure impacted by the project; the accuracy level required should be as deemed necessary by the Town. This information can then be added to the GIS database, increasing its accuracy over time.

The information collected for this project is intended to be used for planning purposes, providing data for sustainable decision making over the long-term. Information is not intended to be used for construction purposes.

The town manages infrastructure in the following service areas:

### Water Treatment and Distribution

Burgeo's water supply comes from Long Pond. The Town has a dam, where Long Pond discharges, to help retain water for the intake. The water is gravity fed from the intake to the treatment facility, where it is treated with ozone, media filtration, and gaseous chlorine. The current facility came online in 2009 and replaced the original facility. From the treatment facility the water is pumped to a water storage tank and throughout the Town. The storage tank is used to help supply pressure to the system, as well as for storage purposes. In 2019 the Town installed a new 450mm HDPE transmission main from the treatment facility to the intersection of Reach Road and Inspiration Avenue, this new main is larger than the original and better supplies the Town.

The majority of water distribution mains are original, being installed in phases ranging from the 1960s to 70s. There are small sections with installation dates in the 1990s. These pipes are all cast iron (CI) and range from 300mm to 150mm.

The system is composed of 71 hydrants, 143 valves, 1 treatment facility, 1 storage tank and boosting station, and about 15km of water pipe. The approximate replacement cost of the system is \$6.48M.

### Wastewater Distribution

Burgeo has 13 separate wastewater systems, 7 larger systems and 5 smaller systems. All systems are gravity fed and range in approximate length from 75m to 500m. Most of the sewer systems were installed in the 1960s to 70s, with small sections installed in the 1990s. The older infrastructure is asbestos concrete (AC) material with diameters ranging from 150mm to 200mm. The newer infrastructure is PVC material with diameters ranging from 200mm to 100mm. The system is composed of 68 manholes and 4.6km of pipe. The approximate replacement cost of the system is \$3.29M.

### Stormwater System

The Town uses culverts to manage storm water. The culverts are mostly older with install dates in the late in1970s to 1980s. The diameter and material ranges as well. All culverts on Reach Road are owned by the Department of Transportation. The system is composed of 2.3 km of culverts. The approximate replacement cost of the system is \$844,000.

### Transportation Network

The Town owns a network of approximately 9.4 km of roads, 1.3km of guard rails, 1 bridge, and 2.3km of trails. The approximate replacement cost of the network is \$3.42M.

### Buildings, Parks, and Recreation

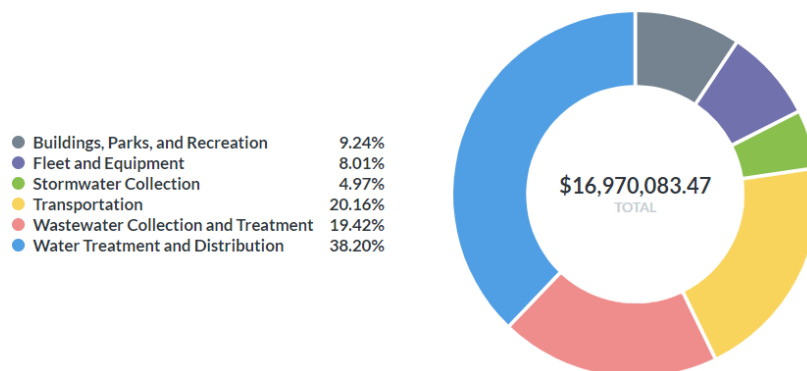
The Town has several critical buildings, and several smaller structures and recreational areas. The buildings have an estimated 3,630m<sup>2</sup> area, and the recreational structures have 9,500m<sup>2</sup> area. The approximate replacement value is \$1.57M.

### Fleet and Equipment

The Town utilizes several important pieces of fleet and equipment. The approximate replacement cost is \$1.36M.

Figure 2.1 Asset Register Value

Infrastructure Renewal Cost



The infrastructure renewal cost shown is the present value of the infrastructure if it was all to be replaced today. The actual cost of infrastructure replacement and capital funding for the Town is dependent on future market price of construction, lifecycle expectations of infrastructure, desired service levels and risk management strategies adopted by the Town.

### **3. POLICY AND GOVERNANCE**

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

- Asset Management Policy (currently under review)
- Municipal Plan and Development Regulations (1993-2003)
- Emergency Preparedness Plan
- Tourism Plan (under review)

## 4. REVENUE STRUCTURES

Burgeo generates revenue for capital maintenance, renewal, and upgrades through general revenue from rate payments and taxes, reserves, borrowing, and grant funding.

### 4.1 Rate Payments

Burgeo has a flat rate structure for water as approved by the town. By tracking long-term infrastructure requirements, Burgeo safeguards against sudden, unexpected rate increases. Existing charges for water and sewer services have been set since approximately December 2022. Rates are set based on yearly budgets and projections of sustainable infrastructure investment.

Tax	Residential (Dwellings with apartments may differ)	Commercial/ Non-Residential
Water	\$320	Varies \$125 (+7.5mils of assessed value)-\$912, \$320/unit for multiunit buildings
Sewer	\$120	
Water + Sewer	\$440	Varies: \$125 + 7.5mils, or base rates of \$1,092, or \$440/unit for multiunit buildings.

### 4.2 General Taxation

The remainder of the services provided by Burgeo is supported by general tax revenue from property tax, vacant land, poll and business tax. Tax rates are set based on yearly budgets and projections of sustainable infrastructure investment.

Residential Property Tax	11 mils, base rate of \$550, \$350 for vacant land
Commercial/Non-Residential Property Tax	14 mils, base rate of \$550, \$350 for vacant land
Vacant Land	Base rate of \$350
Poll Tak	\$500
Business Tax	See Town tax structure document

### 4.3 Debt Strategy

Debt strategies will consider the long-term life-cycle cost of infrastructure which will include initial capital requirements less funding, debt servicing requirements, allowance for maintenance cost over the life of the infrastructure, annual operations cost required to provide the service desired from the infrastructure and decommissioning or replacement cost at end of life. Debt spending will be used to maintain infrastructure services if:

- A level of service assessment has been completed for the existing or proposed infrastructure,
- The service has been deemed essential for the community,



- The community, via the council, is aware of the lifecycle cost of infrastructure, and
- The analysis has considered impacts on other essential service areas.

Existing loans:

- Water & Sewer (Scotia Bank mat date 2025-10-30, original principal \$697,585)

Projects planned:

- Water Ozonator refurbishment 2024, \$100K estimated cost.

Funding applications (submitted/under review or approved):

- Housing Accelerator Fund, purchase land (\$70K) plus water and sewer infrastructure on Long Reach to be developed as Seniors housing. Total project \$1.2M, 100% funding. Timeline: 2024 to 2027

Project Wish list:

- None

Burgeo current debt ratio is 6%.

#### **4.4 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 the 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 are:

- Gas Tax Agreements
- Municipal Operating Grants
- Debt Servicing Grants and Subsidies
- Special Assistance Funds
- Community Enhancement Employment Program
- Municipal Capital Works and Cost-Shared Funding Programs
- Federation of Canadian Municipalities Green Municipal Fund

Burgeo has a target funding threshold of, on average, 75% of capital project spending over the long term. This percentage is used in combination with the town's projected annual infrastructure demand to set capital investment targets.

## 5. REGULATORY ENVIRONMENT

### 5.1 Drinking Water

Drinking water testing and limits are set based on the *Drinking Water Treatment Standards for Newfoundland and Labrador*, *Guidelines for Drinking Water Quality in Newfoundland and Labrador* and *Guidelines for Monitoring Public Drinking Water Supplies*. Internal staff take chlorine measurements daily and Provincial staff monitor water monthly. Burgeo generally meets the requirements for drinking water regulations, however there are seasonal chlorine level issues. The Town is also having issues with Trihalomethane (THMs) and Haloacetic acids (HAAs) that exceed regulatory limits, see below for additional information on THM's and HAA's. The Town is currently assessing options to address both issues.

Towns can check the latest results of their Provincial water testing by visiting the *Newfoundland and Labrador Water Resources Portal*, Community Water Resources Reports at this website: <https://maps.gov.nl.ca/water/>

Trihalomethane (THMs) and Haloacetic acids (HAAs) are formed when the chlorine used to disinfect water reacts with natural organic matter (vegetation, dead leaves). They are referred to together as Disinfection By-Products, or DPBs. DPBs in exceedance of Newfoundland and Labrador drinking water guidelines typically occurs in chlorinated drinking water systems supplied by surface water, such as lakes and rivers, and are found in many potable water systems across the province.

Human health effects from DBPs at low environmental doses or at biomonitored levels from low environmental exposures are unclear or unknown. The current guideline of 0.1 mg/L was developed based on a 60 kg (130 lb) person with a factor of safety of 1000 on the concentration. (Centres for Disease Control and Prevention, 2022).

Because it has been demonstrated that the health risks from pathogenic microorganisms far exceed those potential health problems associated with THM production during water treatment (Health Canada, 1995), the Guidelines for Canadian Drinking Water Quality (GCDWQ) recommend continuing to chlorinate while "making every effort to maintain concentrations as low as reasonably achievable without compromising the effectiveness of disinfection." (GCDWQ, 2020).

Based on this advice, some communities have had success in reducing THM concentrations below the recommended level by decreasing chlorination to the minimum required to meet residual chlorine standards in the water. This often requires purchasing or recalibrating chlorine metering at the water treatment plant.

### 5.2 Wastewater

Environment and Climate Change Canada regulates wastewater requirements through the Wastewater Systems Effluent Regulations (WSER). The Town is not required to be monitored due to discharge volumes being lower than the criteria set by the regulations.

### 5.3 Facilities

Municipally owned and operated facilities are to, at a minimum, be maintained in compliance with the National Building Code (NBC) at the time that they were constructed. Continuous updates to the NBC related to safety and accessibility occur over time and require significant funding to achieve via upgrades to existing buildings. Burgeo'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 NBC;
- Existing facilities will be maintained such that performance meets at a minimum the code requirements at the time they were built; and,
- Existing facilities or parts of facilities that require renovation to continue providing services will incorporate the latest NBC requirements.

### 5.4 Climate Change

Currently, there are no adopted guidelines in Newfoundland and Labrador that regulate climate change adaptation or mitigation, however, Provincial funding is contingent on proposed projects meeting the 1:100-year storm using Climate Change adjusted rainfall.

Climate change adaptation and mitigation will be managed in accordance with Burgeo's policies, planning documents and guidelines. The Province has an excellent handbook to guide the town's policy makers in making decisions regarding coastal change - [Coastal Change in Newfoundland and Labrador, A Handbook for Policy Makers and the Public.](#)

## 6. CAPITAL INVESTMENT STRATEGY

The focus of public commentary and complaints is often based on the condition of visible, above-ground infrastructure and due to the political nature of local government, can have a large impact on capital investment. It is necessary to strategically allocate Burgeo’s finite capital funds with respect to all infrastructure.

Burgeo has adopted a risk management approach in prioritizing infrastructure capital 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 the continuation of high-priority services with capital investment that is acceptable to residents and stakeholders. Capital investment will prioritize high-risk assets first.

### 6.1 Defining Risk

Risk is defined by two factors: Probability of failure (PoF) and consequence of failure (CoF).

- 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.

#### Probability of Failure

PoF is related to the estimated remaining life of an asset shown in this table:

**Table 6.1.1: Probability of Failure**

PoF Rating	PoF Description	Estimated Remaining Life
1	Rare	More than 30 years
2	Unlikely	Between 15 and 30 years
3	Possible	Between 5 and 15 years
4	Likely	Between 0 and 5 years
5	Almost Certain	Less than 0 years

The estimated remaining life is calculated using a combination of condition values, age values, and expected lifespan values. PoF values automatically update with each passing year, and as infrastructure renewal and condition values are updated in Burgeo’s asset register.

### Consequence of Failure

CoF is based on the potential environmental, legal, economic, and social impacts of an asset failing.

**Table 6.1.2: Consequence of Failure**

CoF Rating	CoF Description
1	Minor
2	Moderate
3	Significant
4	Major
5	Catastrophic

CoF values were defined by staff and approved by elected officials for all Burgeo’s assets. CoF values should be reviewed by staff and elected officials regularly.

### Risk Matrix

A risk value is obtained by combining probability of failure and consequence of failure values as per the following matrix. It is common asset management practice to shift the matrix in favour of the consequence of failure, as seen below.

**Table 6.1.3: Risk Table**

<b>Probability of Failure</b>		5 Almost Certain	11 Medium	16 High	20 High	23 Extreme	25 Extreme
		4 Likely	7 Low	12 Medium	17 High	21 High	24 Extreme
		3 Possible	4 Low	8 Low	13 Medium	18 High	22 Extreme
		2 Unlikely	2 Minimal	5 Low	9 Low	14 Medium	19 High
		1 Rare	1 Minimal	3 Low	6 Low	10 Low	15 Medium
			1 Minor	2 Moderate	3 Significant	4 Major	5 Catastrophic
		<b>Consequence of Failure</b>					

## 6.2 Priority of Capital Projects

Burgeo has assigned a risk value to each asset in its asset register. Five-year capital plans are created by allocating the expected budget to capital projects, which address infrastructure in this order:

1. **Extreme-risk**
2. **High-risk**
3. **Medium risk**

*In the event that there is budget remaining and there are no more unallocated extreme-risk or high-risk assets, medium-risk projects may be accelerated to prevent unsustainable infrastructure deficits in the future.*

4. **Reserve contributions**

*In the event that there is budget remaining after all extreme, high, and accelerated medium risk assets have been allocated, Burgeo may contribute to reserve targets.*

5. **New infrastructure**

*If all reserve and spending targets are met, there may be an opportunity to invest in new infrastructure. Burgeo will evaluate infrastructure investments from a life-cycle cost perspective to ensure that decisions are sustainable.*

While new infrastructure is listed last in terms of priority, it is possible that the Town may wish to assign a higher priority to developing new infrastructure if it can be shown that the potential for a return on investment is possible. The reason new infrastructure is shown as the lowest priority is because it brings additional infrastructure demand over the life cycle of the asset and increasing costs should be very carefully considered. However, the potential for return on investment in the form of additional revenue, town growth and tax base increases as well as other benefits should be taken into consideration. The Housing Accelerator Funding/Seniors Housing project currently in the works is a good example of this approach.

## 6.3 Continuous Risk Management

Capital investment is about managing risk. On one hand, overall infrastructure risk is reduced by completing infrastructure renewal on extreme, high, and medium risk assets. On the other hand, overall infrastructure risk continually increases as infrastructure ages because the probability of failure increases. By meeting capital spending and reserve targets that match the level of infrastructure demand, Burgeo ensures that infrastructure deficits do not create unmanageable infrastructure risk levels for future generations.

## 6.4 Level of Service

PoF and CoF of individual assets are refined based on level of service priorities. Current and future gaps have been identified as capital priorities based on proposed timelines. If an existing asset is not currently meeting the target level of service, it is considered to have failed, even if it is providing some service at a level lower than that targeted. Table 6.41 outlines any level of service gaps identified by the Town.

Service Area	Level of Service Statement
Water Treatment and Distribution	Water Quality Service Gap: Seasonal chlorine level issues and THM's/HAA's in exceedance of required limits. The Town is currently assessing options to address both issues.
Wastewater Collection	
Stormwater Collection	
Transportation	
Buildings, Parks, and Recreation	
Fleet and Equipment	

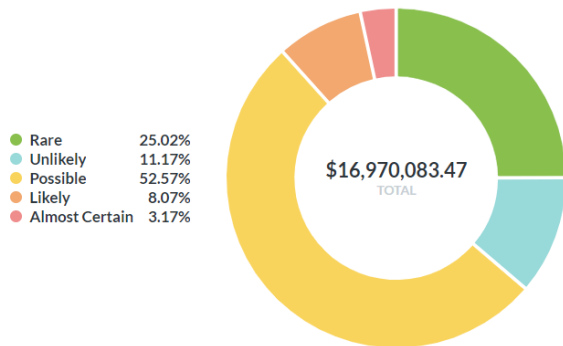
**Figure 6.4.1 Level of Service Table**

## 7. RISK PROFILE

As mentioned in the Section 6: Capital Investment Strategy, investment will prioritize high-risk infrastructure through an assessment of probability of failure (PoF) and consequence of failure (CoF). This section gives a brief overview of the assets captured in Burgeo’s asset management system. Burgeo’s PoF, CoF, and Risk maps and graphs are available in the appendix attached.

**Figure 7.1: Probability of Failure (PoF) Profile**

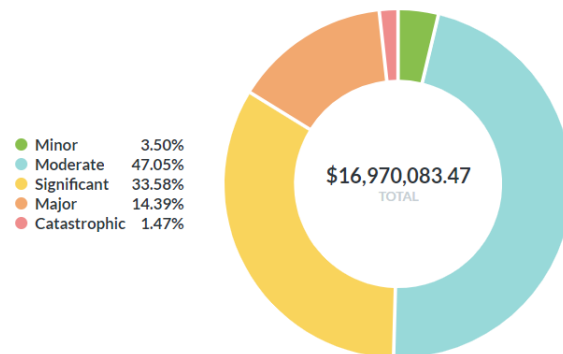
Probability of Failure



About 36% of Burgeo’s asset value has a PoF of “rare” and “unlikely”. Approximately 52% of the assets have a “possible” PoF, about 8% of assets fall into the “likely”, and 3% for “almost certain” PoF.

**Figure 7.2: Consequence of Failure (CoF) Profile**

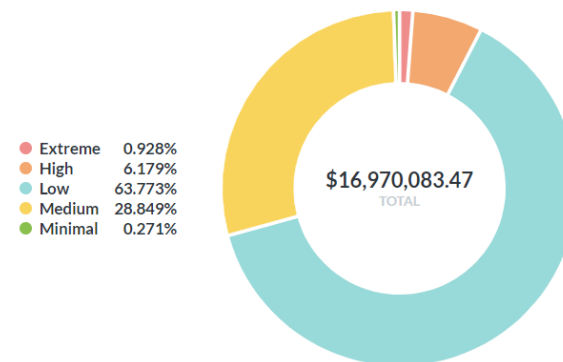
Consequence of Failure



Approximately 1% of Burgeo’s assets have a “catastrophic” CoF, 14% have a “major” value, and 33% have a “significant” value. The remaining 50% fall within the “moderate” and “minor” CoF range.

**Figure 7.3: Risk Profile**

Risk



Burgeo has a good risk profile with approximately 64% of the asset value classified as “low” and “minimal”, 29% as “medium”, and 6% as “high” and 1% as “extreme”.



Figure 7.4 Infrastructure Risk Map

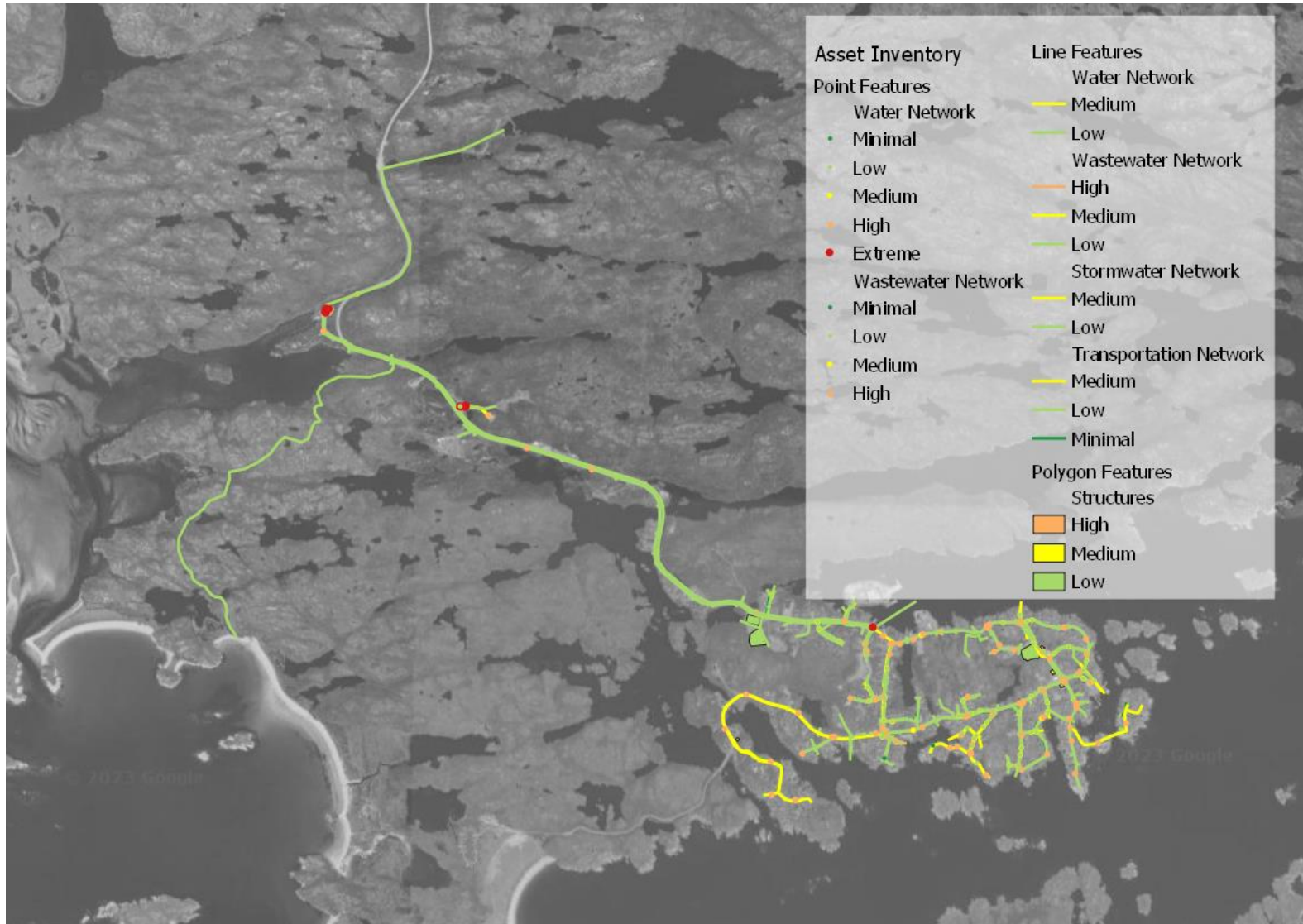


Figure 7.5 Values of Risk Levels and Remaining Life

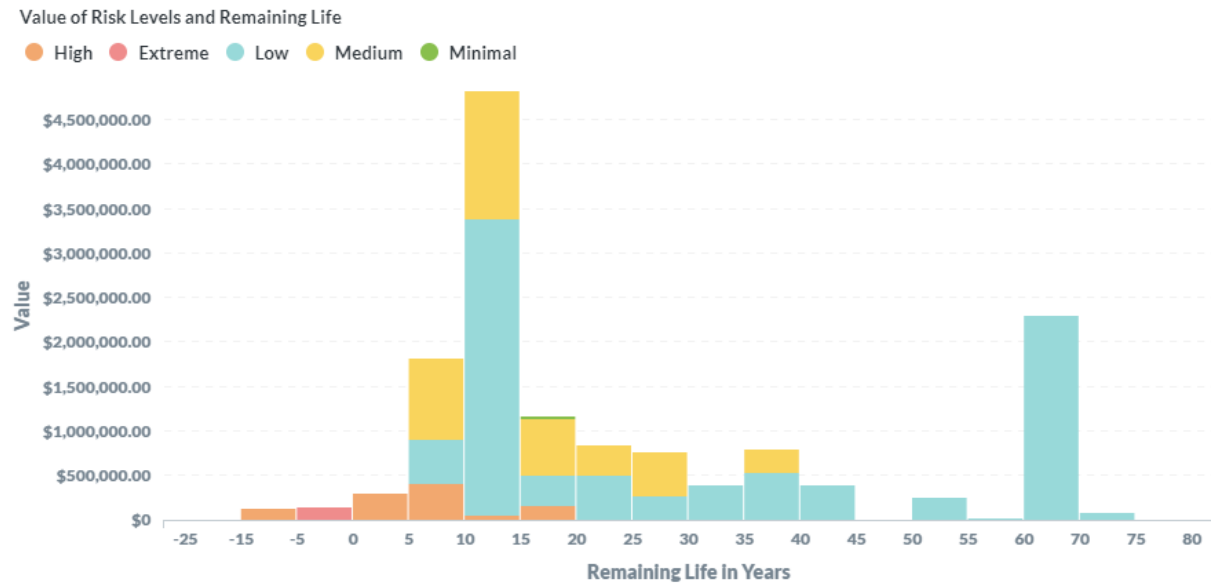


Figure 7.5 shows the remaining life of assets and their renewal value, grouped by risk level. Burgeo has a good risk profile distribution with a low number of extreme and high risk assets having already reached or are reaching their end of life within the next five to ten years. Items showing in a column with a negative year have exceeded their estimated design life.

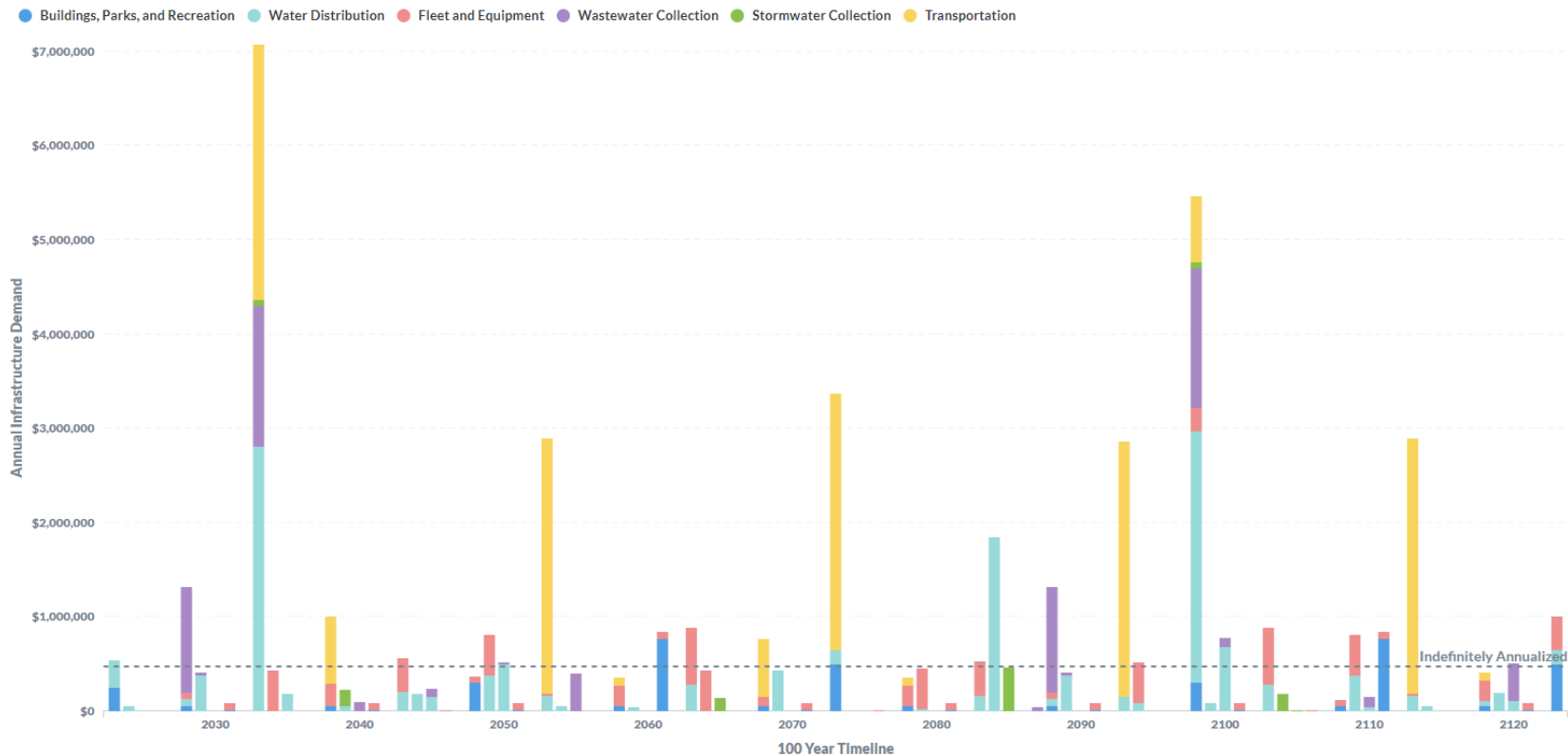
	Extreme Risk Items	High Risk Items
-25 - 0	6 main gate valves, control panels for oxygen and ozone components	98 hydrant valves and main gate valves, public works garage
0-20	n/a	Water treatment components (ozone, oxygen, filters, cl2 ), 5 manholes, several segments of sewer pipe (~114m), loader, pickup

## 8. CAPITAL DEMAND PROJECTIONS

### 8.1 Long Term

Figure 8.1.1 shows a projection of Burgeo’s long-term infrastructure demand over the next 100 years. An annualized long-term infrastructure demand of \$470,074 (unfunded dollars) per year is estimated from available data.

**Figure 8.1.1 Long Term Infrastructure Demand Protection**

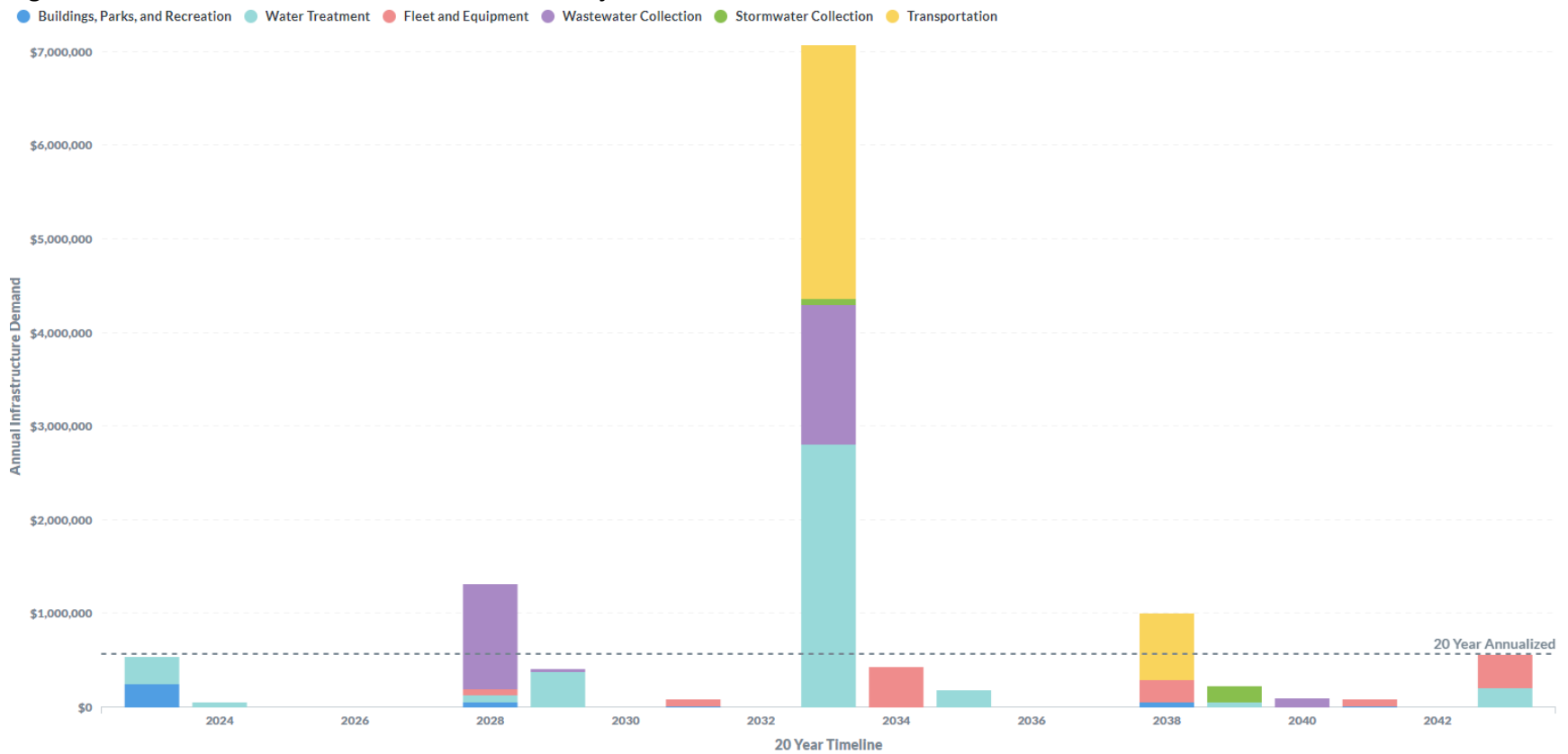


This annualized value is obtained by dividing the renewal cost by lifespan for each asset in the database and then summing the total. The annualized long-term infrastructure demand should be used as a target for annual capital investment. Assuming 75% funding, the target annual municipal contribution for capital infrastructure investment for Burgeo is \$117,519. As lifespan and renewal cost data are updated the annual capital infrastructure demand will update. As such, the Town may lower the annual investment demand by committing to operations and maintenance programs to extend lifespans, deciding to rehabilitate versus replacement, and more.

## 8.2 Medium Term

Figure 8.2.1 shows Burgeo's medium-term infrastructure demand over the next 20 years. An annualized medium-term infrastructure demand is shown by the dashed line and is estimated at \$575,838 (unfunded dollars) from available data. The 20-year annualized demand is approximately \$105,764 more than the 100 year demand meaning capital demand is expected to decrease in the long term. This is primarily due to aging water and sewer systems, and the cyclical renewal/repair costs for facilities, in particular the water treatment building, and asphalt roads.

**Figure 8.2.1 Medium Term Infrastructure Demand Projection**



## 9. CAPITAL WORKS RECOMMENDATIONS

The following capital works recommendations are based on the Town's infrastructure risk profile, existing capital projects, and input from Town staff and consultants.

For cost-savings, the town should align water, sewer and road projects. Water and wastewater service connection breakage is common in small towns with aging infrastructure. It can be an expensive challenge for small towns to keep up with service connection renewal from their operational budgets, therefore, the town should include service connection replacements in capital improvement projects where possible.

### 9.1 Water Treatment and Distribution

The estimated renewal cost for the water treatment and distribution system is \$6.48M, equating to the total annual infrastructure cost being \$131,326.

There are several hydrants and valves flagged as extreme and high risk. For an approximate location use [MyCivitas](#). The valves outside of the treatment facility are flagged as extreme risk and replacement of these valves will be included in the proforma budget. To address the remaining high-risk valves and hydrants the Town should conduct a condition study to refine the condition of these assets and develop an approach to replacing or repairing the older assets.

The control panels for the chlorination and ozone treatments have been flagged as extreme risk. These components should only be replaced if they are causing regular problems for the system. The town can mitigate the risk value by conducting regular inspections and having replacement parts readily available, until they are replaced.

The oxygen driers, generator, storage tank to help generate the ozone needed for treatment, as well as the ozone creation components are all flagged as high risk due to their age and high consequence of failure. The Town conducts annual maintenance on all of these components, which will help mitigate risk. They are also rebuilding one of the ozone creation components in 2024.

The chlorine injector pumps are flagged as high risk due to their age. Regular inspections and purchasing replacement parts will help mitigate the risk value.

The Town has noted a water service gap relating to seasonal issues with chlorine levels, and issues with THMs/HAAAs. They are currently assessing options to address these issues.

### 9.2 Wastewater Distribution

The estimated renewal cost for the wastewater system is \$3.29M, equating to the total annual infrastructure cost being \$52,331.

The sewer pipe segments from Inspiration Place to the outfall have been flagged as high risk, mostly due to the consequence of failure of these assets. A camera inspection will provide a more refined condition of these pipes and will allow for better planning for replacement. The camera study will be included in the proforma budget.

The Town is outside the federal requirements for effluent flow rates and there are currently no plans to develop a treatment facility. If the Town experiences growth or additional housing developments, the

increased flow rates may result in treatment being required by the federal requirements for wastewater.

### **9.3 Stormwater Network**

The estimated renewal cost for the storm water network is \$844,100, equating to the total annual infrastructure cost being \$12,986.

No assets have been identified as extreme or high risk, this is mostly due to the lower consequence of failure values assigned to culverts. The Town should bundle culvert replacement into any planned capital works projects that are taking place in areas where the culverts are in poor condition.

### **9.4 Transportation Network**

The estimated renewal cost for the transportation network is \$3.42M, equating to the total annual infrastructure cost being \$160,597.

No assets have been identified as extreme or high risk.

### **9.5 Buildings, Parks, and Recreation**

The estimated renewal cost for the buildings, parks and recreation is \$1.57M, equating to the total annual infrastructure cost being \$36,750.

The Town Garage is flagged as extreme risk due to its very poor condition and high consequence of failure. Due to the poor condition the Town should consider constructing a new building. There will also be a cost associated with demolition of the old garage. The Town should also be aware of the possibility of ground remediation due to contaminants.

### **9.6 Fleet and Equipment**

The estimated renewal cost for fleet and equipment is \$1.36M, equating to the total annual infrastructure cost being \$76,083.

The following assets have been flagged as high risk: JCB Loader, air tank refill, 2008 Ford F250.

## 10. FINANCIAL PROGRAMS AND PRO-FORMA BUDGETS

All financial estimates are gross values that do not consider funding from outside sources. Where applicable, the cost basis of capital projects is based on estimations consisting of:

65%	Capital Costs
15%	Contingency
10%	Design
10%	Inspections and Removal

In some cases, where this general formula is not applicable, or a project requires significantly less or more effort in one of the above areas, a custom cost is applied to the project components in the capital program and in the inventory database. Prior to submitting funding applications for the proposed projects identified, the Town should have a detailed engineering scope of work and cost estimate prepared. The estimated costs used in this report are subject to change based on site specific and market conditions.

In general, the majority of Burgeo's infrastructure is in relatively good condition. However, there are some immediate infrastructure replacement projects required in the next 5 years.

## 10.1 Five Year Capital Plan

### Capital Projects

	Year	2024	2025	2026	2027	2028
Capital Projects	Replace valves by water treatment		\$10,000			
	Camera inspection for Inspiration PI outfall		\$7,500			
	New Municipal Garage			\$300,000		
	Housing Accelerator Fund	\$70,000	\$300,000	\$300,000	\$300,000	\$300,000
	Ozonator Refurbishment	\$100,000				
	Chlorine Components				\$200,000	
	Hydrant and Valve condition assessment		\$10,000			
	New Public Works truck			\$65,000		
	New Loader				\$150,000	
	New Air Tank Refill					\$100,000
	Water Treatment Parts Allowance	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
	<b>Total Capital Spending (unfunded)</b>	<b>\$190,000</b>	<b>\$347,500</b>	<b>\$685,000</b>	<b>\$670,000</b>	<b>\$420,000</b>
	<b>A. Total Capital Spending (funded, 25% Town)</b>	<b>\$47,500</b>	<b>\$11,875</b>	<b>\$96,250</b>	<b>\$92,500</b>	<b>\$30,000</b>
	Reserve Transfers	Water		\$32,832	\$8,000	\$12,000
Wastewater			\$13,083	\$13,083	\$13,083	\$13,083
Storm Water						\$3,247
Buildings, Parks and Recreation			\$9,188			\$9,188
Fleet & Equipment			\$10,400			\$19,021
Transportation (Roads)			\$40,149			\$10,000
<b>B. Total Reserve Transfers</b>		<b>\$0</b>	<b>\$105,651</b>	<b>\$21,083</b>	<b>\$25,083</b>	<b>\$87,369</b>
<b>Total Investment A+B (funded)</b>	<b>\$47,500</b>	<b>\$117,526</b>	<b>\$117,333</b>	<b>\$117,583</b>	<b>\$117,369</b>	
<b>Target Investment (unfunded)</b>		<b>\$470,074</b>	<b>\$470,074</b>	<b>\$470,074</b>	<b>\$470,074</b>	
<b>Target Investment (funded: 25% Town contribution)</b>		<b>\$117,519</b>	<b>\$117,519</b>	<b>\$117,519</b>	<b>\$117,519</b>	

Notes:

1. Housing Accelerator project is 100% funded for \$1.2M. As such, 0% Town portion is included in Capital Spending (funded) line item.
2. No reserves have been set for 2024 as the budget planning for the year was completed prior to the completion of the AM plan.

Table 10.1 Capital Projects and Reserve Funds for a pro-forma 5 year planning period.

Once the outfall camera inspection is completed, **the 5 year pro forma capital budget will likely need to be adjusted to reflect engineers recommendations.**



### Reserve Transfers

In the event that there is budget remaining after all extreme, high, and accelerated medium risk assets have been allocated, Burgeo may contribute to reserve targets. Years 2025-2028 would be a good example of this as the projected demand is less than the average long-term infrastructure demand. In years that the capital investment is expected to exceed the target investment no reserve is proposed.

Reserve funds should be set up to ensure that they are used for their intended purpose. A separate account with a binding statement for their purpose may be useful. Proposed reserve fund allocations are set out in Table 10.1.

While setting aside reserve funds is the ideal, there may be periods where this is not achievable. In those circumstances, the following strategies should be considered:

- a. examining levels of service to see if a lower level of service is acceptable, which allows for longer service life for infrastructure and defers capital spending requirements,
- b. increasing revenue to maintain service levels by meeting projected infrastructure demand timelines,
- c. accessing funding through targeted and strategized project deliveries such as incorporating energy efficiency upgrades in building renovations to access Green Municipal financing, or,
- d. a combination of the above strategies.

### Short-Term Capital Investment Plan

2024-2028, Municipal Investment



Figure 10.2 Graph showing target investment, capital spending, and reserve targets for the pro-forma 5 year planning period.

## 10.2 Operations and Maintenance

### Water Main Gate Valves

Properly functioning gate valves are essential to isolate water main breaks effectively. It is generally not cost-effective to proactively replace gate valves and the town may consider including gate valve replacements in major capital projects where the water pipes and service connections are replaced as well. Until then, the town can utilize their asset management mapping to record the status of gate valves. If large sections of town cannot be isolated, then gate valve replacements should be carried out independent of major capital works projects.

Exercising (opening and closing) new to newer valves can help extend the useful life of these assets and as valves are replaced within the Town they should be added to a valve exercise program. This can be performed annually or twice a year.

Flushing hydrants and water mains on an annual basis can help extend the useful life of water pipes and can help ensure water pressure is adequate throughout the town. The Town currently does flushing once or twice per year.

### Wastewater

Flushing low grade or problem sewer pipes can help reduce potential blockages/backups throughout the town. This can be performed annually, or as needed for any problem areas.

### Transportation

As roads get replaced, the Town may want to consider a pavement management program with regular crack sealing and periodic microsurfacing and overlaying. Road life can be extended well beyond the typical 20 to 25 year expected life to 50 or 60 years with these treatments, but a formal plan would need to be developed to balance the extended life versus the cost of commissioning the treatments. Significant savings can be gained by combining these services with other local municipalities.

A sample pavement management program is presented here for reference:

- Year 0: New pavement
- Year 3: Crack treatment (sealing)
- Years 7, 14, and 21: Crack treatment (sealing) and chip seal
- Year 28: 2-inch mill-and-overlay
- Year 31: Crack treatment (sealing)
- Years 38, 45 and 52: Crack treatment (sealing) and chip seal
- Year 60: Rehabilitation or reconstruction

### General Infrastructure Data Recording

Upon the completion of this asset management project, the town has access to significant mapping tools. Online and hardcopy maps can be printed and should be used to record information such as pipe breaks, new installations, and other valuable information. As data is collected and updated, they can directly influence future capital projects through the town's asset management process.

Data Update: A once yearly update of the Town's GIS asset inventory data should be completed. The Town will gather and compile information on changes that were made to infrastructure during the year.

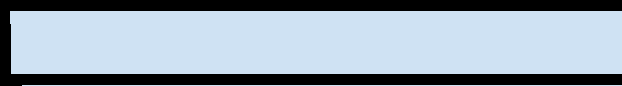
This may include work such as replacing valves, curb stops, or pipe sections, upgrades to lift station controls or pipes, repairs or upgrades to buildings, paving projects, culvert replacement and ditching etc. Keep a file (either hardcopy or digital) of any design drawings or as-builts for infrastructure projects that take place through-out the year. Have maintenance people keep a map atlas with them to note repair/replacement work on the maps as the work takes place.

Data update timing: At the 9-11 month mark, the Town should complete its data update information (either internally or through Tract). Following the data update, new information will be available for consideration in decision making and updating its Capital Plan and annual budget.

## 11. CONTINUOUS IMPROVEMENT PROGRAM

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

<b>Update Asset Register</b>	An asset database has been created and updated by Tract. Review annually to ensure data is up to date.
<b>Review Risk Assessment and Level of Service</b>	Risk assessment was performed with support from Burgeo staff and Council.
<b>Update Capital Plan</b>	An asset management capital plan was created by Tract with support from Burgeo staff.
<b>Review Asset Management Policy</b>	An asset management policy was drafted by Tract with support from Burgeo staff and Council.

Last completed on:	November 2023
Person responsible:	Town Clerk/Manager
Signature of completion:	
Next asset management update due on:	November 2024

## **APPENDICES**

**Preliminary and Refined State of Infrastructure Reports**

**Asset Inventory Maps**

**Prioritized Asset Maps**

**Asset Management Policy**

**PRELIMINARY AND REFINED STATE OF INFRASTRUCTURE REPORTS**

# p/r SOIR

Preliminary State of Infrastructure  
And Refined State of Infrastructure Report

Town of Burgeo, NL



Canada



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## Preliminary and Refined State of Infrastructure Report

### Number of Features

Sub Class Name	Buildings, Parks, and Recreation	Fleet and Equipment	Stormwater Collection	Transportation	Wastewater Collection and Treatment	Water Treatment and Distribution
Barrier Or Fence	-	-	-	23	-	-
Bridge	-	-	-	1	-	-
Building	6	-	-	-	-	-
Construction	-	2	-	-	-	-
Control	-	-	-	-	-	6
Fire Protection	-	31	-	-	-	-
Heavy-Duty	-	3	-	-	-	-
Hydrant	-	-	-	-	-	71
Light-Duty	-	2	-	-	-	-
Manhole Cover	-	-	-	-	68	5
Manhole Trunk	-	-	-	-	68	5
Motor	-	-	-	-	-	5
Pedestrian Walkway	-	-	-	2	-	-
Pipe	-	-	98	-	74	155
Pump	-	-	-	-	-	2
Recreational Structure	3	-	-	-	-	-
Road Overlay	-	-	-	68	-	-
Tank	-	-	-	-	-	5
Tools And Machinery	-	3	-	-	-	-
Treatment	-	-	-	-	-	9
Valve	-	-	-	-	-	143

*Figure 1 Asset Register*



## Preliminary and Refined State of Infrastructure Report

### Area of Features (m2)

Sub Class Name	Buildings, Parks, and Recreation	Transportation
Building	3,630	-
Pedestrian Walkway	-	2,157.15
Recreational Structure	9,541.68	-
Road Overlay	-	54,272.82

Figure 2 Total Area of Features

### Length of Features (m)

Sub Class Name	Stormwater Collection	Transportation	Wastewater Collection and Treatment	Water Treatment and Distribution
Barrier Or Fence	-	1,324.27	-	-
Bridge	-	68.11	-	-
Pedestrian Walkway	-	2,320.73	-	-
Pipe	2,251.01	-	4,617.75	14,980.13
Road Overlay	-	9,370.51	-	-

Figure 3 Total Length of Features

# Preliminary and Refined State of Infrastructure Report

Figure 4 Total Value of Asset Register per Asset Class and Asset Sub Class

## Infrastructure Renewal Cost Table

Sub Class Name	Buildings, Parks, and Recreation	Fleet and Equipment	Stormwater Collection	Transportation	Wastewater Collection and Treatment	Water Treatment and Distribution
Barrier Or Fence	-	-	-	920.00	-	-
Bridge	-	-	-	625,000.00	-	-
Building	1,500,000.00	-	-	-	-	-
Construction	-	300,000.00	-	-	-	-
Control	-	-	-	-	-	150,000.00
Fire Protection	-	290,000.00	-	-	-	-
Heavy-Duty	-	600,000.00	-	-	-	-
Hydrant	-	-	-	-	-	443,750.00
Light-Duty	-	140,000.00	-	-	-	-
Manhole Cover	-	-	-	-	425,000.00	31,250.00
Manhole Trunk	-	-	-	-	850,000.00	62,500.00
Motor	-	-	-	-	-	31,250.00
Pedestrian Walkway	-	-	-	80,893.13	-	-
Pipe	-	-	844,128.75	-	2,020,265.84	4,683,359.75
Pump	-	-	-	-	-	18,750.00
Recreational Structure	67,500.00	-	-	-	-	-
Road Overlay	-	-	-	2,713,641.00	-	-
Tank	-	-	-	-	-	500,000.00
Tools And Machinery	-	30,000.00	-	-	-	-
Treatment	-	-	-	-	-	375,000.00
Valve	-	-	-	-	-	186,875.00

# Preliminary and Refined State of Infrastructure Report

Infrastructure Renewal Cost Graph

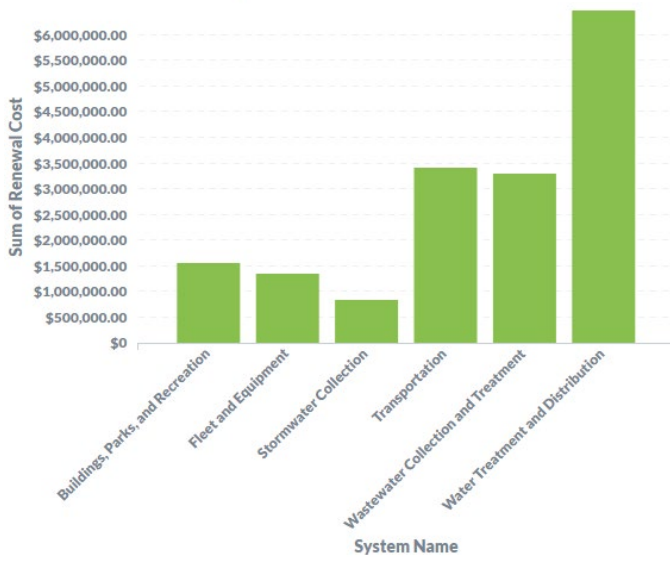


Figure 5 Total Asset Value per Asset Class

Infrastructure Renewal Cost

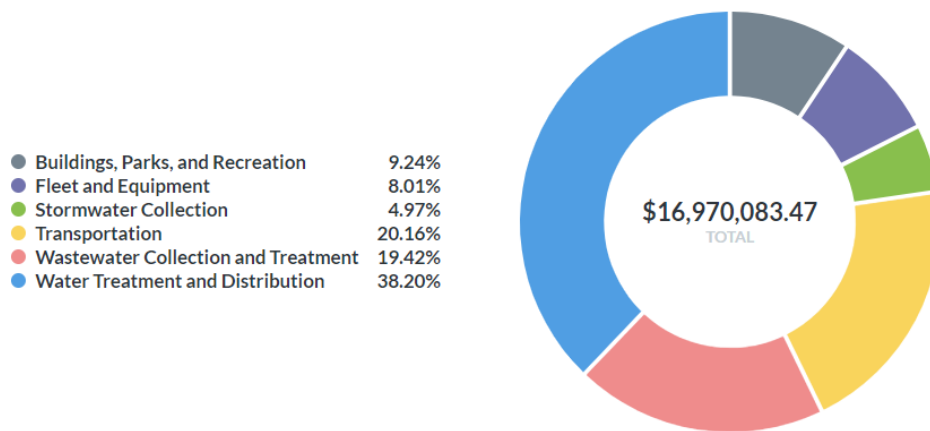


Figure 6 Total Asset Value per Asset Class and showing percentage of total value

## Annualized Infrastructure Demand

System Name	Annualized Infrastructure Demand (\$)
Buildings, Parks, and Recreation	36,750.00
Fleet and Equipment	76,083.30
Stormwater Collection	12,986.58
Transportation	160,597.00
Wastewater Collection and Treatment	52,331.03
Water Treatment and Distribution	131,326.49

Figure 7 Annualized Infrastructure Demand per Asset Group

# Preliminary and Refined State of Infrastructure Report

## Consequence of Failure

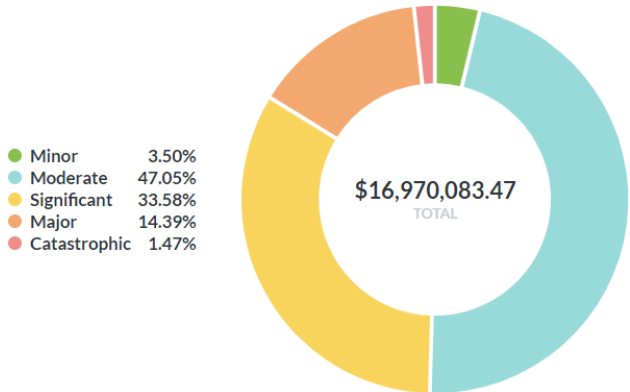


Figure 8 Consequence of Failure Graph and Percentage of Total

## Probability of Failure

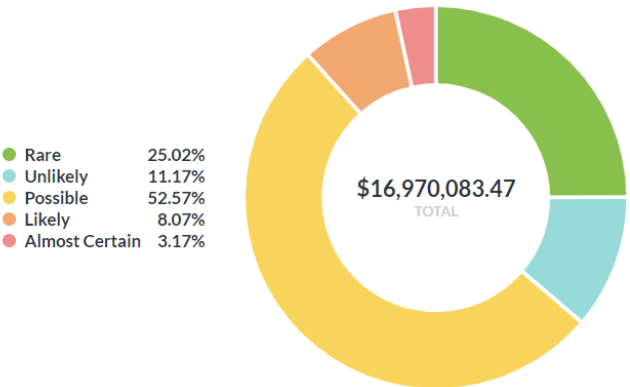


Figure 9 Probability Failure Graph and Percentage of Total

## Risk

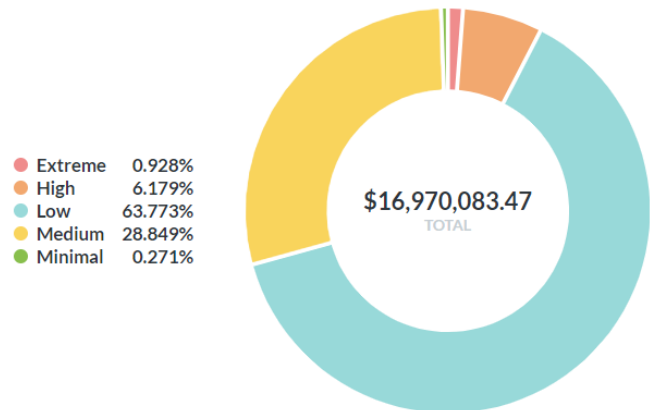


Figure 10 Risk Graph and Percentage of Total

# Preliminary and Refined State of Infrastructure Report

Value of Risk Levels and Remaining Life

High Extreme Low Medium Minimal

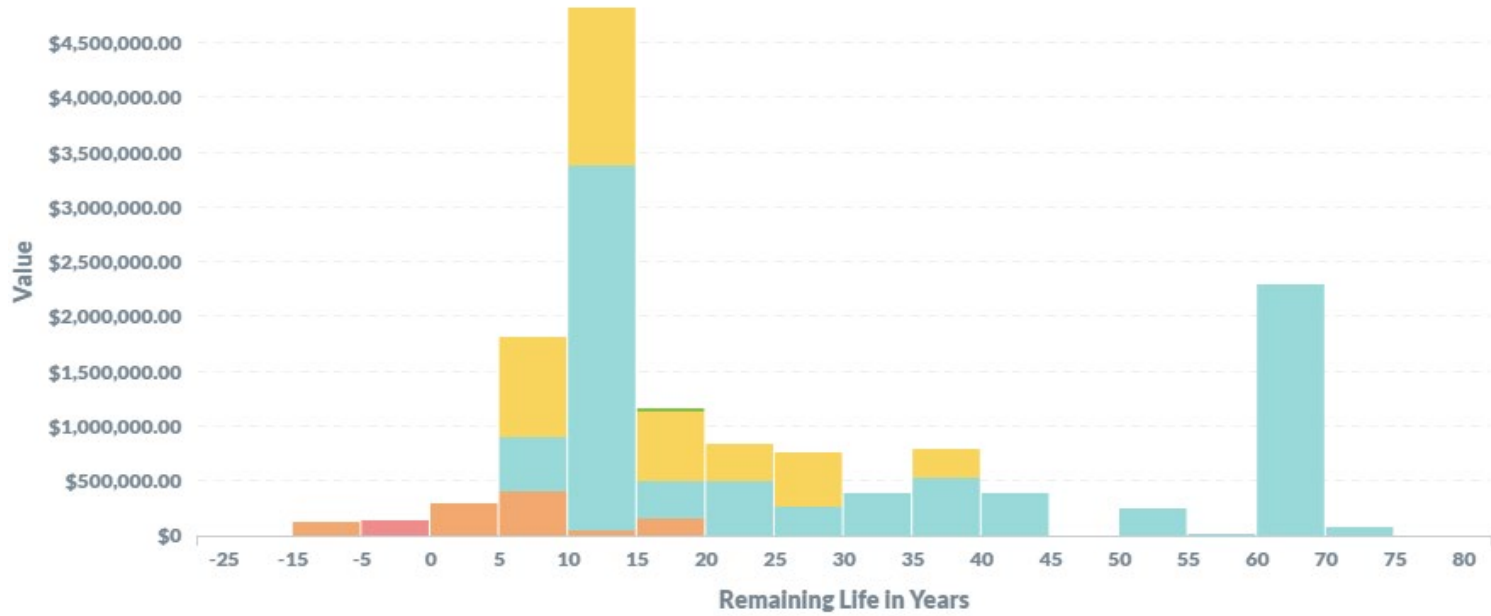


Figure 11 Graph showing Remaining Years of Assets grouped by risk

# Preliminary and Refined State of Infrastructure Report

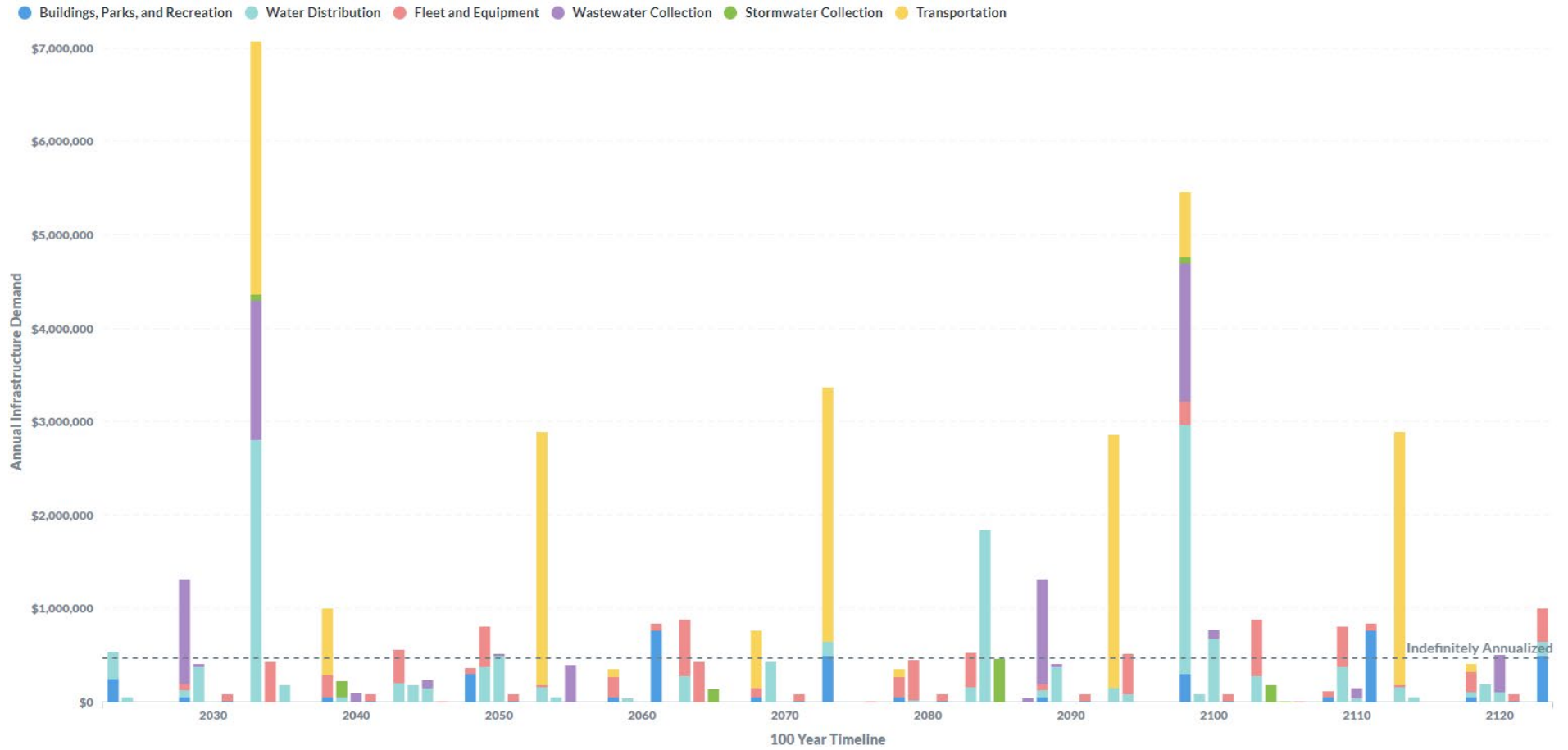


Figure 12 100 Year Prediction of Assets Reaching End of Life

# Preliminary and Refined State of Infrastructure Report

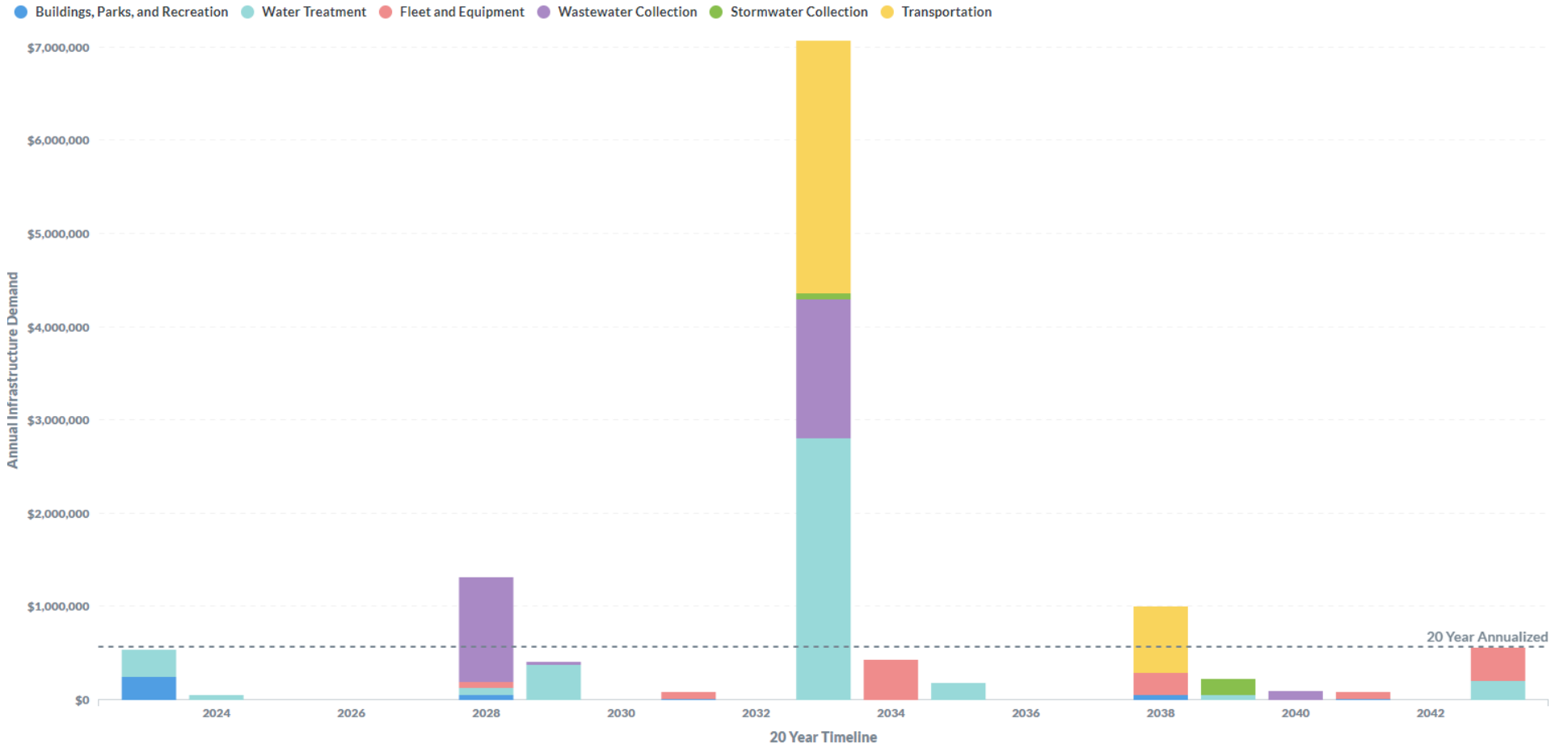


Figure 13 20 Year Prediction of Assets Reaching End of Life

# ASSET INVENTORY MAPS



# Town of Burgeo

Water

## Overview

- Assets
- Water Network
  - Water Hydrant
  - Water Valve
- Legend:
- Hydrant (Orange circle with 'H')
  - Valve (Blue circle with 'X')
  - Water Pipe (Thin blue line)
  - Distribution Forcemain (Thick blue line)

0 150 300 450 m

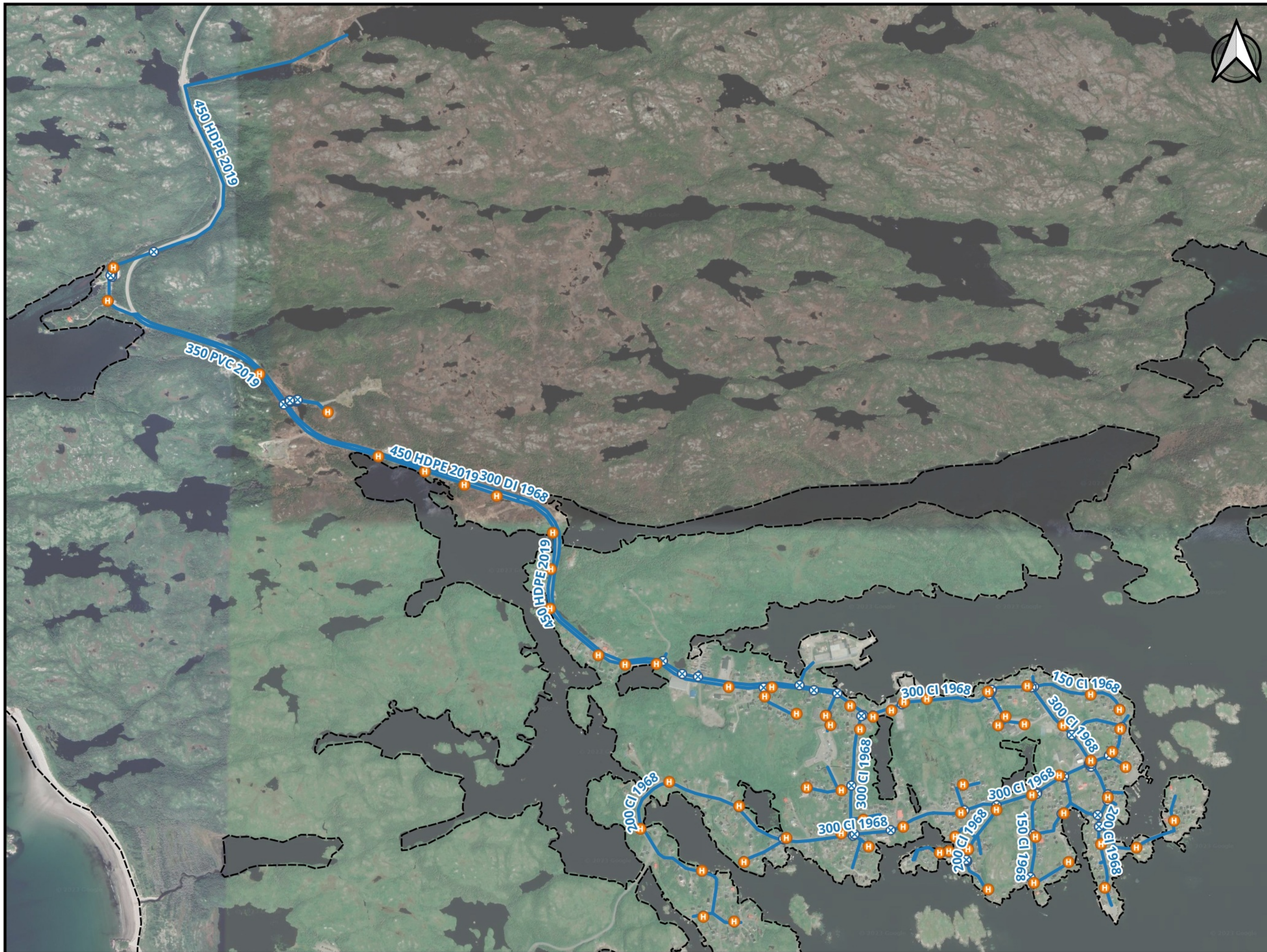


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Prepared on: 2023-10-03  
Prepared by: A. Perry  
References/Sources:  
Map Imagery: © 2023 CNES/Airbus,  
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# Town of Burgeo

Water



- Assets
- Water Network
  - Water Hydrant
  - Water Valve
  - Water Manhole
  - Trunk Water Pipe
  - Distribution Forcemain

- Hydrant
- Valve

- Water Manhole
- Trunk Water Pipe
- Distribution Forcemain

0 50 100 150 m



1:7,000

## Map: 1



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Prepared by: A. Perry  
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# Town of Burgeo

## Water



- Assets
- Water Network
  - Water Hydrant
  - Water Valve
  - Water Manhole Trunk
  - Water Pipe
  - Distribution Forcemain

0 50 100 150 m



1:7,000

# Map: 2



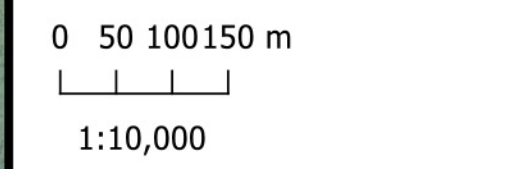
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# Town of Burgeo

## Water

- Assets
- Water Network
  - Water Hydrant
  - Water Valve
  - Water Manhole Trunk
  - Water Pipe
  - Distribution Forcemain



# Map: 3



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# Town of Burgeo

Sewer

## Overview

Assets

Wastewater Network

-  Wastewater Manhole Cover
-  Wastewater Manhole Trunk
-  Wastewater Pipe
-  Transmission Gravity Main

0 50 100 150 m



1:7,292

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# Town of Burgeo

## Sewer



- Assets  
Wastewater Network
- Wastewater Manhole Cover
  - Wastewater Manhole Trunk
  - Wastewater Pipe
  - Transmission Gravity Main

0 50 100 150 m



1:7,000

# Map: 1



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# Town of Burgeo

## Sewer



- Assets  
Wastewater Network
- Wastewater Manhole Cover
  - Wastewater Manhole Trunk
  - Wastewater Pipe
  - Transmission Gravity Main

0 50 100 150 m



1:7,000

# Map: 2



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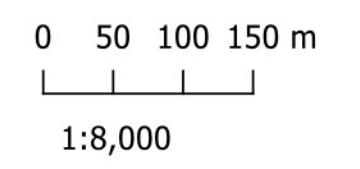


# Town of Burgeo

## Storm

### Overview

- Assets
- Stormwater Network
  - Stormwater Pipe
  - Culvert



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# Town of Burgeo

Transportation

## Overview

- Assets  
 Transportation Network
- - - Curb and Guard Rails
  - ..... Trails
  - Roads

0 50 100 150 m



1:8,500

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# Town of Burgeo

Facilities

## Overview

Assets  
Structures

-  Structure Bridge
-  Structure Building
-  Structure Recreational

0 50 100 150 m



1:8,500

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description	condition	consequence of failure
municipal building	2	4
Fire Hall	2	5
municipal garage	5	3
Arena - outdoor chiller unit	3	2
water tower control bldg	2	3
water treatment plant	1	4

# **PRIORITIZED ASSET MAPS**



# Town of Burgeo

Water

## Risk Map

### Asset Inventory Point Features

#### Water Network

- Minimal
- Low
- Medium
- High
- Extreme

### Line Features

#### Water Network

- Medium
- Low

0 50 100 150 m

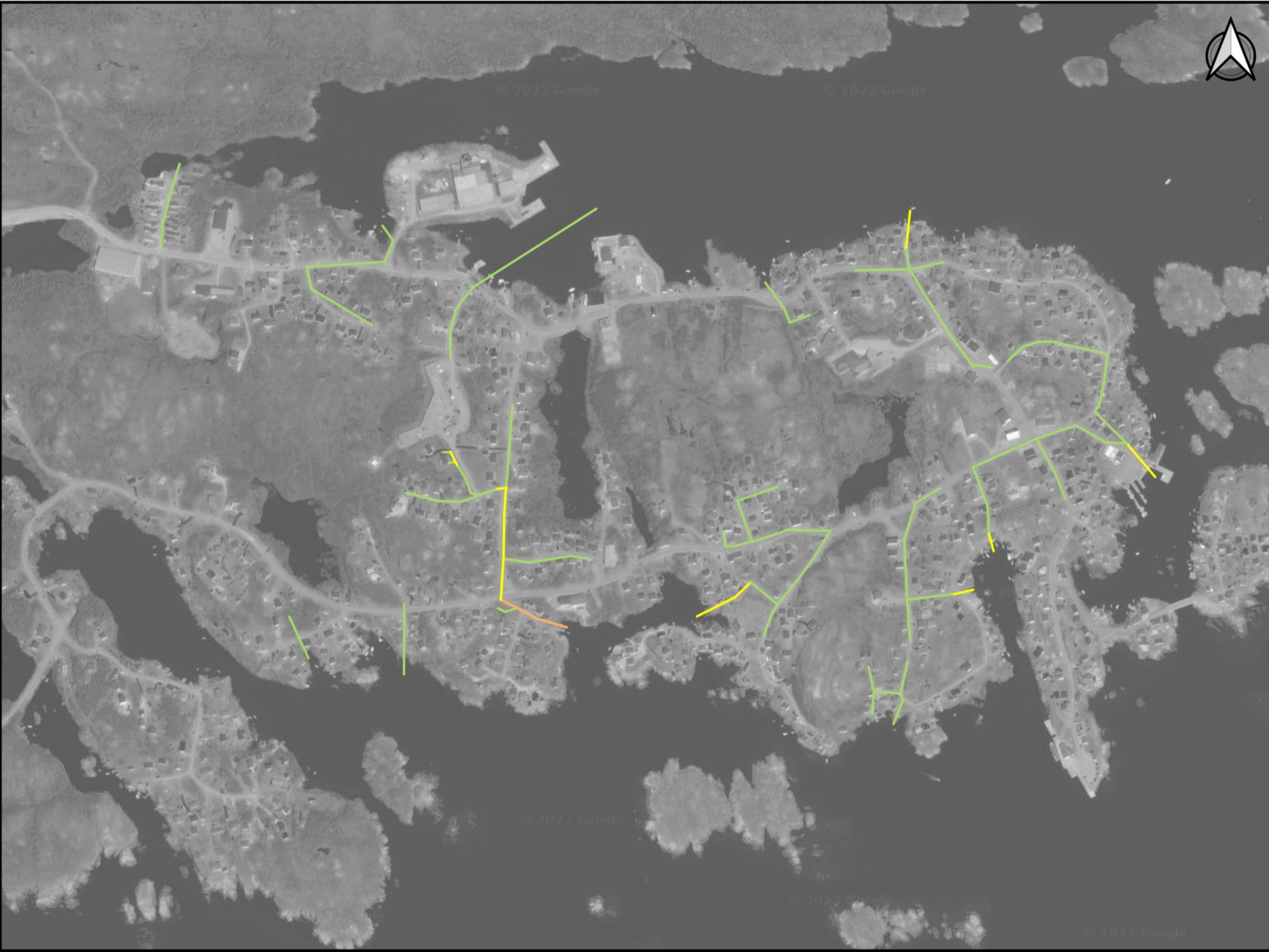


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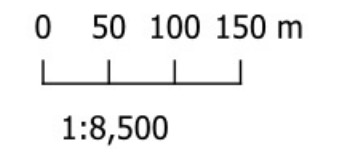


# Town of Burgeo

Sewer

## Risk Map

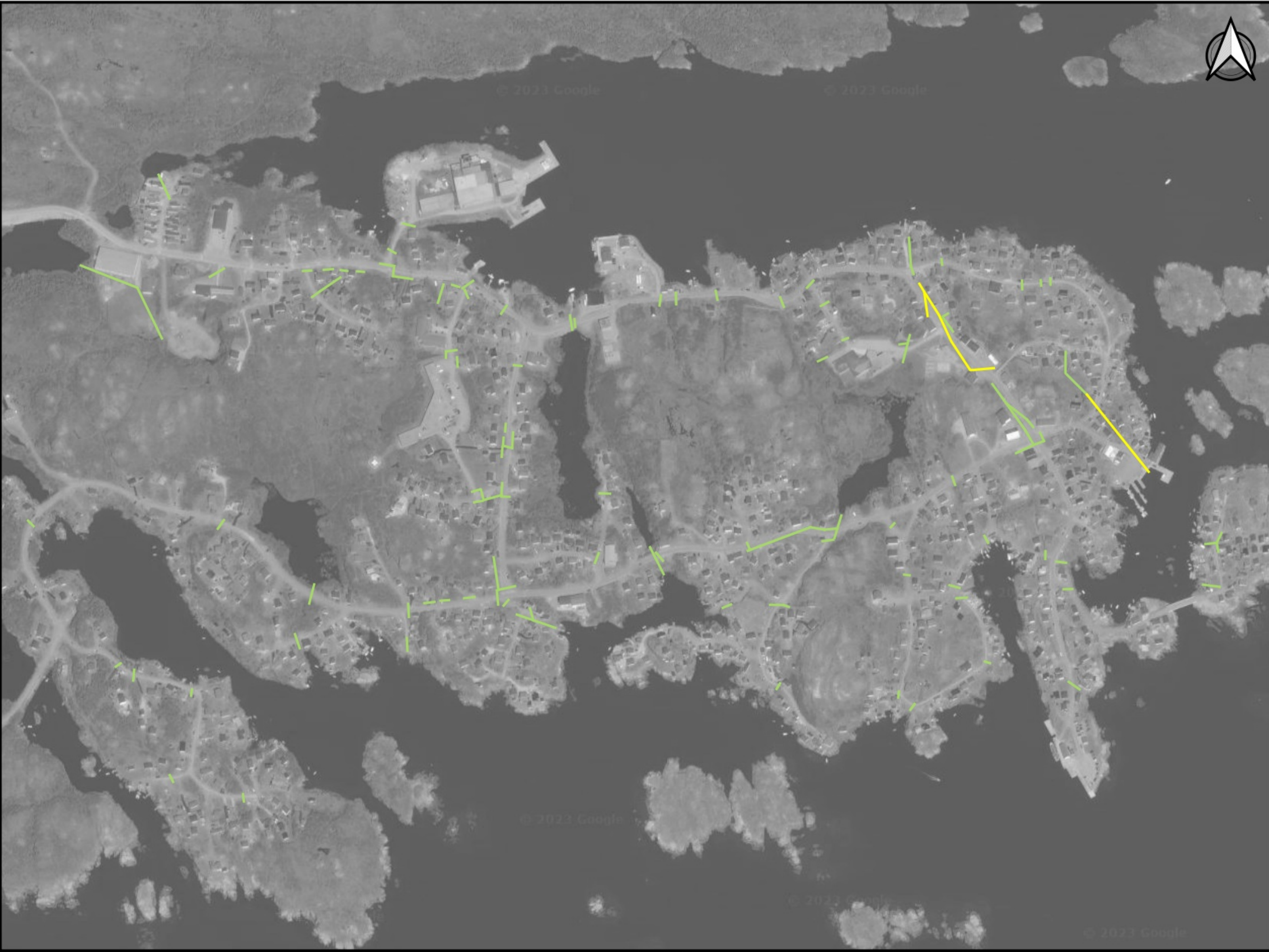
- Asset Inventory  
Line Features
- Wastewater Network
  - High
  - Medium
  - Low



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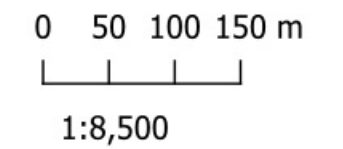


# Town of Burgeo

Storm

## Risk Map

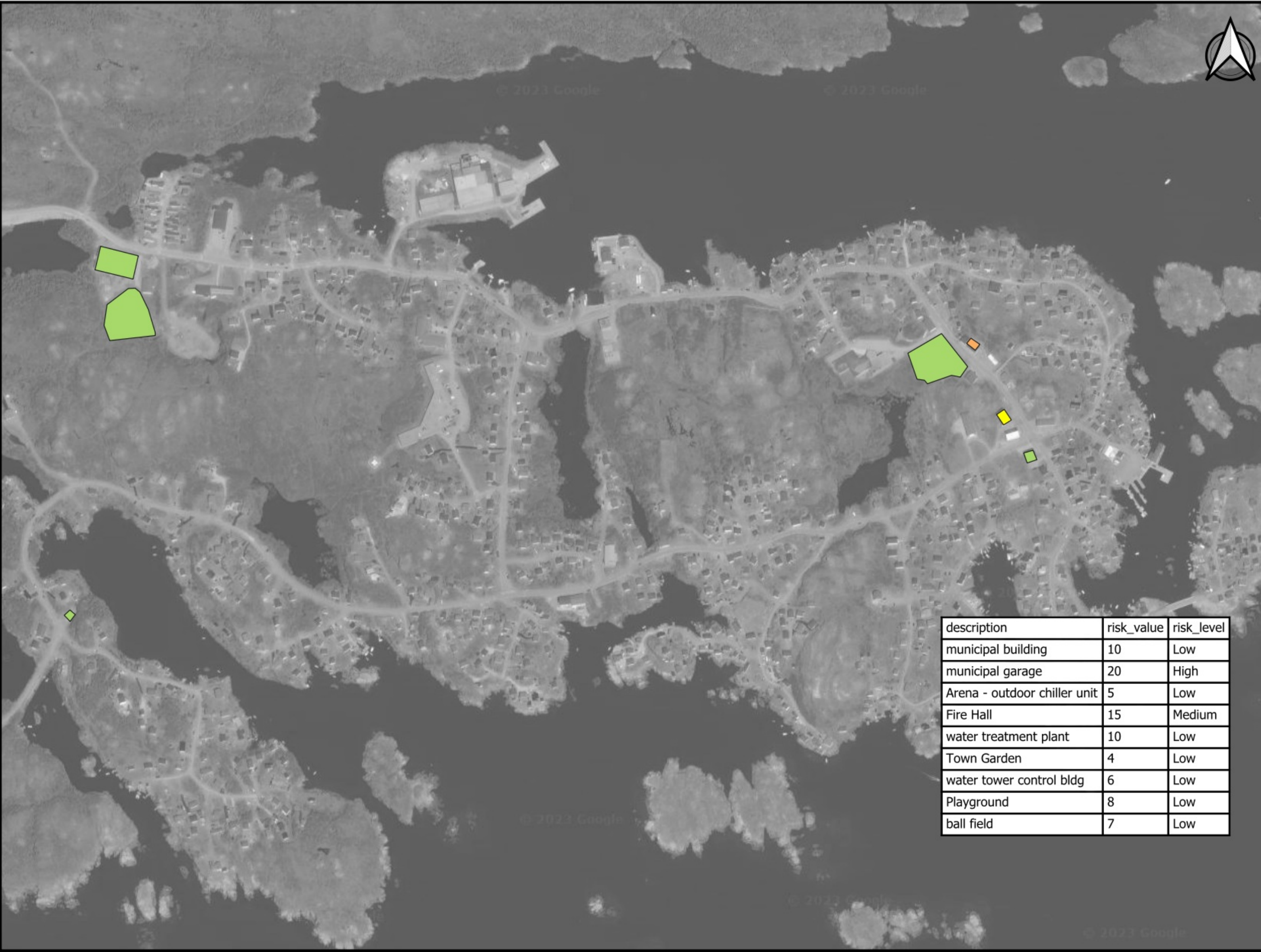
- Asset Inventory  
Line Features
- Stormwater Network
  - Medium
  - Low



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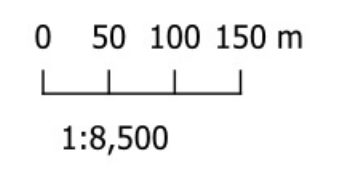


# Town of Burgeo

## Facilities

### Risk Map

- Asset Inventory  
Polygon Features
- Structures
- High
  - Medium
  - Low



description	risk_value	risk_level
municipal building	10	Low
municipal garage	20	High
Arena - outdoor chiller unit	5	Low
Fire Hall	15	Medium
water treatment plant	10	Low
Town Garden	4	Low
water tower control bldg	6	Low
Playground	8	Low
ball field	7	Low

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# **ASSET MANAGEMENT POLICY**



# Town of Burgeo

## Asset Management Policy

Approval date: \_\_\_\_\_ Resolution nr: \_\_\_\_\_ Amendment date:

AUTHORITY:

Section 414 (2) *Municipalities Act, 1999*

Council Discretion

### 1 BACKGROUND AND PURPOSE

---

Council has a mandate to provide a wide range of municipal services. In order to guide staff with the effective implementation of those services, Council typically adopts policies for important issues that can be used by staff to support Council's vision, goals and objectives.

Providing these municipal services requires various groups of infrastructure assets including, but are not limited to, the Town's vehicle and pedestrian infrastructure, water distribution network, wastewater collection system, stormwater collection system, buildings, facilities, parks and fleet. Though these assets age and deteriorate, by using sound asset management practices, Council and the community can be assured that the assets meet performance levels, are used to deliver the desired service in the long term and are managed for present and future users.

The purpose of this policy is to articulate Council's commitment to asset management and provide a policy framework to guide staff to achieve the Municipal Asset Management vision and goals. In doing so, this policy also guides how it is to be integrated within the organization in such a way that it is coordinated, cost effective and organizationally sustainable.

This policy also demonstrates to the community that Council is exercising good stewardship and is delivering affordable services while considering its legacy to future residents.

### 2 SCOPE

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This policy covers municipal owned and managed assets only; it does not include assets or infrastructure that are within Town boundaries but managed or owned by other organizations such as Provincial or Federal Government (for example, provincially owned roads).

This Asset Management (AM) Policy must be considered in the context of other municipal planning documents such as:

Municipal Plan and Development Regulations (1993-2003)

Emergency Preparedness Plan

### 3 VISION AND GOALS FOR MUNICIPAL ASSETS

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Council's vision for the community is a safe, livable, and economically sustainable community supported by well managed and maintained assets.

The goal is for the Town to have an asset management plan that provides a framework for strategic long-term asset management decision-making in a fiscally responsible manner.

### 4 COUNCIL ASSET MANAGEMENT POLICY STATEMENTS AND PRINCIPLES

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Asset management is a broad strategic framework that encompasses the entire organization. To achieve the corporate vision and goals for infrastructure assets, the organization will be guided by the following policy statements and principles:

#### 4.1 POLICY STATEMENTS (GUIDELINES)

The Town will make reasonable efforts to:

- a) Maintain and manage municipal assets at acceptable levels to support public safety, community well-being and community goals.
- b) Improve decision-making, accountability, and transparency.
- c) Provide a framework that will enable the Town to implement plans, define goals, and work towards long-term sustainability, and to demonstrate fiscal stewardship.
- d) Meet legislative reporting and organization financial planning requirements.

#### 4.2 POLICY PRINCIPLES (RULES)

The principles established under the Asset Management Policy are to direct decision making, actions and recommendations are described below:

- a) Provide consistent and accurate means of tracking and reporting on the Town's assets by developing and maintaining inventories of its municipal assets.
- b) Monitor standards and service levels to ensure that they meet and support the community, as well as Council's goals and objectives.
- c) Establish asset replacement strategies using full life cycle costing principles.
- d) Apply accepted industry guidelines and practices.
- e) Meet the capital asset reporting requirements of the Provincial Government and other funding agencies.
- f) Prepare a multi-year budget for the appropriate level of maintenance of assets to deliver acceptable service levels and extend the useful life of assets that will be reviewed and adjusted annually.
- g) Plan for stable long-term funding to replace and/or renew and/or decommission assets.

- h) Incorporate asset management in its other corporate plans where applicable.
- i) Provide opportunities for residents and other stakeholders to provide input into the municipality's asset management planning process as applicable.
- j) Assess and take actions to address vulnerabilities and risks to infrastructure due to climate change.
- k) Take a long-term view on infrastructure planning and investment to ensure the needs of the municipality will be met in the future.

## 5 GUIDELINES AND PRACTICES

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Staff will implement the policy through the development and use of asset management plans according to industry accepted guidelines and practices. Since the performance of asset management is organization specific, reflective of knowledge, technologies, and available tools, and will evolve over time, the responsibility for guidelines and practices are delegated to staff.

Asset management plans may be developed for a specific class of assets or be generic for all municipal assets and should outline long term goals, processes, and steps toward how they will be achieved. The asset management plans should be based on current inventories and condition (acquired or derived), projected performance and remaining service life and priority of assets based on consequence and probability of failure.

The organization will also comply with the capital asset reporting requirements and integrate the asset management program into operational and corporate plans where applicable.

## 6 RESPONSIBILITIES

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Council will:

- a. Approve by resolution the asset management policy and any amendments
- b. Approve by resolution asset management plans and budgets
- c. Use this policy as key guidance in asset management decision-making

The Town Clerk/Manager is responsible for leading implementation of the AM policy across the Municipality.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Title: \_\_\_\_\_

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TRACT