



**Municipal Finance  
Authority of BC**

**2022  
ESG  
FRAMEWORK**

# ESG Factors and the MFA

We would like to applaud the MFA for its continued support for both our financing and investing needs. The expertise and guidance we received this past year when exploring Fossil Fuel Free investment options was insightful and greatly appreciated.

**Dan Bailey**, Manager, Accounting Services,  
City of Nanaimo

## Environmental, Social, and Governance Issues – An Update

**The Municipal Finance Authority of BC’s (MFABC) mandate is to provide centralized, low-cost financial solutions designed specifically for BC’s local governments. As a financial service provider, we pay close attention to the ongoing needs of our clients, changes to the risk landscape for ourselves and our communities, and the emerging demands of our investors. We continue to move forward with increased reporting and transparency around these issues of paramount importance to us all.**

### A Year of ESG

In the summer of 2021, the Intergovernmental Panel on Climate Change (IPCC), the United Nations (UN) body for assessing the science related to climate change, released its report which clearly demonstrated that human-induced climate change is already affecting weather and creating climate extremes in every region across the globe. In the fall, the 26th UN Climate Change Conference of the Parties (COP26), concluded with the finalization of the Paris Agreement treaty through the Glasgow Climate Pact, signed by all 200 attendee nations,

to limit global warming to 1.5 degrees Celsius. In British Columbia, we saw these impacts firsthand as drought conditions gave way to wide-ranging forest fires to be followed by an atmospheric river that provoked record floods. Social and Governance issues continued to make headlines, with issues of race, religion, and the residential school system that long existed in Canada. Equality, diversity, and inclusion became frequent topics in our governments and around corporate strategic planning sessions.

### Taking Action

For these reasons, focusing on sustainable growth and improvement has become much more relevant to our communities, our clients, and our businesses. These concerns and constraints can also lead to new opportunities and enhanced resilience for both local governments and investor portfolios. The Province of BC unveiled its Clean BC: Roadmap 2030 plan with continent-leading new measures and a pledge to reach net zero by 2050. Local governments are uniquely placed to make an impact on these goals.

In 2020, MFABC outlined our own commitment to taking action in four main areas:

1. Augmenting long-term loan and related bond issuance ESG-related data collection, classification, and reporting around the projects the bonds support
2. Reviewing our investment products to increase

information on ESG factors, and adding additional investment products for clients seeking options that meet their ESG-related investment plans

3. Reviewing and reporting on our own in-house sustainability
4. Thought leadership, education, and collaboration with the BC local government sector to promote standardized definitions, reporting, and the collection of ESG-related data

As we return to more normal working conditions, in 2022 we will review our own operational ‘footprint’ and practices with an ESG lens.

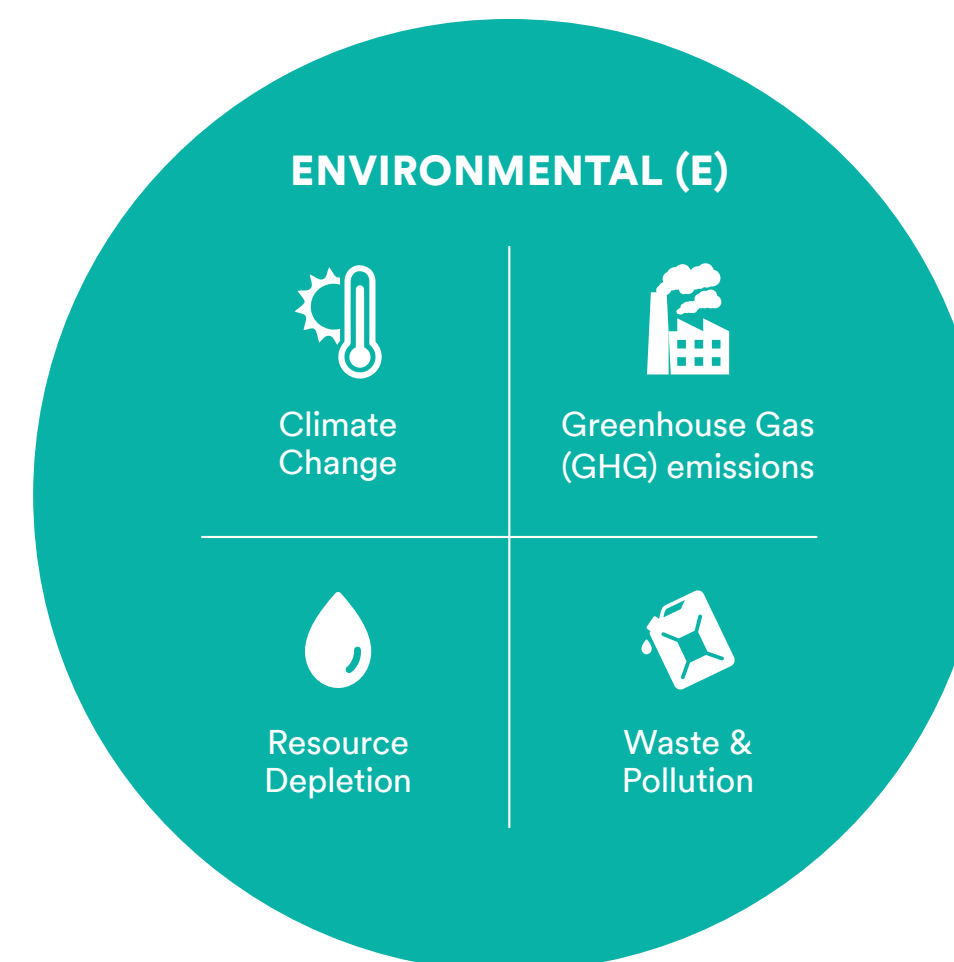
In the past two years, MFABC brought several innovative new options to our investment product lineup that reflect a growing demand for ESG-related or Socially Responsible alternatives. We now offer several products that meet the needs of local governments who have strict fossil-fuel-free (FFF) investment requirements: three pooled high interest account offerings, an ultra-short government focussed bond fund, and a fossil fuel free bond fund. Our new Diversified Multi-Asset Class Fund introduced in early 2022 is a ‘carbon-light’ socially responsible fund. Additional offerings are continuously considered for introduction. Our policy is to apply an ESG lens in selecting any external asset manager for MFABC pooled funds, with a strict policy to only engage with UNPRI Signatories.

In general, MFABC issues bonds to fund BC local government long-term infrastructure borrowing twice annually. This aggregation results in lower costs and the concentration of needed market expertise in one centralized entity. The projects MFABC funds are not single purpose nor homogeneous. We serve all of our clients' infrastructure borrowing regardless of their location, size, or the specific project being funded. By the very nature of the mandate of local governments, however, we assert that all projects we fund can be considered as social or green (or both) in nature – such as providing new services like recreation centres, adding enhanced water treatment facilities, or upgrading to solar street lighting. Segregating our borrowing needs and issuing a narrowly-focused “Green” or “Social” Bond would raise the cost to our community clients, reduce liquidity of our bond portfolio, create more complexity, and require more staff time. Our approach has therefore been to aggregate our borrowing needs as much as possible.

During 2021, our team completed significant review of all areas of the ‘sustainable bond’ space in the markets, including data collection, reporting standards, various ESG-related bond labels, and spent considerable time evaluating the nature of investor needs served by all these elements. It is becoming apparent for most market participants that the social finance space will only truly become valuable as a tool to help address our significant societal, social, and environmental challenges if stan-

dardization of ESG-related disclosures occurs. Until standardization happens, many investors have asked us to focus on augmenting our “Use of Proceeds” disclosures.

We developed a methodology and mapping tool, consistent with International Capital Market Association (ICMA)



## ENVIRONMENTAL ISSUES stewardship of our natural environment

- |                        |   |
|------------------------|---|
| • Climate change       | • Waste and pollution                       |
| • Water use            | • Resource depletion/ observation           |
| • Sustainable land use | • Greenhouse gas emissions                  |
| • Fracking             | • Deforestation                             |
| • Methane              | • Compliance with environmental regulations |
| • Plastics             |   |
| • Animal agriculture   |   |

principles, for ESG Use of Proceeds data collection and reporting. Prior to each of our bond issues, we can now map a complete account of our Use of Proceeds to the 17 UN Sustainable Development Goals (SDGs) as well as Social Bond Principles and/or Green Bond Principles. This inaugural tool was published in our 2020 50th Anniversary Annual Report along with our initial overview of how our 2020 long -term lending linked to the UNSDGs. In 2021, we enhanced our Use of Proceeds reporting to not only include disclosures in aggregate, but also on a more detailed, loan-by-loan basis, so that investors can see the mapping for themselves ahead of any new bond issue. After reviewing our mapping process and related reporting, Bloomberg began tagging MFABC bonds in 2021 as Sustainability Bonds in their database based on the comprehensiveness of our Use of Proceeds reporting.

## MFABC's Use of Proceeds reporting is enshrined in legislation

It is important to note that MFABC does not issue bonds to create a pool of available capital to later on-lend, but rather issues bonds on a “back-to-back” basis to directly fund specific infrastructure projects or pools of projects. There is no delay in providing funds to our Members once our bonds are issued. Prior to being funded, these loan requests are vetted through one of the most robust and transparent approval systems in the world. By legislation, funds are borrowed for a specific purpose and time, and these requests are vetted at the local, regional district, and provincial Ministry levels,



before final review and approval by the MFABC team and our Trustees and Members. In other words, all our capital market borrowing can be associated with specific projects, that allocation is pre-defined and investors can be confident their funds will be used to support those projects.

The Community Charter lays out the statutory authorities granted to all local governments that borrow from MFABC. Section 190 of the Charter outlines the only purposes for which borrowed money may be used by law. Section 1 speaks to Borrowed monies that “must not be used for a purpose other than that specified in the bylaw or agreement authorizing the borrowing”. As clearly codified in this law, MFABC’s disclosures regarding Use of Proceeds and our mapping to UN SDGs are all related to specific infrastructure projects (or a series of projects within a given ESG category) that have been set by bylaw. In most circumstances, projects have already started before MFABC disburses funds and the related borrowing is used to finish said projects or to pay out short-term borrowing for those specific projects. In some rare instances, a local government may borrow more than is needed to complete the project. In this unusual eventuality, investors can take comfort in the fact that section 190 limits what can be done with this excess borrowing to: paying back MFABC, retire, purchase, or cancel debentures issued for that purpose, or to invest in a temporary reserve fund which must be spent on a similar service. i.e. if funds were originally borrowed for sewer replacement, they must be retained for future similar capital-related expenditures.

## A Roadmap for KPI Reporting

The particular challenges faced by MFABC with respect to reporting back to investors on ESG-related Key Performance Indicators (KPIs), is due to varying resources and capacity within local governments to report, as well as the wide range of potential projects that we fund. The existing system of approvals does not currently



### SOCIAL ISSUES

#### treatment of people and impact on societal issues

- Human rights, labour standards, working conditions, including child labour and slavery
- Community support
- Diversity and representation
- Health and safety
- Consumer protection
- Animal welfare
- Employee relations
- Poverty
- Conflict zones

incorporate ESG factors and there is currently no requirement for this type of reporting when bylaws are submitted to the Province. A lack of standardization for sustainability frameworks and the abundance of approaches to ESG disclosure and measurement increases this complexity, making our desire to share more information with stakeholders more challenging.

To mitigate this constraint, MFABC has committed to partnering with some of our largest Members and other BC agencies to become a conduit and resource center to help standardize reporting on KPIs and other ESG-related matters for all of BC’s local governments, large and small. As investors’ needs evolve and standardization occurs, we will inform our Members on best practices and data collection that will be critical in furthering the usefulness of social finance. This will, of course, take time, but we are committed to doing all we can. We will be announcing more about this initiative in 2022 and look forward to comments and feedback from all stakeholders.

## Sustainability Bond Framework

Our Use of Proceeds disclosures and approach has been very well received and regarded by the investment community, many of whom are incorporating MFABC’s bonds into SRI portfolios. However, some investors do not yet possess the internal capacity to do their own ESG analysis and/or prefer the comfort provided by a vetted “Framework”. As such, in 2022 we will be formulating and disclosing a Sustainability Bond Framework in

alignment with the ICMA Sustainability Bond Guidelines (2021). This framework will be a natural extension of our current approach introduced last year, outline in a more detailed fashion our existing legislated and internal processes for selecting projects, management of proceeds practices, and Use of Proceeds mapping. We will also create a formal plan to enhance KPI reporting. Over time, MFABC's goal is to enhance and begin aggregating follow-up reporting by BC's local governments on the success of projects we have funded, centred on the most relevant and descriptive key performance indicators (KPIs) that illustrate their sustainability impact and furthering of the UNSDGs.

We should note that beginning in 2022, we have formally added several ESG elements to our internal governance of loan approvals and credit analysis which is the responsibility of our Business Committee. The Business Committee is now becoming our Business and Sustainability Committee and is comprised of the leadership of our three functional areas including loan origination, accounting, and technology and strategic planning. The added responsibility for that Committee will include a formal review of the mapping of our loans proceeds as well as developing an ESG lens that incorporates ESG-related risk data into our loan and portfolio credit analysis functions.

### An Optimistic Future

In addition to continued work with investors on

ESG-related topics, the MFABC team has been actively meeting with our largest Members, various Provincial ministries, and other stakeholders to map out an effective approach to ESG reporting that can best meet the needs of BC's businesses and residents who are increasingly focused on tracking progress towards ESG goals.



### GOVERNANCE ISSUES organizational controls and oversight

- Internal controls
- Accounting practices and audits
- Executive compensation
- Corruption
- Board diversity and structure, director nominations
- Cybersecurity
- Management structure
- Employee relations
- Donations and political lobbying

Our CEO, Peter Urbanc, sits on the Canadian Bond Investors Association (CBIA) ESG Committee and has connected with the Canadian Urban Sustainability Practitioners (CUSP) Network and others to discuss many issues including recommendations from the Task Force on Climate-Related Financial Disclosures. We have reviewed the current data collection and reporting done by entities such as the CDP, a not-for-profit that runs a global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts. We are intently focused on how we can best leverage outside resources to collect and share standardized data on our clients' infrastructure projects and simplify reporting to their constituents, as well as to our investors.

**We are committed to working with our clients and partners, the Province of BC, investors, and industry leaders in sustainability disclosure to enhance reporting, standardize measurement, and improve disclosures of BC local government projects. We will continue to innovate around investment products that offer clear ESG benefits to help our clients invest their reserves and we will expand our review of our own ESG stance. MFABC has demonstrated that through centralizing financial functionality, concentrating expertise, funding quality financial education, and working collaboratively, we can deliver excellent products and services to all stakeholders. Our organization continues to bring people together to solve problems and reduce risks in BC.**



## Internationally Recognized ESG Categories

The MFA has developed an ESG mapping approach which endeavours to provide Environmental, Social, and Governance disclosure by which investors, bond market participants, and other interested stakeholders can better understand how proceeds from our funding program are used. We view each of our bonds as a ‘sustainable bond’, used to support and advance various ESG initiatives throughout the province.

Using our new ESG mapping approach, the MFA aims to provide stakeholders with insight into how the capital projects we fund align to not only specific UN Sustainable Development Goals but also recognized Green Bond Principles and Social Bond Principles. These principles have been used to help guide our project mapping approach but should not be construed as a formal framework where explicit impacts are measured at this time. We encourage stakeholders to reach out and dialogue with us as we continue to improve our ESG approach and disclosures.

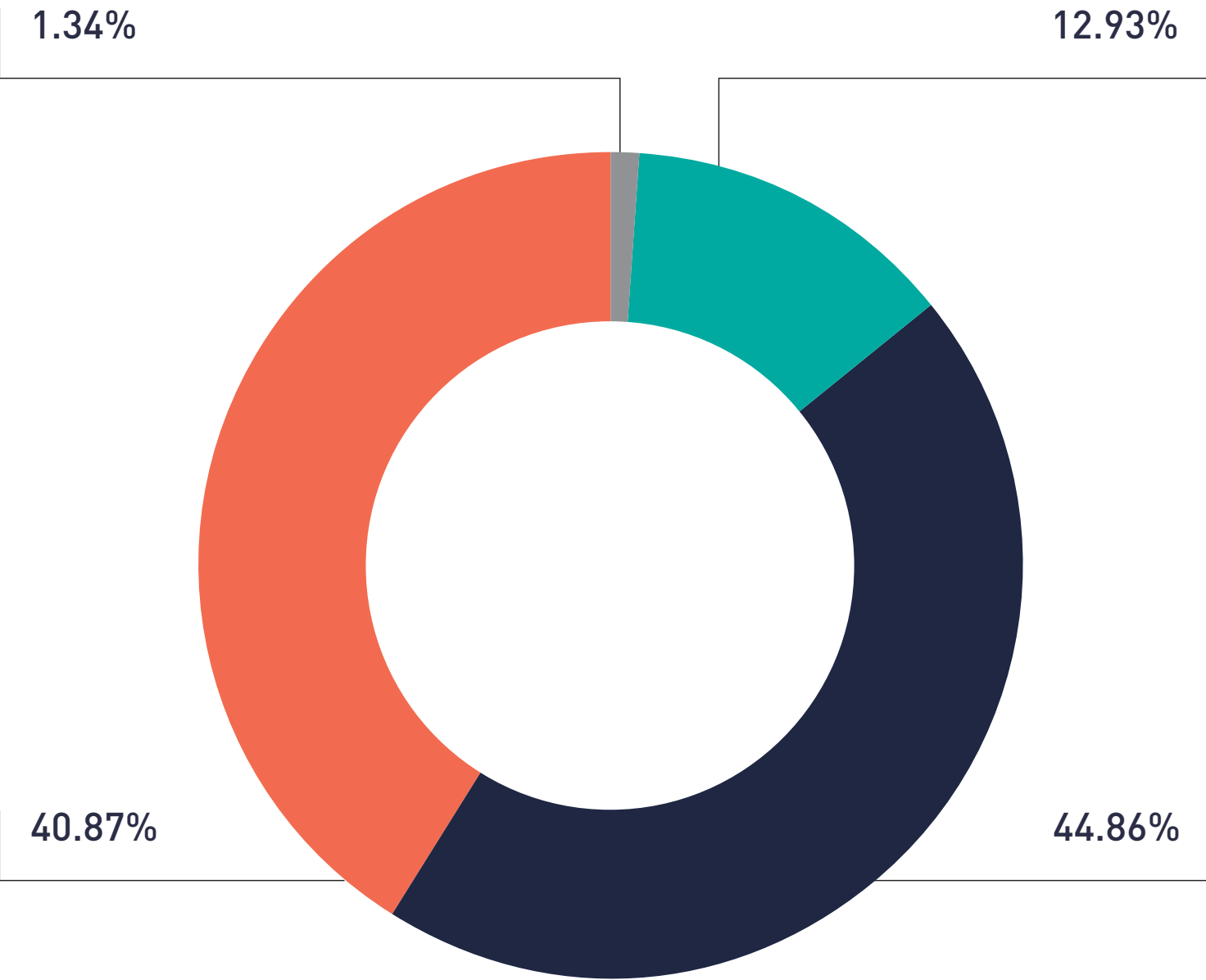


The MFA 'Purpose of Borrowing' may align with and benefit multiple UN SDG goals. For practicality, we have chosen to map each project to its primary objective, where we believe the project will have the most significant impact.

| UN SDG Alignment                        | Green Bond Principles  | Social Bond Principles          | MFA Purpose of Borrowing               | Project Examples In This Category  |
|---|--|---------------------------------|--|--|
| 3 GOOD HEALTH & WELLBEING               | –  | Access to Essential Services    | Health/Social Services                 | Hospitals, hospital equipment, day cares   |
| 6 CLEAN WATER & SANITATION              | Sustainable Water & Wastewater Management                                | Affordable Basic Infrastructure | Water                                  | Water treatment, distribution, storage, water metering   |
|   | Sustainable Water & Wastewater Management                                | Affordable Basic Infrastructure | Sewer/Drainage                         | Sewage treatment, distribution, storage, storm drainage systems, dikes, flood protection                     |
| 7 AFFORDABLE & CLEAN ENERGY             | Energy Efficiency  | Affordable Basic Infrastructure | Renewable Energy Systems               | Solar, hydro electric, heat recapture, energy efficiency retrofits   |
|   | Renewable Energy   | Affordable Basic Infrastructure | Renewable Energy Systems               | Solar, hydro electric, heat recapture, energy efficiency retrofits   |
| 11 SUSTAINABLE CITIES & COMMUNITIES     | Clean Transportation   | Affordable Basic Infrastructure | Transportation/Transit                 | Airports, public transit, cycling and walking infrastructure   |
|   | –  | Affordable Basic Infrastructure | Roads                                  | Paving, new roads, road safety improvements, bridges, interchanges, street lighting                          |
|   | Green Buildings  | Affordable Basic Infrastructure | Public Safety                          | Public safety buildings, fire halls, fire trucks   |
|   | Green Buildings  | Affordable Basic Infrastructure | Local Government Land & Buildings      | Land acquisition, City hall, pubic works buildings, animal shelters, other Local Government owned facilities |
|   |  | Affordable Basic Infrastructure | Communications Utilities               | Fibre optic network, TV rebroadcasting, phone network  |
|   | Green Buildings  | Affordable Basic Infrastructure | Parks/Recreation/Culture               | Parkland, park improvements, recreational facilities, libraries, community halls, theaters, museums          |
|   | Environmentally sustainable management of natural resources and land use | Affordable Basic Infrastructure | Parks/Recreation/Culture               | Parkland, park improvements, recreational facilities, libraries, community halls, theaters, museums          |
|   | –  | Affordable Basic Infrastructure | Other                                  | Cemetery improvements, cruise ship dock  |
|   | Green Buildings  | Affordable Housing              | Affordable Housing                     | Social/supportive housing  |
| 12 RESPONSIBLE CONSUMPTION & PRODUCTION | Pollution Prevention & Control   | –                               | Solid Waste Management/Recycling       | Landfills, landfill closure, recycling facilities, composting facilities, vehicles for these purposes        |
| 13 CLIMATE ACTION                       | Climate Change Adaptation  | –                               | Environmental Conservation/Remediation | Brownfield remediation, habitat restoration  |
| 14 LIFE BELOW WATER                     | Terrestrial & Aquatic Biodiversity Conservation                          | –                               | Environmental Conservation/Remediation | Brownfield remediation, habitat restoration  |
| 15 LIFE ON LAND                         | Terrestrial & Aquatic Biodiversity Conservation                          | –                               | Environmental Conservation/Remediation | Brownfield remediation, habitat restoration  |



# Total 2021 Debt Issuance by UN Sustainable Development Goal



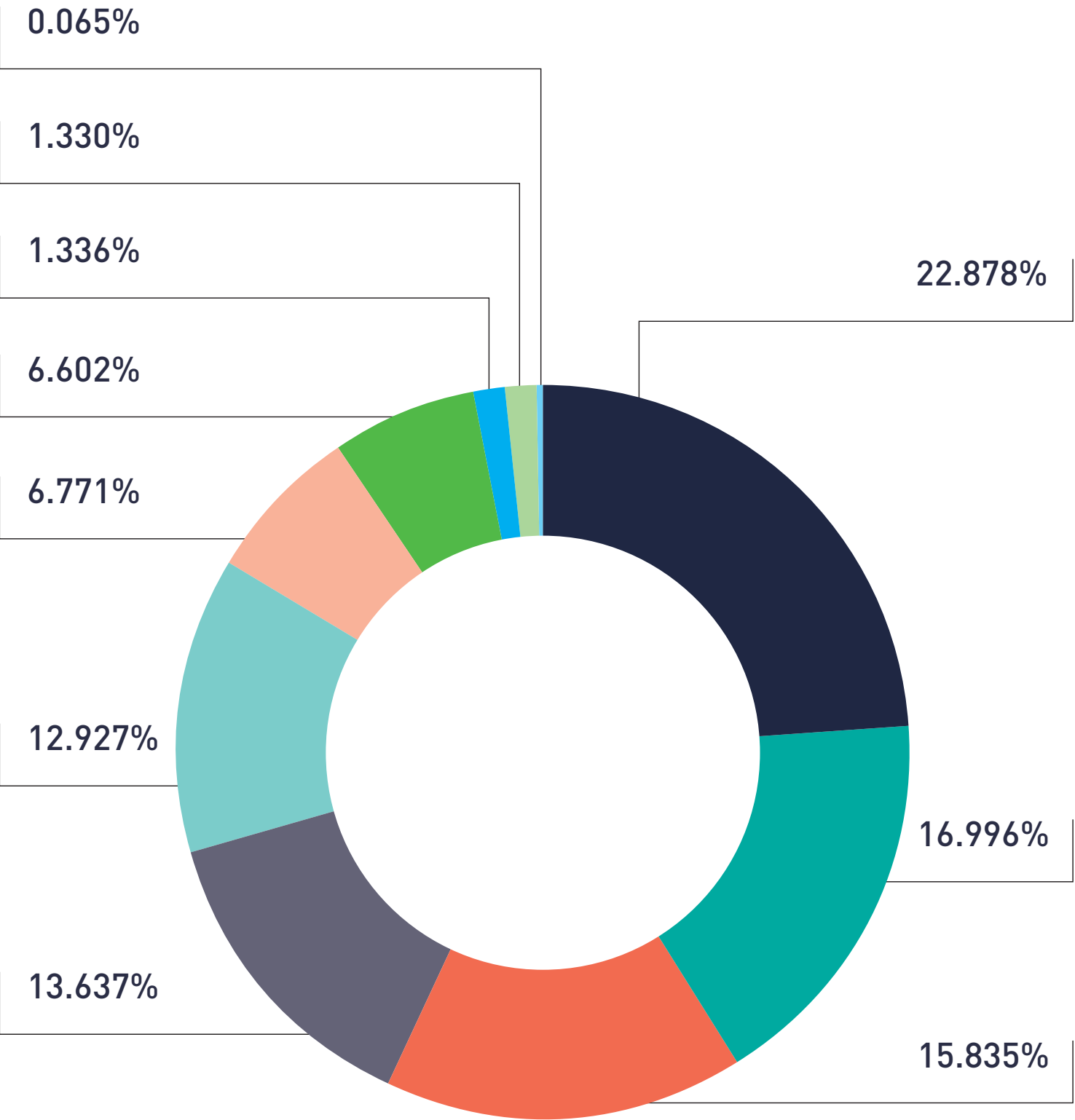
## Total 2021 Debt Issuance by UN Sustainable Development Goal

|   |    |                |
|---|----|----------------|
| 3 - Good Health & Wellbeing               | \$ | 257,898,126    |
| 6 - Clean Water & Sanitation              |    | 815,443,109    |
| 11 - Sustainable Cities & Communities     |    | 894,950,154    |
| 12 - Responsible Consumption & Production |    | 26,644,910     |
| 15 - Life on Land                         |    | 63,701         |
|   | \$ | 1,995,000,000* |

\* includes \$20,000,000 in flow through Federation of Canadian Municipalities loans



Total 2021 Debt Issuance  
by Borrowing Purpose



Total 2021 Debt Issuance by Borrowing Purpose

|  |    |                |
|--|----|----------------|
| Sewer/Drainage                         | \$ | 476,364,221    |
| Water                                  |    | 339,078,888    |
| Parks/Recreation/Culture               |    | 315,910,037    |
| Transportation/Transit                 |    | 272,048,491    |
| Health/Social Services                 |    | 257,898,126    |
| Public Safety                          |    | 135,080,632    |
| Local Government Land & Buildings      |    | 131,700,004    |
| Solid Waste Management/Recycling       |    | 26,644,910     |
| Roads                                  |    | 26,540,683     |
| Other                                  |    | 12,925,558     |
| Communications Utilities               |    | 744,749        |
| Environmental Conservation/Remediation |    | 63,701         |
|  | \$ | 1,995,000,000* |

\* includes \$20,000,000 in flow through Federation of Canadian Municipalities loans



# ESG Case Studies

2021 continued to be a challenging year for many organizations, including those from the local government sector. In addition to the many small or rural local governments who typically have limited financial resources, we heard from many others whose organizations are facing new financial pressures and/or training budget cuts this year. Your generous support has been instrumental in helping to reduce the financial strain for 72 participants and ensuring they had the opportunity to connect and learn together as a community.

**Nancy Taylor**, Former Executive Director,  
Local Government Management Association of BC



# Regional Infrastructure Project Highlights



**Project:** Port Alberni Treatment Lagoon Upgrades Project  
**Borrower:** City of Port Alberni



**Project:** The Comox Valley Water Treatment Project  
**Borrower:** Comox Valley Regional District



**Project:** P25 System Upgrade (Emergency Transmitters and Receivers)  
**Borrower:** Capital Region Emergency Service Telecommunications, Inc



CASE STUDY ONE

Comox Valley  
Water Treatment  
Project

*The CVRD respectfully acknowledges that the new water treatment system is constructed on the unceded traditional territory of the K’ómoks First Nation, the traditional keepers of this land.*

The Comox Valley Water Treatment Project, completed in September 2021, is the largest capital project undertaken by the Comox Valley Regional District (CVRD) and turns the page on a critical need in the community. This critical infrastructure upgrade was required for the community today and into the future. The former Comox Valley Water System provided drinking water to residents in Courtenay, Comox and surrounding areas but did not meet provincial guidelines because it relied on only one level of treatment to remove the risks of viruses and bacteria in the community’s drinking water. This led to recurrent boil-water notices, as the one treatment level could not ensure high enough standards during incidents of turbidity. The history of water quality issues in the Comox Valley dates back to before 2005, when Island Health (then VIHA) ordered the CVRD to complete a Watershed Risk Assessment, which identified major risks to the Comox Lake water source.

The new treatment plant meets provincial health standards and uses three treatment processes: filtration, UV disinfection, and chlorination.

Protecting drinking water requires two important steps: treating the water and protecting the source. The CVRD Watershed Protection Plan recognizes that high-quality drinking water is produced by a healthy ecosystem.

This plan outlines and considers watershed protection actions specific to the Comox Lake Watershed.

The area of land that drains into Comox Lake is approximately 461 square kilometres. Balancing interests such as private ownership, active logging, recreation and hydroelectric power generation, while sustaining critical fish and wildlife habitat, provides challenges for watershed management. Other landowners within the watershed include the Village of Cumberland (Perseverance Creek sub-basin, Cumberland Lake Park), Comox Lake Land Corporation (cabin owners at east end of lake), the Comox Valley Regional District (Coal Beach), the Courtenay and District Fish and Game Society and BC Parks (Strathcona Park and Comox Lake Bluffs Ecological Reserve).

Operational in 2021, the \$126-million system was constructed on the unceded traditional territory of the K’ómoks First Nation, the traditional keepers of this land.





## Relevant Standards of this Project

### Sustainability Standards

The operations centre of the water treatment plant is designed to LEED Gold standards; however, it is not certified. Sustainable design strategies were also promoted and incorporated in the design, including looking for ways to use building materials with high recycled content or products that are manufactured regionally.

### Innovative Design

An underground pump station at Comox Lake minimizes visual and noise impacts on the surrounding environment.

The new system will deliver three main benefits:

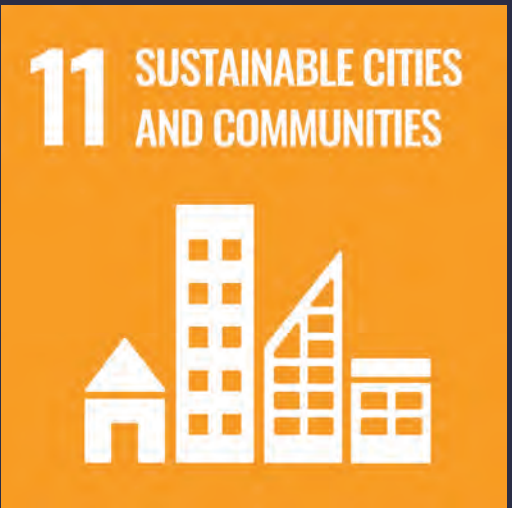
1. It will eliminate the need for turbidity-related boil water notices
2. It will remove the risk of viruses and bacteria in our drinking water
3. It will provide a secure supply of reliable, high-quality drinking water for decades to come.

### QUICK FACT:

The Comox Valley Water System provides drinking water to approximately 50,000 residents in Courtenay, Comox and surrounding areas.

### Sustainability Goals

The project outcomes support the following UN Sustainable Development Goals:



**This is ... a great achievement for everyone involved. The new treatment plant will help protect the health of our community and ensure a consistent supply of a critical resource. ...[I] am happy to say people on this beautiful part of Vancouver Island will now have a water system they can depend on, and one that will serve them for generations to come.**

**Ronna-Rae Leonard**, Member of the Legislative Assembly for Courtenay-Comox on behalf of the former Minister of Municipal Affairs





## A Project To Be Proud Of

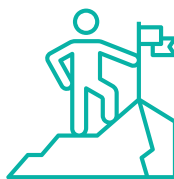
### Successful Construction

The CVRD’s largest infrastructure project undertaken to date was completed on time, and on budget, despite the enormous challenge of a global pandemic. This success is thanks to strong leadership by the project team at CVRD and AECON Water Infrastructure and the hard work of many on the construction site.



### Community Benefits

A new parking lot and trail access next to the water treatment plant has been completed for the community, and partnership with the Courtenay and District Fish and Game Association will provide them with water and access for a new hatchery project.



### Partnership

This project provided an opportunity for the CVRD and the K’ómoks First Nation to work collaboratively with Island Health, BC Hydro, and other stakeholders for the greater good of the community.



## Community Employment Benefits

Goals for employment opportunities for First Nations people, apprentices and others were far exceeded by the project contractor AECON Water Infrastructure.

AECON Water Infrastructure, the project’s contractor, was required to meet a number of community employment benefits, creating opportunities for Indigenous Peoples, apprentices and under-represented populations. All three of these have been far surpassed—at least doubled and in some cases tripled.

|                               | Commitment (hours) | Actual (hours) |
|-------------------------------|--------------------|----------------|
| Indigenous Peoples            | 10,000             | 19,998         |
| Apprentices                   | 15,000             | 35,872         |
| Under-represented Populations | 10,000             | 37,128         |



# Project Budget: \$126 million

The project was funded through a combination of grants from federal and provincial governments, reserve funds and borrowing.

GOVERNMENT OF CANADA  
GOVERNMENT OF BC  
COMOX VALLEY REGIONAL DISTRICT  
MUNICIPAL FINANCE AUTHORITY OF BC

## Additional Funding

Funding for the project included over \$62 million in federal and provincial grants to assist in construction of the new system and future connecting infrastructure.

## Partnering with K’ómoks First Nation:

A second project, announced in September 2018, will also benefit from the federal grant. The Water Service (South) Extension Project will service K’ómoks First Nation (KFN) lands to the south of Royston. Funding for the project will be provided by KFN and other potential users of the future system. The KFN and the CVRD signed a Mutual Benefit Agreement on September 28, 2018, confirming cooperation and collaboration in the management of water resources in the region. In the signing of this agreement, KFN has stated its support of the Comox Valley Water Treatment Project and the CVRD’s water license application.

**Comox Valley residents and the CVRD have a lot to be proud of with this sophisticated treatment plant. This is a significant step and investment in protecting individual and population health.**

**Charmaine Enns**, Medical Health Officer  
for Comox Valley, Strathcona, North Island

The average cost to Comox Valley Water System users is estimated at \$86 per household, per year, over a maximum of 25 years.



## Online Resources Links

- ▶ [Comox Valley Regional District](#)
- ▶ [Project Backgrounder](#)
- ▶ [K’ómoks First Nation](#)
- ▶ [Project Gallery](#)
- ▶ [Comox Lake Watershed Protection Plan](#)

*The MFA thanks the CVRD staff team for providing information presented in this case study.*

## CASE STUDY TWO

# Port Alberni Treatment Lagoon Upgrades Project

*The City of Port Alberni boundary lies within the traditional territories of the Hupacasath and Tseshaht First Nations. The City is proud to partner with both Nations through service agreements, recreational programming, and other social, economic, cultural and environmental initiatives.*

In 2003 the City of Port Alberni, in consultation with technical and community stakeholders, identified that the most cost-effective way to meet the City's wastewater treatment needs was to purchase and re-purpose the Catalyst paper mill's effluent lagoons that had become surplus to the needs of Catalyst. In 2018, construction on the newly acquired lagoons began. While the City's long-serving wastewater treatment plant and lagoon has performed well since the 1950s, upgrades to the plant were required to support the community's future needs and meet the new Federal and Provincial Treatment regulations.

The upgrades to the City's wastewater treatment plant are being carried out in four phases. Construction of the current contract was recently completed albeit delayed due to the COVID-19 pandemic and other global impacts.

The City of Port Alberni engaged Associated Engineering (AE) to design an upgrade/expansion to its wastewater treatment system. Key additions include screening and UV disinfection, a new pump station coupled with a new 800m pipeline into the Somass Estuary. Retrofitting of these larger capacity lagoons enabled the City to meet new provincial and federal regulations, in a manner that met sustainability objectives, such as minimizing environmental and land disturbance arising from new construction.





## Relevant Standards of this Project

### Innovative Design For Protection of Salmon

In order to provide enhanced protection to the fishery, especially during the late summer when salmon congregate in the Alberni Inlet, Associated Engineering (AE) designed a unique adaptive management discharge solution for protection of the salmon fishery:

- Instead of discharge of treated effluent at depth where returning salmon congregate waiting for lower temperatures in the Somass River to begin their migration (but otherwise in accordance with BC regulations), AE received permission for a discharge nearer to the surface.
- Another feature of the discharge system is that it will operate only during an ebb tide, when surface waters are moving out of the Somass River, through the estuary and into Alberni Inlet. The falling tide provides optimal conditions for dispersion of the treated effluent in the receiving environment.
- During the late summer/early fall, the system is designed to provide even more mitigation for protection of salmon. During low river flow/high water temperature conditions, or if salmon are being stressed by low dissolved oxygen conditions, the City can store treated effluent in the lagoon for up to two weeks.



### Sustainability Goals

The project outcomes support the following UN Sustainable Development Goals:



### Archaeological Investigations and Design Inputs

Because the project is located in the traditional territories of the Tseshaht and Hupacasath First Nations, great care was taken to respect the cultural heritages of local First Nations. Archaeological investigations were undertaken along the outfall alignment, including in the tidal foreshore areas. Significant artifacts were encountered and carefully collected and documented throughout these explorations and construction.







### The Importance of the Somass River Fishery & Collaboration with First Nations

Discussions with local First Nations and stakeholders of the Somass Estuary underscored the importance of the Somass River fishery, which has been significantly impacted by the cumulative impacts of industry, changes in the watershed, climate change and inherent features of the estuary that lead to periodic episodes of low dissolved oxygen.

Consultation with local First Nations over a period of several years provided the project team with significant insights into the impacts of the City’s existing lagoon discharge:

- First Nation fishers reported that gillnets used in shallower waters adjacent to the City’s existing lagoon discharge were frequently fouled with black organics, likely due to localized nutrient enrichment.
- Although eager for implementation of the new discharge system and improvement to the local environment, fishers were concerned with the potential for their gill nets to become entangled with the new discharge ports. Together the technical team and First Nations fishers designed guards that fit over the discharge ports allowing the nets to pass without becoming snagged.

### When complete, the upgraded plant will:

- Improve effluent quality (treated wastewater discharge)
- Provide enhanced environmental protection
- Increase operational capacity
- Meet the current Canadian wastewater treatment standards

**Upgrading the Wastewater Treatment Plant is an important and necessary step in the City’s continuing efforts to improve the quality of life in Port Alberni while at the same time lessening our impacts on the surrounding environment. When considered together with the City’s ongoing storm and wastewater separation projects, the newly upgraded Wastewater Treatment Plant will have a significant positive effect on the health of the Alberni Harbour, Somass Estuary and neighbouring waterways.**

Tim Pley, Former CAO, City of Port Alberni



# Project Budget: \$41 million

The project was funded through a combination of grants from federal and provincial governments, reserve funds and borrowing.

FEDERAL GAS TAX AGREEMENT GENERAL STRATEGIC PRIORITIES FUND (GSPF)

FEDERAL CLEAN WATER AND WASTEWATER FUND (CCWF)

PORT ALBERNI SEWER INFRASTRUCTURE RESERVE FUND (SIRF)

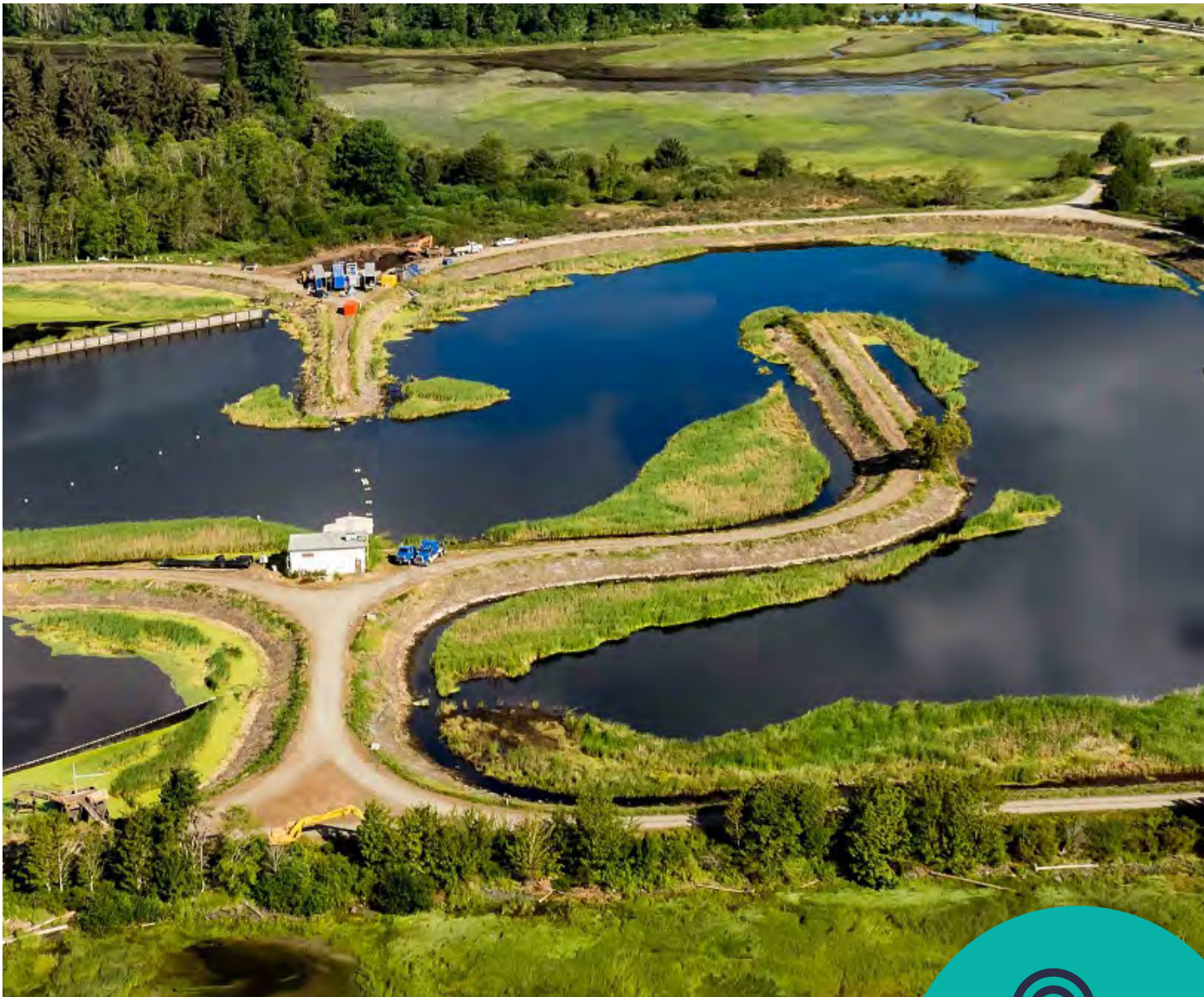
MUNICIPAL FINANCE AUTHORITY OF BC

## “A Commitment to the Community”

The City of Port Alberni is committed to minimizing the impacts of this project on the community, neighbouring First Nations and regional areas, the environment, and to working closely with key stakeholders throughout the project.

As part of their commitment, the City of Port Alberni is:

- Following rigorous permitting and approval processes at all levels of government;
- Working with local First Nations and other government agencies to identify potential project impacts and determine possible mitigation measures; and
- Following a rigorous environmental monitoring program to ensure construction does not negatively impact fish, wildlife and the surrounding estuary or the neighbouring Somass River.



## Online Resources Links

- ▶ [City of Port Alberni](#)
- ▶ [Project Backgrounder](#)

*The MFA thanks the City of Port Alberni team for providing information presented in this case study.*



## CASE STUDY THREE

# CREST P25 System Upgrade

*CREST provides emergency radio communications for 50 emergency response and public service agencies throughout the CRD, an area that spans the Territories of the Coast and Strait Salish and Nuu-chah-nulth peoples. In the delivery of critical public safety services to all citizens, CREST's Board of Directors proudly recognize the First Nations governments across this region the -Lək'wəḡən (Songhees) and Xwsepsum (Esquimalt) Nations in the core area, the WSÁNEĆ Nations {WJOŁEŁP (Tsartlip), BOKEĆEN (Pauquachin), STÁUTW,(Tsawout) WSIKEM (Tseycum)} out on the Saanich Peninsula and Gulf Islands, and to the west Sc'ianew (Beecher Bay), T'Sou-ke, – Pacheedaht, MÁLEXEŁ (Malahat) and Pune'laxutth' (Penelekut) Nations.*

Capital Region Emergency Service Telecommunications (CREST) provides and maintains emergency communications equipment and infrastructure for more than 50 first responder and public service agencies throughout the Capital Region. This includes fire departments, police departments and ambulance services. Over 6 million calls per year go through the system, or one call every four seconds.

CREST's public safety telecommunications network strengthens the safety of our emergency responders and the citizens they serve and protect, and allows our unique island region to be self-reliant in the event of a natural disaster. CREST was formed in 2001 and its radio communications network has been operational since 2003. In 2020, CREST completed the Capital Region's 4-year \$24.5 million technology upgrade to a P25 North American standard of public safety excellence, moving the system and the region's emergency responders and public service agencies onto a fully digital platform that meets world standards for public safety.

The CREST approach allows all of the region's primary emergency response agencies to use the same system, the same technology and the same world-class standard of communication. This 'one-system' approach is the ideal model in which to address public safety from an emergency communications perspective. It allows

for interoperability, reliability and efficiency of communications among all responding agencies. CREST also provides both online and instructor-led training to users of the P25 system and maintains the significant technology infrastructure of the system. This 'next generation' P25 system represents a suite of standards for digital radio communications used by federal, provincial/state and local emergency response agencies across North America. It is considered a world standard.

CREST's P25 network was phased in across the Capital Region ensuring uninterrupted service and allowing for vital testing and training time. The new digital CREST network is meeting and exceeding expectations of CREST user agencies when they need it most. The seamless cut-over and optimal performance of the new network means that the region's first responders and public service agencies have better tools and improved connectivity as they face escalating workplace demands.

CREST completed the final phase of the network upgrade in late 2020 migrating all user agencies in the Capital Region to a new, digital P25 platform with broadcast frequency of 700 MHz in urban areas and using VHF in the rural areas. The new P25 network completed on budget, and phased regional transitions onto the new network over the four-year period were seamless.

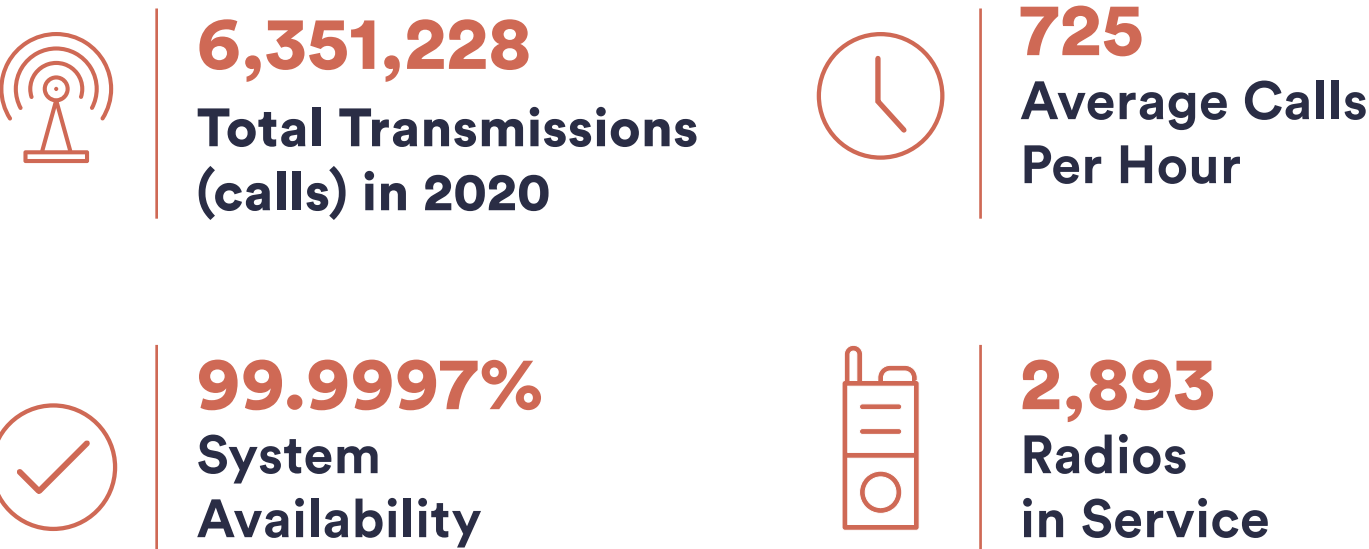




Key Features Of The P25 System Include:

- Increased coverage
- Improved audio clarity and security
- Noise-cancelling technology to reduce background sounds; and
- An expanded range of accessories including the ability to add new features in the future through software upgrades.

CREST By The Numbers



QUICK FACT:

Across the Capital Region, each year over 6 million calls per go through the CREST’s P25 system, or one call every four seconds.

Sustainability Goals

The project outcomes support the following UN Sustainable Development Goals:



The safety and security of our officers and the citizens we serve are of the utmost importance to us. The police radio is arguably the most important tool in our tool belt; It connects us not only to each other and to our police dispatchers, but also to our policing partners including the fire department and BC ambulance paramedics. This transition to the “next generation” radio system is a step in the right direction for our officers and for public safety.

Chief Del Manak, Victoria Police Department



# Project Budget: \$24.5 million

The project was funded over 4 years and all financing was completed solely through the Municipal Finance Authority of BC.

**We have always recognized the advantages of what an interoperable CREST network provides. The new P25 network just takes it to the next level in strengthening public safety. Radio clarity is much improved and so is coverage which is key. As our region develops, the new digital technology allows for better penetration.**

Chief Bob Downie, Saanich Police Department

## Project Outcomes

- **More coverage:** The new system has 3x the number of transmission sites than the old system (30 v 10)
- **More capacity to handle peak times:** The old system encountered a busy signal every 700 calls vs a busy signal every 8500 calls on the new system
- **Better audio clarity:** All digital new system equates to better audio clarity for first responders.

In November 2020, CREST engaged Strategic Initiatives to undertake a formal User Satisfaction Survey to set benchmark measures for the new P25 network, and to gather feedback to assist the CREST organization’s commitment to continual improvement.

## Findings Include:

- Mobile (vehicle) radio users reported high levels of satisfaction with their mobile radios, including their radios’ ease of use (96.4%), clarity of audio (91.9%), coverage within their jurisdiction (84.7%) and coverage outside their jurisdiction (82.0%).
- Portable (handheld) radio users were remarkably satisfied with their radios’ features, including the radios’ ease of use (97.6%) and quality (92.9%). Satisfaction related to audio clarity registered at (88.9%), with coverage within their jurisdictions (81.9%).

## Major Takeaways From The Survey

1. Training continues to be a focal point with a high correlation between satisfaction of the system and devices, when training opportunities have been provided, and taken.
2. The second is the very high satisfaction with staff when it comes to support, service, and knowledge.

## Online Resources Links

- ▶ [CREST Website](#)
- ▶ [CREST Press Release 1](#)
- ▶ [CREST Press Release 2](#)
- ▶ [Times Colonist Press Release](#)

*The MFA thanks the CREST staff team for providing information presented in this case study.*





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