

Submission to the Government of Canada's First National Infrastructure Assessment

METRO VANCOUVER REGIONAL DISTRICT | JULY 2021

Dear Minister McKenna,

I am pleased to share with you Metro Vancouver's submission on Canada's first National Infrastructure Assessment. As we reflect on the priorities set out in the Engagement Paper: "*Building the Canada We Want in 2050*", it is clear we share your government's vision for public infrastructure that in 2050 is cost-effective, low-carbon, and climate-resilient; that contributes to more broadly-shared economic opportunity and prosperity; and that improves quality of life for all Canadians.

In this submission, Metro Vancouver shows that by investing together – in infrastructure, housing, clean energy, climate action, and habitat restoration – we can create new jobs and lay the foundation for a future that is greener, more equitable and more sustainable.

Thank you for the opportunity to contribute to the establishment of a long-term vision for infrastructure planning, design and management. We look forward to learning the outcomes of this engagement process and working together to build a roadmap out to 2050 to guide new infrastructure in Canada including nation-building projects.

Sincerely,

Sav Dhaliwal

Chair, Metro Vancouver Board

The Government of Canada has launched an Engagement Paper on Canada's first National Infrastructure Assessment: "*Building the Canada We Want in 2050*". It sets out the purpose and benefits of undertaking a National Infrastructure Assessment and seeks input on three main priorities:

- Assessing infrastructure needs and establishing a long-term vision;
- Improving coordination among infrastructure owners; and
- Determining the best ways to fund and finance infrastructure.

The intent is to establish a long-term vision for infrastructure planning, design and management, which will provide a roadmap out to 2050 to guide new infrastructure in Canada including nation-building projects. Following the engagement process, the Canadian government will consider the next steps, including consideration of priorities, establishment of an independent advisory body and interim studies and reports to inform infrastructure policy and investment.

In this submission, Metro Vancouver stresses that investments into critical infrastructure must be part of Canada's collective, long-term strategy for the future. Attention must be paid to creating long-term, family-supporting jobs; to building the industries of tomorrow; to affording greater opportunity and access to economic and other resources for more residents and communities; to protecting the environment and mitigating climate change; and to meeting the demands of population and industrial growth. Our submission presents a range of co-investment and project opportunities that speak directly to these priorities – priorities that are shared between Metro Vancouver, the Government of British Columbia and the Government of Canada.

From bridges and ports, to clean water, waste management, parks and housing, infrastructure projects connect our communities, provide the foundations for a strong and resilient economy, and build the future of our country. As the concept of infrastructure broadens, local government infrastructure remains foundational to the nation's economy and quality of life. The reservoirs, pipes, pumps, treatment plants, roads, power lines, dikes and other built infrastructure provide essential services such as drinking water, sewage treatment, stormwater drainage, solid waste disposal, transportation and energy to residents and businesses. Now more than ever, bold action is needed to reach

our climate targets and achieve net-zero emissions, and green infrastructure will play a key role in protecting the environment.

Metro Vancouver is a federation of 21 municipalities, one Electoral Area and one Treaty First Nation that collaboratively plans for and delivers regional scale services and plans. Over the next five years, Metro Vancouver is planning over \$6 billion in critical infrastructure investments to build, maintain and upgrade the infrastructure that underlies the prosperity and livability of the region. As the regional body responsible for providing critical services to 2.7 million residents – more than half the population of British Columbia (BC), Metro Vancouver represents 61 percent of BC's GDP and about 1.3 million jobs. As the economic engine of BC, the Metro Vancouver region will play a critical role in ensuring the resilience and driving the performance of Canada's economy in the coming decades.

By investing together – in infrastructure, housing, clean energy, climate action and habitat restoration – we can create new jobs and lay the foundation for a future that is greener, more equitable and more sustainable.



Powering our economy for clean energy systems and net-zero structures

Achieving carbon neutrality and ensuring the region is resilient to climate change guides Metro Vancouver's goals, strategies and actions for its assets and operations. Metro Vancouver, together with its member jurisdictions, has been taking action on reducing greenhouse gas emissions and building climate resilience for decades. Despite this progress, actions must be accelerated to reduce our impacts on global climate change, to protect public health and the environment and to adapt to the anticipated impacts from a changing climate. The construction, maintenance and operation of infrastructure all contribute to greenhouse gas emissions, and so innovation in infrastructure design, upgrades and operations can significantly reduce associated greenhouse gas emissions. The National Infrastructure Assessment can identify and lead the way on key actions needed to fight climate challenges.

Metro Vancouver is encouraged by the federal government's commitment to work with the provinces and territories to implement the Pan-Canadian Framework on Clean Growth and Climate Change,

which includes plans to build climate resilience. The federal government's funding for infrastructure that prioritizes emissions reductions and resiliency is a welcome contribution, as green infrastructure projects represent an immediate opportunity for partnerships between all orders of government to achieve our shared goals.

In order to reduce environmental impacts and increase social and environmental benefits, Metro Vancouver has led in sustainable design through concrete actions like the creation of a [Sustainable Infrastructure and Buildings Policy](#), which establishes standards for sustainable design and construction of Metro Vancouver infrastructure and buildings. Metro Vancouver is in the process of finalizing a guide to support the broad implementation of this policy in new construction, as well as for upgrades and significant renovations. Metro Vancouver is ideally positioned as a partner to the Government of Canada in realizing its climate change objectives. For example, the region's water, wastewater and energy infrastructure provide immediate opportunities for climate action.

Metro Vancouver's *Climate 2050* is an overarching long-term strategy that will guide our region's policies and collective actions to transition to a carbon neutral and resilient region over the next 30 years. As part of this plan, Metro Vancouver adopted the following regional climate change targets:

1. Reduce regional greenhouse gas emissions by 45% from 2010 levels by 2030;
2. Become a carbon neutral region by 2050; and
3. Ensure our infrastructure, ecosystems, and communities are resilient to the impacts of climate change.

Metro Vancouver is introducing *Climate 2050* through a series of [discussion papers](#), used to develop a parallel series of Roadmaps for climate action in the region, with long-term goals, targets, strategies and actions. These roadmaps can help us reach a low-carbon, resilient future. By 2050, we can ensure that our water and wastewater systems are carbon neutral and climate resilient by continuing to pursue a range of opportunities, such as diversifying our energy sources through energy recovery projects, coordinating across the region on resilience planning, and taking a closer look at the full cost—including the cost of carbon—of infrastructure construction and maintenance. By 2050, we can reduce total energy use by using less energy and investing in energy-efficient technologies. We can transition from fossil fuels to clean, renewable energy in a way that is fair and equitable for residents, businesses and industries.

Water

Metro Vancouver maintains source reservoirs within three protected water supply areas, and treats and delivers clean, safe drinking water to member jurisdictions through a complex network of water treatment plants, pumps, reservoirs and pipes that stretch throughout the Lower Mainland.

Metro Vancouver's water system showcases a number of projects developed to reduce the region's climate change impact and move towards carbon neutrality. One such project is the Capilano Energy Recovery Facility which has one of the largest energy recovery turbines in a municipal treated potable water system in North America and harnesses a portion of the vast reserves of stored and kinetic energy available within the system. As we respond to a changing climate, we need to maintain and strengthen these essential water

and wastewater systems to ensure the region's 2.7 million residents have access to clean, safe drinking water and sanitation needs, now and in the future.

The region's drinking water infrastructure is vulnerable to anticipated climate change impacts, such as more frequent extreme precipitation events that will increase localized flooding, increase the risk of landslides within watersheds potentially impacting water quality, and heat and drought that will challenge the drinking water system by reducing snowpack and precipitation available for water supply in the critical summer months. Incorporating climate change into local government infrastructure planning, design and operations can help maintain these essential services in the face of climate impacts.

Wastewater

Liquid waste is the wastewater that is collected from homes, businesses, industries and institutions through vast networks of sewer pipes. Liquid waste is also the rainwater runoff and snowmelt that may be, or may become contaminated by washing and collecting pollutants from streets, lawns and gardens—most of this runoff enters creeks, rivers and the ocean untreated.

Traditionally, liquid waste has been viewed as an unusable output needing collection, treatment, and disposal. However, treated stormwater can also be an asset in the natural environment in the form of creeks and other watercourses. Furthermore, as resources world-wide become scarcer and more expensive, liquid waste is increasingly recognized as a resource from which nutrients, energy and water may be recovered and reused. Resource recovery can help to offset a portion of the costs associated with liquid waste management. In a fully sustainable system, there is no waste—everything is recycled and reused.

The long-term vision for liquid waste management in Metro Vancouver is that all elements of liquid waste will be efficiently recovered as energy, nutrients, water or other usable material; otherwise, it should be returned to the environment as part of the hydrological cycle in a way that protects public health and the environment.

Metro Vancouver is working to make wastewater infrastructure and operations carbon neutral, as well as resilient to the impacts of climate change, including high temperatures, severe weather, floods, wildfire impacts and supply chain disruptions. As a core community service, water and waste management infrastructure is inextricably linked to our natural environment and must be supported for communities to thrive.

Cost-Sharing Solutions

Metro Vancouver and its members recover most of the costs to build, operate and maintain their liquid waste infrastructure from users. These are not adequate, however, to wholly finance major capital projects such as upgrading primary wastewater treatment plants to secondary treatment, and therefore, historically other orders of governments have worked in partnership with local governments and provided significant cost sharing for major capital projects. The North Shore Wastewater Treatment Plant, for example, was able to move ahead with considerable and much appreciated funding from both the provincial and federal governments. We hope to continue that collaboration and support with the Iona Island Wastewater Treatment Plant, another example of a project that is driven in part by federal and provincial legislation and regulations targeting environmental protection.

Although various pricing mechanisms can more equitably allocate the costs among the users of municipal and Metro Vancouver's liquid waste management services, they do not offer new revenue sources. Similarly, different financing and operating models may be able to make annual financing appear less burdensome, but they also do not offer new revenue sources. Through the integrated resource recovery process, opportunities to access resources from the liquid waste system to create new revenues may be possible, but these are uncertain and cannot be relied upon to address the capital funding needs of this plan.

While Metro Vancouver and its members will work with senior government, businesses and local communities to identify cost-effective solutions, significant and equitable federal and provincial cost sharing is critical in maintaining affordability at the household level and ensuring these critical projects move forward without delay.

IONA ISLAND WASTEWATER TREATMENT PLANT



Iona Island Wastewater Treatment Program



Metro Vancouver is advancing one of Canada’s most dynamic and transformative urban sustainability programs – the Iona Island Wastewater Treatment Plant. This innovative project will protect the health and well-being of people, wildlife and ecosystems while enhancing seismic and climate resiliency. The project is designed to maximize energy and resource recovery, and will make a significant impact in reducing Metro Vancouver’s greenhouse gas emissions.

Metro Vancouver will ensure the plant is designed to meet the latest seismic standards, account for future sea level rise and incorporate leading technology for resource recovery, greenhouse gas reductions, ecological rejuvenation, odour abatement and energy efficiency.

Climate projections for the region show warmer average temperatures, more extreme weather events and sea level rise. These impacts will be considered in the siting, design and operation of the new Iona Island Wastewater Treatment Plant. Natural landscapes will mitigate climate change as they capture rainwater, protect the foreshore and shield infrastructure from extreme weather events. The design will protect the existing ecosystems and incorporate green infrastructure to increase resilience.

Metro Vancouver is engaging 14 First Nations on the new plant, working closely with the Musqueam Indian Band due to the proximity of the site to their primary reserve lands – directly across the Fraser River – and their strong connections to Iona Island. Metro Vancouver and Musqueam Indian Band are working towards a partnership agreement that will provide benefits for both organizations and ensure that the best possible projects are developed.

This state-of-the-art wastewater treatment and resource recovery facility will respond to a federally regulated requirement for providing enhanced treatment technology. It is critical that local governments are supported in reaching regulatory compliance, and Metro Vancouver is seeking co-investment from the Government of British Columbia and the Government of Canada to ensure this critical project is started without delay. Phase one of the project, which includes habit restoration, seismic upgrades and design work, is to be completed over five years beginning in 2021.

PROJECT AT GLANCE	
ECONOMIC BENEFITS <ul style="list-style-type: none"> Over 100,000 jobs supported over 20 years (FCM multiplier) 	
ENVIRONMENTAL BENEFITS <ul style="list-style-type: none"> Enhances seismic and climate resiliency Partnership opportunities with Musqueam Indian Band Increases energy and resource recovery 	
	PHASE 1: \$750 MILLION PHASE 2: \$6.7 BILLION PHASE 3: \$3 BILLION
	START DATE 2021 ESTIMATED COMPLETION 2042

Energy use and generation



As climate change increases, utilities will have to adapt to the risks associated with power reliability, water and wastewater infrastructure operations, which can impact the types of energy sources used. Potential exists for renewable energy generation from infrastructure.

Switching from fossil fuel-based energy sources to low or zero carbon electricity and fuels is essential to decarbonize our region’s energy system. Investing in local low or zero carbon energy systems and new technologies, products and processes, such as renewable natural gas, waste heat recovery, solar and heat pumps can help further allied clean tech innovation, entrepreneurship, and applied research; green economy industry development, production and exportation; clean economy business formation and job creation; and energy self-sufficiency and resilience while reducing greenhouse emissions. Eliminating sources of energy waste and improving energy efficiency should be an integral part of reducing energy-related emissions.

Metro Vancouver currently produces renewable natural gas at several of its wastewater treatment plants, which displaces the use of fossil fuels for operation of these facilities. There is potential to produce additional renewable natural gas or other biofuels at Metro Vancouver facilities. There are also opportunities to capture more waste heat from its utility processes, solid waste management facilities and liquid waste collection system. Recovered heat can be used to generate electricity, or in district energy systems that provide energy to buildings for space heating and water heating. These low-carbon energy and resource recovery opportunities will bolster infrastructure resilience and mitigate greenhouse gas emissions and can be replicated across the country. Federal policies and programs to support projects that generate renewable, low-carbon energy can significantly reduce greenhouse gas emission.

Waste-to-Energy District Energy

Metro Vancouver will recover more of the heat generated at its Waste-to-Energy Facility in Burnaby by establishing a district energy system that would reduce greenhouse gas emissions at nearby residential and commercial developments as compared to heating with natural gas. The Metro Vancouver Waste-to-Energy Facility processes solid waste at high temperatures to produce steam that powers a turbo generator to produce electricity. A district energy system will enhance energy recovery by heating water with steam at an energy centre located at or adjacent to the Waste-to-Energy Facility. This hot water would then be pumped through an underground piping system to nearby residential and commercial developments for heat and domestic hot water, offsetting natural gas use. The heat could also be used for industrial processes and municipal infrastructure such as swimming pools and ice rinks.

PROJECT AT GLANCE	
ECONOMIC BENEFITS	
<ul style="list-style-type: none"> • 540 jobs supported 	
ENVIRONMENTAL BENEFITS	
<ul style="list-style-type: none"> • Reduces greenhouse gas emissions by up to 45,000 tonnes per year • Produces heat and hot water for up to 30,000 housing units • Increases Waste-to-Energy Facility energy recovery by 3 times 	
	\$55 MILLION
	START DATE 2021
	ESTIMATED COMPLETION 2025

Getting people and goods around faster, cheaper and cleaner

Transportation and public transit

An efficient, affordable, secure, accessible and well-functioning public transit and transportation system is a vital ingredient in creating a compact urban area, developing complete communities, supporting a sustainable economy, protecting the environment and adapting to climate change impacts. Metro Vancouver welcomed the federal government's commitment of \$14.9 billion in funding over the next eight years for public transit, and the introduction of a permanent transit fund starting in 2026. These

investments will support sustainable mobility, live-work connectivity and vehicle miles travelled and GHG emissions reductions, while ensuring local governments have a predictable source of funding to expand transit service as our economies recover. As our region develops the Metro 2050 and Transport 2050 integrated regional land use and transportation plans, it will be critical for all orders of government to continue working together to decarbonize our transportation network, in the interests of meeting our shared climate action goals and supporting the efficient movement of people and goods.

Improving social spaces and services

Affordable housing

The provision and maintenance of diverse and affordable housing choices is critical to the livability of communities and the quality of life of residents. Effectively addressing the affordable housing crisis will require strong collaboration.

Metro Vancouver Housing is one of the largest affordable housing providers in the region, with 49 sites across the region, including over 3,400 units to support about 9,400 tenants. Metro Vancouver Housing will invest \$190 million in affordable housing over the next 10 years. This includes \$90 million in renewing and enhancing existing housing and another \$100 million to develop new affordable housing in partnership with member jurisdictions. This investment, along with targeted partnerships, will support achieving our target of over 2,000 new and redeveloped units over the next decade.

Balancing the renewal of existing housing with the creation of new affordable housing will require significant investment, innovation and collaboration. At the same time, Metro Vancouver Housing is working to enhance sustainability of our housing to meet regional and national climate targets, and improve accessibility to support an aging population.

Additional funding from the federal government could further leverage this investment and create even more affordable rental units across the region.

Starting in 2016, both the provincial and federal governments made historic investments to support housing, providing welcome resources. In 2018, the Homes for BC: A 30-Point Plan for Housing Affordability in British Columbia, and the National Housing Strategy were launched, setting ambitious goals for increasing and preserving affordable housing. These plans, along with more recent budget commitments, have allocated much-needed funding and have also led to numerous policy, tax, and regulatory changes to support affordable housing. Portfolio-based funding partnerships with the federal government can support major sustainability upgrades in existing and new housing, as well as the development and preservation of affordable rental housing.

Investing in our natural environment

Parks, natural spaces and ecosystems

Metro Vancouver is steward to over a quarter of the region’s land base. This includes operating a regional park system of over 13,700 hectare and protecting over 59,000 hectares of forested water supply lands. The natural areas of the region are highly valued for their contributions to Metro Vancouver’s environmental health and livability. Within the context of natural area protection, the regional park system provides a variety of opportunities for people to experience, enjoy, and connect with nature. Population growth is bringing increased pressure on parks, trails and facilities, as well as the need for additional open space. In the last year alone, Metro Vancouver parks and natural spaces have seen record visitations, underscoring the health and well-being benefits of providing opportunities to connect with nature.



Protecting and enhancing natural areas and their connectivity will be essential in helping species and ecosystems adapt to climate change. Metro Vancouver is a region with a rich and diverse natural environment that provides important ecosystem services including clean air and water, pollination, flood control and cooling of urban areas. Furthermore, many aspects of the region’s ecosystems hold cultural significance to First Nations, and healthy ecosystems provide the basis for local food security and prosperity for us all. Soil, forests, wetlands, and other ecosystems also contribute to the regulation of the global climate by removing and storing carbon dioxide from the atmosphere.

Soils and vegetation capture rainwater, protect the foreshore and moderate the impacts of extreme weather events, reducing the need for built infrastructure. Trees provide shading in urban areas, which reduces the energy needed to cool buildings and provides relief to residents during extreme heat events. Maintaining tree canopy and managing urban forests so they are resilient to the impacts of climate

change will mean they are able to continue to provide these adaptation benefits. Incorporating green infrastructure, such as rain gardens, bioswales and green roofs, into development projects will increase resilience and help to mitigate environmental impacts, particularly in more urban areas.

Widgeon Marsh Regional Park

Widgeon Marsh Regional Park is a beautiful natural area with extensive wetlands, forests and sweeping mountain views, currently undeveloped and closed to public access. The park, which includes 621 hectares of wetlands and forests, is part of the largest freshwater marsh in southwest BC and protects some of the most sensitive lands in the regional parks system. Wetlands like marshes and bogs account for about two-thirds of the park, providing habitat for a diversity of birds and mammals, while channels feeding into Widgeon Creek and Widgeon Slough host spawning and rearing habitat for cutthroat trout, coho, chum, sockeye and steelhead salmon. This project presents a once-in-a-generation opportunity to develop and open a vast new regional park in an incredible natural setting. Widgeon Marsh Regional Park will protect and enhance sensitive ecosystems while offering a range of opportunities for people to connect with nature and each other.

PROJECT AT GLANCE	
ECONOMIC BENEFITS <ul style="list-style-type: none"> • 162 jobs supported 	
ENVIRONMENTAL BENEFITS <ul style="list-style-type: none"> • Protects sensitive ecosystems • Enhances diverse wildlife habitats • Provides recreational and educational opportunities 	
	PHASE 1: \$4.5 MILLION; PHASE 2: \$10.5 MILLION
	PHASE 1: 2021; PHASE 2: 2022–2023
ESTIMATED COMPLETION 2023	

Funding and financing infrastructure

Better infrastructure increases the resiliency of communities, is essential to Canadians' quality of life, and underpins economic prosperity, strong industries and a growing and more equitable economy. As highlighted by the Federation of Canadian Municipalities (FCM), municipalities are owners of 62 percent of public infrastructure, and for that reason, it is essential that local government input be built into the design and implementation of the National Infrastructure Assessment. Alongside FCM, Metro Vancouver shares the federal government's vision for public infrastructure that in 2050 is cost-effective, low-carbon and climate-resilient; that contributes to more broadly-shared economic opportunity and prosperity; and that improves quality of life for all Canadians.

As we plan for the future, we must take into consideration the need for expanded core utility services and regional services to respond to new growth. Our country and region are dependent

on healthy, functioning ecosystems and require actions to reduce pollutants, including greenhouse gases, to prevent waste and to conserve our natural ecosystems. We must also maintain and replace critical regional infrastructure to meet current and future service needs and to be resilient to the effects of climate change and natural disasters, including impacts from severe weather events and flooding, wildfires, power failures and seismic events.

To achieve these goals, we must ensure core services and infrastructure are delivered with an adherence to sound fiscal policies that balance long-term financial health, while maintaining affordability for ratepayers. As the regional government, Metro Vancouver is prepared to make significant investments in a range of infrastructure projects, but we cannot do it alone. We will need the federal government to join us in making these crucial investments for the benefit of our shared constituents for generations to come.

Recommendations

1. The federal government should continue to fund infrastructure projects that prioritize emissions reductions and resiliency to climate change, as green infrastructure projects represent an immediate opportunity for partnerships between all orders of government to achieve our shared climate goals.
2. The federal government should support local governments by cost sharing on critical infrastructure projects, in particular, those driven by federal regulatory requirements. This is critical in maintaining affordability at the household level and ensuring these projects move forward without delay.
3. The federal government should support major sustainability upgrades in existing and new housing, as well as the development and preservation of affordable rental housing, including through portfolio-based funding partnerships with local governments that provide affordable housing services.
4. The federal government should consider natural assets as part of infrastructure planning and decision-making processes. Protecting and enhancing parks, natural spaces and ecosystems will be essential to environmental preservation and restoration, and will help communities mitigate the impacts of climate change.