

# PUBLIC POLICY PRIORITIES 2021

# Sustainable and Climate Resilient Infrastructure

## BACKGROUND AND RATIONALE

### Planning

One of the effects of our changing climate is an increase in the number and severity of natural disasters, which puts our public infrastructure at risk. Failing infrastructure disrupts essential services, results in economic loss, and can lead to loss of life – and yet civil engineering infrastructure projects are falling behind societal and functional expectations.

#### Infrastructure Canada's Climate Lens

recognizes that infrastructure investments can more successfully address environmental pressures and climate change impacts by encouraging the incorporation of climate change considerations into the project development process. Foreseeing the need for such considerations, the American Public Works Association (APWA), the American Council of Engineering Companies (ACEC), and the American Society of Civil Engineers (ASCE) established the Institute for Sustainable Infrastructure (ISI) in 2010. ISI's Envision sustainability rating tool is a holistic framework for evaluating and rating the community, environmental and economic benefits of all types of infrastructure projects and is accepted as a Climate Lens methodology to assess climate change risk and resilience. Envision also recognizes infrastructure projects that use transformational, collaborative approaches to assess sustainability indicators over the course of a project's life cycle. **Continuing to direct public funds towards public infrastructure projects that are planned and executed using sustainability rating systems such as Envision is key to ensuring safe, healthy communities.**

Some public works agencies are also factoring into their capital and operations plans the value of natural assets that provide core municipal services, such as wetlands that improve water quality and provide protection from storm surges and vegetated spaces that stabilize soil and absorb stormwater. According to a 2018 report published by the Insurance Bureau of Canada (IBC) and

several partners, [Combatting Canada's Rising Flood Costs: Natural infrastructure is an underutilized option](#), conservation and restoration of natural infrastructure can be a cost-effective way to mitigate material financial losses that would otherwise result from flooding. The report cites:

- Naturally occurring ponds in the coastal town of Gibsons, British Columbia, provide \$3.5 million to \$4 million of stormwater storage services annually
- A 250-metre naturalized channel in the town of Oakville, Ontario, provides \$1.24 million to \$1.44 million of stormwater conveyance and storage annually
- Naturally occurring wetlands in southern Ontario reduce flood damage costs to buildings by \$3.5 million (or 29%) at a rural pilot site and by \$51.1 million (or 38%) at an urban pilot site
- A restored and engineered wetland in Manitoba is valued at \$3.7 million for the flood reduction, water quality improvement, carbon sequestration and other benefits it provides.

Unlike engineered assets that have a defined lifespan, after which they must be repaired or replaced, natural assets may provide services in perpetuity. But they must be protected and recognized for their value, which may increase as the climate changes.

- **Encourage investment in public infrastructure projects that are planned and executed using sustainability rating systems such as Envision.**
- **Encourage infrastructure investment strategies that recognize the value, and include the management and sustainability, of natural assets.**

### Funding

Local governments rely on the federal [Gas Tax Fund \(GTF\)](#) to deliver public works and infrastructure projects across 18 different categories, including roads and transit, drinking water and wastewater infrastructure, solid waste management, disaster mitigation and broadband. This permanent source of

funding, which flows through provinces and territories, is provided up front, twice-a-year and enables municipalities to plan capital infrastructure investments more quickly and effectively than application-based funding programs. CPWA members have pointed to challenges with application-based funding programs including:

- Not enough advance notice of program requirements and timelines
- Limited time to apply
- Complicated and time-consuming application process
- Unclear or changing program requirements
- Delays in project approval
- Inability to modify applications
- Onerous reporting requirements

The Government of Canada's one-time doubling of the GTF announced in Budget 2019 recognized the needs of local governments across Canada, particularly as they meet the challenges of managing aging public infrastructure in an era of increased and severe weather events. But the GTF cannot be used for operations and public works agencies often do not have adequate resources for the operations and maintenance activities that keep existing infrastructure in good working condition. According to Infrastructure Canada, [municipal governments own 59.8% of public infrastructure](#). But according to the Canadian Union of Public Employees, [local governments only collect about 12 cents of every tax dollar paid in Canada](#).

Water systems in particular are in need of investment in the coming decades. According to [Canada's Core Public Infrastructure Survey: Potable water and stormwater assets, 2016](#), municipal governments own over three-quarters of every type of potable water asset but less than half reported having an asset management plan. In addition, over one-third of potable water asset owners issued a drinking water advisory in 2016. According to Environment and Climate Change Canada,

most boil water advisories are issued because equipment and processes used to treat, store or distribute drinking water break down, require maintenance, or have been affected by environmental conditions. This includes issues such as broken water mains, planned system maintenance, power failures or equipment problems.

Bringing municipal wastewater systems into compliance with federal Wastewater Systems Effluent Regulations (WSER), which impose minimum standards for municipal effluent quality nationwide, is another source of pressure for some public works agencies. The effluent quality standards came into effect on January 1, 2015, but wastewater systems not meeting the standards could apply for extensions until 2020, 2030, or 2040, depending on the risk to receiving waters.

Budget 2016 included \$2 billion in short-term funding through Infrastructure Canada's Clean Water and Wastewater Fund (CWWF) to provide communities with more reliable water and wastewater systems, and \$1.8 billion over five years for clean and safe drinking water in Indigenous communities. Budget 2017 laid out the Government's plan to invest \$21.9 billion in green infrastructure, including water and wastewater systems – of which \$9.2 billion would go to provinces and territories over the next decade through bilateral agreements. Budget 2018 included an additional \$172.6 million over three years to support repairs to high-risk water systems on reserve.

But according to the Canadian Union of Public Employees, an estimated \$20 billion is needed to bring existing infrastructure in line with federal wastewater treatment

guidelines, and approximately \$50 billion will be needed to replace or upgrade aging water and wastewater infrastructure. Municipalities Newfoundland and Labrador (MNL) estimated in 2019 that between \$600 and \$700 million dollars would be needed to comply with wastewater regulations in Newfoundland and Labrador alone.

Climate change impacts will place further pressure on water and wastewater systems. According to a 2020 report by the Federation of Canadian Municipalities (FCM) and Insurance Bureau of Canada (IBC), Canada's Future: The Cost of Climate Adaptation at the Local Level, avoiding the worst impacts of climate change at the municipal level will cost an estimated \$5.3 billion per year. Drought will result in a loss of potable water amid increased demand, permafrost degradation will lead to the rupture of water lines and storage infrastructure, sea level rise will result in saltwater intrusion, and increases in rainfall and storm surge will lead to the failure of drainage systems. The report also notes that some studies have shown that for every dollar invested in mitigation measures, \$6 is saved in future damages.

- **Continue direct funding to local communities through an increase to the federal Gas Tax Fund.**
- **Expand funding programs to include operations and maintenance activities.**
- **Create a permanent federal funding mechanism to support and enhance the cost-effectiveness and sustainability of modern water and wastewater systems in communities of all sizes.**

### **Safety**

On March 8, 2019, Health Canada, in collaboration with the provinces, territories and other federal departments, updated drinking water guidelines to protect Canadians from exposure to lead. The new Guidelines for Canadian Drinking Water Quality: Guideline Technical Document – Lead reduced the maximum acceptable concentration of lead in a sample taken from the tap from 0.01 mg/L, set in 1992, to 0.005 mg/L.

The challenge for public works agencies is that their responsibility extends from the municipal treatment plant to the system of water mains and service lines in the public right-of-way that deliver drinking water to residents and businesses up to a private property line, but not to the service lines on private property or the plumbing fixtures and pipes inside those properties. Lead service lines are primarily an issue for buildings constructed before 1960, but public works agencies often do not have comprehensive records of where lead pipes are located – or the resources to cover the excavation and construction costs of replacement. Where they do, public works agencies may coordinate and provide incentives to property owners for full replacement of lead service lines, but property owners are not obligated to replace service lines or plumbing fixtures on their property and it is the public works agency or municipal utility that is accountable for the quality of the water tested at the tap.

- **Dedicate federal funding to assist public works agencies in addressing the persistence of lead in service lines and plumbing fixtures.**