



Designing for the Future: Standards for Climate Resilient Infrastructure

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About the Standards Council of Canada



- Federal Crown Corporation within the Innovation, Science, and Economic Development portfolio
- Mandate to promote efficient and effective standardization in Canada
- Advance public policy priorities: **climate change and sustainability**, mental health, AI, Data Governance, etc.



Outline & Objectives



**Case for standards for
climate resilient
infrastructure**



**Standards to Support
Resilience of
Infrastructure Program**



**How municipalities can
lead the transition to a
climate-resilient Canada**



Impacts of Climate Change on Canadian Infrastructure

4.6 B\$

Projected **annual direct costs** attributed to climate change to Canadian infrastructure by 2050. **Delayed adaptation costs** are expected to increase by 40% per decade.





National Adaptation Strategy (NAS)

Canada's strategic blueprint to build climate resilience for Canadian communities and maintain a strong economy

- Reducing the impacts of [climate-related disasters](#)
- Improving [health and well-being](#)
- Protecting and restoring [nature and biodiversity](#)
- **Building and maintaining [resilient infrastructure](#)**
- Supporting the [economy and workers](#)

By 2030:
“All infrastructure-related standards and related technical guidance are embedded with sustainability and climate resilience considerations”



The need for standards for climate resilience

- **Standards** can specify performance requirements that can be used as the integration point for climate resilience into infrastructure design.
- Canada's **National Standardization System** includes SCC and the 13 standards development organizations (SDOs) accredited by SCC to develop **National Standards of Canada (NSCs)**.
- NSCs establish **consensus-based** best practices and through **a robust accredited process**. NSCs eliminate **duplicate work** and achieve **high ROI**



High ROI: if used today, **one** standard on flood resilient design could increase Canada's GDP by up to \$234M by 2035

Standards to Support Resilience of Infrastructure Program (SSRIP)



- **Boost Climate resilience** of Canadian infrastructure through standardization
- **Support development of standards and related guidance** to safeguard infrastructure and communities against climate change impacts
- **45 Standardization initiatives delivered so far** to promote inclusion of climate resilience in infrastructure design
- **86 additional strategies** by 2028 through the phase II (2023-2028)

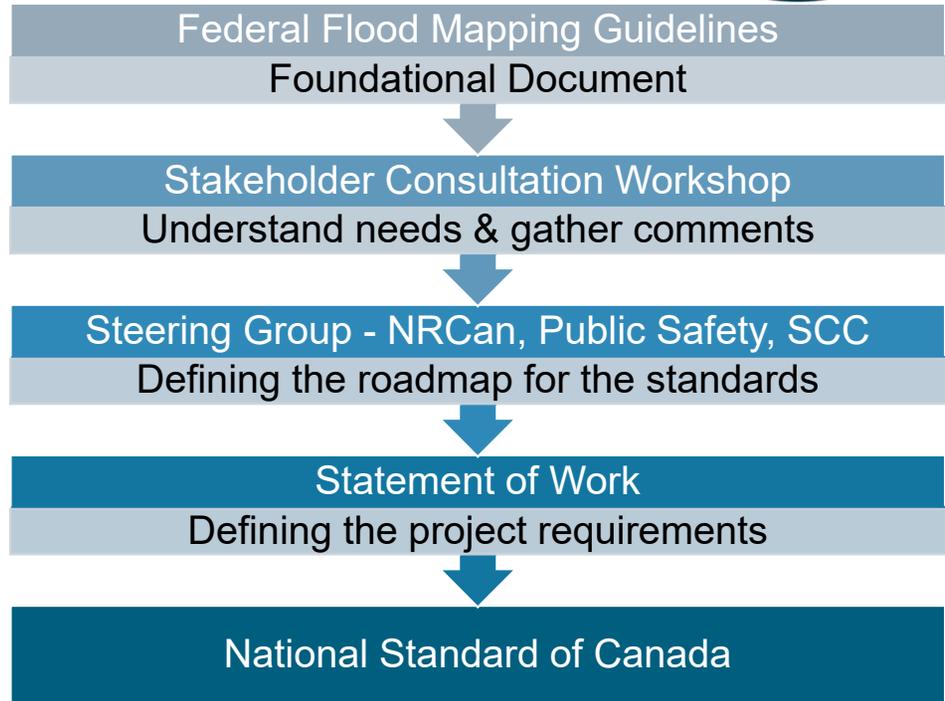
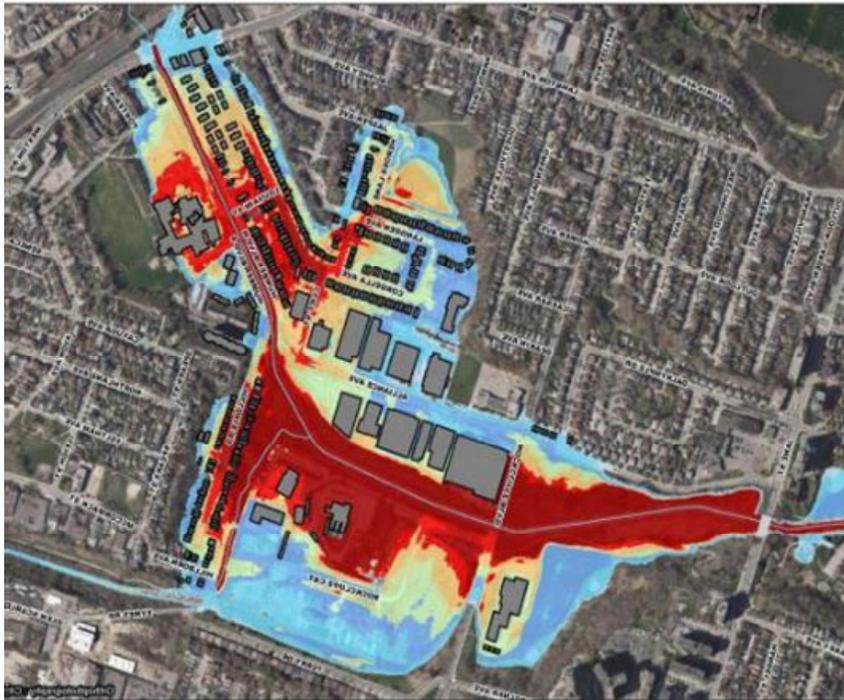
Standards to Support Resilience of Infrastructure Program (SSRIP)



1. **Strengthening infrastructure assets** against climate hazards
2. **Integrated risk management** standards to address risk at system-level
3. **Northern-specific solutions** to climate adaptation
4. **Nature-based solutions** to build climate resilience
5. **Climate resilient transportation sector**



Standardizing Flood Mapping Guidelines



National Standard of Canada to advance the Federal Geomatics Guidelines for Flood Mapping
National Standard of Canada on Airborne Light Detection and Ranging (LiDAR) Data Acquisition for Flood Mapping Purposes



Reducing the Risk of Inflow and Infiltration (I/I) in New and Sewer Construction

- Excessive I/I has numerous negative consequences, including effects on the environment, public health and safety
- Impacts are expected to worsen as a result of climate change
- National Standard of Canada to assist municipalities in the establishment of proactive I/I reduction programs



CAN/BNQ 3682-320 Mitigation of the Risks of Inflow and Infiltration in New Sanitary Sewer Systems
CAN/BNQ 3682-420 Existing Sanitary Sewer Systems — Inflow and Infiltration Mitigation Program — Guidelines



Supporting Preparedness and Response to Emergency Floods

- Flood has become Canada's costliest disaster
- **Technical Specification** for selecting, deploying and maintaining emergency flood-barriers
- Intended for **municipalities** and other organizations involved in emergency flood response





Improving Drainage in the Northern Communities

- Specific challenges for community drainage in **northern communities**
- Supported by the **Northern Advisory Committee (NAC)**
- **CSA S503** National Standard on planning, design, construction, rehabilitation and maintenance of drainage systems in Canada's North



CSA S503:20 - Community drainage system planning, design, and maintenance in northern communities



Standards, Codes and Regulation



- Unlike **codes**, standards are **voluntary by default**.
- **Become mandatory** when referenced in codes, regulations or Acts. Most infrastructure performance requirements are specified through referenced standards.
- **There is a significant time lag between the availability of a standard and its inclusion in codes/regulations.**



Potential for Municipalities to lead the adaptation efforts



- **Ownership of most public infrastructure** and high impact on private infrastructure through permitting process
- **Early adoption** of resilience standards:
 - Planning and construction of public infrastructure
 - Procurement of goods and services
 - Permitting and other authorization processes for private infrastructure
- **Raising awareness** on the need for climate adaptation



Get Involved in Climate Resilience Standardization



- **Let us know your key priorities** and identified gaps in your jurisdictions.
- **Share your success stories.** SCC can help upscale successful initiatives on resilient infrastructure.
- **Provide your expertise and feedback** on defining the requirements for these standards and related guidance documents.
- **SCC can support** resilience requirements implementation in municipal processes and regulations.



ccn  scc

Thank You

Connect with us:

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