

ADAPTING AND THRIVING IN AN ERA OF CLIMATE CHANGE

Presentation for:

Town of the Blue Mountains

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Source: VisitGrey.ca



INTACT CENTRE
ON CLIMATE ADAPTATION

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1) Brief Introduction to the Intact Centre

2) Climate Change in Canada

- Impacts of climate change
- Costs
- Scales of intervention

3) Tools Available to Assess and Address Risks

- National best practices for risk reduction
- Preparedness scoring tools
- Intact Centre resources
- Private incentives- insurance
- Government programs/ funding supports

4) Case Study

- Edmonton, Alberta
- 2015 to 2020



THE INTACT CENTRE ON CLIMATE ADAPTATION

INTACT CENTRE
ON CLIMATE ADAPTATION

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- Applied research centre on Climate Adaptation with a **national focus**
- Based at the University of Waterloo
- Launched in 2015 with a gift from Intact Financial Corporation*
- Bilingual resources

Two main goals:

1. To change the national conversation about climate change to address **climate adaptation**
2. To help **residents, businesses and all levels of government** to reduce risks associated with climate change and extreme weather events



Intact Centre on Climate Adaptation,
University of Waterloo

***The Intact Centre operates independently of all funders and does not benefit from the sale of any products or services.**



1. Canada's climate **has warmed and will warm further** in the future, driven by human influence.
2. Both past and future warming in Canada is, on average, **about double** the magnitude of global warming.
3. Warming is **effectively irreversible**.

Climate Impacts

- More extreme heat / **less extreme cold**
- **Shorter seasonal coverage of snow and ice**
- Melting of glaciers and permafrost
- Rise in sea level

Intensification of Certain Extremes

- **Intense rainfall and urban flooding**
- **Coastal flooding and erosion**
- Severity of heat waves
- Risk of drought and forest fire

FLOODING IN CANADA: COSTS

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- Average cat losses **\$400M** per annum between 1983-2009
- Average cat losses **\$1.8B** after 2010
- Over **50% losses due to flooding**
- Uninsured losses estimated at **3 to 4 times** insured costs
- **20-25%** increase insurance premiums and % low cap limit (**\$10k-\$20k**) over past 5 years

Insured Catastrophic Losses in Canada

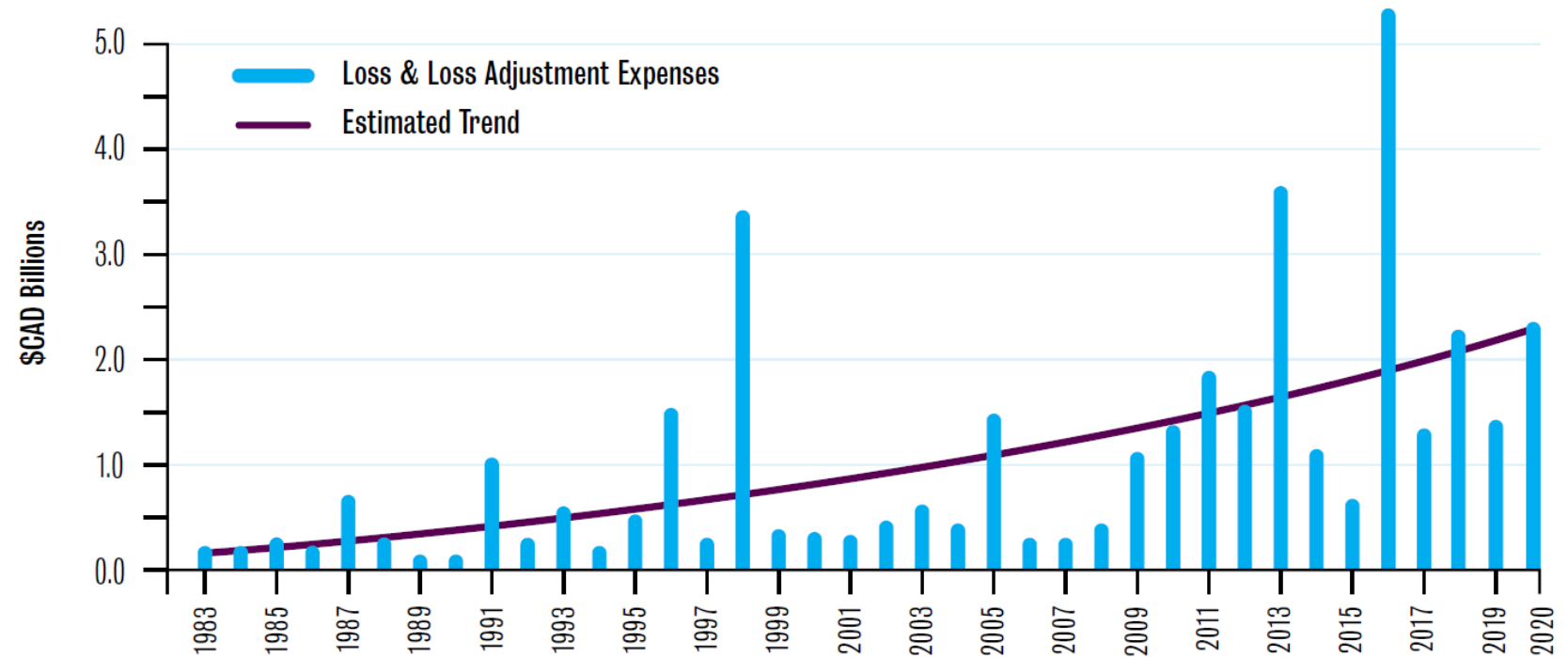
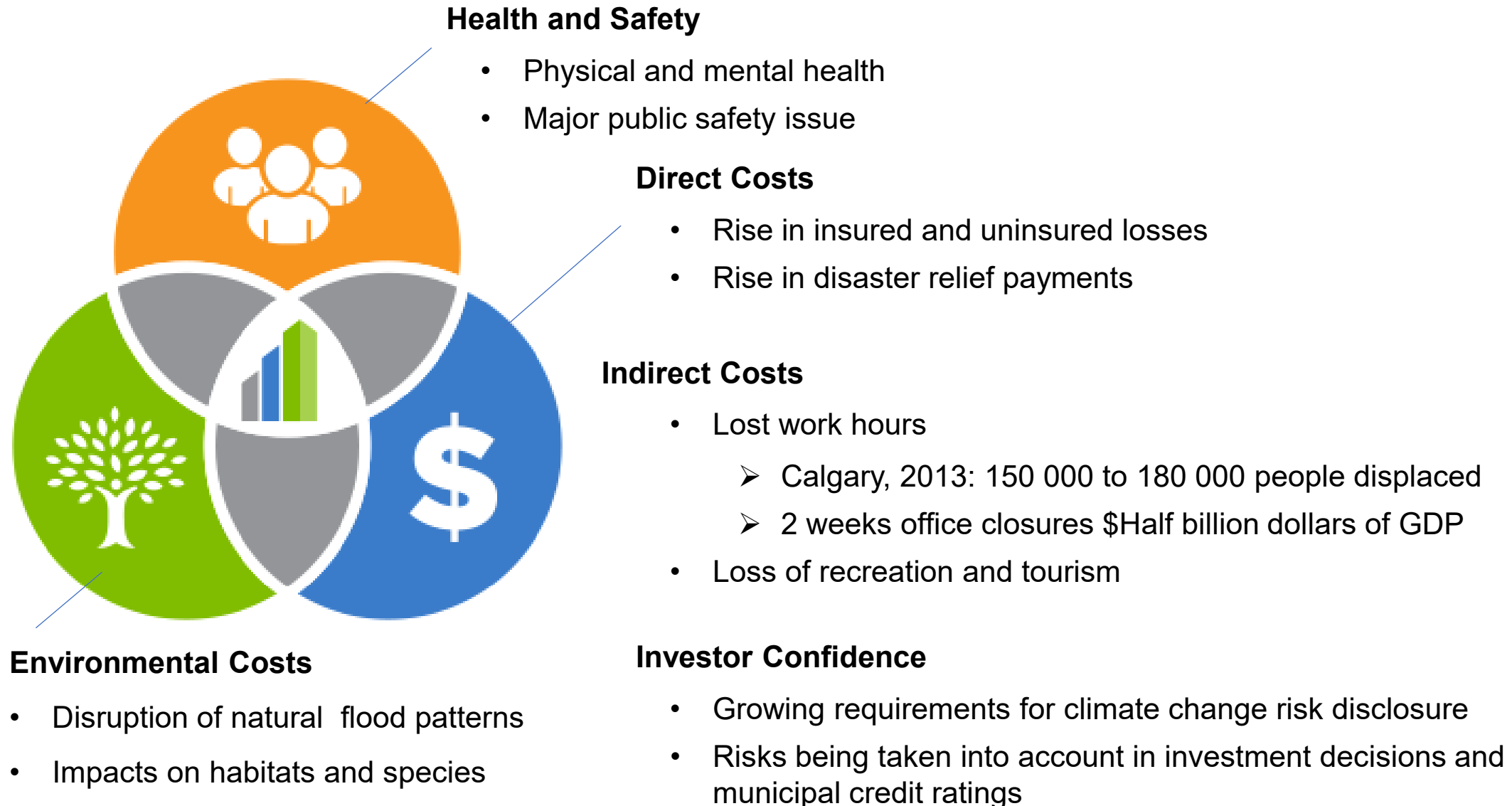


Figure 1: Catastrophic insured loss payments, Canada, 1983 – 2020. Total losses are normalized for inflation (\$2020 CAN) and per-capita wealth accumulation, as of November 2020. Source: CatIQ, PCS, IBC Facts Book.

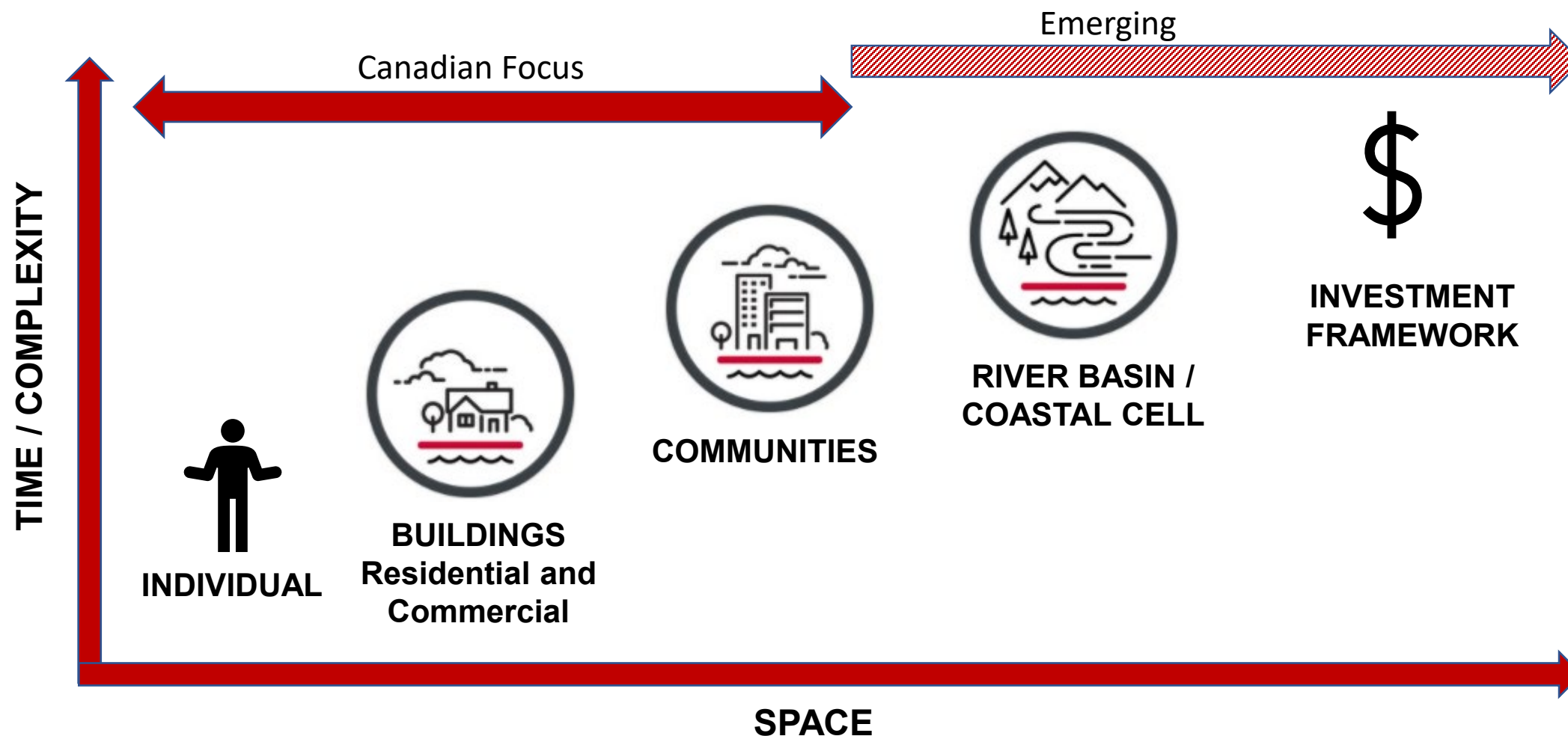
FLOODING IN CANADA: COSTS

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FLOOD RISKS: ADAPTING AT DIFFERENT SCALES

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*Icons from "Calgary – Flood Resilience Plan"

Source: <https://www.calgary.ca/uep/water/flood-info/mitigation-and-resilience/flood-projects.html>

INTACT CENTRE RESEARCH CONTRIBUTES TO NATIONAL FLOOD RISK MITIGATION STANDARDS

INTACT CENTRE
ON CLIMATE ADAPTATION

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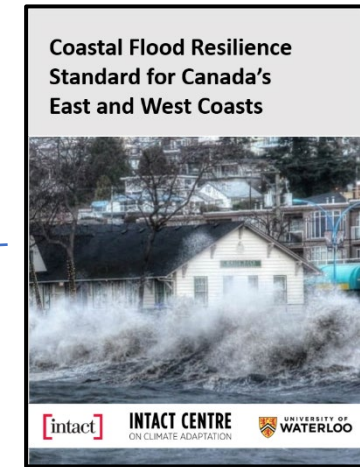
National Standards Development



- ICCA research contributes to development of National Standards
- 50-100 subject matter experts per Standard



Home



2021: Coastal Resiliency



New Community



Existing Community



Commercial Real Estate



Natural Infrastructure

HOME WATER DAMAGE FAST FACTS

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Did you know?

- Water surpassed fire as Canada's most common cause of insurance claims over 20 years ago
- The majority (60%) of water claims are caused by **leaking appliances and water pipes** and the remainder are split between **sewer back-ups, sump pump failure** and **overland flooding caused by heavy rainfall**
- All Canadian homes are at risk of flooding from the above risks
- Roughly 5% of Canadian homes face **additional risks due to overland flooding** from rivers, lake and oceans
- Average cost of repairing damage from a basement flood in Canada **\$43,000** (IBC, 2020)



SIMPLE SELF-HELP MATERIALS DEVELOPED TO SUPPORT RESIDENT ACTION TO PROTECT HOMES

TOP ACTIONS TO REDUCE FLOOD RISK

Step 1: Maintain What You've Got at Least Twice per Year

**Do-It-Yourself
for \$0**



Remove Debris from
Nearest Storm Drain



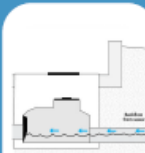
Clean Out Eaves
Troughs



Maintain Plumbing,
Fixtures and
Appliances



Test Your Sump Pump



Clean Out Your
Backwater Valve

Step 2: Complete Simple Upgrades

**Do-It-Yourself
for Under \$250**



Install Window Well
Covers



Extend Downspouts
and Sump Discharge
Pipes at Least 2m from
Foundation



Store Valuables and
Hazardous Materials in
Water-tight Containers or
Remove from
Basement



Remove Obstructions
to Basement Floor
Drain



Install and Maintain
Flood Alarms

Step 3: Complete More Complex Upgrades

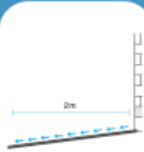
**Work with a
Contractor for
Over \$250**



Install Window Wells
that Sit 10-15 cm
Above Ground and
Upgrade to Water
Resistant Windows



Disconnect Downspouts,
Cap Foundation Drains
and Extend Downspouts
to Direct Water at Least
2m from Foundation



Correct Grading to
Direct Water at Least
2m Away from
Foundation



Install Backwater
Valve



Install Backup Sump
Pump and Battery

INCREASING FLOOD INSURANCE LITERACY



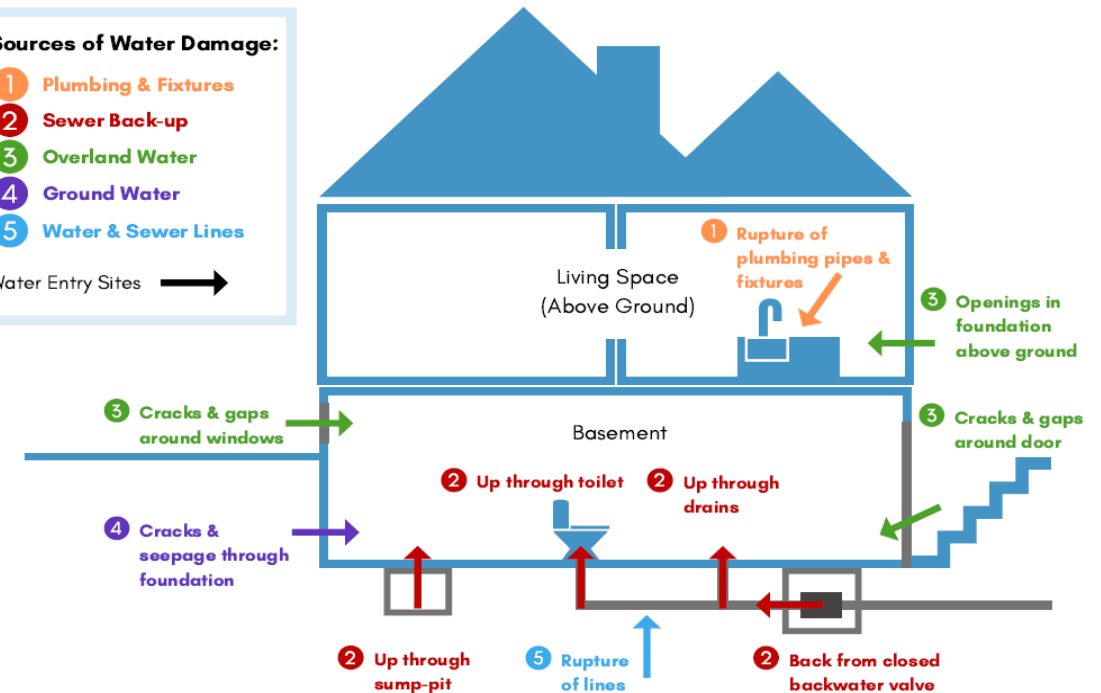
Understanding Water Damage Insurance Coverages

This information is being provided to help you understand the different types of water damage risks at your home and the types of water damage coverages that may be available from insurers. It is intended as a starting place for discussion with your insurer to determine which kind of coverages might be right for you.

Sources of Water Damage:

- 1 Plumbing & Fixtures
- 2 Sewer Back-up
- 3 Overland Water
- 4 Ground Water
- 5 Water & Sewer Lines

Water Entry Sites →



SIMPLE TOOL TO ASSESS AND REDUCE RISK OF FLOOD DAMAGE AT THE LOT LEVEL

What is the Home Flood Protection Check-Up?

The Home Flood Protection Check-up is a free, confidential, VISUAL home flood risk assessment tool developed by the Intact Centre on Climate Adaptation at the University of Waterloo.

- Looks at the 15 most common flood risks to homes
- Applicable to all Canadian homes
- *Does not include risks posed by river or coastal flooding*

How can residents complete an assessment?

- Click on the link in English (homefloodprotect.ca/checkup) or French (homefloodprotect.ca/fr)
- Take 5-10 minutes to answer a series of yes or no questions about flood risks inside and outside of the home
- Have a confidential, custom home flood protection report emailed to you or download it onto your device



FLOOD PROTECTION BARRIERS RESOURCE LIST

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What are they?

A physical barrier that is installed temporarily during an emergency situation

- **Opening Barriers:** Block water from entering an opening in a building (e.g. windows, doors, drains)
- **Perimeter Barriers:** Block water from flowing onto a property

When are temporary barriers used?

- Installed ahead of flooding events caused by rainfall, riverine and coastal to reduce flood damages
- Advance notice requirements vary widely because barrier installation times can range
 - Minutes (click-in door barriers)
 - Days (thousands of sandbags along waterfront properties)



Roll down temporary opening barriers installed at a riverside home, Edmonton, Alberta. Source: Guy Bridgeman, 2020

Burlington, Ontario (2018)

- Door-to-door and social media campaigns
- Educational booths at community events
- Subsidized home flood protection assessments
- Home flood protection subsidies (Halton Region)

Antigonish, Nova Scotia (2020)

- Hosting of Home Flood Protection community education webinar
- Distribution of “Three Steps” Infographic in tax notices, community centres, local hardware store, community newsletters

Drumheller, Alberta (2021)

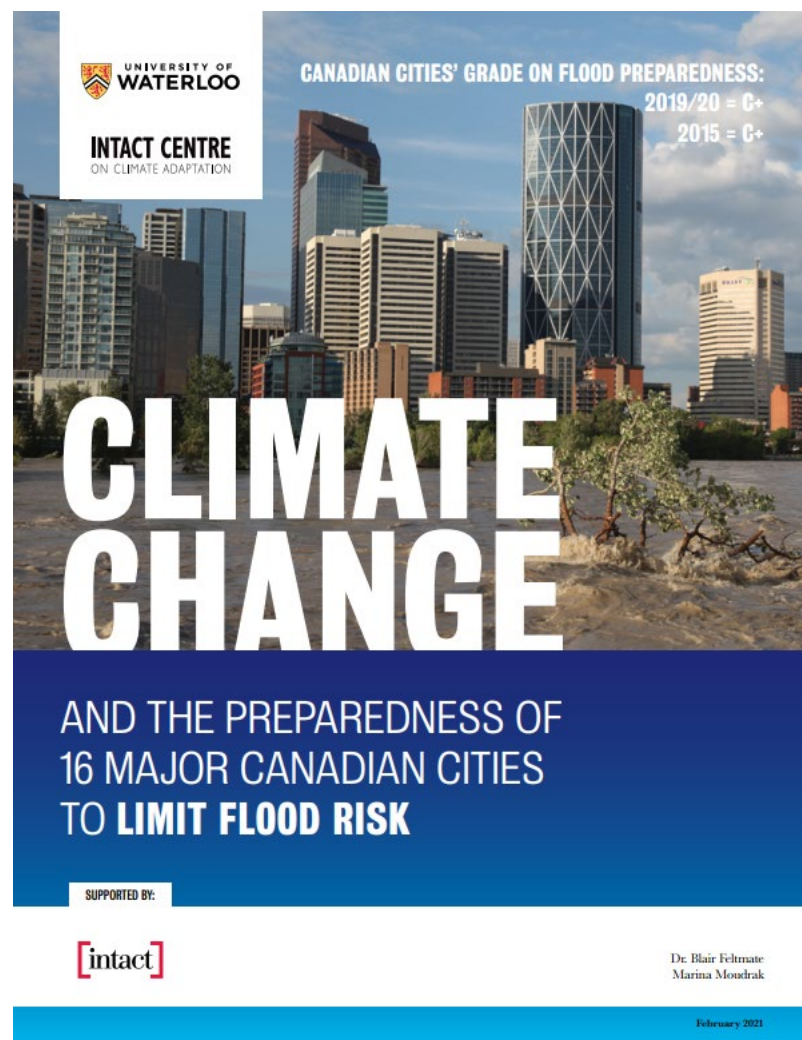
- Canadian Tire, Town of Drumheller, local public school, Province of Alberta, Public Safety Canada home flood protection education campaign during Emergency Preparedness Week (May 3-9)
- #FloodFail & #FloodFix photo and colouring contests
- Canadian Tire- Flood protection items featured and on sale, ask the expert call in event featuring local plumber, electrician, home inspector



Canadian Red Cross volunteers go door-to-door to educate residents about home flood protection, Windsor, 2019

FLOOD PREPAREDNESS OF 16 CANADIAN CITIES

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2019/20 Canadian Cities Average **C+**



EDMONTON, ALBERTA IMPROVES FLOOD PREPAREDNESS

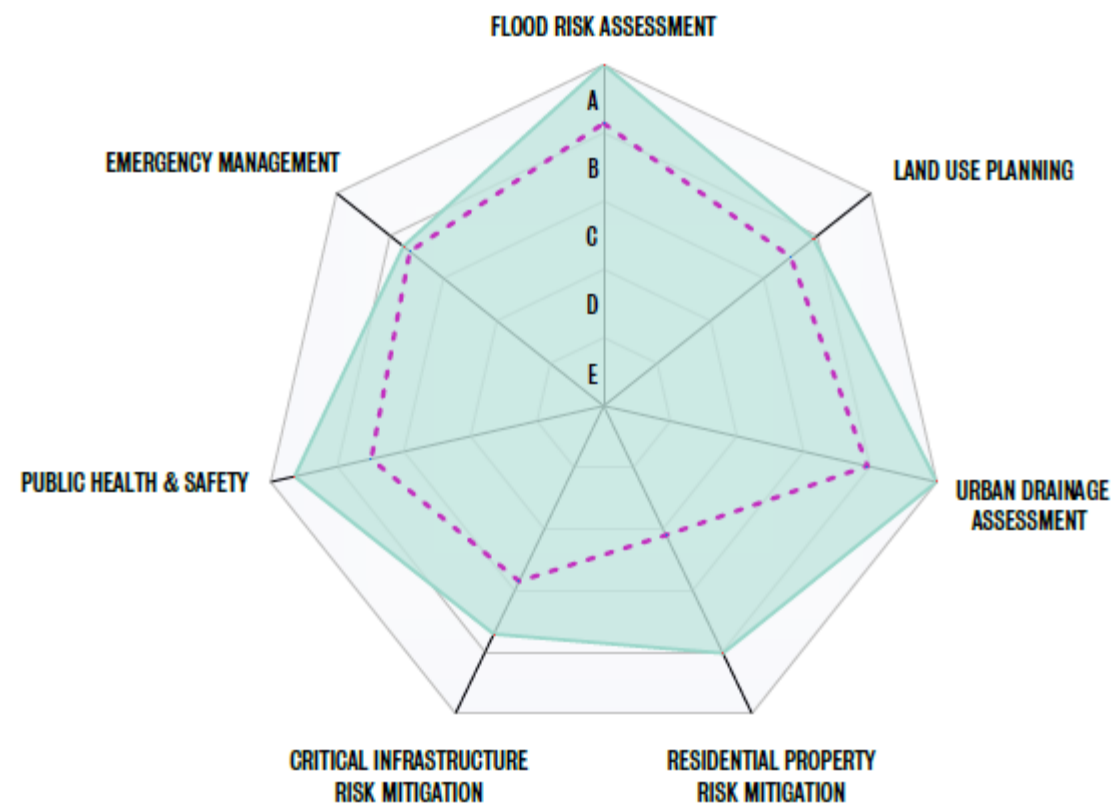
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2015 Flood Preparedness Score C



Source: Preparedness of 15 Cities to Limit Flood Damage, 2015

2020 Flood Preparedness Score B+



Source: Climate Change and the Preparedness of 16 Cities to Limit Flood Risk, 2021

HOME FLOOD RESILIENCE INSURANCE DISCOUNTS

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Coverage Limits

- Strict limitations already imposed on flood insurance availability in zones at higher risk of flooding
- Low cap limits imposed or cancellation of flood insurance for properties with chronic flooding

Premium Discounts

- National best practices for home flood resilience already being rewarded by a growing number of insurance companies
- Discounts of up to 15% available on home insurance premiums

Examples of Current Flood Resilience Insurance Discounts

Category	Flood Protection Measures
Sump Pumps	Sump pump
	Sump pump with monitored alarm
	Backup sump pump
	Backup power source for sump pump
	Sump pump discharge >1.8m or to nearest swale
Backwater Valves	Backwater valves
	Backwater valve with monitored alarm
Overland Drainage	Downspout extension >1.8m or to nearest swale
	Sump pump discharge >1.8m or to nearest swale
Plumbing and Fixtures	Automatic water shut off
	New water tank
	Tankless hot water heater

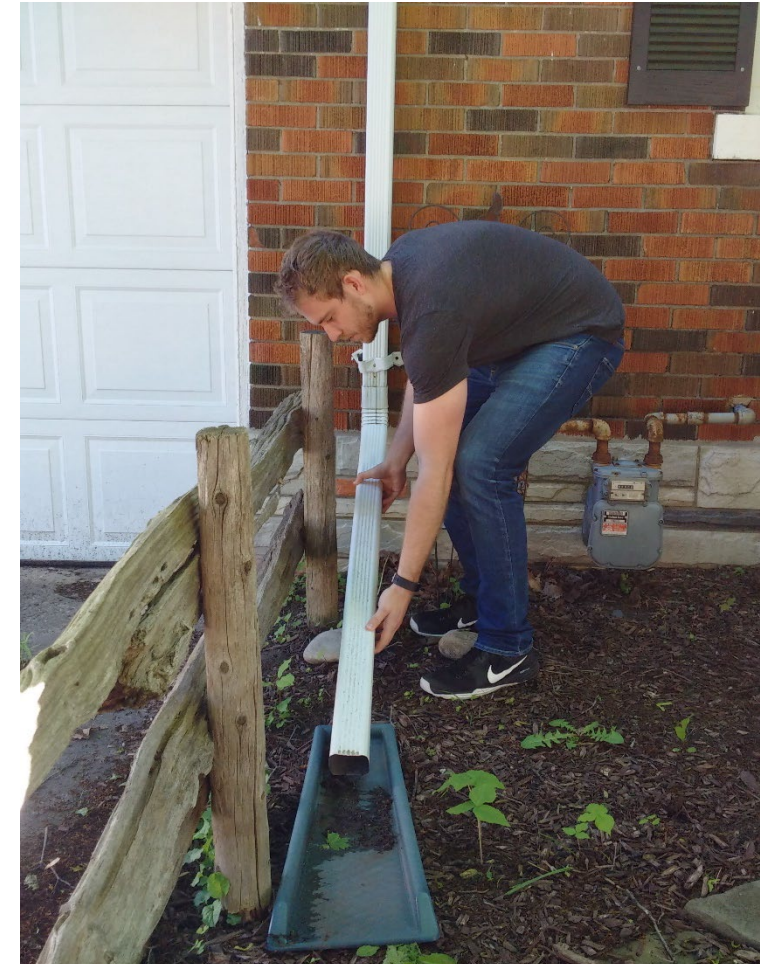
FEDERAL GOVERNMENT SUPPORT FOR CLIMATE RESILIENT HOMES AND COMMUNITIES

2020 Speech from the Throne & Fall Economic Statement

- Government of Canada committed to help Canadians **undertake retrofits on their homes** to make them **more energy efficient** and **climate resilient**.
- **\$2.6 Billion** over next 6 years, **evolving to integrate climate resiliency measures**
- Grants of up to **\$5,000 per home**

April 2021 Federal Budget

- **\$4.4 Billion** interest free loans up to a maximum of **\$40,000** to help homeowners complete deep home retrofits for **energy efficiency** and **climate resiliency**
- **\$1.4 billion** over 12 years to extend the **Disaster Mitigation and Adaptation Fund** with **almost half** dedicated to smaller scale projects



COMPETITIVE ADVANTAGES OF SUSTAINABLE COMMUNITIES

Growing Awareness and Demand

- **Growing awareness** of public and private sectors of risks associated with climate change
- **Growing demand** from residents and business owners for climate-resilient, nature-filled, safe, socially vibrant, affordable locations

Competitive Advantages

- ✓ **Insurance Discounts**- Potential for residents, business and municipal insurance discounts from a growing number of insurers
- ✓ **Mortgage Qualification** - Improved insurability of mortgages
- ✓ **Higher Investor Confidence**- Increased investor confidence linked to higher resilience scores
- ✓ **Positive Media Coverage** - Climate resilient community innovation= Free case study media coverage, awards



Flooding downtown Calgary, 2013 Source: Kelly Skar



1.2 B in insured hail damages, Calgary, June 13, 2020

CLIMATE ADAPTATION RESOURCES

www.IntactCentre.ca

- ✓ Climate Adaptation Best Practice Guidance
- ✓ Provincial and Municipal Flood Preparedness Reports (including self-assessment protocols)

www.HomeFloodProtect.ca

- ✓ Flood Protection Fact Sheets and How-to Videos
- ✓ Flood Risk Self-Assessment Tool
- ✓ Flood Protection Training
- ✓ Temporary Flood Protection Barrier Resources
- ✓ Shareable Social Media Content
 - Twitter [@ICCA_Canada](https://twitter.com/ICCA_Canada)
 - Facebook [@HomeFloodProtect](https://www.facebook.com/HomeFloodProtect)
 - [Social media toolkit](#)



Homeowner Margaret Banks demonstrates how to clean a backwater valve, 2017