THE BUSINESS OF CLIMATE RESILIENCE AND ADAPTATION

Ontario Climate Consortium
May 11, 2015

Cement Association of Canada

CONCRETE
even smarter than you think™

OUTLINE

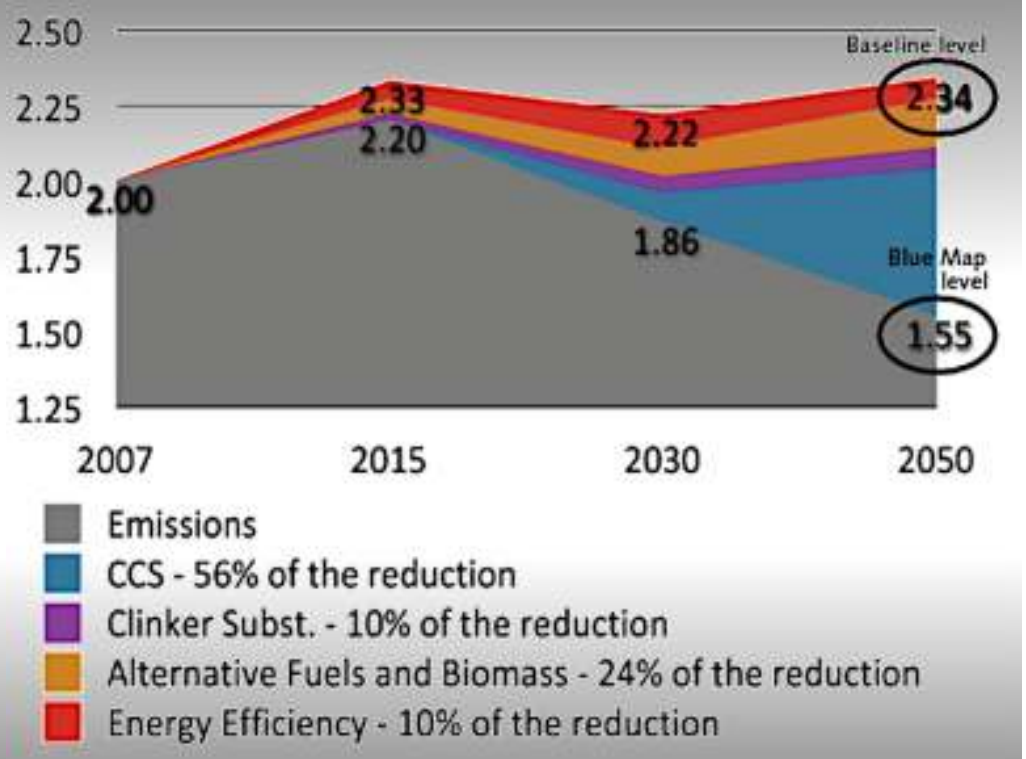
- About cement and concrete
- Cement and GHGs
- The Resilience Imperative
  - Threats
  - Opportunities
- The role of integrated planning and design using Life Cycle Assessment

ABOUT CEMENT AND CONCRETE

CEMENT MANUFACTURING

MITIGATION MATTERS

- Cement & GHGs
  - Process
  - Combustion
  - Incidental (e.g. transportation)
- Drivers
  - Social license
  - Carbon pricing
  - Lifecycle approaches to public policy and investment

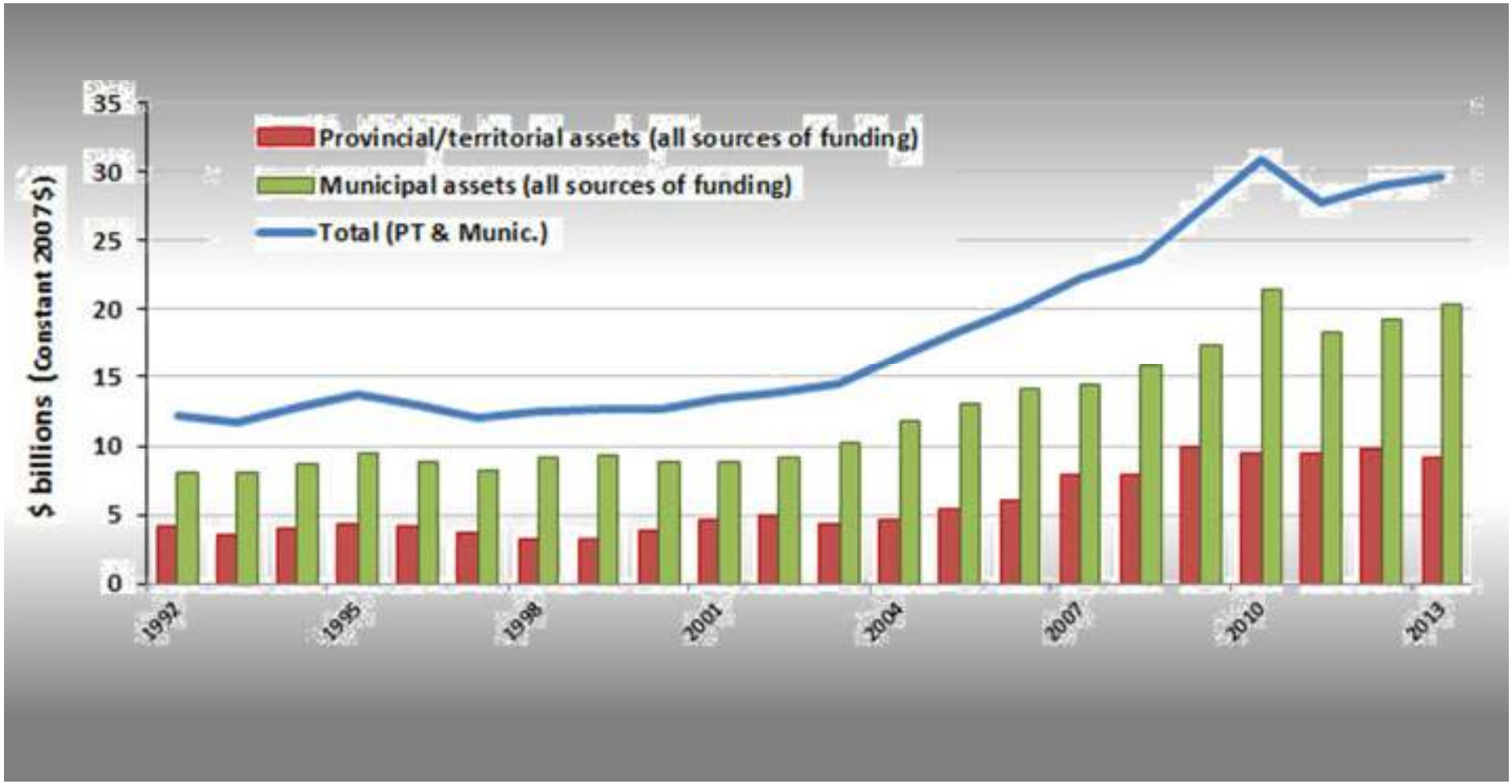


THE RESILIENCE IMPERATIVE: OPERATIONAL THREATS

- Business Continuity
  - Existential threats to the economy
  - Product performance
  - Access to water for production & shipping
  - Extreme weather
    - Physical (e.g. Calgary floods)
    - Health & Safety (e.g. extreme heat)

NEW EQUIPMENT AND INFRASTRUCTURE

BILLIONS IN CORE EXISTING AND FUTURE INFRASTRUCTURE INVESTMENTS



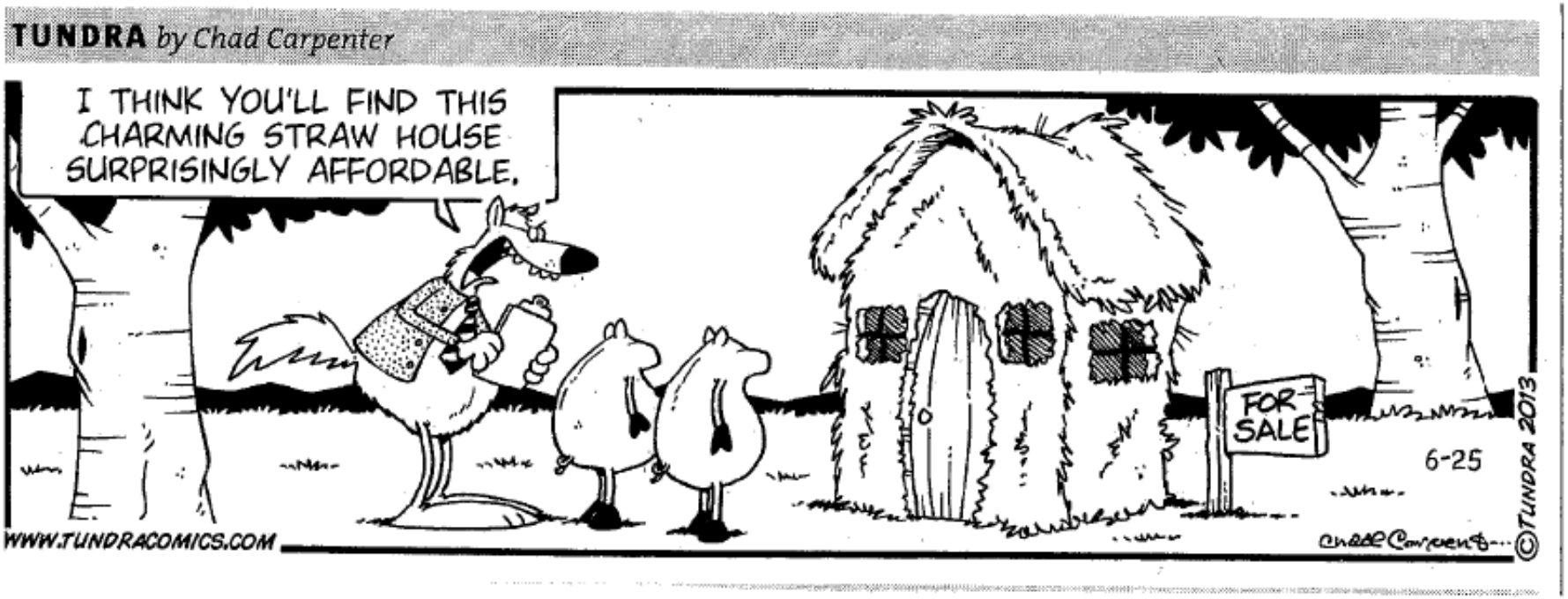
NEW APPROACHES TO INFRASTRUCTURE

- *"... decision makers at all levels must recognize that climate change and the resulting increase in risks from extreme weather have eliminated the option of simply building back to outdated standards and expecting better outcomes after the next extreme event."*
  - *Hurricane Sandy Rebuilding Task Force*

PLANNING & INVESTMENT DECISIONS

- Growing complexity means infrastructure planning and investment must evolve
  - Traditional “initial cost” model no longer viable
  - Need tools to identify how to “Build it once. Build it right. And build it to last.”

INITIAL COST DECISION MAKING

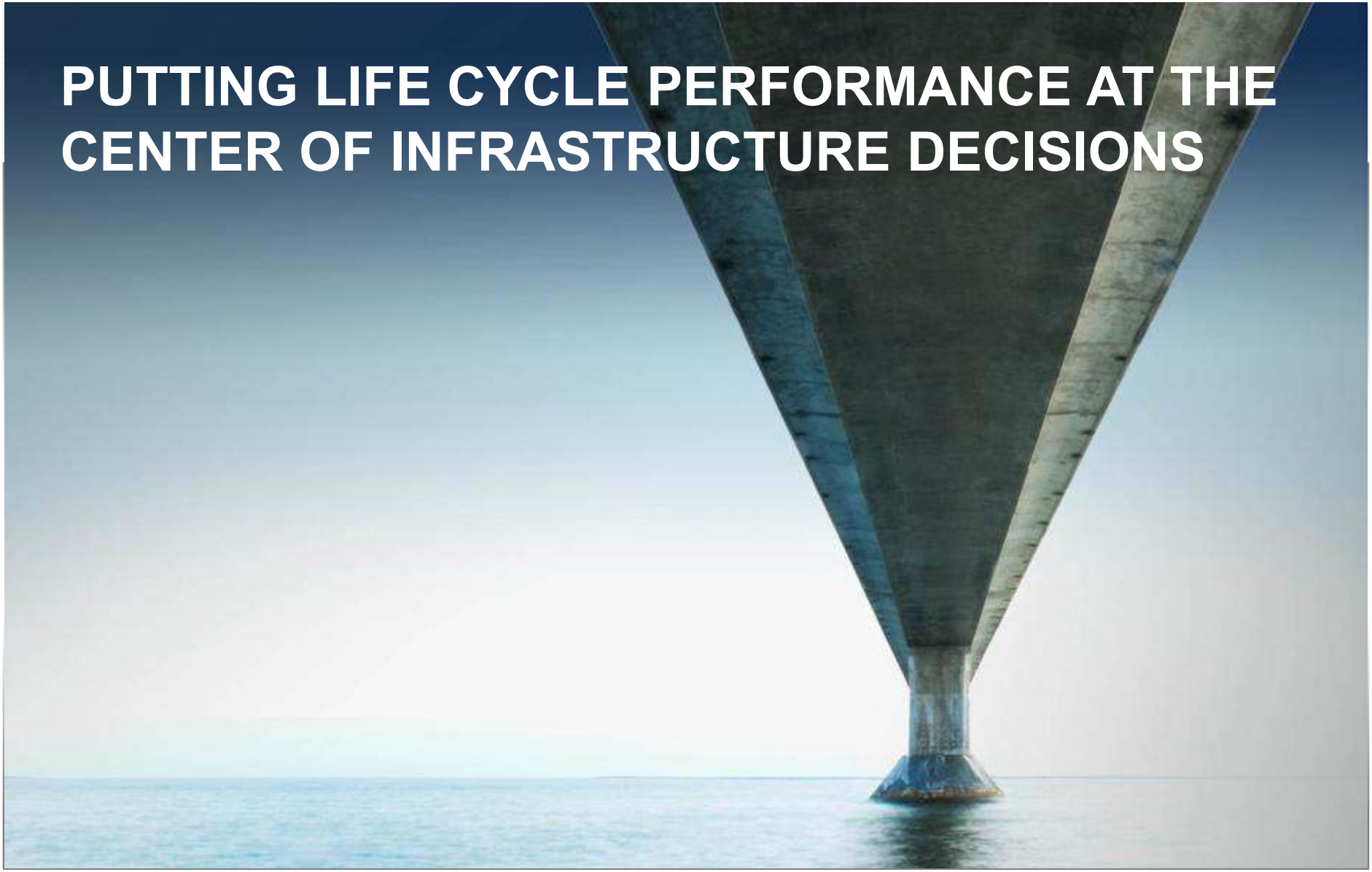


THE CONCRETE ADVANTAGE

- Building better, higher value, resilient and sustainable buildings and infrastructure often favours concrete
- Proactively focusing on an alignment between our industry interests and the broader public interest in mitigating and adapting to climate change
  - Price on carbon
  - Life Cycle Decision Making tools

HOLCIM DUFFERIN AGGREGATES MILTON QUARRY EXPANSION

PUTTING LIFE CYCLE PERFORMANCE AT THE CENTER OF INFRASTRUCTURE DECISIONS



Cement Association of Canada

CONCRETE
even smarter than you think™

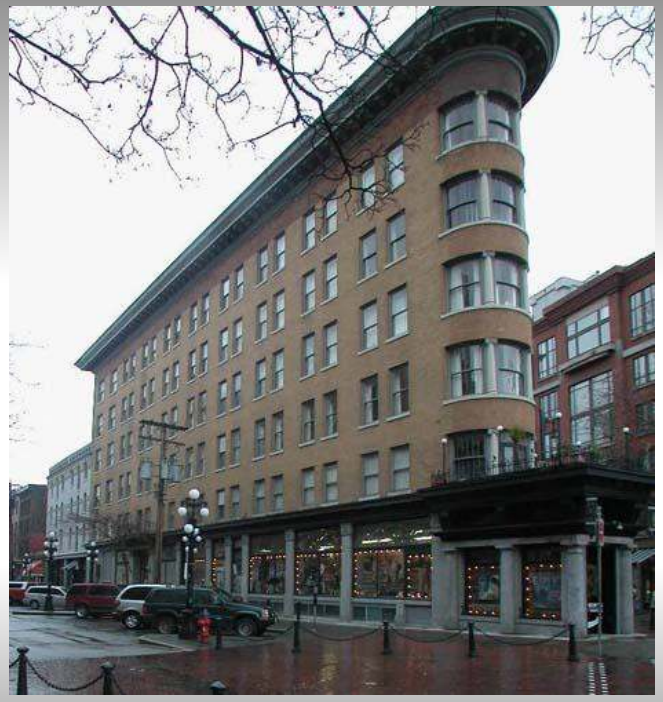
PRICE VS VALUE: PLANNING WITH CLIMATE RESILIENCE IN MIND

Sinkhole, Ottawa Highway 174, 2013

SUSTAINABLE AND RESILIENT BUILDINGS

- Concrete's thermal mass naturally moderates indoor temperature
- Drives >70% efficiency improvement over model code when paired with smart design and technology
- Improves "passive survivability" - a building's ability to maintain critical life-support conditions if services such as power, heating fuel, or water are lost

SUSTAINABLE AND RESILIENT BUILDINGS



Hotel Europa, Vancouver – the first reinforced concrete structure in Canada. Constructed 1908-09

Concrete's durability, energy efficiency and resistance to damage reduce operational energy use and insurance costs and can reduce overall cost of ownership

Platinum LEED Maison du development durable, Montreal. Savings on fire mitigation estimated at $2 million. Designed to be the most energy efficient building in Canada

Cement Association of Canada

CONCRETE
even smarter than you think™

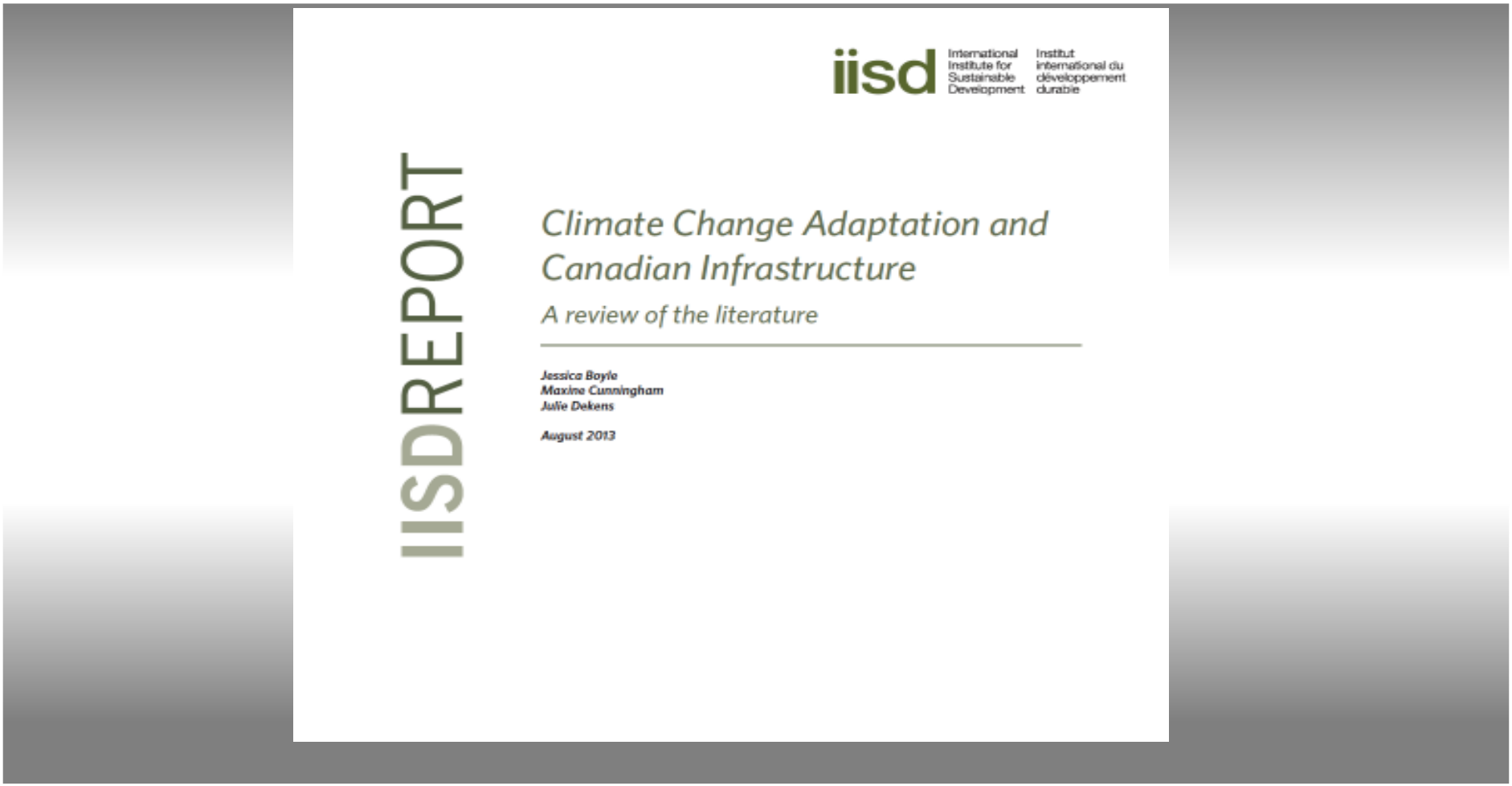
SUSTAINABLE AND RESILIENT PAVEMENTS

- Longer service life
- Less-frequent maintenance & rehabilitation
- Less traffic disruption
- Lower consumption of raw materials
- Lower energy consumption
- 3-7% fuel efficiency – significant GHG savings

Highway 410 – Ontario

PERVIOUS PAVEMENT FOR STORM WATER MANAGEMENT

IISD REPORT



THANK YOU!

ADAM AUER
DIRECTOR, SUSTAINABILITY
CEMENT ASSOCIATION OF CANADA
AAUER@CEMENT.CA

www.cement.ca
www.rediscoverconcrete.ca

Cement Association of Canada

CONCRETE
even smarter than you think™