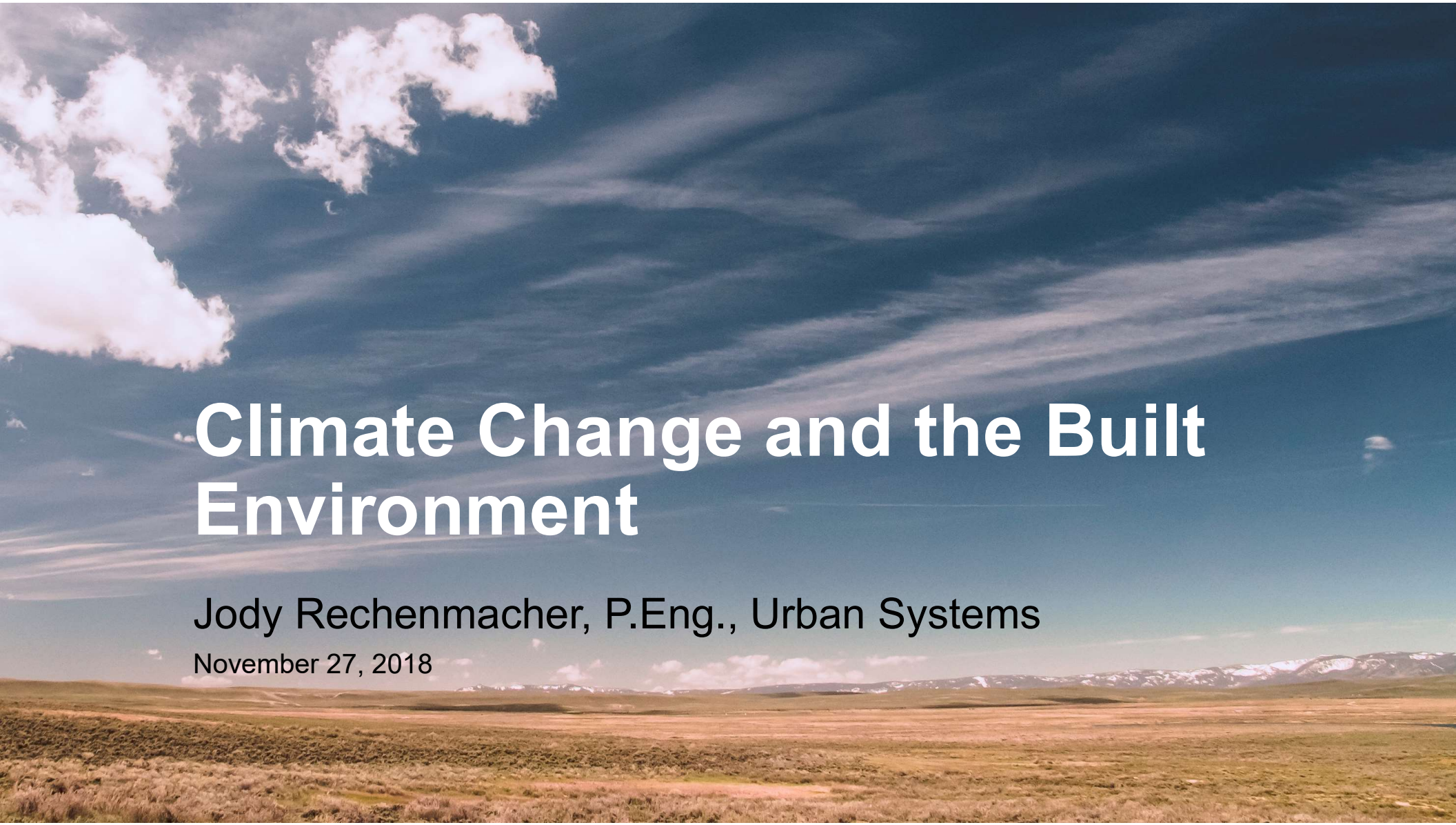

Climate Change and the Built Environment

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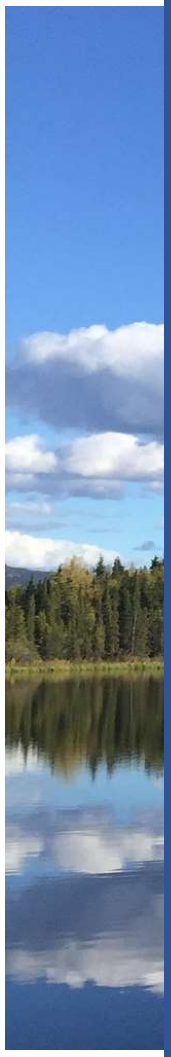
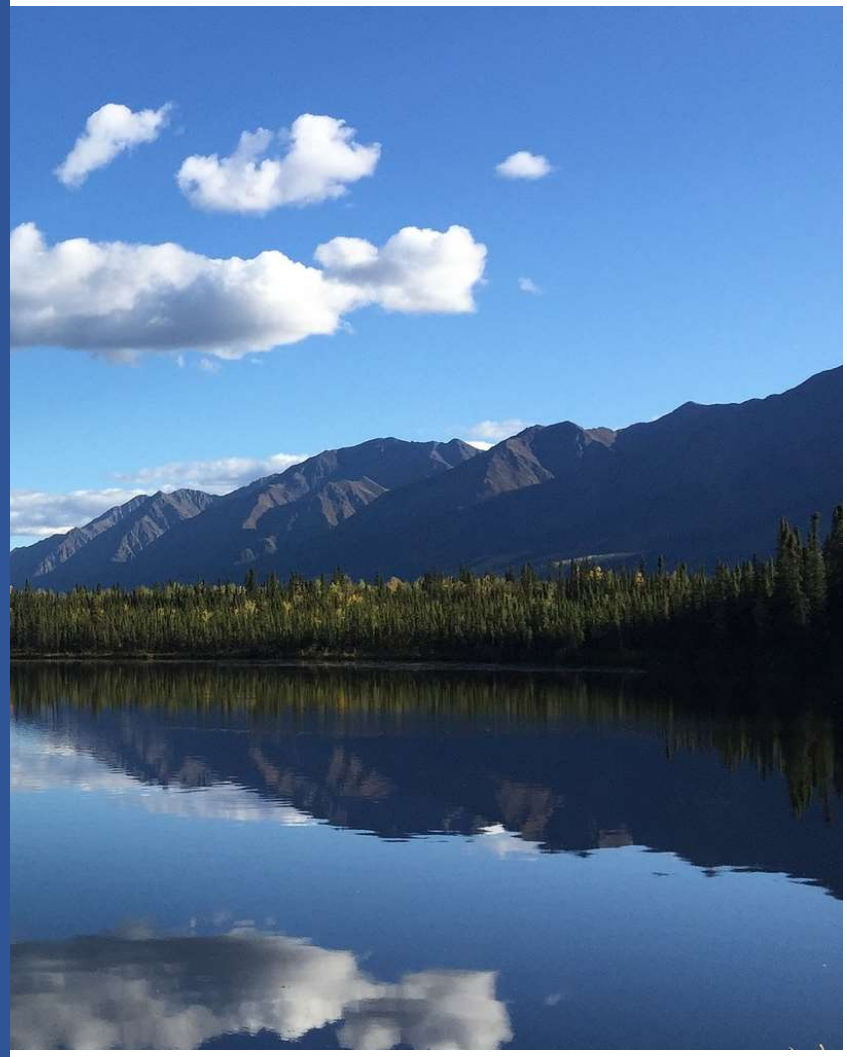
First, some questions for you

1. Who represents an organization that owns built environment assets?
2. Who relies on assets to deliver services?
3. Who has a clear understanding of how climate change will impact these assets, and what the vulnerabilities and risks are?
4. Who has a plan for managing these risks?
5. Who is confident that the plan will be implemented?

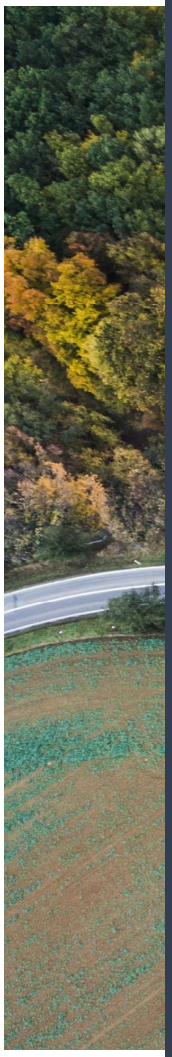
Outline

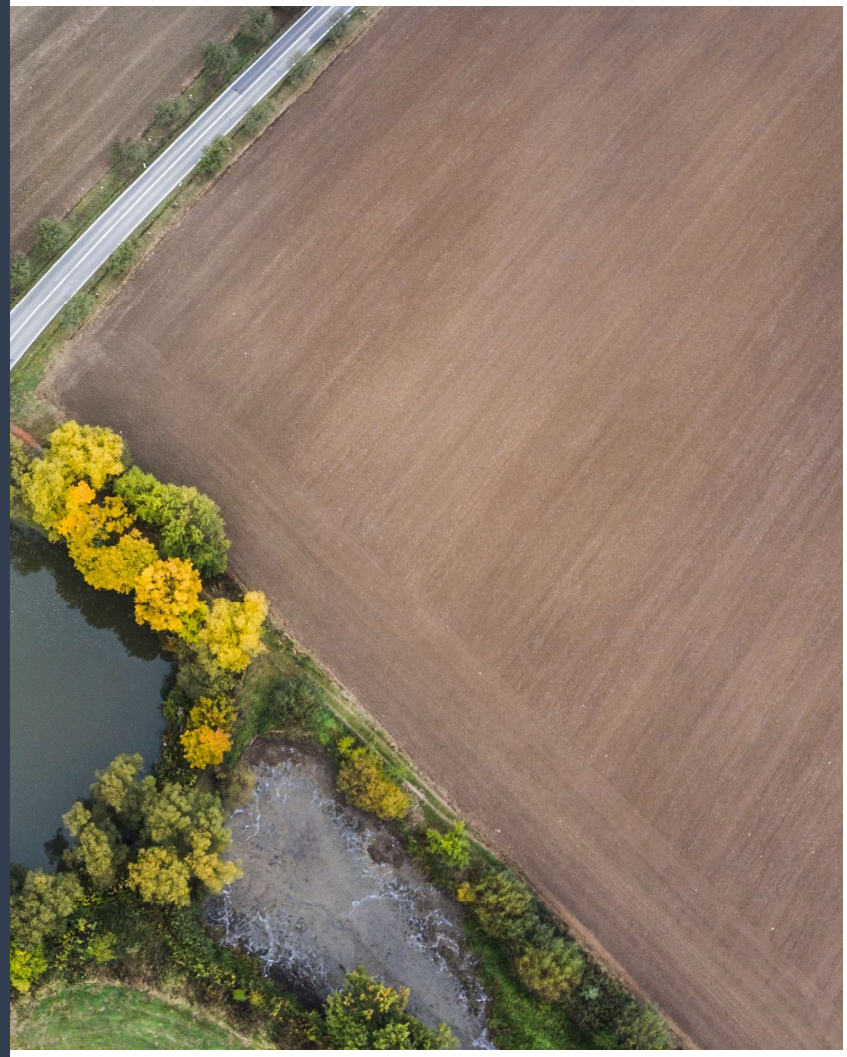
1. What are the impacts?
2. Why is it important to prepare?
3. Why is it difficult?
4. What can be done?



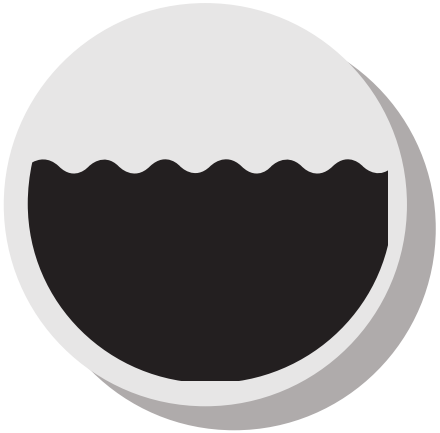


What are the impacts?





We tend to think about the “acute” impacts of major events.

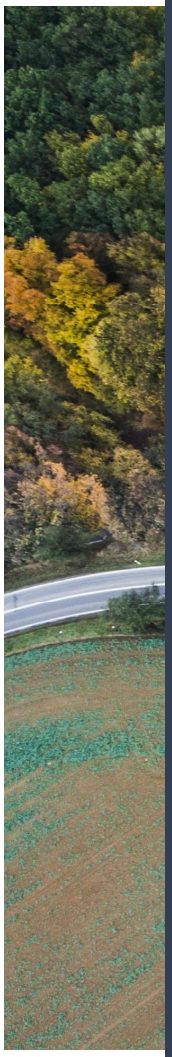


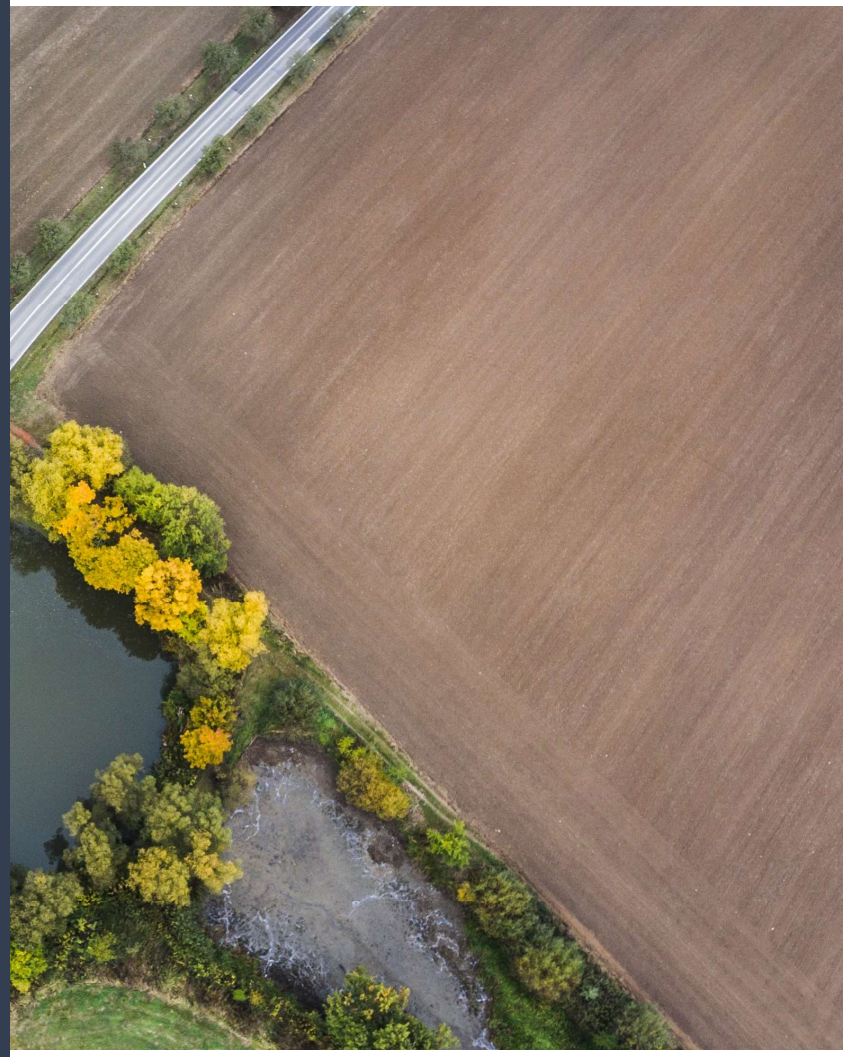
Climate is a basic design parameter for all elements of the built environment.

“Chronic” impacts

- High temperatures decrease the lifespan of asphalt on roads
- Increased stress on cooling systems in buildings, and increased energy use
- Change of demand on recreation and community facilities as cooling centers or air quality shelters
- Increased inflow and infiltration to wastewater systems, leading to surcharges, basement flooding, and environmental discharge
- Increased localized flooding of drainage systems, leading to further damage to roads, trails, and buildings
- Increased invasive species in parks and watersheds

Why is it important to prepare?





Infrastructure exists for service delivery

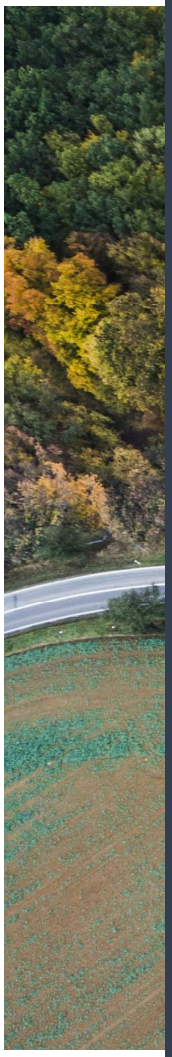
Changing climate means changes in service delivery.

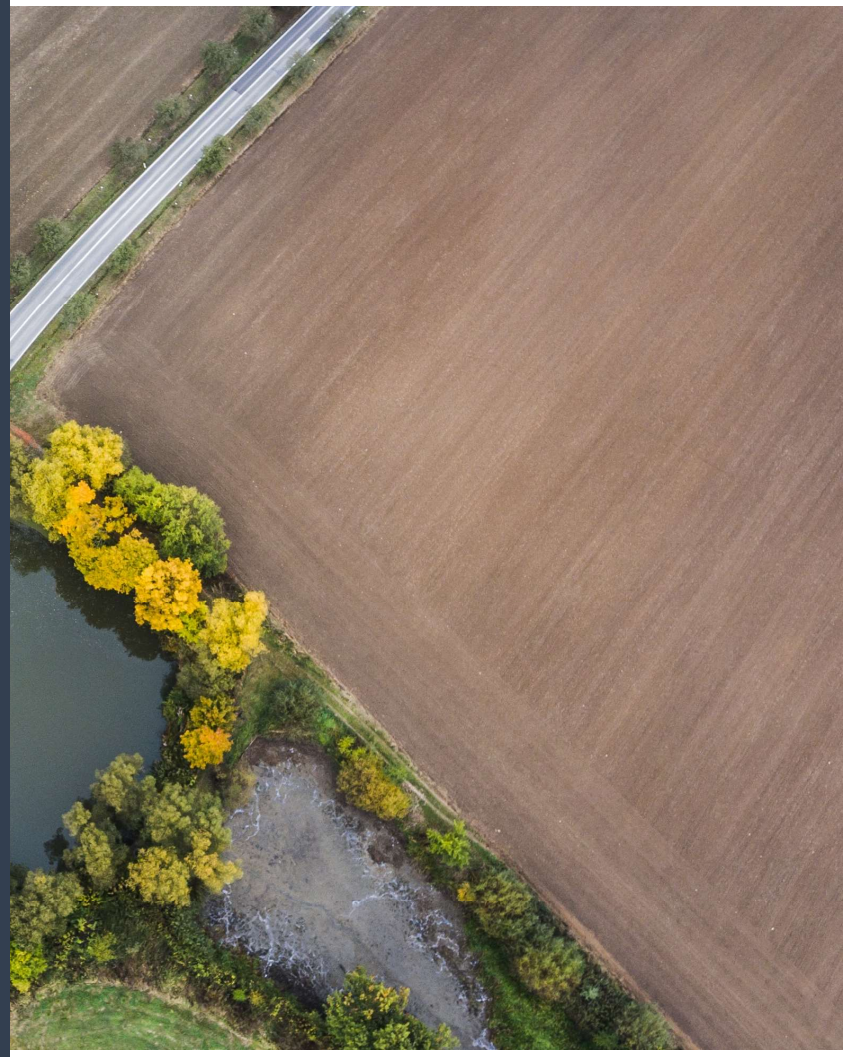
Planning for future demands

Built environment assets are significant financial investments and last a long time.

The sooner we begin planning for climate change, the more opportunities we have to make decisions that build the resilience of our communities to climate change.

Why is it difficult?





It can be confusing

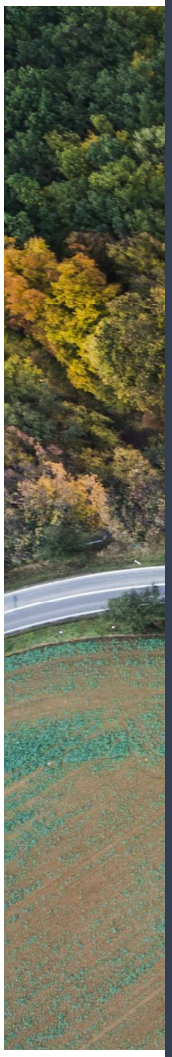
- Making sense of the science and statistics
- Knowing who to talk to
- Knowing about existing resources and how to use them
- Vulnerability? Risk? Resilience? Adaptive capacity? Sensitivity?

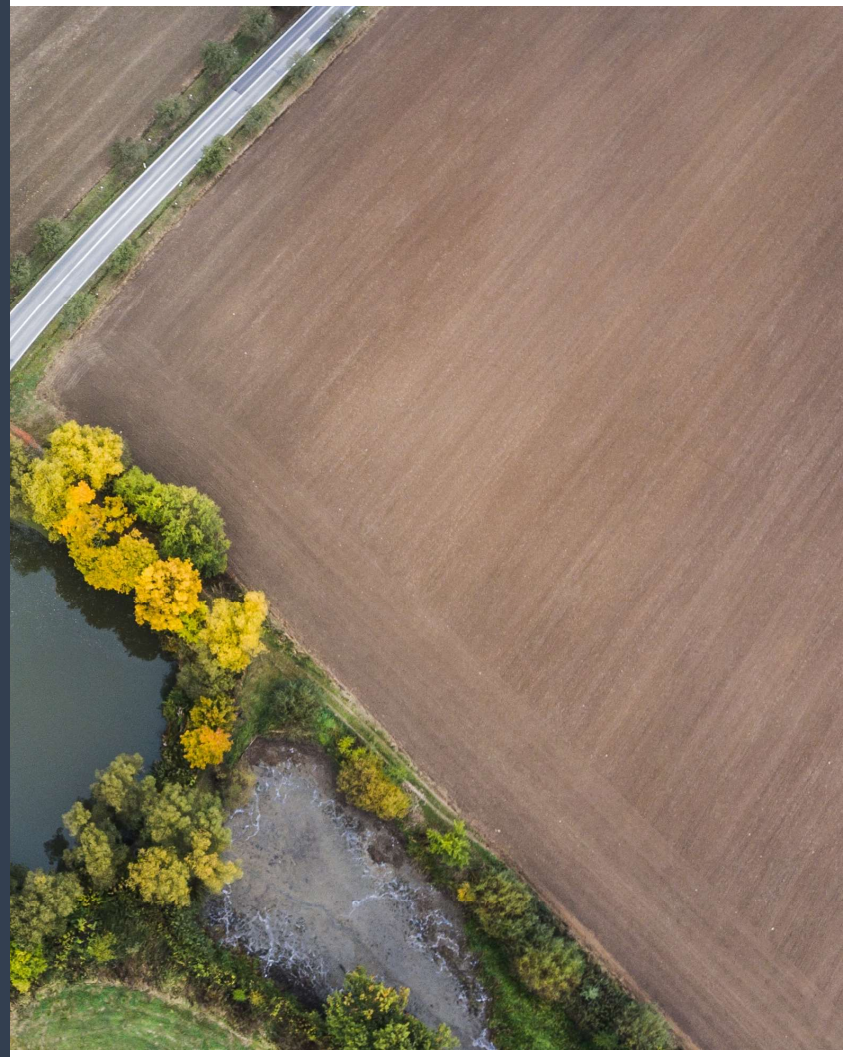
There’s a lot of uncertainty

1. How will the climate change?
2. When will the changes start having a significant impact?
3. How will our infrastructure respond?
4. How much will it cost to adapt?
5. What are we legally required to do?
6. What is the political will?

So many priorities…

What can be done?





Collaboration with experts

1. Make sense of the climate projections for your community
2. Develop a clear picture of the assets you rely on to deliver services, and the state of these assets
3. Identify vulnerabilities and risks

Internal collaboration

Integrate climate change adaptation (and mitigation) into asset management practices across the full asset lifecycle:

- Community planning
- Design
- Construction / procurement
- Operations
- Preventative maintenance
- Asset renewal

Asset management provides a framework for making decisions about how to best use limited resources, helps to manage liability, and improves response to natural disasters.

Local collaboration

Work with other service agencies, governments, and the private sector to:

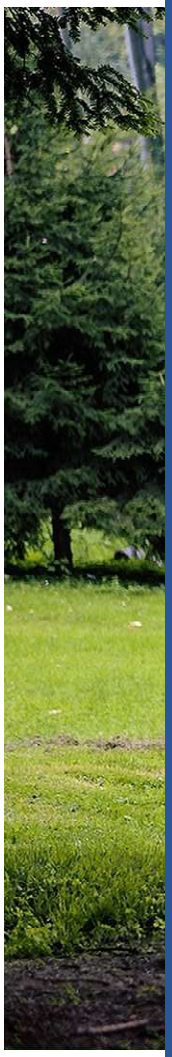
- Understand local climatic impacts
- Identify vulnerabilities, risks, and interdependencies
- Plan for emergencies and ongoing adaptation

Collaboration with nature

Natural assets deliver critical services to our communities. In some cases, we can reduce reliance on grey infrastructure by better managing natural assets:

1. Retain what you have
2. Restore what you've lost
3. Build what you must

Moudrak, N., Feltmate, B., Venema, H., Osman, H. 2018. Combating Canada's Rising Flood Costs: Natural infrastructure is an underutilized option. Prepared for Insurance Bureau of Canada. Intact Centre on Climate Adaptation, University of Waterloo.



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