Accounting for Climate Change Impacts in the Design of Resource Road Crossings

(Webinar 3 of 3) From Snowmelt to Streamflow: Data Portals for Future Hydrologic Conditions + Discussion: Climate Change Tools Needs for Crossings Design

June 25th, 2020

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Webinar Overview

• Brian Chow, Chief Engineer, FLNRORD (few minutes: overall context)
• Matt Kurowski (few minutes: webinar series context)
• Arelia Schoeneberg, (30 minutes)
• Kari Tyler (30 minutes)
• Discussion…
This webinar series was developed in coordination and with funding from the Ministry of Forests, Lands, Natural Resource Operations and Rural Development.

https://www2.gov.bc.ca/gov/content/industry/natural-resource-use/resource-roads/climate-adaptation
Orientation: updates on topics from first series (Matt Kurowski)

A first look: the new Plan2Adapt tool (Kari Tyler)

Review: use of two tools that were not included in the first series (Columbia Basin Climate Source and climatedata.ca), a prototype tool that calculates risk probabilities of climate indices, as well as a case study crossing in Southeast B.C. that applies these tools (Mel Reasoner)

Crossing case studies in Coastal and Northern B.C. ranging in drainage size: how data and methods used in design flood hydrology relate to uncertainties of climate projections from various tools, and how climate projections can inform design (Lee Deslauriers and Paul Mysak)

Introduction: a data portal from the Pacific Climate Impacts Consortium that provides streamflow for a range of future climate conditions in sub-basins of the Peace, Fraser and Columbia (Arelia Schoeneberg)

Facilitated conversation with designers: applied use of climate tools (Kari Tyler)

June 18 (Thursday)
Updates and Developments in Climate Change Tools for B.C. + Case Study from the Southern Interior
Matt Kurowski EIT (FPInnovations), Kari Tyler (Pacific Climate Impacts Consortium), Mel Reasoner (Climate Resources Consulting)

June 23 (Tuesday)
Case studies from the Coast and Northern B.C.
Lee Deslauriers P.Eng., RPF (StoneCroft Engineering), Paul Mysak P.Eng. (Onsite Engineering Ltd.)

June 25 (Thursday)
From Snowmelt to Streamflow: Data Portals for Future Hydrologic Conditions + Discussion: Climate Change Tools Needs for Crossings Design
Arelia Schoeneberg, Kari Tyler (both from Pacific Climate Impacts Consortium)
Climate Tool: map that shows or uses climate indices

Changes in threshold for major culvert crossing → Changes in threshold for bridge crossing

Smaller Crossings: 
- $>\sim 5\text{km}^2$ & $>\sim 5\text{ min}$ drainage
- Streamlined climate tools are more important ($\$\$)

Typical (mountainous terrain) resource road crossings:
- $\sim 55\text{km}^2$
- BC climate models (24 h)

Larger crossings:
- Up to $\sim 500\text{km}^2$ & $\sim 24\text{h}$ drainage
- More time to use climate tools

Crossings designers seem to be using climate tools more - especially in terms of precipitation, not yet as much effort with respect to snow
Poll 2: Do you account for climate change in your resource road crossing designs?

- No: 17%
- Yes - 20% more flow: 7%
- Yes - by an amount other than 20% more flow: 19%
- Yes - 20% more flow, and I also use CC tools to refine this figure: 7%
- Yes - I use CC tools: 19%
- I don't design crossings: 31%

June 2020

How interested are you in considering climate change using in your designs by using climate tools?

- not interested: 0%
- not interested right now, but maybe someday: 0%
- slightly interested - I am using guidance but not climate tools: 20%
- Interested - I am using climate tools: 40%
- Interested - I am planning to start using climate tools: 26%
- Not applicable - I don't design: 14%
Thank you

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