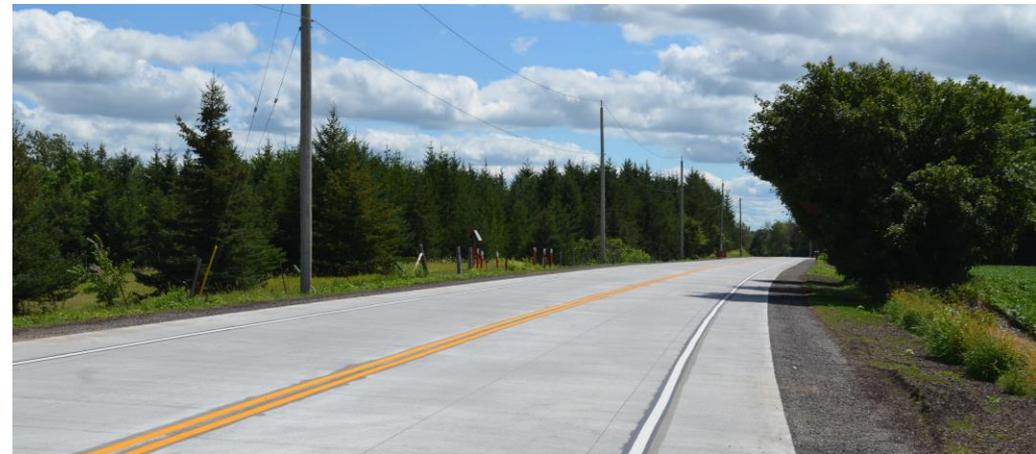


Green Asset Management

Best Practices for Your Municipality's Roads



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The Power of Procurement

“Procurement is the *how* of reducing emissions. The only way to you’ll do things differently is by buying things differently.”

- Ron Dizy, Advanced Energy Centre



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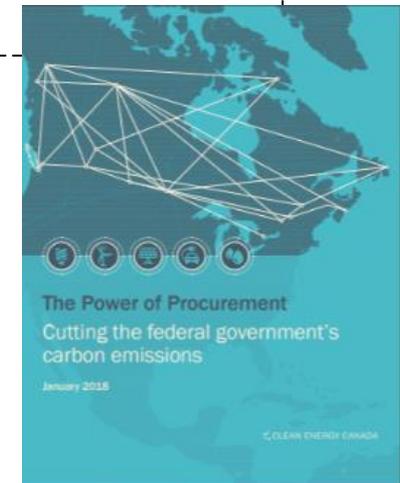
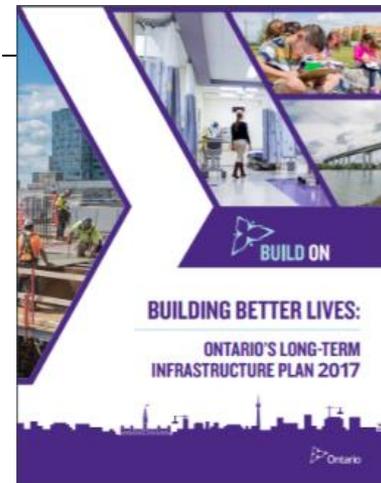
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A New Infrastructure Paradigm

THE CANADIAN PRESS 

The Trudeau government is telling provinces and territories that billions in new infrastructure money won't flow from federal coffers unless lower levels of government can show that the spending will boost the rate of economic growth.

Nor will projects likely be eligible for federal funds if they can't show a benefit to the environment — particularly reducing greenhouse gas emissions — as the Liberals place conditions on \$33 billion in planned spending over the next 11 years.



Life Cycle Approaches: Aligning cost, environmental sustainability and resilience

- Full economic lifecycle cost assessment vs. initial cost
- Full carbon cost assessment, including embodied carbon, operational carbon, end of life carbon and sequestered carbon impacts
- A “Best Available Solutions” assessment that considers whether the need associated with a given infrastructure project can be met using new approaches, technologies or designs that perform better under one or both of the first two criteria.



Calgary Centre Street Bridge in the aftermath of the 2013 flood



Concrete pipes following a massive flood in Vermont



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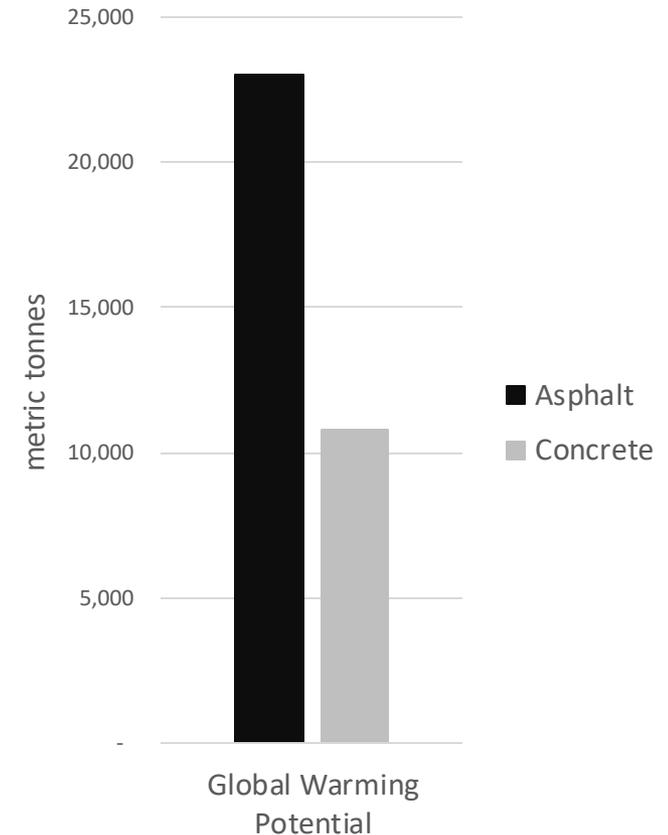
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Pavement Lifecycle Assessment

- Concrete highways
 - use **66%** less energy to build and maintain than asphalt highways
 - use **73%** less aggregate than asphalt highways
 - improve fuel efficiency by up to **7%**
 - lower lighting requirements by over **24%**
- Concrete roads can save more than **12,000 metric tonnes** of GHGs per km compared to a functionally equivalent asphalt roadway during a 50 year period



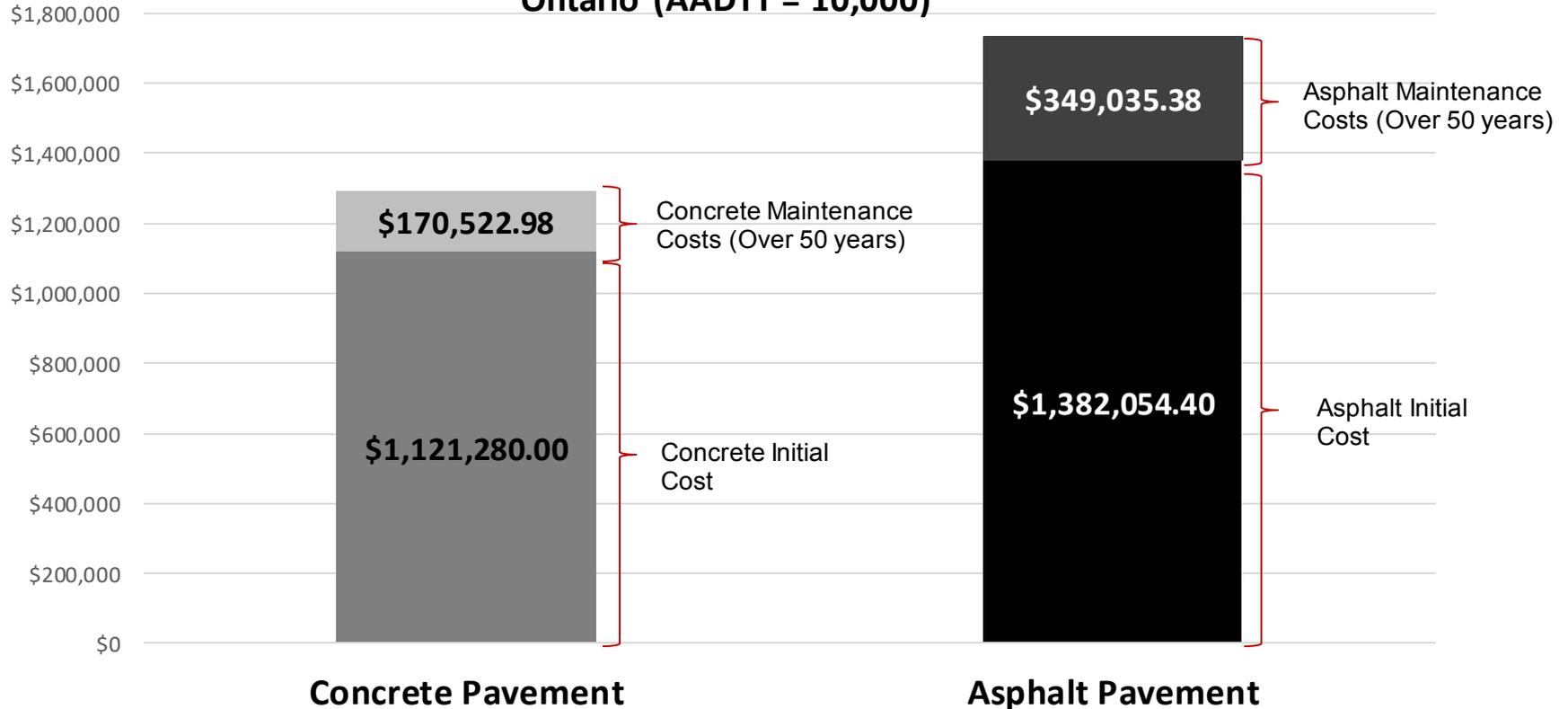
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Pavement Lifecycle Costing

50 Year Cost of Pavement Alternatives/lane km
Ontario (AADTT = 10,000)



Source: Applied Research Associates (ARA), "Development of a Pavement Structural Design Matrix for Municipal Roadways in Ontario (including maintenance & rehabilitation schedules and life cycle cost analysis)"



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DOTS Survey Questions

QUESTION 1

- Does your municipality conduct or is it planning to conduct in the next 18 months full lifecycle assessments of the environmental impact of major road network projects?



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DOTs Survey Questions

QUESTION 2

- Does your municipality conduct or is it planning to conduct in the next 18 months full lifecycle assessments of the costs of major road network projects?



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DOTs Survey Questions

QUESTION 3

- Closed-ended question: Does your municipality consider or is it planning to consider in the next 18 months the impacts of extreme weather in any of its major road network projects?



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DOTs Survey Questions

QUESTION 4

- What are your municipality's top 3 challenges or impediments to assessing the full economic and environmental impacts of your road network (building, maintaining and repairing it)?



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DOTs Survey Questions

QUESTION 5

- Following this session today, what information would be most useful to you as a next step?



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Thank you!