



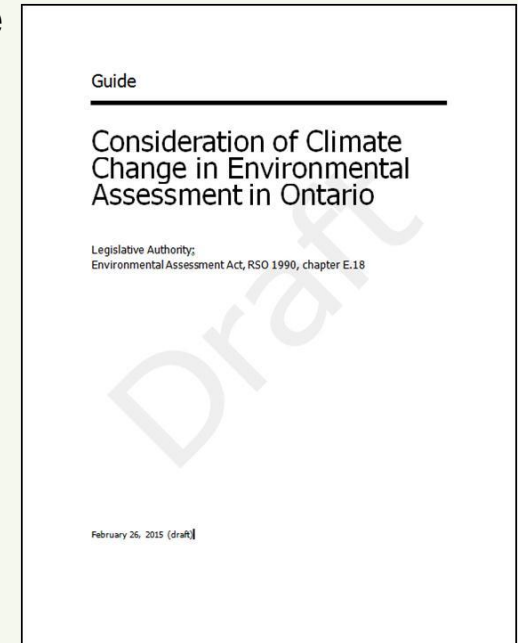
MOECC Draft Guidance for Considering Climate Change in Environmental Assessment

Municipal Engineers Association -- MOECC Liaison Committee Meeting

January 12, 2016

Purpose

- 1) To provide an overview of the content and use of the ministry's draft guidance for considering climate change in Environmental Assessment (EA) studies and processes.
- 2) Begin to describe the guide's tools and methods and how proponents might respond in a climate consideration in Environmental Study Reports.



Timeline: Guide and Climate Change

Year	Item / Event
2011/12	First draft was developed in response to Climate Ready Action Plan. <ul style="list-style-type: none"> The guide covered climate adaptation considerations only Ministry consulted with provincial environmental assessment staff and committees
2014	Updates to Environmental Assessment Program Codes of Practice / Guidance <ul style="list-style-type: none"> Included reference to climate change as an environment effect to consider
2014	Ministry mandate renewal <ul style="list-style-type: none"> MOECC to ensure climate change is taken into account in the government decision-making process
2015	Guide revised to a consideration of climate change mitigation <ul style="list-style-type: none"> The guide was distributed to many ministries and within MOECC for consultation.
2016 (Jun)	Climate Change Action Plan <ul style="list-style-type: none"> Action item 5.1 – MOECC will produce a guide to address climate change in EA
2016 (Sep)	Ministry posts draft Guide to Environmental Registry [012-5806] <ul style="list-style-type: none"> 22 comment submissions received over 45 day comment period

Draft Guide – What is it?

The draft guide *Consideration of Climate Change in Environmental Assessment in Ontario*:

- Is directed at EA practitioners in the public and private sectors.
- Prompts proponents, early in the project planning phase, to consider climate change and resilience.
- Describes the use of self-assessment tools like the vulnerability assessment tool, resilience case studies and climate modeling information in EA studies.
- Provides an approach to considering climate impacts and to rate a project's climate resilience.
- Is written in EA language familiar to practitioners and is compatible with existing EA program Codes and Guides.
- Includes information on:
 - climate-related conditions applied to recent EA decisions, and
 - projects in the north and in remote communities.
- Articulates the ministry's expectations so proponents can plan accordingly for climate resilient outcomes.

What does it ask of Proponents?

Mitigation	Adaptation
Guide asks proponents to consider measures to mitigate climate change:	Guide asks proponents to consider measures to adapt to climate change:
<ul style="list-style-type: none">• Does your project generate greenhouse gas emissions or affect the removal of carbon dioxide from the atmosphere?• To what extent have greenhouse gas emissions been taken into account in project planning?• Can the project be adjusted to reduce adverse contributions to a changing climate?• Are there commitments that could be made to assess and improve climate performance during operation?	<ul style="list-style-type: none">• How vulnerable might the project be to a changing climate?• To what extent have climate risks already been taken into account in project planning?• Can the project be adjusted to take better account of the risks posed by a changing climate?• Are Indigenous people or communities affected by any of the project's adaptation measures?


The Guide:

- ✓ uses a self-assessment approach familiar to proponents
- ✓ provides examples, resources, references to assist proponent with consideration when preparing the EA
- ✓ uses methods similar to Canada (CEAA) and Nova Scotia

Scale of Consideration in Studies

- Qualitative or quantitative in nature
- Scaled to the project's level of environmental effect.

Lower Risk		Higher Risk
<ul style="list-style-type: none">• Construction of sidewalks or bicycle paths within existing rights-of-way• Plowing and sanding of transit facilities• Installing traffic signal priority for buses• Termination of a (mining) licence of occupation where payment of rental is in arrears for 2 years or more.• Creation of fuelwood access roads in parks• Operation and maintenance of existing fish culture stations• Cleaning and shaping roadside ditches	<p><i>Class EA requirements are scaled to the level of Environmental Effect</i></p>	<ul style="list-style-type: none">• Major new water and wastewater treatment facilities• Establishing significant new transportation corridors, e.g., roads and highways• Major new rail station or intermodal transport facility.• Large extension high-voltage transmission line• Mining proposal with tailings dams and other effects on hydrology

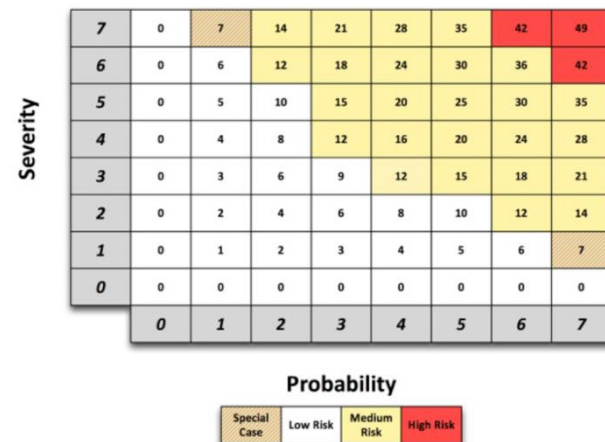


Major Effects Consideration

Table 3: Conceptual Approach to Considering Effects of Climate on a Project^{1,2}

COLUMN 1 Climate Variable		COLUMN 2 Generic Project Component
Temperature extremes <ul style="list-style-type: none"> • High • Low • Warmest / coldest period Precipitation (Rain) <ul style="list-style-type: none"> • Freezing rain • Intensity • Flooding return period • Wettest / driest period • Total annual Precipitation (Snow) <ul style="list-style-type: none"> • Snow load • Snow water equivalent Wind Speed <ul style="list-style-type: none"> • Extreme gusts • Gale, hurricane force winds, tornados • Fog, hail, lightning 	<p><i>If the frequency, severity or duration of any of the variables in Column 1 changes, what will be the effect on any component in Column 2?</i></p>	Utilities <ul style="list-style-type: none"> • Air intake • Water intake • Drainage / wastewater • Electrical and gas • Fire and Safety • Communications • Transport (road, rail) Operations <ul style="list-style-type: none"> • Maintenance • Continuity • Reliability Administration <ul style="list-style-type: none"> • Personnel • Occupational Safety • Insurance / liability Buildings <ul style="list-style-type: none"> • Structural integrity • Fatigue / stress / failure

Figure 6: Example Risk Matrix



- Toronto and Region Conservation Authority, *Vulnerability Assessment of Key Flood Control Infrastructure*
- Engineers Canada (MOECC-funded) *Climate Risk Assessment and Vulnerability Analysis of a Municipal Water Treatment System in Southwestern Ontario*

Inputs to Consider in all Instances

Mitigation

Energy efficiency measures
Fuels and building materials
Transportation demand measures
Carbon sequestration activities
Green Energy

- To reduce GHG emissions
- Slow climate change

Adaptation

Municipal / Regional Climate plans
Risk Assessments
Contingency/Emergency Plans
Facility / HR Policies
Backups, redundancies

- To enhance climate readiness
- Prevent/address negative effects to the environment

Low-Med Risk Generic Project



Consideration could be thought of as....

- What energy/resource conservation features exist in your project or could be added?
- What, if any, component of your project could be compromised by severe weather and could this affect a public good?
- What measures does your organization have in place to deal with upsets, extreme events or shutdowns?
- Proponent could make commitments on seeking low carbon and resilience options for implementation:

Potential Features

- Recycled steel construction
- Certified sustainable forest products
- Recycled fibre flooring
- Storm water collection system for landscape watering needs
- Energy efficient lighting
- Stone/gravel entrance allows infiltration and surge mitigation
- Possibly onsite solar or compost, shade trees
- Low flow water devices
- Bicycle rack
- Emergency / backup communications

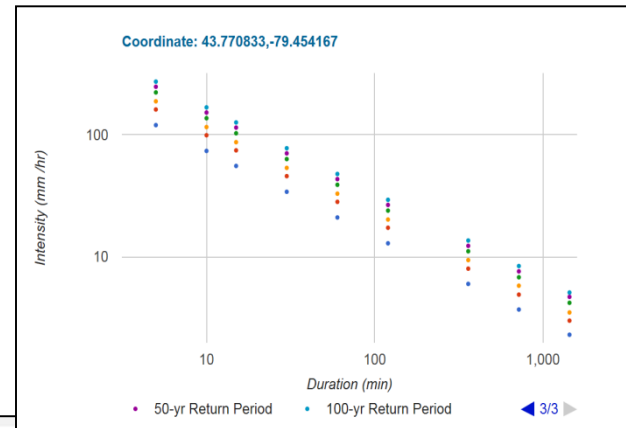
Climate Tools of the Trade

Figure 6: Example Risk Matrix

Severity	7	0	7	14	21	28	35	42	49
6	0	0	6	12	18	24	30	36	42
5	0	0	5	10	15	20	25	30	35
4	0	0	4	8	12	16	20	24	28
3	0	0	3	6	9	12	15	18	21
2	0	0	2	4	6	8	10	12	14
1	0	0	1	2	3	4	5	6	7
0	0	0	0	0	0	0	0	0	0
	0	1	2	3	4	5	6	7	

Probability

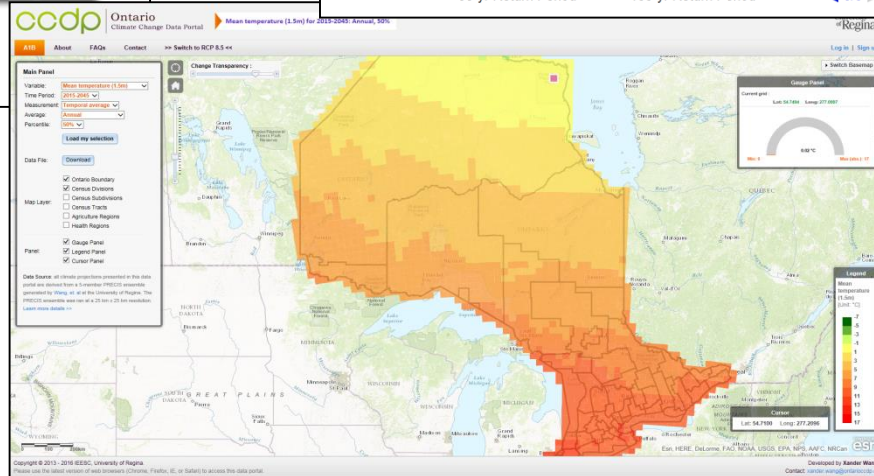
Special Case Low Risk Medium Risk High Risk



www.pievc.ca

www.mto.gov.on.ca/

www.ontarioccdp.ca/



Guide's Case Studies

- Toronto and Region Conservation Authority, *Vulnerability Assessment of Key Flood Control Infrastructure*
- Ministry of Transportation *Web-based Tool for Generating IDF Curves for use in Road, Highway, Urban Drainage Design*
- Ministry of Transportation *Highway 407 East Extension – Effect of the Environment on the Project*
- Engineers Canada (MOECC-funded) *Climate Risk Assessment and Vulnerability Analysis of a Municipal Water Treatment System in Southwestern Ontario*
- Ministry of Natural Resources and Forestry, *Considering Climate Effects in Natural Resource Project Planning*

Next Steps and Wrap-up

The draft guidance is:

- A component of the Climate Change Action Plan and Climate Ready Plan
- Posted for public comment over Sep-Oct 2016
- Guidance will be finalized in the next 2 months.

The screenshot displays the Draft Environmental Registry (Registre de l'environnement) website. The main navigation bar includes links for 'About the Registry', 'Search', 'How do I...?', and 'MyEBR'. The 'Search' section is active, showing a search bar and filters. The 'EBR Registry Number' field is empty. The 'Title / Proposer' section is also empty. The 'Keywords' section is expanded, showing a grid of checkboxes for various categories: All Keywords, Agriculture, Air, Aquaculture, Conservation, Drinking Water, Brownfields, Compliance, Forests, Fuel, Environmental Assessment, Fish and Wildlife, Land, Land use planning, Ground Water, Health, Noise, Nutrient Management, Mining, Monitoring, Pesticides, Protected Areas, Sewage, Standard, Waste, Waste Diversion, Wastewater, and Zoning.

Preview Notice

Policy Proposal Notice:

Title: Guidance for the Consideration of Climate Effects in Environment Assessment in Ontario

Keyword(s): Environment Assessment

Related Act(s): Environmental Assessment Act, R.S.O. 1990

Description of Policy:

In 2007, the Minister of the Environment appointed the Expert Panel on Climate Change Adaptation to provide advice to the Ontario government about preparing and planning for future climate change impacts.

The Expert Panel submitted its final report to the Minister in late 2009. The report included the recommendation that the Ministry of the Environment require all project proposals subject to the Environmental Assessment Act (EAA) to take climate change risks into account. Further recommended was that ministry guidance supporting the environmental assessment program include information for proponents about projected climate change impacts and risks as well as adaptation measures that respond to those risks.

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EBR Registry Number: 011-4953

Ministry: Ministry of the Environment

Appendix – Discrete Statement of Climate Consideration

Climate Change Consideration for a Pedestrian–Cyclist Overpass (MEA Schedule C)

The Class EA Study evaluated alternative planning solutions and alternative design solutions using criteria focused on: transportation need, socio-economic environment, city building policy, natural environment, cultural environment and engineering/costs. The evaluation determined that:

- None of the three solutions studied would lead to an increase in greenhouse gas emissions if any one of the solutions was implemented. In fact, given the nature of the preferred alternative (a pedestrian-cyclist overpass), the project will support low-carbon forms of transportation and should lead to greenhouse emission avoidance over the long run.

The evaluation of the design concepts led to the following conclusions:

- The bridge concept was preferred over the tunnel for the majority of the evaluation criteria. Of note, the bridge design is far less susceptible to impaired function during heavy precipitation events. The tunnel concept would be vulnerable to flooding during intense rain events.
- The bridge will be engineered to perform well under the known climate conditions and projected changes in climate parameters studied. As with any transportation infrastructure, ordinary caution should be exercised when specific climatic episodes occur (e.g., fog, freezing rain, gale force winds).
- The project's implementation supports the City's Go Green initiative. Go Green defines the key interdependencies between the city's infrastructure and services that can be used to set priorities and actions to be taken to enhance the resilience of the interdependent infrastructure and services to extreme weather.