



Annotated Bibliography

CIP Climate Change Committee, Issue 05

Title: Pathways to Action – *Mitigation*

Preamble: The Canadian Institute of Planners Climate Change Committee is developing a series of annotated bibliographies as one of our deliverables for this year. Through these bibliographies we intend to tell a story that explores the dynamic and challenging issues that affect the ability of the planning profession to mitigate greenhouse gas emissions while adapting to the impacts of climate change. This story is the tale of a wicked problem, rooted in social complexity, policy and planning law, technological variability, and the geographic realities that define Canada.

Focus: As the “super-wicked” problem of our time, climate change is characterized by unusual long-term complexity and short implementation periods, which makes taking effective action daunting. Solutions lie in collaborative processes that balance public needs with specific sectoral interests with significant uncertainty and investment risk.

Key Takeaways:

Mitigation is technically complex and affects all aspects of urban and rural communities at scales ranging from the single residence to vast networks of municipalities that connect the globe. Similarly, the benefits of mitigation projects accrue locally to globally, and over periods ranging from the immediate to centuries. Mitigation solutions:

- Are situation specific.
- Can draw on any aspect of a community, including its parks and open spaces, its commercial and industrial zones, and its transportation networks.
- Are typically driven by aspirational or performance-based targets.
- Are supported by many tools and agencies – some of these are listed below the bibliography for your consideration!
- Are indisputably linked to land-use planning and policy at all levels of government.



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Title	Author(s)	Publication Date	Relevance to Planners	Link
The Shared Socioeconomic Pathways and their energy, land use and greenhouse gas emissions implications: An overview.	Riahi, K., van Vuuren, D., Kreigler, E., Tavoni, M.	2017	A scenario planning approach was used in this research to explore the relationship between energy, land use, and emission reductions. With respect to mitigation, the authors find that associated costs strongly depend on three factors: (1) the policy assumptions, (2) the socio-economic narrative, and (3) the stringency of the target.	http://www.sciencedirect.com/science/article/pii/S0959378016300681
Cities to the rescue? Assessing the performance of transnational municipal networks in global climate governance.	Bansard, J., Pattberg, P., and Wilderberg, O.	2017	Transnational municipal networks are a viable substitute for ambitious international action under the United National Framework Convention on Climate Change. This research explores 13 such networks to explore their efficacy as a means to reduce carbon emissions to demonstrate that transnational municipal networks are not (yet) the representative, ambitious and transparent player they are thought to be.	https://rd.springer.com/article/10.1007/s10784-016-9318-9
Global typology of urban energy use and potentials for an urbanized mitigation wedge.	Creutzig, F., Baiocchi, G., Bierkandt, R., Pichler, P, and Seto, K.	2015	The aggregate potential for urban mitigation of global climate change is insufficiently understood. The research model shows that urban planning and transport policies can limit the future increase in urban energy use and contribute to mitigating climate change. However, effective policies for reducing urban greenhouse gas emissions differ with city type.	http://www.pnas.org/content/112/20/6283.full
District Energy in Cities. Unlocking the Potential of Energy Efficiency and Renewables.	United Nations Environment Program	2015	This report provides a glimpse into what integration and systems thinking looks like in practice for heating and cooling networks, and showcases the central role for cities in the energy transition.	http://www.districtenergyincities.org/
Low carbon futures in Canada – the role of urban climate change mitigation	Torrie, R. Stockholm Environment Institute	2015	Local government engagement is necessary for Canada to successfully transition to a low carbon future. Local governments have direct or indirect control over 40-50% of greenhouse gas emissions.	https://www.sei-international.org/media-manager/documents/Publications/Climate/Cities-



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			This report explores how municipalities have contributed to emissions reductions in Canada and how they can take more substantive action in the future.	low-carbon-future-2015-Canada-briefing.pdf
Mitigating and adapting to climate change: Multi-functional and multi-scale assessment of green urban infrastructure.	Demuzere, M., Orru, K., Heidrich, O.... Faehnle, M.	2014	Green urban infrastructure provides a number of benefits, including ecosystem services that reduce greenhouse gas emissions. This research evaluates these systems at multiple scales to disaggregate the benefits provided by green infrastructure to demonstrate its value.	http://ggi.dcp.ufl.edu/_library/reference/Mitigating%20and%20adapting%20to%20climate%20change.pdf
Investigating the interplay between transport, land use and the environment: A review of the literature	Yigitcanlar, T. and Kamruzzaman, M.	2014	As the world wakes up to the impacts of climate change and the effects of the rapid urbanization and modern lifestyles the complex interplay between different aspects of the urban environment have become important. This paper provides an overview of the interplay between transport, land use and the environment.	https://rd.springer.com/article/10.1007/s13762-014-0691-z
Climate Change Mitigation: A strategic approach for cities.	Glenn, W., Toronto and Region Conservation	2010	The detailed guide, developed by the Sustainable Infrastructure Group in the University of Toronto's Department of Civil Engineering, analyzes a suite of 22 technical options and urban planning policies that can be used to substantially reduce a municipality's greenhouse gas (GHG) emissions. Examples are provided from across Canada and around the world.	http://trca.on.ca/dotAssets/81363.pdf
Urban Planning Tools for Climate Change Mitigation.	Condon, Patrick M., Cavens, Duncan and Miller, Nicole. Lincoln Institute of Land Policy	2009	This report reviews the relationship between urban planning and greenhouse gas (GHG) emissions as a key component of climate change, provides characteristics of GHG decision support tools, and evaluates the strengths and limitations of a cross section of existing tools using those characteristics. Four case studies illustrate how selected tools are utilized at various stages of the planning and development process.	http://www.lincolninst.edu/sites/default/files/pubfiles/urban-planning-tools-climate-change-mitigation-full_0.pdf



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Interested in additional resources related to planning for mitigation? These libraries support mitigation and land use planning and will provide various tools to support planners in their work:

- The National Energy End Use Database (<http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/home.cfm>)
- Smart Energy Community Resource Hub (<http://www.questcanada.org/hub/>)
- Canada Mortgage and Housing Corporation Publications and Reports (<https://www03.cmhc-schl.gc.ca/catalog/home.cfm?lang=en&fr=1403031125279>)
- Community Energy Association Publications and Reports for British Columbia (<http://communityenergy.bc.ca/publications/#>)
- BC Climate Action Toolkit (<http://www.toolkit.bc.ca/>)

This annotated bibliography is intended to provide an introduction to the subject area and further exploration by the reader. It is not intended to be comprehensive. We have also focused solely on open source resources to ensure the referenced resources can be accessed by a broad audience. That said, we are interested in your feedback! If you have additional resources or themes you would like us to explore, please contact CCC Chair, Mike Sullivan at mike@sullivanplanning.ca.

The Climate Change Committee is a volunteer committee established by the Canadian Institute of Planners provide current, cutting edge guidance and direction on how to address the impacts of climate change on our communities and within the professional practice of members.

Acknowledgements: Climate Change Committee

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