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Centre for the
Study of Living
Standards

**A New Role for Cost-Benefit Analysis in
Canadian Transportation Infrastructure Investment**

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March 14, 2016

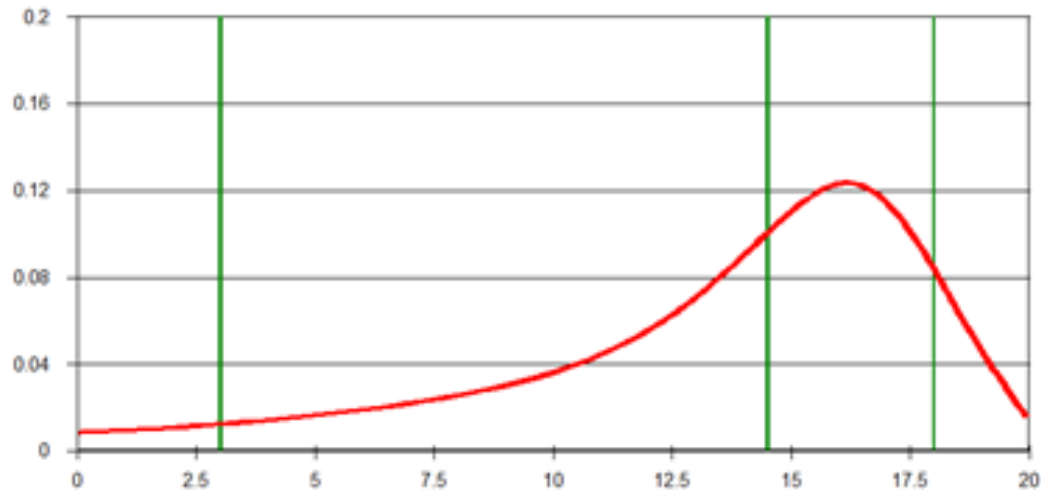
“While the federal government has spent a significant amount of money on infrastructure projects over the last 15 years, the predominant goal has been to stimulate local economies and create jobs, not necessarily to address longer-term economic development requirements. Projects under the various funding categories were often approved on the basis of “shovel-readiness,” rather than on the basis of an economic cost-benefit analysis, or an identified link to national transportation or trade priorities.” (CTA Review, 2016: 21)

“Cities in Europe and Asia plan whole systems, often building multiple lines simultaneously to implant networks and shape development patterns which balance the positives and negatives of urban growth. Meanwhile, Canadian cities struggle to build consensus on a single line—a process that can take years, entailing costly delays, worsening congestion, and environmental degradation.” (CTA Review, 2016: 10)

	Deliberative Assembly 1.0	Deliberative Assembly 2.0	Deliberative Assembly 3.0
SUBJECT MATTER	<ul style="list-style-type: none"> • Problem • Options 	<ul style="list-style-type: none"> • Probabilistic evidence 	<ul style="list-style-type: none"> • Consequences • Justice & Reasons
PROCEDURES	<ul style="list-style-type: none"> • Reference Brief • Options & Issues • Presentation of CBA model inputs • Elucidation of cause-and-effect relationships 	<ul style="list-style-type: none"> • Knowledge Elicitation • Assignment of probabilities to assumptive evidence for CBA 	<ul style="list-style-type: none"> • Population of CBA model with probabilistic evidence • Preliminary ordering of alternatives by net benefits • Testing of quantitatively defined consequences against reasoned thinking on justice and capabilities
OUTCOMES	<ul style="list-style-type: none"> • Shared understanding of the Reference Brief and deliberative process 	<ul style="list-style-type: none"> • Preliminary evidentiary consensus 	<ul style="list-style-type: none"> • Minimal Outcome: evidentiary consensus • Maximum Outcome: articulation of collective will

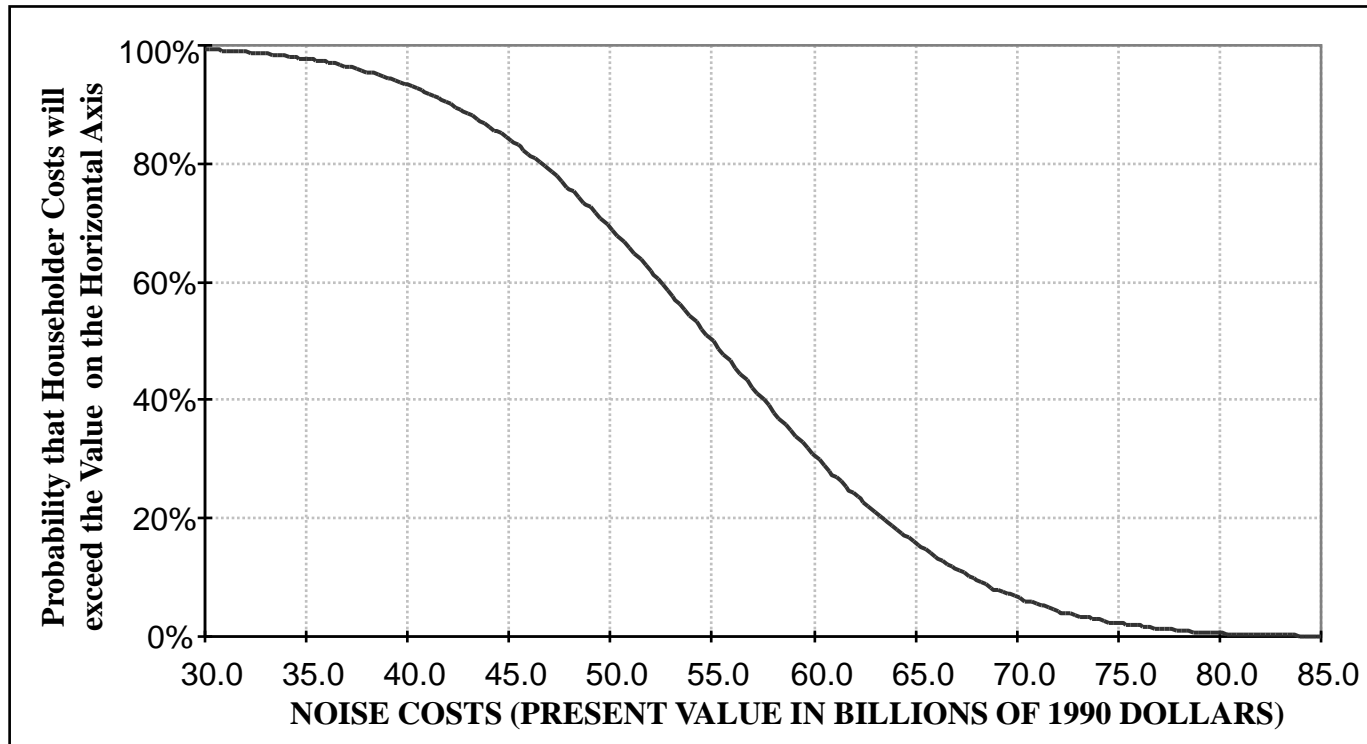
Depicting Evidence Probabilistically -- Value of Time in dollars per hour

Median	10% probability of being this low	10% probability of being this high
\$14.50	\$3.00	\$18.00

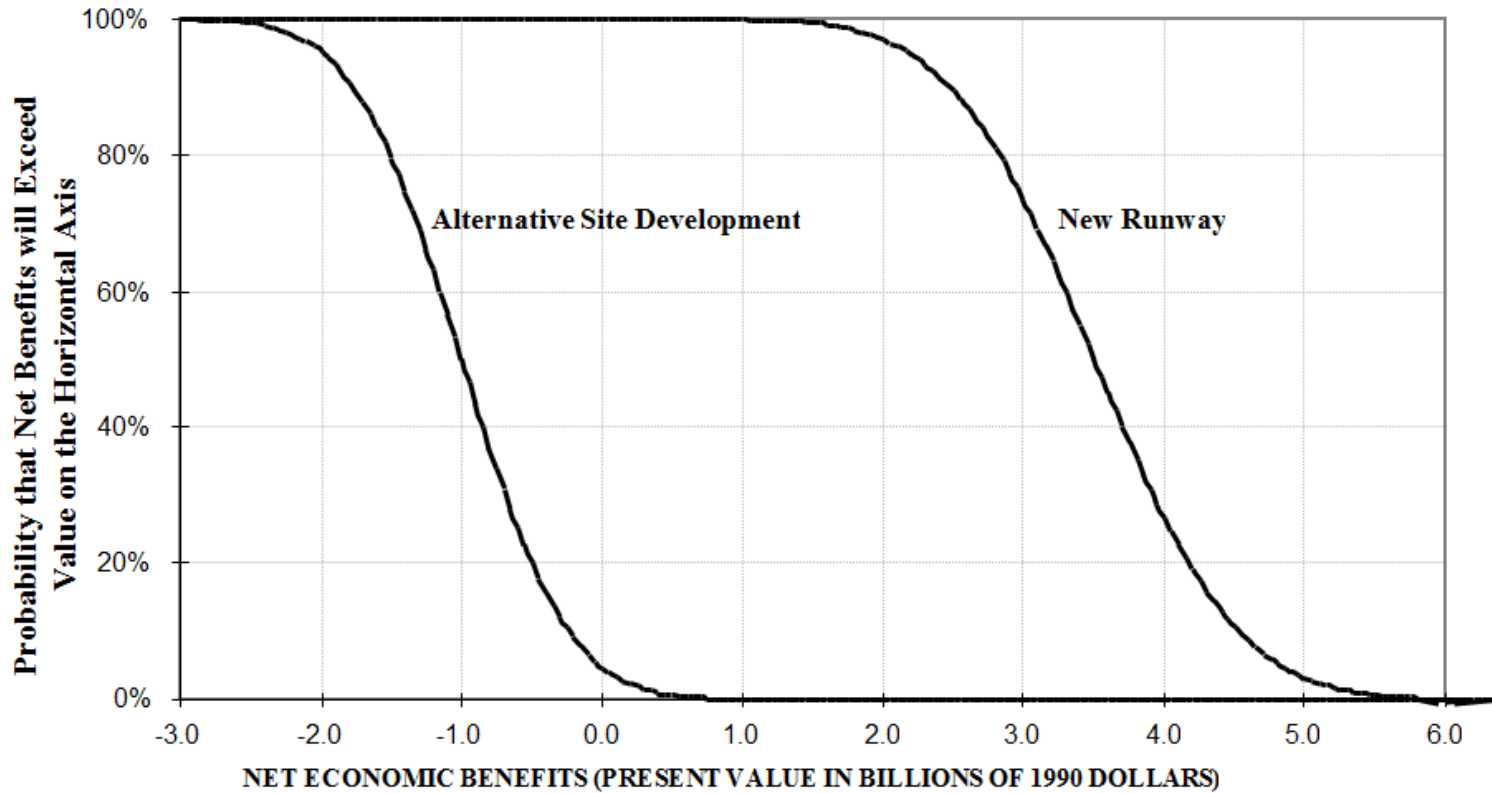


Notes: The vertical axis denotes probability. The horizontal axis denotes value of time in dollars per hour. Three attributes of a probability distribution are given for each variable, the median (50th percentile) estimate, and the 10 percent probable estimates both above and below the median. These quantities are drawn from the statistical properties of relevant and available market analysis, contingent valuation studies, formal meta-analysis of the evidentiary record, and other legitimate sources of empirical information. The corresponding shape of the probability range is portrayed. The facilitator employs the chart in explaining the evidence and comments on any associated statistical issues, such as small sample sizes.

Consequences of Costs of Noise with a Second Runway at Vancouver International Airport



Net Economic and Social Consequences of Airport Development Alternatives for Vancouver



Federal Policy Implications

- The federal government is committed to greater access and transparency in infrastructure planning and investment. But recent announcements (e.g., January 2016 Pipeline Review Process) suggest no fundamental change from traditional consultation processes.
- Opportunities and incentives for the federal government to deploy CBA more widely in transportation infrastructure planning and investment (same point made by Emerson Panel) and, in some cases, the re-formulated CBA within a deliberative democratic process.
- Which projects and planning activities to deploy the reformulated CBA?
 - when investment prospects with scope for federal funding arise in multi-jurisdictional contexts;
 - when investment prospects arise with scope for federal funding in relation to urban environments that cut across multiple socio-economic and ethnic groups; and,
 - when investment prospects arise with scope for federal funding that have different implications for environmental justice and human rights for different groups.

Annex – the Federal Infrastructure Policy Context

Liberal Party of Canada Election Platform Commitments:

- **Doubling federal infrastructure investment over the coming decade** (\$60 billion of new investment over the next 10 years, including an additional \$10 billion over the next two years). Investments will be made in three areas: **public transit, green infrastructure, and social infrastructure**. **New Infrastructure Bank** to “provide low-cost financing for new infrastructure projects.”

Minister of Infrastructure January 2016 – March 2016 announcements:

- **Two phased approach.** First phase will focus on recapitalization and repairs, including investments to “enhance municipal planning, asset management, and data collection capacity.”
- **Interim Measures for Pipeline Reviews.**

Energy East: “Help facilitate expanded public input into the National Energy Board review process, including public and community engagement activities.”

Trans Mountain Expansion Project: “Appoint a Ministerial Representative to engage communities, including Indigenous communities potentially affected by the project, to seek their views and report back to the Minister of Natural Resources”

National Energy Board to consider “upstream” impacts: (i.e., climate change).

- **February 2016, Final Report of the Canadian Transportation Act Review (Emerson)**

Annex – the Federal Infrastructure Policy Context (continued)

Major Federal Budget Announcements on Infrastructure

Pre 2000:	Largely focused on infrastructure under federal responsibilities (airports, ports, St. Lawrence Seaway,) much of it has now divested or commercialized. No major on-going federal role in PTM infrastructure (except Trans-Canada Highway)
Budget 2000:	Start of increasing federal financing for PTM infrastructure (e.g., \$2 billion Infrastructure Canada Program and \$600 million Strategic Highway Infrastructure program)
Budget 2001:	\$2 billion Canada Strategic Infrastructure Fund and \$600 million Border Infrastructure Fund. Creation of Infrastructure Canada.
Budget 2003:	\$1 billion Municipal Rural Infrastructure Fund.
Budgets 2004 & 2005:	GST Rebate, Gas Tax Fund (\$5 billion over 2005-2010); Public Transit Fund (\$800 million distributed on per capita basis)
Budget 2006:	Additional \$1.3 billion for public transit
Budget 2007:	\$33 billion Building Canada plan consisting of various funding streams
Budget 2009:	Accelerated existing funding under the Building Canada plan and an array of new funding top-ups and funding streams under the plan (almost \$6 billion)
Budget 2011:	Gas Tax Fund made permanent plus commitment to a “Long-Term Infrastructure Plan.”
Budget 2013:	The New Building Canada Plan: \$53 billion over ten years, including \$47 billion in new funding (\$32.2 billion Community Improvement Fund, \$1.3 billion P3 Canada Fund, and \$14 billion for New Building Canada Fund itself.)
Budget 2015:	Proposed to provide PPP Canada Inc. with \$750 million over two years starting in 2017-2018 and \$1 billion annually thereafter for a new Public Transit Fund.