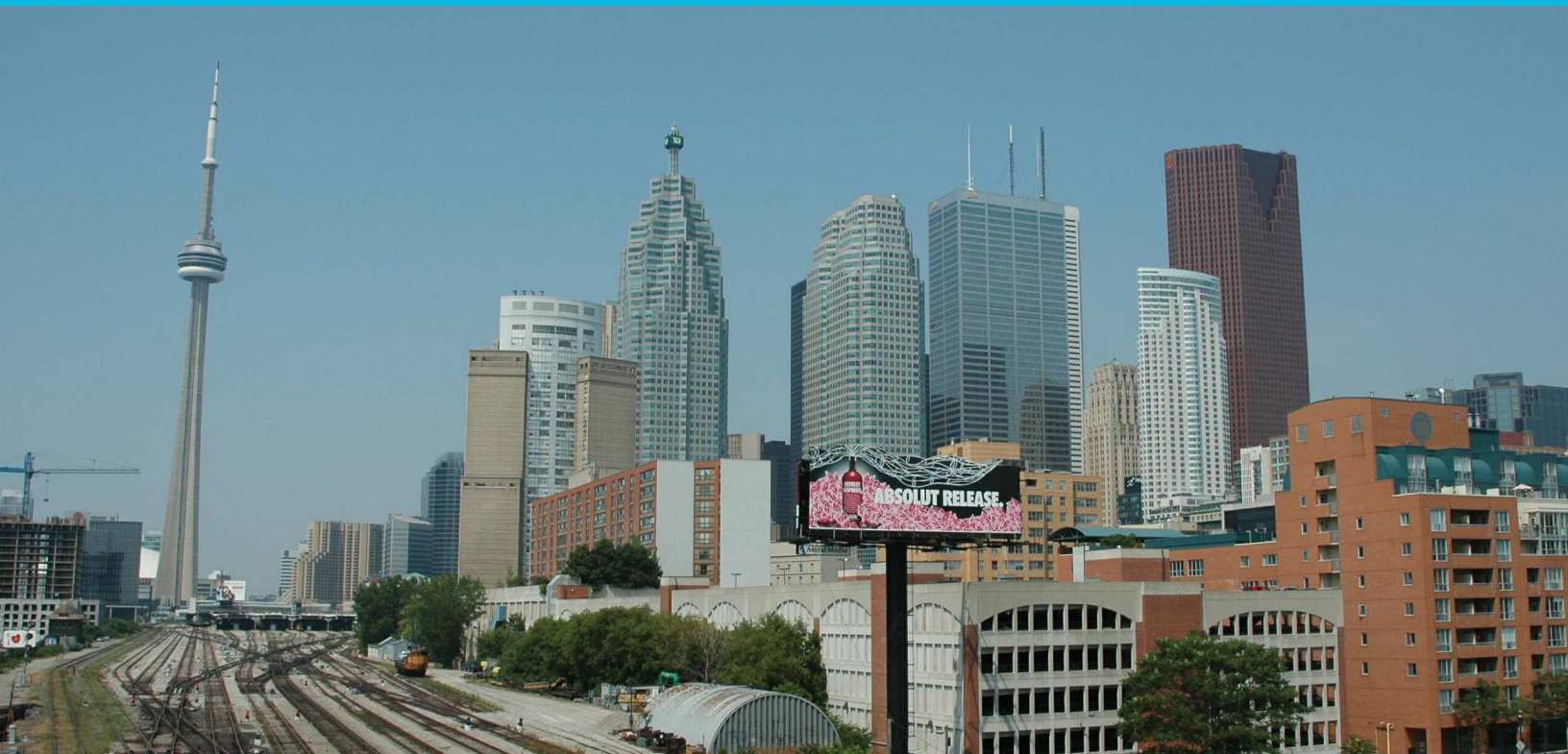


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The Big Move Implementation Economics Study



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SUMMARY

The Metrolinx Act required Metrolinx to deliver an Investment Strategy to fund The Big Move transportation plan by June 1, 2013. In 2011 an AECOM team, supported by KPMG, was appointed to manage the entire project. The team delivered four modules and 12 deliverables, including comprehensive profiles of 25 revenue tools. In April 2013, Metrolinx released a shortlist of 11 revenue tools and subsequently recommended four revenue sources in its May 2013 Investment Strategy Report.

INNOVATION

The AECOM team supported Metrolinx in developing its widely acclaimed Investment Strategy for funding The Big Move for the Greater Toronto and Hamilton Area (GTHA). Issued in May 2013, the Investment Strategy Report drew on four AECOM work modules:

- An economic evaluation of all potential revenue sources;
- Development of the economic case for the Investment Strategy (IS), including (i) agglomeration impacts of the IS, (ii) infrastructure costs averted as a result of The Big Move, (iii) residual land value impacts of transit investments in the GTHA, and (iv) an ex post comparison of city-pairs, with and without major transit investments;
- Briefing papers on selected topics such as financing, transportation impacts and revenue dedication (i.e., earmarking); and
- Capacity of the GTHA construction labour market to accommodate The Big Move projects.

The Revenue Tools Module resulted in three work products:

- a comprehensive evaluation of each of the 25 revenue tools using multi-criteria and cost-benefit analysis;
- 15 detailed case studies to provide “lessons learned” from other jurisdictions; and
- the Revenue Tool Kit Development and Evaluation report, which assessed scenarios of revenue tools designed to yield \$2-4 billion per year.

Several important innovations emerged from this module. First, each revenue tool was subject to a full benefit-cost analysis, including estimating the efficiency impacts from changes in taxpayer behaviour.

This was a first for infrastructure funding studies in North America. Previous studies used multi-criteria analysis and at most, would have quantified only the transportation impacts and not the impacts on labour, capital and product markets. Our revenue tool analysis brought together state-of-the-art practice in both transportation economics and public finance, thereby showing the extent to which GTHA residents would be better or worse off with each funding tool.

Second, the assessment of revenue tool scenarios yielding at least \$2 billion per year pushed the limits of mobility funding research by estimating the welfare gains from each scenario relative to a conventional tax-based funding scenario. It showed that traditional tax-based funding sources in Ontario can result in efficiency losses of over 20 cents per dollar of revenue. By contrast, the funding scenarios from the shortlisted Metrolinx tools could lead to efficiency gains between 5 and 18 cents per dollar depending on the scenario. Finally, the module also showed the net revenue available to fund The Big Move after accounting for any capital, operating and one-time start-up costs associated with each new tool, where relevant.

COMPLEXITY

The challenges and complexity of the project can be summarized by several features:

- The revenue tool analysis – revenue yields as well as efficiency impacts – depended on several design features for each tool, notably (i) the level of tax/charge rates, (ii) the geographic area to which it is applied (iii) the timing of implementation (i.e. some tools would take several years to implement) and (iv) the interaction effects with other revenue tools. All these issues were explicitly addressed in the quantitative analysis.
- The need to calculate net revenues (and cost-benefit results) required a plan to estimate implementation costs. This was particularly challenging for several new tools (e.g. HOT lanes, highway tolls and VKT charges) where the capital and operating costs depended on a high-level conceptual design of the tool.
- Calculating the efficiency impacts of the mobility revenue tools required careful consideration of the impacts on labour, product and capital markets. The latter impacts are not yet well understood in the literature or among policy-makers (e.g. even user-based pricing tools can result in efficiency losses in practice), but these were incorporated into our analysis to ensure that we provided Metrolinx with a conservative and practical view of the likely impacts.

“In putting our recommendations forward we want to signal to all parties that it’s time to get specific,” Ms. Wilding told a group of business, education, and government leaders at a press conference. “We know tough decisions will have to be made. Simply looking to governments to tighten belts and consider alternative financing methods won’t be enough.”

Carol Wilding, Toronto Region Board of Trade president and CEO
Alcoba, Natalie, (2013, March 18) Toronto Board of Trade endorses sales, fuel tax and parking levy in quest to pay for transit expansion
National Post, retrieved from www.news.nationalpost.com

SOCIAL AND/OR ECONOMIC BENEFITS

Following the publication of the Metrolinx Investment Strategy, the Government of Ontario committed to a generous program of transportation expansion of \$15 billion in the GTHA over the next four years.

The economic, social and environmental impacts of each funding scenario of the Investment Strategy showed that efficiency gains between 5 cents and 18 cents per dollar of revenue could be achieved. More than anything else, this demonstrated the value of the proposed funding solutions. In its choice of revenue tools, Metrolinx adopted our advice, within the constraints of political and social acceptability.

However, the impact of the AECOM team's work went well beyond Metrolinx and the GTHA. AECOM's Revenue Tools work was instrumental in enabling the Toronto Region Board of Trade to crystalize its own views of what the Investment Strategy should

include in its March 2013 Discussion Paper entitled "A Green Light to Moving the Toronto Region: Paying for Public Transportation Expansion". In the paper, then-President Carol Wilding noted that "we would like to express our gratitude to AECOM, KPMG and Metrolinx for the research they provided to us that assisted in the drafting of our recommendations."

The Metrolinx Investment Strategy and the supporting AECOM analysis also inspired other jurisdictions across Canada to undertake similar exercises in analyzing the revenue sources best suited to addressing transportation infrastructure funding gaps. For these other jurisdictions, the Metrolinx Investment Strategy and the supporting AECOM/KPMG work has set the standard for the type of economic and financial analysis sought by policy makers.

“It's been decades in the waiting, and the time has come for governments to invest in a dramatically better way to move people and goods across the Toronto region. Let's make our dream of a connected regional transportation network a reality.”

John Tory, CivicAction Chair and Toronto Mayor
CivicAction, (2013, May 27) Metrolinx Investment Strategy – a Historic Day for GTHA
Retrieved from www.civicaction.ca

ENVIRONMENTAL BENEFITS

Over the last 50 years, the Greater Toronto and Hamilton Area (GTHA) has become one of the largest and fastest growing regions in North America. During this time, the region's rapid transit systems did not expand sufficiently to accommodate the economic and population growth. The underinvestment in Ontario's rapid transit infrastructure has contributed to gridlock on our roads and over-crowding on our limited transit systems. As a result, commuter times are at an all-time high, green-house gas emissions continue to rise and our local economy is adversely impacted.

Beyond the economic impacts of this study, the assessment and identification of appropriate and effective revenue tools used to inform the Metrolinx Investment Strategy will also assist Metrolinx in achieving the environmental goals and objectives outlined in The Big Move. Some of these include:

- Smaller carbon footprint and lower greenhouse gas emissions
- Decreased use of non-renewable resources
- Significant contribution to the achievement of the transportation related GHG reduction targets
- Improved air quality and reduced impacts on human health
- Reduced dependence on non-renewable resources
- Increased proportion of trips taken by transit, walking and cycling
- Improved energy efficiency, including increased use of clean vehicles and green technologies
- Reduced use of out-of-province energy sources

The work completed on this project will help to advance the development of a world class transportation system that will ultimately enhance our neighbourhoods and help create sustainable communities across the region.



MEETING THE CLIENT'S NEEDS

The work completed by AECOM/KPMG assisted Metrolinx in determining the appropriate funding mechanism to raise \$2 billion annually to fund transportation infrastructure. AECOM successfully managed four project modules resulting in 12 deliverables, including comprehensive profiles of 25 revenue tools. All work modules were peer reviewed by a former Chief Economist of the Ontario Ministry of Finance.

Within the required timeframes, Metrolinx published its Investment Strategy Report recommending four revenue sources. This report cites the AECOM/KPMG Revenue Tools report in four instances:

“A report by KPMG-AECOM indicates that the HST is one of the most efficient tax tools for raising revenue.”

In the discussion of the proposed regional fuel tax, the Investment Strategy report notes: “The AECOM-KPMG report indicated that this diversion (of fuel tax purchases to outside the region) is particularly likely to occur by “carriers (freight users), commuters who reside in the outer municipalities of the GTHA as well as by long-distance through traffic.””

“According to a recent study of the impact of raising U.S. gasoline taxes, cited in the

AECOM-KPMG report, costs to the efficiency of the economy are in the range of \$0.15 to \$0.25 cents per dollar of revenue raised, significantly lower than for taxes on corporate and personal income and sales taxes on capital goods.”

In the discussion of the impact of the proposed investment tools on the economy, the Investment Strategy Report notes: The AECOM-KPMG report indicates that “the biggest advantage of sales taxes is that they tend to create the fewest economic distortions relative to other taxes.”

“We want to get to a system that functions the way people want it to function, that gives people the time that they want both at work and at home, that gives people choices.”

Bruce McCuaig, Metrolinx CEO
Kalinowski, Tess, (2013, May 26) Metrolinx backs hikes in HST, gas tax and new parking levy.
The Toronto Star, retrieved from www.thestar.com

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About AECOM

AECOM is a premier, fully integrated professional and technical services firm positioned to design, build, finance and operate infrastructure assets around the world for public- and private-sector clients. With nearly 100,000 employees — including architects, engineers, designers, planners, scientists and management and construction services professionals — serving clients in over 150 countries around the world, AECOM is ranked as the #1 engineering design firm by revenue in Engineering News-Record magazine's annual industry rankings, and has been recognized by Fortune magazine as a World's Most Admired Company. The firm is a leader in all of the key markets that it serves, including transportation, facilities, environmental, energy, oil and gas, water, high-rise buildings and government. AECOM provides a blend of global reach, local knowledge, innovation and technical excellence in delivering customized and creative solutions that meet the needs of clients' projects. A Fortune 500 firm, AECOM companies, including URS Corporation and Hunt Construction Group, had revenue of approximately \$19 billion during the 12 months ended Dec. 31, 2014.

More information on AECOM and its services can be found at aecom.com.

