Benefits of Transit Investment Interim Findings Phase 2

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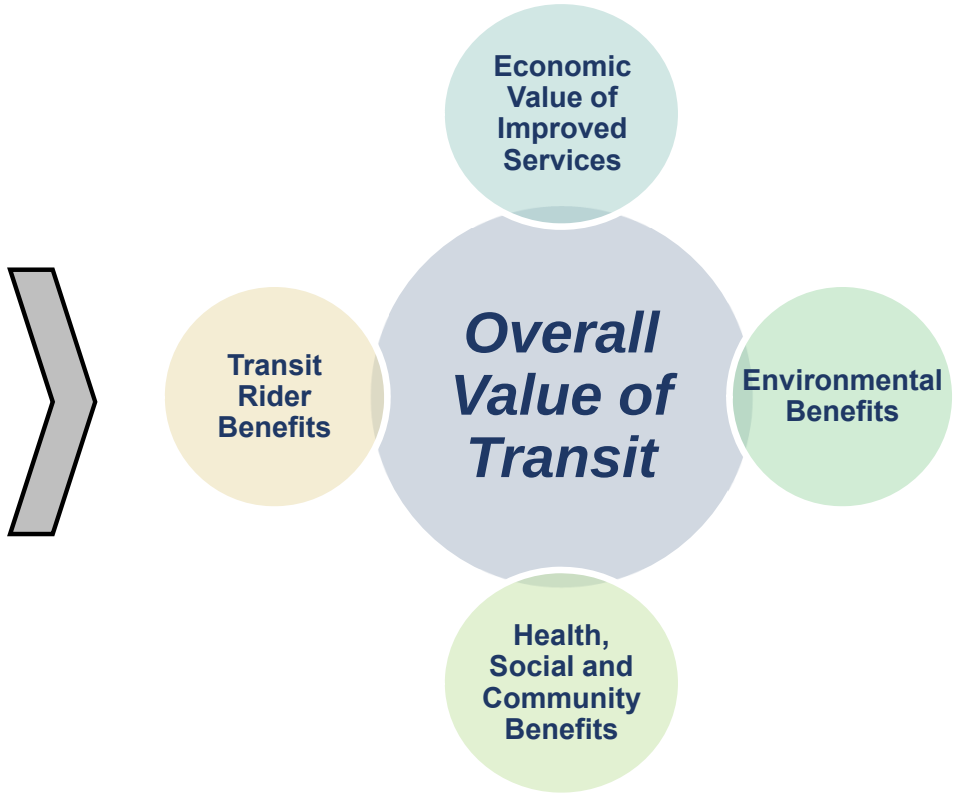
MOBILITY IS A MEANS TO A GREEN, JUST, PROSPEROUS WORLD FUTURE

Project Background: Benefits of Transit Investment

In 2022, the TTC partnered with the University of Toronto's Mobility Network to identify and quantify the economic and other key benefits resulting from investment in transit and the TTC

- Economic benefits realized from investments in transit services and capital works that enhance TTC's existing transit network
- Economic impact of the TTC on the local, regional, provincial and national economy
- Qualitative and quantitative social, equity, health and environmental benefits and the economic spin off benefits derived from these other benefits
- Impacts should the necessary service and capital investments not be made in the TTC



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Summary of Phase 1 Research

Phase 1 of the research focused on quantifying the economic benefits of capital investments and identifying other key benefits.

These preliminary findings were presented to the TTC Board as part of its 2023 Budget deliberation:

- The TTC's 2023 10-year Capital Budget and Plan generates **$12.6 billion** in additional GDP, **$29.7 billion** in economic activity (gross output) and over **180,000 jobs.**
- **89%** of these economic benefits will be realized in Ontario (with **52%** of that being within the GTHA) and a further **11%** to be realized nationally.
- State of Good Repair investments also provide positive economic benefits, matching those of expansion projects. Improving service reliability prevents passenger delays and reduces the cost of lost productivity.
- Public transit is key to addressing congestion. To replace the capacity on the Line 1 subway, Toronto would need to build the equivalent of **eight-to-nine** Gardiner Expressways to move the same amount of people

Phase 2 Overview

- Phase 2:
  - Updates the economic modelling with 2023 Operating Budget and 10-Year Capital Plan to establish an economic benefit baseline
  - Quantifies additional metrics in the following areas:
    - Transit User Benefits
    - Environmental Benefits
    - Social Benefits
    - Public Health Benefits
- As part of the modelling, applies this analysis to two investment scenarios to highlight the impact of:
  1. Increasing investment to restore to 100% of service using 2019 as a proxy
  2. Not making key investments in Line 2 and the implications of a Line 2 closure
- The final Phase 2 report will be presented to the TTC Board later in 2024

Research Outcomes and Metrics

Outcome	Benefits	Performance Metrics	Measures
 **Economic and Regional Development**	Economic Impact and Job Creation	Gross Output	$
		Value Added	$
		Job Output	# of Jobs
	Connecting Commuters to Jobs	Travel time for commuters on transit	hours saved and $
		Number of jobs within access distance of transit	# of Jobs
	Supporting Innovation and Prosperity	Level of connectivity between major employment hubs, academic institutions, and other centers of innovation	Access scores
 **Quality of Life**	Transit Rider Benefits	Cost Savings associated with Mode Shift to Public Transit	$ and Mode Shift %
		Cost Savings from Reduction in Auto Ownership	$
		Travel Time Reductions and Associated Cost Savings	hours saved and $'s
	Healthier Communities	Road Safety due to reduced vehicles on the road	$
		Public health benefit due to reduced emissions and air contaminants	$ and # of cases
	Access to Destinations	Access Scores to Jobs	access scores
		Access Scores to Services	access scores
		Access Scores to Destinations (School, Shopping, Amenties, Recreation)	accees scores
Environmental Sustainability	Reduced Emissions	GHG/Emissions Reduction due to electrification of TTC's fleet	GHG (Tonnes) and $
	Energy Use and Efficiency	Reduction in auto vehicle trips (reduced GHG/Emission due to mode shift to public transit)	GHG (Tonnes) and $

Introductions

UNIVERSITY OF TORONTO

Mobility Network

Eric J. Miller

Professor
Civil & Mineral Engineering

Role: Principle Investigator, model the transit demand resulting from scenarios on capital investment

Richard DiFrancesco

Associate Professor
Geography & Planning

Role: Build the economic input/output model, analyze investment scenarios and present the results

Marianne Hatzopoulou

Professor
Civil & Mineral Engineering

Role: Research the impacts of road transport emissions on health and the environment.

Steven Farber

Associate Professor
Human Geography
UTSC

Role: Research the social and community benefits.

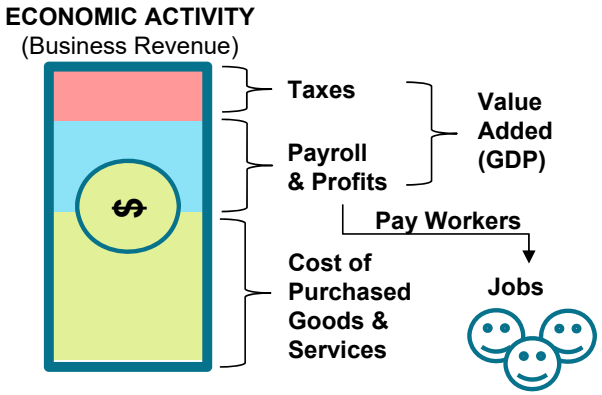
Judy Farvolden

Managing Director
Mobility Network

Role: Manage the research project. Liaise with TTC and manage the UofT project team

Modelling the Benefits of Transit

Economic Benefits



- Model Inputs:
  - TTC Operating (Non-Labour) expenditures
  - TTC Capital expenditures
- Model outputs:
  - Economic Activity (Gross Output)
  - GDP (Value Added)
  - Jobs Output
- Outputs are over all provinces and territories
- Outputs allocated to 186 industry sectors

Transit Rider, Environmental, Public Health & Social Benefits

- Activity-based travel demand forecasting model
- Agent-based microsimulation provides detailed travel & service impacts for all persons & households in the GTHA
- Detailed representation of TTC transit services
- Outputs:
  - Trips and Mode share
  - Travel times and costs
  - GHG and other emissions outputs
  - Health impacts
  - Access scores
- Data can be broken down demographically and / or geographically

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Every **$1** invested in TTC yields approx. **$7.14** in benefits*

- $1 invested = **$1.08** in **Economic and Regional Development** benefits
  - Every $1 million creates **13 jobs** (not including jobs directly employed by TTC)

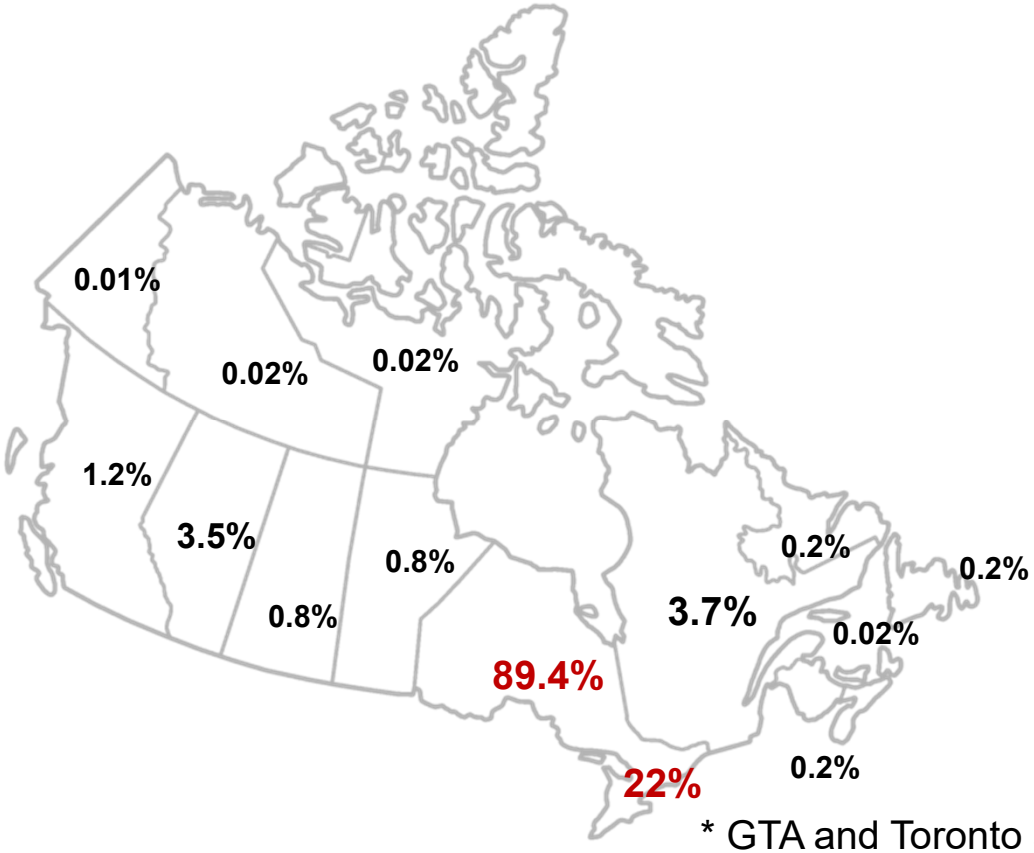
- $1 invested = **$6.06** in **Quality of Life** benefits

* Based on current scenarios. Will further test these findings as part of **Phase 2 Final Report** with additional scenarios

Benefits per $1: Outcomes and Metrics

Impact of $1 of Investment in Transit	Scenarios		Average
	2023 Operating	2023 Capital	
Economic & Regional Development			
GDP (Value Added)	0.61	1.02	0.81
Additional Transit Revenue	0.49	0.04	0.27
Sub-Total	**1.09**	**1.07**	**1.08**
Quality of Life			
Transit Rider and Driver Benefits	6.64	4.91	5.78
Public Health Benefits	0.36	0.16	0.26
Environmental Benefits	0.03	0.02	0.02
Sub-Total	**7.02**	**5.09**	**6.06**
Total	**8.12**	**6.16**	**7.14**

Economic Impact of TTC Investment is Canada-Wide



2023 TTC Spending (Operating & Capital)

Generates **$4.5 Billion** in economic activity and creates almost **27,000 jobs** nationally

- **89%** accrues in Ontario
  - **$4.0 billion** in economic output
  - Almost **24,000 jobs**
- **47%** accrues in the GTA*
  - **$2.1 billion** in economic output
  - Over **12,000 jobs**
- **22%** accrues in the City of Toronto*
  - **$1.0 billion** in economic output
  - Almost **6,000 Jobs****

* GTA and Toronto amounts estimated based on share of GDP

** Does not include the over 17,000 positions employed to the TTC directly

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Benefits of Investing: Increase Service to 100% (2019 Proxy)

Annual Benefits & Savings

Overall Impact

$ 737 M

Per year

Economic Benefits:

- **$17 Million** in GDP (Canada-Wide)
- **$47 Million** in Transit Revenues (GTHA)

Transit Rider / Driver Savings (GTHA):

- **$427 Million** in Travel Time Costs
- **$210 Million** in Auto User Costs

Environmental / Public Health Benefits (Toronto):

- **24,500 Tonnes** in avoided GHG
- **$10 Million** in avoided health care costs

Access to Destinations (Toronto):

- **10%** Jobs
- **35%** Groceries
- **15%** Doctor's Offices
- **20%** High Schools
- **17%** Parks

Consequences of Not Investing: Closure of Line 2

Annual Costs & Forgone Benefits

Overall Impact

$ 2.5 B

Per year

Economic Losses:

- **$415 Million** in GDP (Canada-Wide)
- **5,990** Jobs (Canada-Wide)

Transit Rider / Driver Costs (GTHA):

- **$1.7 Billion** in Travel Time Costs
- **$260 Million** in Auto User Costs
- **10%** Transit Travel Times

Environmental / Public Health Costs (Toronto):

- **97,000 Tonnes** in GHG
- **$45 Million** in health care costs

Access to Destinations (Toronto):

- **17%** Jobs
- **3%** Groceries
- **13%** Doctor's Offices
- **4%** High Schools
- **3%** Parks

Economic Benefits of Additional Capital Investment

$1.02

Additional **GDP** for every dollar invested (Value Added)

$2.55

Additional **economic output** for every dollar invested (Gross Output)

15

New jobs for every $1 million dollars invested

Canada-wide benefits:

Staff Recommended 2024 10-Year Capital Budget & Plan	Unfunded Priorities (15 Year Time Horizon)	Fully Funding 15-Year Capital Investment Plan
$12.6 Billion in GDP	**$36.2 Billion** in GDP	**$48.9 Billion** in GDP
$31.6 Billion in Economic Output	**$90.5 Billion** in Economic Output	**$122.1 Billion** in Economic Output
186,000 Jobs over 10 Years	**532,000 Jobs** over 15 years	**718,000 Jobs** over 15 Years

Transit is an investment not an expense

Every **$1** invested in TTC yields approx. **$7.14** in benefits

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