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The 401RT Express: A Note Regarding Costs

This note addresses concerns by some regarding the affordability of the 401RT Express.

The 401RT Express is a concept for a rapid transit line that meets the scale of solutions necessary to maintain the functionality of Highway 401 in the Toronto area as travel demand increases rapidly. It is an alternative to government of Ontario's proposed Highway 401 tunnel to add road capacity to the 401, which may cost \$90 billion to construct, based on one scenario (illustration below). The end result of constructing the highway tunnel will be to temporarily ease traffic congestion on Highway 401, but will result in up to 40% more trips to and from the 401 on municipal roads by 2055. Overall congestion in the Toronto area will have worsened.

The relatively higher-speed 401RT Express would be able to achieve the ridership volumes to keep travel demand by automobile at current levels (2025), and promote congestion reductions in the core of the Toronto area. The 401RT is envisaged as a single 85-kilometre rapid transit line that is almost entirely elevated above the south edge of Highway 401 from Pickering Town Centre to Derry Road in Mississauga, plus a seamless branch line from Islington Avenue at Highway 401 to Pearson International Airport, and from there to Mississauga's downtown core. It would be supported by increased transit services that intersect with the 401RT Express, and an extension of the Ontario Line north of Eglinton Avenue. Information on the 401RT Express can be found at www.401rt.ca.

As a critical transportation artery for the Ontario and Canadian economy, Highway 401 must be rescued from gridlock. The 401RT Express is necessary if the multi-billion dollar annual costs of lost productivity is to be reduced. It must be both seamless and intermunicipal.

According to a 2024 study by the Canadian Centre for Economic Analysis (CANCEA), road congestion sets the Toronto and Hamilton region's productivity back by \$44.7 billion per year in social and economic costs. By 2044, the annual costs of congestion in the GTHA will rise by \$40.8 billion. Most of that – perhaps \$25 billion – will be in Toronto, Mississauga and Pickering. The 401RT Express would prevent much of this annual worsening of losses.

The gross capital cost of the 401RT Express has been estimated at \$62 billion, plus \$6 billion for trains and buses – \$806 million per kilometre overall. It includes elevated track structures and rail infrastructure, stations, a few kilometres underground, maintenance facilities, planning and design, and other infrastructure.

The gross capital cost of the 401RT Express would be partially offset by several currently-planned rapid transit initiatives that the 401RT Express will render unnecessary. These include the

Eglinton West LRT extension from Renforth Drive to Pearson, the Eglinton East LRT beyond the Eglinton-Kingston Road intersection, and the extension (s) of the Sheppard Subway. In fact, the 401RT Express will render the entire Sheppard subway operationally non-viable. These offsets total approximately \$11.3 billion.

The Highway 401 tunnel proposed by the Premier of Ontario will likely not be cost-shareable with the government of Canada, whereas the 401RT Express may be eligible for a 40% transit subsidy (or other subsidy). A 40% federal subsidy would transfer \$22.8 billion of 401RT Express costs from Ontario to the federal government.

The cost scenarios for Ontario taxpayers between the Highway 401 tunnel and the 401RT Express is dramatically different – perhaps \$90 billion for the tunnel, and \$34.4 billion for the 401RT Express – a \$1.67 billion difference in annual debt carrying costs for Ontario, based on a 3.0% interest rate.

Funding the 401RT Express via debt conveys its costs to the future beneficiaries and users of the 401RT Express. Based on debt interest at 3.0% and based on the direct household tax share of the carrying costs of the 401RT Express, the cost to the average Ontario household would be under 30 cents per day, including the federal cost.

The 401RT Express has been compared to the 1,000-kilometre Toronto-to-Quebec City high speed rail initiative known as Alto that has been approved as a major Build Canada project. For a potential gross cost of \$90 billion, the Alto HSR may carry 40 million passengers per year by 2051. The 401RT Express is estimated to carry more than 440 million passengers by 2051. On a cost per user basis, this scenario suggests that the 401RT Express may be sixteen times as cost effective as the Alto HSR. While the Alto HSR may be nice to have, it does not address a crisis, and is not essential.

Comparing Rapid Rail Concepts	Millions of Trips/yr by 2051	Gross Infra. Cost (\$Mil)	Cost per User	Kms.
HSR Toronto to Quebec City				
- Recent Estimate	40	\$90,000	\$2,250	1,000
401RT Express*	443	\$62,300	\$141	85
Cost effectiveness advantage of 401RT Express:			16.0	

* Excluding \$6 billion for rolling stock

The degree to which the government of Canada will provide financial subsidies to the Alto project, the Highway 401 tunnel or the 401RT Express is unknown. Also not computed are effects of private investments in the projects.

While the Ontario Premier is willing to invest in the cost of the Highway 401 tunnel, it may, as suggested by some experts, be found not to be a feasible project. A feasibility study of the 401RT Express would not present as many challenges and uncertainties as the highway tunnel and, in an urgent context, can be completed in less time than the highway tunnel study.

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(illustrations below)

**401RT Express Cost Scenario
(millions\$)**

401RT Express Cost Scenario (millions\$)	Gross Capital Cost	Canada Share @ 40%	Ontario Cost	
			Millions \$\$	Debt\$/yr @ 3.00%
401RT Express cost estimate by segment:				
Pickering TC to McCowan Rd.	11,100	4,400	6,700	201
McCowan Rd. to Yonge Street	10,400	4,200	6,200	186
Yonge Street to Islington	10,200	4,100	6,100	183
Islington to Renforth via Hwy 401	3,300	1,300	2,000	60
Renforth to Derry Rd. via Hwy 401	9,600	3,800	5,800	174
Subtotal	44,600	17,800	26,800	804
Islington to Renforth via Pearson	5,700	2,300	3,400	102
Erindale GO to Renforth	7,300	2,900	4,400	132
Maintenance yards	10,900	4,400	6,500	195
Total 401RT Express	68,500	27,400	41,100	1,233
The 401RT Express will render several currently-planned rapid transit initiatives duplicative and/or unnecessary; cost savings are:				
Sheppard Subway extensions	-6,900	-2,800	-4,100	-123
Sheppard Sbwy closure costs	800	300	500	15
Most of Eglinton E LRT	-3,800	-1,500	-2,300	-69
Eginton W Phase 2 to Pearson	-1,400	-600	-800	-24
Net cost of 401RTX	57,200	22,800	34,400	1,032

N.B. Figures exclude a \$3.6 billion elevated extension of the Ontario Line to the 401RT Express; the extension of the Ontario Line is already included in the Ministry of Transportation's Greater Golden Horseshoe Transportation Plan.

Government of Ontario's Highway 401

Tunnel proposal:

Hwy 410 - Queen to Hwy 401	9.74 kms.
Hwy 401 - Hwy 410 to Hwy 427	7.07
Hwy 401 - Hwy 427 to Islington	5.05
Hwy 401 - Islington to Hwy 400	2.83
Hwy 400 - Hwy 7 to Hwy 401	7.65
Hwy 401 - Hwy 400 to Allen Rd	5.85
Hwy 401 - Allen Rd to Yonge	4.20
Hwy 401 - Yonge to Hwy 404	6.03
Hwy 404 - Hwy 7 to Hwy 401	9.44
Total Kilometres	57.85

Potential cost per kilometre **\$ 1.62 bn**

Potential cost of Ford's tunnel \$ 93.5 bn

N.B. This assumes roads only, no transit tracks.