

This presentation proposes that a new rapid transit line in Toronto will resolve congestion and gridlock on Highway 401, and will

1. Produce an $\approx 18\%$ reduction in trips by automobile across all of Toronto;
2. Be extraordinarily affordable;
3. Save \$17 billion of planned rapid transit initiatives that would become unnecessary; and
4. Be 4.5 times as cost-effective as those in 3. above

The presentation includes a warning about duplication of spending.

A Transformational Vision for Transportation in Toronto

January 8, 2023

Prepared by John Stillich

Highway 401 At The Brink

- **1.8 million trips daily between Hurontario Street and Liverpool Road**
- **Rush hour & weekend congestion**
- **Toronto population to grow by 1 million by \approx 2051**
- **Gridlock: Non-functional Hwy 401 before 2051**

....Highway 401

- **Economic losses from congestion – \$Billions per year in GTA**
- **Many destinations across Toronto difficult or not possible for people without cars**
- **Unaffordable travel costs in time and money for many households**
- **Environmental sustainability unachievable**

Transit in Northern Toronto

- **Traveling across northern Toronto by transit can take 60+ minutes (up to 2 hours for some)**
- **Eglinton LRT too far south to decongest Hwy 401**
- **Finch LRT too far north of centre of travel demand**
- **Access to N-S rapid transit by bus too slow to often**
- **Sheppard Subway too short to be practical**
- **TTC = Take The Car, drive on Hwy 401**

Northern Toronto

- **Jobs, services and other destinations have located near Hwy 401**
- **1.6 million residents plus \approx 500,000 jobs by 2051**
- **Underserved by transit**
- **Cross-boundary traffic increasing**

Hwy 401 Non-Solutions

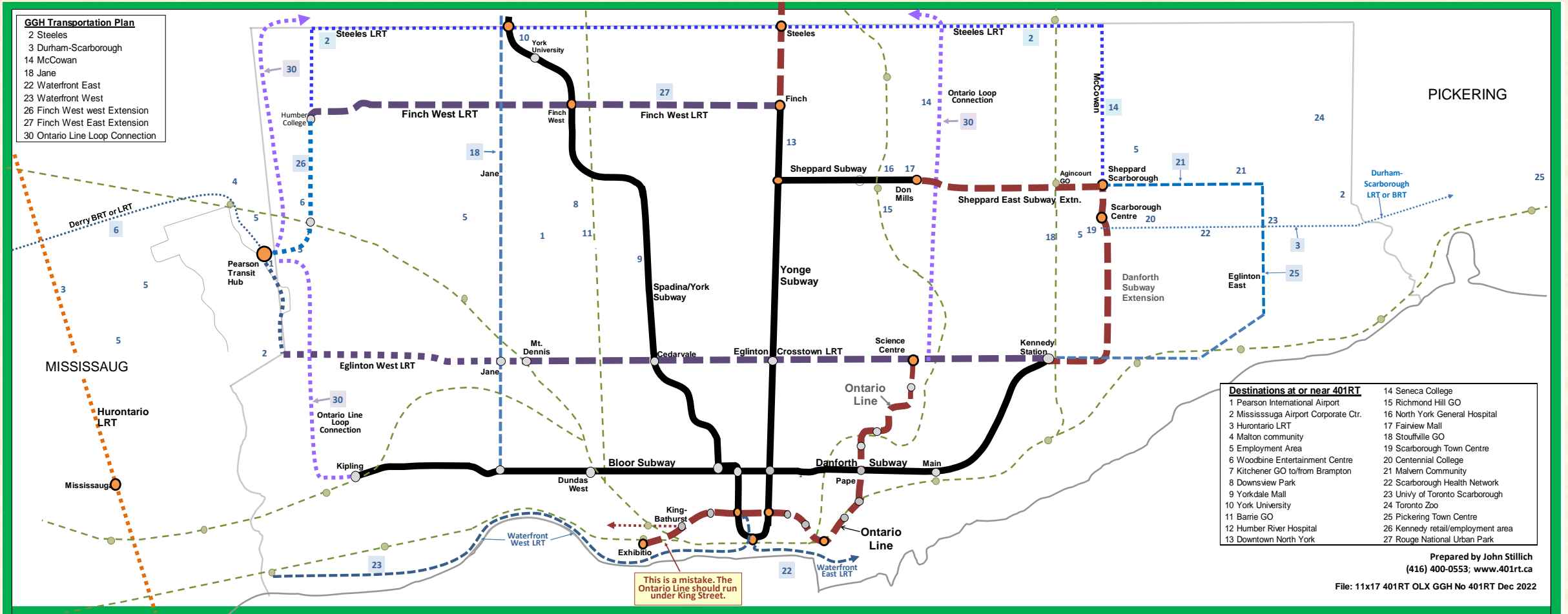
- **Ring road around Toronto in '905' area**
- **Widen Highway 401 in Toronto**
- **Add express buses (FREB) on Hwy 401**
- **Double-deck portions of the highway**
- **Sheppard East Subway to McCowan,
Finch West LRT to Yonge**

Hwy. 401 gridlock must be avoided.

**A new public transit solution is essential,
and urgent.**

**Without it, no hope for achieving net zero
GHGs or economic resiliency.**

GGH Transportation Plan – Rapid Transit for Toronto



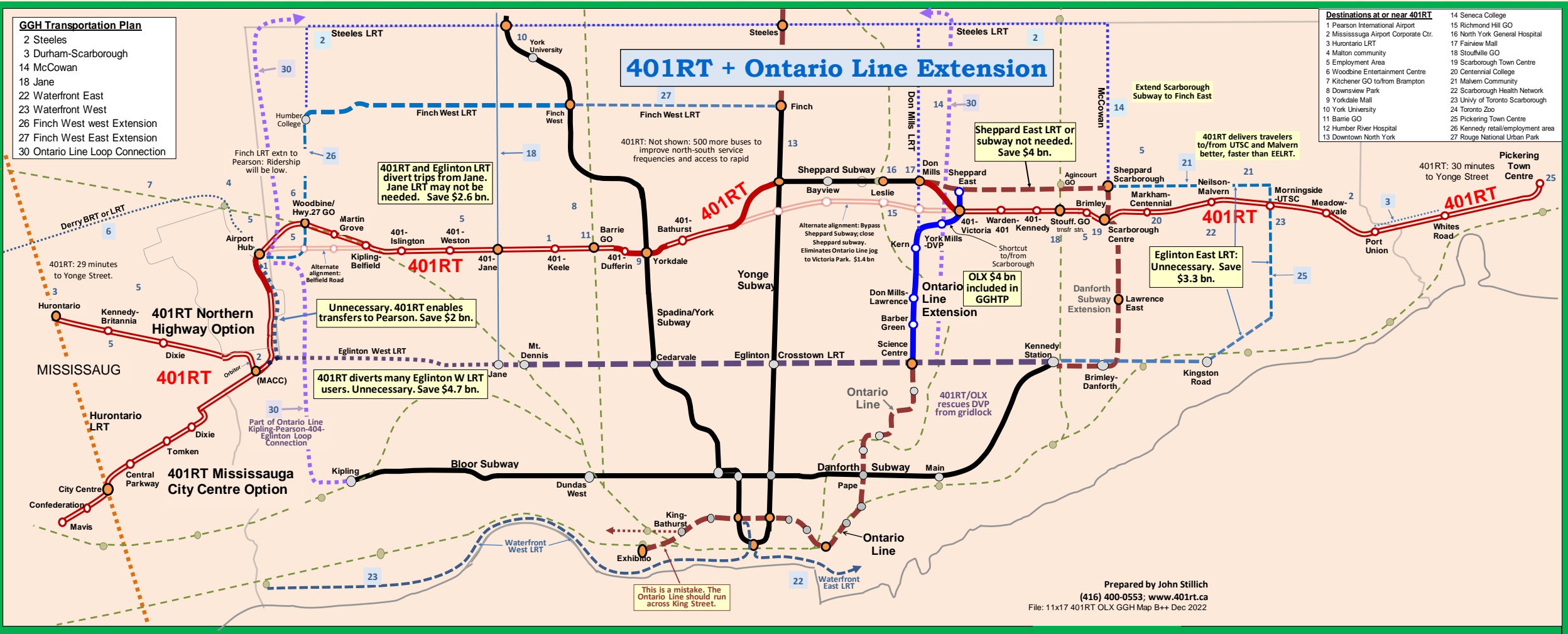
GGH Transportation Plan initiatives may achieve a 5% traffic reduction from 2016 volumes over 30 years. Not a success.

Proposed:

A highly effective east-west cross-boundary rapid transit line through northern Toronto

The 401RT

(Super-imposed on GGH Transportation Plan)



The 401RT

- **Transforms transportation in Toronto**
- **60+ kilometres end-to-end**
- **Elevated above Hwy 401**
- **No NIMBY, no property destruction**
- **Relatively easy to build** (401RT only 13% tunneled)
- **Requires Ontario Line Extn. to Sheppard**



The 401RT

- **Faster commutes: 60 minutes end-to-end**
- **Connects to 9 N-S rapid transit, 50+ surface bus routes**
- **Up to 35 stations on 401RT (incl. Sheppard Subway)**
- **Two possible Mississauga alignments**
- **Option to bypass Sheppard subway**

Ontario Line Extn. To Sheppard

- **From Science Centre stn. to Sheppard East**
- **Six stops; at least 7m new transit users/year**
- **Several options re alignment to 401RT**
- **Diverts 401RT users from crowding the Yonge Subway**
- **Extn to Sheppard already in GGHTP**

What the 401RT Does

- **174m new transit users/year by 2051 (+16m new GO trips)**
- **Traffic congestion on Hwy 401, DVP and city streets is reduced or *ended*.**
- **18% reduction in net 2051 Toronto traffic volumes***
- **Trip capacity of the Hwy 401 corridor is doubled.**
- **Affordable and direct rapid transit access to Pearson airport from across Toronto.**

* After implementation of current approved/planned rapid transit initiatives

What the 401RT Does

- **Household travel costs reduced; money can be redirected towards other household priorities**
- **Truck transport improved as gridlock on highways 401, 409, DVP is avoided.**
- **Toronto's economic competitiveness improved.**
- **Social isolation reduced for people w/o cars.**
- **Deaths, injuries from vehicle crashes reduced.**
- **Transit access between Toronto, Pickering and Mississauga magnified.**

Modal Shifts to Transit

- **401RT/OLX is operationally viable**
- **197 million new transit trips by 2051**

N.B. New trips determine progress against congestion

<u>401RT Ridership Estimate, to 2051</u>	
55,100,000	O-D matrix: 401RT trips 2041 by residents– modal shifts by auto driver and passenger
600,000	Non-resident trips to/from 401RT (travelers living outside the 60 Ward survey area)
23,000,000	New urban development at/near/above 401RT stations; @ higher transit usage
16,000,000	401RT ridership increase re GO RER intersects with 401RT
22,800,000	Add'l. Hwy 401 congestion shift 2041 to 2051. Hwy unable to carry 1/2 of demand growth.
4,200,000	Reduction in 90% auto share of air passenger trips to/from Pearson
6,100,000	Driving cost Increase factors (5% impact)
127,800,000	TOTAL - New TTC Riders using 401RT by 2051
46,000,000	N-S bus component: New non-401RT trips; 25% incr. in curent bus ridership
173,800,000	New transit trips per year by 2051
7,000,000	Ontario Line Extn. (OLX) -Eglinton to Sheppard
180,800,000	Estimated total 401RT/OLX users by 2051
16,000,000	GO Transit ridership incr. re 401RT intersects
196,800,000	TOTAL - New ridership effect of 401RT/OLX
+12,000,000	Transfers of existing nearby TTC users

Impact on the GGH Plan

Up to four Toronto/GGH rapid transit initiatives become duplicative/unnecessary:

- **Sheppard Subway East extension**
- **Eglinton East LRT (most of it)**
- **Eglinton West LRT (to Renforth & to Pearson)**
- **Possibly the Jane Street LRT**

Sheppard Subway

- **Closely parallel to the 401RT; longer-distance travelers will go to the 401RT**
- **Up to \$4.8 billion can be saved**
- **Replace with continuous bus route across Toronto** (express & local)
- **Integration with Scarborough Subway: a mistake**
- **An Option: Close the Sheppard Subway, run the 401RT above the highway Yonge to Don Mills**

Eglinton East LRT

- **LRT becoming expensive, problematic** (15kms, 21 stops)
- **401RT/OLX delivers travelers to UTSC & Malvern faster, from more places in Toronto** (next slide)
- **Extend EELRT to Kingston Road only**
- **Save \$3.3 billion**
- **Local bus stops can be maintained** (demographics)

Trips to UTSC, Malvern

Some examples (minutes):

<u>Eglinton/Don Mills to</u> <u>Morningside/Sheppard</u>	
Using Eglinton East LRT	51
Using 401RT	46

<u>Keelesdale Stn. To</u> <u>Shepp/Morningside:</u>	
Using Eglinton LRT	70.3
Using 401RT	67.7

<u>Yorkdale to UTSC</u>	
Using Eglinton LRT	69
Using Shepp Sbwyt extn.	70
Using 401RT	37

<u>Rexdale/Martingrove to</u> <u>Sheppard/Morningside</u>	
Using Eglinton LRT	131
Using 401RT	54

Eglinton West LRT

Phase 1: Mt. Dennis to Renforth (save \$4.7 bn)

Phase 2: Renforth to Pearson (save \$2 bn)

- **401RT as fast or faster to Pearson (most instances)**
- **Controversial re tunneling, elevations, need**
- **Can be limited to Jane-to-MACC; transfers to Pearson at MACC station**
- **Replace EWLRT by extn of Miss'ga Transitway to Jane (enables both express & local bus services)**

Trip Time Examples re EWLRT

Yonge-Sheppard to MACC:

Driving using 401 - 8AM	40
Using Eglinton LRT	33
Using 401RT	24

St. Andrew subway stn to Pearson Hub:

Using Eglinton LRT	42
Using UP Express train (walk, wait, ride)	46
Using Spadina subway & 401RT	42

Eglinton/Don Mills to Pearson Hub:

Using Eglinton W LRT	37
Using 401RT	43

Cedarvale stn to Pearson Hub:

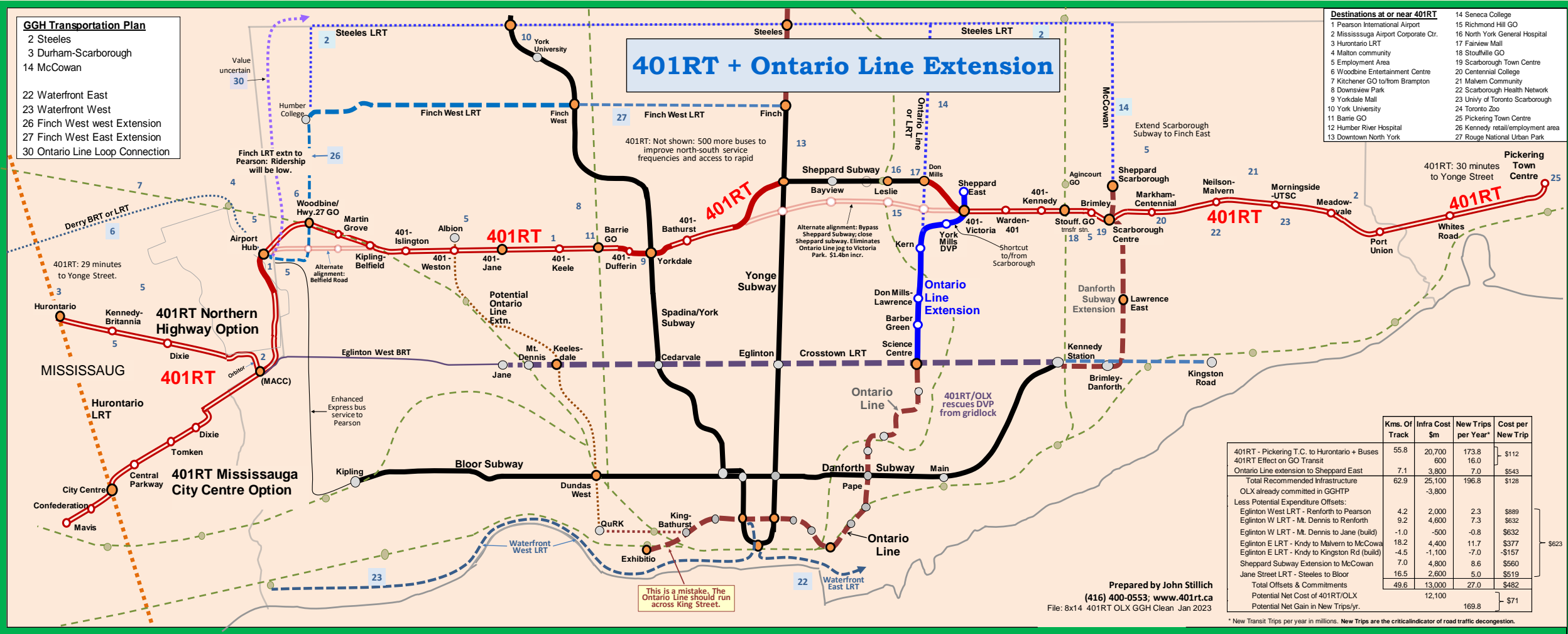
Via Eglinton W LRT	24
Via 401RT	25

Jane Street LRT

- **401RT, Eglinton LRT, Finch W LRT will divert some trips on Jane transit to Bloor; reduces trip-kilometres on buses (i.e. crowding) (Jane bus volume 32,500; < Dufferin & Lawr. E)**
- **May be possible to avoid building the Jane LRT.**
- **\$2.6 bn may be saved.**

N.B. Prospect of future OL West extn to Eglinton West & Jane-Trethewey & Weston-401RT (higher cost of OLW can be offset by avoiding segments of “Ontario Line Connection” in GGH Plan)

The 401RT/OLX



	Kms. Of Track	Infra Cost \$m	New Trips per Year*	Cost per New Trip
401RT - Pickering T.C. to Hurontario + Buses	55.8	20,700	173.8	\$112
401RT Effect on GO Transit		600	16.0	
Ontario Line extension to Sheppard East	7.1	3,800	7.0	\$543
Total Recommended Infrastructure	62.9	25,100	196.8	\$128
OLX already committed in GGHTP		-3,800		
Less Potential Expenditure Offsets:				
Eglinton West LRT - Renforth to Pearson	4.2	2,000	2.3	\$889
Eglinton W LRT - Mt. Dennis to Renforth	9.2	4,600	7.3	\$632
Eglinton W LRT - Mt. Dennis to Jane (build)	-1.0	-500	-0.8	\$632
Eglinton E LRT - Kndy to Malvern to McCowan	18.2	4,400	11.7	\$377
Eglinton E LRT - Kndy to Kingston Rd (build)	-4.5	-1,100	-7.0	-\$157
Sheppard Subway Extension to McCowan	7.0	4,800	8.6	\$560
Jane Street LRT - Steeles to Bloor	16.5	2,600	5.0	\$519
Total Offsets & Commitments	49.6	13,000	27.0	\$482
Potential Net Cost of 401RT/OLX		12,100		
Potential Net Gain in New Trips/yr.			169.8	\$71

401RT/OLX Affordability

- **Gross capital costs –**
- **\$22 to 24 billion for 401RT**
- **\$3.8 billion for OL extn to Sheppard East**
- ***However*, unneeded infrastructure reduces these costs – significantly.**

401RT/OLX Affordability

- **Net additional cost commitment for 401RT/OLX can be as low as \$12.1 billion.** (illustration next slide)
- **THE CHOICE:**
 - **\$25bn for 197m new transit trips (401RT/OLX) at \$128 per new transit user; or**
 - **\$16.8bn for 27m new transit trips (current plans) at \$623 per new transit user** (Includes \$3.8bn for OLX in GGHTP)

401RT/OLX Affordability

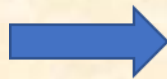
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* New Transit Trips per year in millions. **New Trips are the critical indicator of road traffic decongestion.**

401RT/OLX Affordability

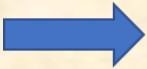
Comparative Effectiveness	New trips /yr 2051	Gross Infra Cost (\$m)	Cost per New Trip
401RT/OLX	196.8	26,900	\$137
Unneeded Infra*	27.0	16,800	\$623
Ratio	7.29	1.60	4.56

* Eglinton W LRT, most of Eglinton E LRT, Sheppard E Sbw y extn, Jane LRT



401RT/OLX is 4.5 times as cost-effective as current (unneeded) rapid transit infrastructure.

Do Not Duplicate!

- A 401RT/OLX is essential and inevitable.
 - Even with \$16.8 billion spent on the Sheppard East subway extn, Eglinton East LRT, Eglinton W LRT, and Jane LRT, the 401RT/OLX will be needed.
-  • **Do Not spend the \$16.8 billion.**

401RT/OLX Affordability

Direct average tax cost to households to build the 401RT/OLX may be as low as 5 cents per day.

Annual Debt Carrying Costs at Completion

	401RT/OLX	Reductions	Net
Gross capital cost	26,900	-16,800	10,100
Federal share @ 1/3	8,967	-5,600	3,367
Debt interest - Ontario @ 4.5%	17,933	-11,200	6,733
Household share of Ont. taxes	807	-504	303
Household share of tax cost	45%	45%	45%
Ontario population 2046	363	-227	136
Avg. persons/household	20,000,000	20,000,000	20,000,000
Ontario households 2046	2.6	2.6	2.6
Annual cost per household	7,692,308	7,692,308	7,692,308
Avg. cents per day	\$47.21	-\$29.48	\$17.73
	13	-8	5

401RT/OLX Affordability

Other comparisons:

	New Trips (Million/yr)	Gross Infra. Cost (\$Mil)	Cost per New User
Ontario Rapid Transit Plan	84	28,500.0	\$338
Elevated 401RT + OLX	197	26,900.0	\$137
Comparative Ratio	2.34	0.94	2.47
401RT/OLX Cost Effectiveness Advantage			2.47

	New Trips (Millions/yr)	Gross Infra. Cost (\$Mil)	Cost per New User
HSR to Windsor	10	21,000	\$2,100
401RT + OLX	197	26,900	\$137
Comparative Ratio	19.68	1.28	15.36
401/OLX is 15.36 times as cost effectiveness as HSR			

401RT/OLX Operating Impacts

Overall Operating Revenue-to-Cost Ratio **84%**

	401RT Rail Component	401RT Bus Component	OLX Eglinton to Sheppard	Total 401RT/OLX
New stations	31		6	
No. of buses		496		
Unit operating cost	\$8,000,000	\$450,000	\$8,000,000	
Total Cost	\$248,000,000	\$223,200,000	\$48,000,000	\$519,200,000
New Fares 2051*	127,800,000	46,000,000	7,000,000	\$180,800,000
Average fare	\$2.46	\$2.21	\$2.46	
	\$315,000,000	\$101,900,000	\$17,300,000	\$434,200,000
Surplus or Deficit	\$67,000,000	-\$121,300,000	-\$30,700,000	-\$85,000,000
				84%

*Excludes 16m new transit users on GO Transit (4 intersects with 401RT)

401RT/OLX – Conclusion

**It is unaffordable *not* to build
the 401RT and the Ontario
Line extension to Sheppard
Avenue East.**