This presentation was created for Prof. George Baird's course at the University of Toronto, Faculty of Architecture, "A History of Urban Form". Although it is called a "History of Transit", this is an overview with particular emphasis on the city's growth and how this related to the transit system, not a definitive transit history.

Some topics have been omitted on purpose or shortened in the interest of time.

The Waterfront: This is mentioned in brief as it relates to the 19th and early 20th century Toronto, but I have left the "big" waterfront story to another speaker who will address this course in two weeks.

The bus system: Again this is mentioned in brief because by the time the bus network became very large, it was being shaped by rather than shaping the city.

GO Transit: The GO system is largely outside of Toronto. Although it could play a larger role, its main contribution has been to allow downtown intensification beyond what would have been possible with the subway system.

Regional integration: This is a pressing issue, but one for Toronto today although it has received too little attention in the past.

After the main presentation, there is an epilog with many "where do we go now" topics for debate.

In this version of the deck, pages in italics like this one are my speaking notes.

Steele's Corners (c1890) Green Bush Hotel

Unlike many cities we think of with "great" transit systems, Toronto is relatively young. As a formal city, it was founded in 1834 (formerly the Town of York 1793), but had a small population. Moving around the city was done on foot or by horse (with or without carriage/sleigh). Railways in the 1850s handled freight and longer-distance travel.

The photo is a bit of a cheat because it's actually much later, 1890, at Steeles and Yonge which was out in the country far from Toronto as it then was.

A History of Transit in Toronto
Steve Munro / November 5, 2021
For “A History of Toronto Urban Form”

City of Toronto Archives, Fonds 16, Series 71, Item 9026

2021 is the TTC's 100th birthday, but there is more to transit in the city than the TTC. One of the first services was a bus company operating on Yonge Street to the then outlying town of Yorkville at Bloor Street in 1849. Horse drawn streetcar operation began in 1861, then electrification in 1891. There were many separate companies, mostly successful, although in time consolidation would bring them under common ownership.

The photo looks east on King from Yonge. The St. Lawrence Hall is visible in the distance.

“Transit” is not just the TTC

- J.G. Williams autobus service (1849)
- Toronto Street Railway Company (1861-1891)
- Toronto Railway Company (1891-1921)
- Toronto & York Radial Railway
- Toronto Suburban Railway (1894)
- Toronto Civic Railway (1911)
- Toronto Ferry Company (1890)
- Toronto Transportation Commission (1921)
- … plus the steam railways

1861: The Toronto Street Railway was formed to establish a horse drawn street railway service. The terms of the charter from the city included a provision that it use a track gauge which is unique to Toronto so that wagons could drive in the slotted rails rather than the often muddy streets. The thirty year charter was due to expire in 1891, but something far more important would happen to change street railway technology and reach.

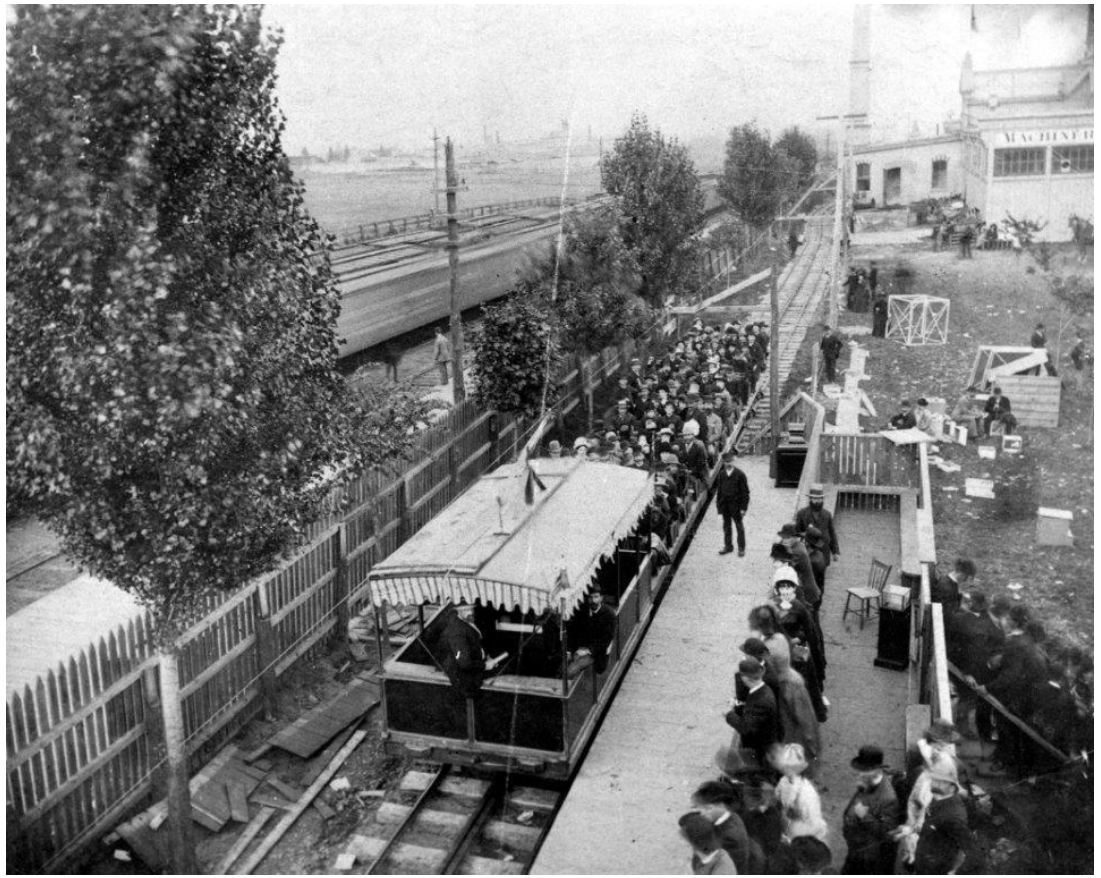
The Toronto Street Railway Company (1861)

- Horse drawn cars not to exceed six miles/hour
- Cars to run 16 hours/day summer, 14 winter
- Maximum fare five cents
- Cars to have right-of-way over other vehicles on tracks
- Track gauge to accommodate wagons (4’ 10 7/8” unique to Toronto)
- City tax of $5 per car/year
- Company to make an effort to keep tracks open in winter, but in the event of snow blockage, sleighs are to be provided for passengers.

In 1884 (and again in 1885), electric rail travel was demonstrated at the CNE by Charles Van Depoele. Earlier installations Chicago (1883). 1885 Toronto installation featured a “trolley pole”. The elimination of horses increased the reach of the railways and the size of cars that could be operated, not to mention safe underground operation. This was the birth of rail transit.

Electrification: 1884 at the CNE

City of Toronto Archives, Fonds 16, Series 71, Item 3447



In 1891 the Toronto Railway Company received a 30-year franchise from the City with the provision that it electrify the streetcar system within three years. Although the TSR had a cap on fares, they had evaded this by charging for transfers between lines. The TRC's franchise imposed a free transfer requirement, and Toronto has had that to this day.

Initially, the railway made its profits building into new territories in the rapidly growing city, but in time this became less attractive as the number of years in the franchise dwindled and the company had other financial issues.

The Toronto Railway Company (1891)

- System to be electrified with some electric cars operating within one year, and complete system conversion from horse cars in three years.
- Five cents adult fare (6 tickets for 25 cents) with free transfers
- City to receive $800 per track mile per year plus a percentage of gross earnings
- City vs TRC fight about expansion beyond 1891 boundaries went to the Imperial Privy Council in London (effectively Canada's supreme court in the day). They decided in the TRC's favour setting Toronto on a path to municipal ownership.

Transit was not confined to the city proper, but included several suburban lines serving outlying communities. That 1890 stage coach we saw earlier was replaced not many years later by the rapidly extending Metropolitan Railway from Yonge at Summerhill to, eventually, Sutton at Lake Simcoe. Fragments of some of these lines remain (Queen to Long Branch, Kingston Road to Vic Park), but most are long-gone. A two km stretch of the line to Guelph is now home to the Halton County Radial Railway museum near Rockwood.

The Suburban Lines

- Toronto & York Radial Railway
  - Metropolitan Railway Company (opened 1892-1909, closed N of Richmond Hill 1930, closed 1948)
  - Schomberg & Aurora Railway Company
  - Toronto & Mimico Railway Company (opened 1892-1905, closed w of Long Branch 1935)
  - Toronto & Scarboro Railway Company (opened 1894-1906, closed 1936)
- Toronto Suburban Railway (1894)
  - The Weston, High Park and Toronto Street Railway Company (1890)
    - Woodbridge, later cut back to Weston (1926)
  - The Davenport Street Railway Company (1891)
  - Crescent and Lambton line (opened 1893-1896)
  - Guelph Line (1917-1931)
- The Belt Line (Steam)

Earlier I mentioned consolidation of railway ownership. Sir William Mackenzie and his partners set up both the TRC and the T&YRR, and bought up all of the smaller railways. They also owned part of the power generation facilities at Niagara. Between the establishment of electric street railways in 1892 and the arrival of Niagara power in 1907, the TRC generated its own power and also sold electricity to the street lighting company, another related entity.

Sir William Mackenzie & Electric Power

- Mackenzie and his associates owned the Toronto Railway Company and the Toronto & York Radial Railway Company.
- These grew by acquisition of other railways including the Toronto Suburban.
- They also owned an interest in generation facilities at Niagara.
- Until 1907 when Niagara power came to Toronto, the TRC generated its own power.

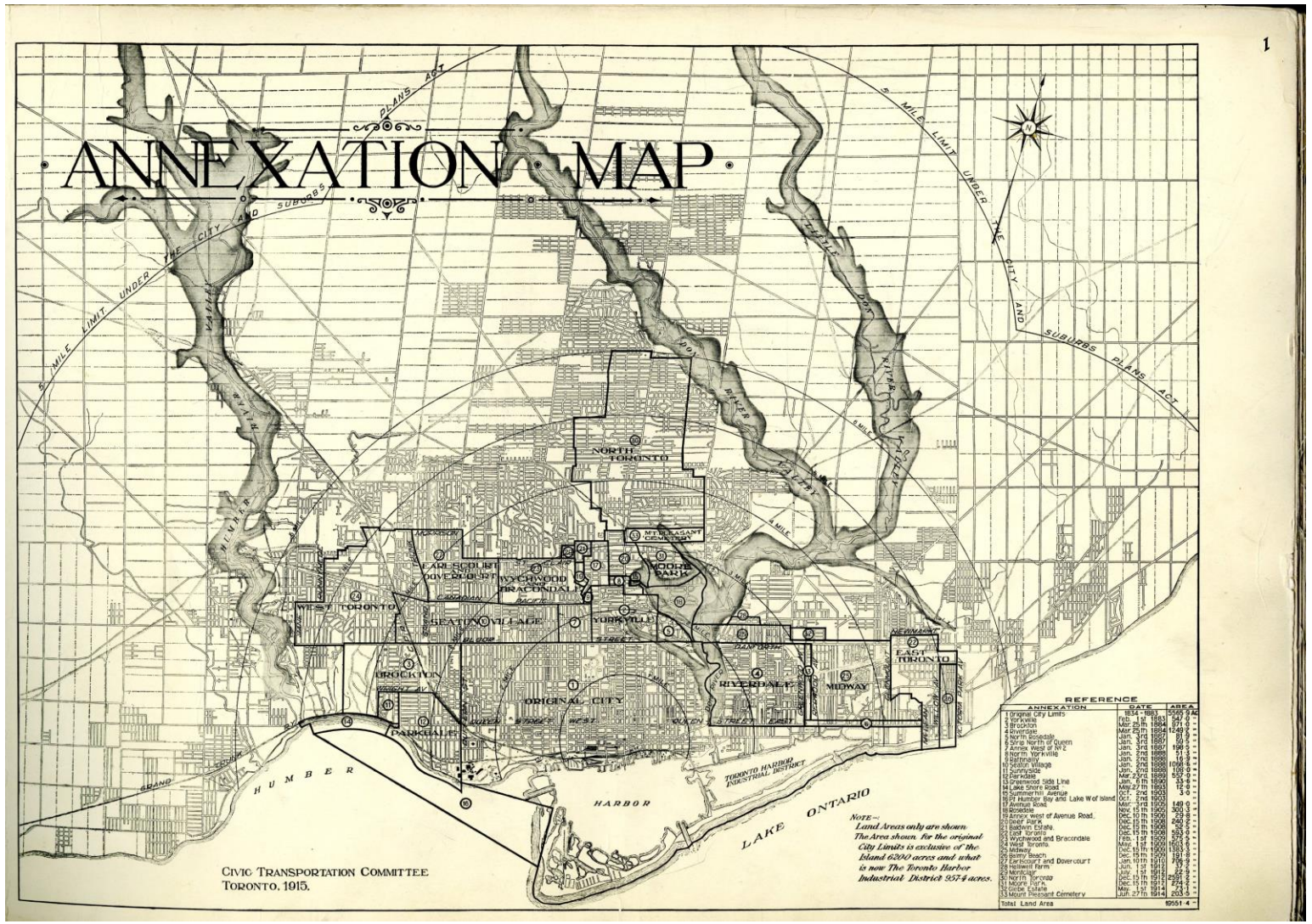
The power house on Front Street is the only remaining building of what was once the centre of the TRC's operations in that neighbourhood. It is now the Young People's Theatre.

Toronto Railway Company Powerhouse
Front St. E. & Frederick St.

City of Toronto Archives, Fonds 16, Series 71, Item 3680

Backing up in time a bit, an important consideration in thinking of how transit grew is that much of what we call “Toronto”, even the “old” pre-amalgamation city, is comparatively recent. The driving force in the city’s expansion was immigration, just as it is expected to be in the coming decade.

Toronto Grows by Annexation



REFERENCE

ANNEXATION	DATE	AREA
1 Original City Limits	1834 - 1883	5565·9 AC
2 Yorkville	Feb. 1st 1883	547·0 "
3 Brockton	Mar. 25th 1884	971·0 "
4 Riverdale	Mar. 25th 1884	1249·2 "
5 North Rosedale	Jan. 3rd 1887	81·9 "
6 Strip North of Queen	Jan. 3rd 1887	59·5 "
7 Annex West of № 2	Jan. 3rd 1887	198·5 "
8 North Yorkville	Jan. 2nd 1888	51·3 "
9 Rathnally	Jan. 2nd 1888	16·9 "
10 Seaton Village	Jan. 2nd 1888	1068·6 "
11 Sunnyside	Jan. 2nd 1888	108·0 "
12 Parkdale	Mar. 23rd 1889	557·0 "
13 Greenwood Side Line	Jan. 6th 1890	33·6 "
14 Lake Shore Road	May. 27th 1893	12·0 "
15 Summerhill Avenue	Oct. 2nd 1903	3·0 "
16 Pt Humber Bay and Lake W of Island	Oct. 2nd 1903	"
17 Avenue Road	Mar. 3rd 1905	149·0 "
18 Rosedale	Nov. 15th 1905	300·3 "
19 Annex west of Avenue Road.	Dec. 10th 1906	29·8 "
20 Deer Park	Dec. 15th 1908	240·2 "
21 Baldwin Estate.	Dec. 15th 1908	52·5 "
22 East Toronto	Dec. 15th 1908	593·0 "
23 Wychwood and Bracondale	Feb. 1st 1909	575·5 "
24 West Toronto.	May. 1st 1909	1603·6 "
25 Midway	Dec. 15th 1909	1383·3 "
26 Balmy Beach	Dec. 15th 1909	191·8 "
27 Earlscourt and Dovercourt	Jan. 10th 1910	706·9 "
28 Helliwell Farm	Jun. 1st 1912	37·2 "
29 Montclair	July. 1st 1912	22·9 "
30 North Toronto	Dec. 15th 1912	2591·2 "
31 Moore Park.	Dec. 15th 1912	274·2 "
32 Glebe Estate	May. 1st 1914	73·1 "
33 Mount Pleasant Cemetery	Jun. 27th 1914	203·5 "
Total Land Area		19551·4 "

Just as the suburbs beyond Toronto have grown in recent decades, expansion around the original city was seen as a business opportunity. One big problem was connecting new developments to the existing city. This is comparatively easy if you build adjacent to what is already there, but more challenging if you go further out, particularly before the automobile era.

The Belt Land Corporation planned to build beyond the city limits and link their properties with a railway line. Today we would call this "transit-oriented development". Unfortunately for the company, the idea failed, and the railway lasted only a few years.

The illustration is in the Don Valley (with a bit of artistic license, not unusual for real estate promoters). The bridge in the background is the CPR bridge at Todmorden near the Brick Works, and Rosedale is on top of the hill to the left.

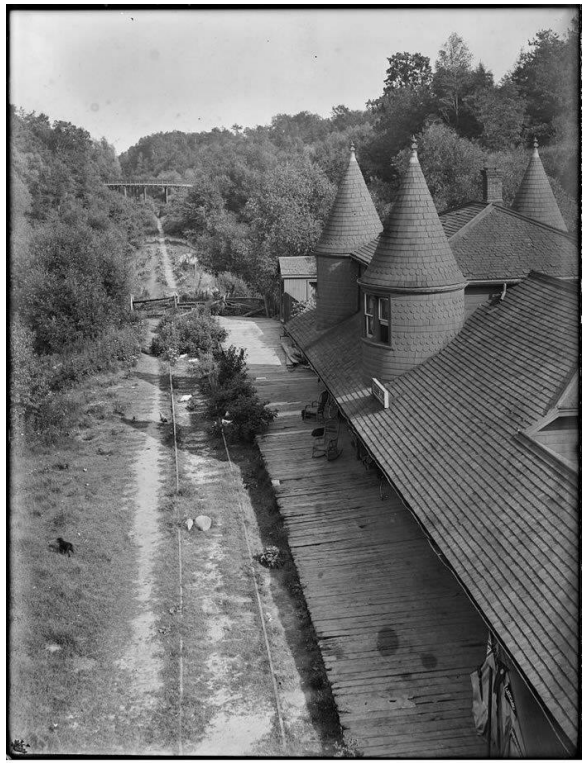
Moore Park Station was located just south of Moore Avenue. This is now a walking trail that leads south to the Brick Works.

The line remained in use for freight west of Mount Pleasant (serving Dominion Coal and other industries along Merton Street). It is now the Belt Line rail path.

The Belt Line Railway Company (1892-1894)

Remnants of the Belt Line

Moore Park Station (1909)

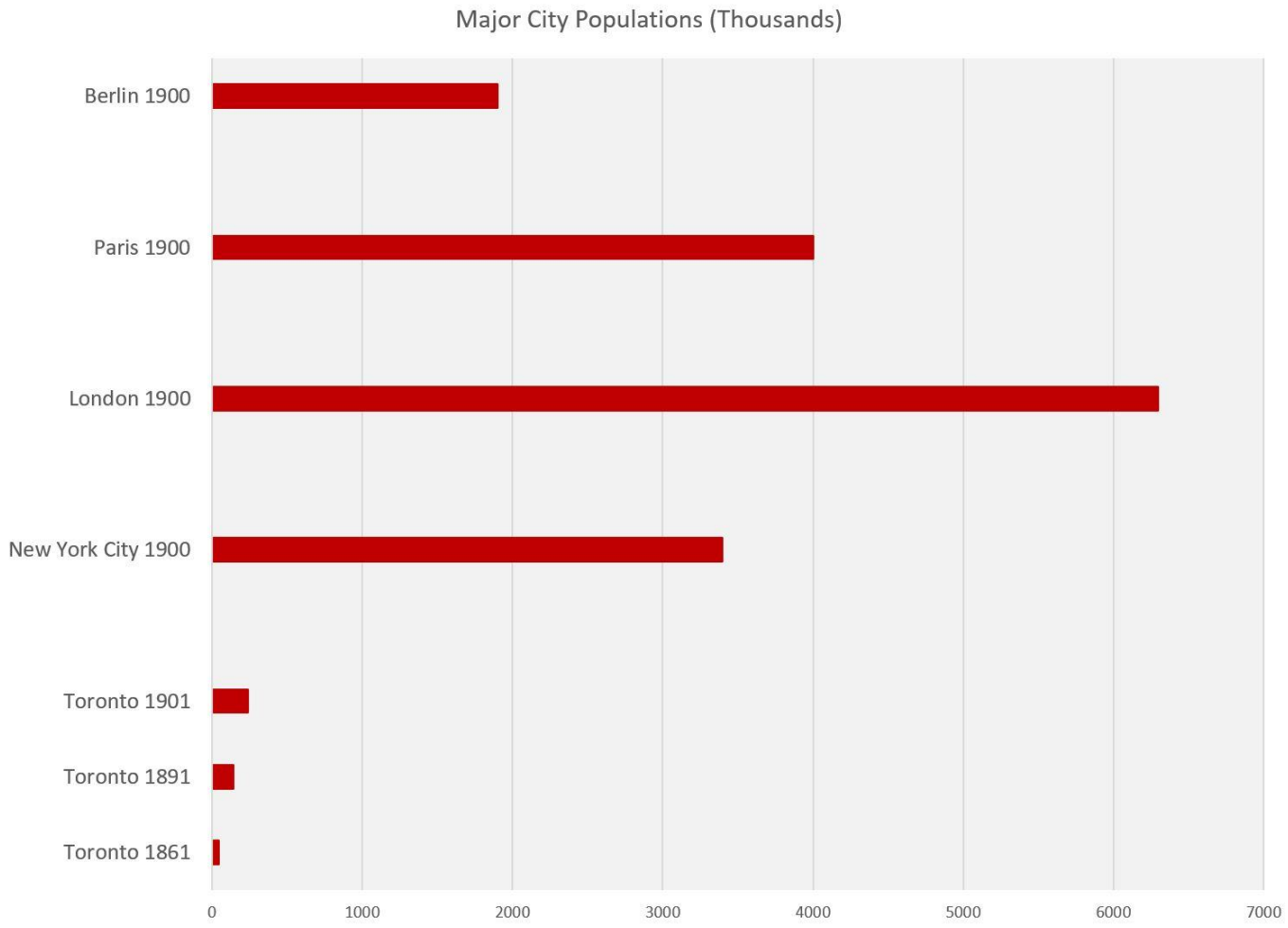


City of Toronto Archives, Fonds 1244, Item 1109

Yonge at Merton (Early 1954)

Cities with populations in the millions in 1900 had the base to support major investments in street railways and subways. Toronto did not, and its growth into the millions came later and coincided with another technology: the automobile.

Why Don’t We Have A Subway Network Like New York City?



By the 1910s, Toronto faced the problem of rapid growth and the limited size of its transit system. The city was forced to build its own extensions where the TRC refused to expand, and the fragmentation of transit led to extra fares and inconvenience. One quarter of the population lived beyond the 1891 boundaries.

The conventional wisdom of the day was that good cities expanded their transportation systems in advance of development, what we might call today a "transit first" policy. However, a century ago, the report's authors bemoaned how this was no longer the practice, and the danger to the city of falling behind. The lack of timely investment in transit is not a recent phenomenon.

The population distribution in 1914 shows how much that we now think of as Toronto was unpopulated a century ago. The first map shows the growth of the built up area of the city from 1889 to 1914 while the second shows the population density

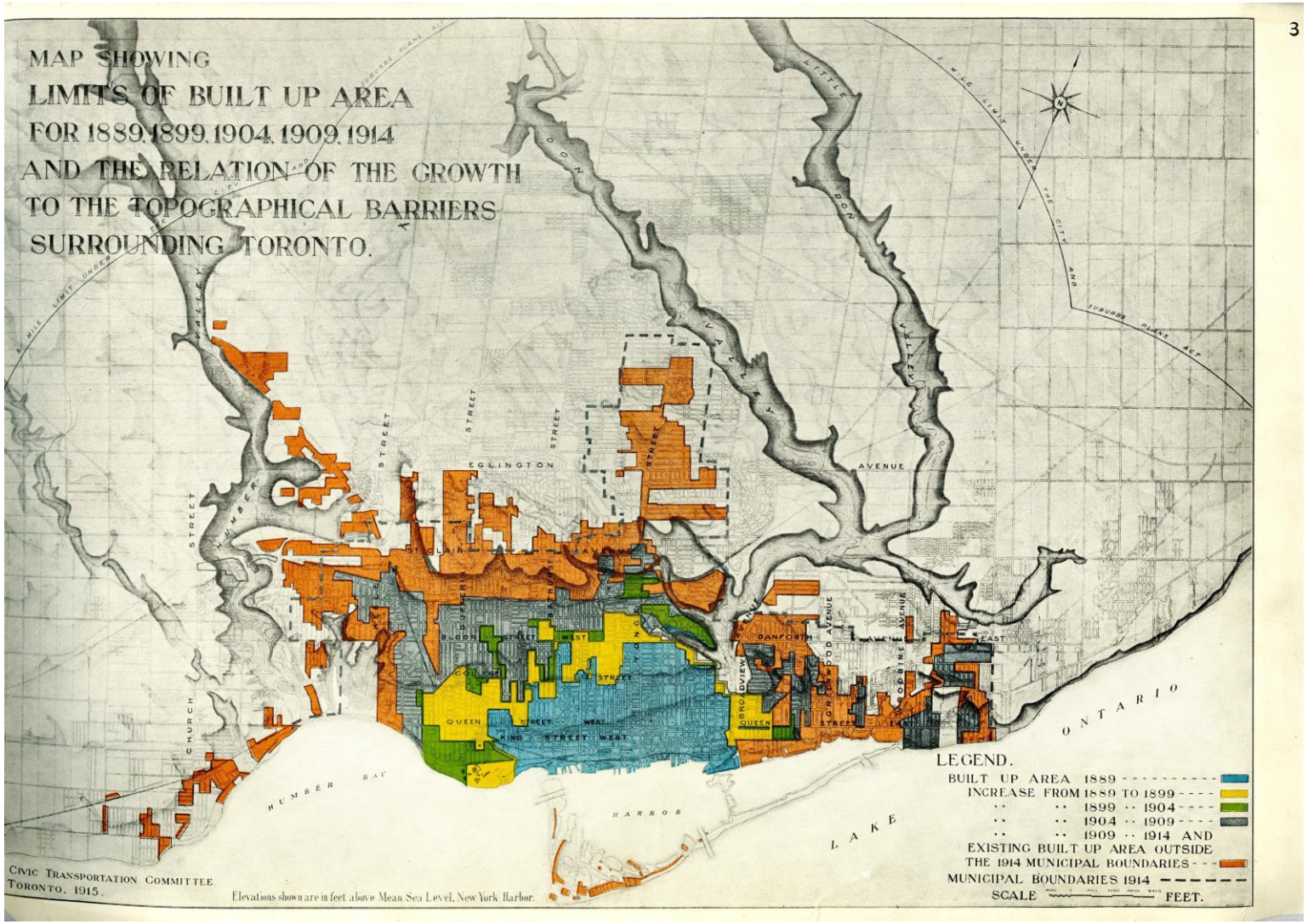
Civic Transportation Study 1915

“The future growth and development of the City of Toronto will be largely dependent on the provision of adequate transportation facilities, properly located.

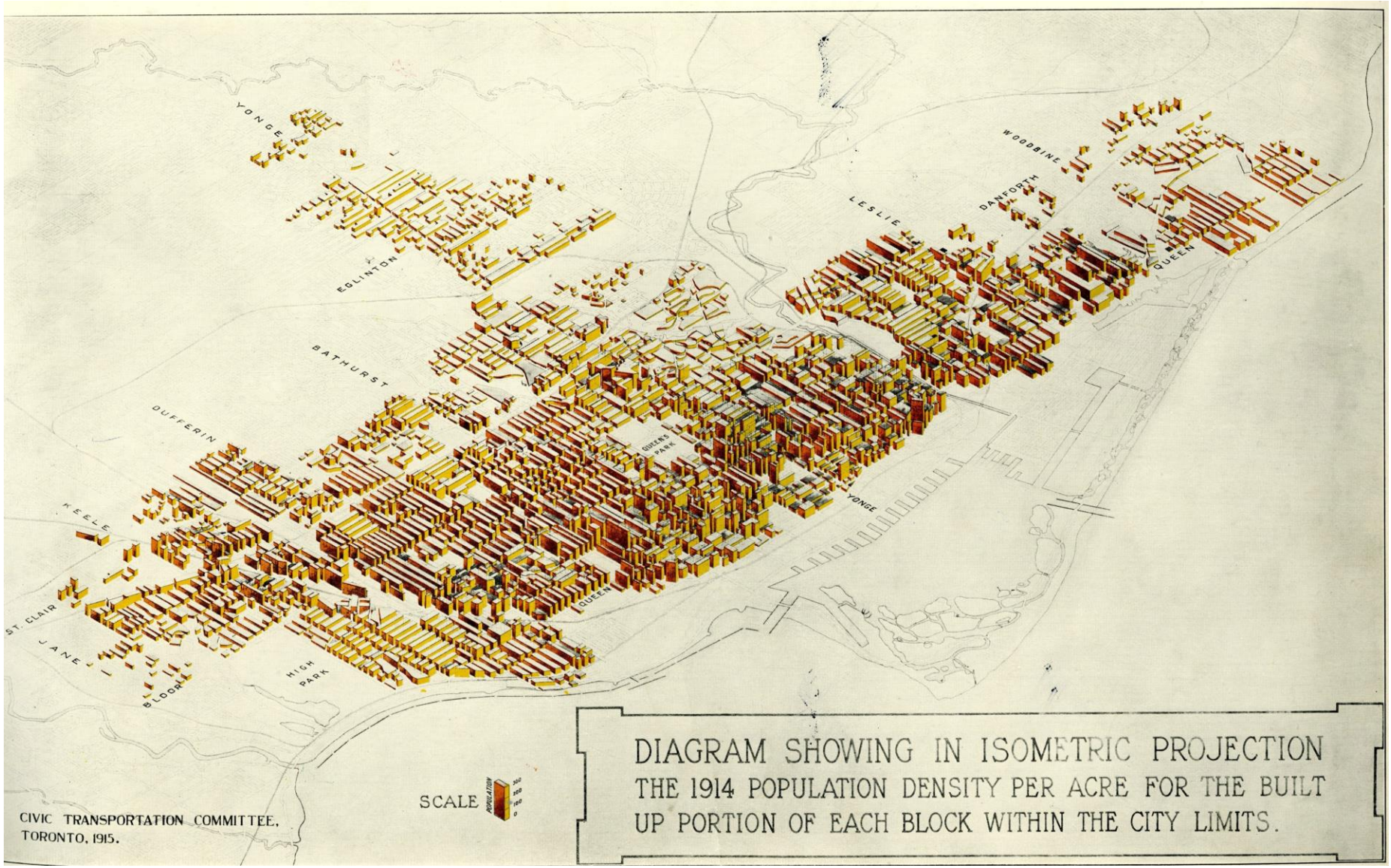
“The extension of these facilities should, and usually does, precede the population, but in Toronto of late years, the conditions have been reversed. Any policy which results in such reversal will fail to develop the resources of the city to the full extent.

“… There are at present approximately 85,200 people residing without the City Limits of 1891, and 31,400 of an interurban population, outside but adjacent to, the present city limits, totalling 116,600 people, the equivalent of almost one-quarter of the entire population of the city.”

Built Up Areas of Toronto 1889-1914



Population Distribution 1914



Streetcar service on Queen in The Beach ended at Lee Avenue, but the City was intent on pushing further east and built an extension to Munro Park. (I am not related.)

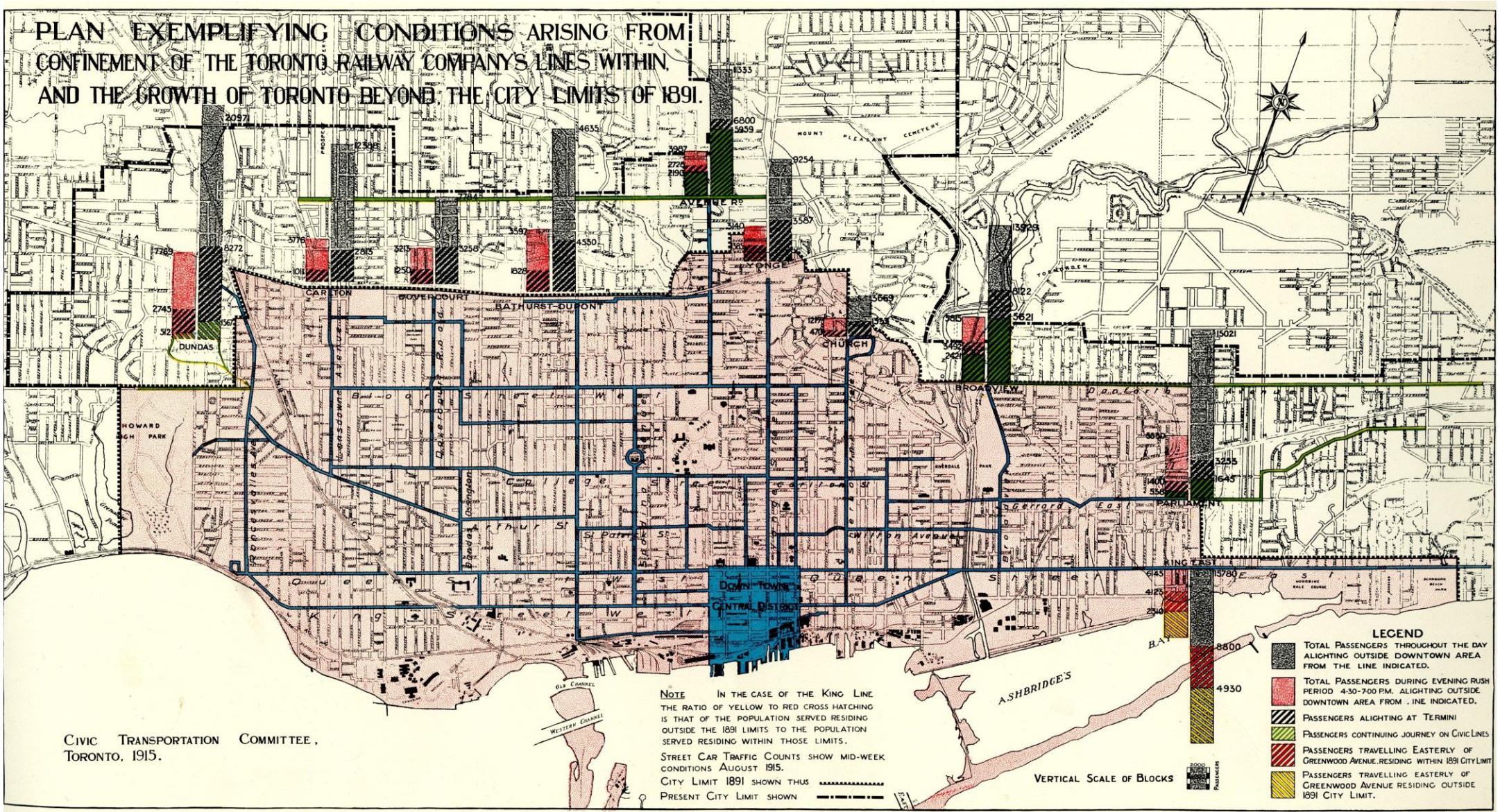
The valley in the photo was much deeper in 1898 and it is now partly filled in.

For those who know the area, the Fox Cinema today is a few blocks behind the photographer, and Neville Loop (and the Water Works) are at the far side of the valley.

Queen East at Munro Park (1898)

The TRC's routes were limited to the area in pink which was the 1891 city limits. The green lines on the map show the extensions by the Toronto Civic Railway on St. Clair, Danforth, Bloor West and Gerrard.

Limits of the Toronto Railway Company



The Toronto Railway Company failed to invest in expansion as it became clear that their franchise would not be extended by the city. Inadequate transit service was an issue a century ago as this cartoon from the Toronto Star shows. The streetcar is erroneously labelled “Toronto St. Ry.”.

The Need for Public Ownership (1913)

The Toronto Civic Railway built east on Gerrard from Greenwood out to what had been "East Toronto", an area annexed by the city in 1908. Opening day in 1912 was a big event.

St. Clair Avenue West was another important growth area for the city that had no streetcar line. Contrast the 1912 view when the line was built with the 1928 view.

The streetcars originally had their own right-of-way, but this was removed during The Depression both as a sop to the growing use of automobiles, and as a make-work project. It would not be the last time roads were changed to favour cars.

The Danforth was surrounded mainly by farms in the 1910s, and the area north of High Park was still quite young. Neither had a streetcar line because they lay beyond the TRC's territory. Streetcars came up Broadview to Danforth, but went no further. The Danforth was also cut off by the Don Valley.

The Playter building is still there on the SE corner.

Toronto Cicic Railway:
Gerrard / St. Clair / Danforth / Bloor West

1911: Building east on Upper Gerrard

City of Toronto Archives, Fonds 1231, f1231_it0439

Dec. 15, 1912: Opening day at Greenwood

City of Toronto Archives, Series 372 s0372_ss0100_it0448

St. Clair & Dufferin

Looking west in 1912

City of Toronto Archives, Fonds 1231, f1231_it1787

Looking east in 1928

Danforth Avenue / Bloor Street West

Danforth & Broadview 1914

City of Toronto Archives, Fonds 1244, f1244_it1146

Bloor & Dundas 1915

City of Toronto Archives, Fonds 1231, f1231_it2169

The Prince Edward Viaduct made a huge change in access to the east end of the city. The view on the left is at what is today the east end of the Viaduct (and a block from my home) where the dirt road simply ends at the valley.

The bridge has two levels and was designed for a planned, but never built, subway that would bring suburban streetcars into downtown. The lower level was used a half-century later by the Bloor-Danforth subway.

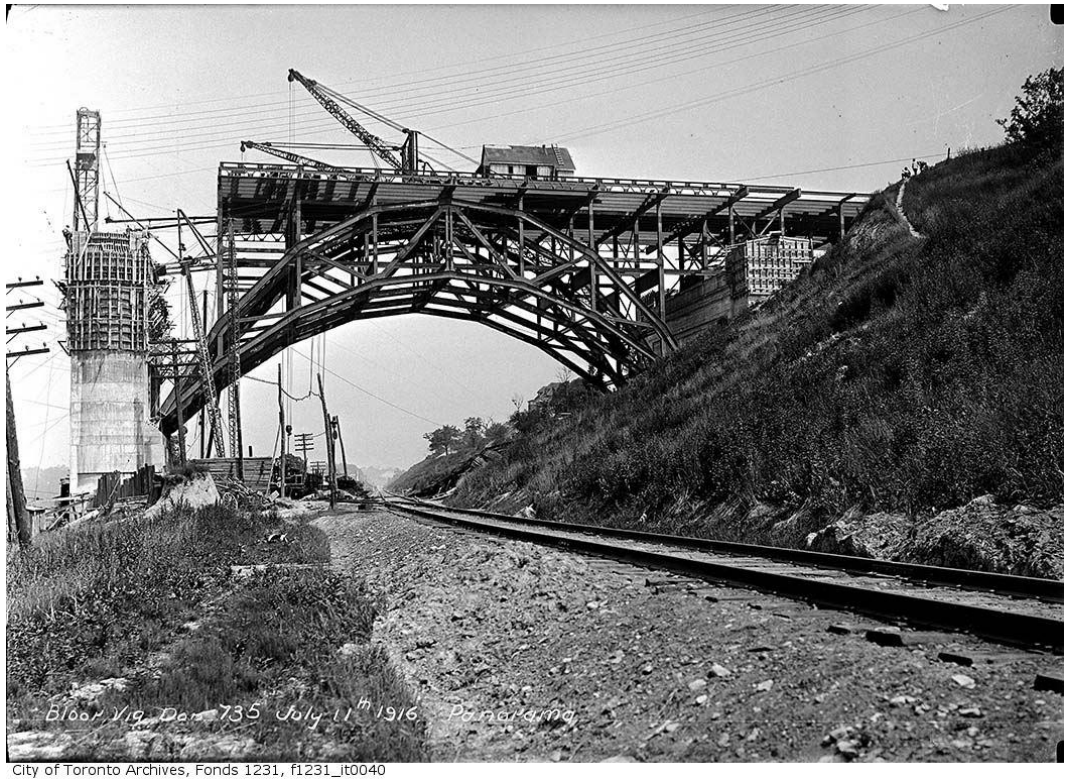
The Viaduct opened in 1918 connecting the streetcar system across the valley. The Danforth's streetscape has fleshed out with the Bank of Commerce on the NE corner, and the view even rated a post card. Note how automobiles have become part of the landscape.

The Prince Edward Viaduct

Danforth looking west at the valley

City of Toronto Archives, Fonds 1244, Item 1257

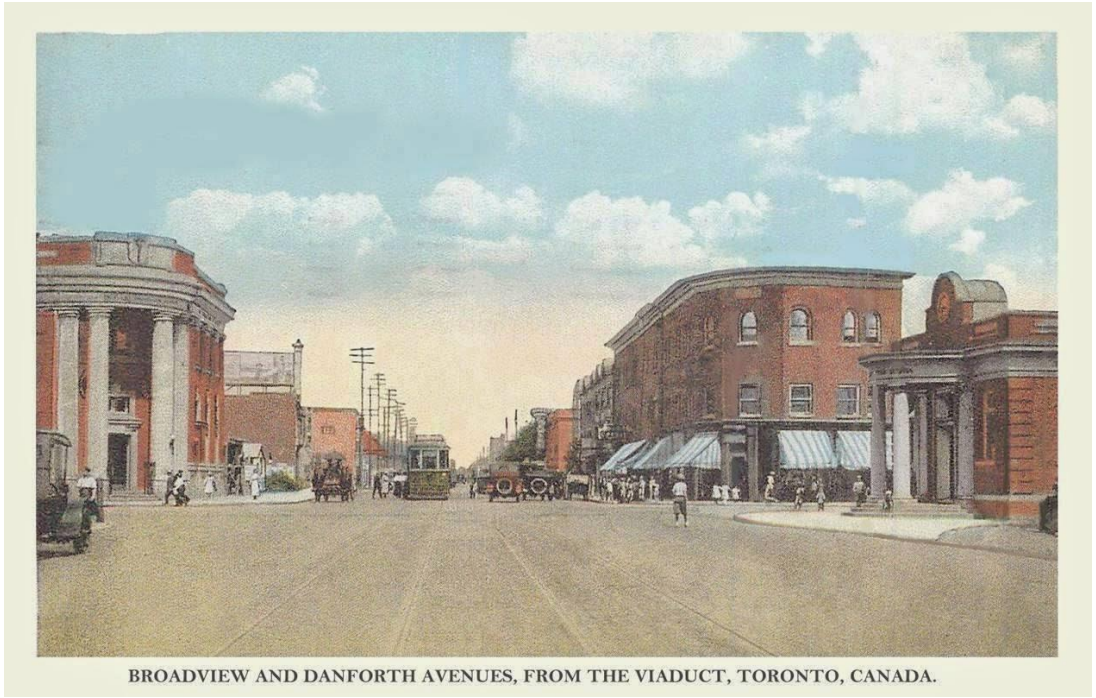
Construction of the east span



City of Toronto Archives, Fonds 1231, f1231_it0040

The Viaduct Opens (Oct. 18, 1918)

City of Toronto Archives, Series 372 s0372_ss0010_it0872


BROADVIEW AND DANFORTH AVENUES, FROM THE VIADUCT, TORONTO, CANADA.

The Viaduct Today

Backing up a little bit, here are two views of suburban operations. The Crescent Line in the Junction meandered from Keele and Dundas west and south to end in a residential area north of High Park. This line did not last, although a westward extension on Dundas to Lambton fared better.

The line to Weston originally extended to Woodbridge.

Toronto Suburban Railway

In the Junction at Evelyn & Fairview (Crescent Line)

In Weston (Formerly Woodbridge Line)

City of Toronto Archives, Fonds 1244, f1244_it1191

1191

An important part of any transit company's business is leisure travel. Before air conditioning, getting down to the lake was a popular way to cool off in the summer. The Toronto Railway Company built an amusement park at Scarboro Beach (which is actually in Toronto) to generate weekend traffic, and there was a park at Eldorado on the Toronto Suburban's Lambton line. The Islands have always been a popular destination.

The Trillium still operates, sometimes for private parties, sometimes to handle busy periods in the summer.

Leisure Travel:
Scarboro Beach / Bond Lake / Eldorado
Sunnyside / Island

City of Toronto Archives, Fonds 1244, Item 162

City of Toronto Archives, Fonds 1244, Item 261A

The Waterfront is an essential part of the city and shaped its early development. This view looks east from York Street from the "old" Union Station in the 1890s. The lake is much further north than today (Front Street is on the left), and the link between the railways and shipping was vital in the pre-Seaway era.

Here are two contemporary views looking north up Yonge Street from the water, and from the railway which, in those days, crossed all of the streets at grade, a source of much annoyance to the city, and a dangerous situation for pedestrians.

I will leave a detailed discussion of the waterfront to Chris Glaisek from WFT who is speaking to this group in two weeks.

The Waterfront from Old Union Station (1890s)

The Waterfront at Yonge Street (early 1890s)

City of Toronto Archives, Fonds 2, Series 958, File 111, Item 2

When we look at industrial development in Toronto (and hence the location of manufacturing jobs), it is important to remember that industry requires transportation. In 1915, that was provided by the railways, and much industry was concentrated on railway lines (red). A century later, industry is mainly based on trucks, and the focus of industrial lands has shifted to the highway network. It's not an exact match because some industry remains in its "railway" locations, but the pattern is quite clear.

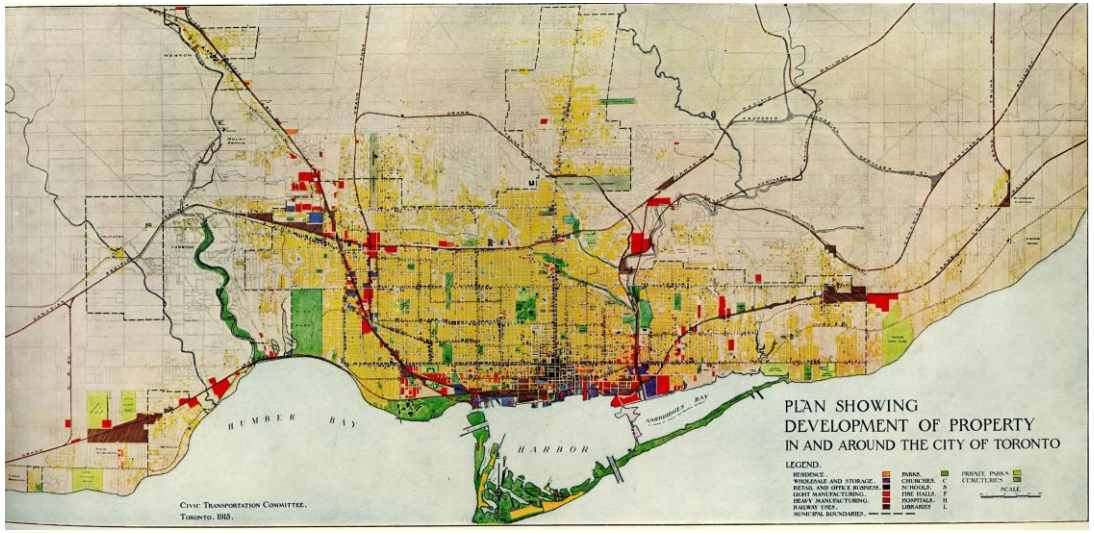
The railway lands occupied a major space on the waterfront stretching from the Don River to beyond Bathurst Street. When rail passenger service was an important part of the national networks, both CPR and CNR had large maintenance yards for their passenger fleets around what is now the CN Tower. CN relocated to Mimico to a yard shared with GO Transit, and CP got out of the passenger business. This left huge blocks of land available for redevelopment.

The railways had large freight yards south of King Street. Today, the area is filled with offices and condos.

Industrial Toronto

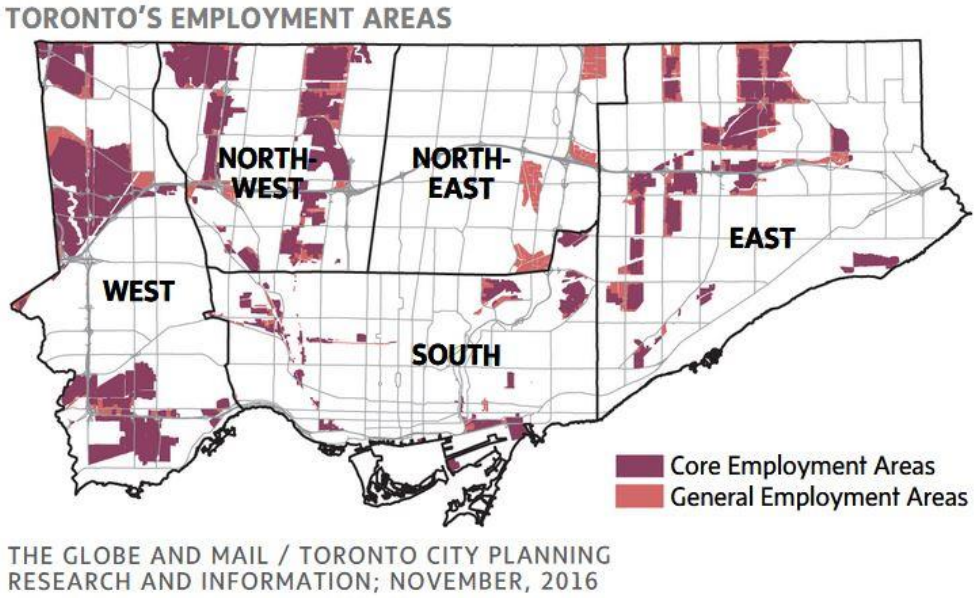
1915

Oriented to the railways



2016

Oriented mainly to the highways



The Railways and Industry

Looking S on Spadina from Front St (1927)

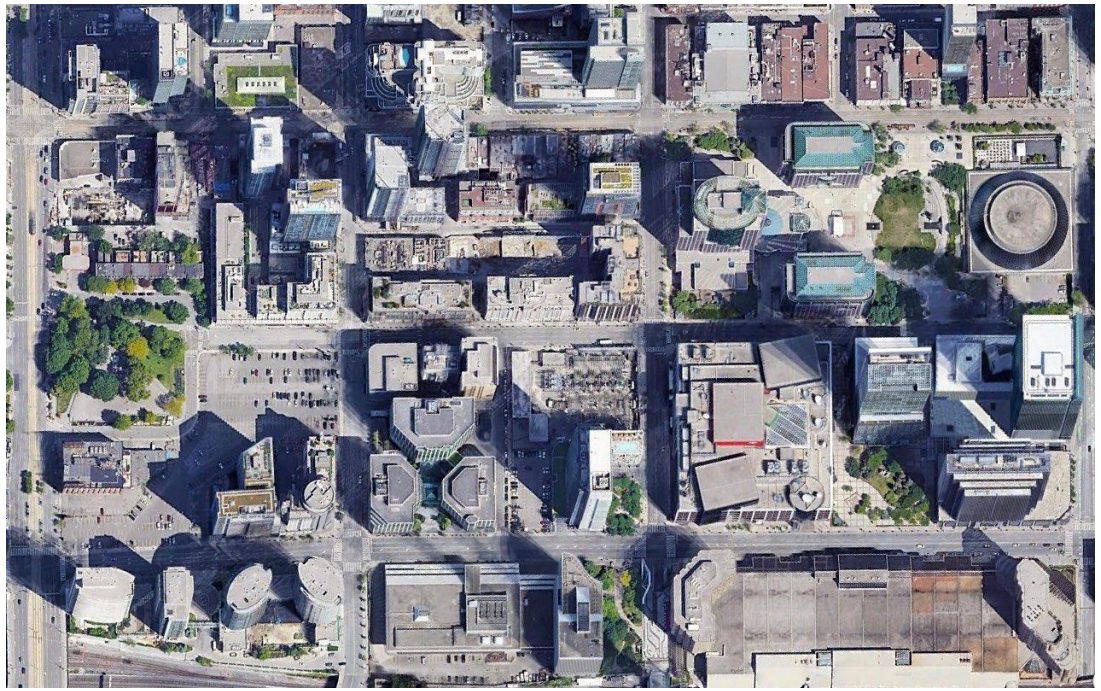
Looking E from the CNE Grounds (1927)

City of Toronto Archives, Fonds 1231, Item 1250

Railway Freight Operations
King to Front / Spadina to Simcoe

1959

2020



Union Station is worth mentioning because of its checkered history. The view on the left is from the same vantage point as that 1890 picture, but by the 1920s there were two important changes. On the right, the city had extended south with landfill to what is now Queens Quay. On the left is the new Union Station intended to increase capacity for intercity train passengers, and to relieve the mess of grade crossings between city streets and the railways.

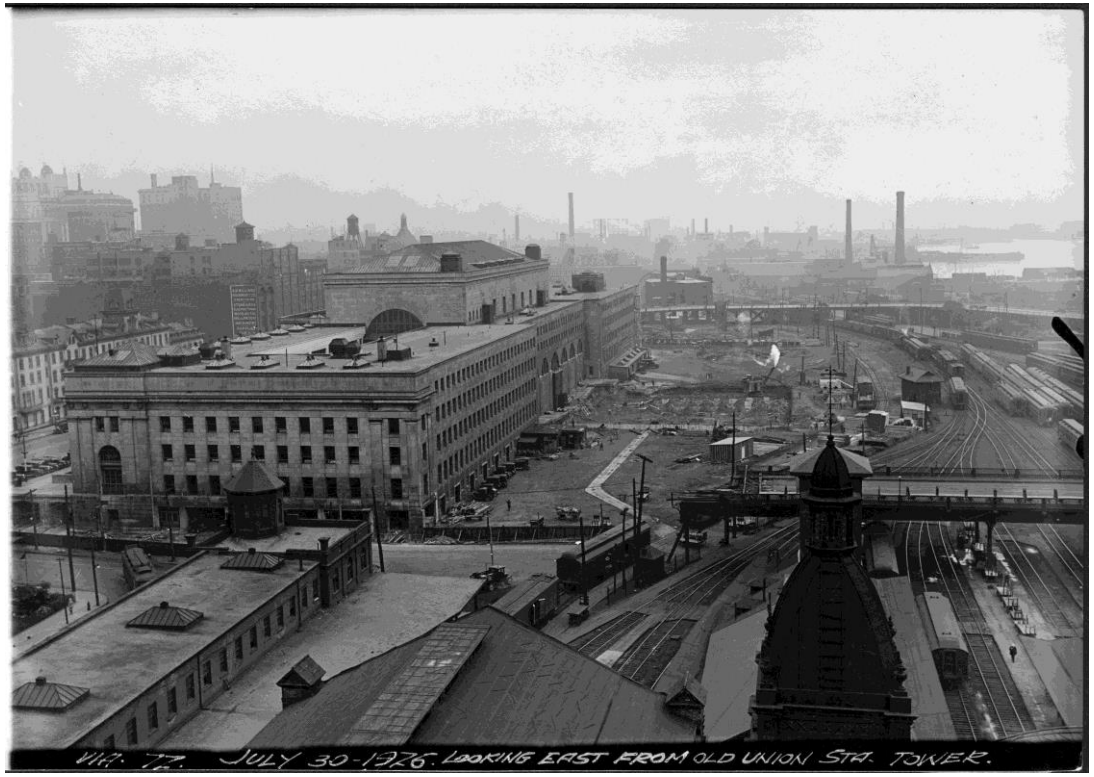
The city and the railways could not agree on whether the rails would stay at their original location, or if they would be moved to a viaduct taking all of the rail traffic over city streets. The city's position won out, but Union Station sat incomplete for almost a decade until the rail viaduct and the train shed we know today were completed.

The impasse was so protracted that the CPR built its own North Toronto Station, but it never opened for passenger service, and is now the jewel in the LCBO's empire.

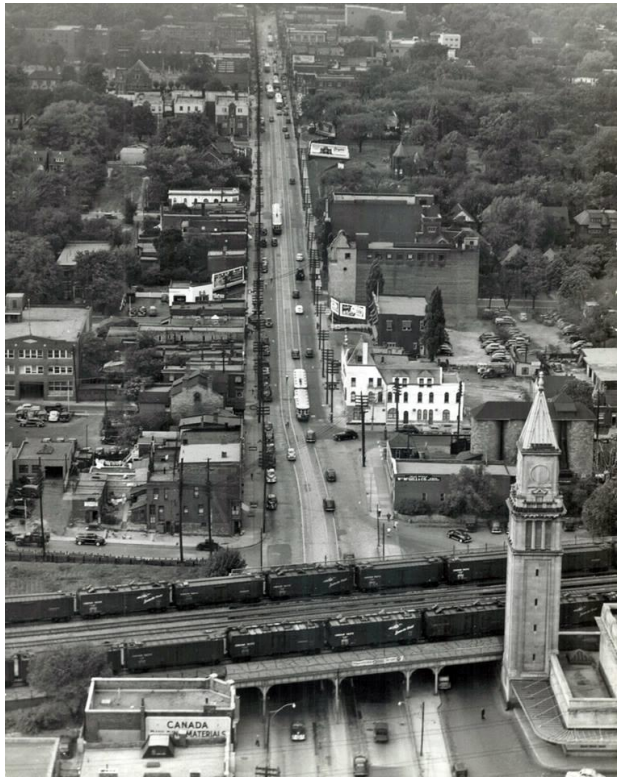
Another casualty of the Union Station debate was the Guelph electric line (part of the Toronto Suburban) which never came further into the city than Keele and Dundas (later cut back to St. Clair). It also duplicated the CN's service further north that is now the GO Kitchener line.

Union Station

East From Old Union Stn (1926)



CPR North Toronto Station



Yes, it's taken me this long to get to the TTC. When it was formed out of the many private railways plus the Toronto Civic, the TTC's first huge job was to rebuild the network that had deteriorated thanks to underinvestment. There are many photos from this era as the TTC was proud to document what it was doing.

The photo on the right, at Queen & Roncesvalles, shows how complex this intersection was with (then) five streets converging. The track in the foreground leads to Lake Shore Boulevard and Sunnyside Amusement Park, a victim of the Gardiner Expressway. The building on the NE corner is still there, but is no longer a bank.

Consolidation and Public Ownership: The TTC

New cars were essential both for capacity and to attract riders. The Peter Witt cars (named after the manager of the Cleveland Railways who designed them) were state-of-the-art in 1921, and the TTC bought hundreds of them. Most of them were retired in the 1950s after the Yonge subway opened, and the last went in 1963 after the University subway. One car remains in the city for ceremonial use.

In 1925, the TTC showed off the progress it represented from the horse car era through to a motor-trailer train of Peter Witts. Lurking at the back of the parade is a new arrival, the motor coach.

Another generation of new cars arrived in the late 1930s, the PCCs (Presidents Conference Car). This design was the transit industry's answer to the automobile, a faster, more comfortable streetcar developed jointly by the major transit operators in North America.

But expansion of street railways was not in the cards. In Toronto, several planned streetcar extensions were dropped thanks to the Depression, and by the end of WWII, the focus turned to suburban expansion and the road network, not transit.

Two Generations of New Streetcars
1920s: The Peter Witts

City of Toronto Archives, Fonds 16, Series 71, Item 9346

City of Toronto Archives, Series 71, s0071_it7171

TTC Parade of Transit Vehicles (1925)

3996 Bloor St. Parade-Cars old and new 1891-1925 (Executive)
August 21st, 1925

City of Toronto Archives, Fonds 16, Series 71, Item 3996

Two Generations of New Streetcars
1938-1957: PCCs

The War was an important time for the TTC as industry depended on the transit system to bring people to work. This photo shows workers, mostly women, boarding the King car at Strachan Avenue. The Massey Harris site occupied much land along King, and this is now the eastern part of Liberty Village.

From a financial point of view, the war was good for the TTC, and their profits paid for the next major expansion, the subway.

Wartime Service

14353 Wartime loading, King and Strachan, March 17, 1943.

A plan for a subway on Yonge from Eglinton to Union, and a streetcar subway on Queen was approved in January 1946. Construction began in September 1949. The Queen streetcar subway was never built and only a small partial station exists at Yonge.

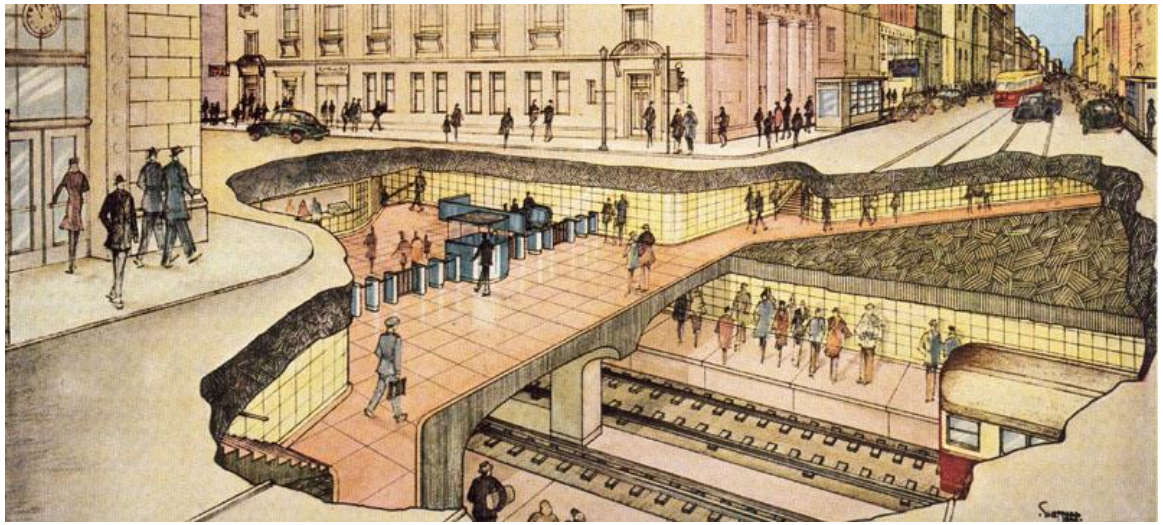
Although the subway was a big project for the TTC, it differed from the earlier period of transit expansion. The city was catching up with the overloaded Yonge corridor which also included service on parallel streets: Bay, Church, Sherbourne, Parliament, Spadina, Bathurst and a radial route structure aimed at downtown.

Much of the line was built in the open, mainly in a cut east or west of Yonge. Parts, mainly downtown, were built cut and cover. It would be hard to get approval of this alignment today.

Construction downtown was even more invasive – under Yonge which was completely opened for a shallow tunnel. Compare this to Eglinton with its deep tunnel – although most is out of sight. This makes stations more complex.

Toronto Gets a Subway
Yonge from Union to Eglinton

King Station



Looking south from Pleasant Blvd.

Toronto Gets a Subway

Looking S at King Station

Construction Woes

Toronto's second subway was under Bloor-Danforth replacing the original priority on Queen including north to Don Mills. Bloor-Danforth was seen as better for future suburban expansion. Like Yonge, Bloor-Danforth was a replacement of a busy surface corridor which included a transfer station at Yonge to handle volume of pedestrian traffic.

Design presentations of the day pre-CAD: Sigmund Serafin watercolours. Many stations were not built as they were shown in late 50s paintings.

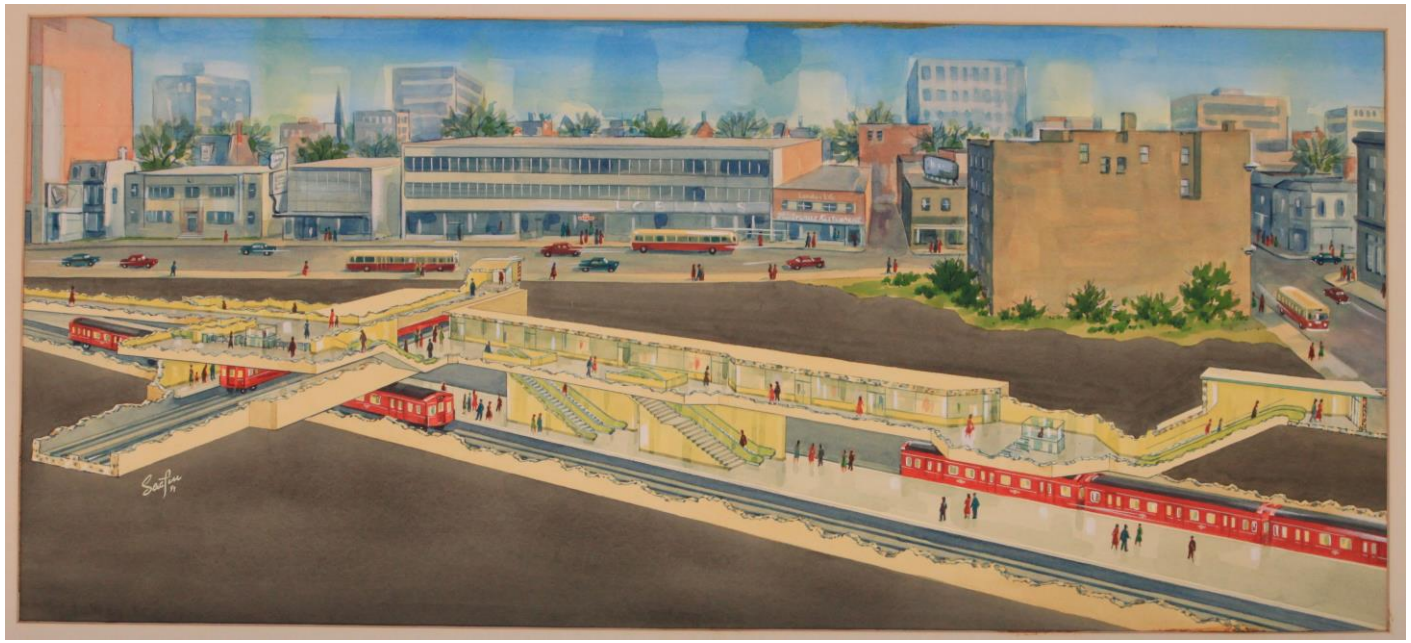
I had a set of 10 paintings in my care for decades, rescued from a TTC housecleaning binge in the late 1960s. They are now in the City Archives.

Toronto Gets Another Subway

Bloor-Yonge Streetcar Transfer

City of Toronto Archives, Series 648, s0648_fl0091_id0012

Design for Bloor-Yonge Station
Sigmund Serafin (1957)

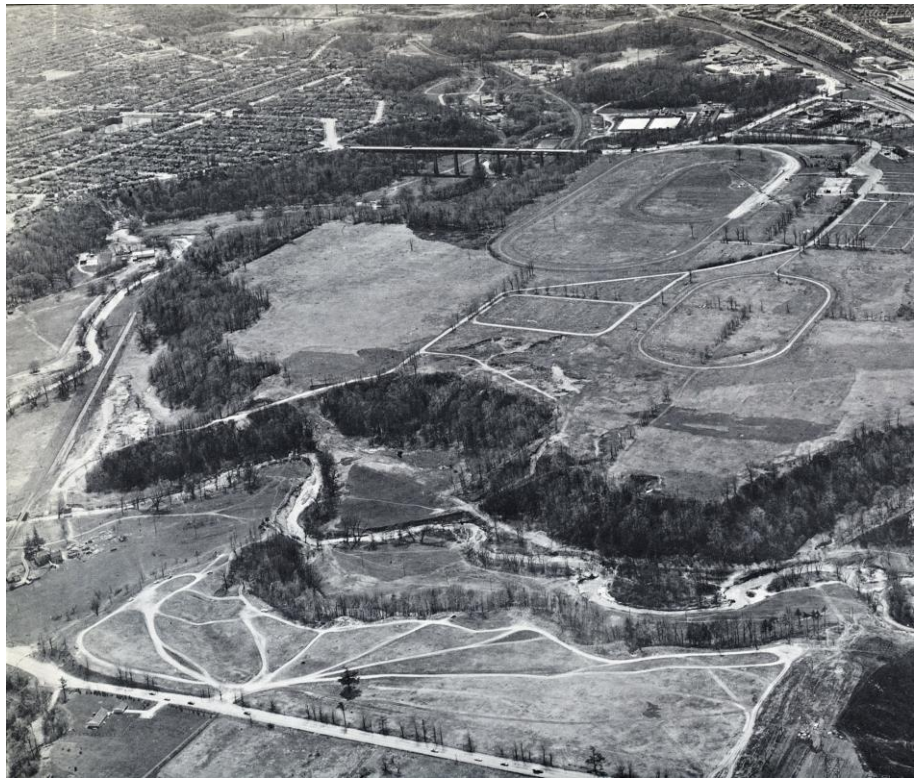


While we built two subways in the old city, the suburbs were changing from open fields to a mix of spread out low rise and clusters of apartment towers.

In 1950, much of Scarborough was still farmland with development concentrated along Kingston Road. Auto effects started in the 30s. The Danforth interchange spelled the end of the radial line to West Hill. Streetcar service ended at Birchmount.

Suburbs in the Time of the Automobile

Thorncliffe Park 1958



Steeles & Bayview 1963

City of Toronto Archives, Fonds 217 f0217_s0249_fl0173_it0001

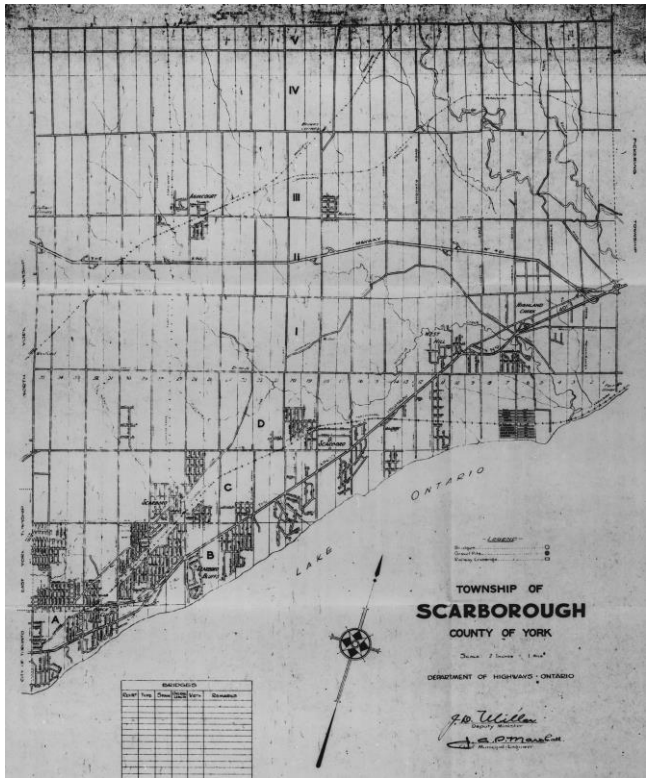
Scarborough

Birchmount & Kingston Road

City streetcar system extended from Victoria Park in 1928

Road interchange ended radial operation in 1936

Scarborough Township 1950

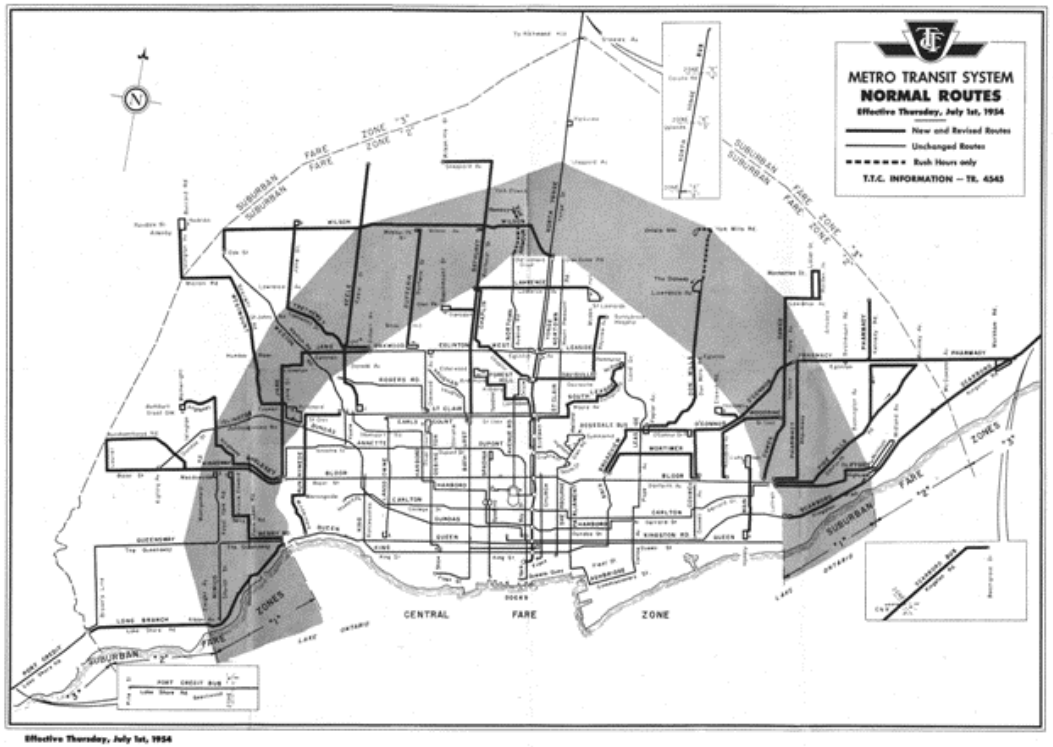


TTC growth was all through bus network extension. Suburban plans were in the works, but they were destined to run into technical and political problems.

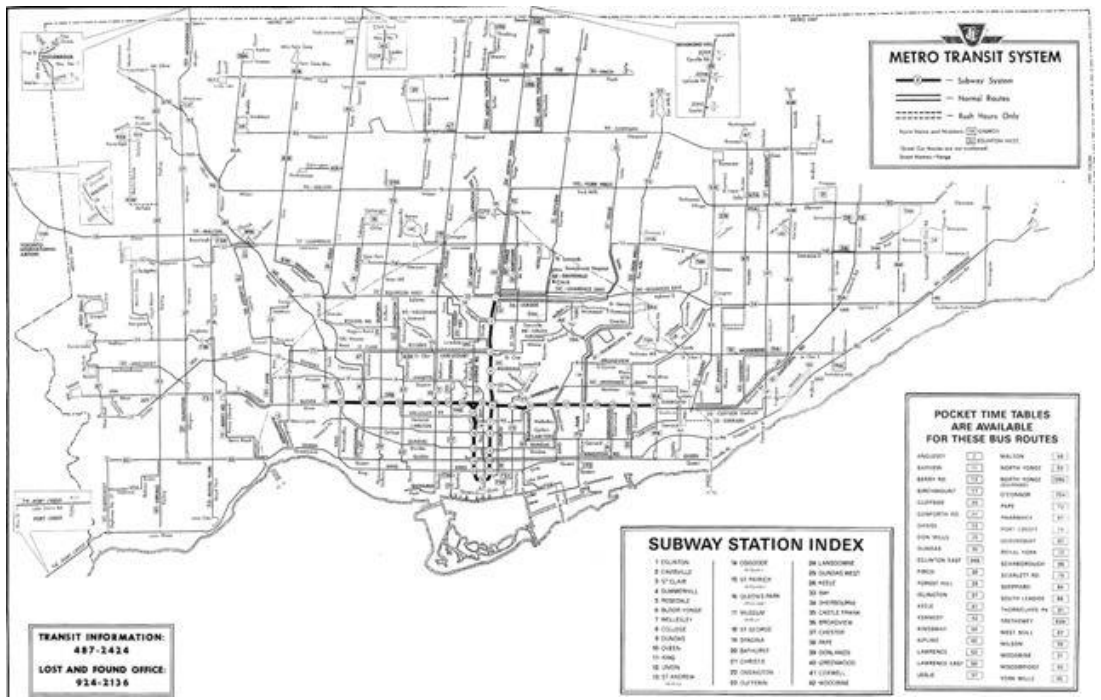
Planned streetcar extensions such as one into the Leaside industrial district and one into Forest Hill were victims of the Depression.

Suburban Growth Reflected in the Route Map

1954



1966



Toronto had an aggressive expressway plan, much of which was not built. Classic design: inner ring around downtown, outer ring in the developing city. Bad as this may look, it replaced an earlier plan that would have seen an expressway along Bloor Street.

The Spadina expressway, cancelled in 1971, would have run into the city. North of Bloor Street, it would have occupied the block between Spadina and Madison. South of Bloor it would have been in a trench like the Allen Road. The building we are in would not exist.

An ironic side-effect of the Gardiner Expressway construction was the creation of a streetcar private right-of-way on The Queensway replacing the former route along Lake Shore Boulevard. This could have been a model for suburban expansion, but that was not to be.

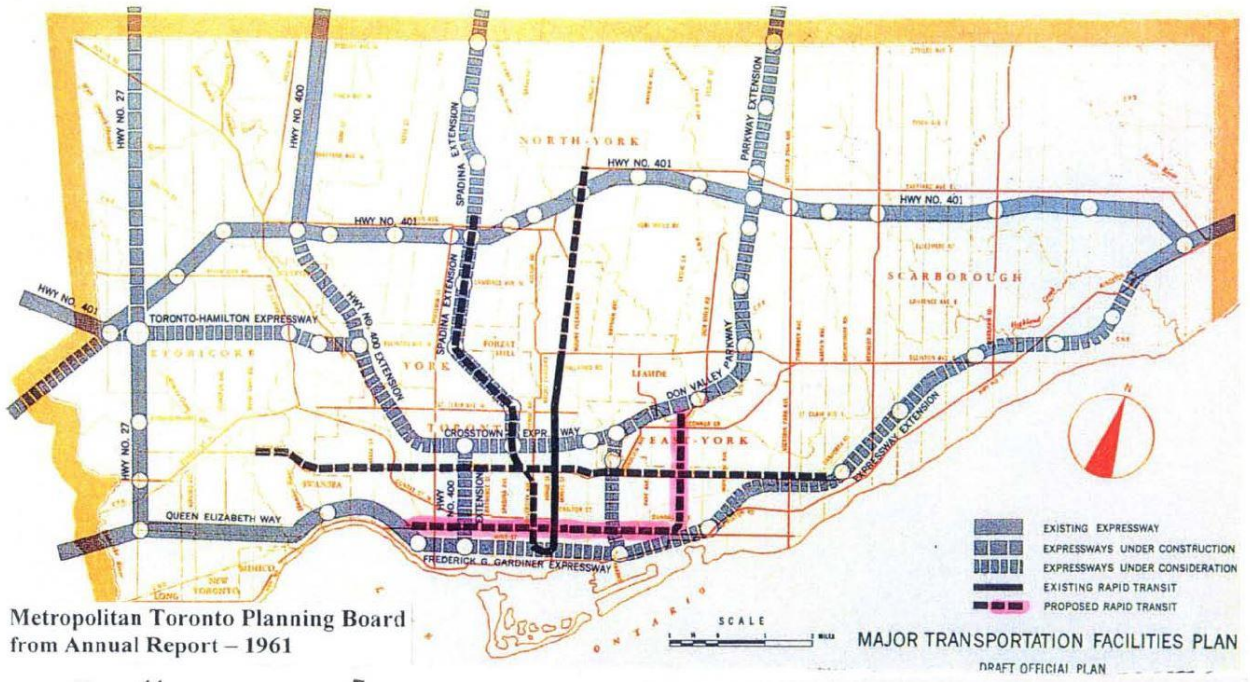
The Unbuilt Expressway Network

Toronto could have been an expressway city, but we dodged that fate.

There are more people walking to work downtown (pre-covid) than would have arrived via the Spadina Expressway.

Note the line in pink: The Queen Subway, later known as the “Relief Line”.

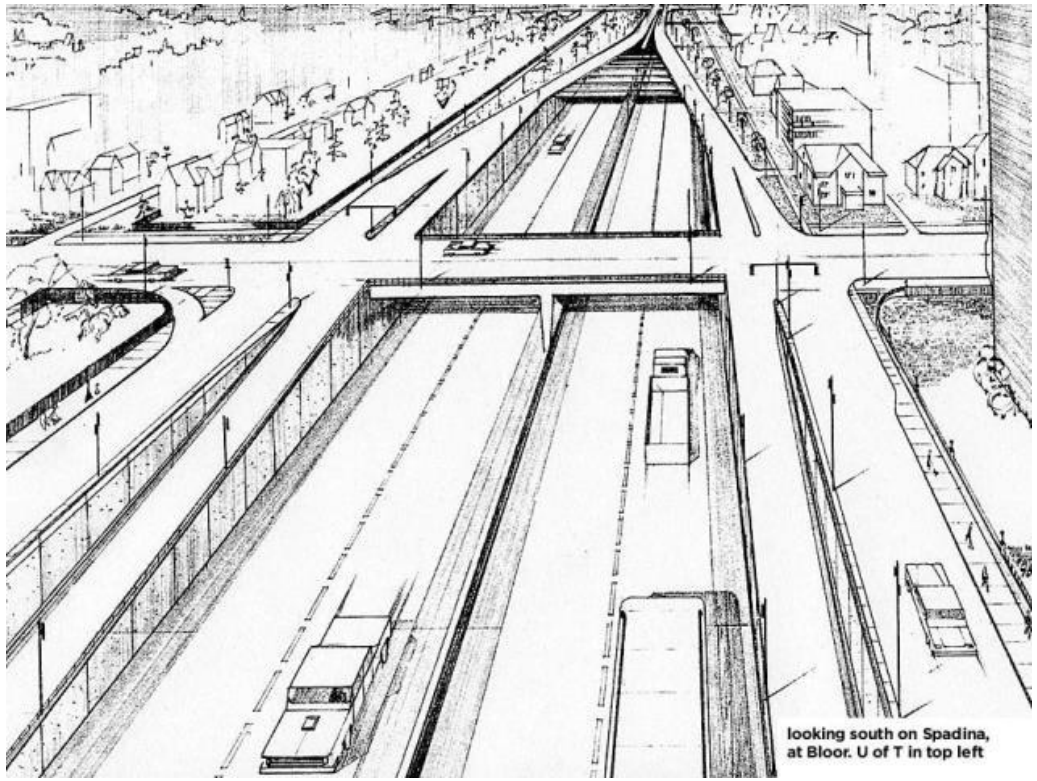
The “Toronto-Hamilton Expressway” lands (aka the Richview corridor) could have provided room for a surface LRT on Eglinton West of the Humber River.



Metropolitan Toronto Planning Board
from Annual Report – 1961

The Expressway Plans

Spadina Expressway Looking S at Bloor



The Queensway at South Kingsway
An LRT Byproduct of the Gardiner Expressway

TTC 1969 plan: Eglinton and Queen/Don Mills subways plus circumferential "ICTS" line – originally with streetcars.

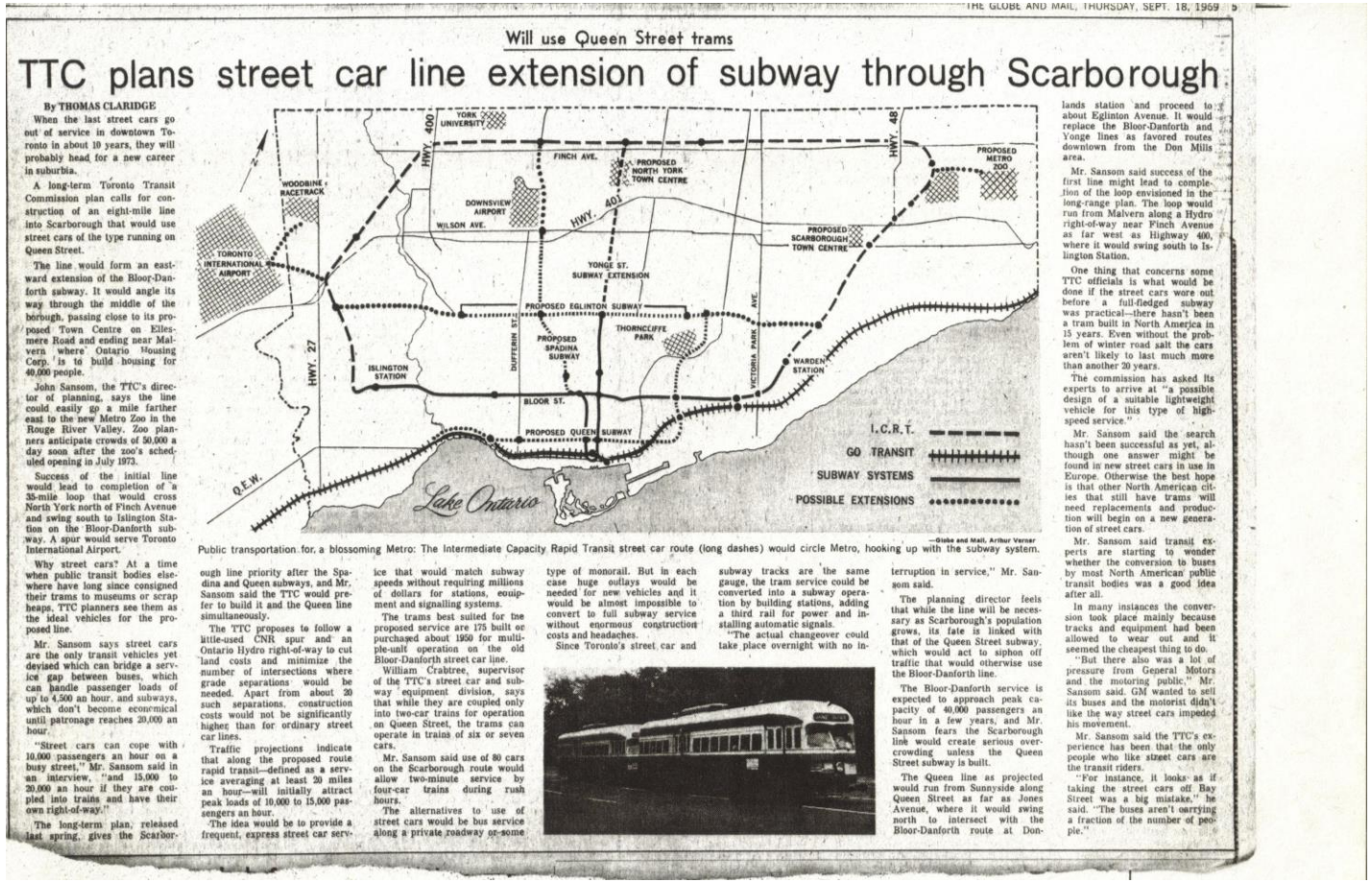
After the Spadina expressway cancellation in 1971, the problem was how to build a suburban transit network. Subways were too expensive. We needed a "missing link".

Rather than building with existing technology, Ontario proposed maglev trains on elevated guideways. The project failed, and critically during a period when there was strong support for transit construction and a lot of the suburbs didn't exist yet.

ICTS was touted as a replacement for subways, but pics like this at King and Spadina were not what the government wanted to show. More typically in open rights-of-way where structure did not invade neighbourhoods or from above to minimize apparent effect. Imagine an elevated structure, especially stations, across Eglinton in place of the planned subway.

TTC had been working on a new streetcar design shown here at City Hall, but intended for suburban expansion. This project was sidelined for ICTS development, but later picked up by the UTDC.

Light Rapid Transit Plan (1969)
Streetcars primarily on their own right-of-way



THE GLOBE AND MAIL, THURSDAY, SEPT. 18, 1969

Will use Queen Street trams

TTC plans street car line extension of subway through Scarborough

By THOMAS CLARIDGE

When the last street cars go out of service in downtown Toronto in about 10 years, they will probably head for a new career in suburbia.

A long-term Toronto Transit Commission plan calls for construction of an eight-mile line into Scarborough that would use street cars of the type running on Queen Street.

The line would form an eastward extension of the Bloor-Danforth subway. It would angle its way through the middle of the borough, passing close to its proposed Town Centre on Ellesmere Road and ending near Malvern where Ontario Housing Corp. is to build housing for 40,000 people.

John Sansom, the TTC's director of planning, says the line could easily go a mile farther east to the new Metro Zoo in the Rouge River Valley. Zoo planners anticipate crowds of 50,000 a day soon after the zoo's scheduled opening in July 1973.

Success of the initial line would lead to completion of a 35-mile loop that would cross North York north of Finch Avenue and swing south to Islington Station on the Bloor-Danforth subway. A spur would serve Toronto International Airport.

Why street cars? At a time when public transit bodies elsewhere have long since consigned their trams to museums or scrap heaps, TTC planners see them as the ideal vehicles for the proposed line.

Mr. Sansom says street cars are the only transit vehicles yet devised which can bridge a service gap between buses, which can handle passenger loads of up to 4,500 an hour, and subways, which don't become economical until patronage reaches 20,000 an hour.

"Street cars can cope with 10,000 passengers an hour on a busy street," Mr. Sansom said in an interview, "and 15,000 to 20,000 an hour if they are coupled into trains and have their own right-of-way."

The long-term plan, released last spring, gives the Scarborough line priority after the Spadina and Queen subways, and Mr. Sansom said the TTC would prefer to build it and the Queen line simultaneously.

The TTC proposes to follow a little-used CNR spur and an Ontario Hydro right-of-way to cut land costs and minimize the number of intersections where grade separations would be needed. Apart from about 20 such separations, construction costs would not be significantly higher than for ordinary street car lines.

Traffic projections indicate that along the proposed route rapid transit—defined as a service averaging at least 20 miles an hour—will initially attract peak loads of 10,000 to 15,000 passengers an hour.

The idea would be to provide a frequent, express street car service that would match subway speeds without requiring millions of dollars for stations, equipment and signalling systems.

The trams best suited for the proposed service are 175 built or purchased about 1950 for multiple-unit operation on the old Bloor-Danforth street car line.

William Crabtree, supervisor of the TTC's street car and subway equipment division, says that while they are coupled only into two-car trains for operation on Queen Street, the trams can operate in trains of six or seven cars.

Mr. Sansom said use of 80 cars on the Scarborough route would allow two-minute service by four-car trains during rush hours.

The alternatives to use of street cars would be bus service along a private roadway or some type of monorail. But in each case huge outlays would be needed for new vehicles and it would be almost impossible to convert to full subway service without enormous construction costs and headaches.

Since Toronto's street car and subway tracks are the same gauge, the tram service could be converted into a subway operation by building stations, adding a third rail for power and installing automatic signals.

"The actual changeover could take place overnight with no interruption in service," Mr. Sansom said.

The planning director feels that while the line will be necessary as Scarborough's population grows, its fate is linked with that of the Queen Street subway, which would act to siphon off traffic that would otherwise use the Bloor-Danforth line.

The Bloor-Danforth service is expected to approach peak capacity of 40,000 passengers an hour in a few years, and Mr. Sansom fears the Scarborough line would create serious overcrowding unless the Queen Street subway is built.

The Queen line as projected would run from Sunnyside along Queen Street as far as Jones Avenue, where it would swing north to intersect with the Bloor-Danforth route at Donlands station and proceed to about Eglinton Avenue. It would replace the Bloor-Danforth and Yonge lines as favored routes downtown from the Don Mills area.

Mr. Sansom said success of the first line might lead to completion of the loop envisioned in the long-range plan. The loop would run from Malvern along a Hydro right-of-way near Finch Avenue as far west as Highway 400, where it would swing south to Islington Station.

One thing that concerns some TTC officials is what would be done if the street cars wore out before a full-fledged subway was practical—there hasn't been a tram built in North America in 15 years. Even without the problem of winter road salt the cars aren't likely to last much more than another 20 years.

The commission has asked its experts to arrive at "a possible design of a suitable lightweight vehicle for this type of high-speed service."

Mr. Sansom said the search hasn't been successful as yet, although one answer might be found in new street cars in use in Europe. Otherwise the best hope is that other North American cities that still have trams will need replacements and production will begin on a new generation of street cars.

Mr. Sansom said transit experts are starting to wonder whether the conversion to buses by most North American public transit bodies was a good idea after all.

In many instances the conversion took place mainly because tracks and equipment had been allowed to wear out and it seemed the cheapest thing to do.

"But there also was a lot of pressure from General Motors and the motoring public," Mr. Sansom said. GM wanted to sell its buses and the motorist didn't like the way street cars impeded his movement.

Mr. Sansom said the TTC's experience has been that the only people who like street cars are the transit riders.

"For instance, it looks as if taking the street cars off Bay Street was a big mistake," he said. "The buses aren't carrying a fraction of the number of people."

Public transportation for a blossoming Metro: The Intermediate Capacity Rapid Transit street car route (long dashes) would circle Metro, hooking up with the subway system. —Globe and Mail, Arthur Vernon

The Transit Technology Wars (1970s)

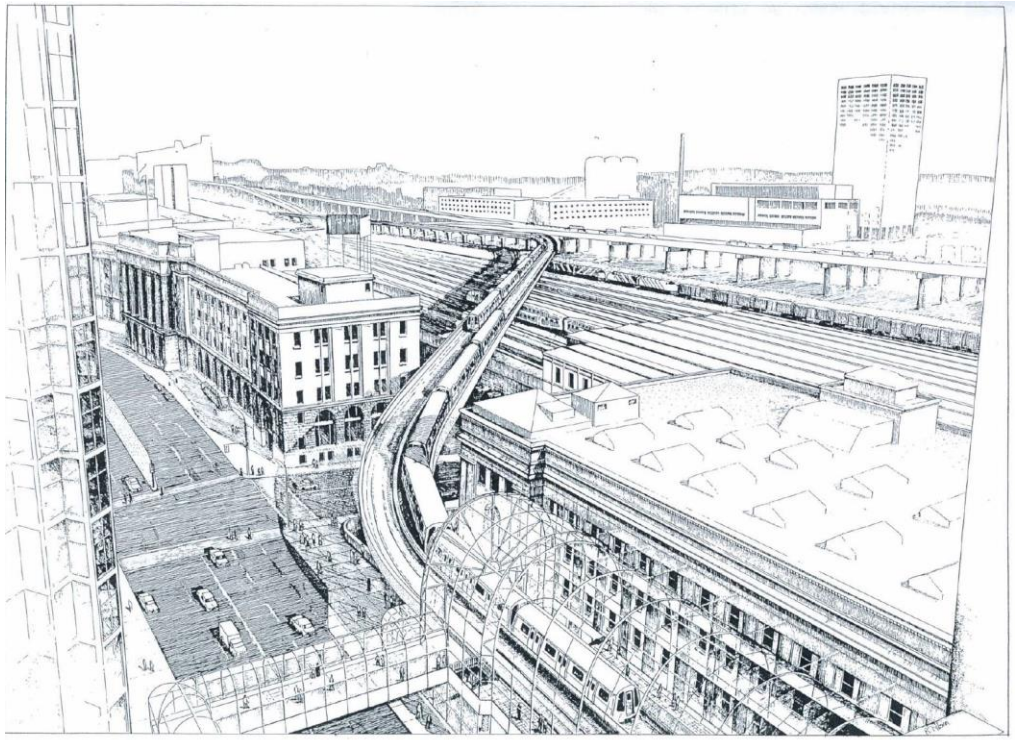
- Transit not Expressways
- Subways are “too expensive”
- There must be a “missing link” between subways and buses
  - It already existed but Queen’s Park wanted a new technology
  - Joint project with Krauss-Maffei on magnetic levitation trains
    - Technology foundered because it only works well for high speed, not urban operations
    - West German government pulled the funding plug, and the development stopped
- Government “discovered” LRT, for a time, just so it could be seen to be “doing something”
- Interest reverted to new technology after a flirtation with streetcars
- At the point we might have had suburban expansion leading growth, we got a failed technology development project that was not affordable on a wider scale.

Intermediate Capacity Transit System
ICTS or “the RT” or Skytrain

ICTS Elevated Guideway on Spadina

City of Toronto Archives, Series 1465, File 595, Item 22

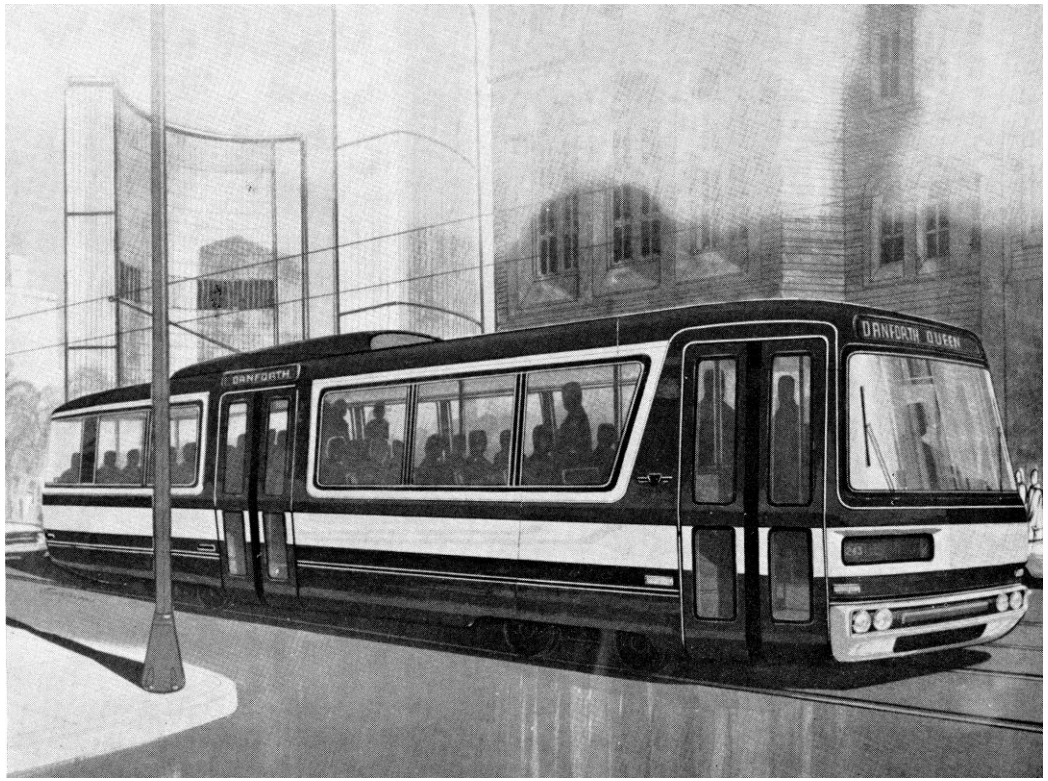
ICTS/Skytrain on “Relief Line” at Union



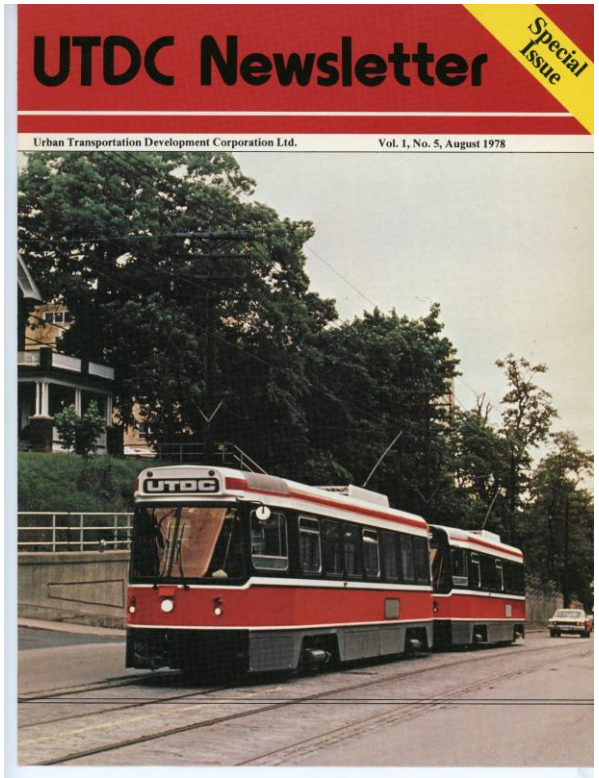
UNION STATION (LOOKING EAST)

A New Streetcar For Toronto?

TTC Plans (1972)



Ontario "Invents" the CLRV
(with a lot of help from the TTC)

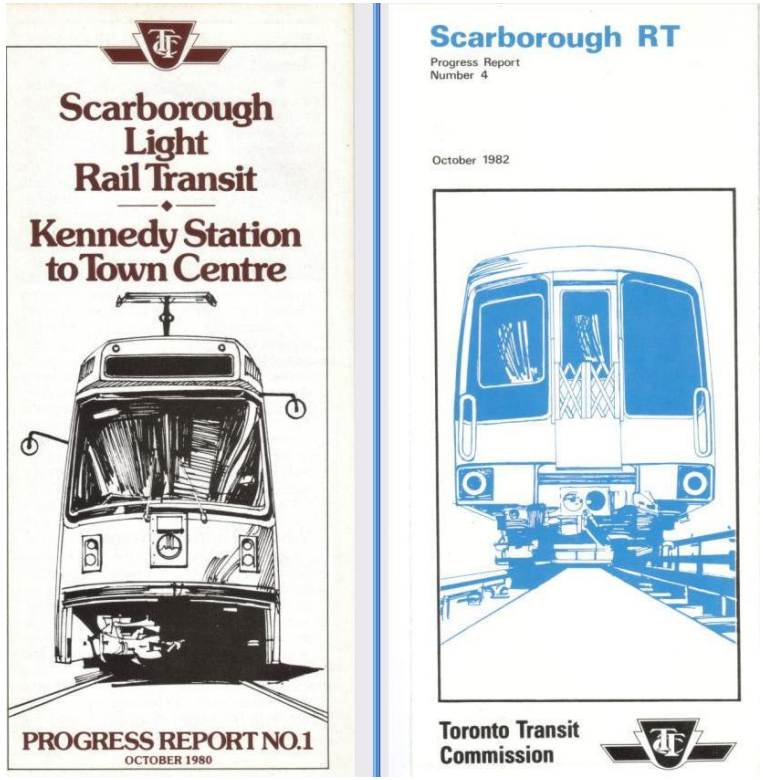


The Scarborough line was originally planned as LRT, but in the background UTDC continued development of what became “RT” or “Skytrain”.

Kennedy Station was built for streetcars (loop and low platform) and retrofitted for the RT technology.

Scarborough Was To Get LRT

SLRT Started out as LRT Technology



But What We Got Was The "RT"

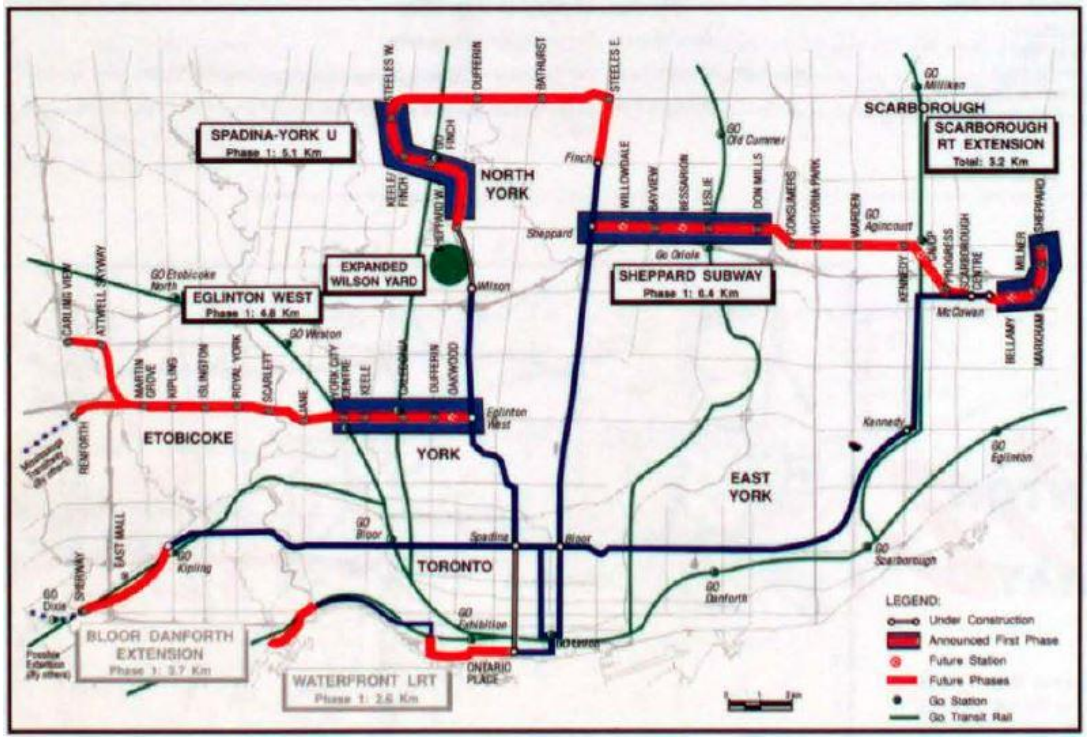
Kennedy Station Was Built For LRT

1980: First Gulf War and resulting oil price shock. Minor economic downturn. TTC unbroken growth ended. The return to focus on subways led to an era of "which one next". Planning for the city as a whole turned into competition for limited funding. In 1990, David Peterson sought re-election with a "chicken in every pot" rapid transit plan. He lost to Bob Rae's NDP, but they embraced the plan as a job-creation scheme going into a deep early 1990s recession. The TTC lost 20% of its ridership (450 to 360m) and for a time, the pressure for new capacity downtown vanished.

In an attempt to answer need for better suburban transit, David Miller proposed "Transit City" as a light rail network in 2007. Like so many other plans it was doomed by changing political situation and by Miller's unexpected departure from office. Most of this network could be running today if it had been built on the original schedule.

Subway Plans Become Political

Let's Move (1990)



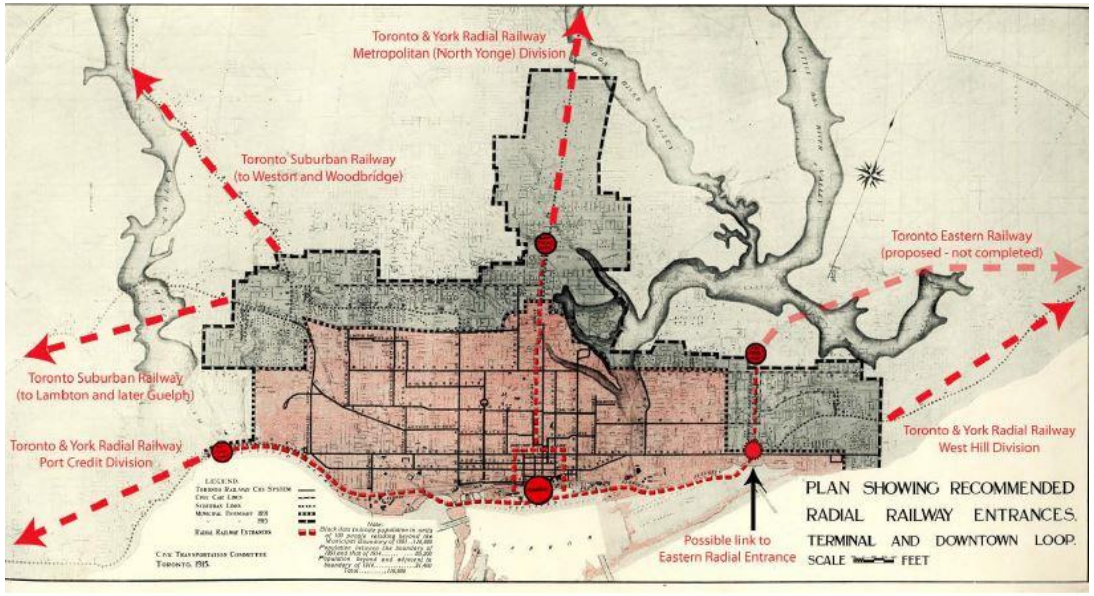
Transit City (2007)

The need for more capacity into the core became obvious again as TTC ridership recovered. A lot of growth had been handled with GO Transit capacity, but the local system was at its limits (pre covid). Once again it became politically fashionable to talk about the need for "downtown relief".

The idea of an eastern route into downtown has been around for a century, and this eventually became plans for a Queen Street streetcar subway, later a full subway as in the TTC's 1969 plan. Planning for the Relief Line as it was called was underway over the past decade, but in 2018, Doug Ford had a better idea and the Ontario Line was born. Currently planned to open 2030.

The “Relief Line” Has A Long History

Radial Railways into the City (1915)



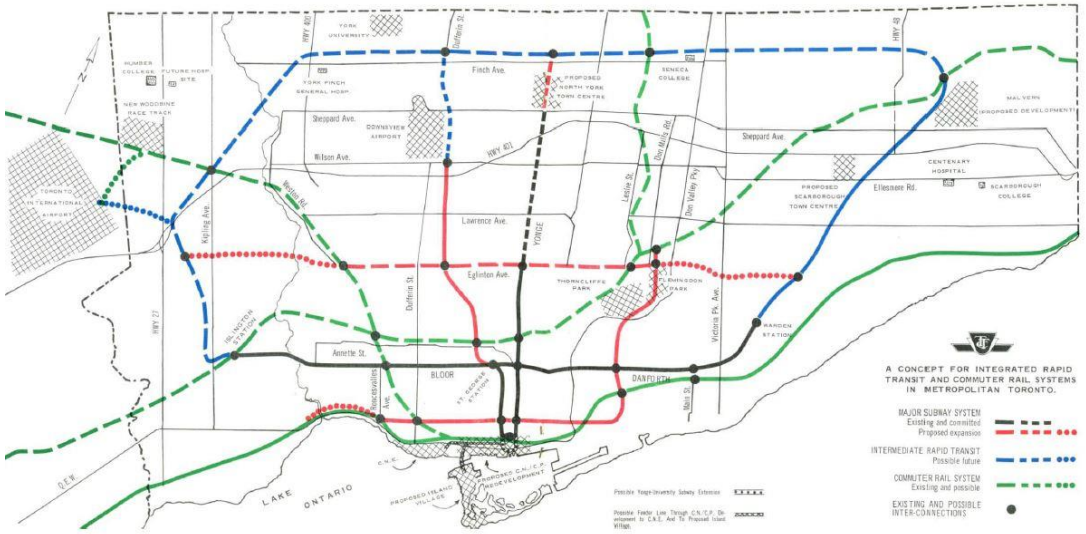
Harris, R. C., Gaby, F. A., & Cousins, E. L. (1915). *Report to the Civic Transportation Committee on Radial Railway Entrances and Rapid Transit for the City of Toronto*. Toronto.
Available from the University of Toronto Map & Data Library. Call number: HE4509 .T62 A4.
Also available in full online.

Queen Streetcar Subway (1940s)

The western portal of the downtown subway section of the Queen Street route will be immediately west of University Avenue.

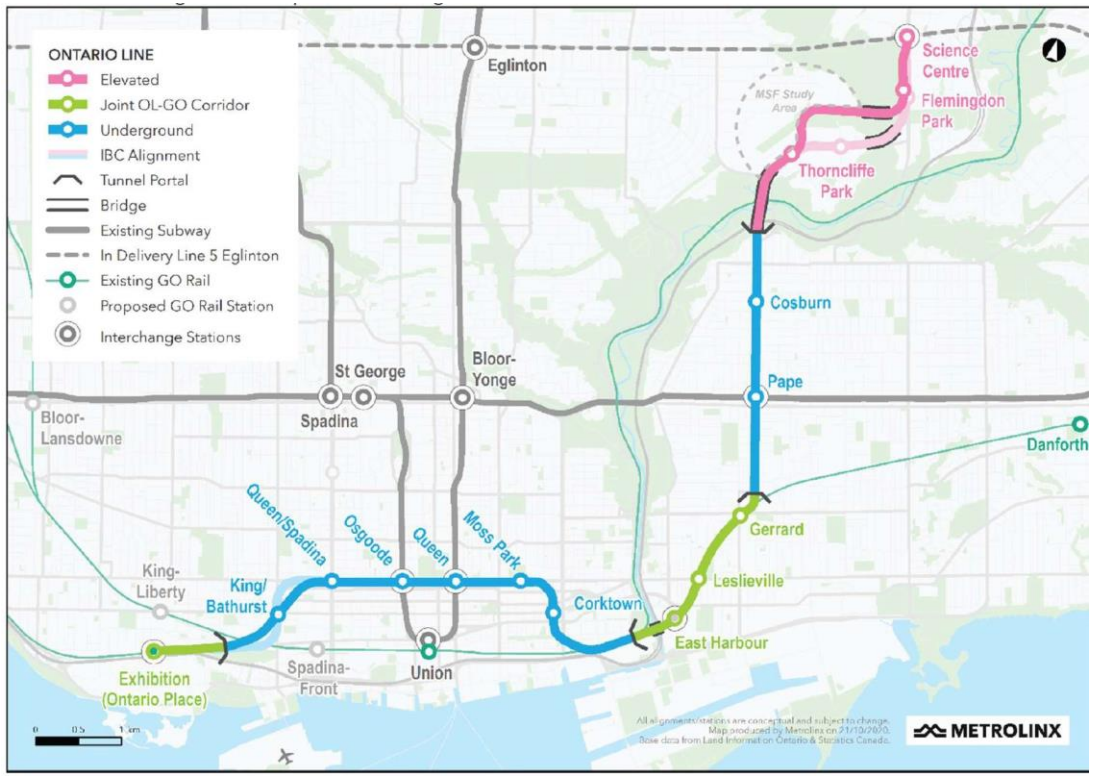
Relief at last?

Queen Street Subway (1969)



Toronto Transit Commission. (1969). *A Concept for Integrated Rapid Transit and Commuter Rail Systems in Metropolitan Toronto*. Toronto.

The Ontario Line (2019)



GO Transit sidebar: GO was formed in 1967 with service between Oakville and Pickering, and was seen as an alternative to widening the highway network. Today GO has many more routes with plans for more service and electrification, but it is still very focused on the core area and dependent on park-and-ride model. Meanwhile intercity services dwindle with the loss of Greyhound and smaller local carriers. Patchwork of local services and private van operators.

GO expansions become political to show a line on the map, but with marginal service such as Niagara and London Trains. (Niagara train is 6:40 to 9:00am. London train is 5:20 to 9:13, and runs late. Both downtown, not locally focused.)

GO resists fare integration except where it feeds GO – 905 vs TTC joint fares.

- 1967: Oakville to Pickering as an alternative to expressway widening
- Many new lines and extensions with plans for frequent service and electrification
- Still very focused on core area peak period commutes
  - Last mile service vs park-and-ride
- Minimal regional service:
  - Leave it to local operators and the private sector
- Demise of Greyhound and other bus companies guts intercity service
- Politicization of route choices
  - Trains from Niagara Falls and London to say “we did it”, not to serve riders
- Confusion re fare structure and integration
- Urban vs regional role remains unclear

In this presentation, I have not talked much about buses, but they grew to become an essential part of the transit network. Buses feed the subway and make heavy demand there possible even without high density development along the corridor. The TTC's fleet of 2000+ buses blanket the "old suburbs" (now called "inner") although that blanket is rather thin in places.

Over 40% of TTC trips involve a bus ride, and the bus network has seen the strongest post-covid recovery because it serves areas and jobs that are less amenable to work-from-home.

Transit announcement and plans never look at improving the network as a whole, but rather at spot projects such as the RapidTO red lane corridors. One street a year will take a long time to make a difference network wide, and there is already pushback about giving up road space just as there has been against LRT plans.

Bus technology is evolving. Diesels have been the mainstay of the fleet evolving into "clean" diesels and hybrids. Now the focus is on electric buses, and a lot of work is going into technology development.

Toronto had a small trolleybus system until 1993 that evolved out of the streetcar network. Compressed natural gas (CNG) was going to be the "green" solution and instead of rebuilding and expanding the trolleybus network, the TTC dumped it.

Being green is expensive, and the debate is all about new technology and funding, not about network expansion and service improvement.

A Few Words About Buses

- Without the bus network, the TTC could not exist.
  - Buses feed the subway network which is full in spite of little high density development around stations.
  - 43% of all TTC boardings (pre-covid) were on buses
  - TTC fleet is over 2,000 buses
- Major transit announcements never mention buses or service
  - BRT projects including red lanes benefit individual corridors, but not the network
- Bus technology
  - Diesels and “clean” diesels
  - Trolleybuses (electric, overhead power supply like streetcars)
  - Compressed natural gas
  - Hybrid (battery + onboard diesel)
  - Hydrogen (fuel cells)
  - Batteries
- Being “green” is expensive and has its own pitfalls
  - Where does the electricity come from?
  - Battery life cycle and disposal
- Funding announcements talk about new technology and are always for capital expenses
  - Buy new buses and built/retrofit facilities? Yes.
  - Operate buses to carry more riders? No.

The TTC Celebrates 100 Years
September 1, 2021 Roncesvalles Carhouse

Thanks for Listening / Discussion
Steve Munro aka @Swanboatsteve
www.stevemunro.ca

The following slides include topics looking ahead at what transit and the city might become, not back at how the city was formed. They are beyond my scope today, but are the jumping off point for many debates.

Epilog

Where Will We Go From Here?

The City Grows But Transit Does Not Keep Up

- Core area (old city) population drops, now rebounding
  - Conversion of manufacturing lands to residential (Liberty Village, Waterfront)
- Commute to work challenge – where is home, where is work?
  - Longer and longer trips
- Chimera of 2010s ridership growth:
  - More riders but with a declining growth rate
- Borders, services and fares: Who will pay for “integration”?
- The return of the private sector: fragmentation, false savings, secrecy.

Your train will be along soon …

- What will happen on the waterfront?
  - Will we build transit or a car-oriented new downtown?
  - Eastern Waterfront streetcar in early design (30% soon) but no construction funding has been committed.
  - Western extension to Dufferin in detailed design. Beyond to The Queensway, maybe.
- Eglinton East LRT to University of Toronto Scarborough and Malvern
  - Part of the original Transit City proposal
  - Linked originally to the Scarborough Subway to “sanitize” a spending deal
  - No committed funding + potential extra cost at Kennedy Stn due to subway
- Sheppard East LRT from Don Mills to Morningside
  - Only a subway is “good enough” – some extension from Don Mills worthwhile, but where to stop?
  - Don Mills to McCowan, maybe, eventually
- Eglinton West LRT to Airport
  - Initial section to Renforth Gateway mostly in tunnel despite surface land availability
  - Airport connection uncertain due to cost/alignment questions
  - Airport district is not just a terminal, but an area as big as downtown Toronto
- Finch West extensions to Airport and to Yonge

City vs Suburban Networks

- Old city – dense, reasonably frequent service, short blocks, walkable
- Suburbs – wider grid, less frequent service, access issues at homes and destinations because of design for the car
- Beyond the 416 – longer distances and minimal service

- Major transit investments focus on getting people downtown
- How will planned BRT + LRT achieve goals / market share?
- Do they need and have feeder services to supplement local demand?
- Will they support local “15 minute cities” or are they for regional travel?

Demand vs Density

- Does demand originate on transit lines or elsewhere?
- Feeder/distributor networks supplement rapid transit lines.
- On GO Transit, parking is the primary mode of access.
- Has the current orthodoxy of “Transit Oriented Development” and “Transit Oriented Communities” now morphed into unconstrained development at stations?
- Is there a mismatch between network demand and system capacity?
- Will all this new development foster 15-minute communities, or simply create isolated towers with few local amenities and services?

Transit in a Post-Covid World

- Trip types (work / school / housekeeping / leisure)
  - Difference in return-to-work patterns
  - What is the future of Work-From-Home?
  - Does transit go where people want to travel?
- Changing use of office buildings:
  - Hotelling: Shared, smaller spaces
  - Smaller footprint/employee but more employees/building?
- Where will employees come from?
  - Housing affordability? Commuting cost and time?
- Confidence in transit as “my” system
  - Transit depends on political support and on people using it.
  - Danger of “transit for the poor” and “transit that’s good enough”
  - Everyone should *want to* use transit, not *have to*.