STAFF REPORT
ACTION REQUIRED

2016 Operating Budget: Service Standards, Profile, and Initiatives

Date:	June 17, 2015
To:	TTC Budget Subcommittee
From:	Chief Executive Officer

Summary

The attached presentation explains the standards which govern the design of TTC services and the allocation of service resources, such as the service-improvement initiatives which the TTC started this year as a result of Council's $95 million investment in service.

Recommendations

It is recommended that the Budget Sub-committee receive the attached presentation.

Financial Impact

The adoption of this report would have no effect on the TTC's operating or capital budgets.

The Chief Financial & Administration Officer has reviewed this report and agrees with the financial impact information.

Decision History

At its August 19, 2014 meeting, the TTC Board adopted the report, *Opportunities to Improve Transit Service in Toronto*.

http://www.ttc.ca/About_the_TTC/Commission_reports_and_information/Commission_meetings/2014/August_19/Supplementary_Reports/Opportunities_to_Improve_Transit_Service_in_Toronto.pdf

On March 11, 2015, Toronto City Council passed the 2015 City Budget, which confirmed funding for the Opportunities initiative.

https://www.ttc.ca/About_the_TTC/Commission_reports_and_information/Commission_meetings/2015/February_2/Reports/2015_TTC_AND_WHEEL_TRANS_OPERATING_BUDGETS.pdf

The attached presentation provides more details on the rationale for improving transit in Toronto.

Issue Background

Toronto's citizens want, need, and respond very favourably to perceptible basic improvements to existing bus, streetcar, and subway services. Today, there is widespread support for more and better-quality transit service in Toronto – ones which are simple, cheap, and fast to implement. The attached presentation recaps the low-cost service improvement initiatives which have advanced the TTC's mission to "provide a reliable, efficient and integrated bus, streetcar and subway network".

Conclusion

Service-improvement initiatives achieve significant improvements to the TTC network in the form of more-convenient bus and streetcar service, better service reliability, and reduced travel times. They increase the attractiveness and competitiveness of TTC services and, ultimately, attract more people to transit.

Contact

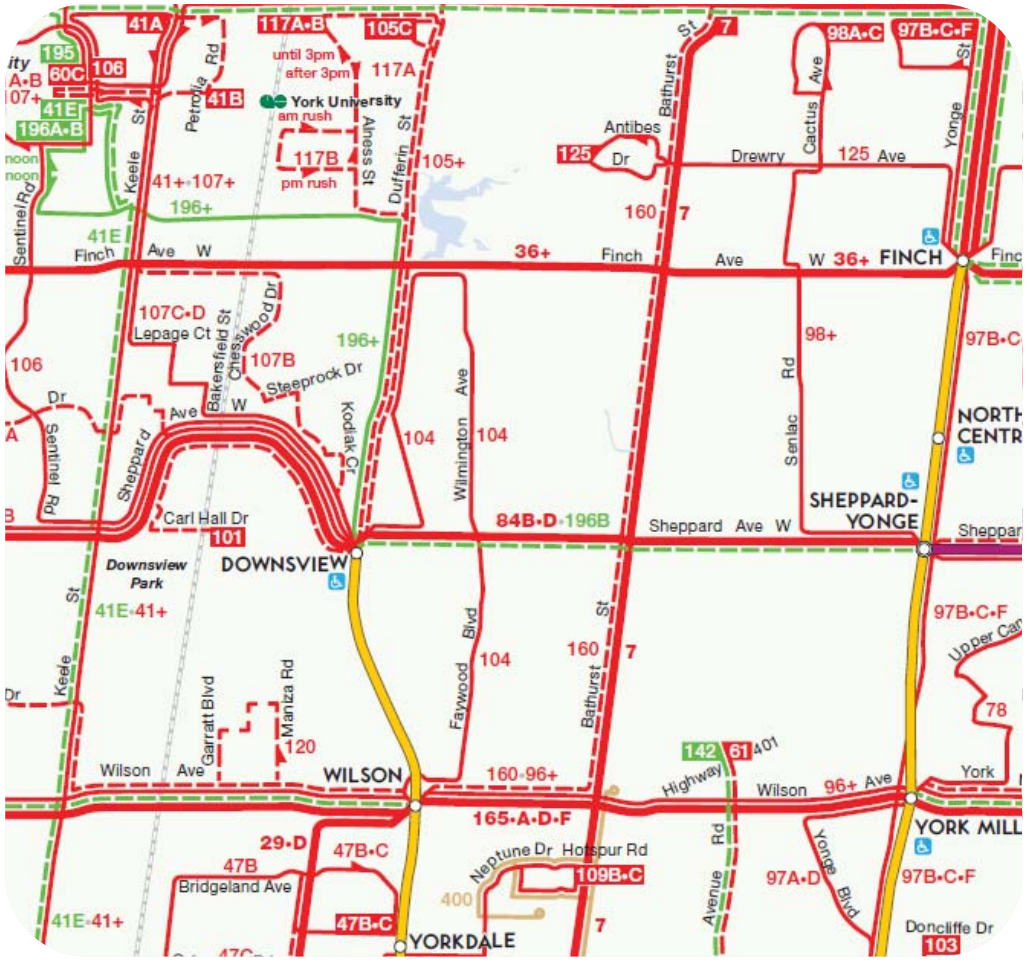
Mitch Stambler
Head of Strategy and Service Planning
416-393-4460
mitch.stambler@ttc.ca

2016 Operating Budget

Service Standards, Profile, and Initiatives

Transit Service

- right….
  - … service
  - … amount
  - … time
  - … place
- maximize mobility
- maximize quality service
- affordable:
  - users
  - taxpayers



Service: Standards, Decision Rules, Processes

Decision rules, standards for service resources:

- objective, data-, fact-based:
  - ridership
  - origin-destination data
  - travel behaviour research
- grounded in business logic, principles
- transparent, quantifiable, reproducible
- applied consistently, fairly, equitably

Service: Standards, Decision Rules, Processes

System structure and design:

- grid network:
  - exploit Toronto's road-system grid
  - maximize travel choices, combinations
- subway-oriented:
  - fastest service for longer trips
  - most cost-effective mode for high-volume demand
- network connectivity:
  - fullest coverage, access throughout city
  - maximize travel choices, combinations

Service: Standards, Decision Rules, Processes

System structure and design:

- most-direct route possible – no off-route diversions
  - fastest, minimum travel time
- no duplication:
  - best use of available resources
- minimize transfers:
  - consistent, with travellers' behaviour, preferences

Service: Standards, Decision Rules, Processes

Coverage, access:

- design: ≤ 10-minute walk to transit
  - ≤ 5-minute not eligible for additional service
- overnight:
  - ≤ 15-minute walk to transit
- conditional on density, land use to support viable operation
- exceptions:
  - physical, geographical barriers

Service: Standards, Decision Rules, Processes

Accessibility:

- all vehicles, facilities accessible to everybody:
  - accommodate mobility devices
  - barrier-free paths, movement
  - accommodate visually-impaired
  - accessible communications
- specialized service (Wheel-Trans) for more-severe disabilities

Service: Standards, Decision Rules, Processes

Minimum ROI on new service expenditures:

- determine required resources → gross operating costs
- project new ridership, revenues (new to system)
- calculate net operating costs
- determine new riders gained / net dollar operating cost
- minimum ROI threshold = 0.23 new riders / net dollar cost:
  - eligible for trial implementation
  - subject to budget availability

Service: Standards, Decision Rules, Processes

Productivity standard: boardings per service hour

- minimum productivity threshold = 15 boardings / hour
- productivity of 10-15 allowed if no alternative service within 600 metres (8-minute walk)
- exceptions allowed in accordance with policy objective, budget availability:
  - eg – all-day, every-day: 9 boardings / hour

Service: Standards, Decision Rules, Processes

Changes, expansion to routes:

- decision rule – overall / net improvement for customers
- effects on customers:
  - measured wrt effects on travel time:
    - walk access
    - wait time
    - in-vehicle travel time
    - transfer implications
- weighted by number of customers affected
- weighted by customers' perception of effects:
  - derived from travel behaviour research
- assessment must show net positive results for customers

Service: Standards, Decision Rules, Processes

Travel Behaviour Research – Customer Perceptions

Travel time:

- 1 minute in-vehicle = 1 minute
- 1 minute waiting = 1.5 minutes
- 1 minute walking = 2.5 minutes
- 1 transfer = 10 minutes

Service: Standards, Decision Rules, Processes

Express service:

- existing corridor – characteristics:
  - ridership levels
  - high proportion of long-distance trips
  - concentration of ons / offs at major stops
  - major generators at route ends (subway, college, shopping centre)
- assess for net benefits / disbenefits to customers (customer-minutes)
- net effect must be positive

Service: Standards, Decision Rules, Processes

Additional period of service -- existing route:

- projected ridership:
  - current ridership on route, other nearby routes
- determine cost – service hours, dollars
- assessment based on productivity (boardings / hour) threshold ≥ 10
- subject to budget availability

Service: Standards, Decision Rules, Processes

Earlier start / later finish to service:

- project ridership:
  - current ridership at beginning / end of service
  - related to timing relative to subway start / finish
- determine cost: service hours, dollars
- assessment based on productivity (boardings / hour) threshold ≥ 10
- subject to budget availability

Service: Standards, Decision Rules, Processes

Maximum waiting times / minimum level of service:

- bus, streetcar routes = 30 minutes
- subway = 5 minutes

- customers won't wait longer than scheduled 30 minutes
- minimum required to keep service competitive
- rapid transit must be rapid

Service: Standards, Decision Rules, Processes

On-board crowding standards used to:

- identify overcrowding on routes:
  - increase service
- identify surplus capacity on routes:
  - service reduction when required

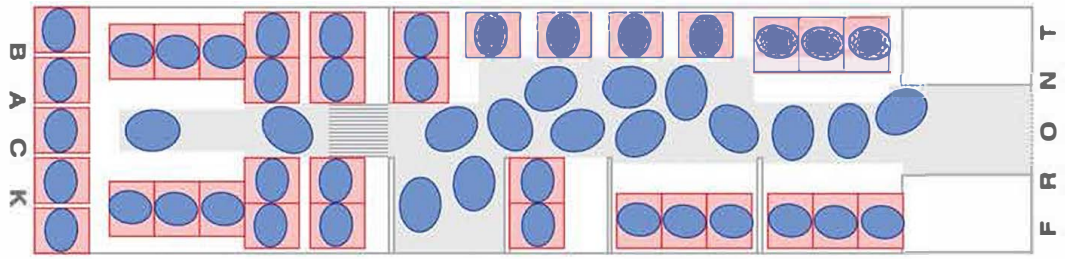
Service: Standards, Decision Rules, Processes

On-board crowding standards:

- “tolerable” crowding / comfort
- move to, from doors
- accommodate surge loading

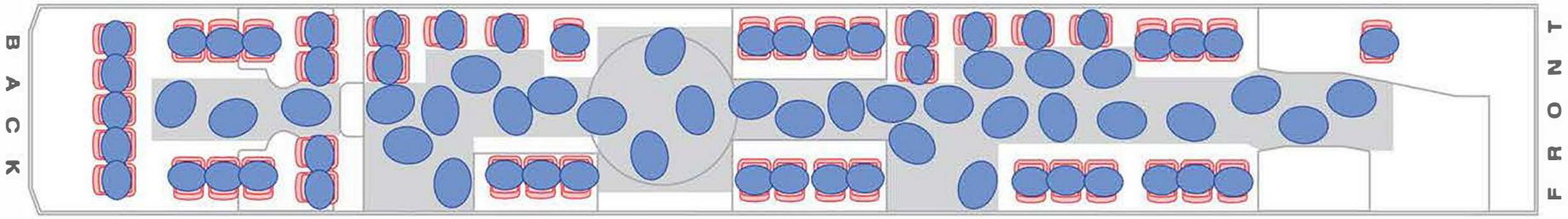
Vehicle	Peak Crowding Standard
bus	50 to 53
articulated bus	77
streetcar	74
articulated streetcar	108
low-floor streetcar	130

Regular 12 metre Bus



Typical Crowding During Peak Periods
51 People

Articulated 18 metre Bus



Typical Crowding During Peak Periods
77 People

Service: Standards, Decision Rules, Processes

- prevent overcrowding
- prevent customer discomfort, dissatisfaction

Service: Standards, Decision Rules, Processes

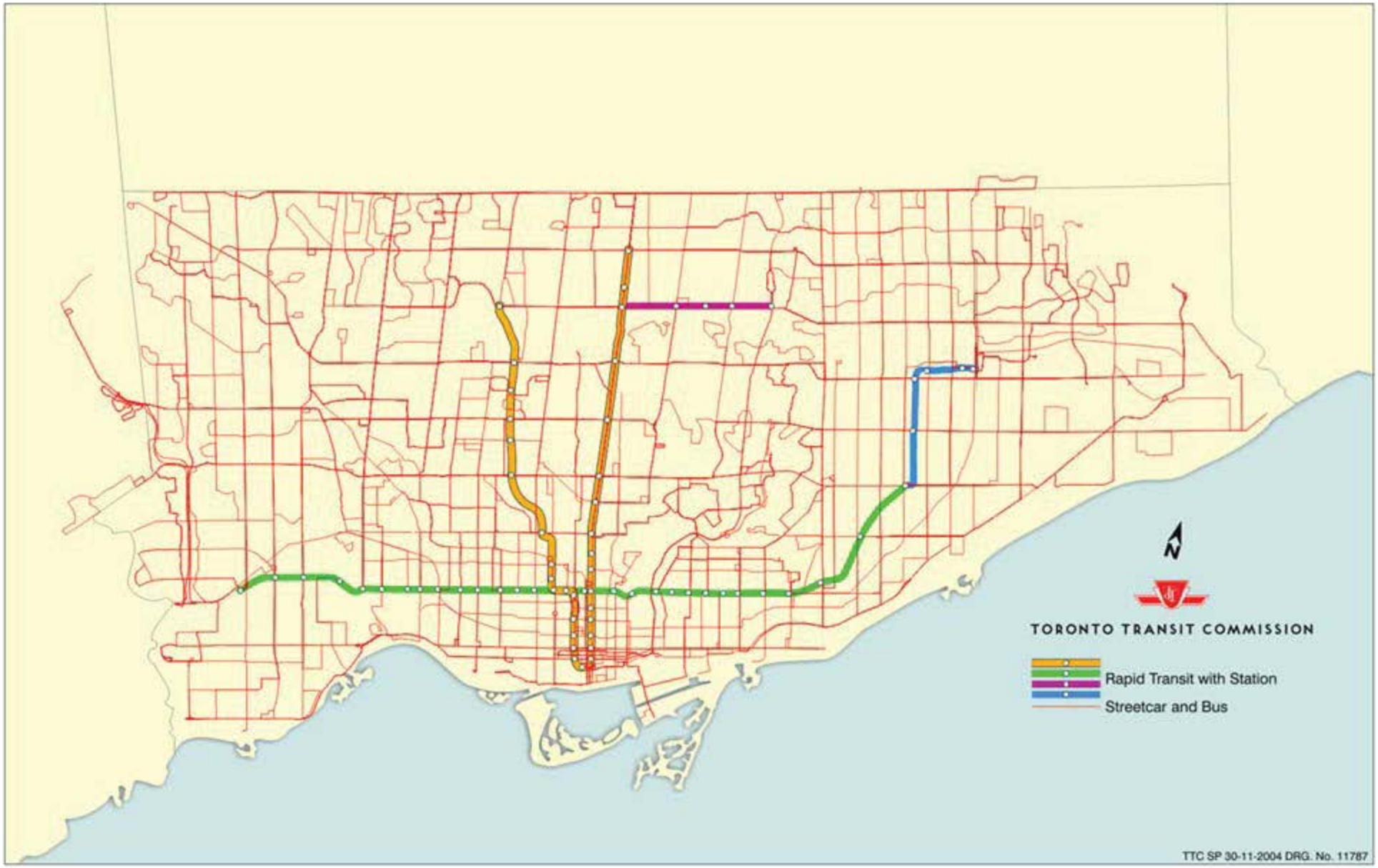
University of Melbourne, Australia:

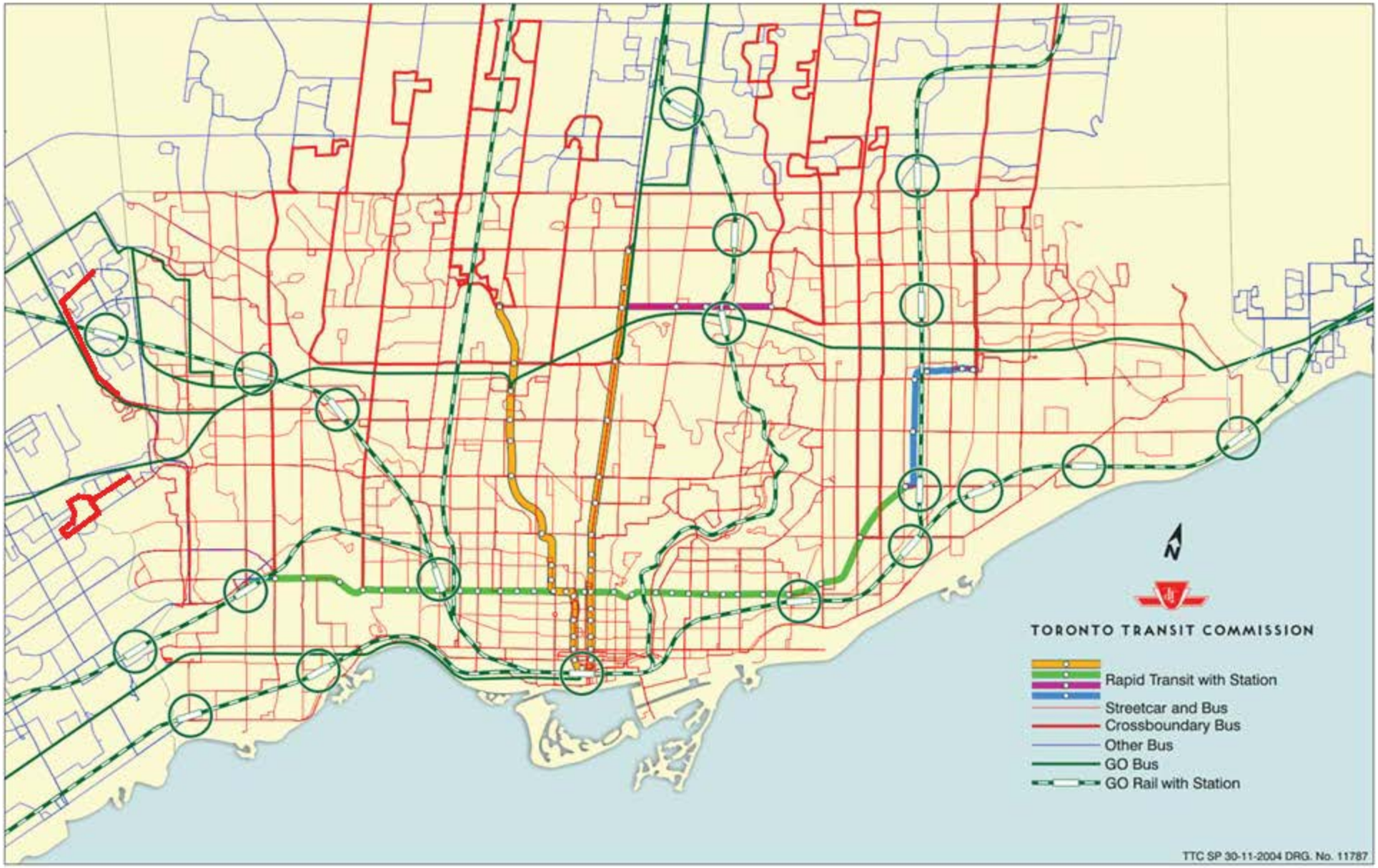
"...TTC practices are exceptional internationally…
resulting in high occupancy rates by international standards,
and efficient use of staff and vehicles".

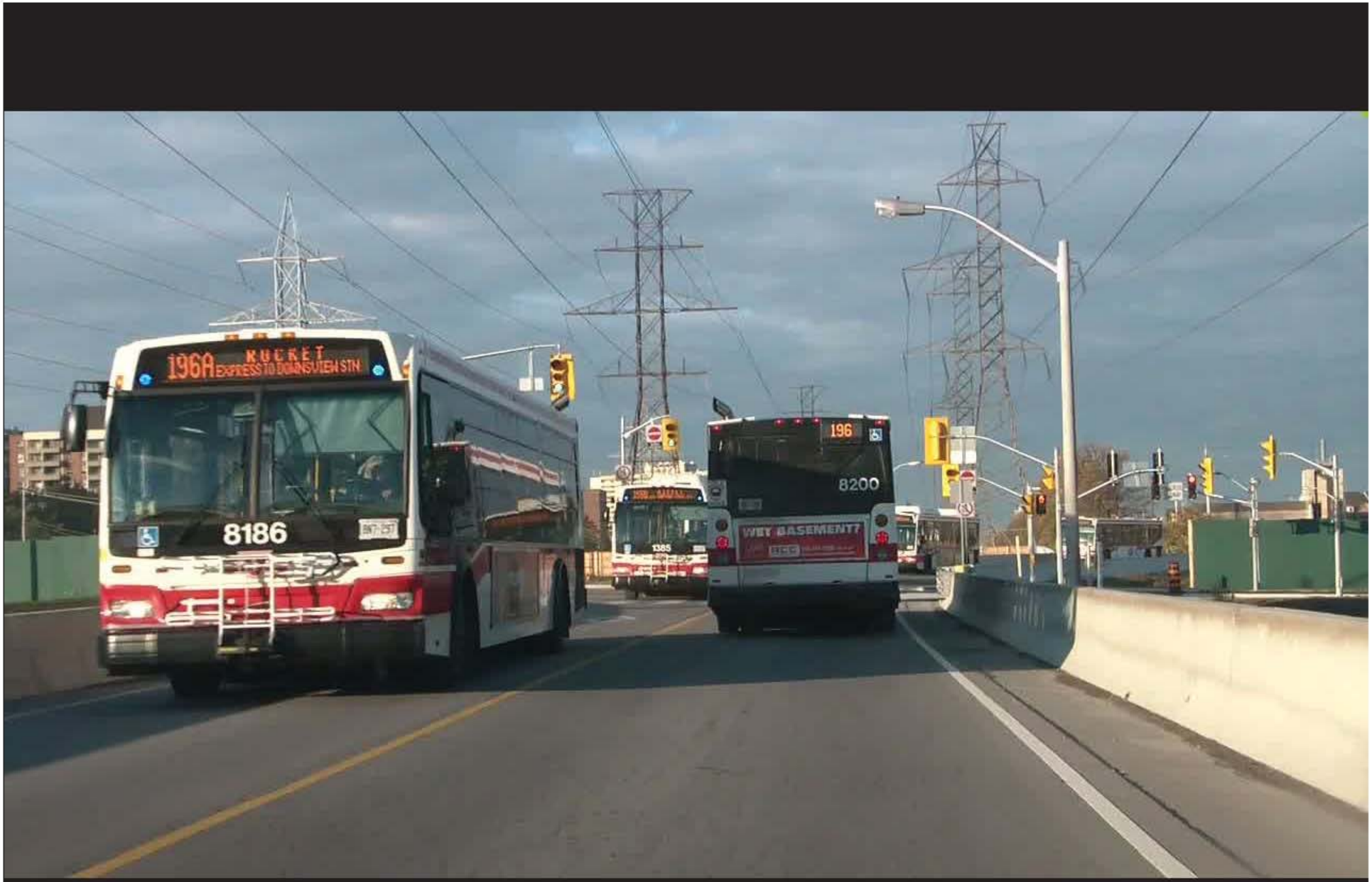
TTC Service Profile


TORONTO TRANSIT COMMISSION
Rapid Transit with Station
TTC SP 30-11-2004 DRG. No. 11787


TORONTO TRANSIT COMMISSION
Rapid Transit with Station
Streetcar
TTC SP 30-11-2004 DRG. No. 11787


TORONTO TRANSIT COMMISSION
Rapid Transit with Station
Streetcar and Bus
TTC SP 30-11-2004 DRG. No. 11787


TORONTO TRANSIT COMMISSION
Rapid Transit with Station
Streetcar and Bus
Crossboundary Bus
Other Bus
GO Bus
GO Rail with Station
TTC SP 30-11-2004 DRG. No. 11787



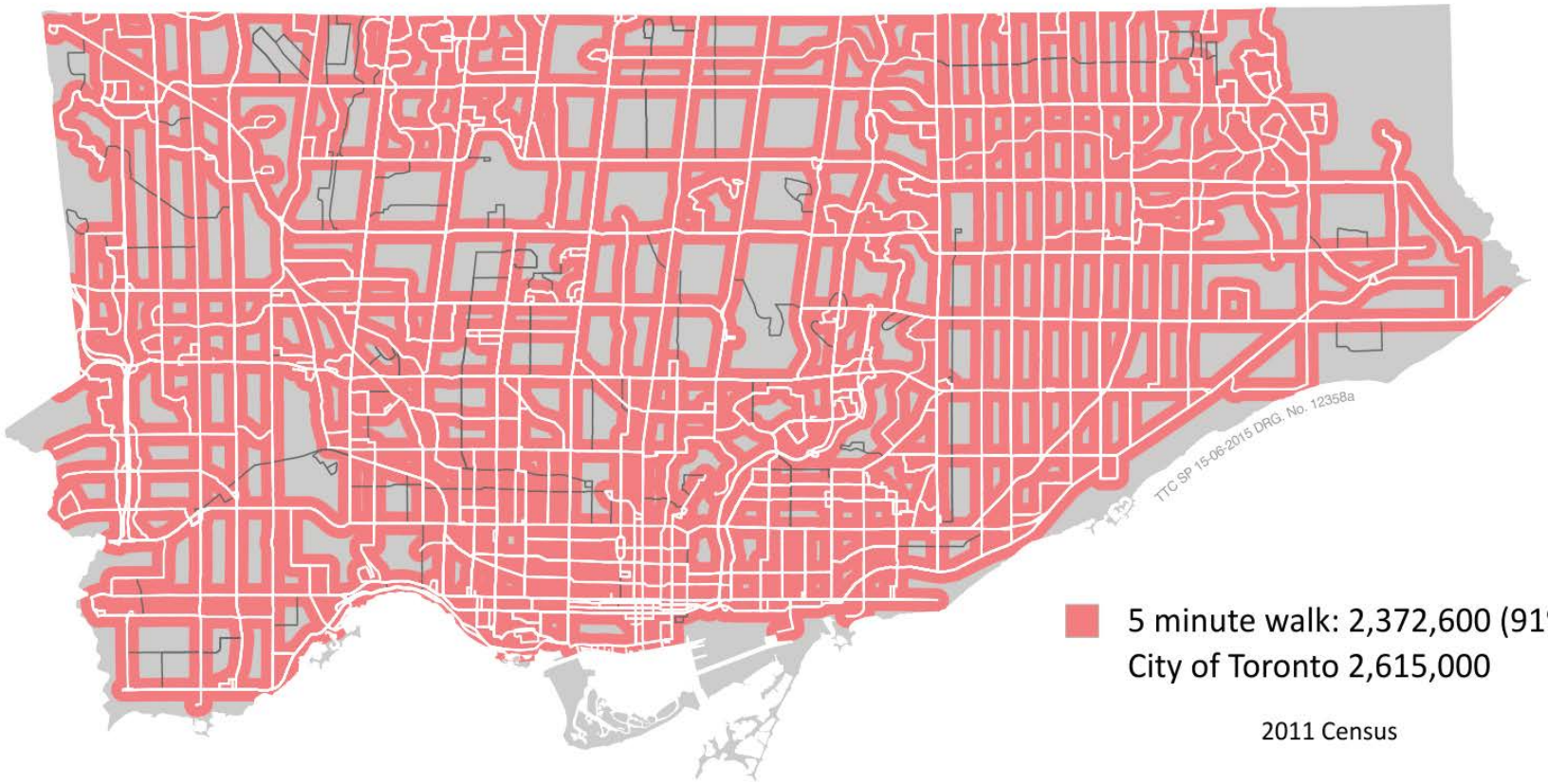
1,508 buses in peak service

202 streetcars in peak service

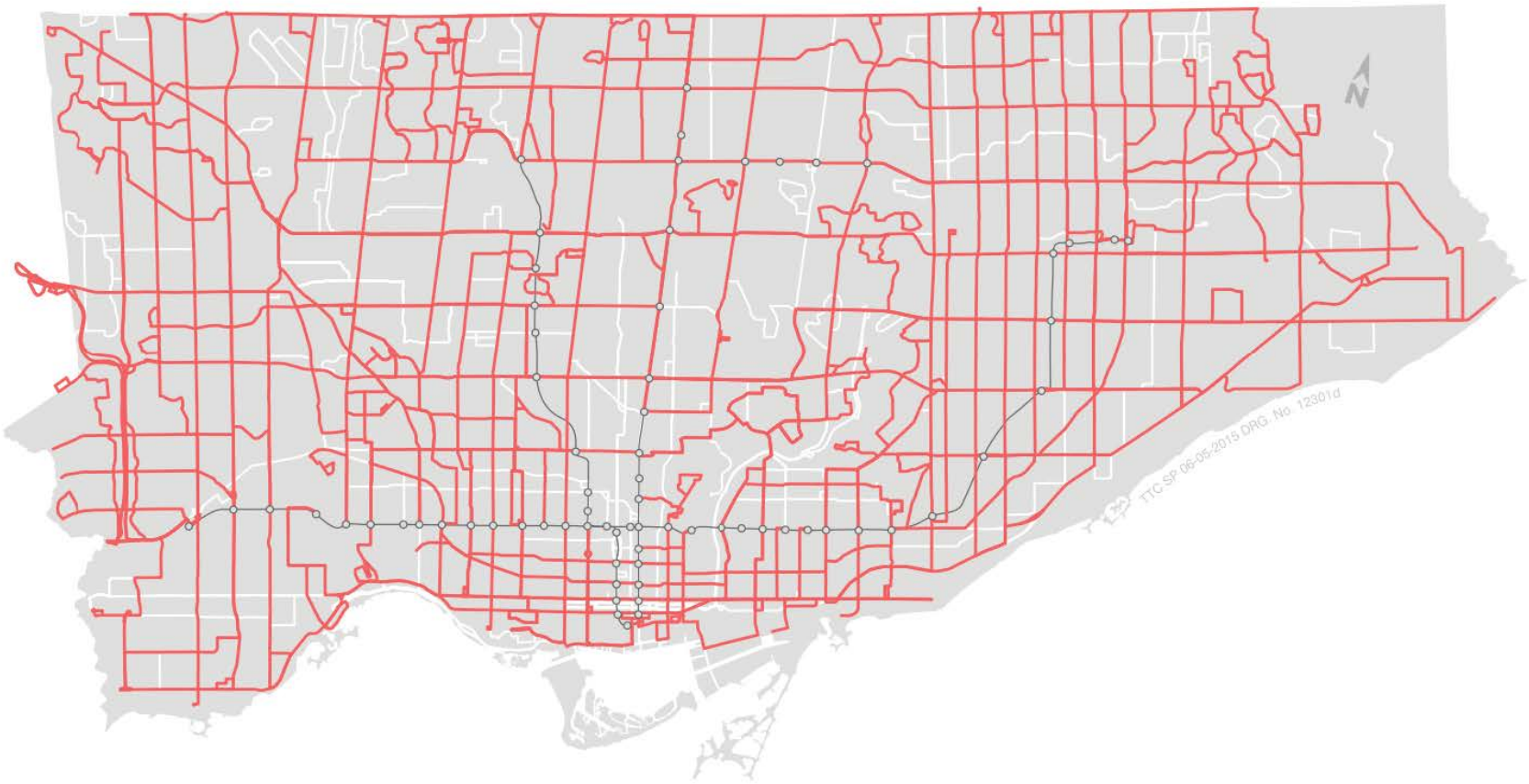
105 rapid transit trains in peak service

Population Within 5 Minute Walk

Monday to Friday Morning Peak Period

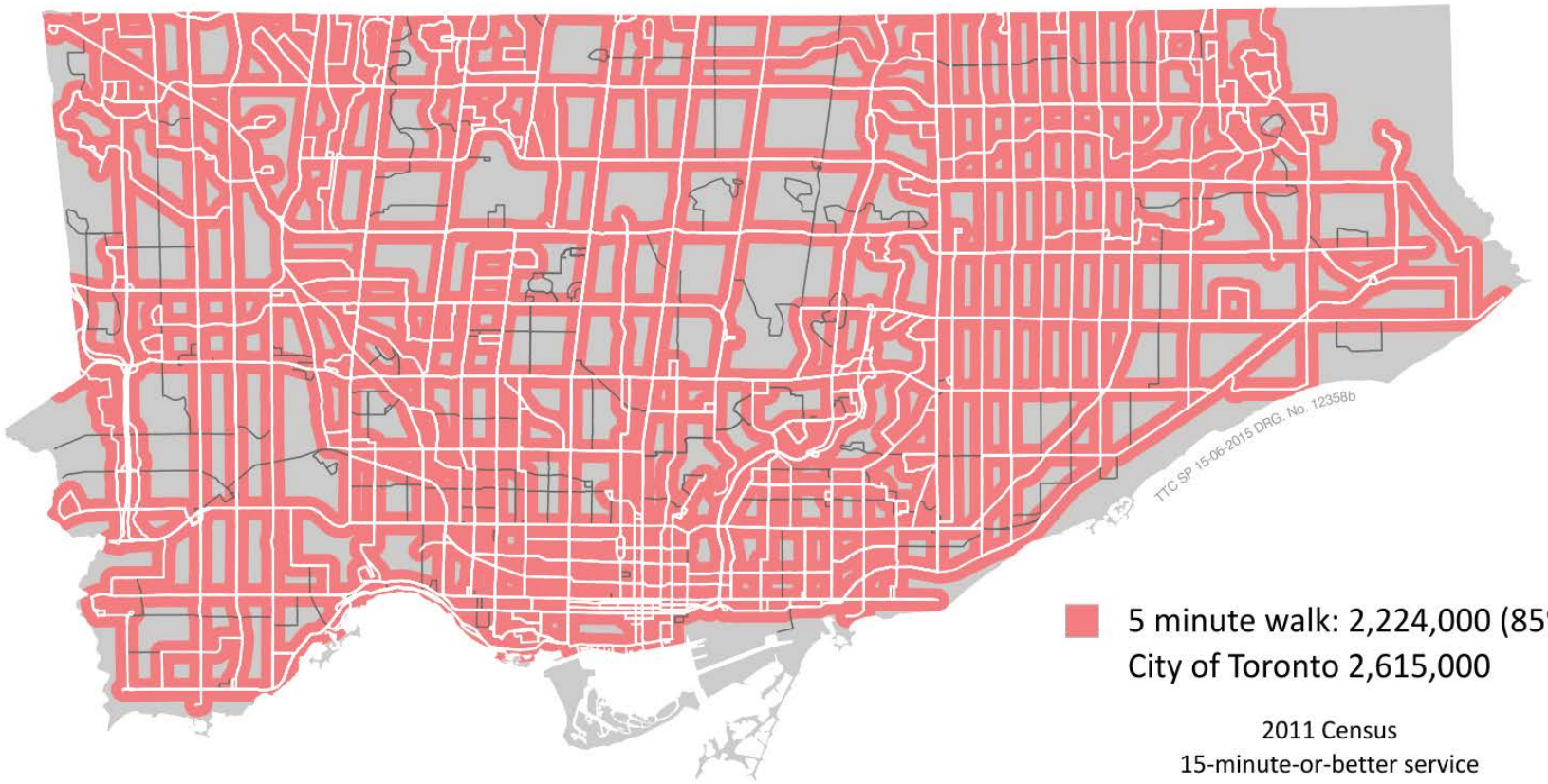


Current Off-Peak Coverage



Population Within 5 Minute Walk

Monday to Friday Midday Period

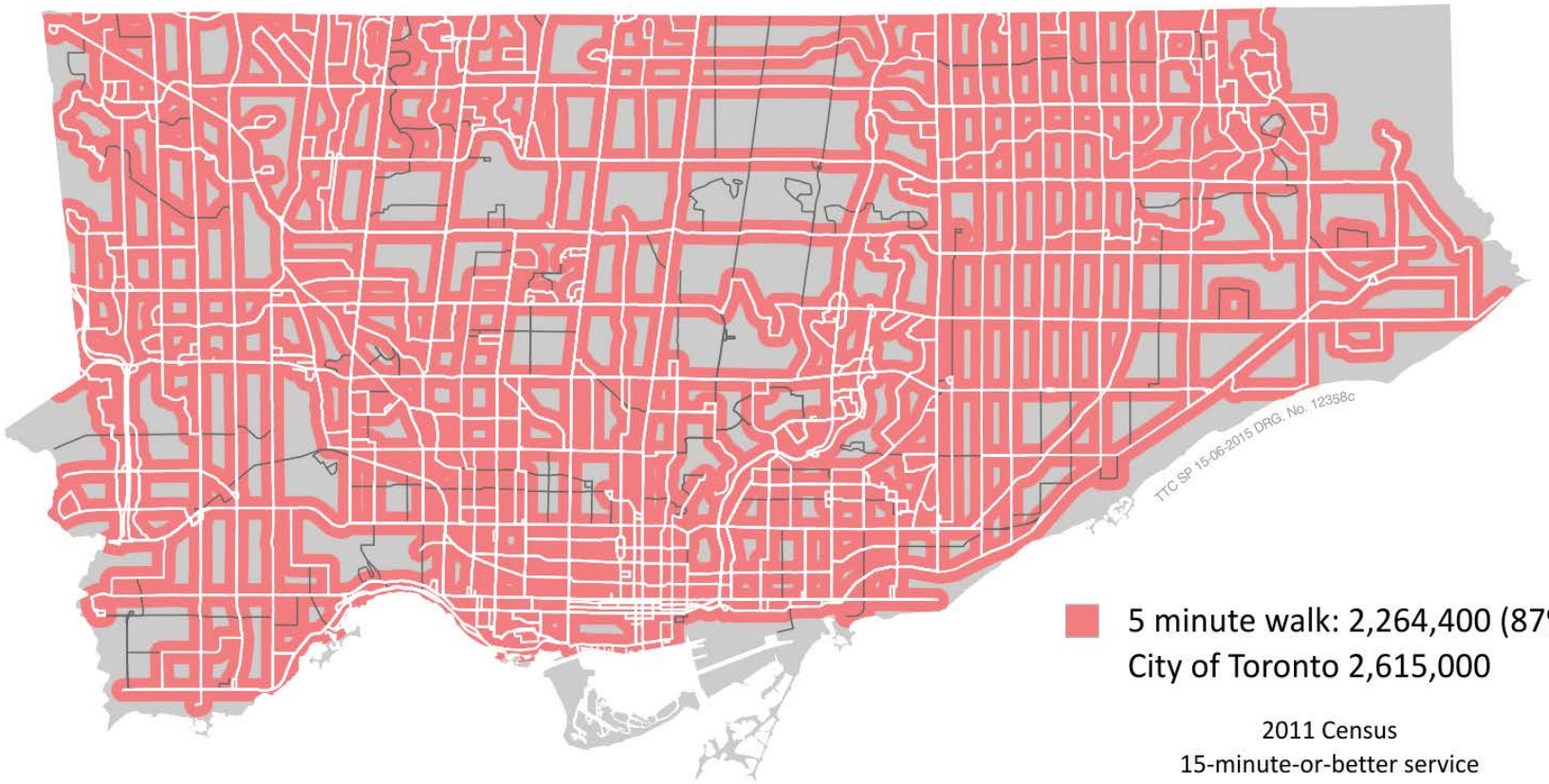


5 minute walk: 2,224,000 (85%)
City of Toronto 2,615,000

2011 Census
15-minute-or-better service

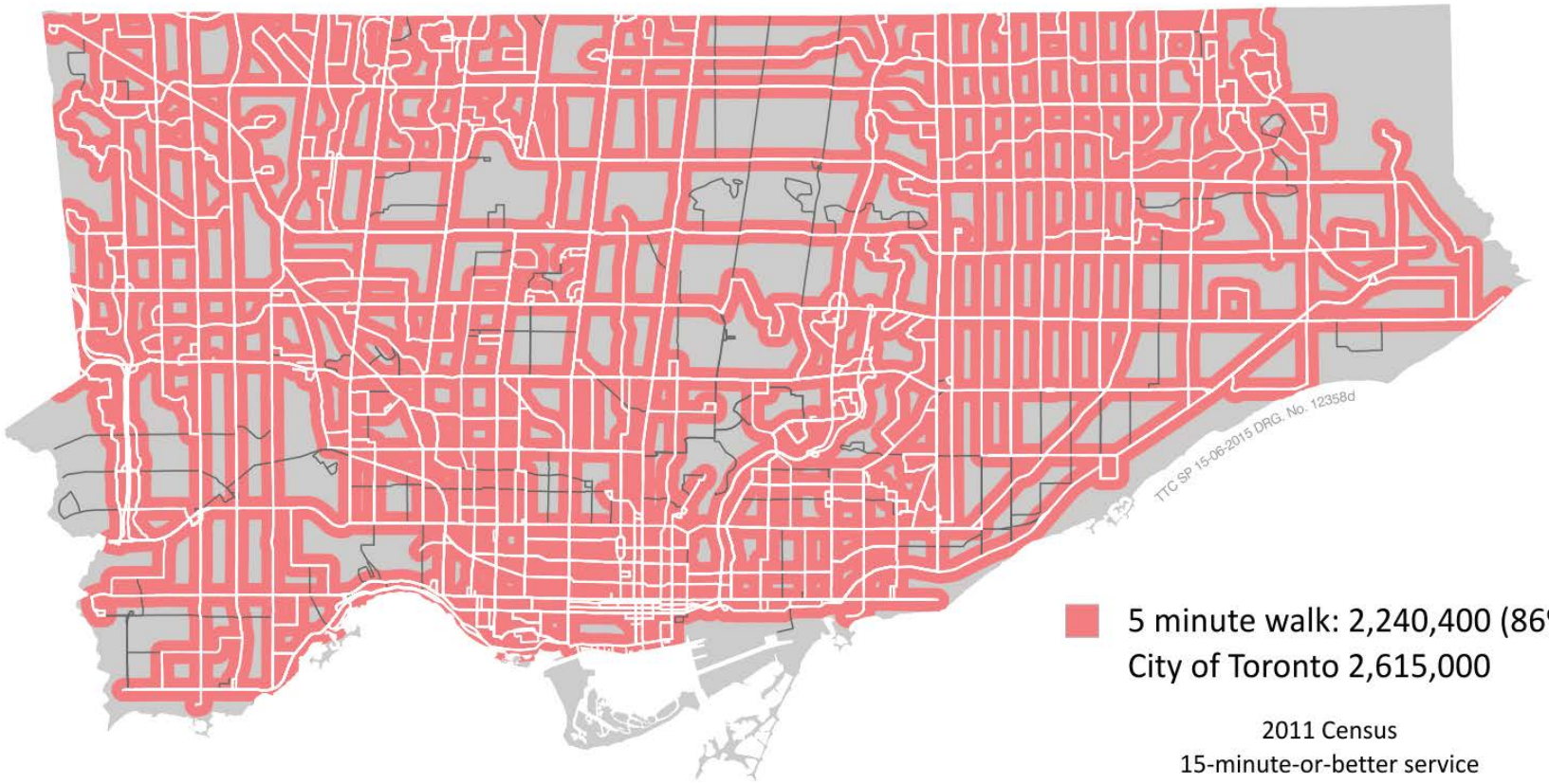
Population Within 5 Minute Walk

Monday to Friday Early Evening Period



Population Within 5 Minute Walk

Saturday Afternoon Period

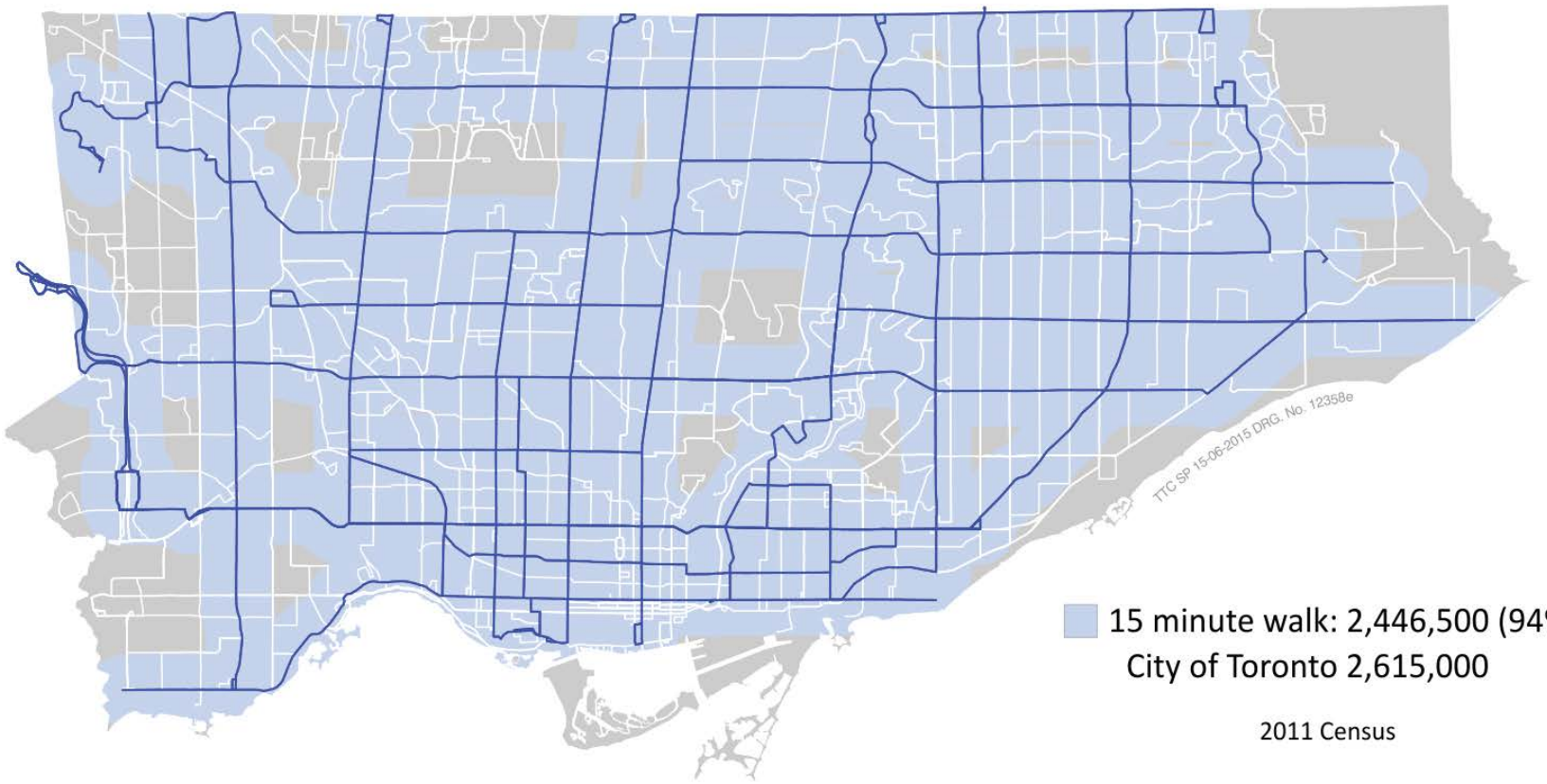


5 minute walk: 2,240,400 (86%)
City of Toronto 2,615,000

2011 Census
15-minute-or-better service

Population Within 15 Minute Walk

Overnight Bus Network



15 minute walk: 2,446,500 (94%)
City of Toronto 2,615,000

2011 Census

On-Board Crowding – Peak Bus Service

- existing crowding standard (50 to 53 avg. per bus):
  - ➢ 5% of peak bus service is overcrowded;

    14 routes: 15 periods of operation

- approved crowding standard (47 to 50 avg. per bus):
  - ➢ 15% of peak bus service is overcrowded;

    34 routes: 40 periods of operation

Maximum Wait-Time Standards – Status

- peak-period service:
  - 100% within standard (338 of 339 periods of operation)
- off-peak service:
  - 99% within standard (1,544 of 1,565 periods of operation)

Transfers Required in TTC Trips

Number of Transfers	Subway-to-Subway Counted as a Transfer		Subway-to-Subway Not Counted as a Transfer	
0	35%	95%	50%	100%
1	40%		40%	
2	20%		10%	
3	5%		<1%	
>3	<1%		<1%	

Sources: 2011 TTS Survey

Accessibility Status

- all buses accessible; over 90% low-floor


9241
29 TO EXHIBITION
Guardian Drugs

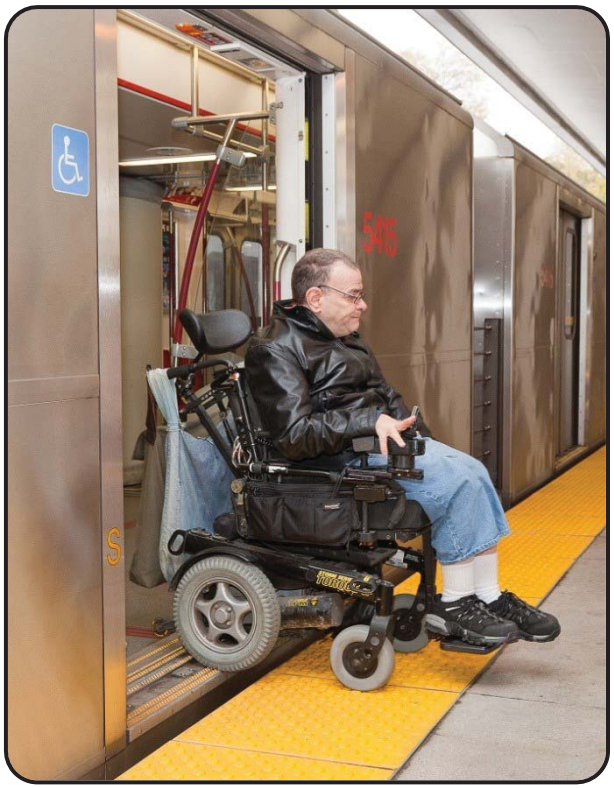
TTC's New 100% Low-Floor Streetcars

Accessible streetcars:

- accessible low-floor streetcars on 510 Spadina
- 2015: 509 Harbourfront, 511 Bathurst, 505 Dundas
- all streetcar routes accessible by 2019

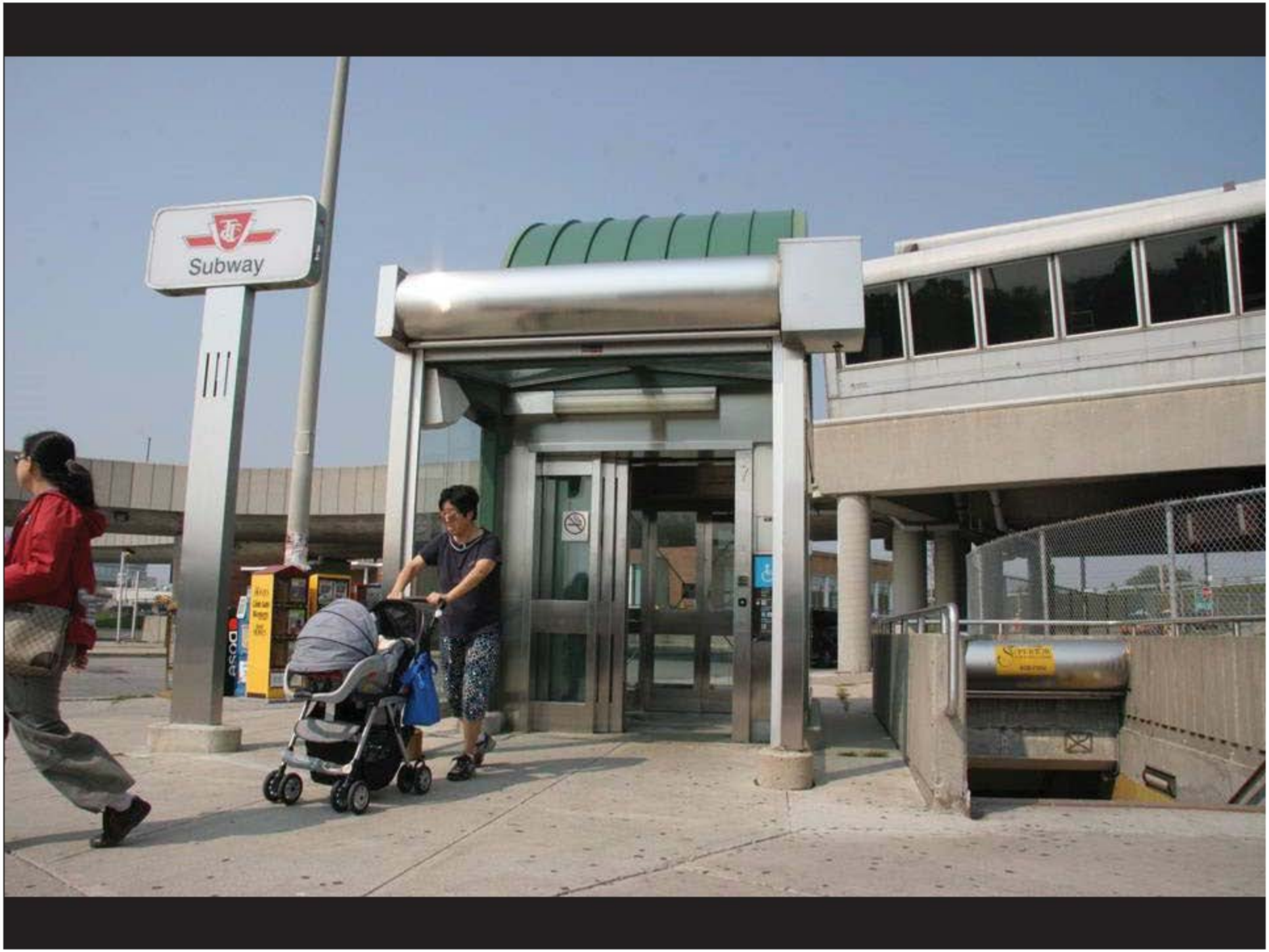
Accessibility Status

- all subway trains accessible



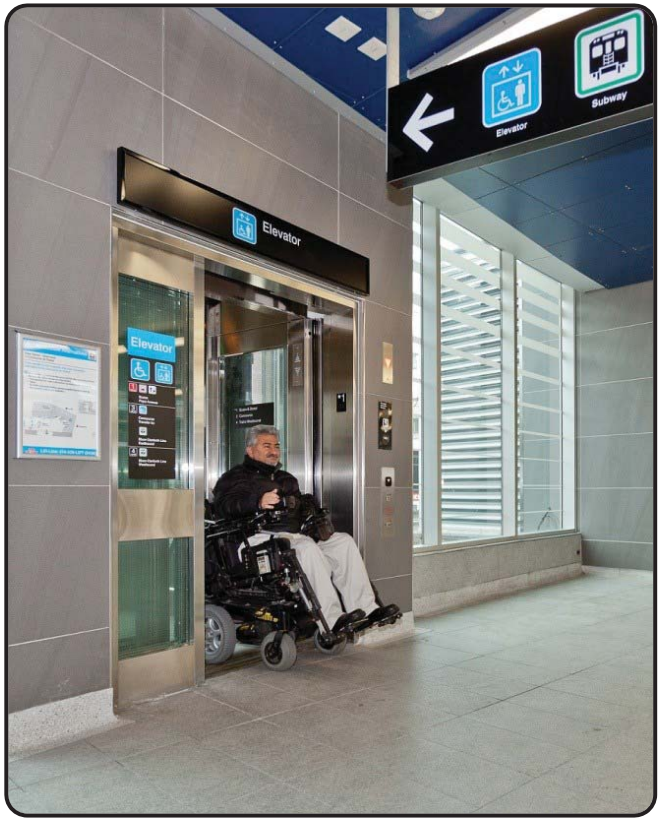
Accessible Fare Gates


Elevator


Subway

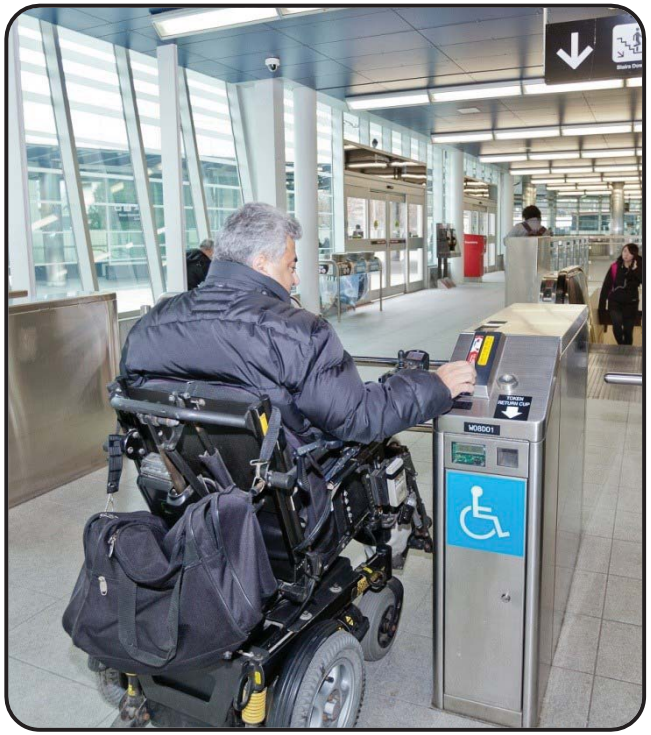
Accessible Subway Stations

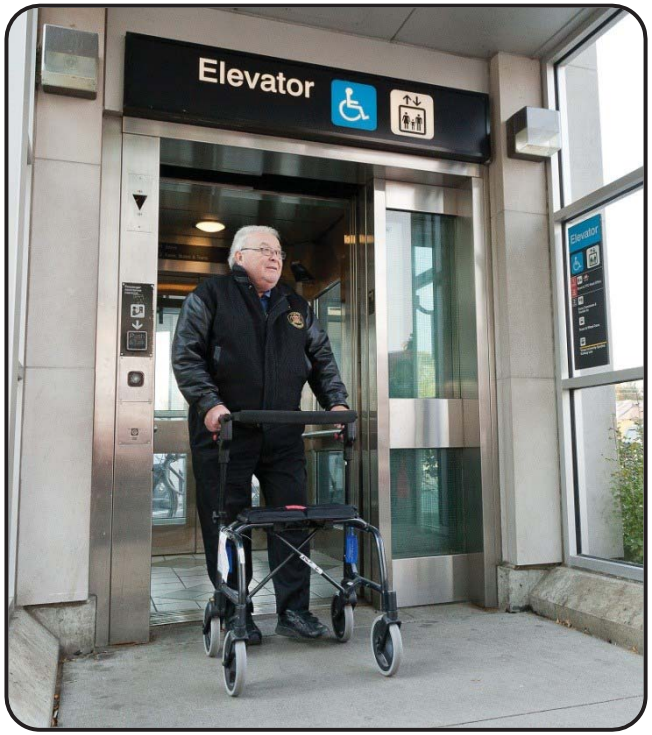
Pape Station



Accessibility Subway Stations

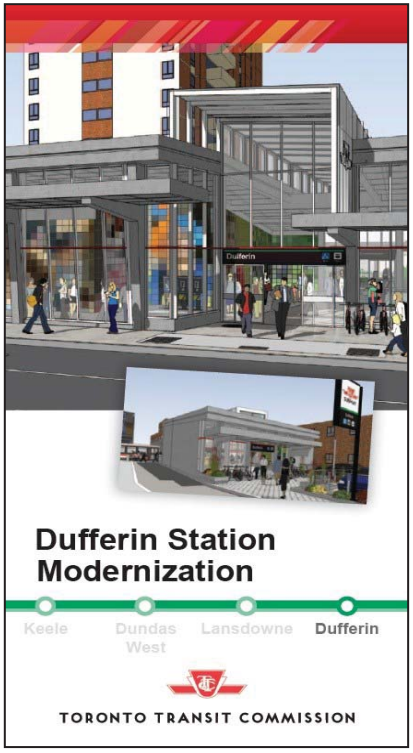
Pape Station

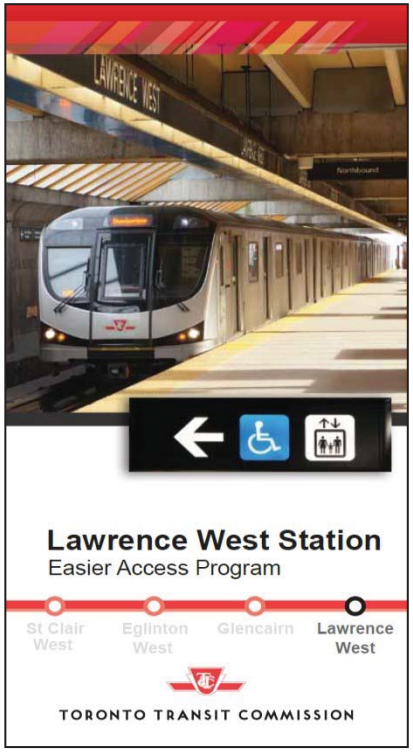




Accessible Subway Stations

- Dufferin, Lawrence West just completed
- currently: 34 stations accessible





Accessible Subway Map

Accessible Station

Interchange Station

1 Yonge-University Line

2 Bloor-Danforth Line

3 Scarborough Line

4 Sheppard Line

*At Spadina station, only Line 2 is accessible from street to subway platform
Please use St George station for accessible transfers between Line 1 and Line 2


W153
W153

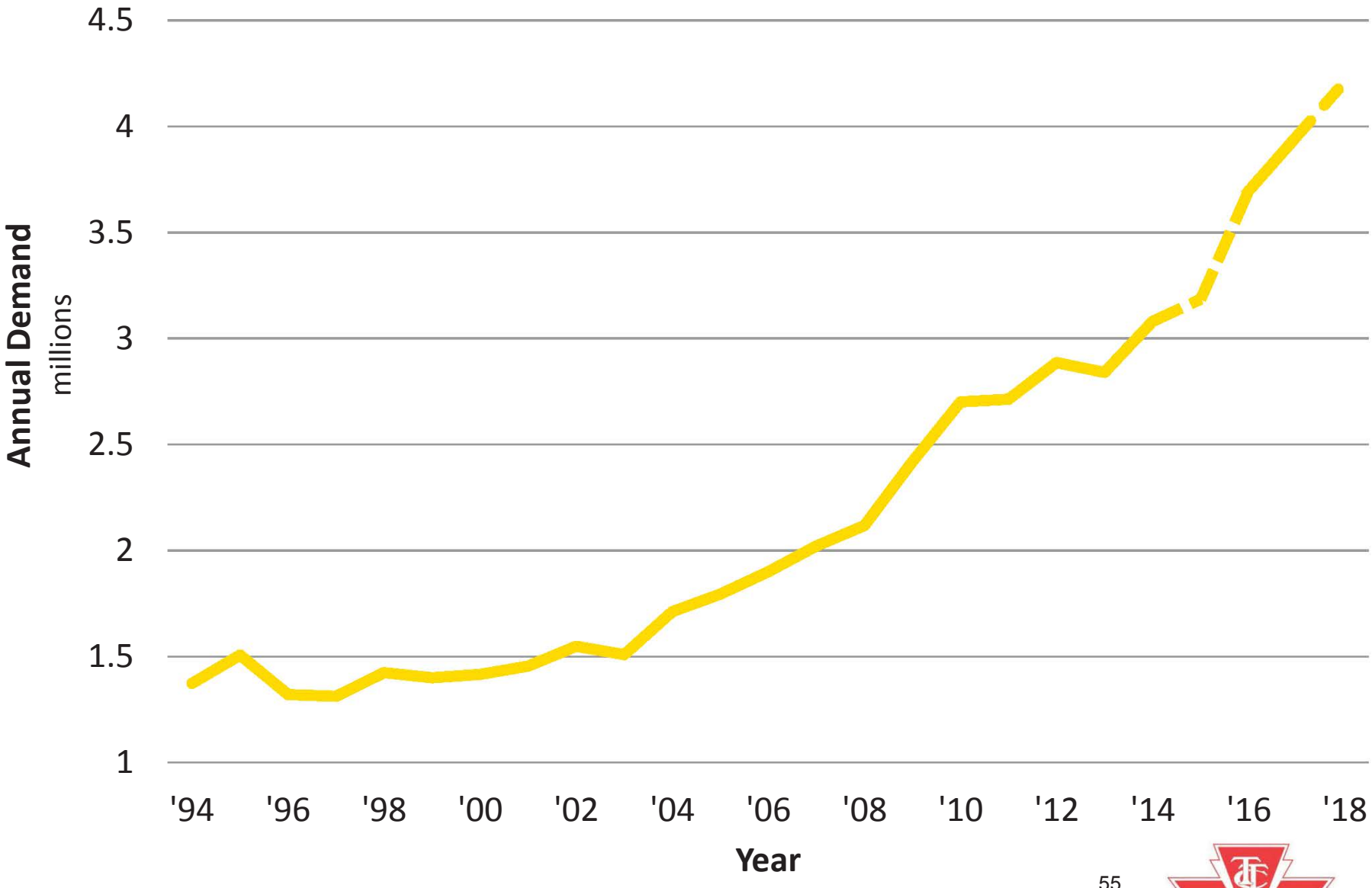

W296
LOOK FOR CARS WHEN CROSSING.


co-op
A059
Operated on behalf of
WHEEL-TRANS
TORONTO
co-op
CABS
416-504-2667
co-opcabs.com
4161

6/17/2015

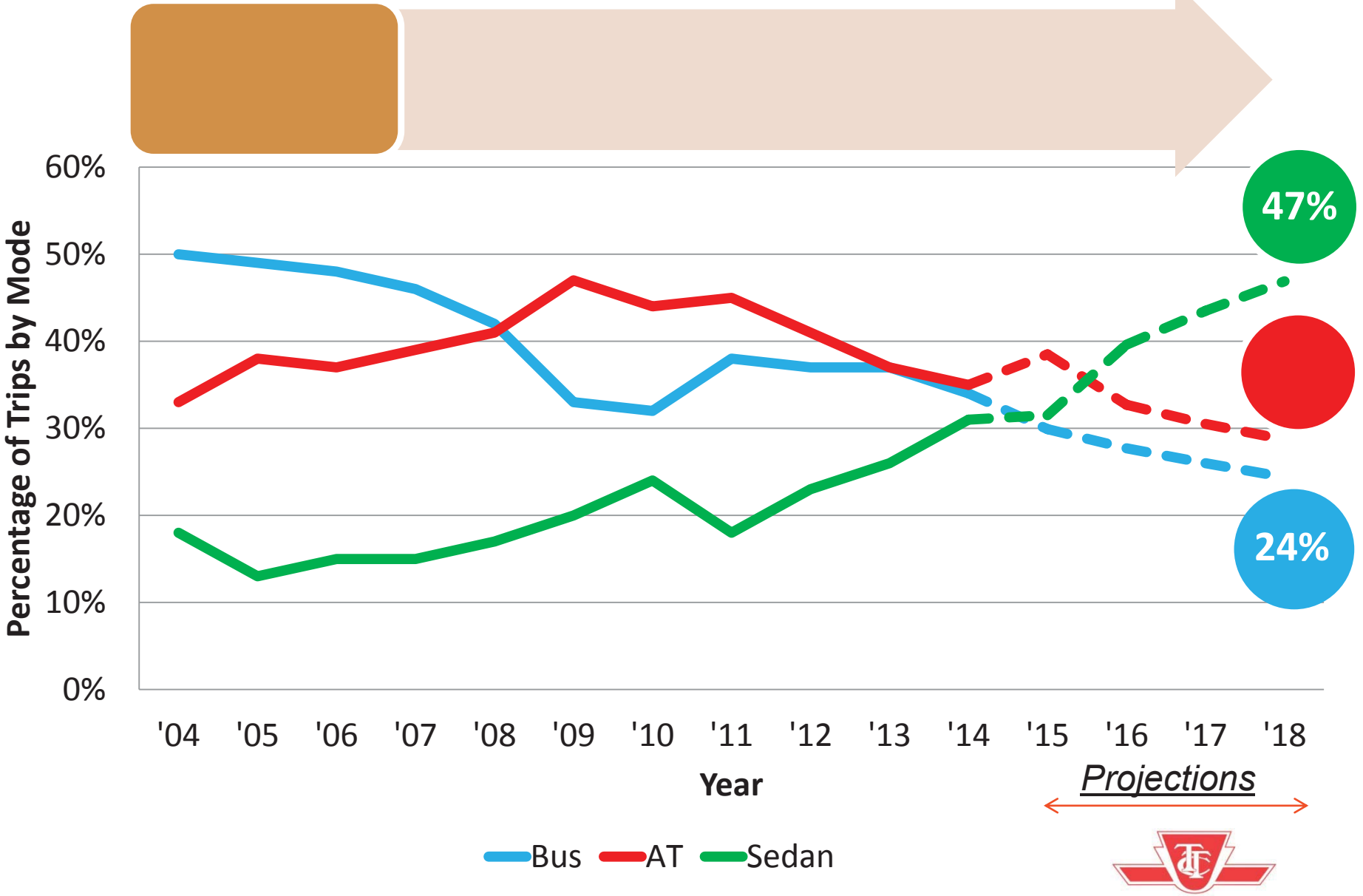

BECK
751-5555
AMPC 956

Wheel-Trans Demand



Wheel-Trans

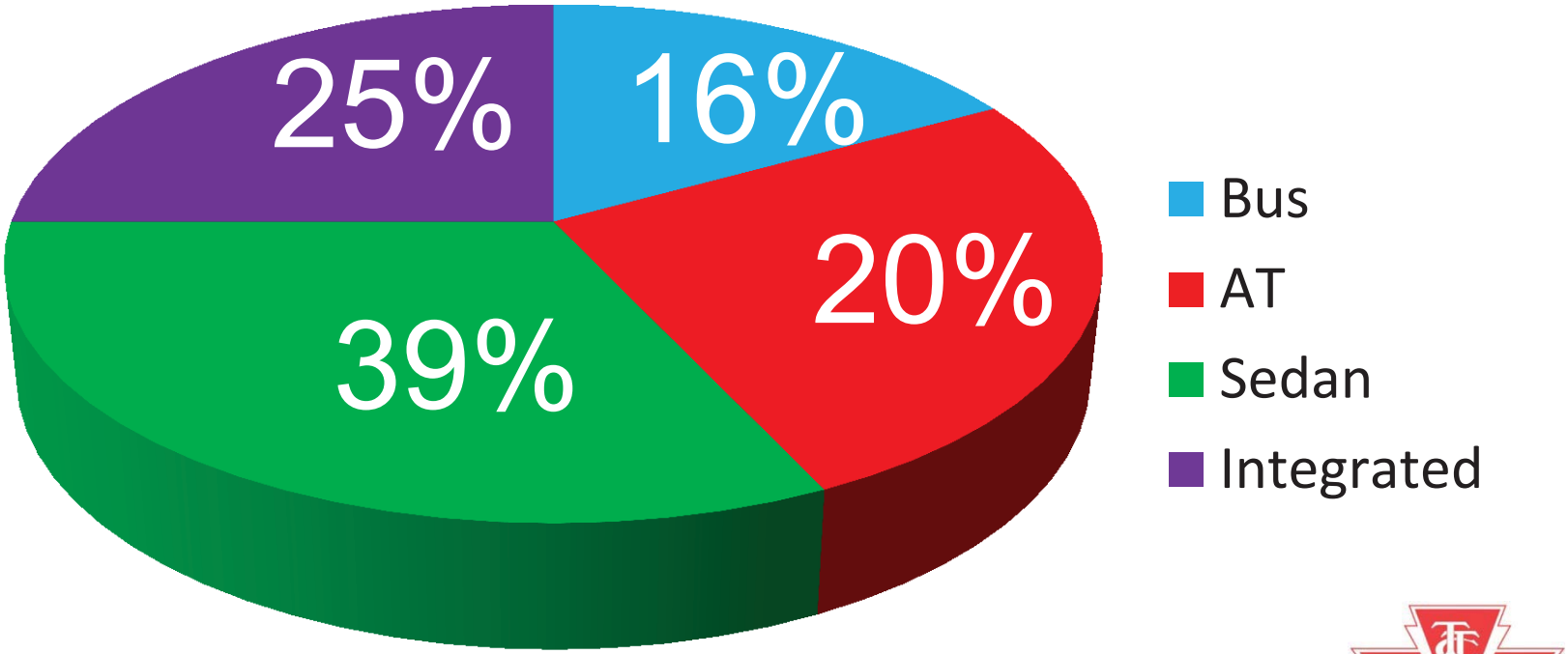
- maintain unaccommodated rate < 1%
- scheduling, service revisions → increase capacity
- integration with conventional system → improve efficiency:
  - low-floor accessible streetcars
  - more accessible subway stations
- AODA – mandated eligibility – conditional, temporary


60%
50%
40%
30%
20%
10%
0%
Percentage of Trips by Mode
'04
'05
'06
'07
'08
'09
'10
'11
'12
'13
'14
'15
'16
'17
'18
Year
47%
24%
Projections
Bus
AT
Sedan

Wheel-Trans: Projected Usage by Mode

By 2025:

25% of Demand on Integrated–Conventional Services



TTC Commuter Parking

TTC Commuter Parking

- 14 stations → 28 lots → 12,300 spaces
- Finch East, West: biggest, growing market
- ~ 6 million transit trips annually
- net operating income + $4.3 million (41% margin)
- demand constrained by lack of capacity at half of lots

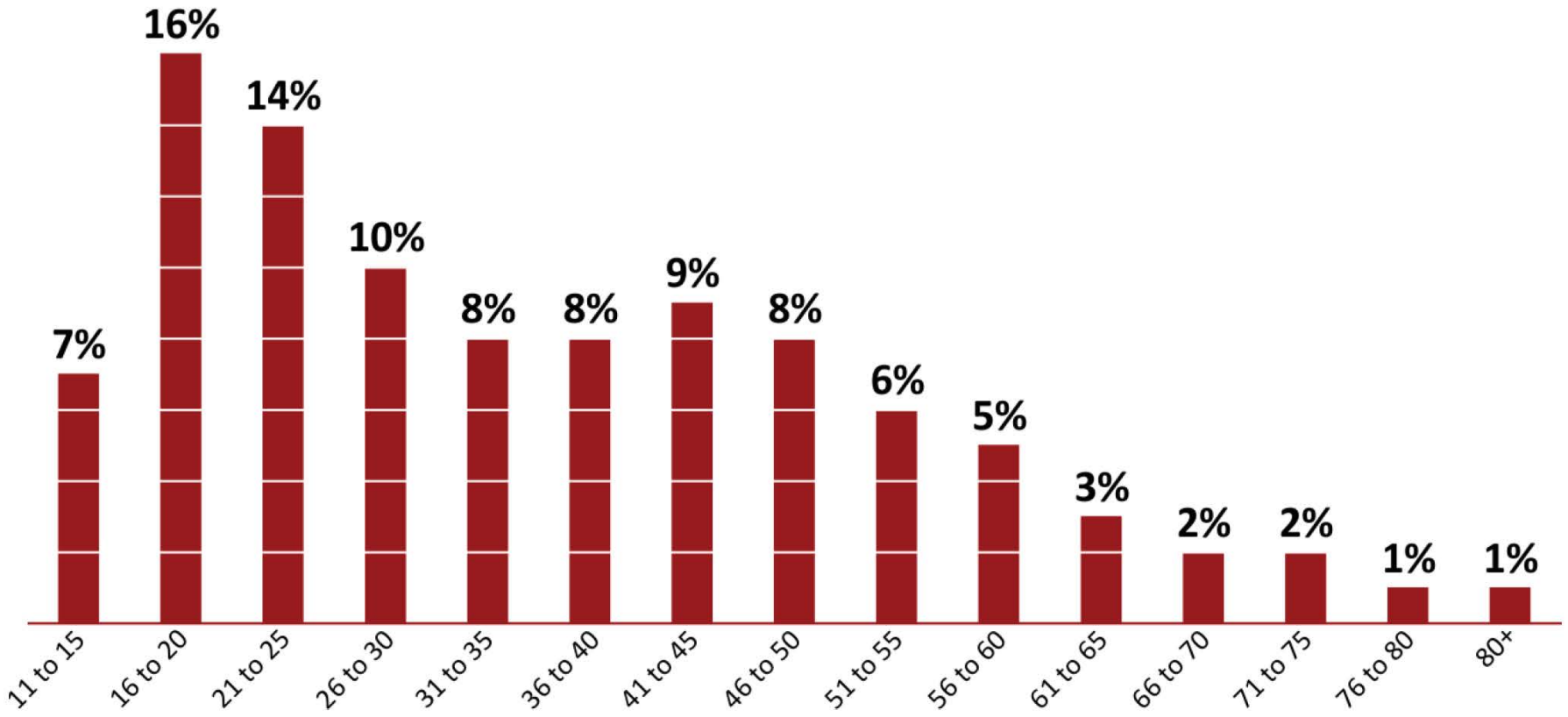
TTC Commuter Parking

- 60% of spaces: temporary / long-term closures, relocations:
  - Build Toronto, Metrolinx
- long-term forecast: 38% reduction – Build Toronto
- Metrolinx: Eglinton LRT construction
  - 750 spaces removed:
    - Kennedy, Eglinton West

TTC Ridership Profile

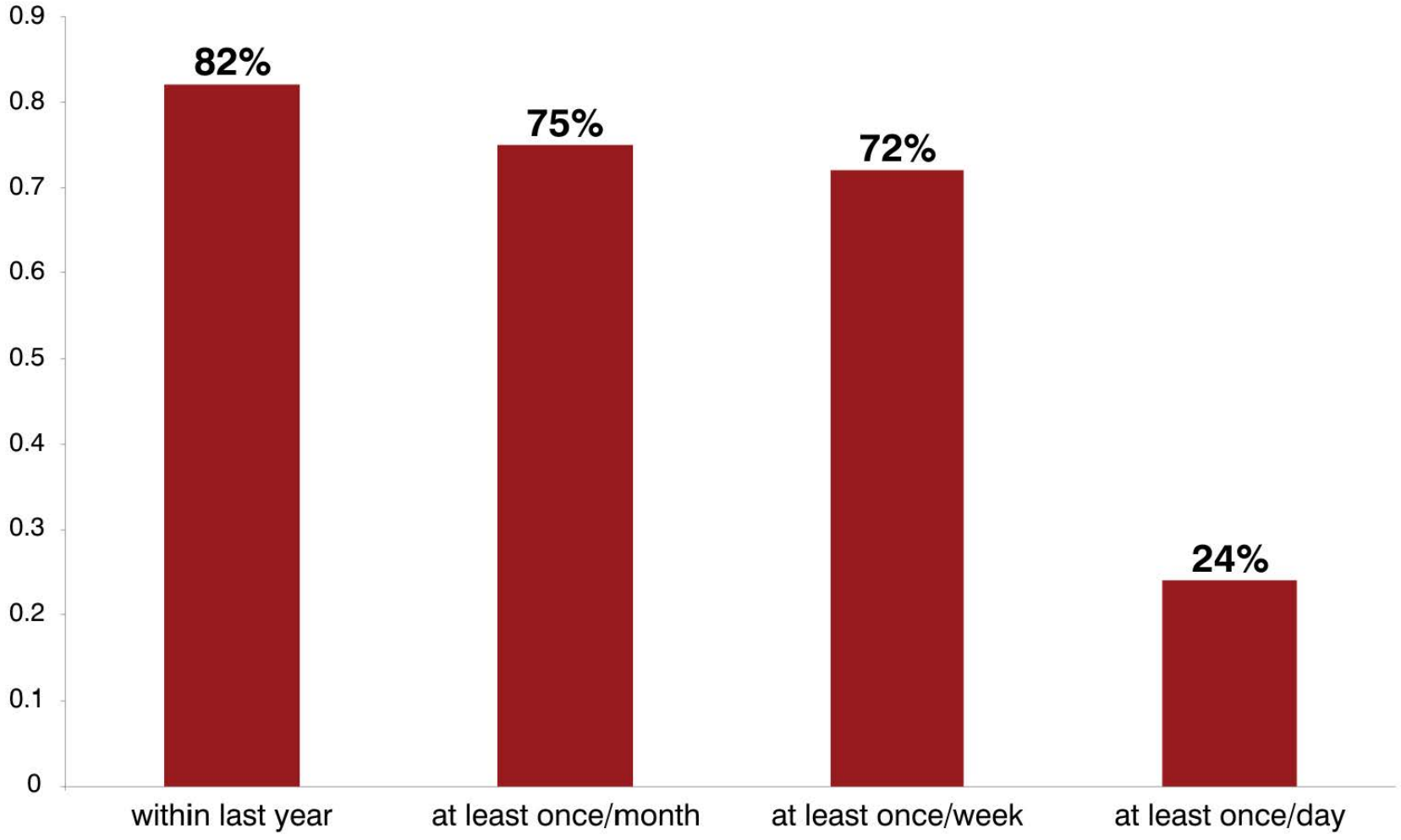
- 57% are female
- 58% have driver's licence
- 66% have household vehicle
- 66% are employed
- 32% are students

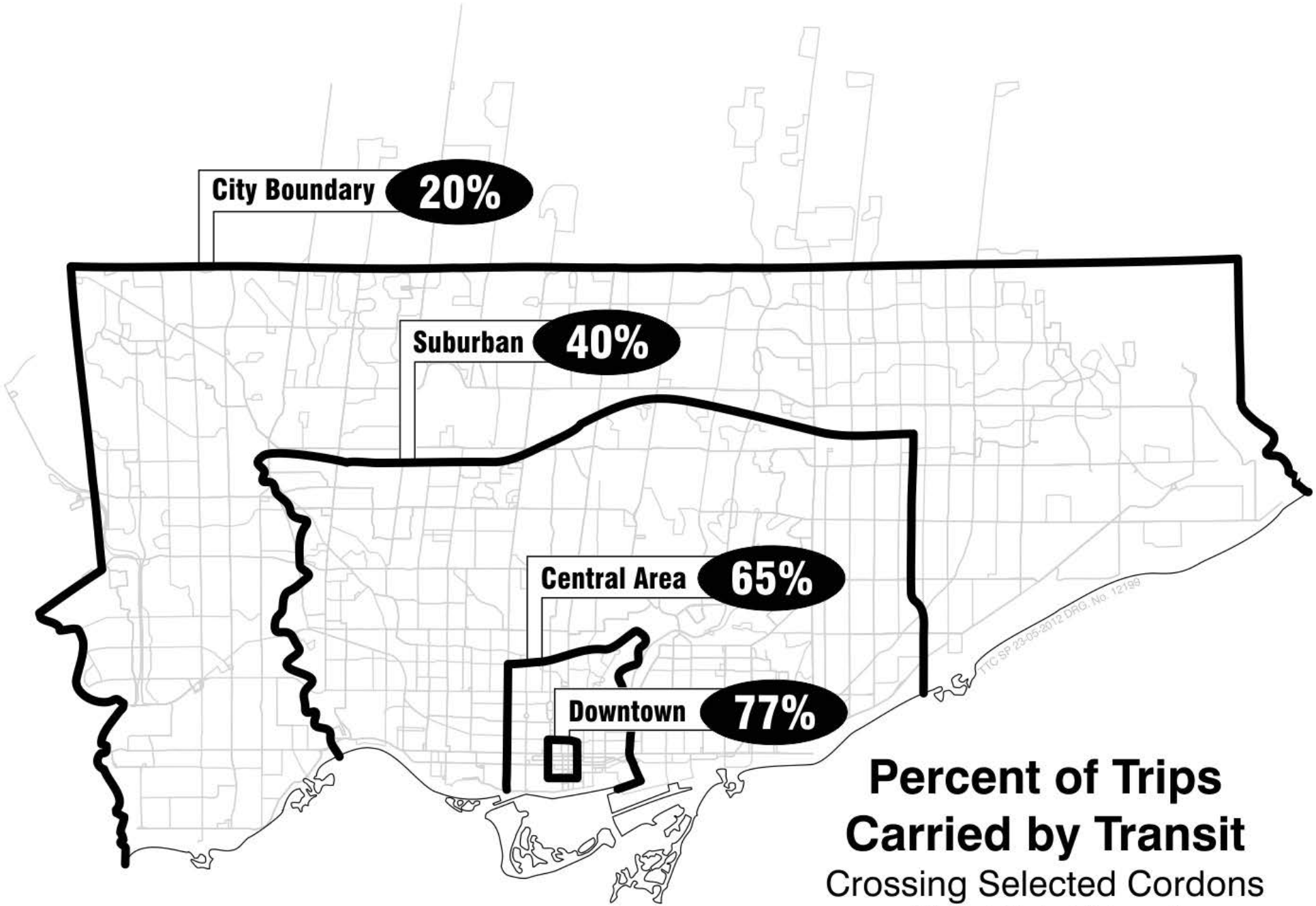
Age Distribution of TTC Customers



Frequency of TTC Use

Toronto Residents





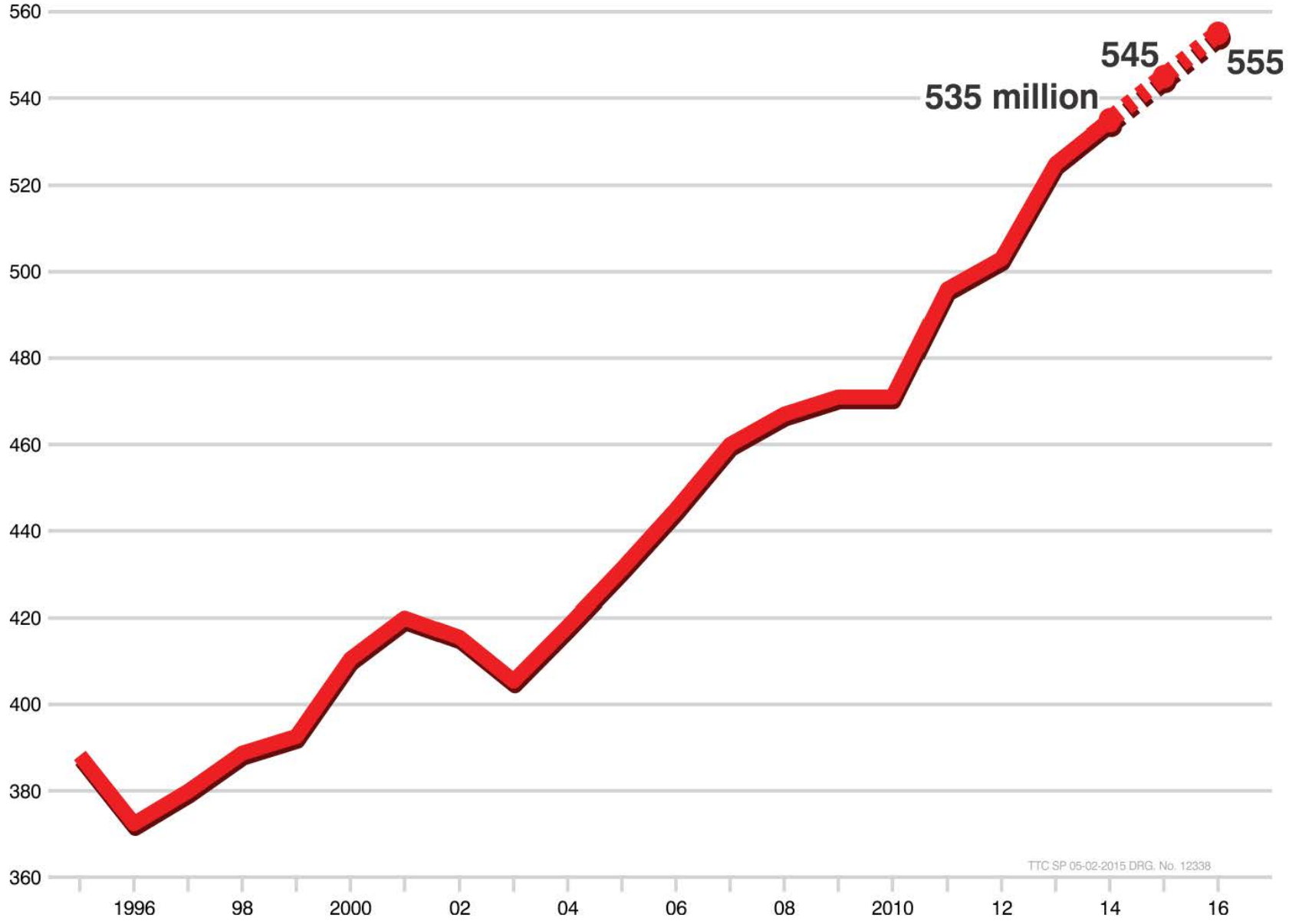
Percent of Trips Carried by Transit

Crossing Selected Cordons

AM Peak Period (Inbound)

TTC Annual Ridership

from 1995 - 2016, millions

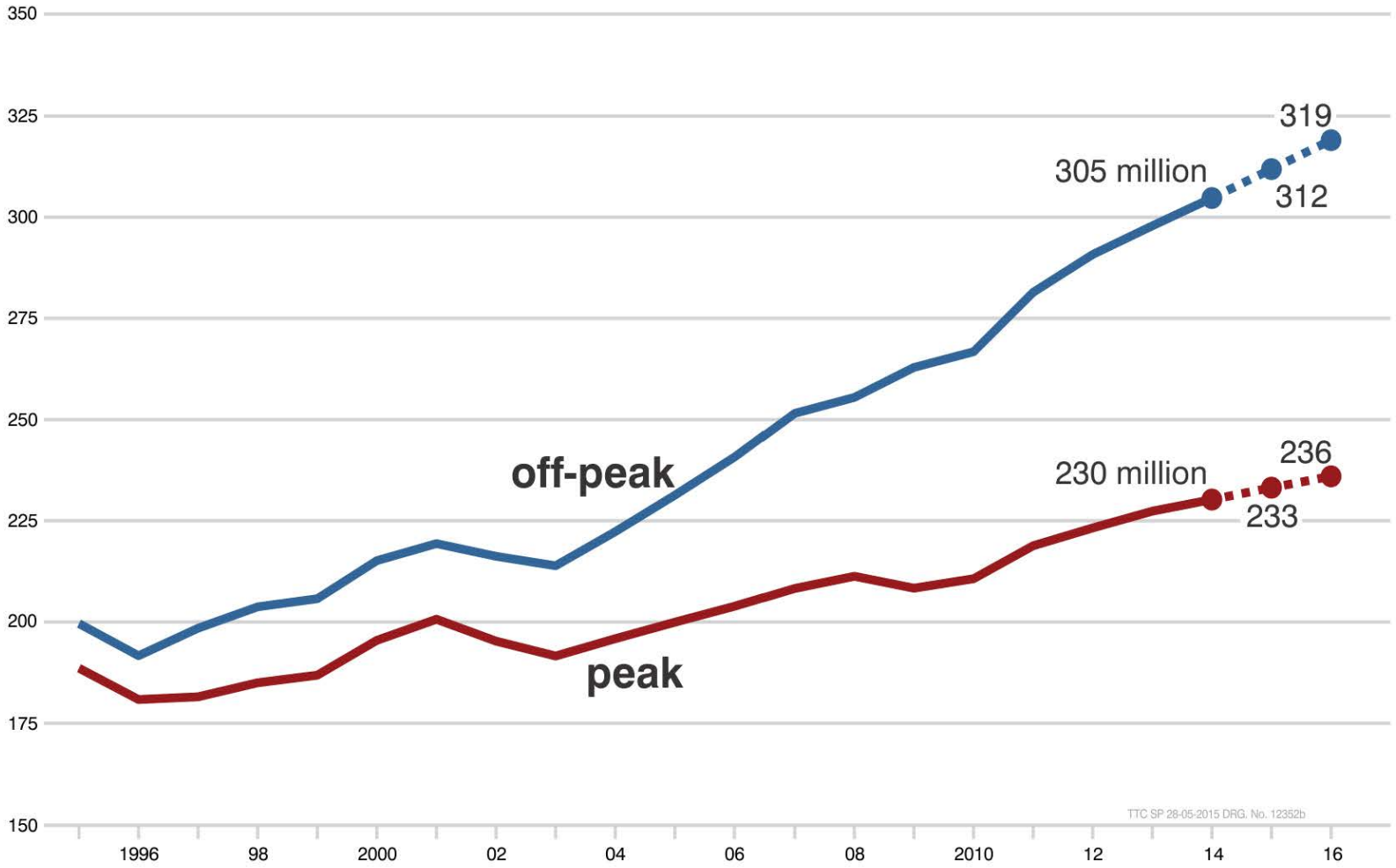


Purpose of Travel on TTC

Trip Purpose	Percentage
work	45%
other	28%
school	27%

TTC Peak and Off-Peak Ridership

from 1995 - 2016, millions

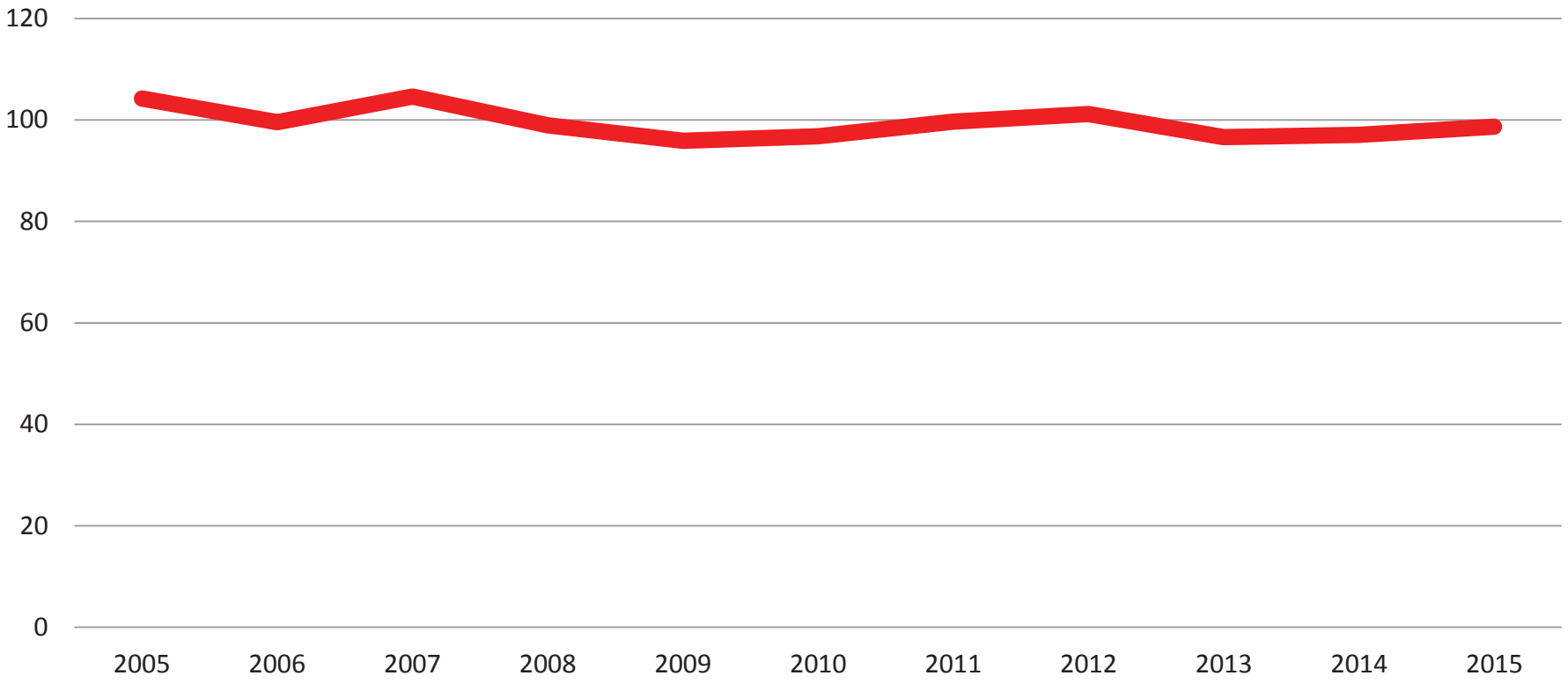


Public Support for Transit in Toronto

Ridership per Capita (using boardings)

Agency / City	Population	Ridership per Capita
York Region	1,055,558	30
Washington, DC	3,719,567	111
Vancouver	2,451,783	127
Chicago	3,425,958	154
TTC	**2,825,620**	**295**
Montréal	1,959,987	360
New York	8,008,278	432

Productivity: Boardings per Service Hour



- productivity: system-wide -- approximately 100 boardings / hour

Comparison of Revenue / Cost Ratios

City	Revenue / Cost
TTC	**71%**
New York	58%
Washington	50%
Vancouver	44%
Chicago	41%
York Region	38%

Subsidy / Rider – Comparison Among Cities

City	Subsidy / Rider
TTC	**$0.89**
New York	$1.14
Montréal	$1.21
Vancouver	$1.63
Chicago	$1.99
Washington	$2.40
York Region	$4.34

2015 Service Initiatives

Council's $95 Million Investment in Better Service

Children Under 12 Ride Free

- make public transit more affordable for families
- children riders become adult riders

All-Door Boarding & Proof-of-Payment

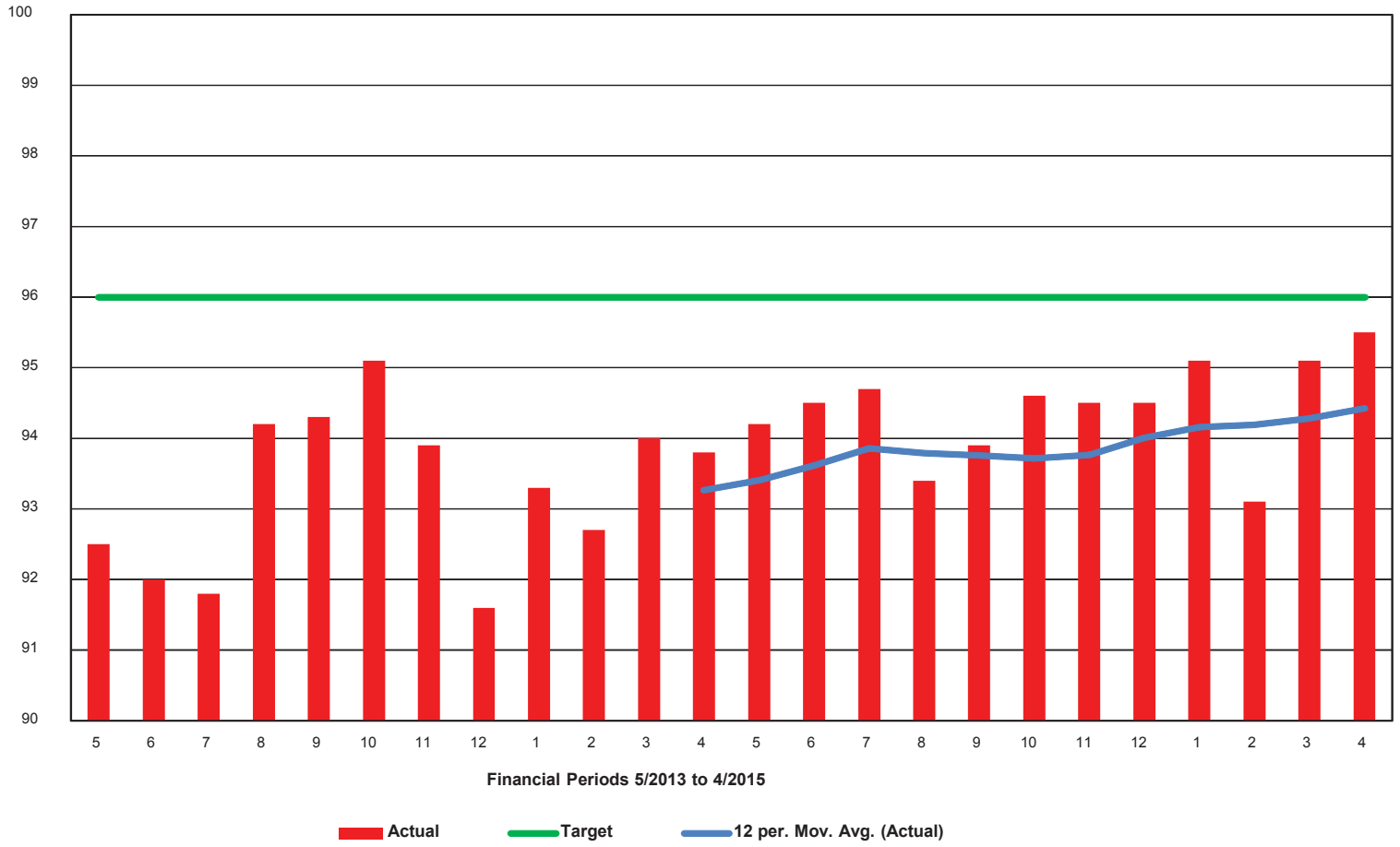
- speed-up time to serve stops: decreases travel times

Subway Service Reliability

- running time adjustments, improved route management:
  - peak periods, Lines 1, 2 improve reliability, reduce delays

Subway Service Reliability

Punctuality – Line 1 Yonge-University Subway



Subway Service Reliability

- improve reliability of signals, track, communication systems:
  - reduce delays on subway

Bus, Streetcar Service Reliability

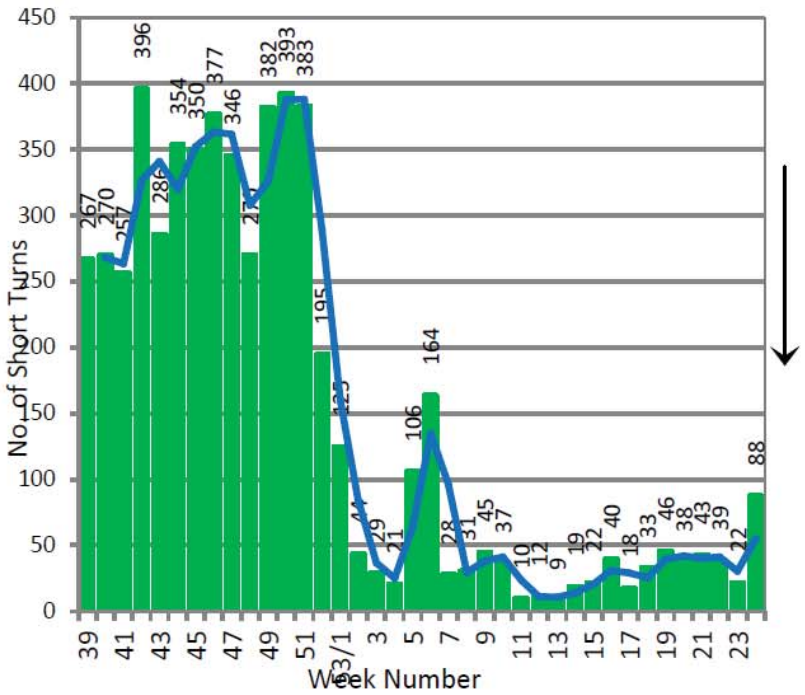
- running time adjustments, improved route management:
  - reduce short-turns, bunching, gapping on bus, streetcar routes


St Clair Ave W
Dufferin St
Bloor St W

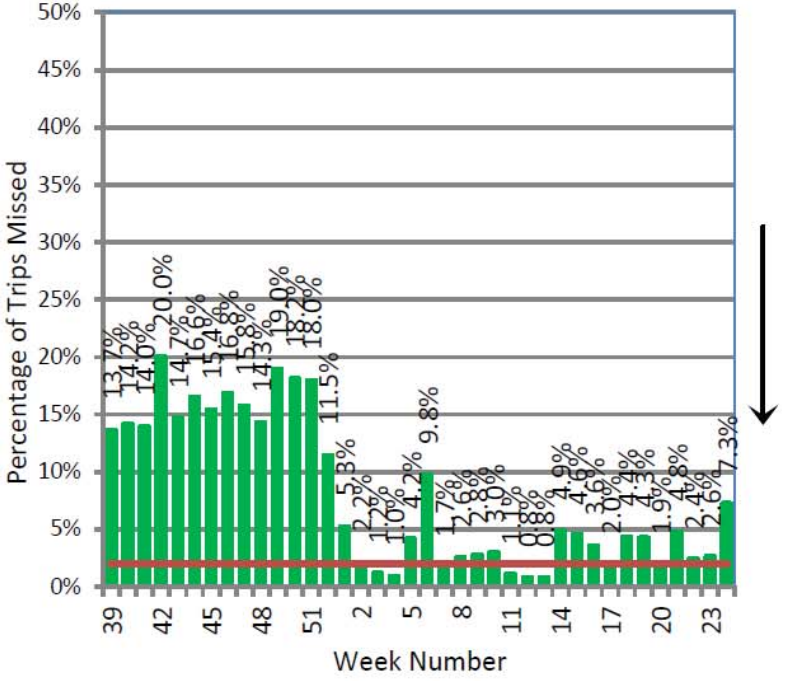

St Clair Ave W
Dufferin St
Bloor St W

504 King

Short Turns

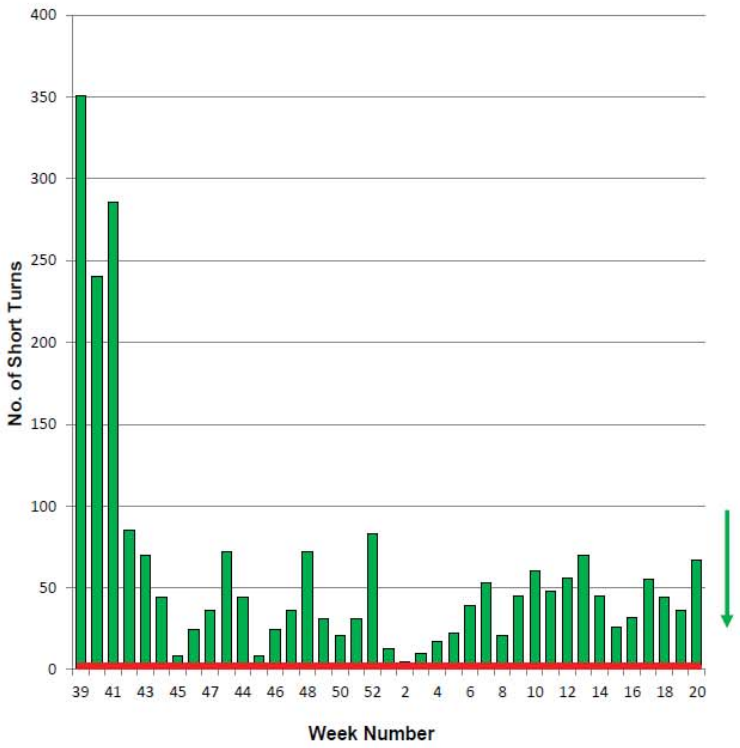


Missed Trips

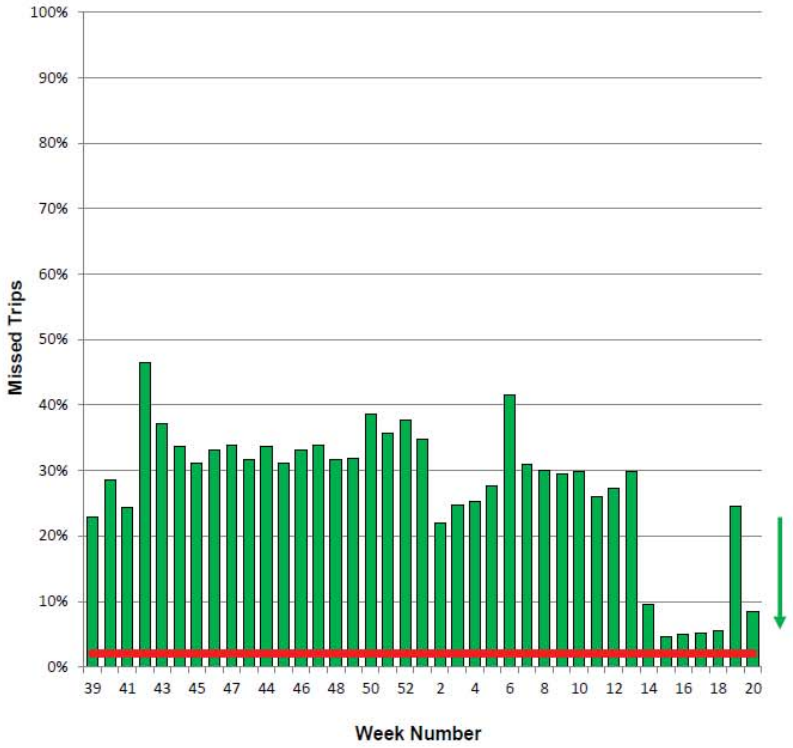


29 Dufferin

Short Turns



Missed Trips



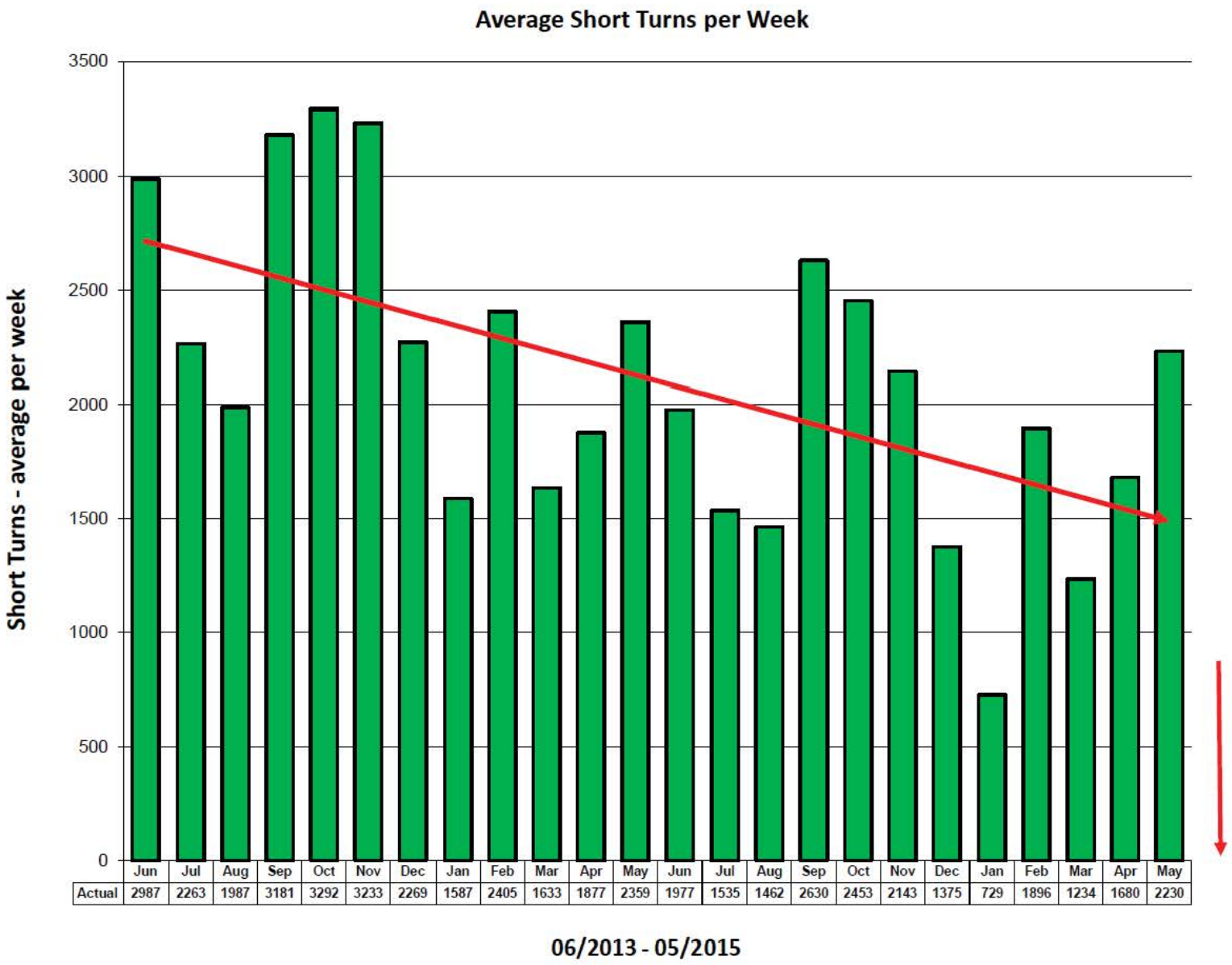
STREETCAR

Average Short Turns per Week

	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Actual	2636	2631	2710	3010	2968	2853	2176	2484	3124	4002	3336	2995	2659	2487	2441	2669	2011	2034	1436	1288	1616	1311	1076	1045

06/2013 - 05/2015

BUS TRANSPORTATION



	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Actual	2987	2263	1987	3181	3292	3233	2269	1587	2405	1633	1877	2359	1977	1535	1462	2630	2453	2143	1375	729	1896	1234	1680	2230

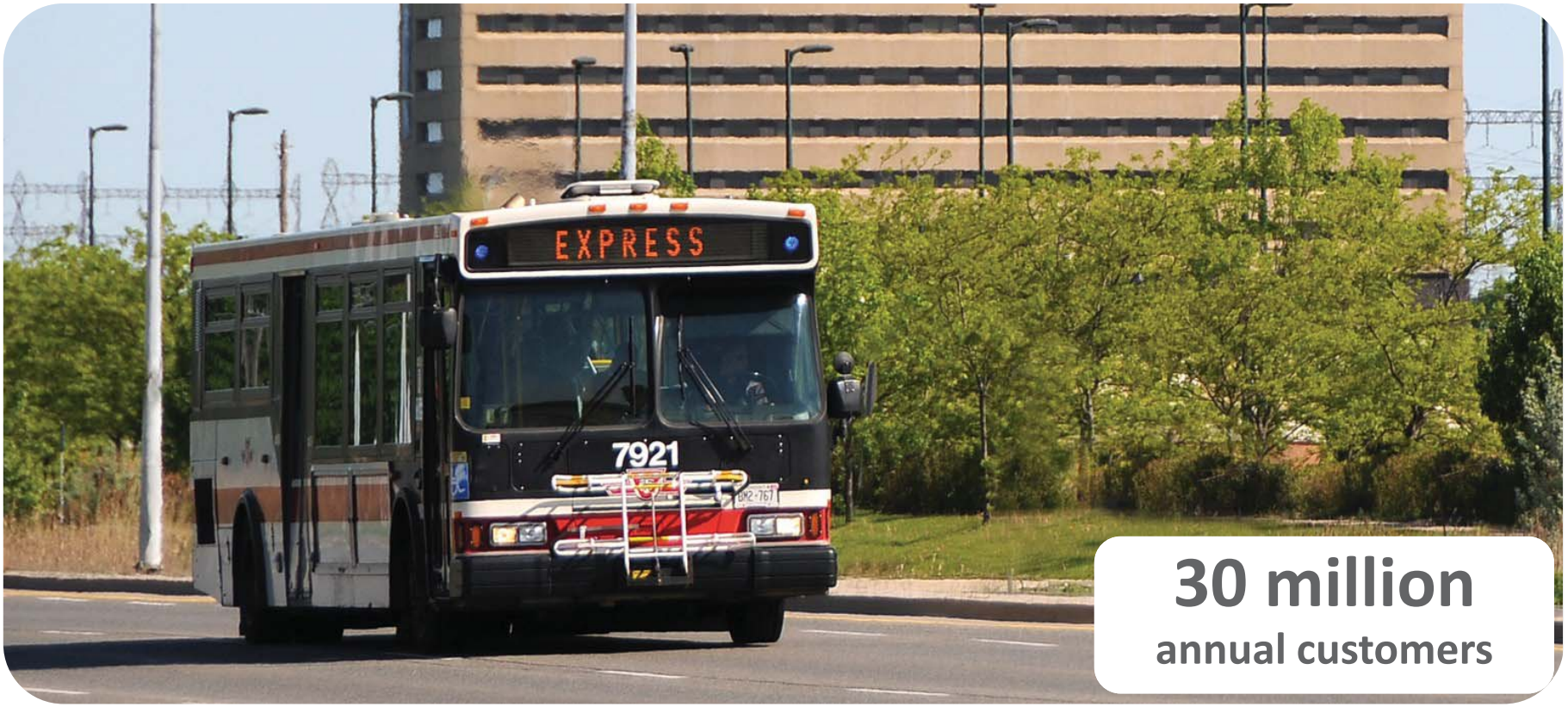
New Buses, Temporary Garage

- more buses for peak service (2016):
  - new express services, reduced crowding, wait times

Reduce Wait Times & Crowding

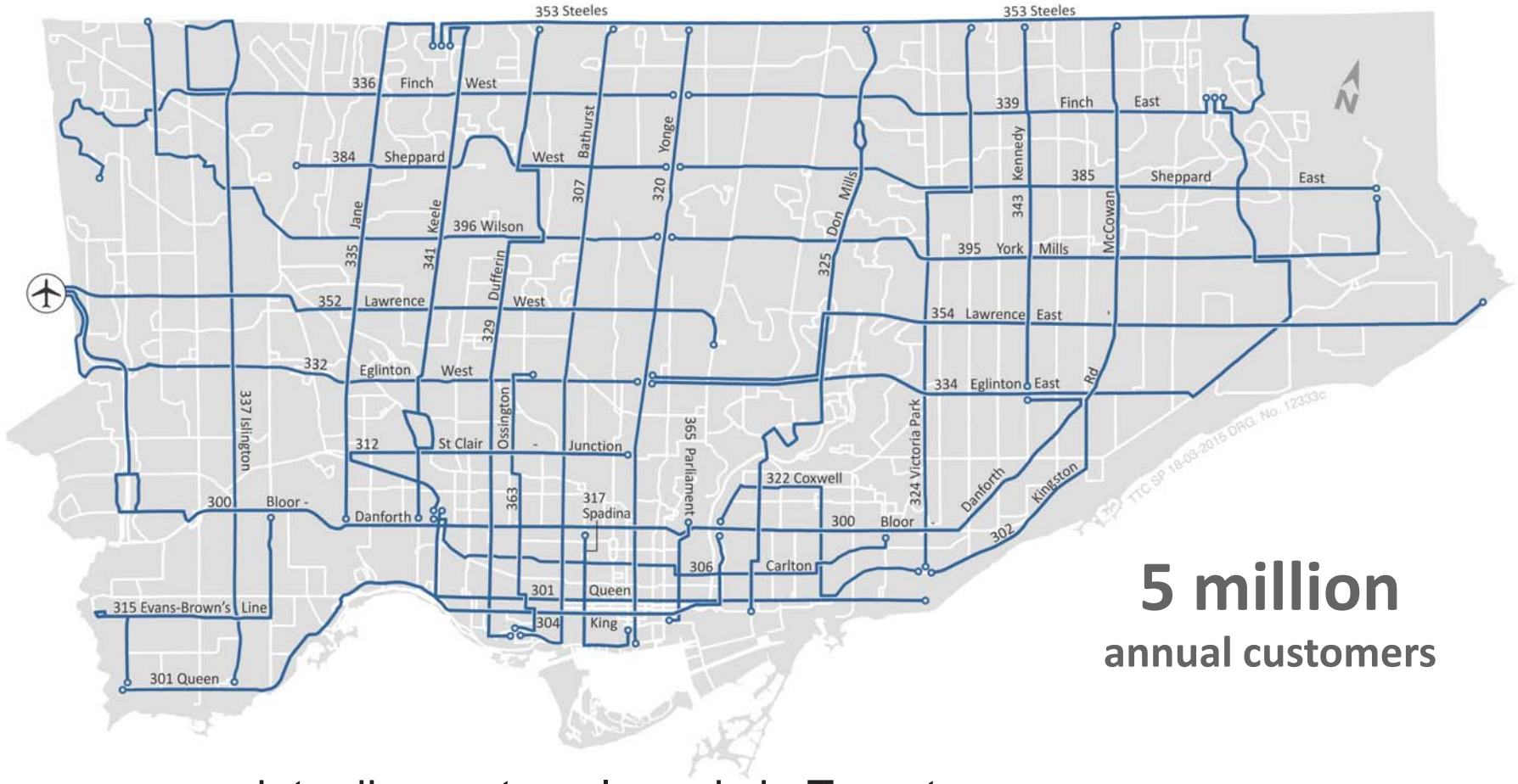
- restore 2012 service cuts on busiest bus, streetcar routes
- 2016: add peak service on 20+ routes in 25+ periods of operation

Express Bus Network



- 2016: create new, improved express services – peak, off-peak:
  - faster, more-comfortable service for customers

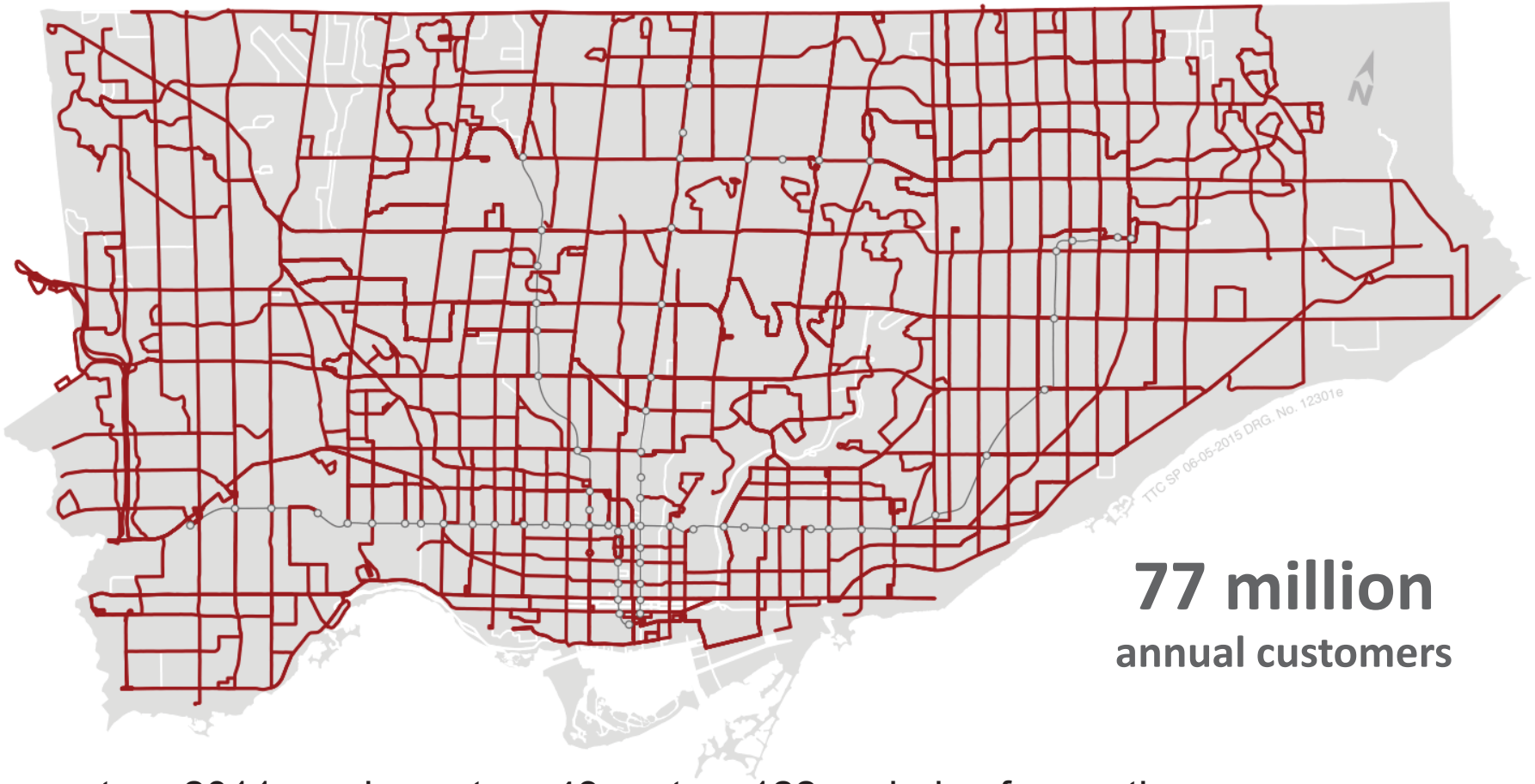
Overnight Network



5 million
annual customers

- accommodate diverse travel needs in Toronto:
  - 99% of Torontonians within 15-minute walk of service

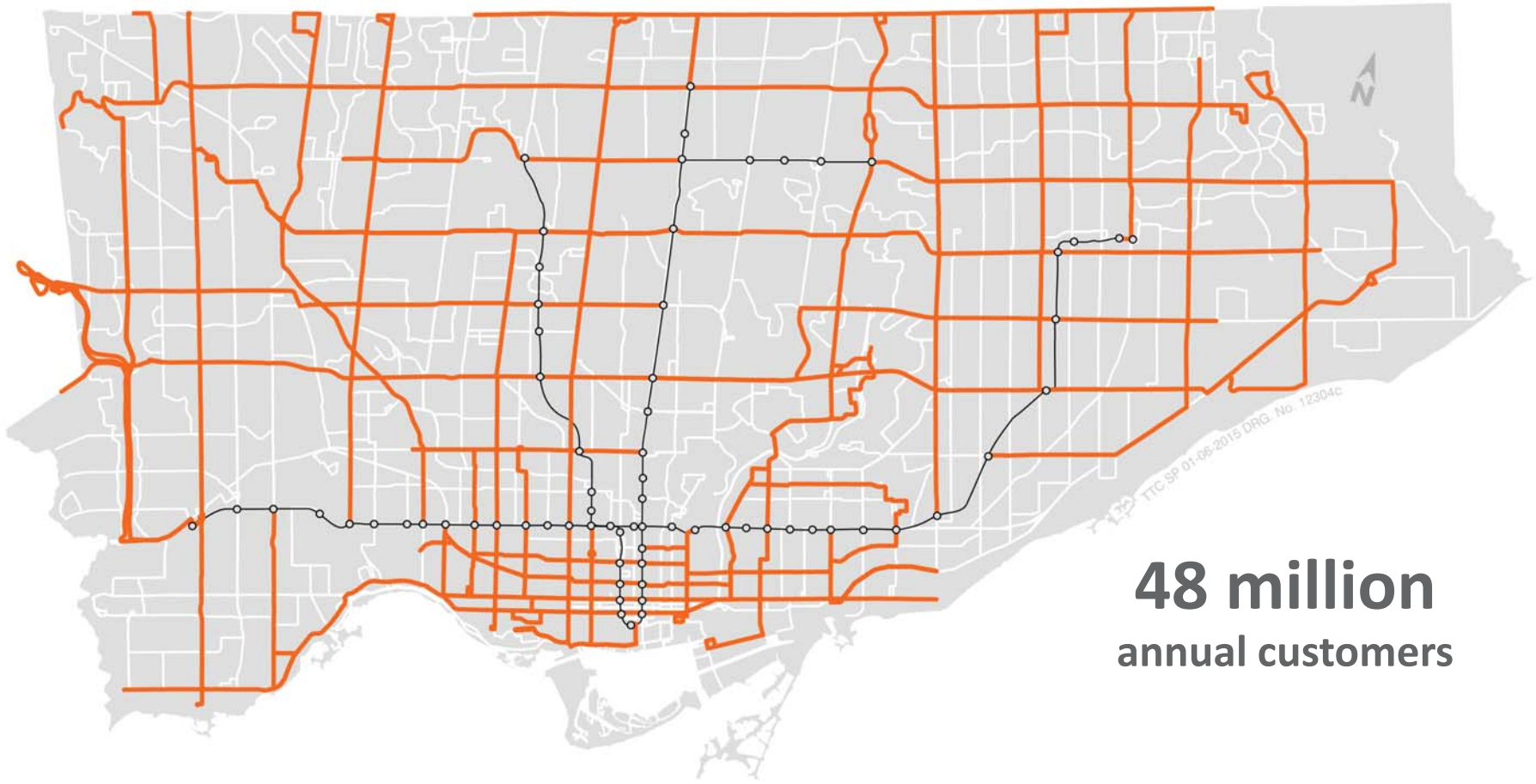
All-Day, Every-Day Service



77 million
annual customers

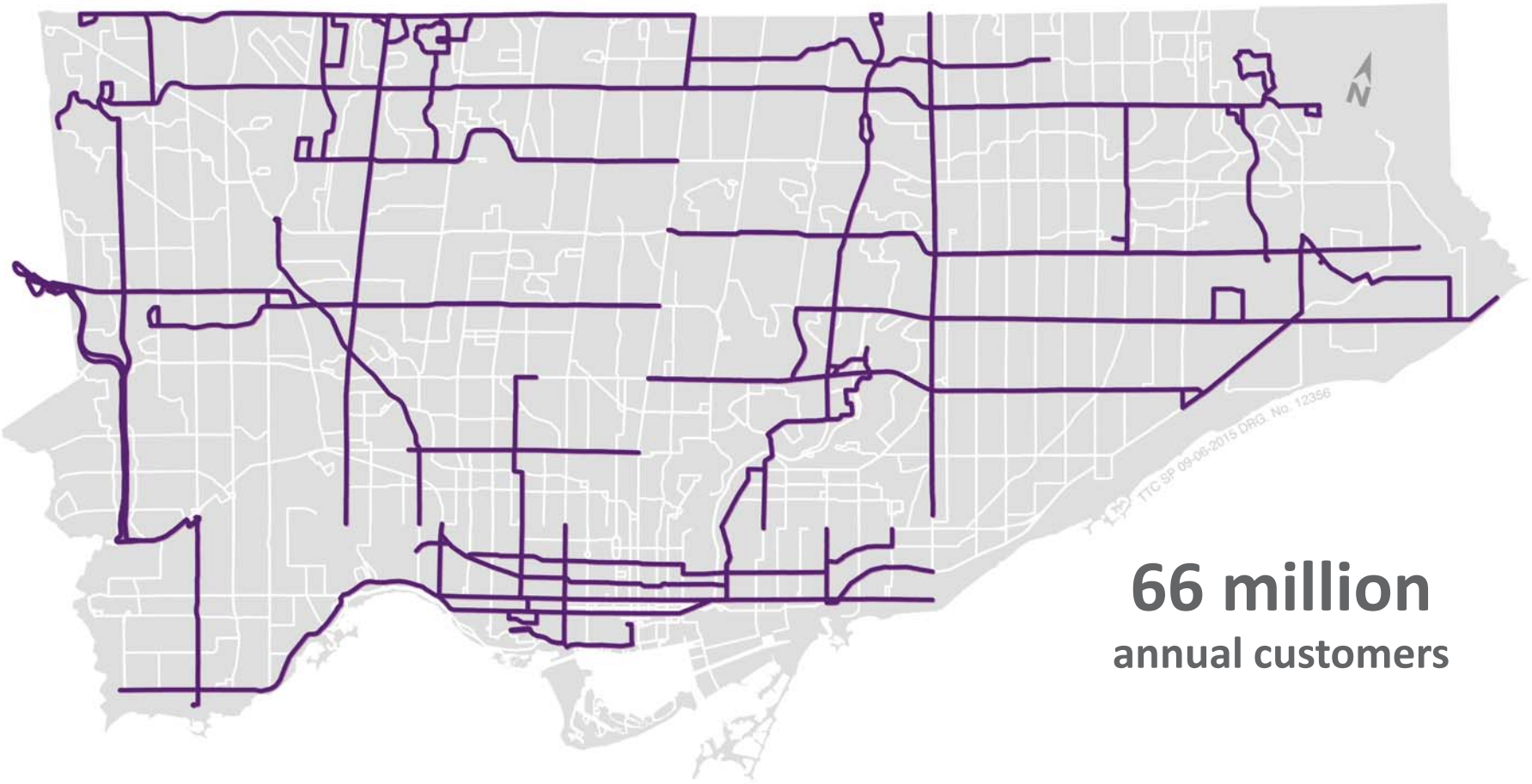
- restore 2011 service cuts -- 43 routes, 122 periods of operation:
  - customers can count on transit any time for their travel needs

Ten-Minute-or-Better Network



- establish city-wide network of frequent bus, streetcar routes
- frequent, reliable service all day, all evening, every day

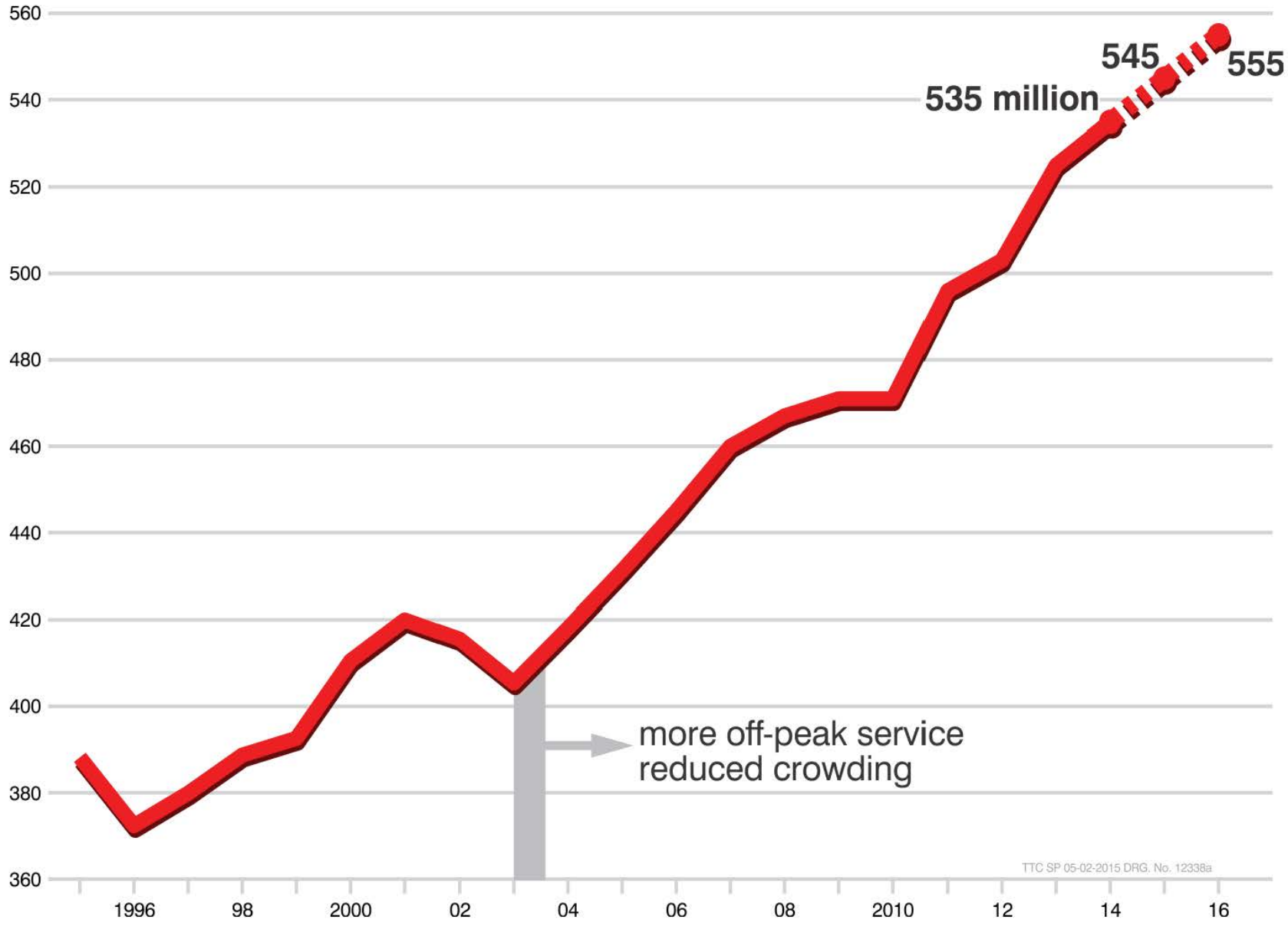
Reduce Wait Times & Crowding



- restore 2012 service cuts on busiest bus, streetcar routes
- add off-peak service on 30 routes, 102 periods of operation

TTC Annual Ridership

from 1995 - 2016, millions



TORONTO TRANSIT COMMISSION

2016 Operating Budget