



The Lowell Institute's Partners In Public Dialogue Presents:

GLOBAL MODELS for Boston's Commuter Rail System



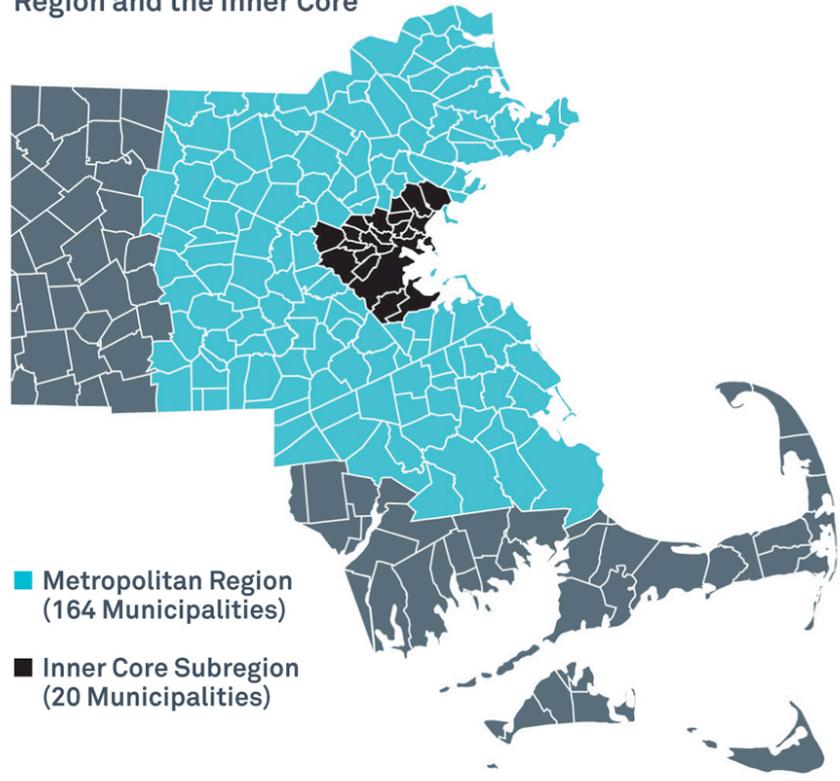
**A
BETTER
CITY**





WE ARE A REGIONAL ECONOMY

FIGURE I: The 164-Municipality Metropolitan Boston Region and the Inner Core



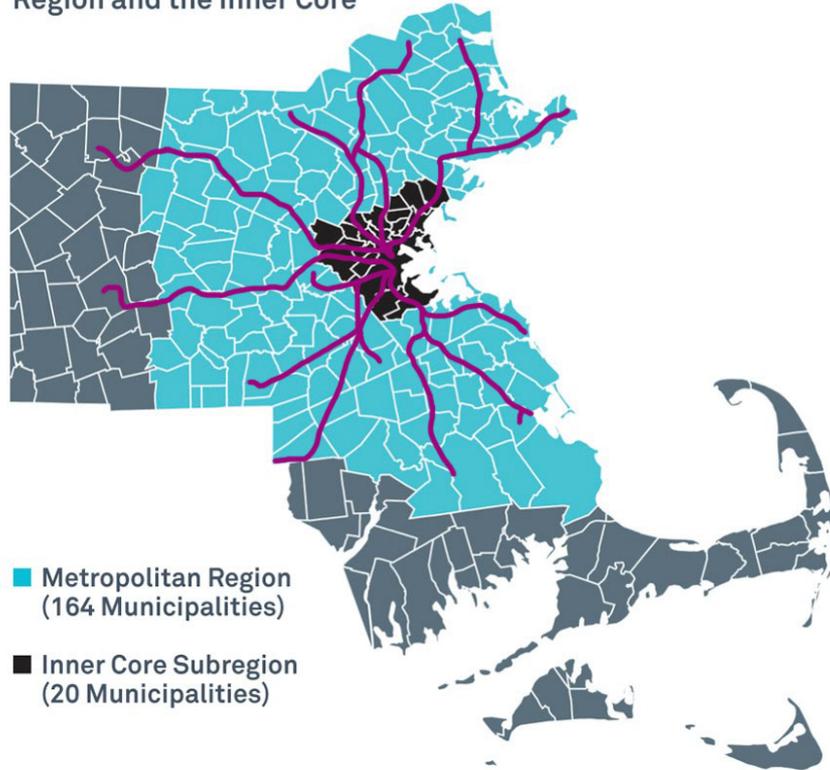
- 69% of state's population
- 74% of jobs
- 84% of GDP
- Projected continued population, jobs and housing growth through 2040.

Source: ABC "The Transportation Dividend" from MAPC region definition.



WITH AN EXTENSIVE COMMUTER RAIL NETWORK

FIGURE I: The 164-Municipality Metropolitan Boston Region and the Inner Core



- 388 route miles
- 14 branches
- 138 Stations
- 39,000+ Parking Spaces
- 35 million passengers annually or ~10% of all MBTA ridership

Source: ABC "The Transportation Dividend" from MAPC region definition.



OUR IN-PLACE INFRASTRUCTURE WOULD BE COST PROHIBITIVE TO REPLICATE TODAY

FOR EXAMPLE:

In 2016, Seattle-Tacoma Area Voters Approved
~\$54 Billion (of which ~28 Billion in New Local Taxes) to add:



- **+62 miles** Light Rail (for total 116 miles)
- **One** commuter rail extension and train capacity improvements
- **Two** new Bus Rapid Transit lines

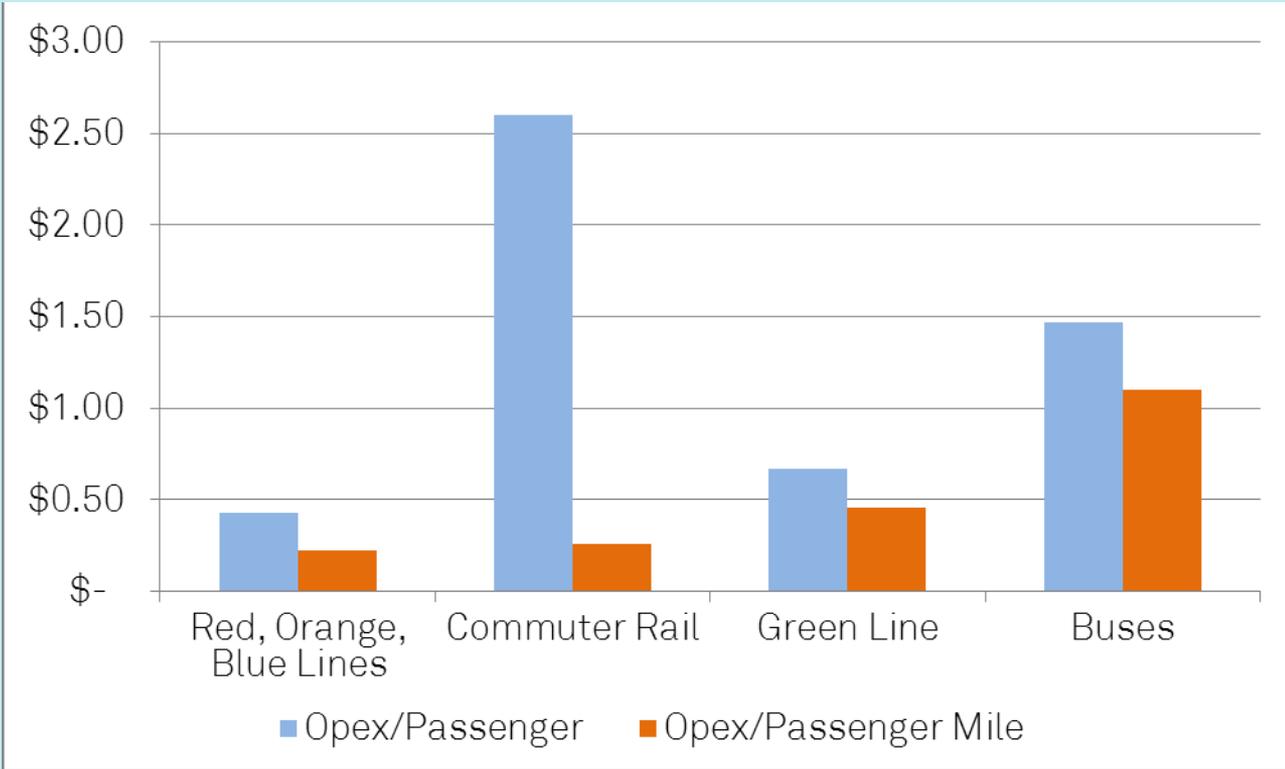
THE CHALLENGE IS MODERNIZING OUR SERVICE MODELS AND EQUIPMENT



- Diesel locomotives push-pull train cars
- Focused on moving people into center urban hub in mornings and out in evenings
- Limited mid/off-peak service

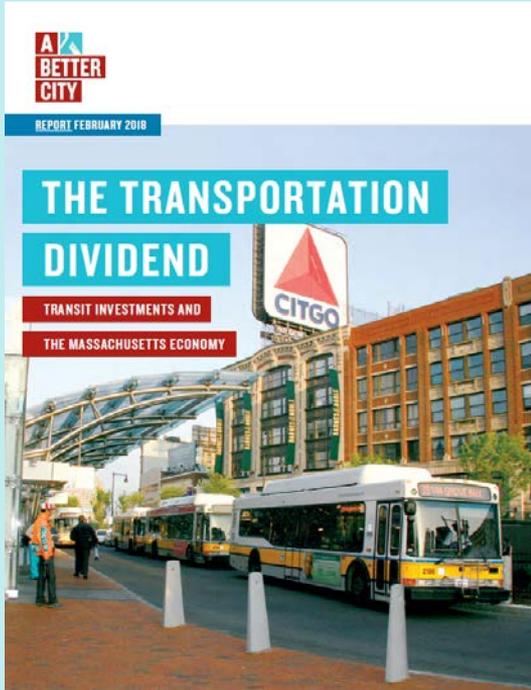


HIGHLY COST EFFICIENT WHEN MEASURED BY PASSENGER MILE

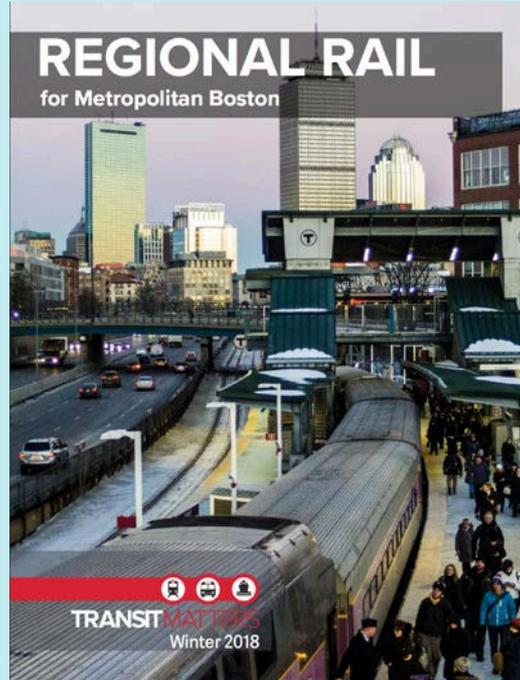


Source: Analysis of FTA data

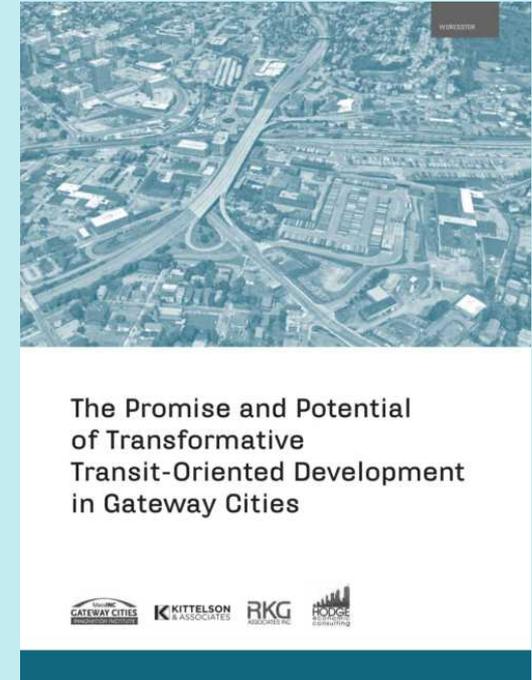
RESEARCH IS FOCUSED ON THE POSSIBILITIES OF “REGIONAL” RAIL



A Better City
2018



TransitMatters
2018

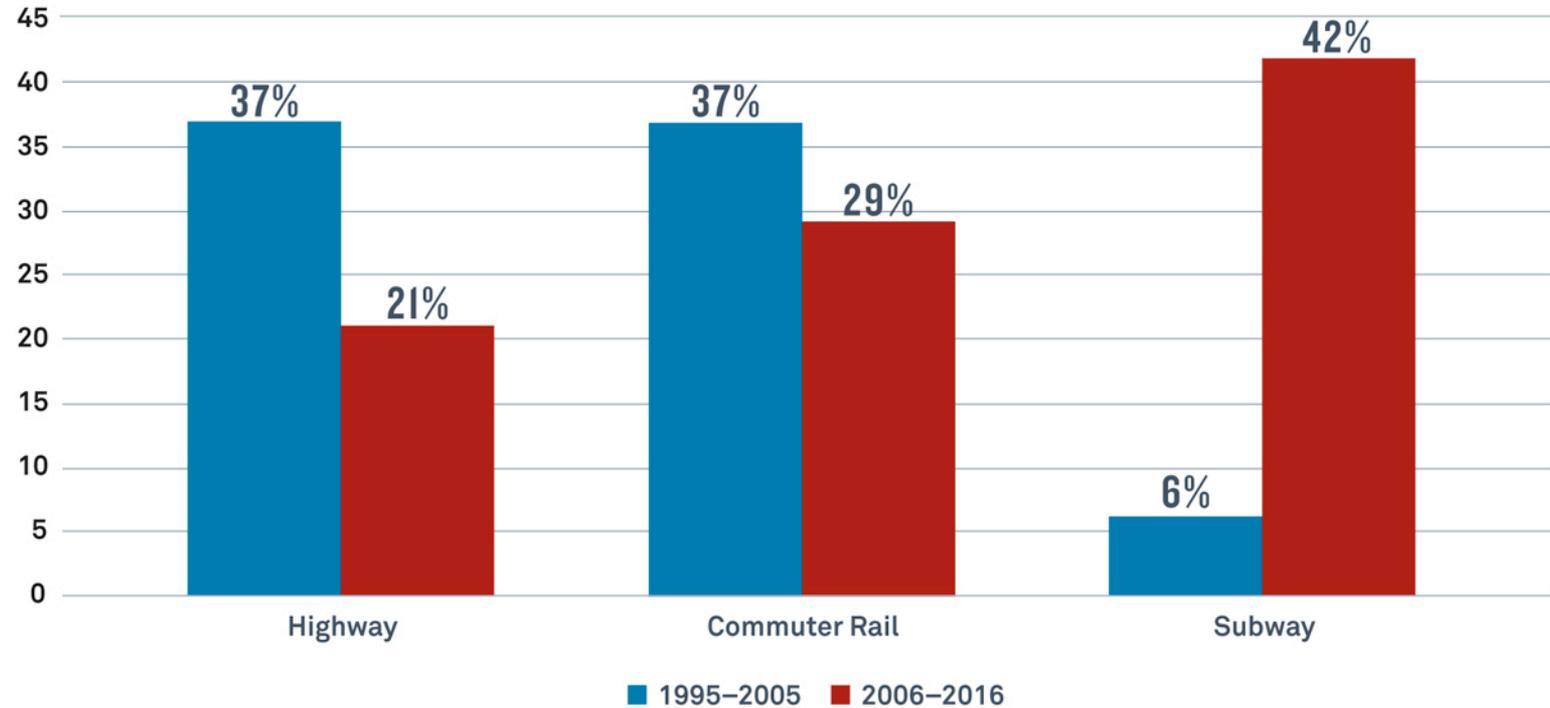


MassINC
2018



ECONOMIC DEVELOPMENT SEEKS FREQUENT TRANSIT ACCESS

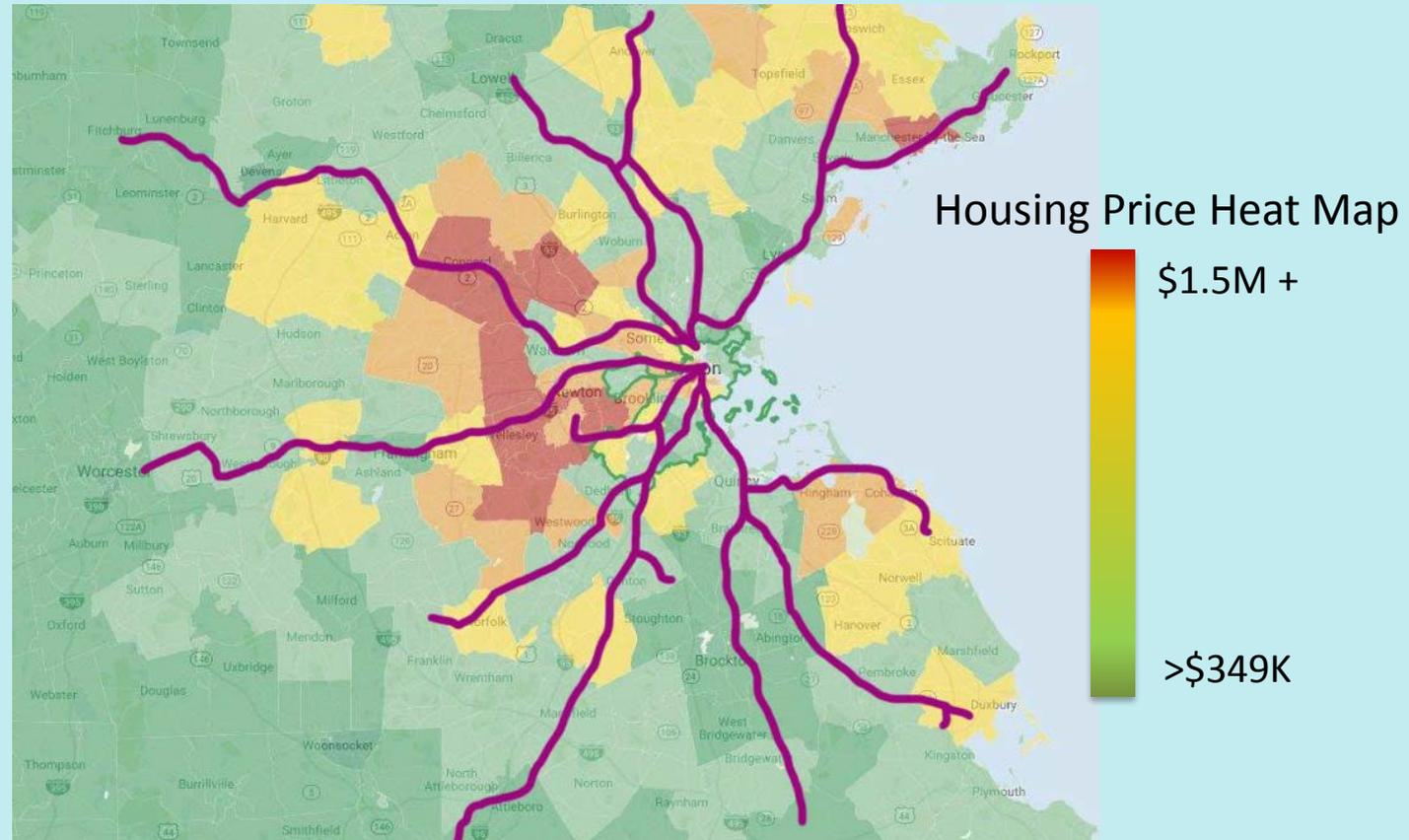
FIGURE II: Share of State's Net Job Growth by Transportation Infrastructure



Source: A Better City, "The Transportation Dividend," 2018. Analysis by MassINC of ES-202 data provided by Executive Office of Labor & Workforce Development.



REGIONAL RAIL WILL EXPAND ECONOMIC GROWTH AND RELIEVE PRESSURES IN THE INNER CORE

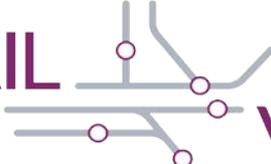


Source: Trulia. MBTA.





RAIL VISION



massDOT
Massachusetts Department of Transportation
 **Massachusetts Bay
Transportation Authority**

DRAFT Objectives

1. Match service with the **growing and changing needs** of the region
2. Enhance **economic vitality**
3. Improve the **passenger experience**
4. Help the Commonwealth achieve its **climate change** resiliency targets
5. Maximize **return on investment** (financial stewardship)



HOW DO WE COMPARE?

	Routes	Route Miles	Fleet Power	Operations	Farebox Recovery	Peak Frequency (min.)	Off-Peak Frequency (min.)
Boston	14	388	Diesel	Contracted	49%	20	60
Toronto	7	341	Both	Contracted	92%	15	30
London	9	103	Electric	Contracted	78%	7.5	10
Philadelphia	13	224	Electric	Inhouse	57%	15	30
NYC-LIRR	11	319	Electric	Inhouse	55%	10	30
SF Bay Area	1	77	Diesel	Contracted	81%	20	45
Paris	13	900	Electric	Inhouse	38%	5	5

Source: MassDOT. "MBTA Rail Vision: Lessons Learned from Peer Systems Review."

Toronto Overview

A Better City –
Global Models for Boston's Commuter Rail System
November 14 2018

Anna M. Pace

Toronto Overview

- Context – Toronto and the Greater Toronto Area
- GO Transit Today
- GO Expansion Regional Express Rail (RER)
- Getting to RER - 2025

Toronto

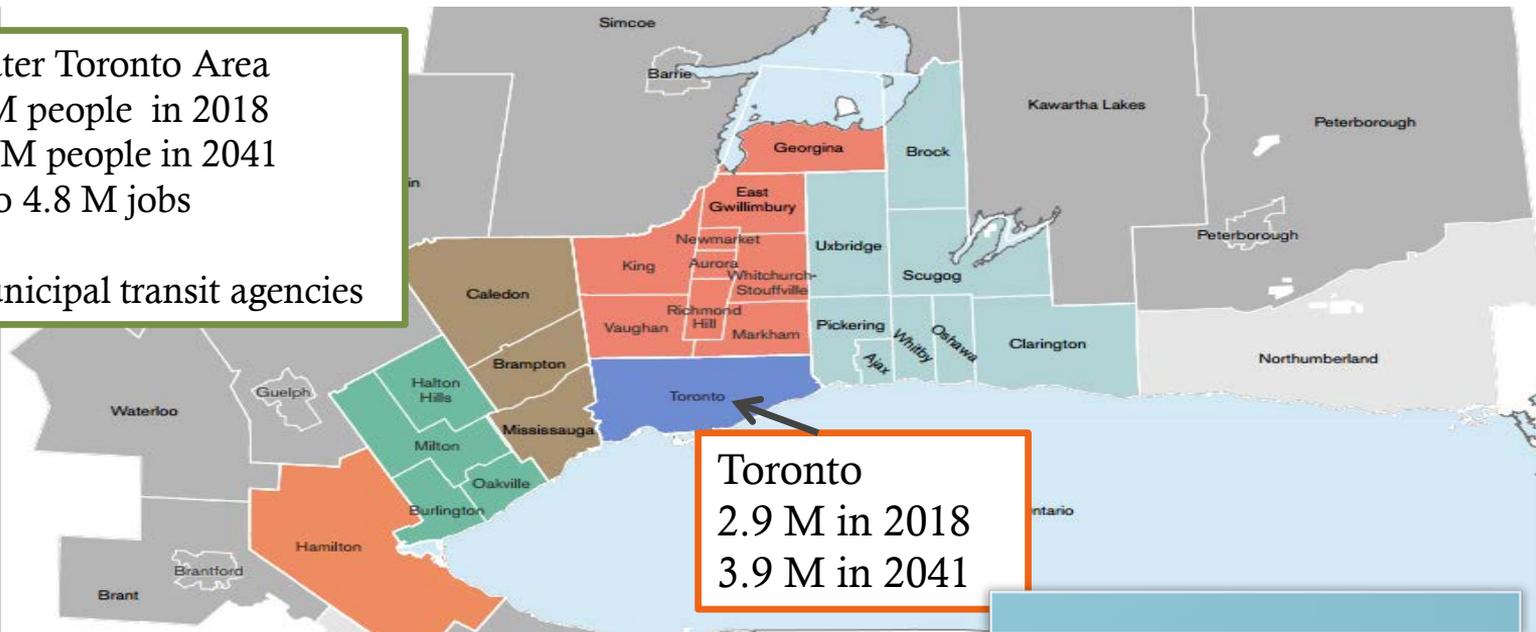


Greater Toronto Area

Greater Toronto Area
7.2 M people in 2018
10.1 M people in 2041

3.6 to 4.8 M jobs

9 municipal transit agencies



Toronto
2.9 M in 2018
3.9 M in 2041

GO Transit Today



System Map Plan du réseau



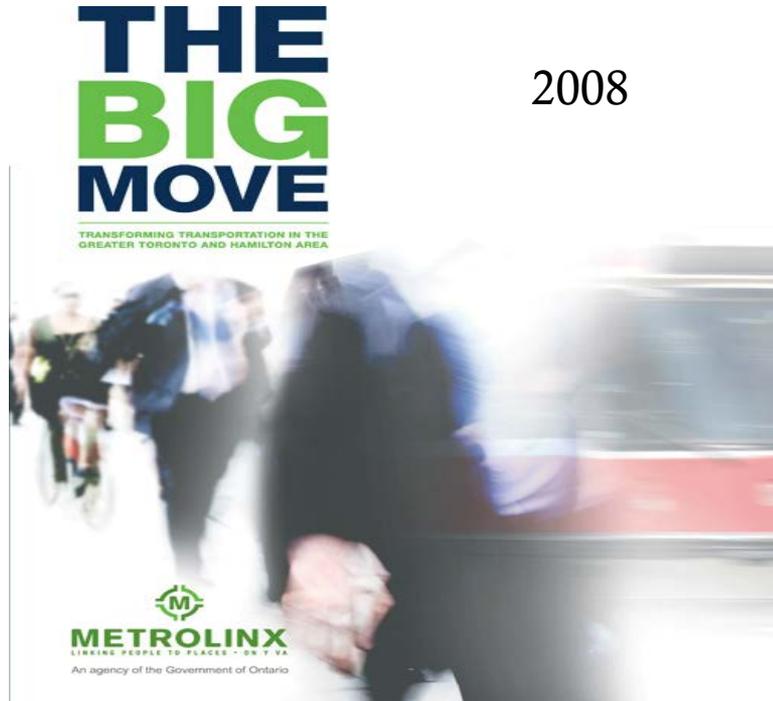
GO Transit Today

- 7 lines, 61 stations 452 route kilometers (281 miles)
- 75 locomotives, 656 bi-level passenger coaches
- 1850 train trips per week, 222,000 weekday passengers
- 91% of all train commuters use Union Station
- 75,261 parking spaces, 9 parking structures

GO Transit Today



GO Expansion - Transportation Plans



2008



2018

GO Expansion and Regional Express Rail

- Announced in 2015 by the Province of Ontario
- Built on planned GO Transit improvements and extensions
- Electrification – the game changer
- Transformational – all-day two-way frequent service

GO Expansion RER in 2025

- 2-way all-day 15 min. service on 5 lines
- Train trips per week - 1,500 in 2015 to 6,000
- 12 new stations
- Peak Period service - X 2, Off Peak service – X 4
- \$16 B over 10 years

Getting to 2025

- Continuous service improvements
- Union Station Upgrades
- Stations – planning and design
- Cross-jurisdictional and community involvement
- Studying Hydrail – hydrogen fuel cells



Getting to 2025 -Level Boarding



Getting to 2025 – Express Service



Getting to 2025

- RFQs - issued in April 2018
 - Construction, operation, maintenance, rolling stock, signaling
 - New stations
- Comprehensive Business Cases and Benefits Management
 - RER – updated
 - New stations – individual and network
- Embedding design excellence, sustainability and accessibility

Getting to 2025

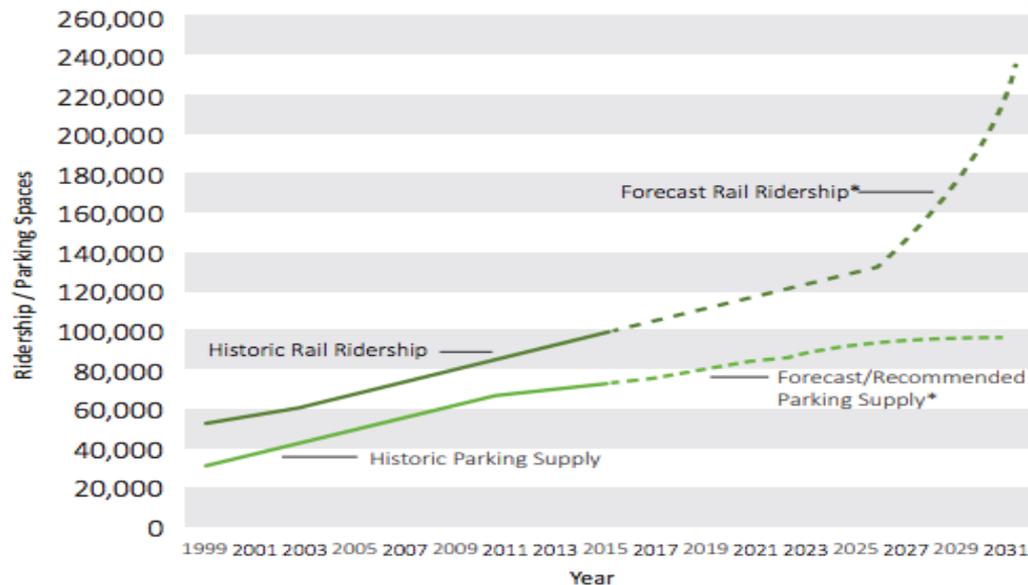
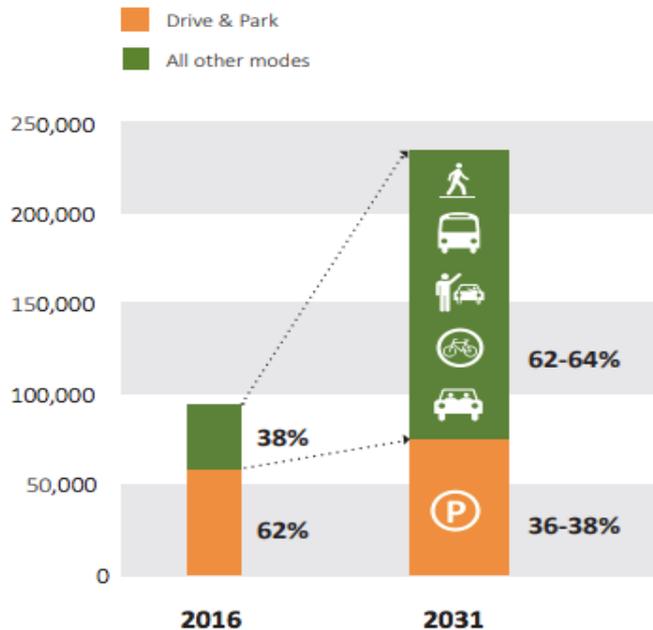
Contributing Initiatives

- Designing and development of communities and transit stations to support transit use
- Parking demand strategies to encourage car sharing and other
- Addressing first and last mile needs –station access
- Fare and service integration with local transit systems

Getting to 2025 -Parking



Getting to 2025



Getting to 2025 - Transit Oriented Development



TRANSFORMING THE GO TRAIN NETWORK



52 New Train Sets
faster service



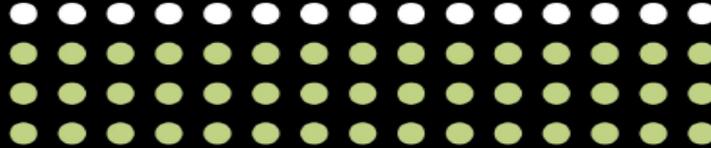
New GO Tracks
150 km



22 New Stations
32 upgraded



Bridge Upgrades
45+



6000 Trips / Day; 300% increase



15 Minute Service
or better



10 rail/road grade separations
1 rail/rail grade separation

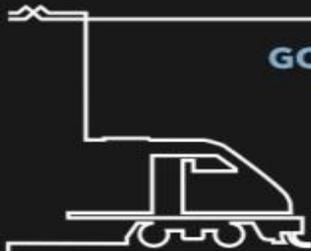


263 km
of electrified service
or signal enhancements

GO RAIL EXPANSION: FOR A GREATER REGION

A Regional Rapid Transit Network

- all-day, 15-min service
 - faster trains
 - 300% service increase
 - 6000 trips per week
- More Access & stations closer to home
- 21 new GO stations
 - 32 station upgrades
 - walking, cycling
 - local transit connections
- An Improved Union Station
- 4 times the service
 - 3 times the space
 - a more comfortable customer experience



WHAT IT TAKES

- New GO Tracks**
150 km
- New Bridges & Tunnels**
More reliable
- 263 km of electrified service**
or signal enhancements
- New GO Service**
Extended routes
- New GO Stations**
More connections
- New Infrastructure**
Supports electrification

Trains up to every 15 minutes

Service in both directions

More all-day service

Faster, electric trains



BUILDING FOR A GROWING REGION

- 9M+ residents by 2041
- Average commute is 80+ minutes
- Gridlock costs our economy \$6-11B annually
- Investments provides over \$30B in benefits to the region over the next 60 years
- Ridership is expected to increase to approximately 127 million customers within five years of completion

CONNECTING YOU TO THE THINGS THAT MATTER

More options to live, work and play where you choose

- More Access and stations in your community
- Travel on your own schedule
- Cleaner sustainable technology

METROLINX

Thank You





Transforming commuter rail: Lessons from London

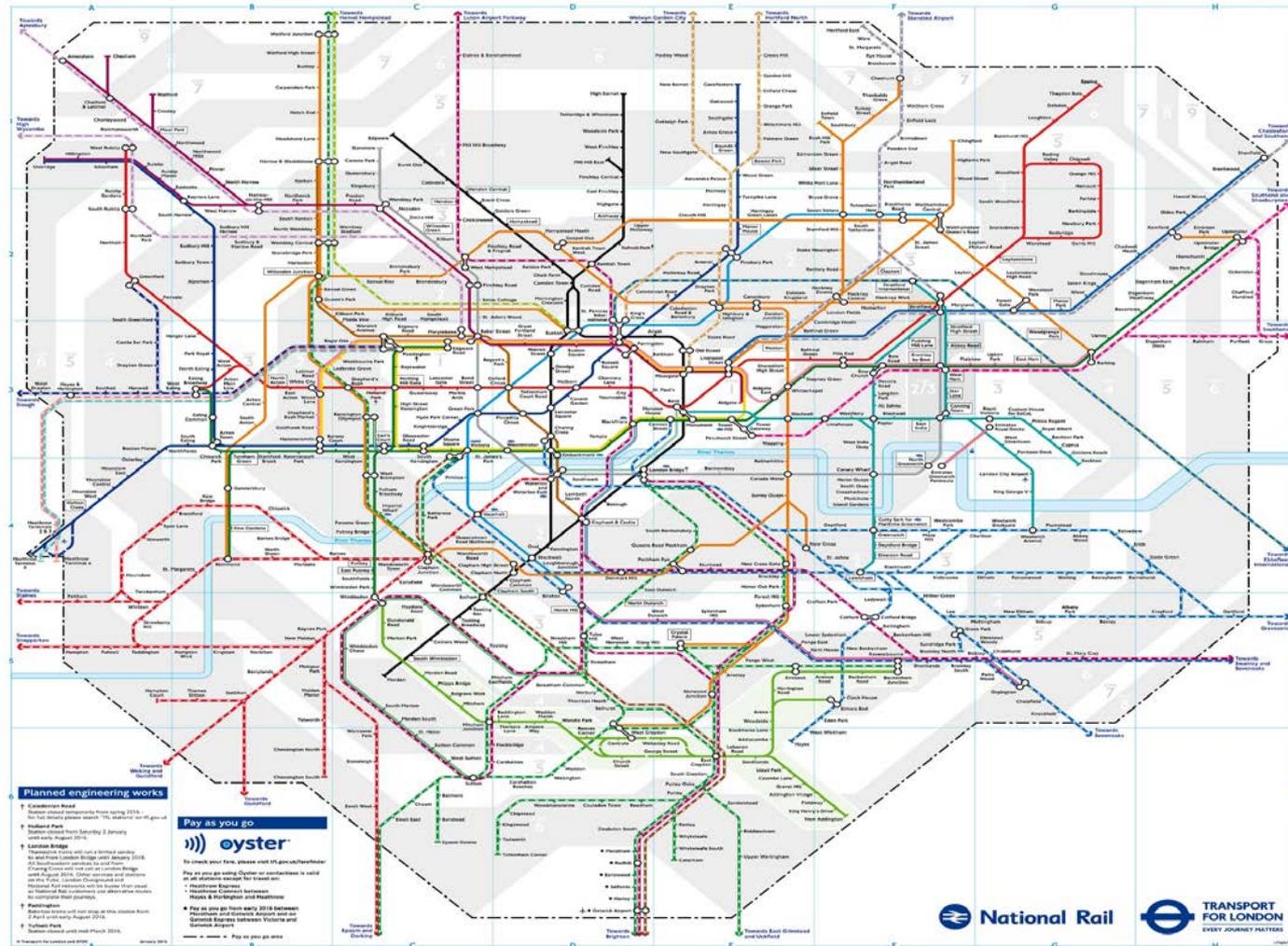
Isabel Dedring, Arup

Platform 1
Northbound trains

Context

378 1

Extensive
Tube and rail
network –
85% of the
morning
commute

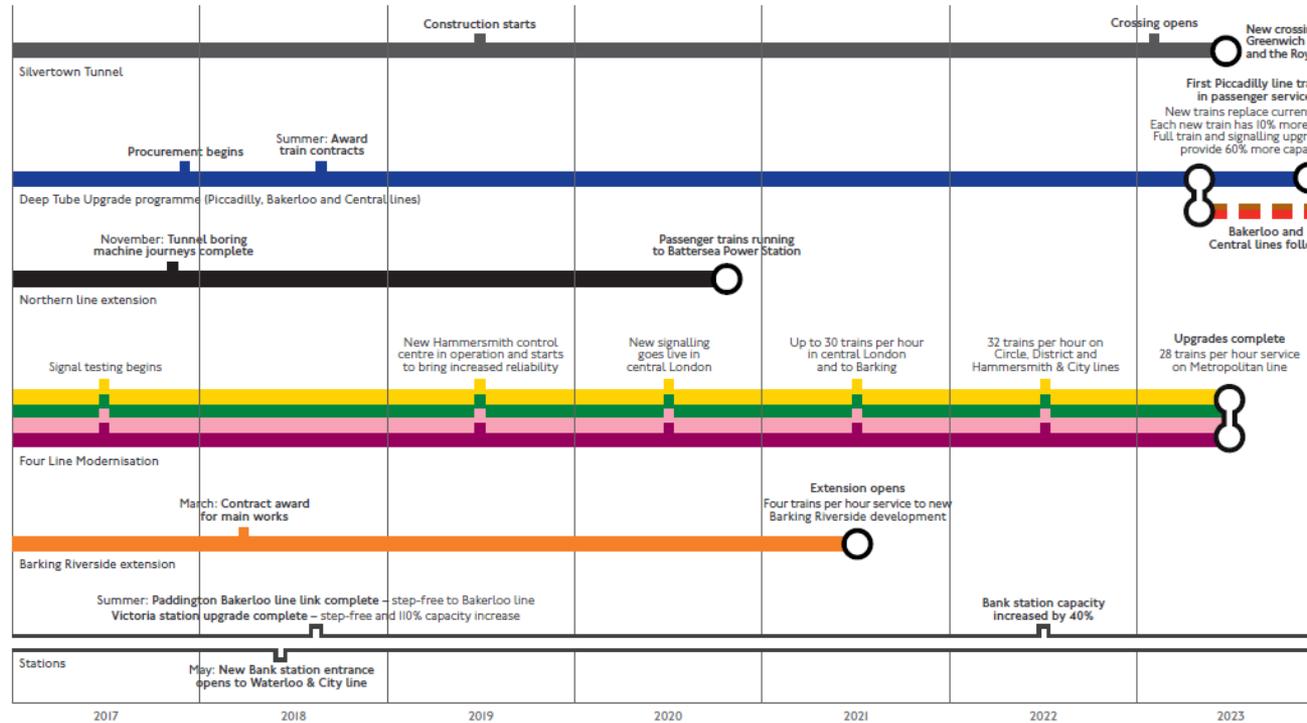


Integrated city transport agency



Familiarity with long-term capital programmes

Key milestones of the Investment programme

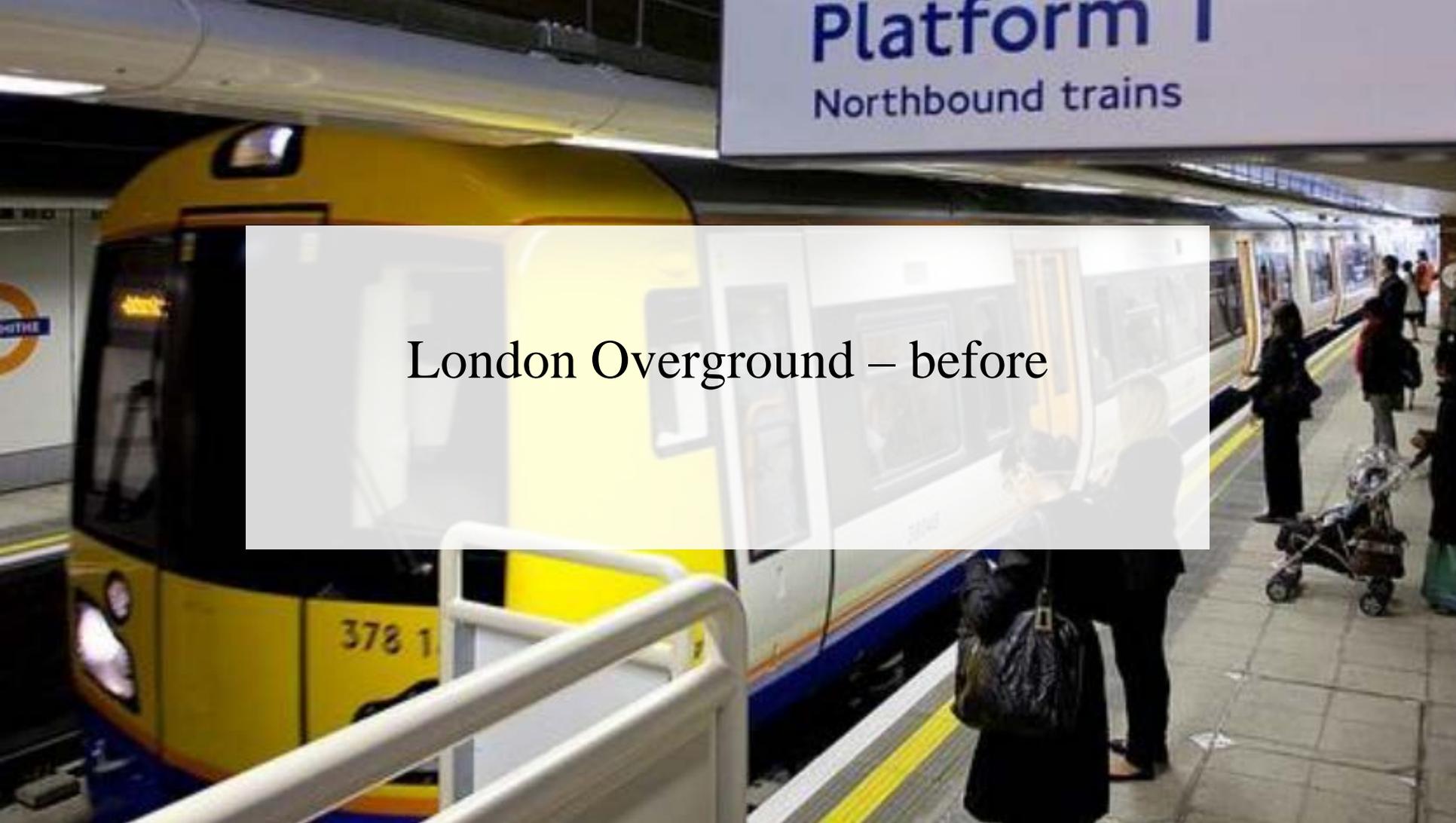


But some major constraints

- National railway operator looking after services in London
- No overarching strategy across entities
- Underinvestment in “low-priority” shorter distance services
- Shared line with freight – seen as major challenge
- Concern about paths being ‘stolen’ from other services

Platform 1
Northbound trains

London Overground – before



The original Overground network

- 4 lines with wide geographic reach but disconnected
- No turn up and go service – 2-4 trains per hour
- 37 stations, 75 route miles
- 2 new stations under construction at Imperial Wharf & Shepherds Bush
- Serving 19 London boroughs
- 35 million passengers per annum

Poor performance on every dimension

- Dilapidated rolling stock and stations
- Poor reliability, with 80% on-time arrivals
- Low service frequency
- Revenue falling 5%/year, against a growing London rail market
- Lowest-ever score in National Rail Passenger Survey (NPS) history
- High levels of fare evasion (20%+)
- Unsafe – crime on the network

Poor
performance
on every
dimension –
dilapidated
stations



Political
attention
focused on
the problems
– and the
opportunity

**2006 London Assembly Transport
Committee report**

‘London’s Forgotten Railway’

***‘Shabby, unreliable, unsafe, overcrowded –
these are the words used to describe the
North London Railway by people who have
spoken to the Committee during our
review’***

Platform 1
Northbound trains

The Overground model



London Overground – 2007

- Concession devolved to TfL from central Government
- Separate operating entity
- Phased – start with visible changes to boost ridership and support
- Turn up and go service
- Brand alignment with TfL, not rail network
- Programme of capital investment

Operating model reflects the ‘hybrid’ nature of the Overground

- Operator: Arriva Rail London (£65m pa)
- Train maintenance: Bombardier (£35m pa)
- Maintenance of TfL network: Cleshar (£10m pa)
- Network control: Network Rail (£2m pa)
- TfL retain control of strategic planning, project management, marketing and communications, customer service, train service oversight and revenue risk

Phased programme – starting with North London Line stations

Deep clean, rebranding, painting

Station refurbishment

Real-time info



Departure displays
PA announcements
Disruption info

Ticketing



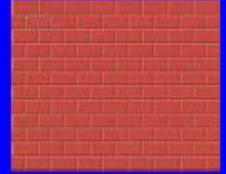
Oyster PAYG

Staffing



Whole traffic day

Structures and finishes



Static information



Multimodal info
Signage

Safety & security



Help points, gating
CCTV, lighting

Station fabric



Refurbishment

Shelter and seating



Step free access, gate lines

Turn up and go service in time for Olympics (8 pax. 4 freight trains per hour)

Phased
programme

–

New rolling
stock, then
5-car
upgrade and
platform
lengthening



Phased
programme

—

East
London
Line
expansion



Phased programme

—

East London Line expansion



Significant capital investment, but in ‘waves’

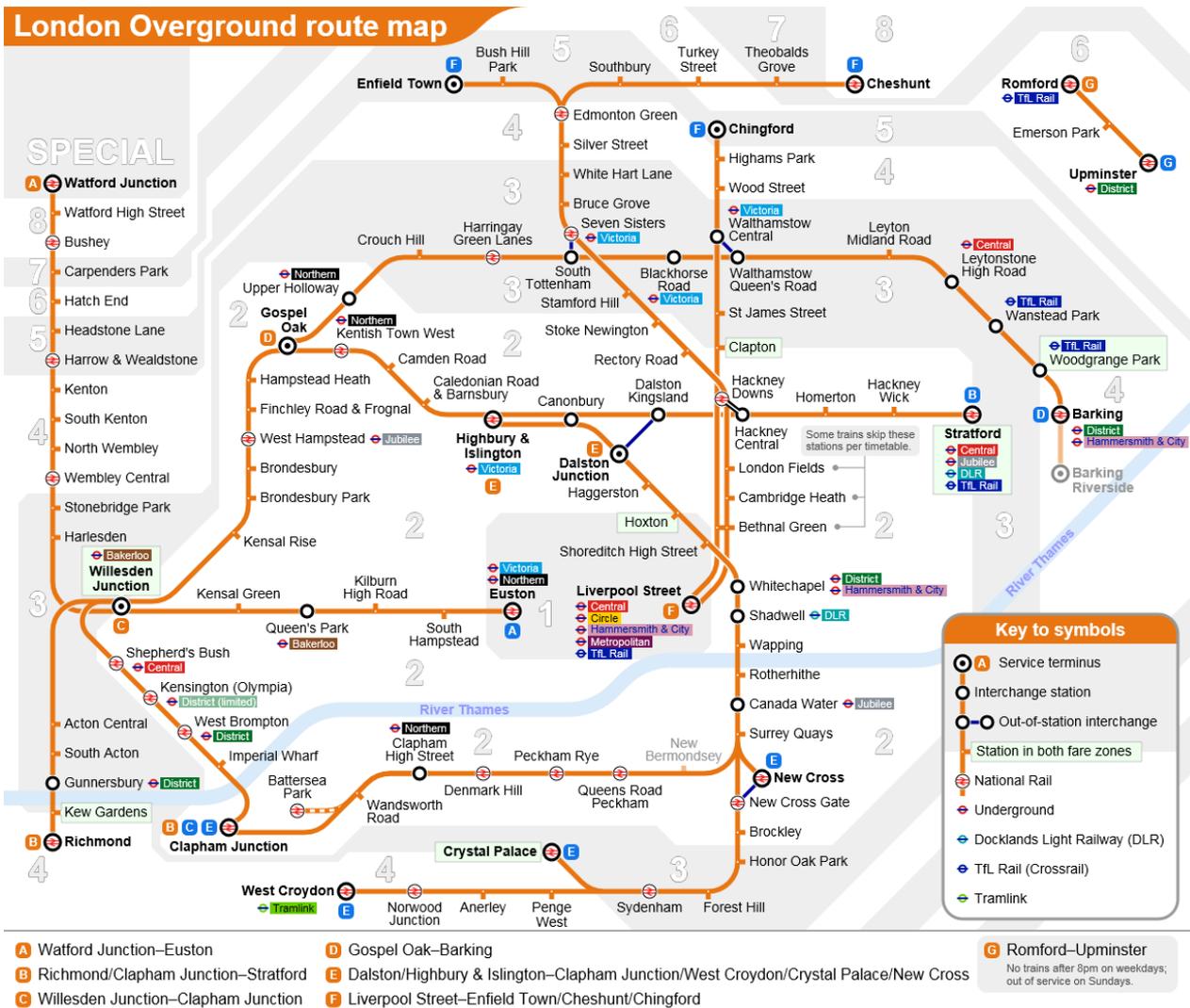
- **North London Line Route Improvement** - £350 million completed in 2011 – capacity improvements for mixed-traffic railway to deliver 8 passenger trains and 4 freight trains per hour as part of the London Olympics capital programme
- **East London Line** delivered in 3 phases - £1.5 billion completed end 2012 – reopened 9 miles of new and refurbished railway in East London providing new transport connections for some of the capital’s most deprived boroughs
- **London Overground Capacity Improvement** - £350 million completed in 2015 – 20 percent network capacity increase from 4 to 5 carriage trains
- **Gospel Oak to Barking Electrification** - £125 million completed in 2017
- **Barking Riverside Extension** - £120 million, programmed completion 2022 – 1.5 km of new rail line to unlock 10,000+ new homes

Platform 1
Northbound trains

Outcomes and impact

378 1

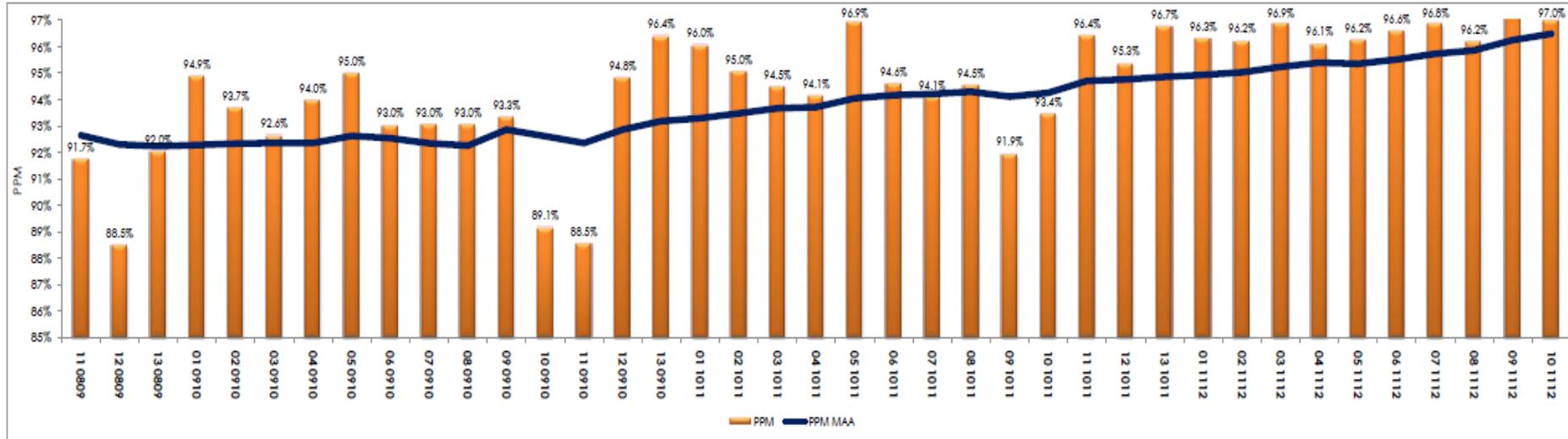
The Overground network today



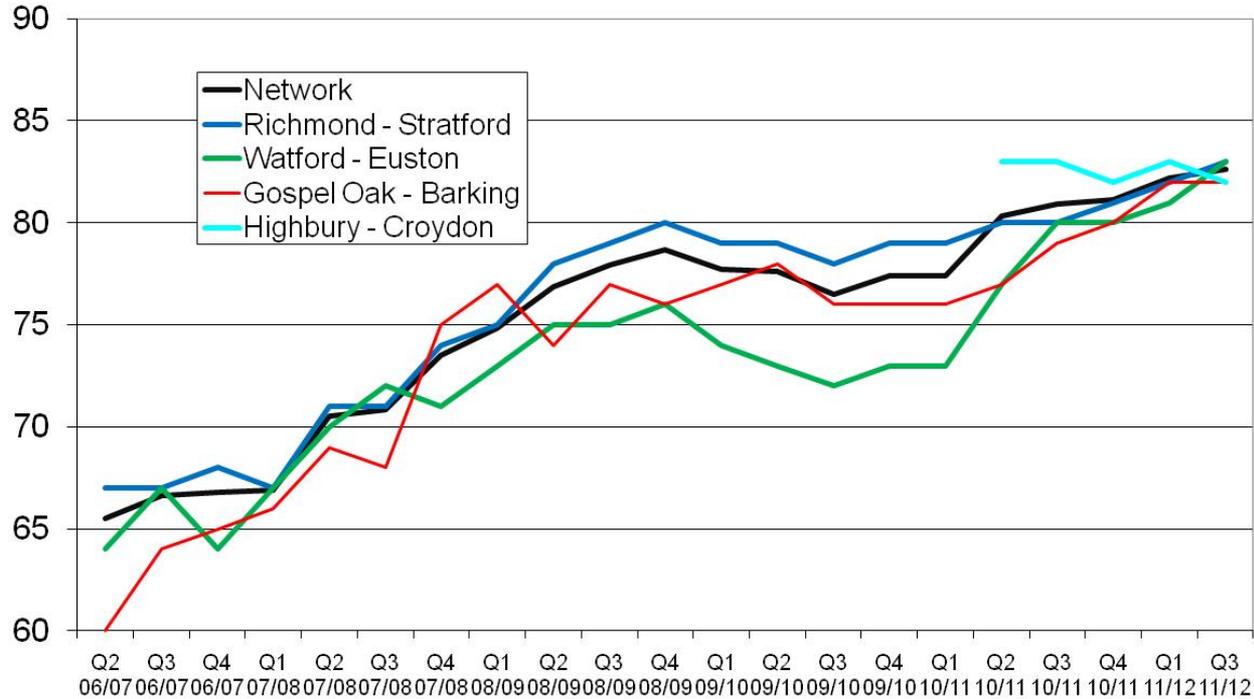
London Overground - Overview

- 1560 trains per day: fourth largest train operation in the UK
- 110 stations
- 98 trains
- 189 million passengers per annum, the third largest train operator by passenger volume in the UK

Improvements in performance (96% on time)

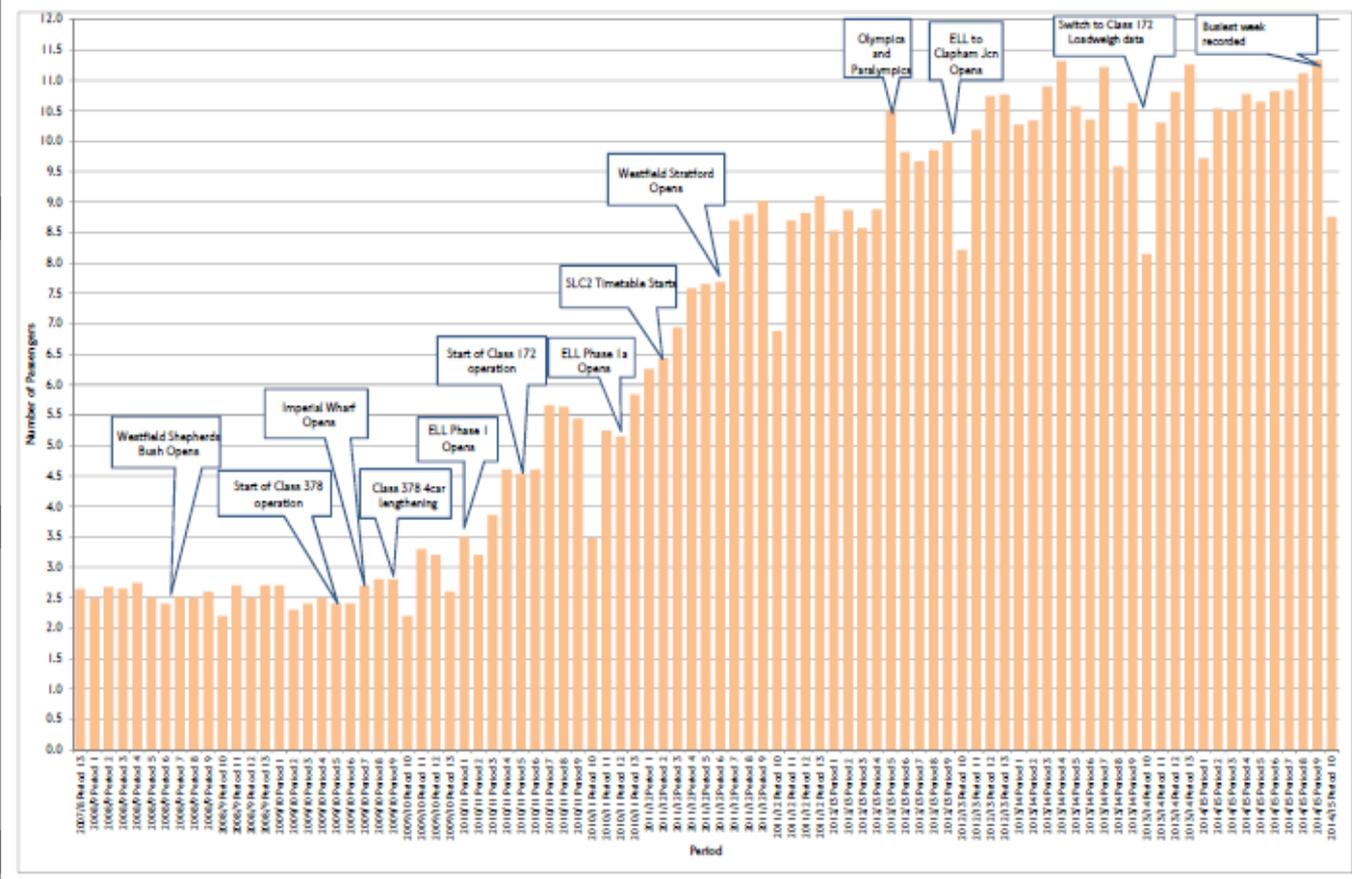


Improvements in customer satisfaction to 'very good'



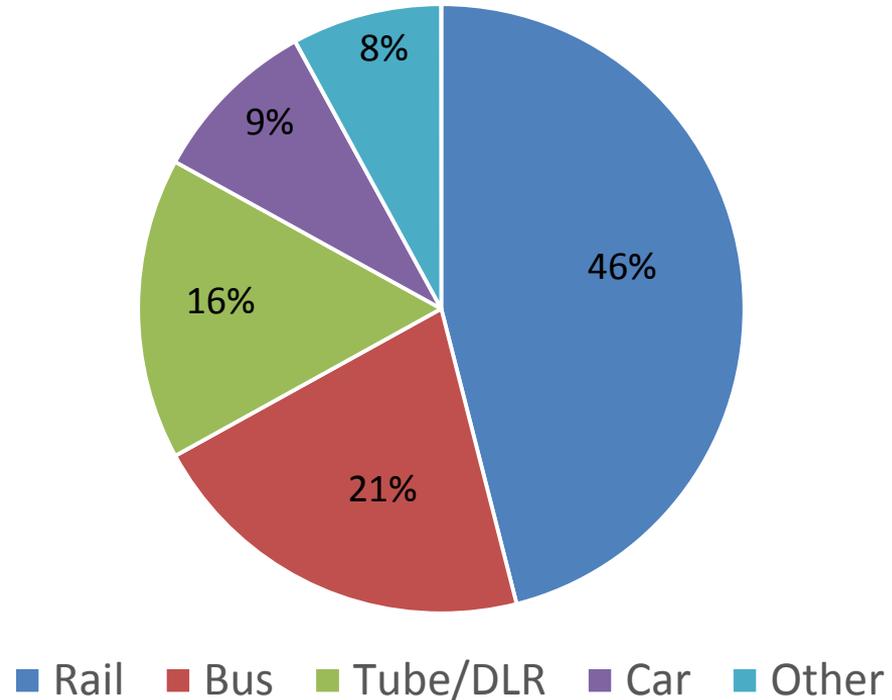
Dramatic growth in ridership – doubling on like-for-like basis, quadrupling if we count extensions

2) Growth in Overground passenger boardings since the start of the Overground Concession (millions, by four weekly period)

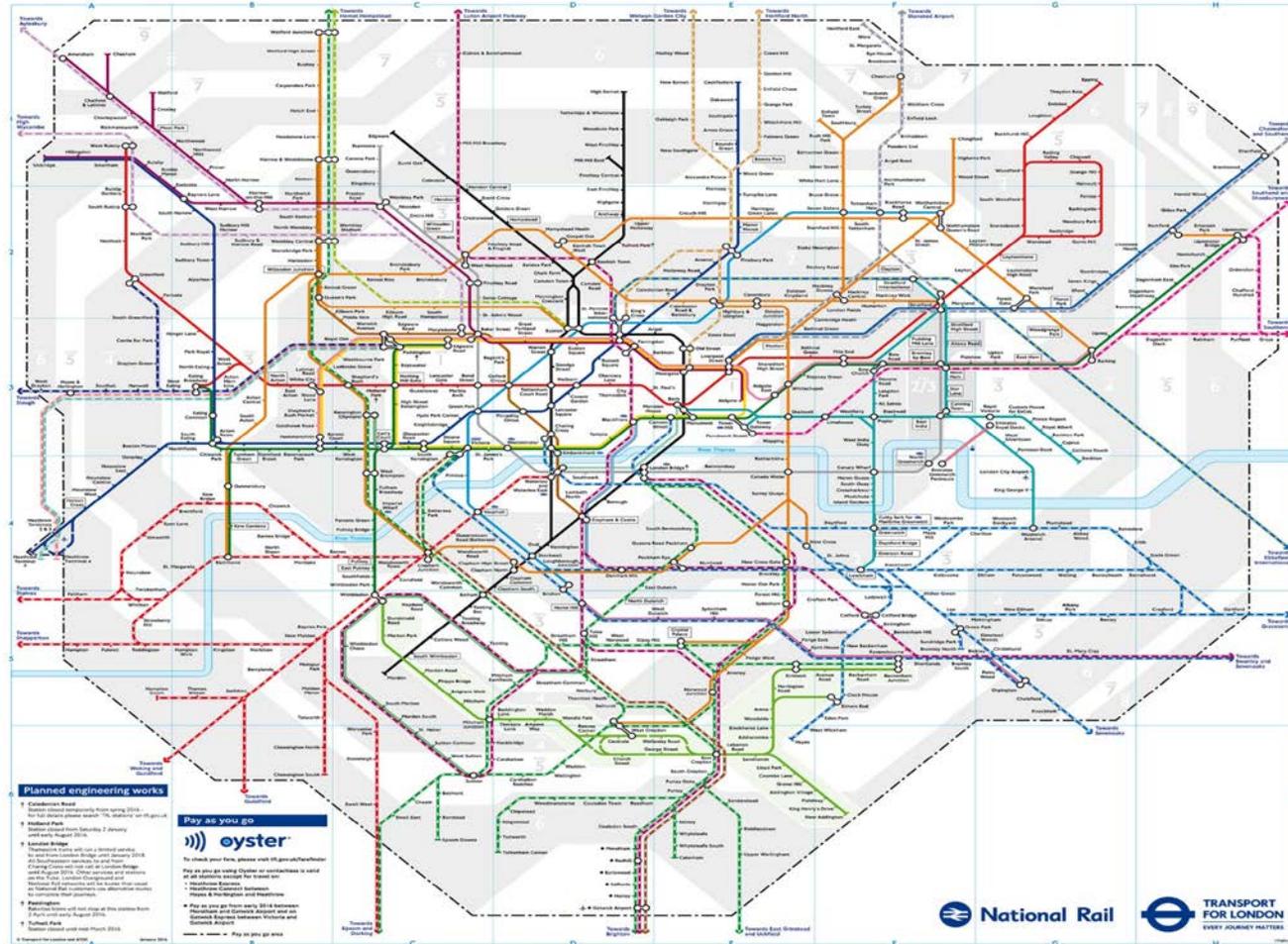


Mode shift –
including
away from
car

East London Line: Previous mode



Decongestion impact on busy central London interchange stations



Economic
impact:
increased
property
values,
improved
access to jobs
for deprived
areas



Economic
impact:
increased
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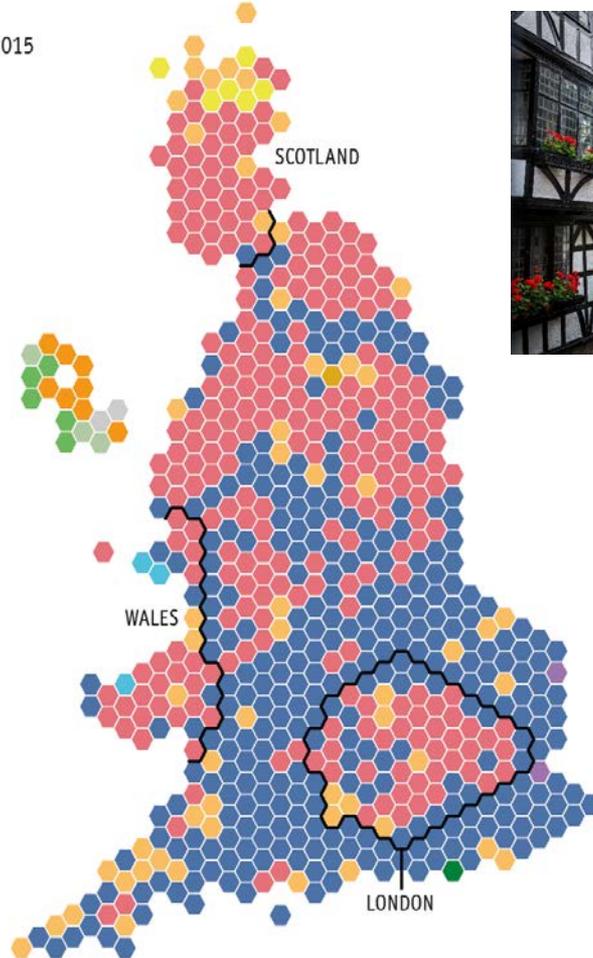
Barking
Riverside –
10,000 homes
unlocked by
an extension
of the
Overground



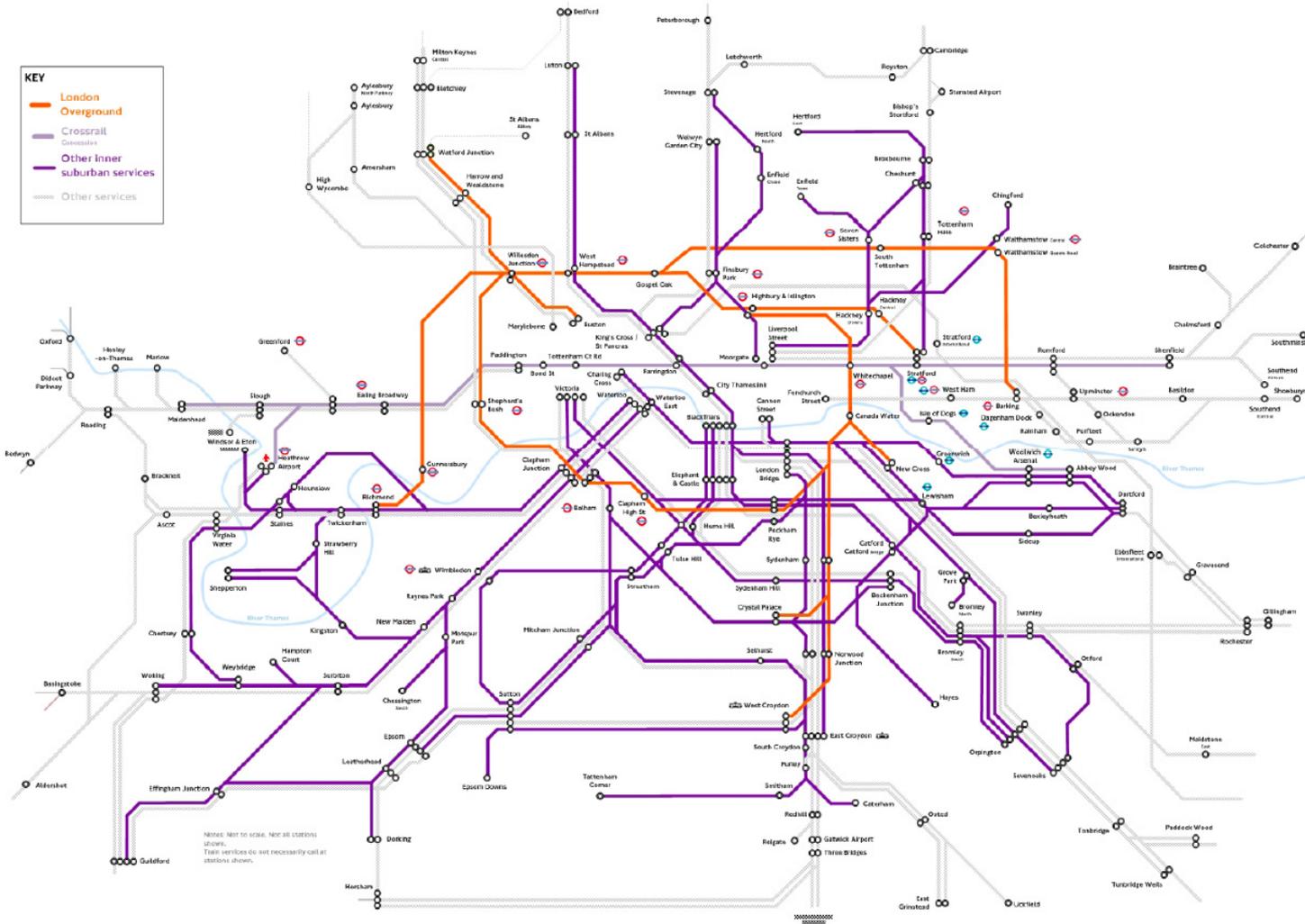
Ongoing discussion about further extension to rural London

Seats held
By political party, as of March 2015

- Conservative
- Labour
- Lib Dem
- SNP
- Plaid Cymru
- Green
- UKIP
- Sinn Fein
- Respect Party
- Democratic Unionist Party
- Social Democratic & Labour Party
- Other



Ongoing discussion about further extension to rural London



Emerging
challenges

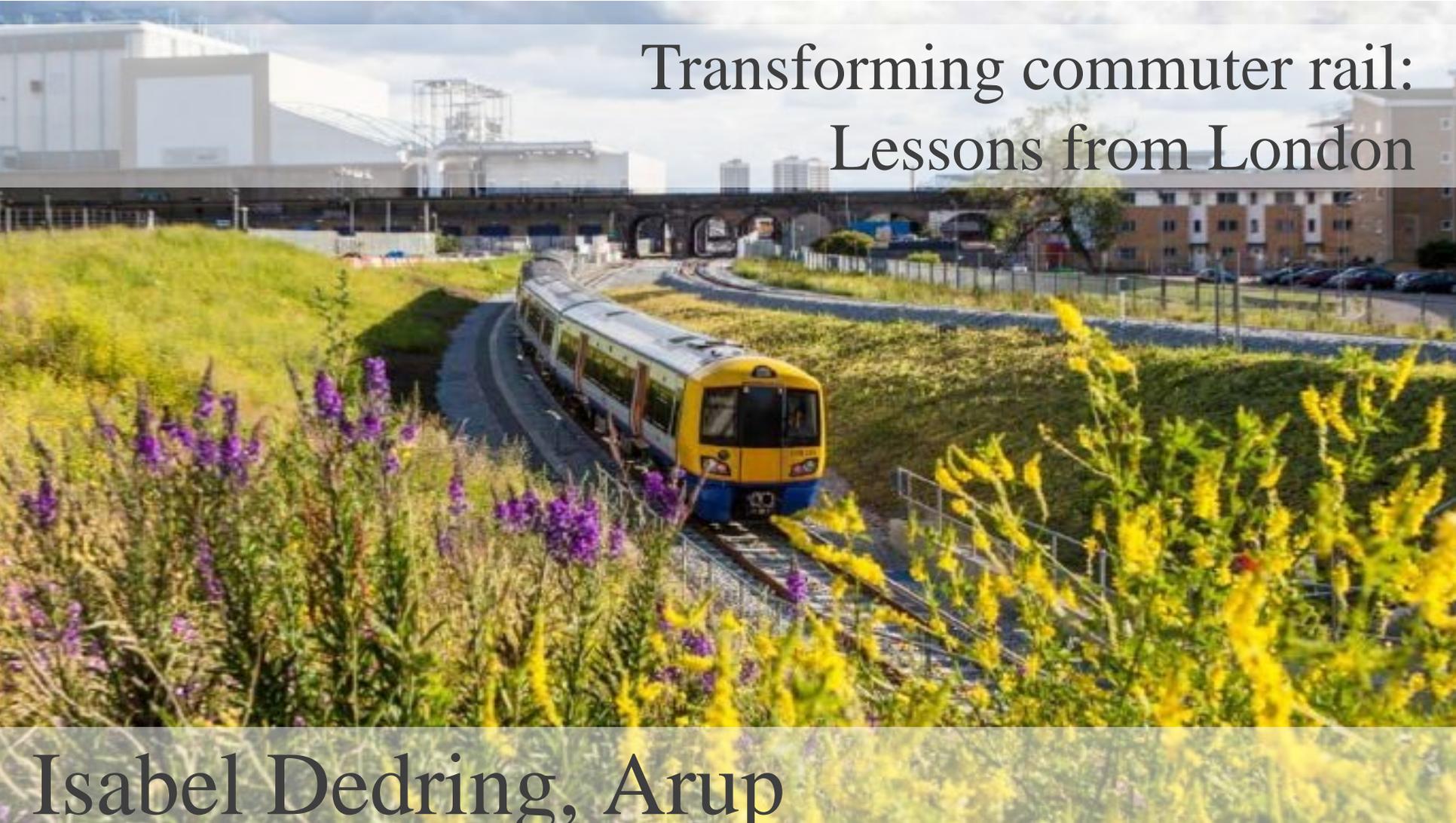


Emerging challenges

- Victim of its own success – overcrowded
- Softening of demand growth to 2% pa
- Performance still strong, but current operator underperforming
- No forward investment programme
- Mayoral desire to extend the model to other parts of the railway being stymied by local politics and lack of government support

Summary

- ‘Superficial’ changes make a big difference
- Incremental development builds momentum for further investment
- Separate operating model gives focus
- Mixing with freight and long-distance passenger services not ideal, but it can be managed – in fact long-distance passengers can benefit
- Undeniable impact on local economy, equity, property values – how might we have harnessed this better?



Transforming commuter rail: Lessons from London

Isabel Dedring, Arup

GLOBAL MODELS for Regional Rail



Isabel Dedring
Former Deputy Mayor of
London for Transport,
Global Transport Leader, Arup

Moderator:



Bruce Mohl
Editor, Commonwealth Magazine



Anna Pace
Former Director of Project,
Planning and Development,
Toronto Metrolinx

The image features a vibrant orange background. On the right side, there is a large, stylized red geometric shape that resembles a stylized 'L' or a corner, with several thin, light-colored lines radiating from its top-right corner. The text 'A BETTER CITY' is arranged in three yellow rectangular blocks. The first block contains the letter 'A', the second contains 'BETTER', and the third contains 'CITY'.

A

BETTER

CITY