The Lowell Institute’s Partners In Public Dialogue Presents:

GLOBAL MODELS
for Boston’s Commuter Rail System
WE ARE A REGIONAL ECONOMY

- 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

- 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

- **Highway:**
  - 1995–2005: 37%
  - 2006–2016: 21%

- **Commuter Rail:**
  - 1995–2005: 37%
  - 2006–2016: 29%

- **Subway:**
  - 1995–2005: 6%
  - 2006–2016: 42%

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

Housing Price Heat Map

$1.5M +

>$349K

Source: Trulia. MBTA.
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?

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

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

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

- 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 Expansion - Transportation Plans

THE BIG MOVE
TRANSFORMING TRANSPORTATION IN THE GREATER TORONTO AND HAMILTON AREA

2008

2041 Regional Transportation Plan
For the Greater Toronto and Hamilton Area

RTP REGIONAL TRANSPORTATION PLAN
METROLINX
An agency of the Government of Ontario

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

• 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

- 2016: 38% Drive & Park, 62% All other modes
- 2031: 62-64% All other modes

Graph showing projected rail ridership and parking supply trends from 1999 to 2031.
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

263 km of electrified service or signal enhancements

15 Minute Service or better
10 rail/road grade separations
1 rail/rail grade separation

Note: AMO Presentation Aug. 2017 updated on website
GO RAIL EXPANSION: FOR A GREATER REGION

A Regional Rapid Transit Network
- all-day, 15-min service
- faster trains
- 300% service increase
- 6,000 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
- New GO Service
- Extended routes
- Trains up to every 15 minutes
- Service in both directions
- More all-day service
- Faster, electric trains
- New GO Stations
- More connections
- New Infrastructure
- Supports electrification
- 263 km of electrified service or signal enhancements

BUILDING FOR A GROWING REGION
- 9M+ residents by 2041
- Average commute is 80+ minutes
- Gridlock costs our economy $6-11B annually
- Investments provided over $606 in benefits to the region over the next 60 years
- Ridership is expected to increase by 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
Thank You
Transforming commuter rail: Lessons from London

Isabel Dedring, Arup
Extensive Tube and rail network – 85% of the morning commute
Integrated city transport agency
Familiarity with long-term capital programmes
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
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
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
Outcomes and impact
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.
Mode shift – including away from car

East London Line: Previous mode

- Rail: 46%
- Bus: 9%
- Tube/DLR: 16%
- Car: 21%
- Other: 8%
Decongestion impact on busy central London interchange stations
Economic impact: increased property values, improved access to jobs for deprived areas
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Barking Riverside – 10,000 homes unlocked by an extension of the Overground
Ongoing discussion about further extension to rural London
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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

Moderator:

Bruce Mohl
Editor, Commonwealth Magazine

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