Planning Transit Mega Projects – Crossrail 2 and Northern Powerhouse Rail in the UK and lessons for North America

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1. Introduction - what is Crossrail 2?
2. London’s key growth challenges
3. Crossrail 2 story to date
4. How does Crossrail 2 support growth
5. Northern Powerhouse Rail
6. Headline lessons for North America
What is Crossrail 2?

Crossrail 2 is a proposed new $43bn railway line serving London and the wider South East of England:

- Over 40 miles of new tunnel
- 51 stations (12 below ground)
- 30 trains per hour
- Capacity for 270,000 people in peak period
- Unlocks up to 200,000 new homes
- Creates 200,000 new jobs
- Open in the early 2030s
- Largest rail project ever planned for London
London’s population growth challenge

London is growing by...

- 9 new residents every hour
- That’s a car load every 26 minutes

Today the population is 8,600,000

And by 2030, it will be c. 10,000,000

- 2 Buses every day
- 2 Tube trains every week
Transport capacity challenge – 1 (Tube/Subway)
Transport capacity challenge – 2 (NR/Commuter Rail)
# Crossrail 2 – a potted history

<table>
<thead>
<tr>
<th>Year</th>
<th>Output</th>
<th>Outcome</th>
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<tbody>
<tr>
<td>1944</td>
<td>GLP</td>
<td>Concept of a cross London tunnelled rail service introduced.</td>
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<td>1974</td>
<td>London Rail Study</td>
<td>Chelsea-Hackney Underground line identified as possible scheme to serve future demand</td>
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<td>1989</td>
<td>Central London Rail Study</td>
<td>Continued support for Chelsea-Hackney line as part of wider need for additional rail capacity</td>
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<td>1991</td>
<td>Safeguarding</td>
<td>Chelsea-Hackney line adopted and directions issued</td>
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<td>2000</td>
<td>London East-West study</td>
<td>Recommended further study to look into feasibility of Chelsea-Hackney to be delivered post-Crossrail</td>
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<td>2002-2008</td>
<td>Continued investigation</td>
<td>Ongoing engineering feasibility, planning and optioneering work on Chelsea-Hackney line.</td>
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<td>2008</td>
<td>Crossrail Royal Assent</td>
<td>Crossrail Bill becomes a Parliamentary Act</td>
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<td>2008</td>
<td>Safeguarding refresh</td>
<td>Safeguarding directions for Chelsea-Hackney line updated</td>
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<td>2009</td>
<td>DfT requests Mayor &amp; TfL review scheme</td>
<td>TfL to review case for scheme, identifying new options in light of emerging London transport (MTS) and land-use (London Plan) policy, and to refresh safeguarding</td>
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<td>2010 / 2011</td>
<td>TfL and NR policy support</td>
<td>MTS supports new rail capacity in SW-NE corridor. NR emphasise in South East RUS crowding on SWML and WAML could be reduced by Crossrail 2</td>
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Subject to rigorous option assessment

2008 Safeguarded route
Route option in existing rail corridor
Route option in new rail corridor

Some stations omitted for clarity
2010 – 2013: Assessment of many options

- Long-list of up to 100 options
- Standalone options and options split geographically: Northern, Central, Southern
- Various rail modes e.g. metro, DLR, heavy rail, tram
- Options assessed against relevant project objectives (aligned to London MTS)
2014/16: Regional vs. Metro option

Regional option,
Heavy rail, utilising existing railway lines in Surrey - Hertfordshire

Metro option,
Standalone scheme in tunnel between Alexandra Palace - Wimbledon
2017 scheme – Crossrail 2
Improving existing networks is essential but new links are also needed.
How does Crossrail 2 promote growth?

1. Widening the property market
2. Making development viable
3. Building at higher densities
4. Enhancing quality of life through pro-active public sector involvement
5. Improving employment opportunities
6. Improving market confidence
Northern Powerhouse Rail (NPR) is a network of new and upgraded rail links between the largest cities in the North of England

- Designed to unlock transformational economic growth across the North of England, rebalancing the UK economy
- Some links expected to be new high speed rail lines, e.g.: Leeds to Manchester
- Some links expected to be upgraded lines
- Aim is to deliver a major increase in capacity, with a more reliable regional rail network
- Faster journeys to grow City Region employment catchment = agglomeration benefits

Currently fewer than 10,000 people in the North can access four or more of the North’s largest economic centres within an hour. This would rise to 1.3 million once Northern Powerhouse Rail is delivered; transforming the job market, giving businesses access to skilled workers in larger labour markets and offering individuals the opportunity for flexible career development and progression, all within the North of England.
NPR Network

Emerging vision for the network

Northern Powerhouse Rail junctions with HS2:

1. Junction on HS2 mainline for Leeds – North East services
2. Junction on HS2 Leeds spur to facilitate through services via existing Leeds station
3. Junction on HS2 mainline for Sheffield – Leeds services
4. Junction at Manchester Piccadilly to support Northern Powerhouse Rail platforms
5. Junction on HS2 Manchester spur for Manchester – Liverpool services
6. South facing junction on HS2 mainline for London – Liverpool services
Towards UK-wide vision for rail mega projects
Lessons for North America - 1

- Affordability – balance of benefits with cost
- Establish strong and accountable project governance via early engagement with potential partners – tiers of Government, State, Regional, Local…
- Build a strong partnership with key stakeholders, especially business community
- Ensure alignment with strategic transportation policy context
- Identify sound objectives to assess options against
- Scheme option appraisal must be robust with real rigour to withstand scrutiny (e.g. NEPA)
Lessons for North America - 2

• Develop appraisal framework. Usual one-size-fits-all approach doesn’t work for mega rail projects
• Explore innovative funding and financing options
• Ensure strong political support at senior level through early buy-in to build momentum – “infrastructure inheritance”
• Be responsive to change – need for dynamic flexibility
Stephen Pauling, Head of Rail Planning

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