Mass transit and efficient use of road space
25 April 2019

@natinfracom
#ukinfra2050
Economic activity is not randomly or evenly distributed across space.
Cities are hubs of the UK economy

Source: ONS (2016), Business Structure Database 2015; ONS (2016), Census 2011, origin-destination data (WU02UK); Centre for Cities’ own calculations.
Nearly every city has seen population growth over the last 10 years
But only 14 of 62 cities have productivity levels above British average.
Poor transport is often cited as the explanation of the productivity gap in the UK.

Judith Blake: Lack of transport investment in the North harming the UK economy.
Skills is the key driver for urban productivity
And productive firms will pay a premium to access skills and knowledge.
And people will pay to be close to their jobs

Median house prices per m² by MSOA, 2017 (£)

- Less than 2,300
- 2,301 – 3,800
- 3,801 – 6,200
- 6,201 – 10,200
- 10,201 – 22,400

[Map showing median house prices across different cities in the UK, including Sheffield, Leeds, Manchester, Birmingham, Oxford, and Bristol.]
Most people live and work in their city-region.
Suggests the focus should be on improving connections within city regions

Source: Census 2011
Congestion is not an obvious problem in many cities (at the moment)
But some city centres are growing quickly which means congestion will be a problem.
Transport systems in some of Britain’s mayoral cities are beginning to creak

<table>
<thead>
<tr>
<th>City</th>
<th>Road</th>
<th>National Rail</th>
<th>Metro / Tram</th>
<th>Bus</th>
<th>Total (Excl. walk)</th>
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<tbody>
<tr>
<td>Birmingham</td>
<td>83%</td>
<td>63%</td>
<td>37%</td>
<td>46%</td>
<td>63%</td>
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<tr>
<td>Manchester</td>
<td>77%</td>
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<td>57%</td>
<td>51%</td>
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<tr>
<td>Newcastle</td>
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<tr>
<td>Sheffield</td>
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<tr>
<td>Bristol</td>
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<tr>
<td>Liverpool</td>
<td>54%</td>
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<td>0%</td>
<td>31%</td>
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<tr>
<td>Middlesbrough</td>
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<td>28%</td>
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<td>31%</td>
<td>30%</td>
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<tr>
<td>Cambridge</td>
<td>34%</td>
<td>55%</td>
<td>0%</td>
<td>41%</td>
<td>40%</td>
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</table>
Jobs growth and congestion are drivers of successful public transport infrastructure.
Enabling growth and managing congestion requires changes to system

- Coverage
- Co-ordination
- Certainty
- Control
- Funding
Metro mayors are well placed to deal with major transport headaches

• Integrating strategic planning, housing and transport

• Transforming Cities Fund – £2.4bn mostly being spent on transport improvements

• Local Industrial Strategies – focused on increasing productivity

• National Infrastructure Assessment – sets out case for more powers and £43bn extra on local transport by 2040
But they need to do more with the powers they already have

<table>
<thead>
<tr>
<th></th>
<th>West of England</th>
<th>Greater Manchester</th>
<th>West Midlands</th>
<th>Sheffield City Region</th>
<th>Liverpool City Region</th>
<th>Tees Valley</th>
<th>Cambridgeshire and Peterborough</th>
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<tr>
<td><strong>Road</strong></td>
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<td>Congestion management short of CAZ</td>
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<td>Existing metro extensions</td>
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<td><strong>Funding and financing</strong></td>
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<td>Bid submissions</td>
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<td><strong>Regulatory powers</strong></td>
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<td>Smart/integrated ticketing</td>
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</table>
All cities need to be empowered to manage their transport systems.
Brighton & Hove
Smart systems for mass transit

Owen McElroy
Senior Project Manager
Brighton & Hove City Council

25 April 2019
Congestion - Bus Network Review

- Uses available traffic data
- Together with information from bus operators
- Identify locations and specific services that experience the highest levels of delay
- 20 separate sites have been identified as “hotspots” on the network
- Each hotspot has been inspected to identify potential improvements that could feasibly be delivered.
Congestion - Bus Network Review

• Journey Times – Based on an estimated time saving derived (seconds per hour) for all services/frequencies affected
• Impact – Based on the estimated passenger numbers expected to benefit from the measures proposed derived from annual passenger numbers for each route as provided by the operators
• Delivery – Complexity of delivery
• Cost – High level estimated scheme costs; 1: £250k+, 2: £101-200k, 3: £51-100k, 4: £11-50k, 5: £0-10k.
Recommendations / Review Outcomes

➢ Re-designation of c'way and provision of right turn pockets into Camelford Street and Madeira Place;

➢ Review lane markings and nearside kerb line on approach to Sea Life Roundabout - possible scope to improve/reduce pinch point/increase entry width;

➢ Marine Parade is very wide. Scope to provide a westbound bus lane between Upper Rock Gardens and Sea Life Centre (reducing eastbound lane width and/or in-setting westbound parking).

Note:

➢ Valley Gardens Ph3 works include redesign of Sea Life Roundabout - any major improvement works e.g. provision of new bus lane to be incorporated into this major scheme.
West of England metrobus network

- **m1** Cribbs Causeway to Hengrove Park via Bradley Stoke, UWE, City Centre & Bedminster **launched January 2019**
- **m2** Long Ashton Park & Ride to City Centre via Spike Island, Temple Meads, Cabot Circus & Broadmead **launched September 2018**
- **m3** Emmerangs Green to City Centre Via Lyde Green Park & Ride, Science Park, UWE, Cabot Circus **launched May 2018**
multi-authority collaboration across the West of England region

£230.496m

Funding sources

• £113.980m Department for Transport grant
• £59.028m Bristol City Council
• £16.206m North Somerset Council
• £41.282m South Gloucestershire Council
massive construction programme

- **3.5km** new segregated busway
- **8** new road bridges
- **3** new railway bridges
- **92** new bus stops
- **282** new cycle stands
- Over **10km** of new cycle routes
- Over **6km** of new road space
- Over **17km** of new bus lanes
- Refurbished city centre
- New road link across River Frome culvert
- Full restoration of a Grade 2 listed bridge
challenges

- Funding limitations – Best and Final Funding Bid
- Multi-authority cross boundary programme across 50 km linear project, multiple contractors
- Planning and statutory approvals - Public Inquiry (Transport & Works Act Orders), CPO Inquiry, allotment reconfiguration and 5 separate planning decisions
- Site security across whole project - tree dwelling protesters
- Highways England – first ever weekend motorway closure
- Network Rail – two mainline railway closures (SBL/SGTL)
- Guideway precision build – test and adjust
- Bespoke iPoints for off-bus ticketing
- Principle of commercial only services
lessons and key learning

- Political ownership
- Public response to disruption
- Cost escalation
- Communications
- External assurance
- Corporate priority
measures of success

• Public opinion
• Passenger numbers
• Reliability
• Punctuality
• Customer satisfaction
• Supporting economic growth
• Connecting communities
• Effect on congestion and car use
• Improving air quality
Belfast Rapid Transit
Industry & Profession Presentation

Clive Robinson
BRT Programme Manager
Background

➢ **Regional Transportation Strategy (2002)** – high level commitment to rapid transit for Belfast

➢ **Belfast Metropolitan Transport Plan (2004)** – identified rapid transit as “a major element of the delivery of a step change in the quality of public transport”

➢ **Strategic Outline Case (April 2008)** – recommended bus rapid transit instead of light rail transit and identified strategic route options

➢ **Outline Business Case (May 2012)** – identifies the preferred option in terms of network routes, procurement strategy and business model.

➢ **Flagship Project (December 2015)** – Executive identifies Belfast Rapid Transit (BRT) as one of the flagship capital projects.
Objectives of BRT

- A transformational project for Belfast

- To underpin the delivery of draft Programme for Government outcomes in relation to sustainability, connectivity and an increase in the use of public transport, walking and cycling by -

- supporting sustainable economic growth and regeneration; providing high quality access and connectivity between different parts of the city

- providing equality through enhanced accessibility linking the most deprived communities to key employment locations, retail facilities, leisure, health and education services

- supporting social inclusion and the integration of communities across the city

- providing a modern, safe, efficient and high quality public transport service which promotes modal shift to public transport
A new vision for Belfast in 2035

Belfast will be a city re-imagined. A great place to live for everyone.

It will energise and drive a successful economy where everyone can reach their potential. Beautiful, well connected and culturally vibrant, it will be a city shared and loved by its people and admired around the world. It will be a producer of and magnet for talent, investment, innovation and creativity - a compassionate place where people create value and are valued.

By 2035...

Our city is home to an additional 70,000 new residents.

Our urban economy supports 50,000 more jobs.

There will be a 50 per cent reduction in the life expectancy gap between the most and least deprived neighbourhoods.

Every young person leaving school has a destination that fulfils their potential.
Public Consultation & Engagement

Public Consultation
• On the policy proposals for BRT from 23 November 2009 to 19 February 2010.
• On the route options for BRT and a draft Equality Impact Assessment of the proposals, from 12 October 2011 to 6 January 2012.
• These consultations indicated broad support for the BRT proposals.

Local Engagement
• Public Information Events undertaken to provide an opportunity for local residents, businesses and elected representatives to view the plans and speak to members of the BRT project team.
• Local consultations on implementation of specific bus lanes orders.
• Meetings with individual local residents, businesses, schools, elected representatives, groups, etc. on specific issues.
Challenges

• Department culture
• Car Culture
• Parking (Resident, business)
• Poor existing network
• Under funded public transport
• Congestion
• Technology deficit
• Society legacy and issues
• Media negativity
• Construction industry environment
Belfast Rapid Transit

£90 million investment

26 kilometres of BRT Corridors

Frequent service 7-8 min interval

Two Transport Hubs for feeder and P&R

102 Halts with Off Board Ticketing

32 Hybrid Vehicles & Depot

12 hour Bus Lanes
Belfast on the Move

City Centre Network

**KEY**
- East - West Route
- Titanic Quarter Route
- Halts
Glider Vehicle Dimensions

18 metres

Glider Vehicle Capacity

105 passengers

1 Glider Vehicle can replace:

87 cars = 0.5 km of congestion

Belfast average car occupancy: 1.2 people/car
Bus Priority

Bus Lanes
• 12-hour - Mon-Sat - 7am to 7pm
• Loading/unloading window
• Drop-off/Pick-up for blue badge holders

Benefits
• Increase reliability, punctuality and attractiveness of public transport
• Consistent approach minimises confusion for all road users
• Facilitates sustainable public transport meeting future network capacity problems
Project Spend

- £50m Infrastructure improvements
- £22m Vehicles
- £10m Depot
- £8m Ticketing
Procurement Strategy

- 14 infrastructure projects
  - 10 road schemes
  - 2 terminal facilities
  - Halt installation programme
  - Milewater Service Centre

- 3 packages
  - Mixture of NEC option A & B contracts
  - £1m - £3.5m each
  - Programmed to minimise disruption along routes and maximise bus priority impact in final package
Infrastructure Improvements

- Roads and footways resurfaced
- LED street lighting
- Improved pedestrian crossing facilities
- Improved streetscape
- Catalyst for local regeneration
- Improved connectivity & integration between East and West
Halts

- High quality ‘platform’ feel
- New off board ticketing
- Ticket validators and CCTV
- Mixture of seating types
- 30% fewer stops, around 400m apart
Service Centre
Transport Hubs

• New interchanges in East and West Belfast

• Re-organisation of complimentary bus services

• Co-ordinated feeder services
Custom Design
The new Glider vehicles first of their type in UK and Ireland

- A tram-like appearance and characteristics
- Diesel-electric hybrid engine technology
- Space for wheelchair users and people with prams/buggies
- Variety of seating
- Double-glazed with air-conditioning
- CCTV, audio-visual information, free wifi and USB charging facilities
Early Performance

• Approaching 45,000 additional passenger journeys per week (an increase of over 30% compared to 2017)
• 25% increase in patronage by older people and people with disabilities
• Best performing public transport corridors in Belfast in terms of reliability and punctuality
• Up to 40% improvement in fuel efficiency and up to 90% improvement in emissions compared to Metro buses
• Indications of bus journey time savings of up to 20%
Lessons

• Broad and early collaboration - Buy in
• Key Stakeholder engagement – Issues & Risk Mgt
• Quality is key – Infrastructure, Vehicles, Operations
• Central Delivery Team – Controlling Project progress
• Gateway Review - Added Value
• CRPO \ DPE – Early advice & enforcement
• Transport Hubs – Early completion
• Communication and Marketing – Key to early success
• Bus Lane & Waiting restrictions – Early Legislation
• Bus Priority Measures – Be Bold
Opportunities

• Positive image for Belfast
• Reduced congestion & pollution
• Development potential
• Selling point for residential properties
• Increased cross city travel
• Step change for public transport
• BRT North and South Belfast extension
BRT 2

Belfast Region City Deal

To link Queens University & City Hospital to CITI route

To serve South Belfast between Cairnshill Park & Ride and city centre via Ormeau Road & Saintfield Road

To serve North Belfast between Mossley and city centre via either Shore Road or Antrim Road
BRT 2 Approach

**Project Initiation**: Formally mandate the project and
- Appoint an SRO, Programme Manager and Project Team;
- Project Initiation Document, including Project Objectives, Project Management Structures, etc.

**Feasibility Appraisal** - report confirming viability of BRT2 for Belfast.

**Public Consultation** – to inform the final decisions on the preferred routes and gained public support for the project.

**Outline Business Case** - including the following key elements: project description; Strategic, Economic, Financial and Management Cases.

**Detailed Design & Implementation** – 48 months to complete.
Transforming Stoke-on-Trent

David Stubbs
Strategic Manager | Highways & Structures
Population Growth
• Currently 255,400, 5.2% yr on yr increase to 2039

Higher Employment rates
• 7,374 Added to Working Age Population

Year on year Housing Completions
• 2012/13 – 394; 2016/17 - 748

Growing Economy
• 32% Growth in GVA / Capita 2009–2017
• 20th Fastest Growing Economy in UK
DfT - Transforming Cities Fund (TCF)

12 City Regions awarded £1.2Bn
Aim:- Improved Productivity & Prosperity
Sustainable Transport Focus
Efficient Movement & Access to Jobs
Business Case by November 2019
Delivery by March 2023
Drivers For Change

Inadequate Transport Interchange Facilities at Rail Station.

Need for improved connectivity from Rail Stn. to City Centre & Large Employment Sites.

Falling Bus Patronage.

Need for Improved Quality of Bus Service, Route Environment & Journey Times.

Inadequate Sustainable Transport Facilities.
TCF – The Scheme

New Rail Station
Multi-modal Transport Hub.

Potential for use of ‘Predictive / Dynamic’ Traffic Technology

Transfer of NR Car Park to rear of Station.

Electric Charging Facility to Rear Car Park

Bus / Cycle Expressway to City Centre

Cycle Hubs to front & rear of Station

Bus Route Infrastructure Improvements
Follow the Commission on social media for event updates and the latest news

@NatInfraCom