Trans-Pennine Tunnel Study

Stakeholder Reference Group

4th February 2016

Opening Welcome

- Introductions
- Purpose of the day
- Expectations
- Proposed outcomes

highways england

Update on rail studies

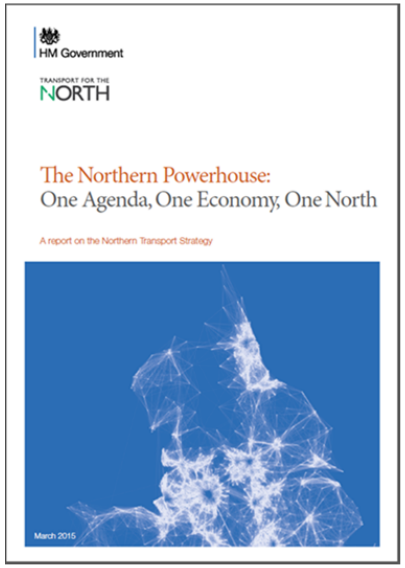
highways england

Northern Powerhouse Rail Workstream

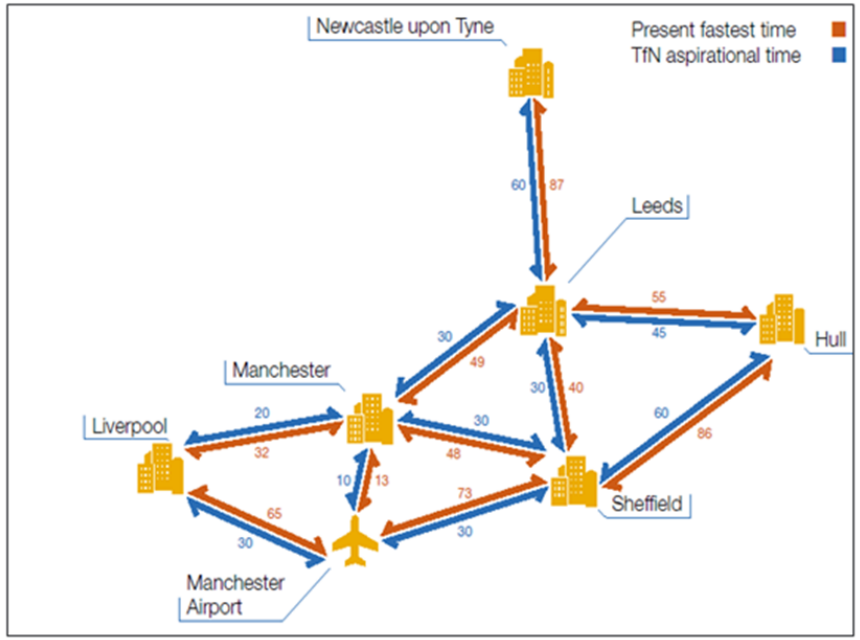
Stakeholder Update 4 February 2016

One Agenda, One Economy, One North

Purpose:



Vision: radically improve journey times and frequencies between major cities to support a single economy



Context

- Rail travel in the North is forecast to continue growing strongly
- Current upgrades aim to maximise use of current network
- Limited potential to accommodate additional services to meet Northern Powerhouse Rail targets before major interventions are required

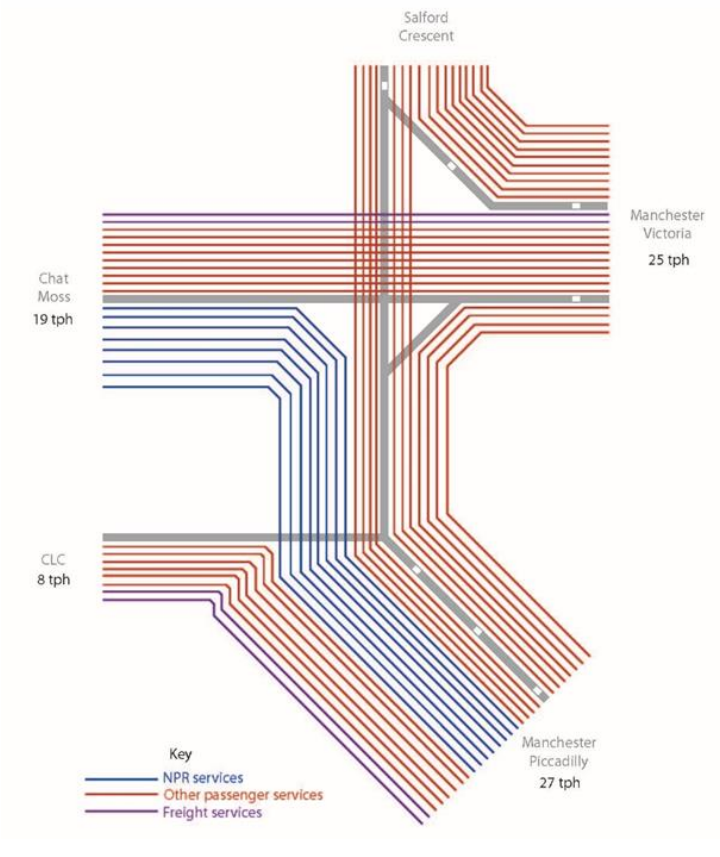


Illustration of potential number of services

What are we doing?

- Developing an overall plan to transform rail in the North, including
  - Initial work to look at impacts on HS2 (November 2015)
  - Current work to Autumn 2016
    - Gaining a better understanding of future rail demand, including transformational growth
    - Identifying the pattern of train services that we need to meet this demand and transform links between cities
    - Considering engineering options to support this
  - Co-ordination with other TfN workstreams, particularly freight, local strategic connectivity and strategic highways

Who is involved?

- Transport for the North, Department for Transport, HS2 Ltd, Network Rail, collectively as the Rail Steering Group
- Sheffield City Region is the lead TfN Partner. All other TfN Partners included
- Wider stakeholder engagement in 2016

Sheffield-Manchester corridor

- Aspirational rail target is 30 minute journey time with 6 trains per hour. Currently 51-56 minutes, 2 trains per hour.
- Route already faces demand for more passenger and freight trains.
- Existing planned upgrades, i.e. Northern Hub cannot deliver this capability.
- Options could include
  - Small scale upgrades to existing route
  - Substantial upgrades (i.e. new tunnels)
  - Completely new route, possibly using HS2, and combined with a Leeds-Manchester corridor

Rail and Highways Synergies

- Rail work is several months behind the Trans-Pennine Tunnel Study
- Rail input to Trans-Pennine Tunnel Study Project Board
- Joint working on potential interventions with common aspects
- Four areas of possible synergies being considered:
  - Tunnel configuration
  - Fire and ventilation
  - Tunnel management and operation
  - Planning and construction

Process and Timescales

- Develop demand scenarios for rail in the North, particularly to reflect transformation
- Investigate feasibility of options
- Rest of 2016 – identify best performing rail options
- Late 2016 –Move to scheme development
  - Feed in to rail industry planning process for Control Period 6 (2019-2023), and future processes
- Intensified joint working with the Highways Workstream, particularly as rail options are developed
- Partner and stakeholder engagement

Update on study progress

highways england

Framework for generating corridors

- Constraints
  - Geological
  - Environmental
  - Highway geometry and planning

- Develop options
- Apply viability assumptions check
- Aggregate options into corridors
- Assess and sift corridor options

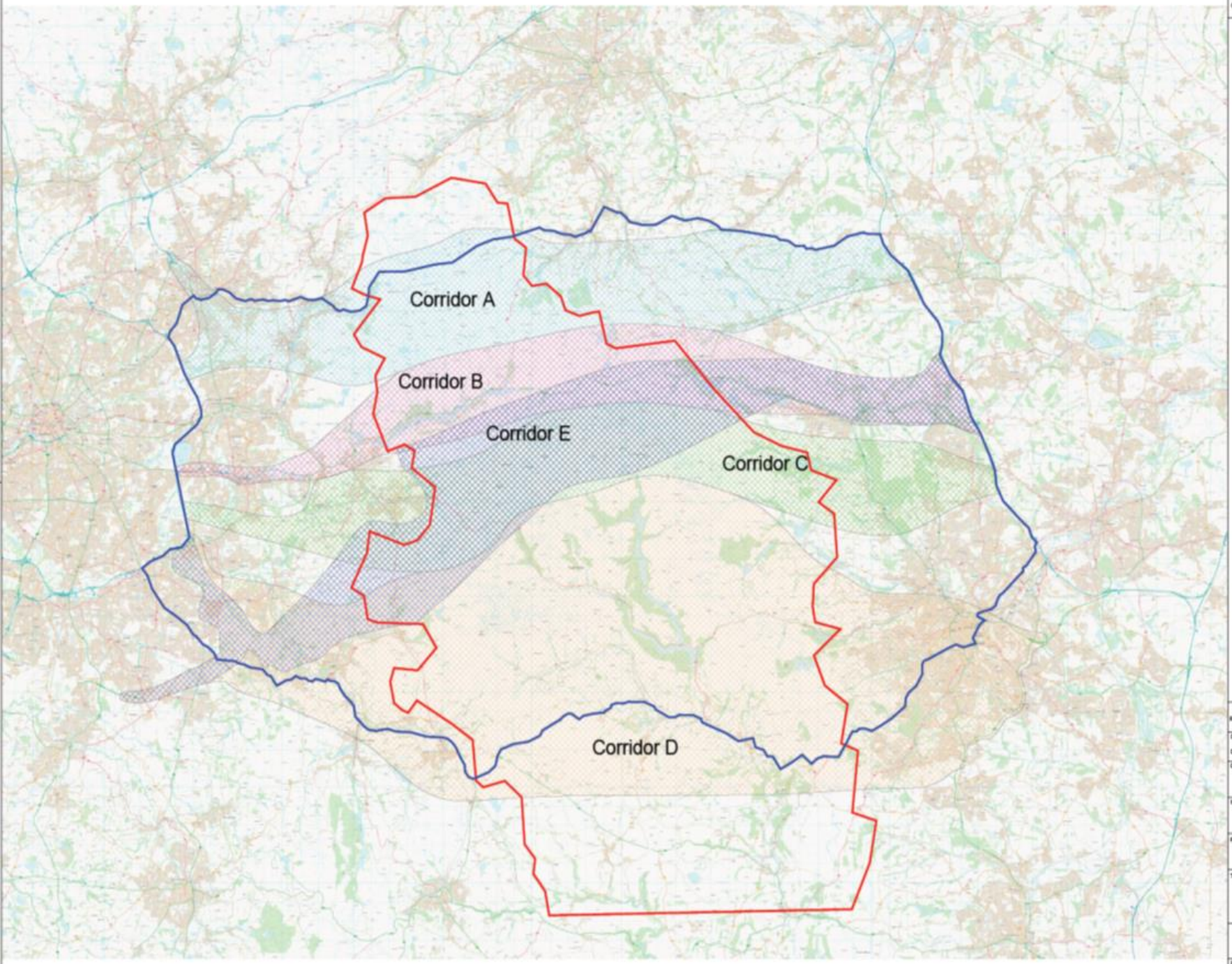
Viability assumptions

1. Fits with project scope – i.e. strategic link connecting Manchester and Sheffield ~~across~~ under the Pennines

2. Is largely within study area boundary

3. Does not involve construction of surface route within the National Park and its wider setting

highways england



Title
Study Area
National Park
Corridors

Rev: Assessment — By: — Checked: — Approved: — Date:

Drawn: MW Date: DEC 15 | Checked: BJ Date: DEC 15 | Approved: AC Date: DEC 15

Client: highways england

Issued only for purpose indicated: Issue-Purpose

Project: Trans Pennine Tunnel

Title: Corridors

Project	Originator	Volume
PC1 0016 TPTS (Location)	MOU D (Type) DR (Role)	GEN 0007 (Number)

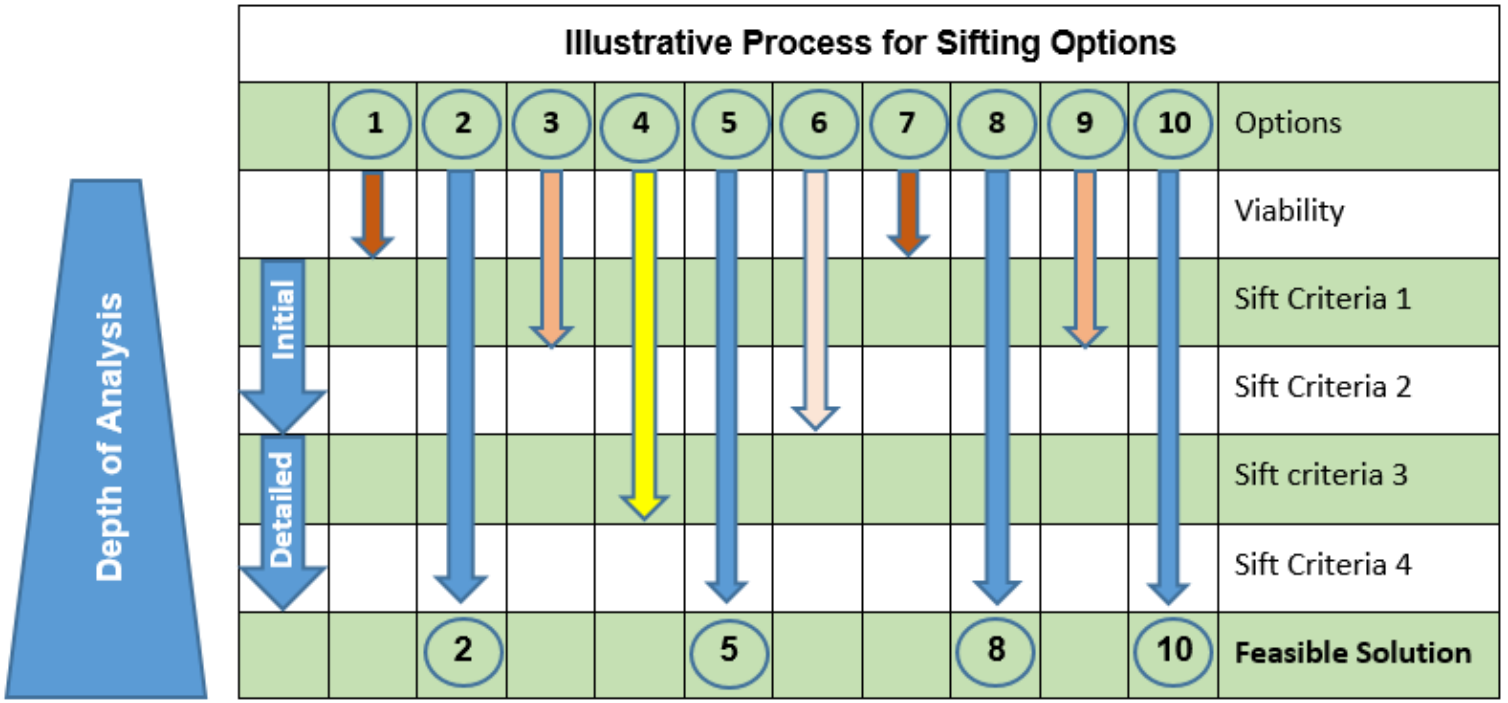
Scale	Job No.	Issue
NTS	1069519	P1

Sheet No: Sheet 1 of 1

Original Size A0

Application of sifting criteria

- Sifting Process:



- Viability Assumptions Check Spreadsheet
- EAST Spreadsheet

highways england

Initial findings of EAST corridor assessment

Case	Indicator	EAST Score				
		A	B	C	D	E
Strategic	Scale	5	5	5	4	4
	Fit with wider transport and government objectives	4	4	4	4	4
	Fit with other objectives	4	4	4	4	4
	Key uncertainties	Timescales of other studies. Construction in PDNP. Mining constraints. SRN capacity. Ventilation.				
	Consensus over outcomes	2	2	2	2	2
Economic	Economic growth	G	G	G	G	G
	Carbon emissions	A	A	A	A	A
	Socio-distributional impacts	A/G	A/G	A/G	A/G	A/G
	Local environment	On going	On going	On going	On going	On going
	Wellbeing	A/G	A/G	A/G	A/G	A/G
	Expected VfM	Not able to assess at corridor level.				
Financial	Capital cost (£m)	£1000m+	£1000m+	£1000m+	£1000m+	£1000m+
	Revenue cost (£m)	Don't know	Don't know	Don't know	Don't know	Don't know
	Overall cost risk	1	1	1	1	1
Management	Implementation timetable	10+ years	10+ years	10+ years	10+ years	10+ years
	Public acceptability	3	4	3	2	3
	Practical feasibility	3	4	3	2	2
	Quality of supporting evidence	3	3	3	3	3
	Key risks	Funding not guaranteed. No public engagement yet. Limited stakeholder engagement. Potential change in government support. No full scheme cost estimate. Adverse environmental impacts in PDNP. Development consent still to be obtained. Potential redundancy due to technological advances. Ability of SRN and local highway network to cope with increased flows.				
Commercial	Where is funding coming from?	Funding uncertain. Specific procurement route unknown. Tolling to be considered in Stage (iii)c.				

Relief to existing Trans-Pennine routes

Route	Relief to Existing trans-Pennie Route AAWT* 2015 by Corridor				
	A	B	C	D	E
M62	9,500 (10%)	10,000 (10%)	10,000 (10%)	10,000 (10%)	9,500 (10%)
A628	13,600 (90%)	15,000 (95%)	13,600 (90%)	13,300 (85%)	13,300 (85%)
A57	2,000 (45%)	2,100 (45%)	2,000 (45%)	2,100 (45%)	2,000 (45%)
A635	2,300 (90%)	700 (25%)	400 (15%)	300 (15%)	300 (15%)

highways england

Journey time savings by origin/destination

Origin/ Destination	Vehicle Hrs Saved by Corridor				
	A	B	C	D	E
Manchester – Sheffield	500	450	500	850	300
Manchester – South Yorkshire	1,000	950	1,000	600	900
Sheffield – Greater Manchester	750	800	950	1,500	600
Greater Manchester – South Yorkshire	2,250	2,200	2,100	1,250	2,000
Greater Manchester – West Yorkshire	950	100	100	-	50
Greater Manchester – Nottinghamshire	800	1,150	900	850	750
Greater Manchester – Derbyshire	500	550	550	850	450
Greater Manchester – The South	650	700	750	700	650
South Yorkshire – Cheshire, Shropshire, Staffordshire	550	650	650	650	700
Total (key O&D)	**7,950**	**7,550**	**7,500**	**7,250**	**6,400**
Absolute total	**11,500**	**11,500**	**11,000**	**11,000**	**9,500**

highways england

Comparison of corridors for quantified economic benefits

Corridor ranking and relativities for GVA benefits

	Corridor				
Regions	**A**	**B**	**C**	**D**	**E**
GVA benefit relative to Corridor D	0.93	0.96	0.99	1	0.82

Change in connectivity by area in 2037 after investment

	Corridor				
Regions	**A**	**B**	**C**	**D**	**E**
Greater Manchester	1.73%	1.77%	1.83%	1.60%	1.77%
South Yorkshire	2.80%	2.84%	2.93%	3.12%	2.84%
Merseyside	0.95%	0.93%	0.96%	1.36%	1.16%
Great Britain	0.22%	0.24%	0.25%	0.24%	0.24%

Tunnel lengths

Corridor	Tunnel Length (miles)		Strategic Link Length (miles)	
	Min	Max	Min	Max
Northern (A)	11	16	23	31
A628 / A616 (B)	10	13	28	29
Central (C)	13	20	24	30
Southern (D)	14	19	23	36
Overlapping (E))	15	17	32	34

Summary of corridor assessment

- **Scale of Impact –** Broadly similar, some corridors fare less well against study objectives
- **Economic –** Corridors could broadly offer a similar level of impact with one corridor fairing less well
- **Environment –** Corridors could broadly have a similar level of impact with one corridor facing more challenges in terms of local environment outside of the national park
- **Journey time saving –** Corridors could broadly offer a similar level of time saving, with one corridor fairing less well
- **Public acceptability –** some corridors make use of existing infrastructure, limit impact on national park, and are closer to potential rail alignments (to remove excavated material)
- **Practical feasibility –** Longer tunnels lengths present more challenges; embedded carbon, capital and maintenance costs, more excavated material, more ventilation shafts
- **Viability assumptions –** some corridors challenge agreed assumptions

Corridor assessments (table discussions)

highways england

Corridor assessment – Q&A

highways england

Mapping local factors

highways england

LUNCH

highways england

Feedback from groups

highways england

Next steps (programme)

Timeframe	Task
Feb – Apr 2016	Develop long list of options and undertake more detailed analysis / sifting to establish a shortlist of 3 to 4 route options
Apr – Oct 2016	Evaluate short list of options through production of Strategic Outline Business Cases

highways england

The wider context and closing remarks

highways england

Department for Transport

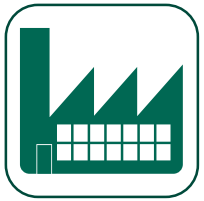
Trans Pennine Tunnel: Wider Context

Department for Transport

Background

Three Studies announced in the first Road Investment Strategy:

Trans Pennine Tunnel exploring the potential for a high performance link between Manchester and Sheffield under the Peak District National Park



M60 Manchester North West Quadrant investigating how to provide additional transport capacity to support economic growth

Northern Trans Pennine considering the potential to create a new strategic east west link between the M6 and A1 to improve east-west connectivity

Department for Transport

Progress to date

Evidence gathering:

- Review of available reports and data;
- Liaison with other studies eg TfN Freight Strategy Study

Identification of the current and future problems within the corridor, including growth plans for this part of the Northern Powerhouse

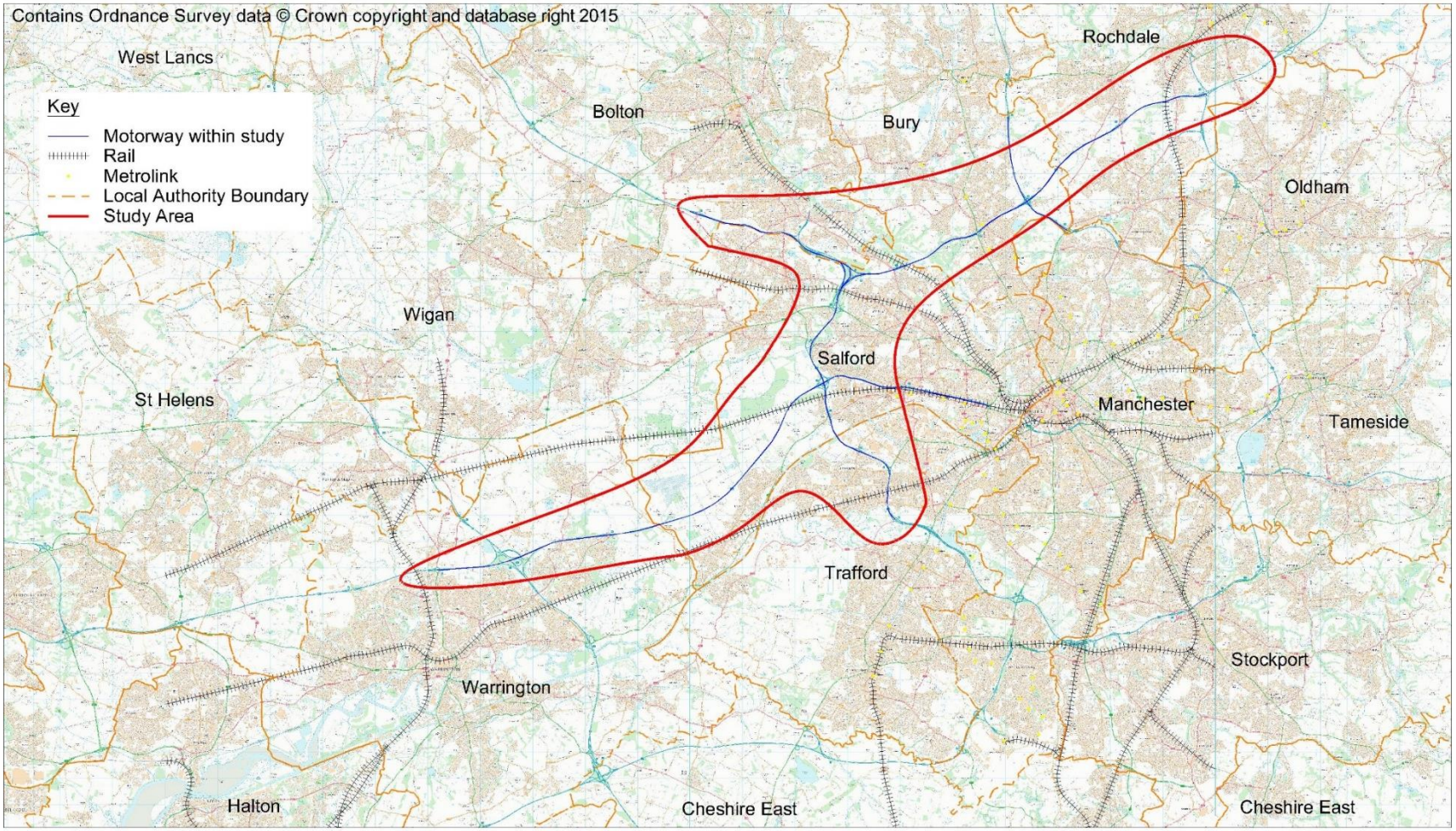
Start of analysis on the wider economic benefits across the whole of the North of England

Production of a draft Interim (Stage 1) Report

Department for Transport

M60 North West Quadrant

Study Area



Department for Transport

Emerging Issues

Severe congestion experienced on M60 within the study area and physical constraints on network contribute to congestion

Lack of public transport alternatives covering orbital routes and public transport network focussed on City Centre

Heavy rail does not cover orbital routes and experiences over-crowding

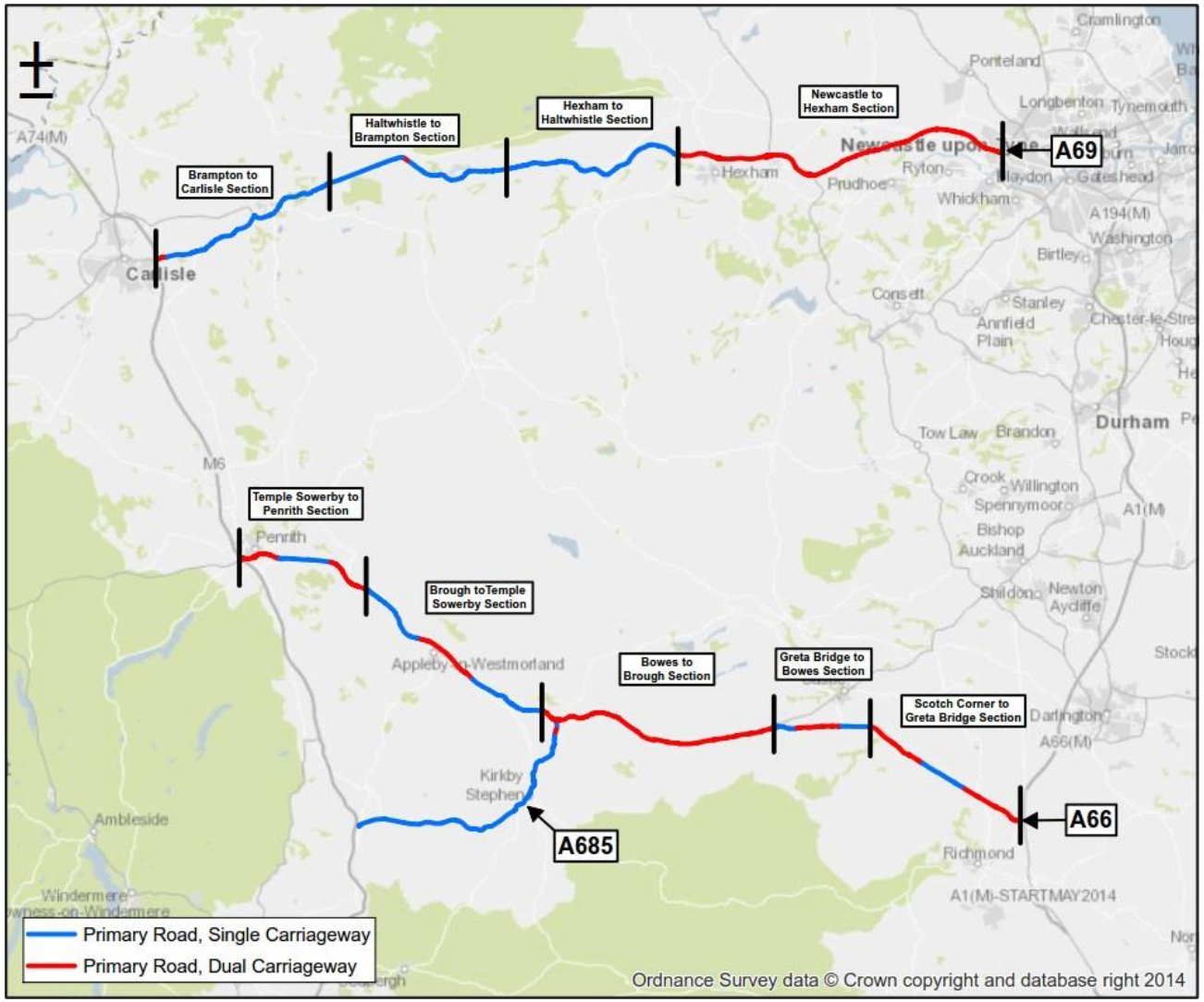
Lack of Park & Ride facilities at stations

Significant issues with regard to noise and air quality

Department for Transport

Northern Trans Pennine

Study Area



Department for Transport

Emerging Issues

A66 serves as a strategic route for private traffic and freight

Evidence suggests that A66 is not used by freight to its full potential

Higher than average accident rates

Poor public transport alternatives – high reliance on private cars

Department for Transport

Northern Freight Movements

Figure 2-56: Origin and Destination (Postcode District) of HGV Trans-Pennine Trips Currently Using M62

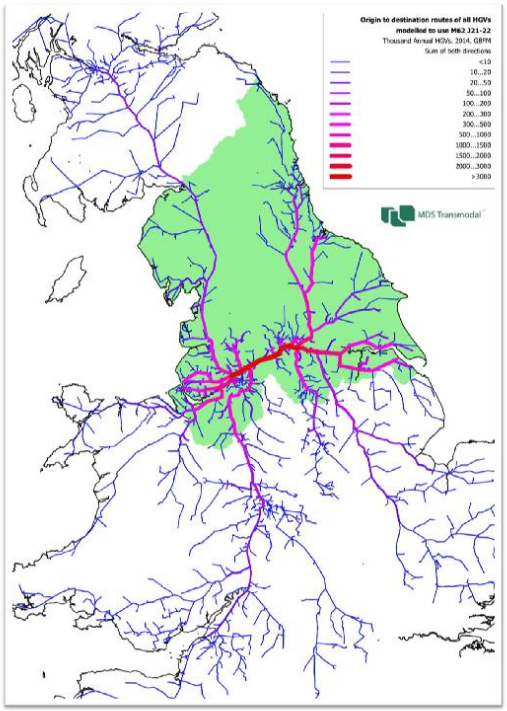


Figure 2-54: Origin and Destination (Postcode District) of HGV Trans-Pennine Trips Currently Using A69

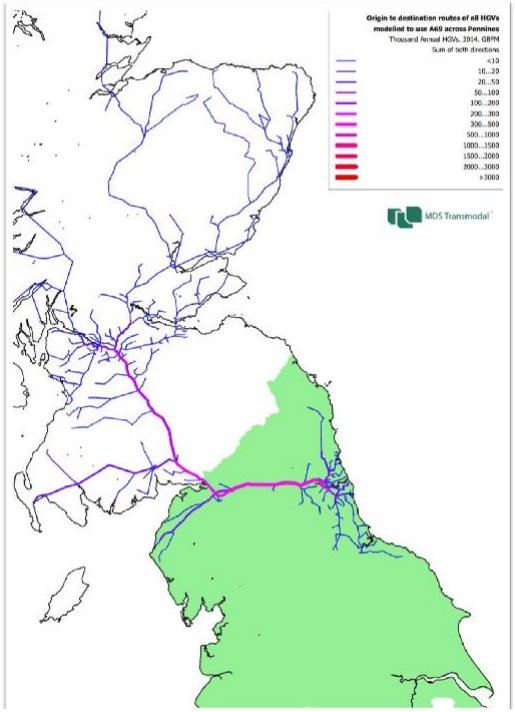
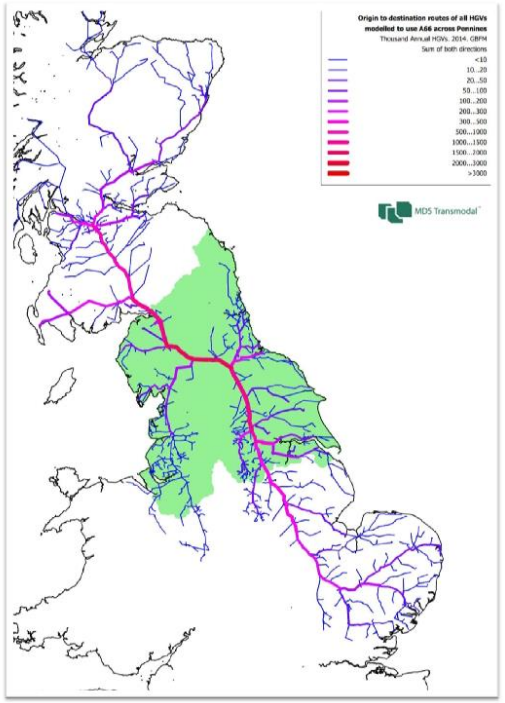


Figure 2-55: Origin and Destination (Postcode District) of HGV Trans-Pennine Trips Currently Using A66



Department for Transport

Working with others

TRANSPORT FOR THE NORTH

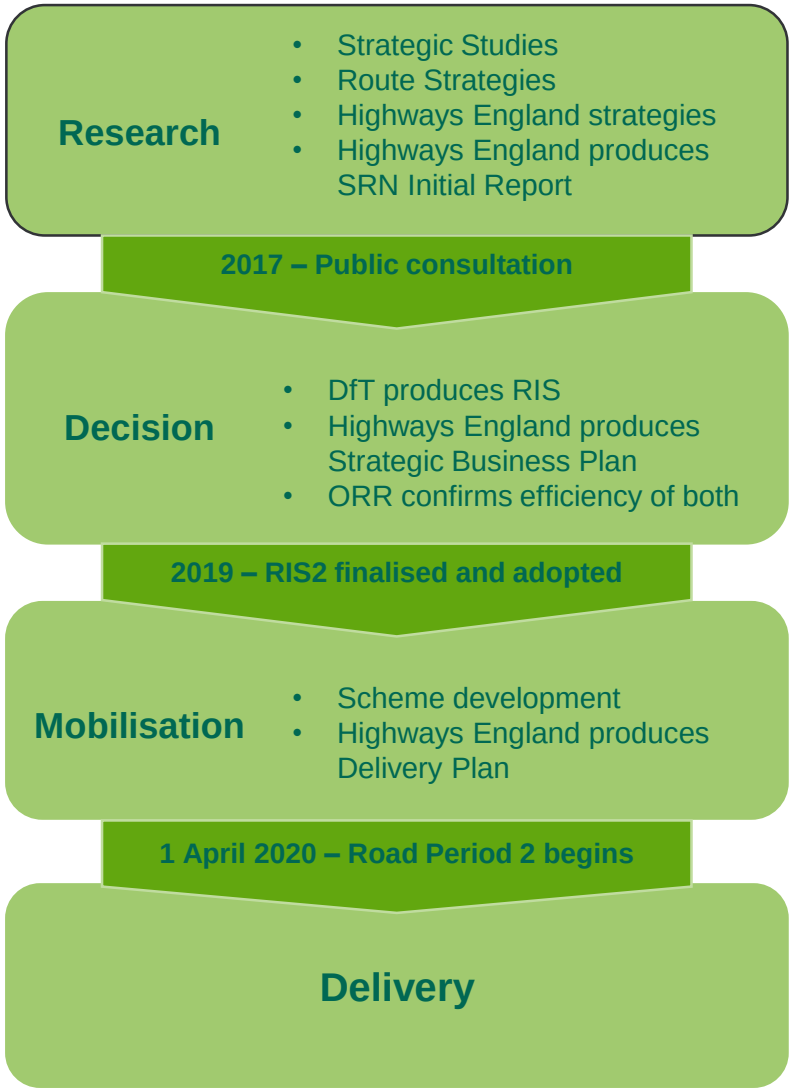
Co-sponsors of the three studies
Chairing stakeholder reference groups

National Infrastructure Commission

The Commission will work with Transport for the North on developing plans to radically improve connectivity between cities, particularly east-west across the Pennines

Department for Transport

Wider Context – future planning



RIS2 is designed on the principle that the programme will go through distinct phases.

- The first stage consists of evidence-gathering and stakeholder engagement, trying to identify the factors and options that should shape RIS2.
- The decision phase consists of the formal negotiation of a RIS, in line with the Infrastructure Act and Highways England's licence
- Once the RIS is agreed, the process of mobilisation and delivery begins.

Each of these phases will have different needs and priorities. Key products in each stage need to be identified early, but practical development work may be able to wait until later point in the process, and allow us to focus on the items which are most urgently needed.

We will need to revisit this process to take account of the role and emerging operation of the new National Infrastructure Commission.

Department for Transport

And Finally…..

- Thank you for coming today
- Hope you have found the event worthwhile
- Please complete your evaluation sheets before you go
- Safe journey back