Department for Transport

Consideration Paper A - Policy

Investment Portfolio and Delivery Committee
14 September 2020

M6 – A1(M) Central Pennines Corridor Study

Update and next steps

Department for Transport

Purpose of paper

This paper aims to:

- **Provide** an update on the M6 – A1(M) Central Pennines Corridor Study

The committee is being asked to: DF18

- **Note** the position of the study; and
- **Agree** with the recommendations of this paper to explore localised interventions in the Central Pennines Corridor

Slide 2

DF18 [redacted] We will need to take recommendations to the committee / can't just provide an update

Action: have added asks of the committee - e.g. to note and agree with the recommendations of this paper

[redacted] 14/08/2020

Background

- The M6 – A1(M) Central Pennines Study was announced in March 2019 by the former Secretary of State for Transport Chris Grayling.
- The study was launched to consider what enhancements could be made to road connections between the end of the M65 at Colne and communities in Skipton in North Yorkshire and Keighley and Bradford in West Yorkshire.
- The study has focussed on east-west connectivity across the North of England, taking account of existing SRN economic centres and assets which would benefit from additional capacity and resilience. **Figure 1** presents the M6 – A1(M) study area which is comprised of two discrete sections – wider study area (consistent with TfN strategic development corridor) and core study corridor which focuses on people, places of east Lancashire and West & North Yorkshire.
- The study has included a strategic assessment of the Central Pennines Corridor followed by analysis of potential corridor options which consider the difficult terrain, environmental impacts, economic growth, the role of other modes in the corridor and concerns and aspirations of other roads users.
- A Strategic Outline Business Case is due to be presented to Ministers this Autumn.
- Our advice to Ministers will be that there is a strong case for localised interventions in the corridor, but a strategic link between east Lancashire and West Yorkshire would not represent good value for money.

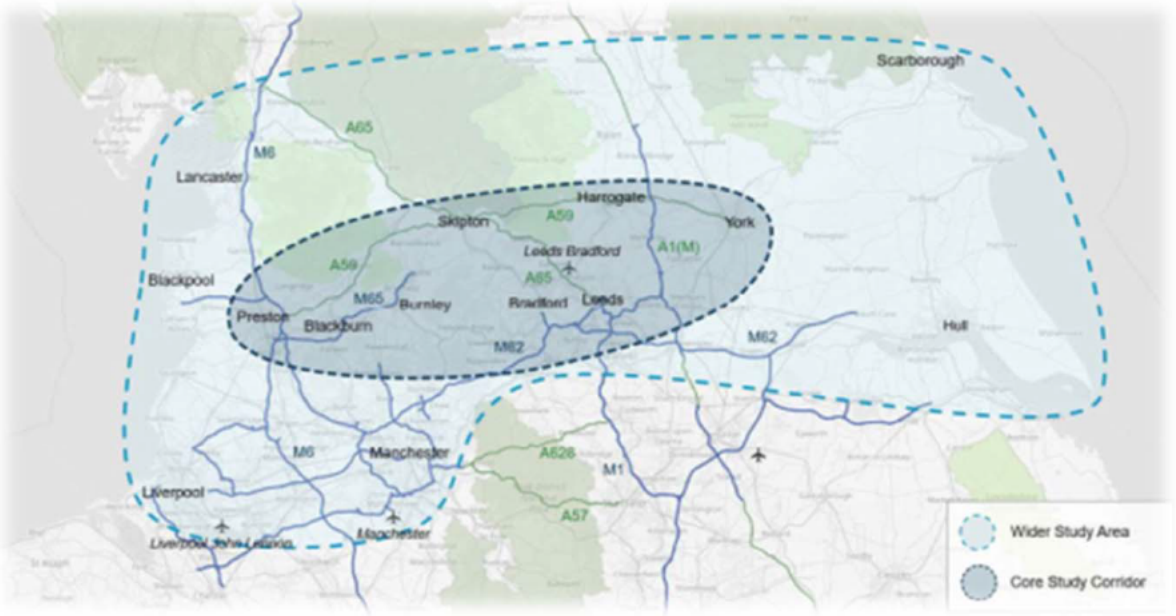

Fig 1. Geographical scope of the study

Who has been involved in the study?

The M6 – A1(M) Central Pennines Corridor has been led and funded by Highways England with support from their consultants AECOM.

Unlike other strategic studies in the North of England, Transport for the North do not have a formal sponsorship role but are active members of the project committee. DF19

Local authorities have also been engaged in the study at project committee level. They include, Lancashire County Council, West Yorkshire Combined Authority; Bradford Metropolitan District Council; Leeds City Council; and North Yorkshire County Council.

Slide 3

DF19 [redacted] Despite untraditional origins, DfT has been the sponsor for this study

Action: Phrasing amended to remove DfT
[redacted] 14/08/2020

- Beyond the M65, there is currently no consistent strategic route for trans-Pennine traffic, with the limited alternative routes suffering from congestion and drivers facing poor journey times given the large distances involved.
- With the exception of sections of the A650 and A629, the network is typically comprised of lower standard road which lack coherence and capacity
- Vehicles regularly experience poor journey times / slow speeds on sections of the network between the M6 – A1(M). This affects all movements including commuters and freight.
- The M62 is the only Trans Pennine route that is a dual carriageway. Consequently it attracts greater traffic volumes and there is an over-reliance on this route which can lead to delays during peak periods.

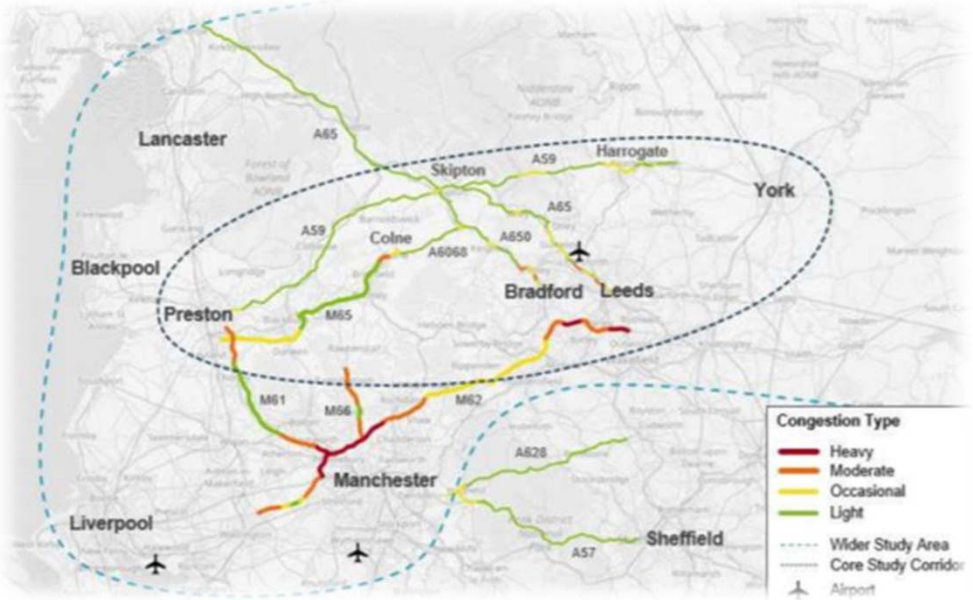

Fig 2. Congestion map of the study area

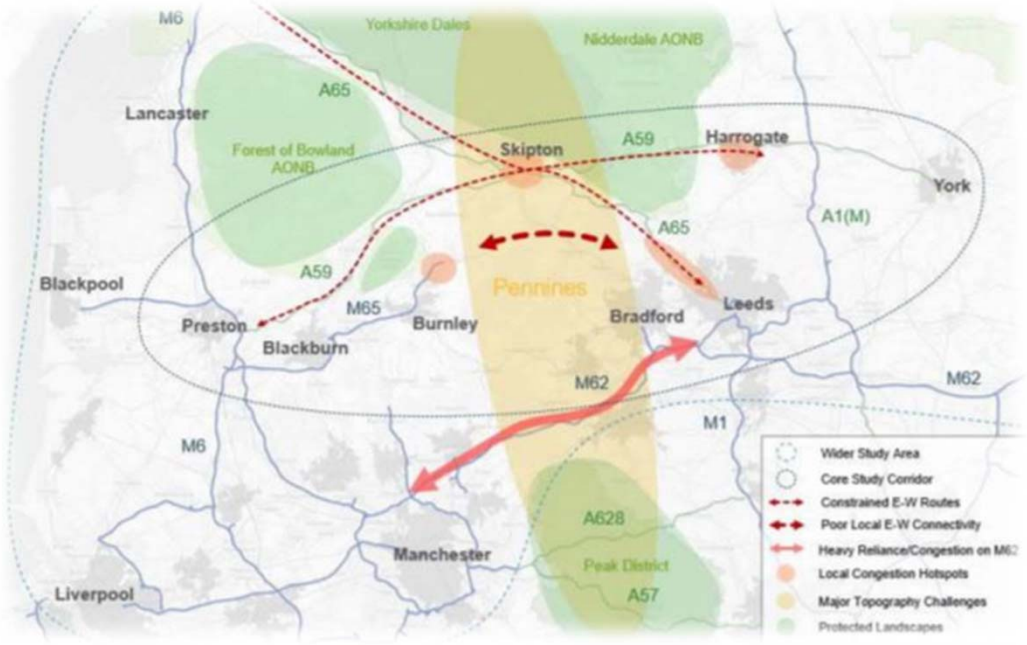

Fig 2. Insert

- **Figures 1 & 2** shows some of the congestion spots along the route, namely at Colne towards the end of M65, the A65 on the Western approach to Leeds and communities in West and North Yorkshire including Skipton and Harrogate via the A59.
- Existing congestion issues, with slower journey times and poor journey time reliability are likely to worsen without an intervention and with expected increases in travel demand, this will make it difficult to accommodate this increase without exacerbating congestion.
- The challenging topography of the study area means there are constrained East-West routes through the corridor.

Slide 4

DF16 [redacted] Are we properly articulating the problem in the area?

Action: have added this slide to present the problems in the area and the challenges of construction - we can also refer back to this when discussing next steps / the need for localised interventions

[redacted] 14/08/2020

Department for Transport

Strategic Context

Strategically, the wider central Pennines corridor is vital to the North. Three of the major UK airports are situated in the wider study area (Liverpool John Lennon, Leeds-Bradford & Manchester) as well as some of the busiest seaports including Humber ports (Hull, Grimsby, Immingham) and Mersey Ports and Heynsham.

Freight is a notable trip generator within the wider study area. There is a heavy concentration of freight activity on a relatively small proportion of the road and rail networks, particularly the M62. During 2014/15, 178mn tonnes of freight was transported through ports in the north which was almost two-fifths of the total in GB.

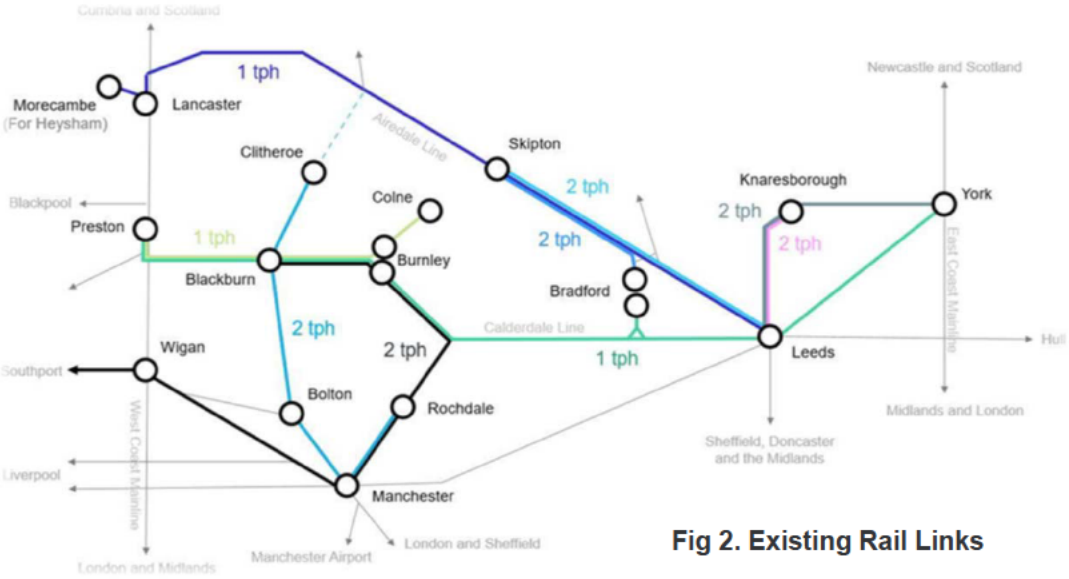

Fig 2. Existing Rail Links

- A comparison of car and rail journeys in the corridor reveals that rail is quicker between major conurbations in the south of the wider study area but slower in the core study area. This indicates that east-west movement by rail is not as competitive as road and as a result there is an over-reliance on cars in the core central Pennines corridor.
- There has been local interest into reinstating the Skipton-Colne line decommissioned following the 1960s Beeching reforms. The Department is currently preparing proposals for consideration and agreement by Ministers for further development work, on both the possible reinstatement of the rail link between Skipton and Colne, primarily as a passenger route, and options for enhancement of gauge and capacity for rail freight on existing trans-Pennine routes. Reinstating the line has the potential to affect travel patterns in the corridor as it has the potential to improve connectivity between Lancashire and W Yorkshire.
- Northern Powerhouse Rail also has the potential to improve east-west connectivity in the corridor offering high-speed trips between key northern hubs.

- Several routes within the Wider Study Area are part of the SRN, including A1(M), M6, M61, M62 and M65 (between Preston and J10). The M6 and A1(M) provide north-south connectivity to the west and east of the wider study area respectively with several east-west routes providing connectivity (of varying extent) between the M6 – A1(M)
- DfT has a programme of schemes on the Major Road Network which forms a middle tier comprising Local Authorities' busiest and most economically important A roads. Decisions have yet to be made on most schemes. Within the CPC are the following schemes: A59 Kex Gill Improvement (NYCC), Dawson's Corner Junction and Stanningly Bypass (Leeds), Shipley Congestion Relief (Bradford), A650 Tong Street (Bradford)

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Economic Context

The Central Pennines Corridor has some of the North's key economic and population centres with a diverse mix of strategic movements. It is home to approximately 8.7 million people, accommodating over 4 million jobs which generate between 40-50% of the North's economic output. Improving transport connections in the region has the potential to support economic growth and attract business and investment to the North.

The Wider Study area has a number of cultural, leisure and visitor assets that attract millions of visitors annually, with several of these sites in the core study corridor. These includes coastlines, national parks and areas of outstanding beauty. Leisure and tourism markets generate high-levels of movement across the network with high demand on weekends and bank holidays.

With areas amongst the most deprived nationally in the core study area, there is a need to drive economic and growth to reduce employment gap and. Although enhanced connectivity between the M6 – A1(M) is unlikely to solely address the challenges, strategic highway improvements can contribute to reducing deprivation levels and boosting employment levels.

The corridor covers a major economic area in the North, home to global businesses, supply chains and economic assets. It contains the largest aerospace cluster in the UK, including BAE systems and Rolls Royce and has an internally competitive advantages in sectors such as automatic and advanced manufacturing.

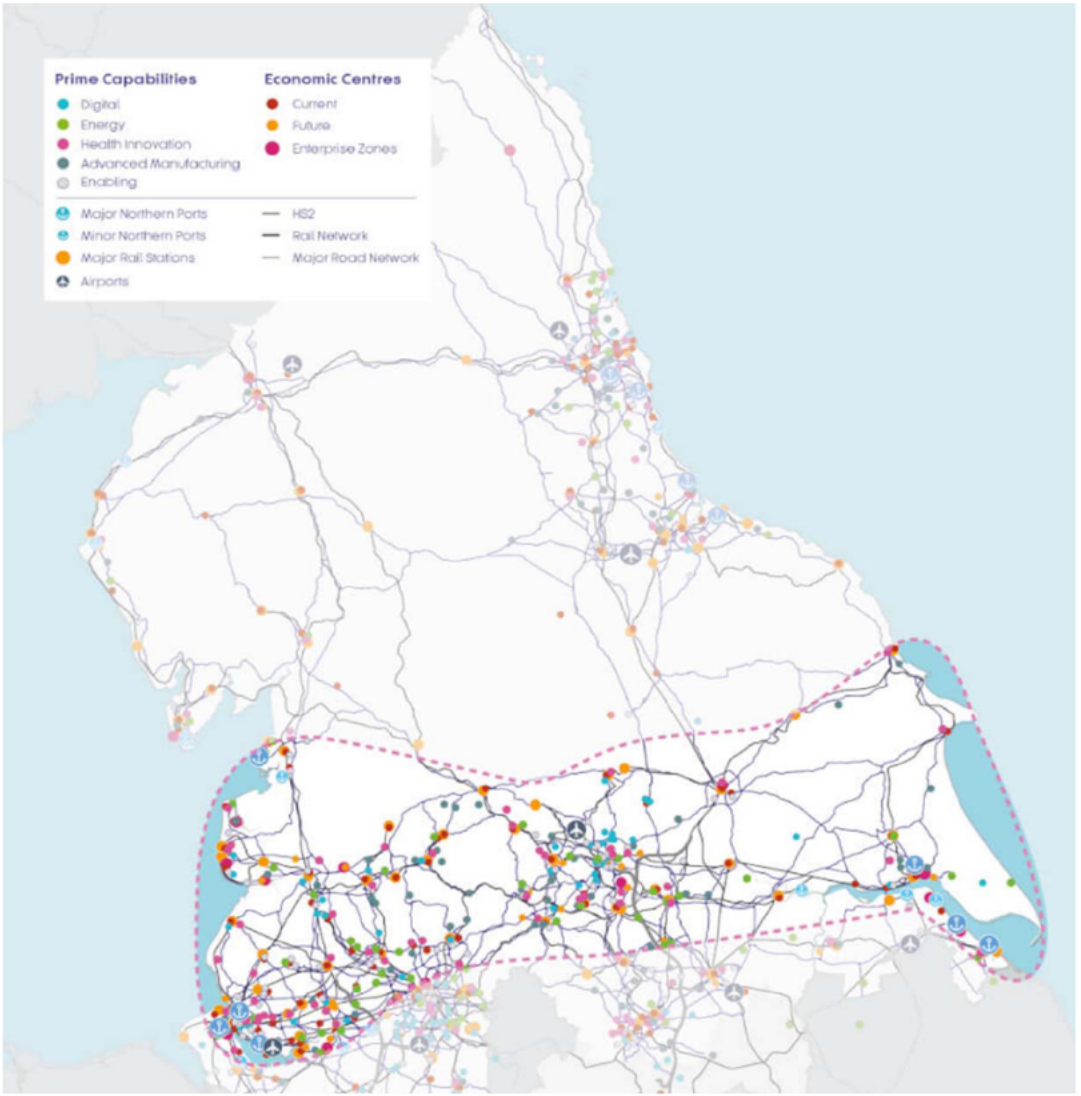

Fig 3. Map of industry in the Central Pennines

Options Development

Route options were identified from an original long list of components and then assessed against a combination of transport and economic objectives. This resulted in the definition of three strategic corridors. The corridors were split into the following:

Skipton-Harrogate: Extending from the North-West of Blackburn to the West of York broadly following the A59, capturing Clitheroe, Skipton and Harrogate and the A1(M). This corridor serves the Lancashire and York, East Yorkshire and East Riding Strategic Economic Plans (SEPs).

Leeds-Bradford: A central corridor that stems from the Eastern point of the M65, in Colne, to York, serving the conurbations of Leeds and Bradford, Leeds-Bradford International Airport, the M1 and the A1(M). This corridor also serves the Lancashire and York, East Yorkshire and East Riding SEPs.

Bradford-Halifax: Runs South of the M65 and primarily serves Halifax, Bradford and the M62. This corridor includes parts of Lancashire and Leeds City Region SEPs.

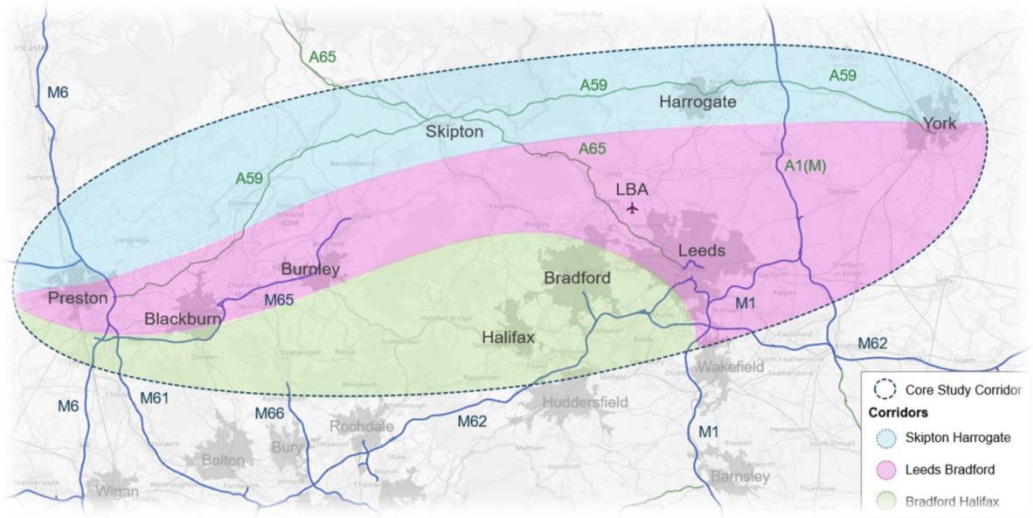

Fig 4. Strategic Corridors

Individual route components were considered against the strategic need for an intervention, specifically:

- Improve east-west connectivity;
- Improve network resilience and reliability;
- Improve local connectivity;
- Integration with other modes;
- Support economic growth for the North; and
- Support Corridor economic growth.

A sifting exercise was then conducted reviewing against the strategic objectives and undertaking a demand impact assessment of the seven routes using Highways England's Regional Transport Model (RTM). The four better performing scenarios were recommended to be taken forward for preliminary economic assessment. The four were:

Orange: Colne (M65) – Skipton – LBA – A1(M) – York (A64);
Pink: Colne (M65) – Skipton – Harrogate – A1(M) – York (A59);
Purple: Colne (M65) – Skipton - LBA – M1 east of Leeds; and
Red: Colne (M65) – Skipton - LBA – Leeds outer ring road – M62.

The four listed options were assessed using standard transport scheme appraisal techniques as recommended by DfT which considered user and non-user travel time savings as well as wider economic benefits. The **Orange** and **Purple** routes generated the most benefit from the four schemes assessed.

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Options Development… continued DF17

Both options include a **'blue-core':** this core section provides the connection between the M6 via the existing M65. From the eastern end of the M65, near Colne, the route passes through Skipton, Keighley, to LBA and north Leeds.

Orange Concept (Variants 1 & 2)
This variant includes a Junction with the A1(M) and A64 (near York)

Purple Corridor Concept
This variant includes a junction with the East Leeds Orbital Route (ELOR) and dualling of existing A64 to the A1(M).

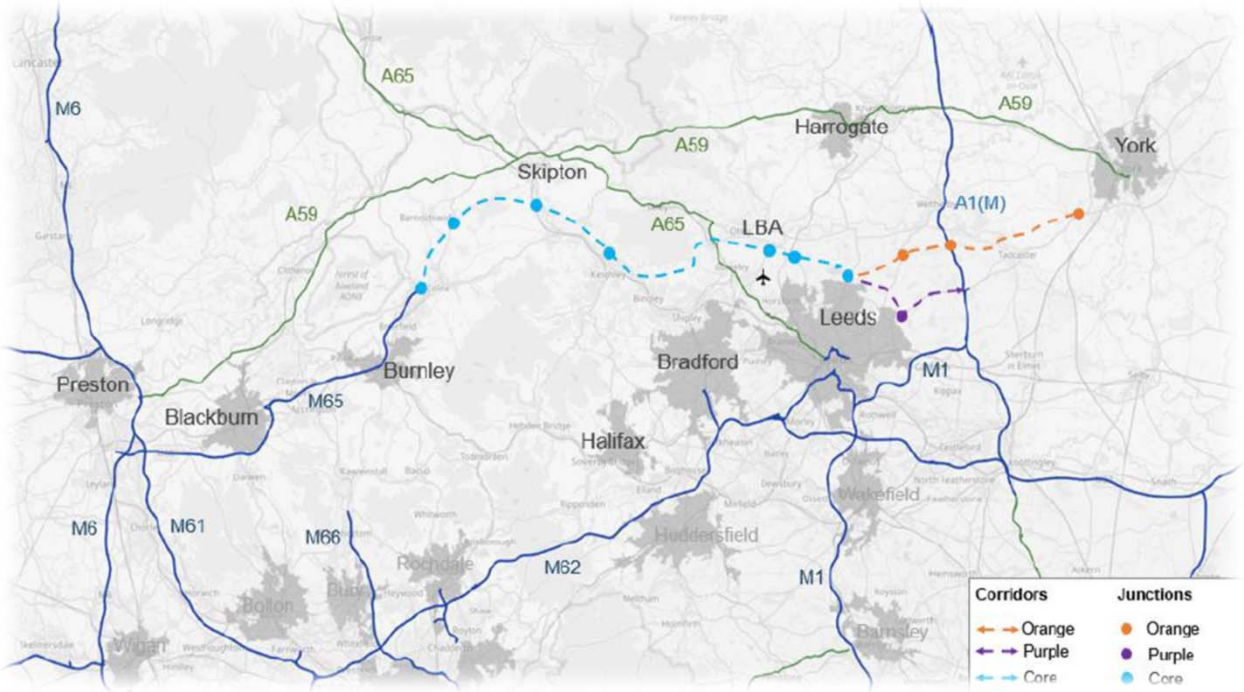


Fig 4. Strategic Corridors

Benefits?

In theory, either corridor option could deliver a range of strategic benefits to the Central Pennines. These benefits include, improved journey time reliability, reduction in accidents, greater resilience for east-west movements, improved journey quality, regeneration of locations along the core study corridor, enhanced accessibility to key transport hubs, improve access to leisure and tourism facilities and mitigation of deprivation along the corridor.

Challenges / risks?

However, despite the benefits, there are significant challenges associated with undertaking a project of this scale and ambition. These include:

- **Topography**: challenging topography of the study area means that there will be a number of engineering challenges. This includes (inser DF21
- **Cost**: This project will have very high capital costs that cannot be accounted for by RIS pipeline. Clustered communities and lack of development opportunities in the area mean that sourcing alternative forms of funding will be challenging. (see next slide for costs)
- **Environment**: The environmental profile of the study area includes protected landscapes, world heritage sites and areas of natural outstanding beauty means. (see slide 10).

Slide 8

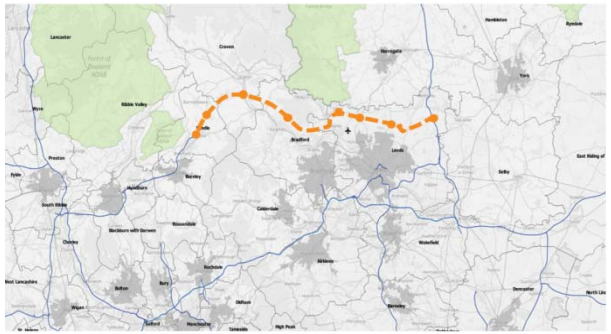
DF17 [redacted] 1). Maps not clear, 2). Are we properly articualating benefits, 3). Are we being too polite?

Action: 1). Have changed the map, 2). have moved section on benefits, 3). talk at length about the challenges - incl. engineering & extensive tunnelling, cuttings, bridges

[redacted] 14/08/2020

DF21 Darren to confirm tunnelling numbers

[redacted] 17/08/2020

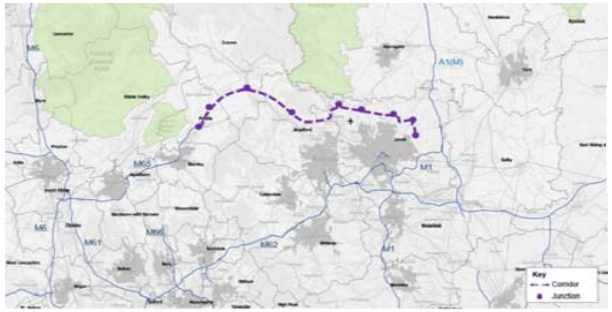


- Corridor Distance – 49.7 miles (79.6km)
- Outturn Cost - £12.5bn (D2AP) £13.7bn (D2M)
- Estimated BCR – 1.01 (D2AP) 0.92 (D2M)

Opening Year 2041

- Corridor Distance – 53 miles (85km)
- Outturn Cost
- £13.7bn - (D2AP) £15bn (D2M)
- Estimated BCR – 0.95 (D2AP) 0.87 (D2M)

Opening Year 2041



- Corridor Distance – 44 miles (70km)
- Cost – £12.7bn (D2AP) £14bn (D2M)
- Estimated BCR – 1.0 (D2AP) 0.91 (D2M)

Opening Year 2041

The capital costs for both options are shown in **Figure 8**. This highlights the Orange option has a higher cost of £13.7 billion whilst the purple option is £12.7 billion.

	Orange	Purple
Cost	£5,952	£5,502
Inflation	£6,550	£6,088
Risk	£1,227	£1,137
Total	**£13,728**	**£12,727**

Fig 8. Capital Costs (Q1 2016 prices, £million)

Figure 9 shows both options have an adjusted (i.e. with wider benefits) around 1 which reflects poor VfM. The adjusted BCR for the Purple option is slightly higher at 1.00, whilst the orange has a BCR of 0.95. The monetised benefits for both options are similar so it is the difference is scheme costs driving the variation in BCR.

	Orange	Purple
PVB: TUBA	£1,984.6	£1,903.2
PVC	£3,230.0	£2,986.4
Initial BCR	**0.61**	**0.64**
PVB: WITA	£1,100.0	£1,073.0
PVB: Total	£3,084.6	£2,976.2
Adjusted BCR	**0.95**	**1.00**
VfM	**Poor**	**Poor**

Fig 9. Analysis of monetised costs and benefits (£million)

Need to talk about uncertainty around costs…

Slide 9

DF13 Insert Cost Ranges!
[redacted] 11/08/2020

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Environmental Consideration

The Central Pennines Corridor passes through a sensitive area environmentally. The challenging topography of the study area which includes numerous hills, valleys and waterways considerably increases the need to cut, fill and build new complex structures which impact on the deliverability and overall scheme cost. When this is compounded with growing recognition of a climate emergency in the North of England, the creation of a new strategic highway link is a potentially contentious scheme that will need to have significant strategic and economic justification.

The environmental assessment for the study has used Highway's England's environmental reporting format, the Preliminary Environment Risk Assessment or PERA. The following environmental topics were included:

- Air Quality;
- Cultural Heritage;
- Landscape;
- Biodiversity;
- Geology and Soils;
- Materials and Waste;
- Noise and Vibration;
- People and Communities;
- Road Drainage; and
- Climate Change.

RAG ratings can from the PERA can be found in **Figure 10**.

Although the study is at very early stage, the results from the preliminary environment assessment clearly show that a new strategic link through east Lancashire and West Yorkshire would have large adverse environmental impacts.

Drawing tentative parallels with the Trans Pennine Tunnel study which has undertaken a more advanced environmental assessment of the Southern Pennines, we can reasonably expect environment mitigations to be very costly and difficult to administer given the challenging geography of the Central Pennines Corridor. Additionally, increasing opposition from environmental campaign groups (as experienced on the TPTS+) presents a risk to delivery.

As an example, local councillors recently voted against a major road that would run through the green belt between Bradford and Pudsey on the grounds that it would have large negative environmental impacts. This decision gives us an early indication of the kind of local opposition we can expect from delivering a new strategic link in the corridor.

Summary of policy and physical environment risks and opportunities

Option	Air Quality	Cultural Heritage	Landscape	Biodiversity	Noise & Vibration	Road Drainage & the Water Environment	Population and Health	Geology & Soils	Material Assets and Waste	Climate (resilience and greenhouse gases)	Design	Overall RAG rating
Orange Corridor												
Purple Corridor												

Fig 10. Summary of policy and physical environment risks and opportunities

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Stakeholder Engagement

Transport for the North

The Central Pennines Strategic Development Corridor is a priority area for Transport for the North. Its aim for the corridor is to support the overarching objectives set out in the TfN Strategic Transport Plan which is: “Improving strategic east-west connectivity for some of the North’s important economic centres and assets in North Yorkshire, West Yorkshire, East Riding and Hull and Humber through to Greater Manchester, Lancashire and Liverpool City Region”.

In their Strategic Programme Outline Case for the Central Pennines Corridor (2019), TfN state that the ability of northern stakeholders to work together as one and generate the benefits for the whole of the UK is currently over-reliant on the successful operation of just one road, the M62 motorway. They also state that current Trans Pennine routes are variable in quality, citing the M65 as an example, which terminates at Colne with onward connectivity to Yorkshire via a network of lower standard roads which lack coherency, capacity and resilience

TfN have had light-touch involvement in the study but are active members of the project committee. Their attention in the corridor appears to be focussed on rail solutions but they do acknowledge the current road network is insufficient.

Local Authorities

Local authorities including Lancashire County Council, West Yorkshire Combined Authority, Bradford Metropolitan District Council, Leeds City Council and North Yorkshire County Council have been involved in the study at project committee level.

Their level of involvement has included attending monthly project committee meetings and being sighted on PCF products including the strategic outline business case. In January this year, they were invited to a sifting workshop where four corridor were sifted down to two – orange and purple.

Over the course of the study, the local authorities have been broadly supportive of the level of assessment undertaken by the project team but are obviously aware the study is at a very early stage of development. They are also aware the study would be very expensive, would have high-levels of risk and would have large environmental disbenefits which is problematic when considering many northern councils have declared climate emergencies.

Other local authorities including Pendle District County Council have also been interested to participate in the study and have written to Highways England and DfT independently to see emerging findings from the study.

MPs

Following interest from Andrew Stephenson MP (Pendle) to see the results of the Central Pennines Corridor study, Members of Parliament along the Central Pennines Corridor were written to with the offer of a virtual meeting to discuss emerging findings from the study.

In total, 9 MPs along the corridor were written to. Rt Hon. Alec Shelbrooke MP (Elmet & Rothwell) and Philip Davies MP (Shipley) accepted the invitation and sessions were held on 21 & 24 July respectively.

Alec Shelbrooke was strongly against the orange corridor concept stating that either variant would be ‘unacceptable’ for communities in that part of West Yorkshire. He was in favour of the purple option asserting that increased links to East Leeds Orbital Road would be a good thing for the region.

Philip Davies was in favour of both options. He thinks a dual carriageway from Keighley and Bradford would be auspicious for the region and remarked that the 2003 Bingley Relief road had transferred additional congestion through Saltaire.

Both MPs accepted it would be challenging project. Their support for the more localised elements of the study signal that there could be a case for assessing more local interventions in a future round of work.

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Findings and Next Steps

Findings:

- The two corridor options do offer significant time savings for E-W journeys – e.g. Colne to Leeds (20 minute saving in the peak)
- Relief to several lower standard routes in the study corridor (Colne traffic drops by 70%)
- Limited transfer from M62
- Increased volumes on eastern end of M65 (up 25%)
- Significant topographical challenges and circa 50 miles of new corridor
- Large scale capital investment would be required (indicative cost range for D2AP from £12.5bn to £13.7bn and for D2M £13.7bn to £15bn) (2016 price based outturn costs)
- Both options appraised generated similar BCRs on the boundary between 'Poor' and 'Low' VfM categories.

Insert conclusion – e.g. yes some strategic benefits / economic case poor / local appetite – but localised interventions a better solution?

DF11

Next Steps:

1. Present Ministers with results from the M6 – A1(M) Central Pennines Study
2. Recommend that localised interventions in the Central Pennines Corridor are pursued

Slide 12

DF11 Need to finish

[redacted] 07/08/2020