

At a glance... Northern Powerhouse Rail



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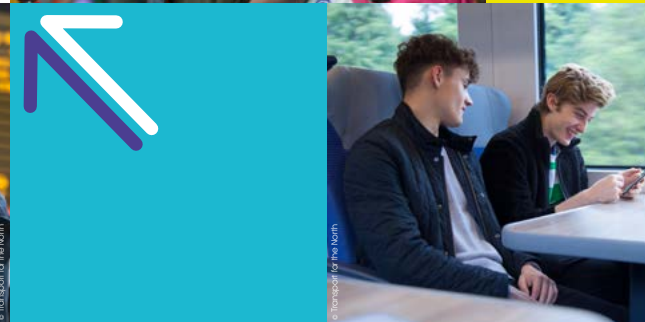
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What is Northern Powerhouse Rail?

Northern Powerhouse Rail is a programme to deliver a transformed rail network in the North of England and bring new opportunities to millions of people and businesses.

Featuring a mix of new and significantly upgraded railway lines, it will increase the capacity, speed and resilience of the North's rail network. In doing so, passengers will experience faster and far more reliable journeys between the North's economies and its largest international airport.

Northern Powerhouse Rail is the centrepiece of Transport for the North's Strategic Transport Plan and Investment Programme. A Strategic Outline Business Case for the network has now been backed by civic and business leaders from across the North.

The region's single biggest transport intervention since the Industrial Revolution builds on early ambitions from the North's leaders. By the North, for the North.

Northern Powerhouse Rail will:

- Bring millions more people, and hundreds and thousands of businesses, within reach of each of the key economic centres of the North by public transport. By 2050, nearly 10 million people in the North will be within 90 minutes reach of multiple economic centres in the North.
- Help treble the number of businesses able to access four or more cities or Manchester Airport within 90 minutes, from 70,000 today to 260,000 with Northern Powerhouse Rail.
- Deliver significant benefits to the North's economy and rebalance the UK by closing the productivity gap between the North and the rest of the country.
- Ensure that growth is delivered sustainably, building the market for rail travel by around four times the level seen today and taking up to 64,000 daily car trips off the road – equivalent to 800 million km per year.



➤ "Northern Powerhouse Rail provides viable options and solutions to the North's rail challenges. For too long, passengers and businesses have been held back by slower than average train speeds and poor connectivity between our city regions. If we're going to re-balance the UK's economy, this needs to be tackled head on."

Tim Wood
Northern Powerhouse Rail Director

The need for change

The North is currently held back from reaching its full potential, the economic value per person in the North (measured as GVA) has consistently been around 15% below the UK average.

The Northern Powerhouse Independent Economic Review identified that poor links and under investment in transport is one of the key factors contributing to the economic gap. The North currently has a lack of reliable and fast rail connections across its major city regions, with the average rail speed just 54mph.

Demand for rail has rocketed during the last two decades, and passenger numbers are forecast to continue increasing. Even with the improvements to capacity from the existing rail programme, forecast growth on the rail network in the North will lead to significant crowding by 2033 on some parts of the network.

After this point, if there is no further investment, unsustainable levels of crowding and congestion could persist under the different economic scenarios considered in our Strategic Transport Plan up to 2050.

Northern Powerhouse Rail is a 'whole network' approach that aims to address these challenges, providing more

capacity for both passengers and freight, while improving journey times and connectivity.

Better connectivity between places is central to bringing people and businesses closer together to deepen labour markets and improve opportunities for trade. Conventional rail is the best way to get significant numbers of people directly to and from the centre of an urban area as quickly and reliably as possible.

Access to multiple economic areas is central to achieving the collaborative, unified economy needed to grow the North and rebalance the UK economy.

But the North is currently held back by its infrastructure. Analysis by Network Rail of city-to-city commuting patterns in the UK shows that the level of commuting between the Northern cities is lower than expected. The analysis also demonstrates the disparity between access to jobs in London compared with other cities. For example, the average number of jobs accessible within 60 minutes by rail available to someone living in the North West is 187,000 compared to 1.7 million for someone living in London.

In addressing the above, Northern Powerhouse Rail will help transform opportunities in the North.



The average speed between key cities in the North today by rail amounts to around **54 mph** - only **9 mph** faster than road.



In 2011, almost **500,000** commuters travelled over **30km** to work in London daily – double the number who commute that distance across all **six major city regions** in the **North**.



The current journey time from **Liverpool** to **Newcastle** takes almost **3 hours** (2 hours 57 minutes). In that time you could fly from **Liverpool** to **Lisbon**.

A modern network for the North

The Northern Powerhouse Rail proposals represent a coherent network that will transform rail services across the North, providing a world class investment and infrastructure for seamless rail travel across the North as part of the Long-Term Rail Strategy.

The Northern Powerhouse Rail development programme is considering a number of options including:

- Faster and more frequent links between Liverpool and Manchester Piccadilly via Warrington and Manchester Airport, including integrated hub stations at both Liverpool City Centre and at Manchester Airport serving HS2, Northern Powerhouse Rail and local services.
- A new hub station at Manchester Piccadilly.

- Faster links between Manchester and Leeds, via a new line serving Bradford*.
- Significant upgrades along the corridor of the existing Hope Valley Line between Sheffield and Manchester** (via Stockport).
- Leeds-Sheffield delivered through HS2 Phase 2b and upgrading the route from Sheffield to/from the North.
- Leeds-Newcastle via a junction off HS2 and significant upgrades to the East Coast Mainline corridor (via York, Darlington and Durham).
- Significant upgrades to the existing lines from Leeds to Hull (via Selby) and Sheffield to Hull (via Doncaster).

*Upgrades akin to a new line via Huddersfield are also being assessed, including options for serving both Bradford and Huddersfield.

**If the evidence demonstrates that significant upgrades to the Hope Valley corridor do not look promising in terms of moving towards the transformational outputs, we will consider the case for, and further assessment of, a new line between Manchester and Sheffield.



Emerging vision for the Northern Powerhouse Rail 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



Legend:

- Northern Powerhouse Rail - upgrade line
- Northern Powerhouse Rail - new line
- Linking Liverpool to HS2
- HS2 line
- TransPennine Route Upgrade
- Existing line
- Northern Powerhouse Rail hub station
- Largest Intermediate Stations

Alternative concepts will continue to be assessed between Liverpool - Manchester, Manchester - Sheffield and Manchester - Leeds as part of taking forward the Strategic Outline Business Case for the programme. Map shows only railway lines which interact with Northern Powerhouse Rail. The Department for Transport and HS2 Ltd are also assessing concepts for a HS2 parkway serving South Yorkshire.

Faster and more frequent journeys

One of the overall benefits of Northern Powerhouse Rail is improved journey times between major economic centres in the North, bringing more people within the catchment area of one or more Northern cities. The current forecast frequencies and journey times across the network are shown below.

	Corridor concepts under consideration 	Best current		Best potential with Northern Powerhouse Rail*	
		frequency	minutes	frequency	minutes
Newcastle - Leeds	Infrastructure upgrades	3	88-95 [†]	4	58
Leeds - Hull	Infrastructure upgrades	1	57	2	38
Sheffield - Leeds	Infrastructure upgrades and use of HS2	1	39-42	4	28
Sheffield - Hull	Infrastructure upgrades	1	80-86	2	50
Manchester - Sheffield	Infrastructure upgrades	2	49-57	4	40
Leeds - Manchester	A new line serving Bradford via Parkway or centrally Diggle Upgrades Akin to New Line	4	46-58	6	25
Liverpool - Manchester [‡]	A new line via Warrington Southern Parkway or centrally A Fiddlers Ferry upgrade via Warrington	4	37-57	6	26 [‡]

* Journey times will depend on the final engineering options, the strength of the business case, and what can be timetabled in practice.

[†] Typical journey times via York, Darlington and Durham. Fastest current journey time is 81 minutes.

[‡] Liverpool - Manchester via Warrington, journey time includes a call at Manchester Airport. A non-stopping service would take 21 minutes.

Benefits for the North and beyond

The Strategic Outline Business Case demonstrates the scale of opportunity – delivering a step change in access across the North and beyond. It outlines how Northern Powerhouse Rail will bring:

Improved connectivity to labour markets

More people will be able to commute between and within different areas, with a stronger propensity to travel outside traditional commuting areas in the North. People can get a job that better suits their skills, leading to improved productivity.

Improved business to business connectivity

Businesses will effectively be brought closer together, facilitating interactions by reducing travel times and costs. In the long-term, businesses may also decide to relocate to places that are better connected, leading to physical clustering of businesses.

Access to universities, research and education

Northern Powerhouse Rail will support innovation and research collaboration between businesses and academic institutions across the North. Providing more choice for students, it will also improve access between businesses and key centres of innovation – building on the North's centres of excellence such as energy and advanced manufacturing.

International connectivity benefits

Businesses within the North's prime and enabling capabilities rely heavily on international connectivity to compete effectively for investment. Much advanced manufacturing, for example, is reliant on-air freight for just in time supply chains and the export of low-volume, high-value products. Moreover, continued success in higher education will depend in part on the ability for students and researchers from across the world to easily access the North's world-class universities.

Improved freight connectivity

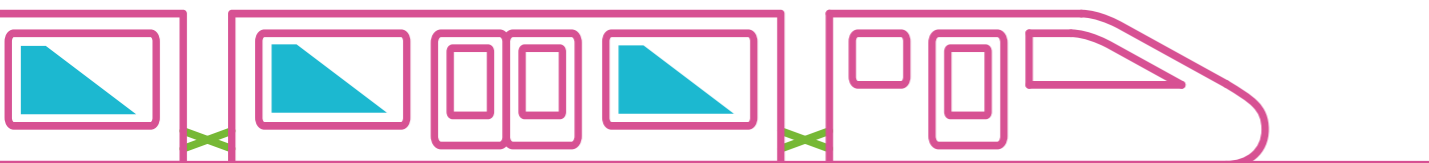
Northern Powerhouse Rail is likely to release rail capacity that can be used to transport freight, enabling increased volumes of freight to be transported in a more efficient way. This will lead to environmental benefits, increased inward investment, and housing and land release, which will each have a positive overall impact on the economy. This could also make greater use of the North's ports. Having more containers being moved by rail will reduce congestion on the existing crowded road and rail infrastructure, especially on the East-West routes.

Improved connectivity for tourism and culture

The dynamic and growing visitor economy means that Northern Powerhouse Rail will further support and facilitate growth in the off-peak and weekend leisure markets. Existing tourist destinations outside of the Northern cities will also benefit from Northern Powerhouse Rail. Journey times to Scarborough, Blackpool and other critical tourist economy destinations (such as key gateways to the national parks) will be significantly improved not only providing Gross Value Added (GVA) and employment growth but also maintaining and enhancing quality of life.



Manchester Airport sits at the heart of the integrated Northern Powerhouse Rail and HS2 network. A new airport station will provide faster, more frequent journeys between the airport and a wide range of destinations across the North. The combined impact of HS2 and Northern Powerhouse Rail will mean that the population of the North are able to access the new Manchester Airport Station within an hour increases from 2 million today to 4.7 million, and within 90 minutes by 4 million to 8.7 million – over half of the North's population.



Unlocking local growth

In bringing people, places, business and public institutions closer together, Northern Powerhouse Rail represents a clear opportunity to transform the way economic centres are used. It will also facilitate regeneration and development opportunities and create dynamic and attractive places.

Northern Powerhouse Rail aligns closely with the development plans of the towns and cities being served by the network. It is now being embedded into local economic plans, HS2 Growth Strategies and Local Industrial Strategies. Further investment in local and pan-Northern connectivity - set out in our Strategic Transport Plan and Investment Programme - is needed to fully connect Northern Powerhouse Rail to the North's economic assets and clusters to support the delivery of the Strategic Transport Plan.

Below are some of the locational benefits that Northern Powerhouse Rail will deliver:

- ✎ **Hull** - Over 30,000 businesses and over one million more people will be within 90 minutes' reach of the city. Hull's connections to the rest of the North's economic centres will be dramatically improved.
- ✎ **Leeds** - More than 4 million people and 135,000 extra businesses will be within 90 minutes' reach of Leeds and the programme will see greater capacity and significantly higher speeds on the network than today.
- ✎ **Liverpool** - A dramatically improved network operating with greater capacity and significantly higher speeds with a link to HS2. Nearly three million more people will be within 90 minutes of the city centre.
- ✎ **Manchester** - The programme will see new and faster connections to Leeds via Bradford as well as vastly improved connections to Sheffield and Liverpool. Nearly 100,000 extra businesses and over one million more people will be within 90 minutes' travel time of the city centre.
- ✎ **Newcastle** - 15,000 extra businesses and 300,000 more people will be within 90 minutes of Newcastle. The network will operate with greater capacity and speed using the HS2 ECML connection south of York to Leeds.
- ✎ **Sheffield** - Over 100,000 more businesses and three million more people will be within 90 minutes' reach of the city.

Bradford is a £10.5 billion economy, the fifth largest in the Northern Powerhouse, and home to half a million people. The transport connectivity is currently poor, with journeys taking over an hour between Bradford and Manchester. Northern Powerhouse Rail is central to unlocking opportunity and transformational growth in Bradford. These economic benefits can only be realised if Bradford is served directly, which is why the North's clear preference is a new line between Leeds and Manchester via Bradford rather than further upgrading the existing line via Huddersfield. A number of options for serving Bradford are under consideration, but the key options are a city centre station and a parkway south of the city centre at Low Moor.



An integrated approach

Both Northern Powerhouse Rail and HS2 are integral to the North's future rail network and it is essential that they are planned as part of the wider network, and not in isolation.

There is now a clear opportunity to ensure that, alongside Transpennine Route Upgrade and improvements to the East Coast Main Line, HS2 and Northern Powerhouse Rail deliver a transformation in rail that can be spread across the whole of the North.

Using available capacity for trains on HS2 infrastructure, with the addition of junctions, will help deliver the following Northern Powerhouse Rail outputs:

- ✎ Improved capacity and connectivity for Liverpool, Warrington and Manchester Piccadilly by connecting onto the HS2 Manchester spur. This will also significantly reduce journey times between Liverpool and Manchester Airport and provide a faster route between Liverpool, Warrington and London services.
- ✎ Improved journey times and service frequencies between Sheffield and Leeds using the HS2 eastern leg. A junction at Clayton has already been included in the scope of HS2 Phase 2b to enable future Northern Powerhouse Rail and HS2 services from Sheffield Midland station to connect onto HS2 to travel towards Leeds.
- ✎ A junction at Garforth to enable services from the West to connect onto HS2 to the east of Leeds, connecting Manchester and the North West to the North East.
- ✎ A new integrated hub station at Manchester Piccadilly.

This approach means regional and local rail services will extend the reach of HS2 and Northern Powerhouse Rail by offering connections via hub stations to places not directly served.

Together, the Transpennine Route Upgrade, HS2 and Northern Powerhouse Rail will significantly transform journey times right across the North for a range of key economic centres. For example:

- ✎ Journey times from Middlesbrough will be faster by 40 minutes to Manchester and 50 minutes to Liverpool. Sunderland services to Manchester, which are currently around 3 hours, will be nearly an hour faster.
- ✎ With the Transpennine Route Upgrade and HS2 in place, journey times from Darlington and Durham will be around 20 minutes quicker to Manchester, and around 45 minutes faster to Crewe. With Northern Powerhouse Rail that improves further to 50 minutes and 70 minutes, respectively.
- ✎ York to Crewe currently takes around 2 hours 30 minutes. With the Transpennine Route Upgrade and HS2 that reduces by 30 minutes, and with Northern Powerhouse Rail it will be one hour faster.



✎ "Our leaders had a vision to connect the North by rail like never before. In Northern Powerhouse Rail, we have turned ambition and passion into a robust evidence base for investment of up to £39 billion."

Tim Wood
Northern Powerhouse Rail Director

A landmark moment for the North

Our advice to Government

In February 2019, members of the Transport for the North board approved the high-level business case to be submitted to Ministers for consideration.

Alongside the Strategic Outline Business Case, they also issued statutory advice to Government. The statement acts as a powerful call to action from the North's civic and business leaders.

Long-term investment

Signal their full commitment to Northern Powerhouse Rail and ensure that the Treasury and Infrastructure Projects Authority assign the necessary long-term capital investment through the Spending Review.

Development funding

Commit the long-term development funding to ensure NPR develops towards the consultation and consents stage by the early 2020s, enabling the first phase of construction from 2024.

Design and implementation

Consider a significantly strengthened role for Transport for the North in the design and implementation of HS2 Phase 2b, TransPennine Route Upgrade and the Network Rail renewals programme for the North, to ensure all rail investment can be designed and delivered in a cohesive fashion.

Economic growth

Recognise the critical role of NPR in regeneration and growth, working with the NP11 (eleven Local Enterprise Partnerships from across the North) to refresh the Northern Powerhouse Strategy and provide funding to develop NPR Growth Strategies.

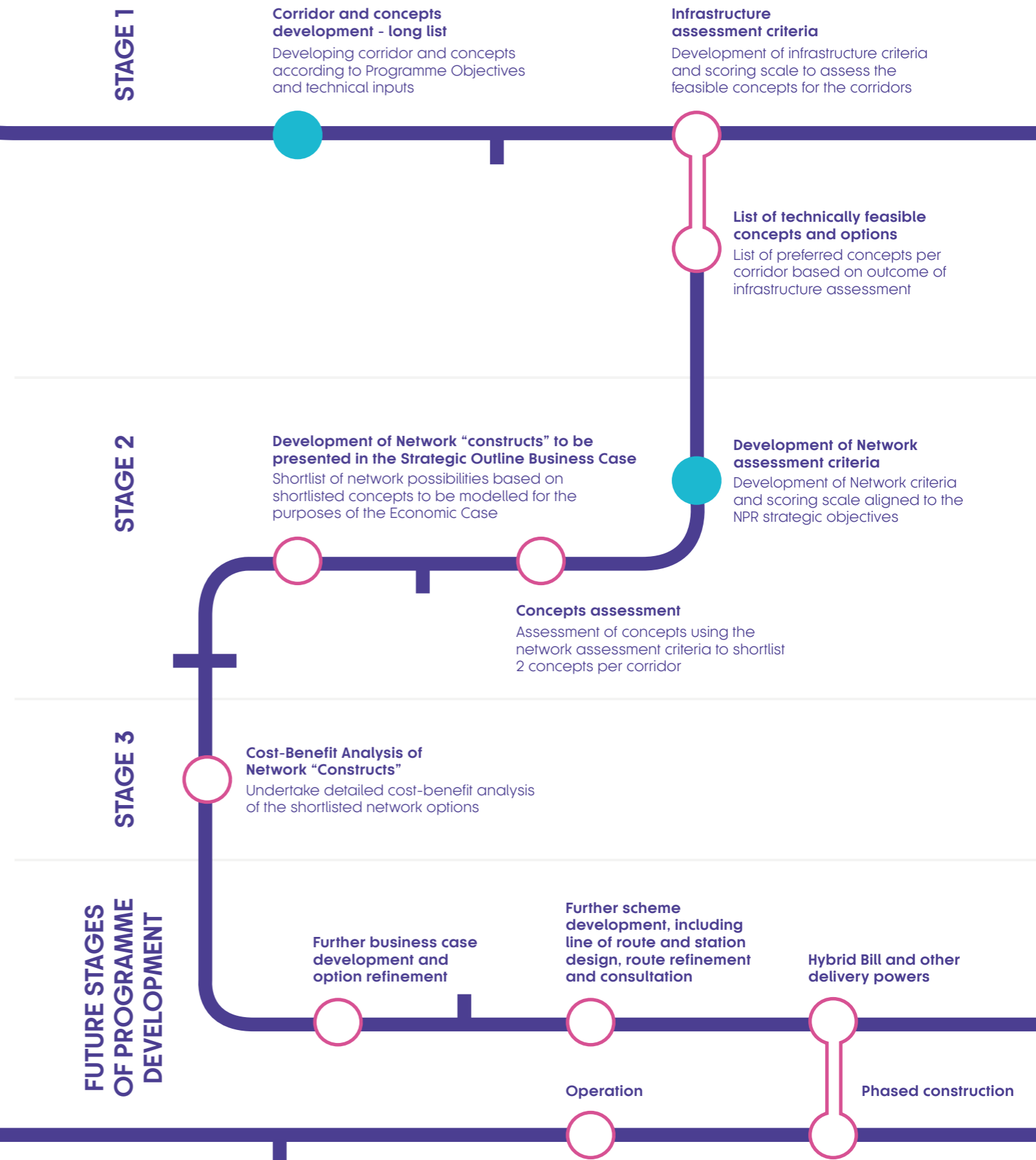
What happens next?

The approved Strategic Outline Business Case will be submitted for consideration by Ministers. The case will be used to inform long-term investment decisions, likely to be made by the Treasury during a future Spending Review.

We will continue to assess the available options for the network. The key stages of development and assessment for Northern Powerhouse Rail are shown on the next page.

Development of Northern Powerhouse Rail will continue at pace, with an additional £37 million of funding confirmed for 2019/20.

Northern Powerhouse Rail network development





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