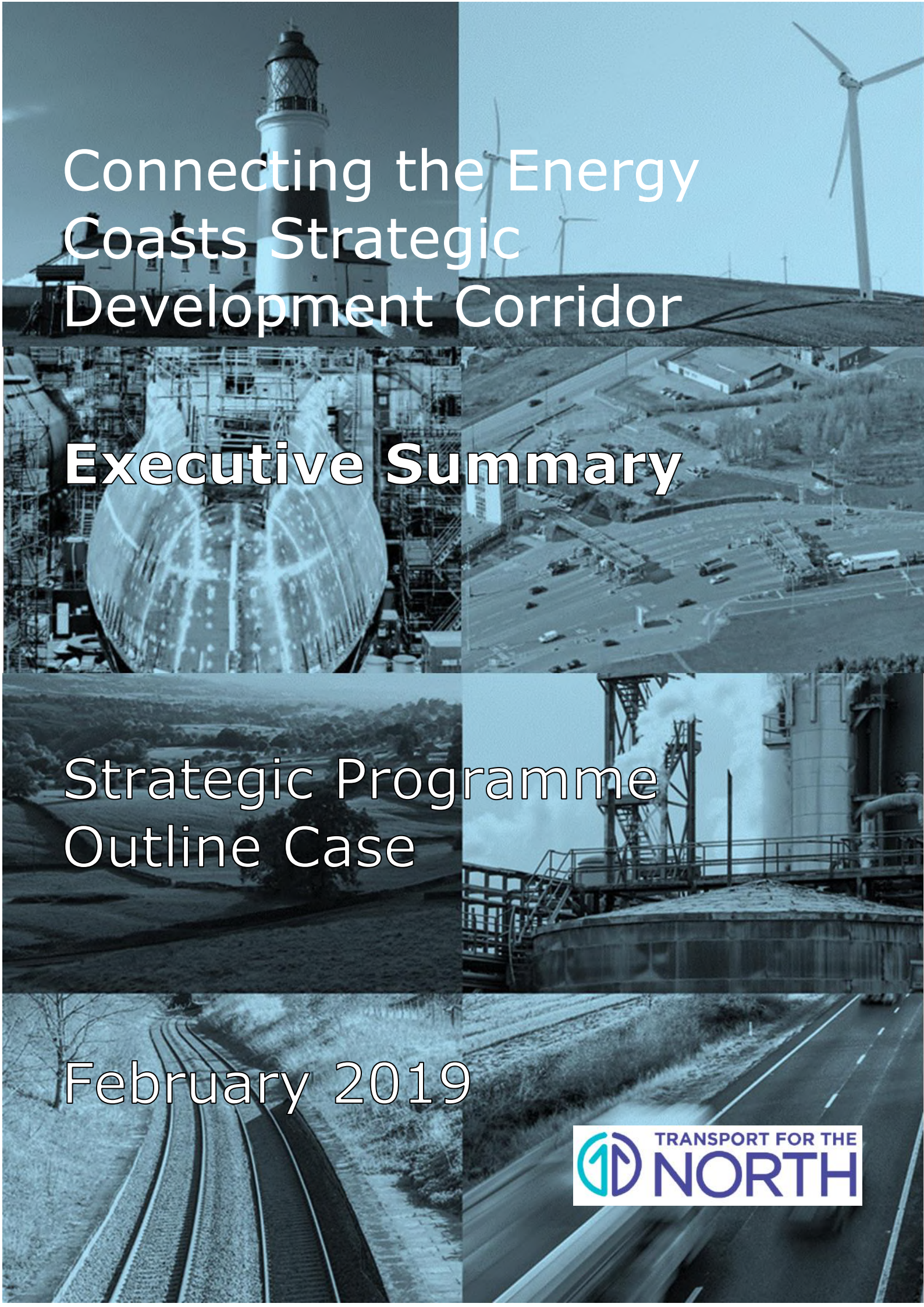

Connecting the Energy Coasts Strategic Development Corridor

Executive Summary

Strategic Programme Outline Case

February 2019

TRANSPORT FOR THE NORTH

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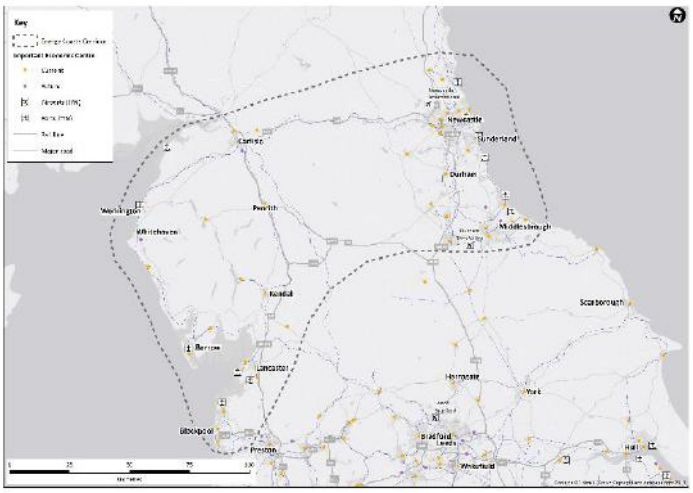
Further detailed evidence is available on TfN's website at:
https://transportforthenorth.com/

Executive Summary

Foreword



Dear reader,

I'm delighted to present this Executive Summary which explains the work that has contributed to the Connecting the Energy Coasts Strategic Development Corridor Report. The Strategic Development Corridors represent our approach to joining up the North like never before, better connecting businesses, improving access to jobs and leisure opportunities, and moving goods more efficiently. They are not traditional transport corridors, but economic eco-systems where supported by the right conditions, there are the greatest opportunities for re-balancing the economy, delivering a step-change in productivity and economic growth. They are fundamental to our Strategic Transport Plan, which you can read at: **www.transportforthenorth.com/onenorth**.

Connecting the Energy Coasts is one of seven corridors that aim to better connect the economic centres and natural assets of the North, improve links with our neighbours in Scotland, Wales and the Midlands, and enhance access to our international gateways. The reports we have produced are the first step in providing a compelling case for the North's Investment Programme. Further work will be required to refine this initial assessment, looking at how the economic case can be enhanced and exploring how delivery of the programme could be sequenced over time. Periodic reviews will also be required to keep the evidence up to date with changing economic and spatial plans, and emerging technologies.

This document is written for Northern citizens and businesses; as such it addresses the current bottlenecks, problems and constraints revealed by our in-depth understanding of the region – as well as identifying the future transport interventions required to achieve our vision.

To accomplish this, we have built an understanding and evidence base of local spatial planning proposals and the future growth aspirations of businesses, and how they could be met through improved transport infrastructure. Consideration has also been given to how potential advances in innovation and technology could support new and improved ways of connecting people and moving goods.

Our Strategic Programme Outline Cases for each Corridor provide the evidence base behind Transport for the North's Strategic Transport Plan and Investment Programme – our list of potential interventions to deliver a step-change in Northern transport, drive transformational economic growth, and improve opportunities for all.

It is the culmination of 18 months of consultation and collaboration with partners, stakeholders, businesses and transport operators across the north.

I hope you will find it an interesting, useful and compelling document for investment in transport across the north.

Peter Molyneux

Major Roads Director

Transport for the North

Why: The Case for Change

TfN's Overall Context

1.1 The significant and widening performance gap between the North of England and the rest of the UK has become evident, and will continue to grow unless action is taken to reverse this trend. To support transformational growth in the North, and subsequently increase the potential for national economic growth and rebalance the economy, a step-change in strategic transport infrastructure investment is required.

1.2 As England's first Sub-National Transport Body, Transport for the North (TfN) was established to transform the transport system across the North of England. It has a clear remit to plan strategic transport infrastructure required to support sustainable transformational economic growth in the North.

TfN's Objectives

1.3 In its Strategic Transport Plan (STP), published in February 2019, TfN sets out its vision of "*a thriving North of England where world class transport supports sustainable economic growth, excellent quality of life and improved opportunities for all"*. This vision is supported by four key Pan-Northern transport objectives:

Figure 1 TfN's Pan-Northern transport Objectives

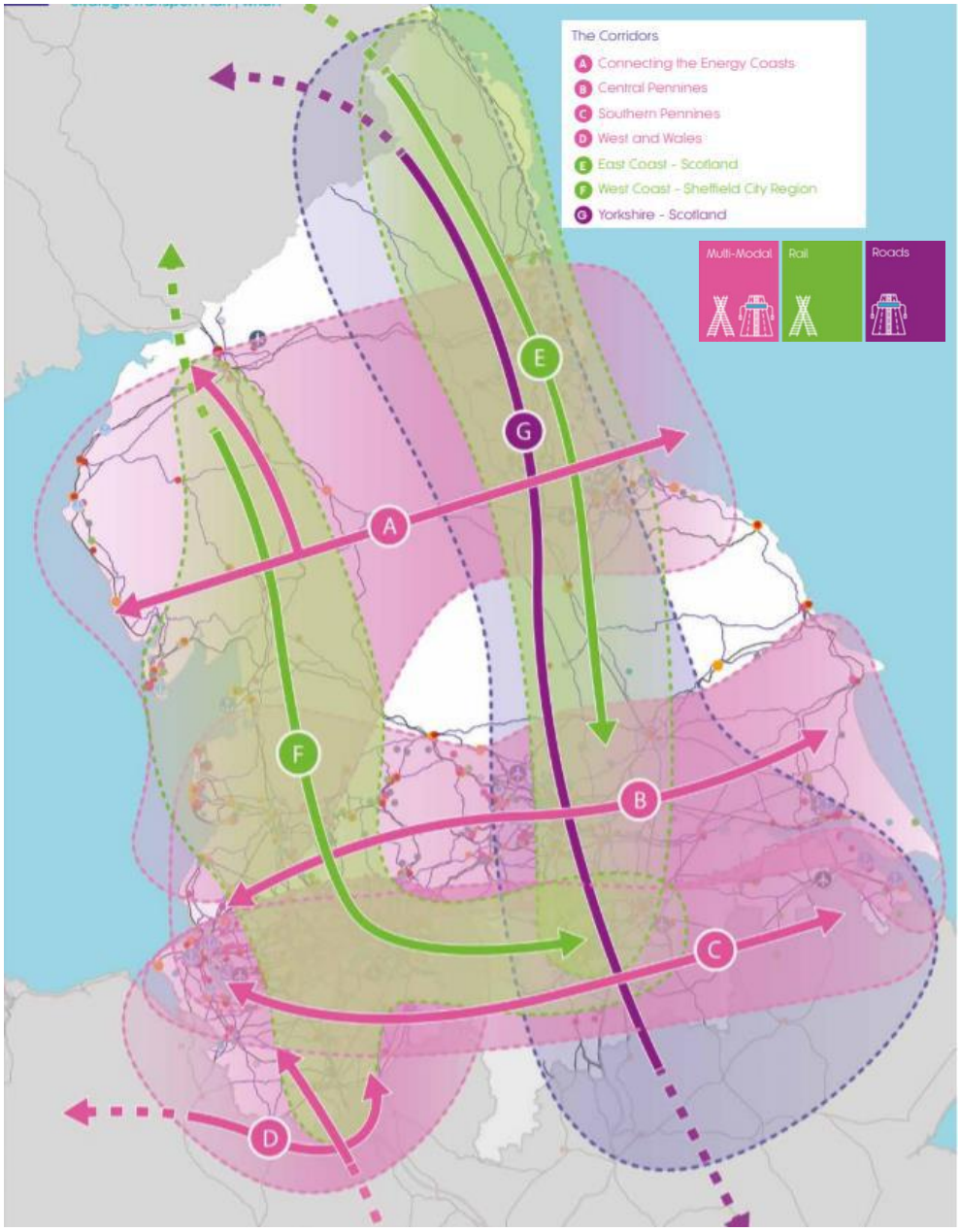
1.4 The Government is already funding a significant programme of transport interventions across the North. In addition, further investment is being planned by both central Government and local bodies. However, there is a need for a programme of further investments focusing on Pan-Northern connectivity priorities. This will realise the opportunities from major transformational infrastructure projects currently planned and being developed such as High Speed 2 (HS2) and Northern Powerhouse Rail

(NPR), achieving early benefits and ensuring that the wider programme maximises benefits to the whole of the North, and UK economy.

Strategic Development Corridors

1.5 Building on existing and proposed projects, the Strategic Development Corridors (SDCs) represent strategic geographical and economic areas with the strongest potential towards transformational growth in the North. Combining evidence from the 2017 Integrated Rail and Major Roads Reports, the STP identifies seven SDCs where evidence indicates that the delivery of transformational growth is dependent on bringing forward major road and rail investment.

Figure 2 - Strategic Development Corridors



Source: TfN Strategic Transport Plan – February 2019

1.6 The SDCs have been developed to represent where most of the largest gaps between demand and performance currently exist, and where there is likely to be the greatest economic potential for agglomeration between the prime and enabling capabilities[1] and the North's important Economic Centres[2].

1.7 TfN's remit is focused on the identification and recommendation of strategic transport interventions, which generally support longer distance trips and have a pan-northern impact. TfN will also work with partners to support complementary investment at a local level to ensure that a 'whole journey' and 'total network' approach to improving transport is followed.

1.8 This document presents a summary of the Strategic Programme Outline Case (SPOC) for Pan-Northern transport interventions in the Connecting the Energy Coasts SDC.

Connecting the Energy Coasts

1.9 The Connecting the Energy Coasts SDC aims to support the overarching objectives set out in the Strategic Transport Plan, key to which is:

Improving connectivity for people and goods between the nationally significant non-carbon energy and research assets located in Cumbria, Lancashire, North Yorkshire, the North East, and Tees Valley.

Strategic and Economic Context

1.10 The Connecting the Energy Coasts SDC, as shown in Figure 3, is an east-west corridor, broadly extending from Cumbria and North Lancashire through to the North East. It connects regionally important settlements such as Blackpool and Carlisle, to Middlesbrough and Newcastle-upon-Tyne.

1.11 There is a strong presence of the North's prime capabilities within this corridor. Building on this, and to support the transformational growth potential within this area, strategic objectives are orientated towards connectivity enhancements for people and goods and between advanced manufacturing and energy generation research centres and assets, towns and cities, ports and airports and strategically important visitor centres.

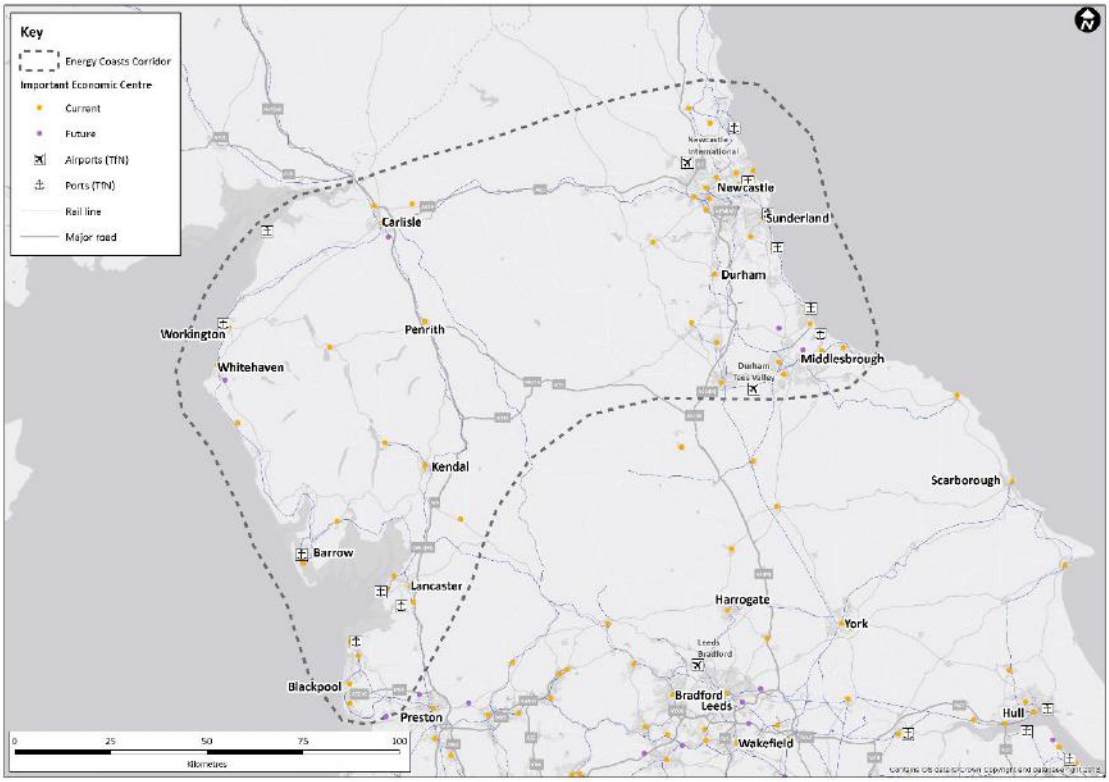
1.12 Fundamentally there is a clear recognition that these economic centres and assets need to be better connected within the corridor, as well as to the north-south transport corridors into Scotland and the rest of England. Recognising its strengths, potential and the need to be better connected, strategic transport investment in this corridor can support nationally

[1] The prime and enabling capabilities were identified in the Northern Powerhouse Independent Economic Review (2016). They have been identified as differentiated and distinctive at a Pan-Northern level, highly productive and able to compete at national and international scales. Prime and enabling capabilities are as follows: Advanced Manufacturing, Energy, Health Innovation, Digital, Financial and Professional Services, Logistics, and Education (primarily Higher Education)

[2] These are defined in TfN's Strategic Transport Plan

significant infrastructure investment. It can unlock opportunities for employment, support the supply chain, and housing construction, such as the proposed garden villages and international gateways. Enhanced connectivity will also support tourism and leisure connectivity to some of the North's natural assets, such as the National Parks.

Figure 3 Connecting the Energy Coasts SDC



Transport Context

1.13 Despite the range of strategically important activity in this corridor, it faces a number of transport constraints. Most significant are the poor east-west connections. This has an impact upon the ability of residents, business and visitors to access opportunities, and also the ability of this corridor to realise major investment opportunities and achieve wider agglomeration. It also prevents exploiting the full potential of the ports, airports and development proposals within this corridor; all of which are important to northern stakeholders. The challenges affecting this area act as a barrier within the corridor itself, but also in terms of movements across the north as a whole.

1.14 In this context, key issues include a lack of capacity and resilience issues, with limited route options meaning the impact of congestion or disruption on the road network are pronounced. The rail network is similarly affected by a lack of capacity, slow speeds and poor journey times, with issues pronounced on the Tyne Valley Line, Durham Coast Line, South Fylde Line, Cumbrian Coast Line, Furness Line and Lakes Line.

1.15 While the focus of this corridor is east-west, there are also important challenges surrounding the interface of east-west routes with the strategic north-south corridors, including the A1, M6, East Coast Main Line and West Coast Main Line. This point will be most pronounced following the introduction of HS2 and NPR and the need for of a series of connected and hub stations.

1.16 The majority of currently committed transport investment is located on the east coast to enhance connectivity across the North East linked to the A1 and A19, and A69 junction improvements at Corbridge and Hexham. To the west, investment has already been made on the Heysham to M6 Link Road. Aside from the planned investment on the A66 corridor between the A1(M) and Port of Tees and Hartlepool, this investment has focussed on north-south movements with clear gaps in the east-west connections and their resilience.

Environmental Assets

1.17 Environmental considerations and constraints include the Hadrian's Wall and Lake District National Park World Heritage Sites, Northumberland National Park, Northumberland Dark Sky Park. There are a number of significant assets within the study area. These include three National Parks, the Frontiers of the Roman Empire World Heritage Site and numerous Areas of Natural Beauty. It is important that the planning of new transport infrastructure respects the attributes of these locations they should also be viewed as an economic asset, supporting a major visitor economy and presenting a critical element of the Northern Powerhouse's offer.

Future Technologies and Societal Change

1.18 We are potentially at the start of profound change in how we move people, goods and services around. This is driven by innovation in engineering, technology and business models. The gathering pace of technological change through the delivery of higher speed and capacity digital networks, the connection and automation of vehicles, the adoption of robotics, zero emission propulsion, sharing of transport assets and new approaches to payment could transform travel and the provision and management of infrastructure and services. Whilst uncertain, technology has the potential to reduce the demand for travel as well enabling significant benefits to both those using the transport network and to network operators. Further work on transport interventions will need to take account of the potential impacts of technological and societal changes.

What would improvements mean for users

1.19 Transport investment has been shown to be a key enabler for growth in the North's economy which will bring benefits to people, businesses and the movement of goods while also unlocking new investment opportunities by:

- Connecting people – improving access to work opportunities, giving businesses access to a wider labour market, and improving access to leisure and tourism assets.

- Connecting businesses – improving connections to collaborators, clients and competitors, including those within the prime and enabling capabilities.
- Moving goods – supporting businesses to move freight and goods in efficient, multi-modal ways.

What: Identifying the Transport Interventions Required to Transform the Economy

Reference Case

1.20 Government is already funding a significant programme of transport interventions across the North. In addition, further investment is being planned both by Central Government and local bodies. This includes road investment schemes put forward by Highways England, transport schemes developed by combined and local authorities across the North, Pan-Northern schemes such as NPR being developed by TfN, and HS2, led by Central Government. It is therefore expected that significant investment in new transport infrastructure will be delivered in the coming decades to address connectivity challenges of the current transport system.

1.21 In this context, a Reference Case considered to be a 'do-minimum' scenario has been developed by TfN which includes both committed schemes and non-committed strategic interventions that can be reasonably expected to be delivered in the medium and long term and are necessary to achieve the North's economic growth aspirations.

1.22 Reference Case measures in this corridor include but are not limited to:

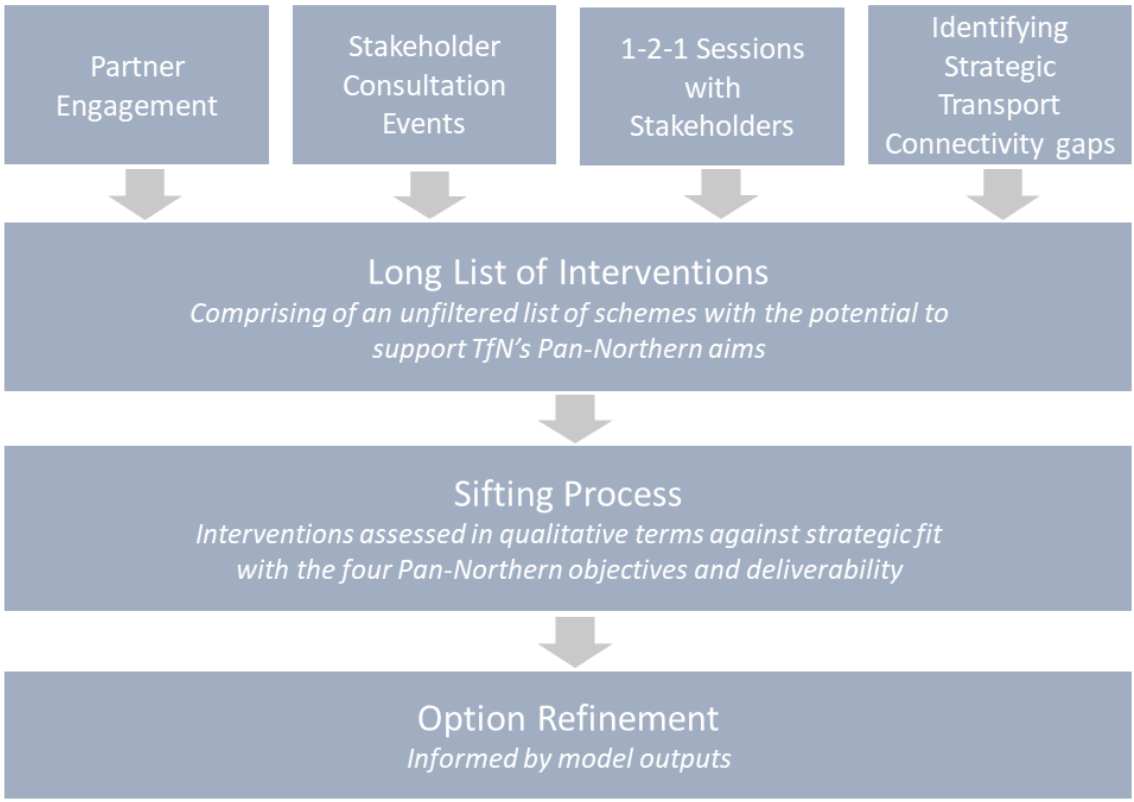
- **For Road:** Carlisle Southern Link Road, A595 Whitehaven Relief Road, A link between A591 and A6 North of Kendal, A595 Grizebeck Improvements, A585 Windy Harbour, new M55 J2, A69 Junction Improvements (Corbridge and Hexham), A66 Dualling Penrith to Scotch Corner, A1 North of Newcastle Improvements, A1 Western Bypass, Blyth Relief Road, Sunderland Strategic Transport Corridor, Durham Northern Relief Road, A66 Darlington Northern Link Road & New Tees Crossing.
- **For Passenger Rail:** Manchester – Preston Improvements, Northern Rail Franchise service enhancements, HS2 Phase 2b, East Coast Main Line power supply upgrade, Horden Peterlee station, HS2 Phases 1, 2a and 2b including all necessary station works to accommodate services, Northern Powerhouse Rail programme, North West Electrification programme, committed service frequency and rolling stock enhancements via franchising programme, Lakes Line improvements.

1.23 The programme of interventions put forward within this corridor has been developed to maximise the overall benefits of the critically needed schemes in the Reference Case and to improve the distribution of benefits across the North.

Pan-Northern Scheme Identification

1.24 A staged approach has been taken to the identification of Pan-Northern transport schemes in the corridor as shown in Figure 4.

Figure 4 Staged Approach to Pan-Northern transport scheme identification



Partner Involvement & Governance

1.25 Transport for the North is the voice of the North of England for strategic transport. Reflecting TfN's governance arrangements, partners have been engaged and have contributed to the development of the Strategic Outline Programme (SOP) for this corridor throughout its lifecycle. This includes participation and approvals during scheme identification, objective setting, sifting, option refinement and economic appraisal processes.

1.26 The Partnership Board includes representatives from the following organisations: combined authorities, local transport authorities and Local Enterprise Partnerships in the North, Department for Transport, Network Rail, Highways England, High Speed 2 Ltd. This board has provided direction, technical scrutiny and oversight throughout the development of the proposed set of interventions.

Key Pan-Northern Transport Outcomes and Programme of Interventions

1.27 Aligned to TfN's Investment Programme the key Pan-Northern transport outcomes desirable within the corridor are:

- Improve connectivity and resilience to West and South Cumbria from the M6/West Coast Mainline Corridor.
- Improve east-west Trans-Pennine connectivity and journey times.
- Improve access to international Gateways – Carlisle Lake District Airport, Newcastle International Airport, Durham Tees Valley Airport, Port of Workington, Port of Barrow, Port of Blyth, Port of Sunderland, Port of Tyne, Port of Tees & Hartlepool.
- Improve the connectivity and resilience of the key north south links between important economic centres on the eastern side of the Pennines.
- Improve connectivity and resilience to Tees Valley from the A1(M)/A19 and East Coast Main Line Corridor.
- Improve accessibility at key transport interchanges.
- Support the delivery of major new investments and growth.
- Support the continued growth of the visitor economy with improved access to key destinations.

1.28 The programme of interventions put forward within this corridor has been developed to maximise the overall benefits of the schemes in the Reference Case which will deliver both improved rail and highway outcomes contained within the corridor are summarised in Figure 5 and Figure 6 .

1.29 The transport interventions shown are indicative only at this stage. They are based on the level of evidence currently available at this very early stage of assessment. For many of the Reference Case schemes there remains a critical requirement to continue with the development of cases and to secure funding and TfN will work with partners to try and achieve that. It should also be pointed out that many of these interventions require further development and a positive funding decision before they can be delivered.

1.30 Delivery of these draft transport interventions should not be relied upon for planning and development purposes.

Figure 5 Strategic Outline Programme Proposal for Road

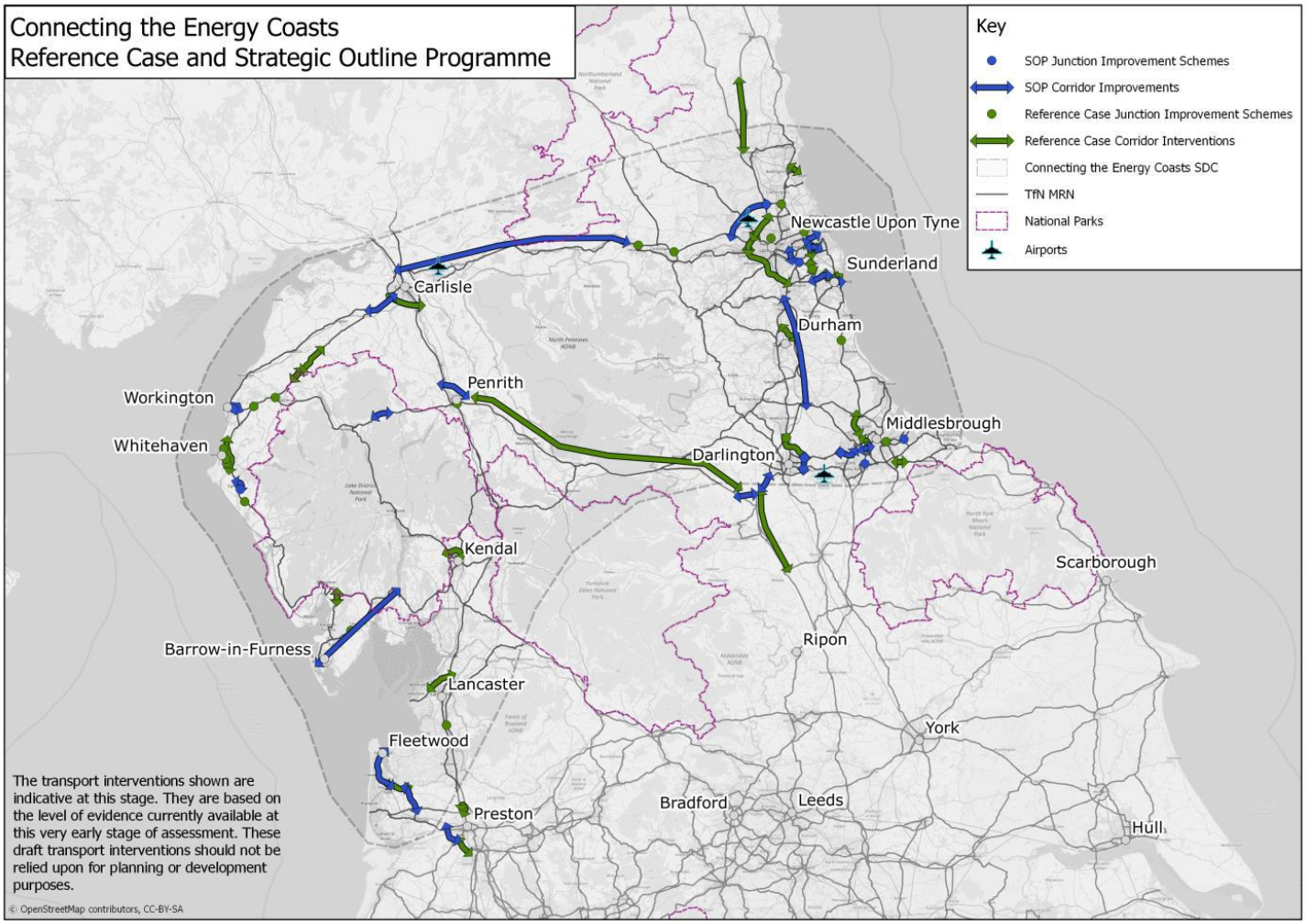
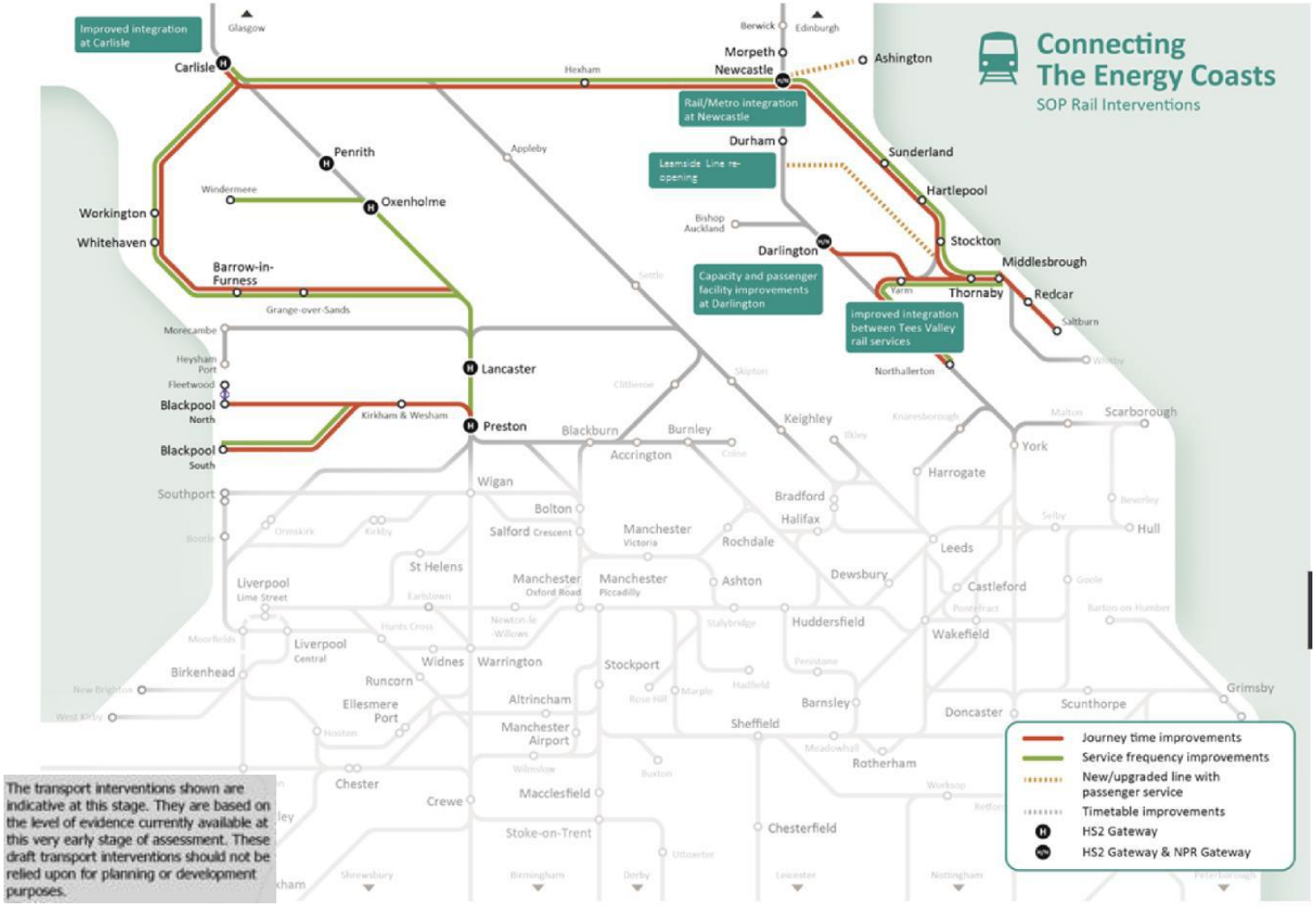


Figure 6 Strategic Outline Programme Proposal for Passenger Rail



Value for Money Statement

1.31 The Value for Money (VfM) Assessment summarises the monetised and non-monetised impacts of the appraised corridor interventions. Highways, passenger rail and road and rail freight are shown separately.

Appraisal of Highway Interventions

1.32 The appraisal of highway interventions in the Connecting the Energy Coasts SDC is based on the Department for Transport's standard forecasts and completion of Reference Case interventions. These are initial results, which will be re-evaluated as TfN take forward further work on modelling and appraising the SDC programme.

Table 1 Value for Money Assessment

Value for Money Assessment		
Established Monetised Impacts (journey times/operating costs):		
Established Monetised Impacts of appraised highway interventions £2,329m	Net Cost to the Transport Budget of appraised highway interventions £1,984m	Initial Ratio of Benefits to Costs 1.17
Initial Value for Money Category		Low
Evolving Monetised Impacts (plus wider economic impacts/reliability):		
Established + Evolving Monetised Impacts £3,144 - 3,201m	Net Cost to the Transport Budget £1,984m	Provisional Ratio of Benefits to Costs 1.58 - 1.61
Provisional Value for Money Category		**Medium**
Non-monetised Impacts A fundamental aim of TfN and Partners is to protect and enhance, where possible, the natural and historical assets of the North. The Energy Coasts SDC programme includes interventions that risk potential adverse impacts on environmental receptors, including designations of international to local value such as European designated wildlife sites, close to or within National Parks and Areas of Outstanding Natural Beauty and heritage assets, amongst others. These impacts will be carefully considered in subsequent stages of work and TfN and partners will seek to protect and enhance natural and historic assets, where possible, through the individual scheme development process. There, however, remains the potential for residual adverse impacts. The environmental disbenefits of additional travel in terms of noise, air pollutant and carbon emissions from transport, will offset some of the economy benefits captured within the provisional categorisation. Accordingly, given that the lower end of the range is close to the category threshold, it is concluded that an appropriate prudent overall categorisation is **Low Value for Money**, in which there can be commensurately higher certainty at this very early stage of scheme development.		
Adjusted Value for Money Category		Low

Appraisal of Passenger Rail Interventions

1.33 The passenger rail economic appraisal is at a northern level, so includes costs and benefits of appraised rail interventions within the Connecting the Energy Coasts corridor and within the other Strategic Development Corridors. Table 2 summarises the results of the rail appraisal.

Table 2 Summary of passenger rail economic appraisal

Established Monetised Impacts of appraised rail interventions £464m	Net Cost to the Transport Budget of appraised rail interventions £424m	Initial Ratio of Benefits to Costs 1.10[3]
Initial Value for Money Category		Low

Freight Benefits

1.34 The benefits of the programme of interventions for road and rail freight have been appraised using the Great Britain Freight Model and are reported at a GB and a Northern Level. The results, summarised in Table 3, provide a strong indication of the economic benefit of supporting freight growth in the North of England.

1.35 The freight scenarios that have been used include looking at the impact of larger ships, warehouse clustering and rail capacity. These scenarios cannot be aggregated together as they rely on particular economic conditions and private sector investment.

Table 3 Summary of Freight Benefits of the Strategic Outline Programme

Freight Scenario	Present Value Benefits (£million 2010 prices)[4]		
	Allocated to the North	Allocated Elsewhere	Total
Benefits of Highways SOP for the North (freight vans)	£3,020	£170	£3,190
Benefits of Highways SOP for the North (heavy goods vehicles)	£844	£195	£1,039
Benefits of re-routing interventions (Based on 4 additional rail freight routes)	£2,213	£3,789	£6,002
Benefit of removing rail freight capacity limits	£1,683	£4,080	£5,763

[3] Based on established monetised impacts only, which focuses on journey time savings to rail passengers, and evaluated using values from the May 2018 WebTAG databook.

[4] Benefits cannot be treated as cumulative or added directly to the assessment of highway and rail benefits

Freight Scenario	Present Value Benefits (£million 2010 prices)[4]		
	Allocated to the North	Allocated Elsewhere	Total
Benefit of warehouse clustering	£1,886	£3,731	£5,597
Benefit of Port measures (larger ferries)	£761	£1,929	£2,690

1.36 The approach to assessing passenger rail and freight interventions is detailed further in their Strategic Outline Programme Case documents and additional technical reports.

Summary of VfM

1.37 The costs and benefits demonstrated above show that the transport interventions appraised in our SOP represent value for money based on the evidence currently available, giving a justified basis for progressing the case for investment in this corridor.

Funding Requirement

1.38 The illustrative Strategic Development Corridor funding requirement for appraised (within the economic appraisal) and non-appraised interventions[5] is shown in Table 4. The indicative costs which underlie the funding requirements are based on high level benchmarked unit rate cost estimates appropriate for this early stage in the business case development cycle.

Table 4 Illustrative Funding Requirement (£ millions in 2017 prices)

SPOC	Appraised Programme	Non-Appraised Programme	Full Programme
Highway: Central Pennines	£7,144	£334	£7,478
Highway: Connecting the Energy Coasts	£2,158	£170	£2,328
Highway: Southern Pennines	£3,115	£583	£3,698
Highway: West and Wales	£3,281	£1,578	£4,859
Passenger Rail: North	£505	£6,100	£6,605
Sub Total[6]	£14,896	£8,575	£23,471
Programme Contingency (5%)			£1,174
Total Base Cost (including programme contingency)			**£24,645**

[5] TfN is developing the transport modelling tools to take forward further analysis and appraisal of the full programme of transport interventions.

[6] Double counting of interventions in more than one SDC removed.

SPOC	Appraised Programme	Non-Appraised Programme	Full Programme
Illustrative Total Funding Requirement (allowing for inflation)	**£40,000m to £50,000m[7]**		

1.39 This represents an ambitious but realistic funding requirement for a long term programme of transport investment, building upon the reference case schemes, to be delivered over the period up to 2050.

How: Delivering the Interventions

1.40 Reflecting TfN's governance arrangements, Department for Transport, Network Rail, Highways England and local TfN's transport authority partners have been engaged with, and have contributed to, the development of the Connecting the Energy Coasts SDC throughout its lifecycle including participation in the option assessment and economic appraisal processes.

1.41 The SPOC for the corridor provides a key part of the evidence base for TfN's Strategic Transport Plan and Investment Programme, which sets out TfN's priorities for investment in transport across the North.

1.42 TfN is accountable for owning the vision for the proposed programme and integrating and aligning it with the wider TfN Strategic Transport Plan, the wider Northern Powerhouse agenda and key government policies and strategies.

1.43 TfN will provide the overall direction, governance and leadership, including chairing the Programme Board, further developing, refining and sequencing the package of interventions to facilitate the implementation of the proposed programme. TfN's role is overarching, in order to maintain a healthy alignment between the programme and wider Departmental and Government strategies, while engaging with HM Treasury, Cabinet Office, the National Infrastructure Commission, Infrastructure and Projects Authority and other key governmental stakeholders. TfN will also be responsible for managing the key strategic risks facing the programme and ensuring that the views of the local authority partners are represented.

How TfN will take forward the Investment Proposals

1.44 TfN will lead on further business case development at the Pan-Northern/Strategic Development Corridor level, including seeking and prioritising funding for schemes. Beyond that stage, works and services will be procured by the appropriate delivery entity, yet to be determined. For example, this could include Highways England (for Strategic Road Network schemes), Network Rail and Local transport authority partners.

[7] Illustrative Funding Requirement - (most likely base cost 2017 prices

1.45 The programme of interventions proposed for the Connecting the Energy Coasts corridor includes many schemes, which will likely be delivered over a number of years. The timing of the delivery of interventions provides an opportunity for scheme promoters to ensure suppliers offer the correct skillsets as new framework and term maintenance contracts are let. More detailed market analysis will be undertaken as part of the next stage of works and updated as technologies in construction and within the complementary industries develop.

Next Steps

1.46 The proposed programme of interventions across the Connecting the Energy Coasts SDC comprises multi-modal investments to be delivered over time. The delivery of these schemes will require a comprehensive plan that carefully phases investment to ensure affordability, whilst balancing disruption, mitigation and enhancement of environmental impact and the realisation of benefits to the residents and businesses of the North of England. The interdependencies with committed schemes such as HS2 and programmed road schemes are also a key factor to consider when developing the delivery plan.

1.47 It is envisaged that a number of early 'priorities for delivery' will be taken forward to Strategic Outline Business Case status in 2019/2020 and delivered between 2020-2027. Overall, a programme of short (up to 2027), medium (2027-2035) and long term (post 2035) interventions will be developed.

1.48 In the next year, TfN plans to update the Strategic Programme Outline Cases to inform an update of the Investment Programme. This will complete the remaining SDCs, to at least Options Assessment Appraisal stage and will be start work on reviewing the current SDCs and Investment Programme, including the sequencing of schemes based on evidence and appraisal. The next stage of modelling will include transformational NPIER forecasts and the latest spatial planning information.

1.49 As in the first stage of development of the SDCs, TfN will fully engage with DfT, our local partners, national delivery bodies, transport operators and key stakeholders. This will ensure that partners' and stakeholders' contributions inform and help shape our delivery programme.