

An aerial night view of a city, likely Cardiff, with a glowing purple and blue outline of a corridor. The sun is visible in the upper left corner, creating a bright glow and lens flare effect. The city lights are visible in the lower right, and the surrounding landscape is dark.

Executive Summary

West and Wales Strategic Development Corridor

Strategic Programme
Outline Case

February 2019



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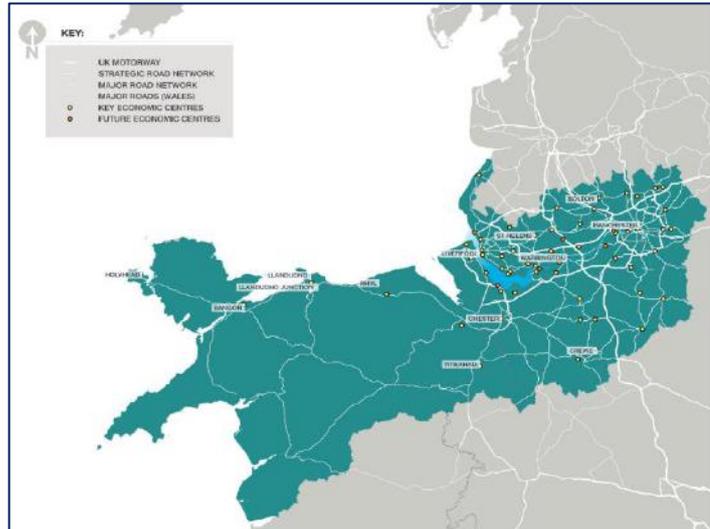
Background Documents

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 West and Wales 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 ecosystems 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.

West and Wales 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



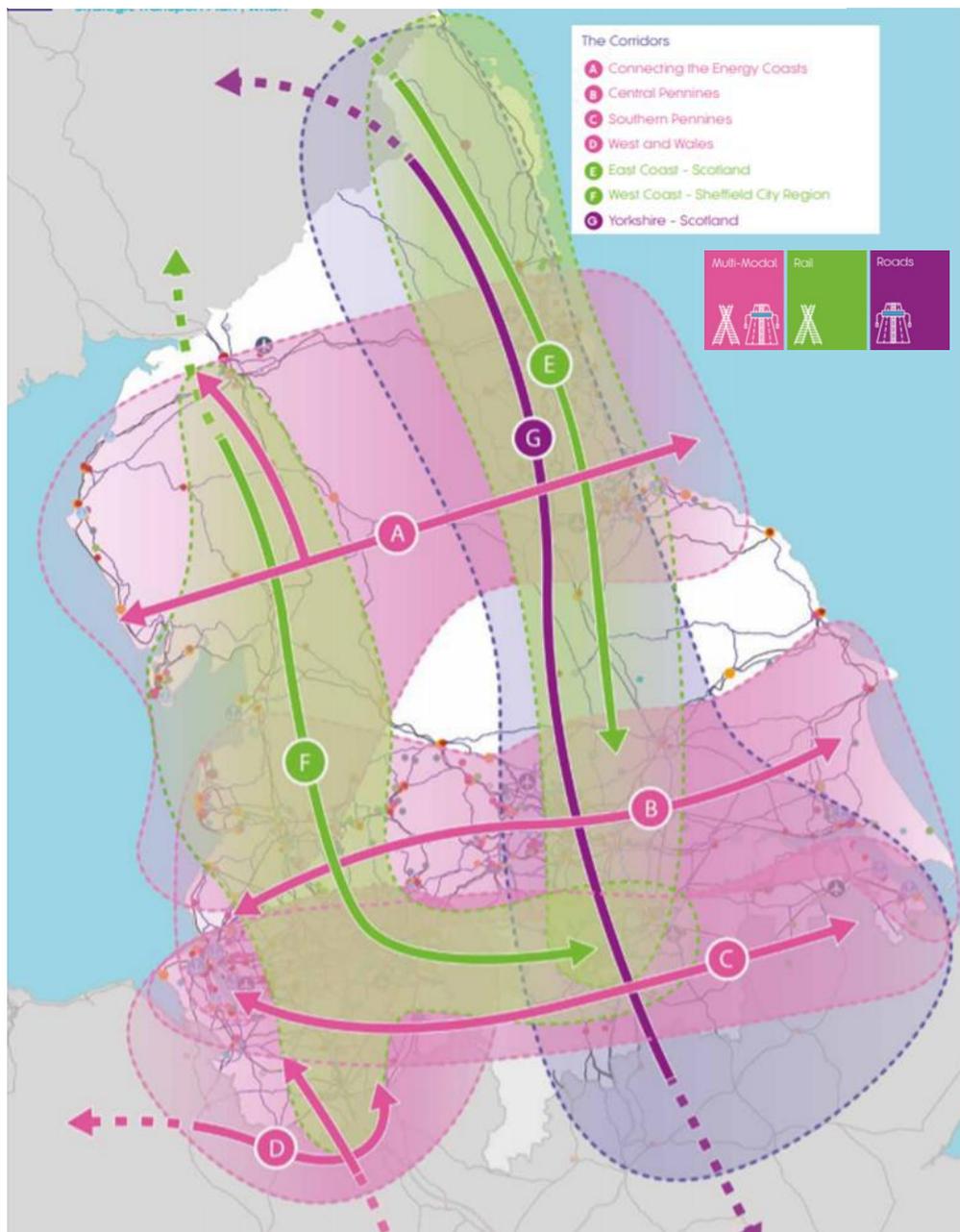
- 1.4 The Government is already funding a significant programme of transport interventions across the North. In addition, further investment is being planned by both central Government and local bodies. However, there is a need for a programme of further investments focusing on pan-Northern connectivity 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 capabilities¹ and the North's important Economic Centres².
- 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 West and Wales SDC.

The West and Wales SDC

- 1.9 The West and Wales SDC is one of the four multi-modal corridors covering the area of the Liverpool and Manchester city regions as well as Cheshire and North Wales. This corridor links densely populated economic centres and assets, including some of the North's largest cities such as Liverpool and Manchester and encompasses 25 local authority areas³. This corridor is home to 6 million people and 2.7 million jobs, about 9% of the UK population and 8% of jobs respectively.

Strategic and Economic Context

- 1.10 Within the West and Wales SDC, 52 economic centres have been identified as highly important to develop the Northern Powerhouse Independent Economic Review (NPIER) prime and enabling capabilities in the region. Figure 2 shows the widely dispersed distribution of these economic centres and hence the need for improved connectivity.
- 1.11 Significant economic and population growth is forecast within this corridor which will increase demand on transport infrastructure. Connectivity improvements can support the growth of key economic assets such as Manchester Airport, Liverpool John Lennon Airport, Cheshire Science

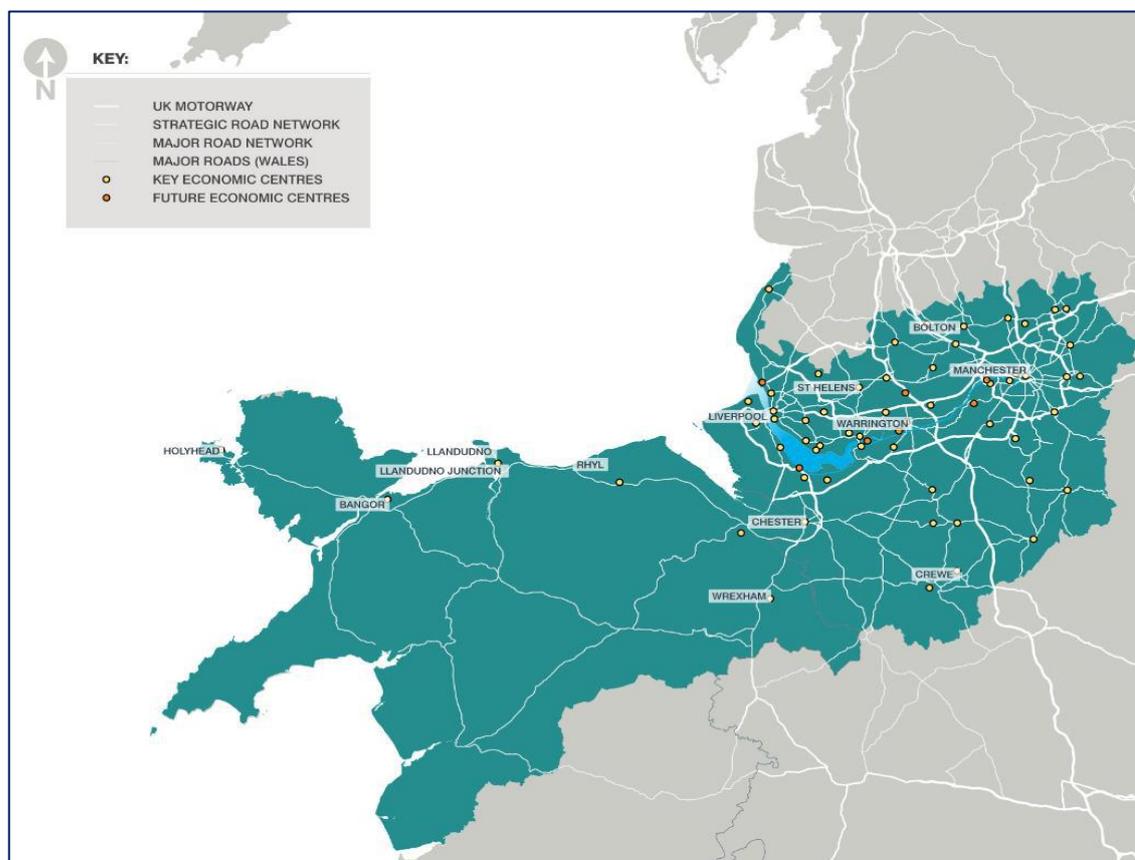
¹ The prime and enabling capabilities were identified in the Northern Powerhouse Independent Economic Review (2016) and are: Advanced Manufacturing, Energy, Health Innovation, Digital, Financial and Professional Services, Logistics, and Education (primarily Higher Education)

² These are defined in the TfN's Strategic Transport Plan

³ Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, Wigan, Halton, Knowsley, Liverpool, St. Helens, Sefton, Wirral, Isle of Anglesey, Gwynedd, Conwy, Denbighshire, Flintshire, Wrexham, Warrington, Cheshire East, Cheshire West and Chester

Corridor Enterprise Zones, Atlantic Gateway, North Wales Arc, Port of Liverpool, Holyhead Port and Crewe HS2 Hub.

Figure 3 West and Wales key economic centres and NPIER capabilities; source OAR



Transport challenges in West and Wales

- 1.12 The highway network within the West and Wales SDC largely reflects its central location within north west England, connecting a number of major economic centres on a north – south and east – west axis. The Strategic Road Network (SRN) performs a number of functions; not only linking the major economic centres contained within the geography, but also acting as nationally (and internationally) significant trade routes for movement to / from and through the SDC area.
- 1.13 The multiplicity of demands for travel on a constrained network create issues of poor performance on SRN corridors such as the M6, M56, the M62 and key radial routes on the Major Route Network (MRN) associated with the conurbations of Liverpool and Manchester. This has led to a widening of the notional peak periods for local movement, and a more sustained level of poor journey reliability for through movement. The physical geography of the West and Wales SDC also contributes to the performance of the network, with limited opportunities to re-route from the SRN during periods of closure, on account of limited high-level crossings of physical barriers such as the Manchester Ship Canal. As such, levels of resilience and recovery to incidents are poor, and currently have a detrimental effect on the economy of the north west.

- 1.14 The North currently has a modal share for rail commuting of 3.4%, defined both in terms of residence and workplace. This figure is comparable with rail mode share for the rest of England outside of London and the South East; however, it encompasses significant concentrations of activity around major cities such as Manchester, Liverpool and Leeds, where suburban rail networks improve the catchment considerably, as well as significant areas that have limited or no access to a regular service. As such, a relatively small (and geographically concentrated) proportion of the north's population use rail to commute, therefore presenting significant scope to support the growth of the economy.
- 1.15 The West & Wales SDC contains several low-speed, infrequent and unreliable intercity and interurban rail services, which serve to extend the perceived distance between important economic centres for commuters, and act as a barrier to travel. Furthermore, issues such as overcrowding and unsuitable rolling stock can make rail travel unproductive, effectively removing one of rail's key advantages over other modes. The poor perception of rail within the north, and specifically the West and Wales SDC serves to increase the pressure on the road network since travelling by car represents a major travel time incentive. (especially on east / west inter-urban services between Manchester, Warrington, Liverpool, Chester, and the North Wales Coast)
- 1.16 Crewe Hub station, a key rail node in the SDC which will play an increasingly important role for the UK rail network, also requires further investment to deliver the capacity and connectivity that other rail interventions will depend on. The station currently suffers from low resilience due to the present layout of the station. Improvements are needed to significantly increase the resilience of this key node.
- 1.17 Some of these transport challenges are also reflected in current cross-border commuting patterns in the West and Wales SDC. Although there is significant cross border movement in the immediate vicinity of the Mersey Dee area, the overall region is characterised by low inter and intra-regional commuting between North West Wales and North England. This shows that connectivity constraints may be hindering the expansion of local labour markets and agglomeration economies, having a negative impact on productivity and economic growth.

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.

What improvements mean for users and businesses

- 1.19 Significant economic and population growth is projected within the West and Wales SDC, which will increase demand on transport infrastructure. The programme of interventions proposed for this SDC will not only facilitate this growth, but it will also support the transformation of the economy and enable people and businesses to work within an integrated market across the entire region. It will also maximise and spread the benefits of major investments planned, such as HS2.
- 1.20 The proposed set of interventions will significantly improve user journeys by reducing delays, improving frequencies and decreasing congestion, overall achieving a more resilient transport system. This will improve access to employment and business to business interactions, leading to productivity improvements. The proposed programme of interventions is also expected to have a positive impact on freight connectivity, benefitting businesses in the SDC as well as the regional economy. Additionally, the programme will also facilitate mode shift from car to rail in some areas, improving thereby the environmental impact of transport in the SDC.
- 1.21 Overall, the proposed interventions in this SDC will be critical to maintain and attract the talent and businesses necessary for the successful economic development of the region.

What: Identifying the Transport Interventions Required to Transform the Economy

Reference Case

- 1.22 Government is already funding a significant programme of transport interventions across the North. In addition, further investment is being planned both by the UK and Welsh Governments, 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 as well as Welsh Government where applicable. 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.
- 1.23 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.
- 1.24 Reference Case measures in this corridor include but are not limited to:
 - **For Road:** Highways England's Roads Investment Strategy 1 schemes on the M6 and M62; Crewe HS2 Hub Access Package, M6 smart motorway; Middlewich Bypass, M6 Junction improvements, Warrington Waterfront Western Link, A6 to Manchester Airport Relief Road, Congleton Bypass, Manchester North West Quadrant SRN multi-modal

enhancements; A55 Northop to A494 Shotwick improvement via A548; M53 investment and junction improvements; A6 to M60 link; M56 Manchester Airport access improvements; M60 junction improvements; Transpennine Tunnel; M56 junction improvements.

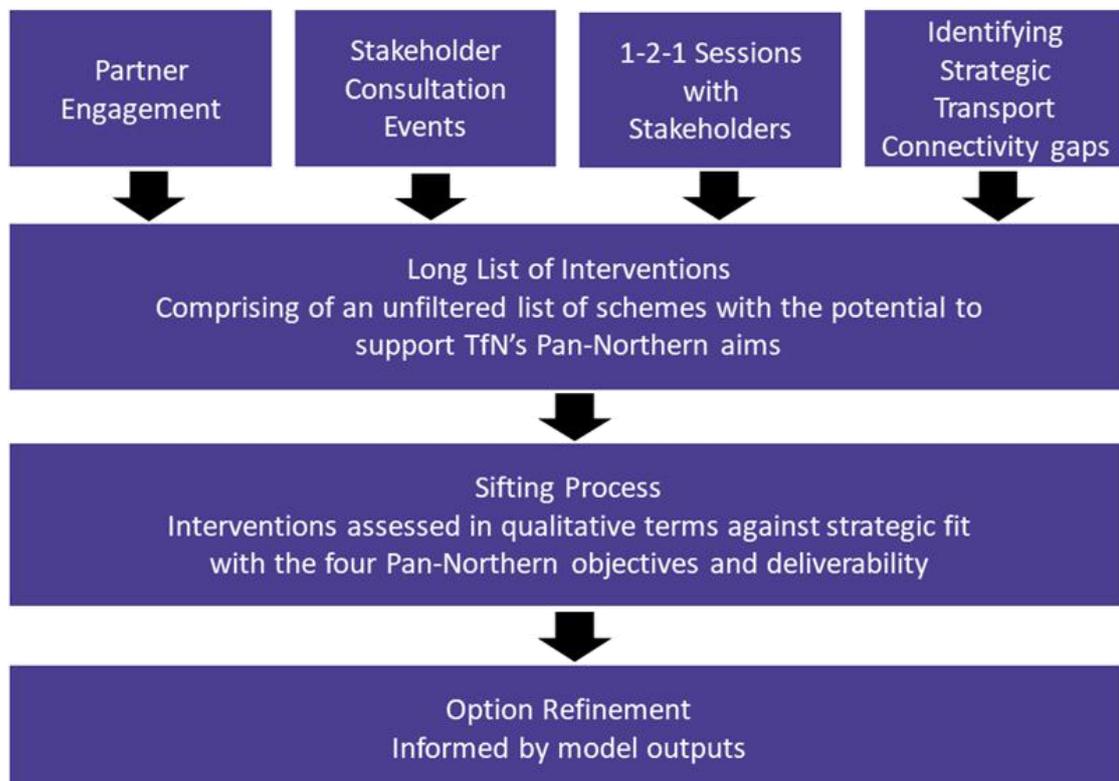
- **For Rail:** In the short term, the Reference Case includes the Transpennine Route Upgrade (including Intermediate Interventions), Liverpool City Region upgrades and Northern and Transpennine Express franchises.

- 1.25 In the medium to long term, necessary track alignment and station works to accommodate HS2 Phases 2a and 2b services at Crewe (including the “Northern Connection”) to maximise the benefits of the scheme for the region, Manchester Piccadilly and Manchester Airport stations. Northern Powerhouse Rail including improved rail links between major cities and Manchester Airport encompassing the interface with HS2.
- 1.26 The programme of interventions put forward within this corridor has been developed to maximise the overall benefits of the schemes in the Reference Case and to improve the distribution of benefits across the North.

Pan-Northern Scheme Identification

- 1.27 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

1.28 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.

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

1.30 Other partners specific to this SDC are the Welsh Government and Midlands Connect.

Key Pan-Northern Transport Outcomes and Programme of Interventions

- 1.31 Aligned to TfN's Investment Programme the key Pan-Northern transport outcomes desirable within the corridor are:
- Improving productivity across the North and improving links between the North's ports, airports, and strategic transport interchanges and the major transport networks for people and goods
 - Supporting, informing and influencing present and future land-use development in the North
 - Improving efficient operational performance of existing major transport networks and increasing the capacity and capability of the major transport networks for people and goods
 - Improving the reliability of the major transport networks for strategic transport movements of people and goods
 - Improving travel choices and user experience for the movement of people and goods across the North
 - Improving transport links between the North of England and North Wales as well as the Midlands



- Increasing the resilience of major transport networks
- Improving sustainable travel options and making best use of the North's existing major transport network.
- Supporting the reduction of transport-related Greenhouse Gas (GHG) emissions and improvement of air quality across the transport networks
- Reducing the impact of transport on local communities and environmentally sensitive areas
- Supporting the delivery of Transformational Infrastructure and employment projects
- Supporting and enhancing the visitor economy
- Supporting and enabling the delivery of strategic housing sites
- Supporting an affordable inclusive transport network with enhanced access to key opportunities, education and skills.
- Improving integration and coordination with local transport networks

1.32 The programme of interventions which will deliver both improved rail and highway outcomes contained within the corridor are summarised in Figure 5⁴ and Figure 6 and build on the Reference Case.

1.33 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.

1.34 These draft transport interventions should not be relied upon for planning and development purposes.

⁴ The demonstrated programme also includes interventions included in Partners' programmes and is not intended to represent potential alignments or routes

Figure 5 Strategic Outline Programme Proposal for Road (includes schemes promoted by Welsh Government)

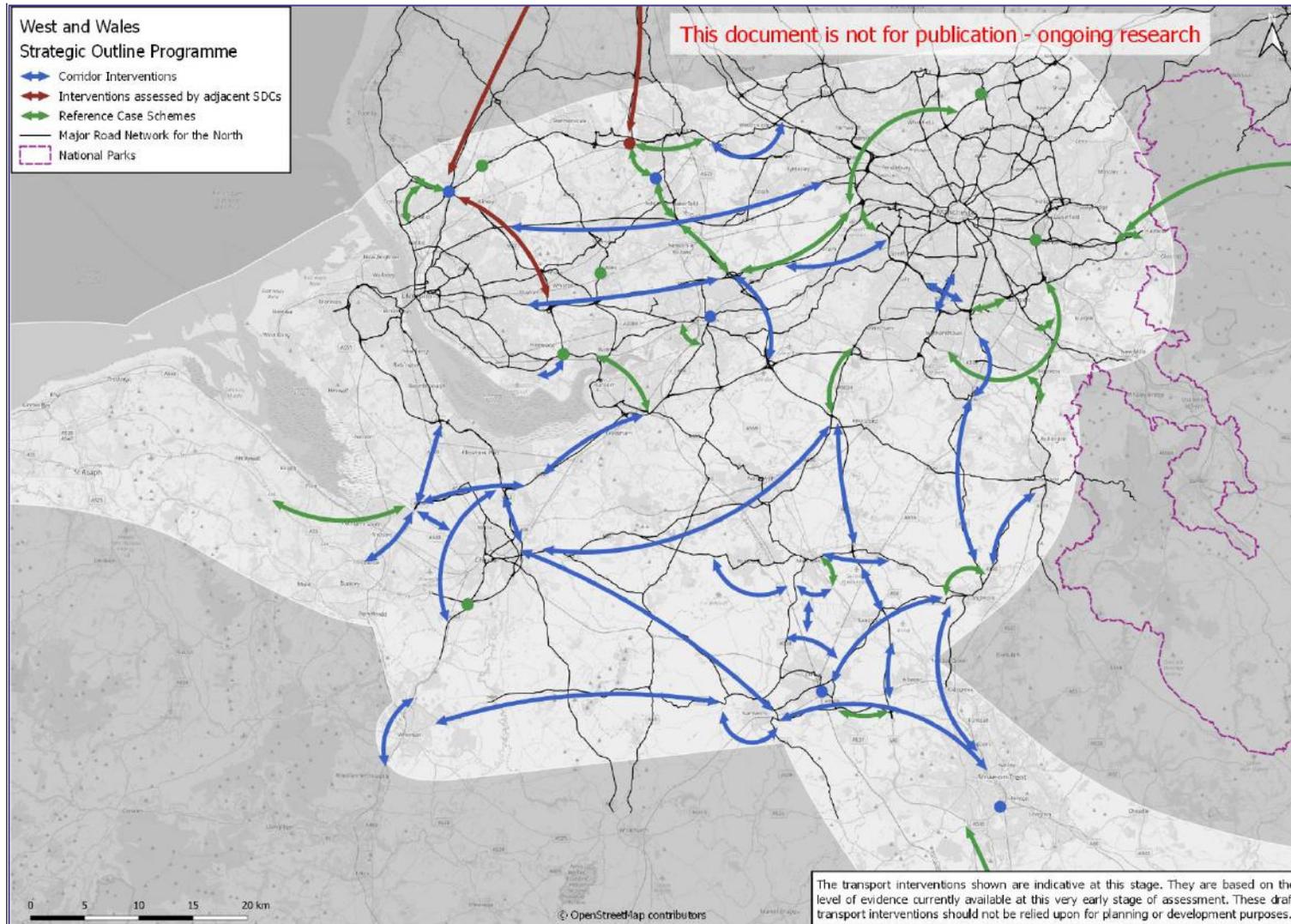
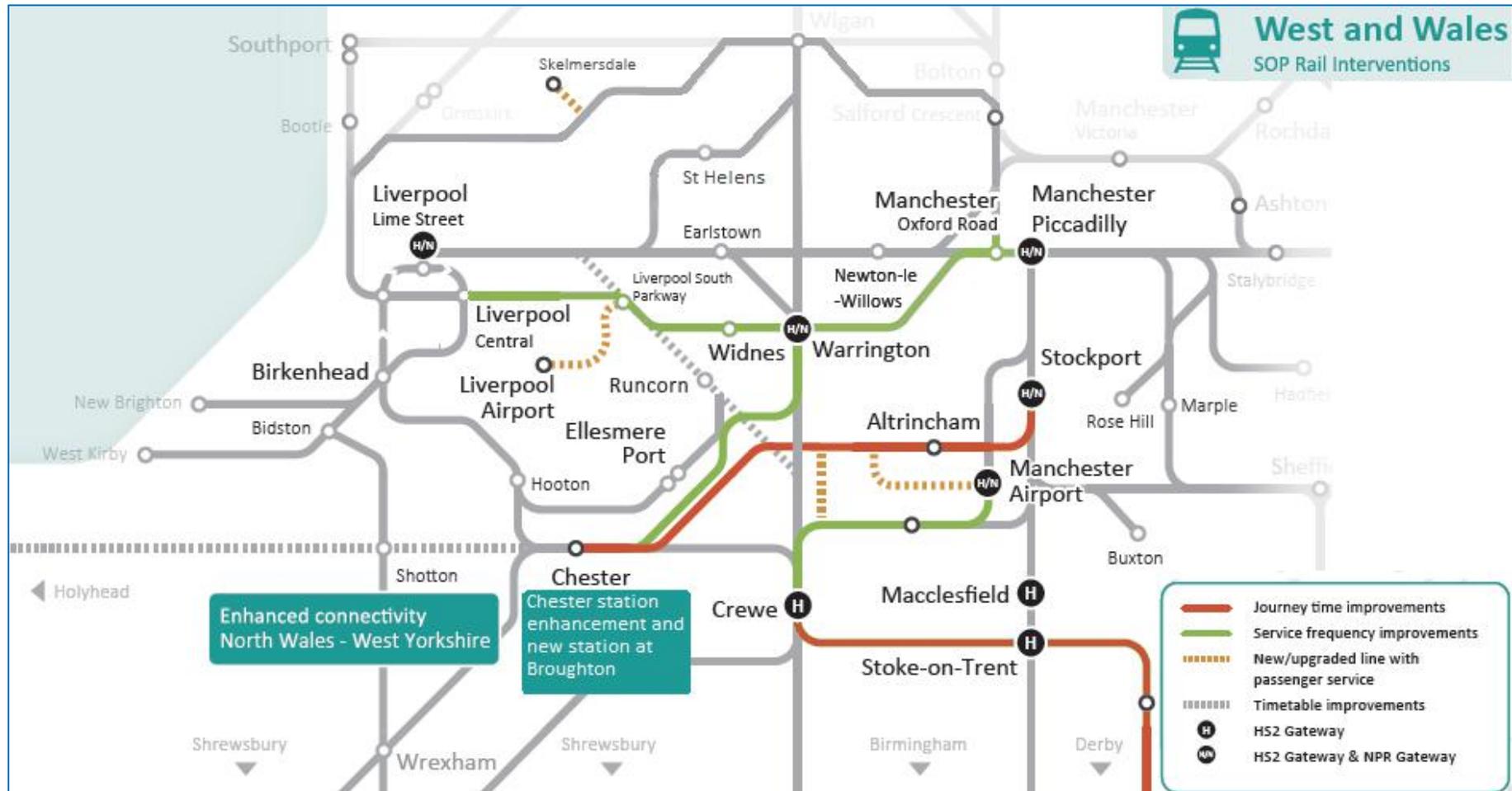


Figure 6 Strategic Outline Programme Proposal for Rail



Value for Money Statement

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

Appraisal of Highway Interventions

- 1.36 The appraisal of highway interventions in the West & Wales 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 Statement

Value for Money Assessment		
Established Monetised Impacts (journey times/operating costs):		
Established Monetised Impacts of appraised highway interventions £6,891m	Net Cost to the Transport Budget of appraised highway interventions £2,989m	Initial Ratio of Benefits to Costs 2.31
Initial Value for Money Category		High
Evolving Monetised Impacts (plus wider economic impacts/reliability):		
Established + Evolving Monetised Impacts £9,373m -£10,014m	Net Cost to the Transport Budget £2,989m	Provisional Ratio of Benefits to Costs 3.14 – 3.35
Provisional Value for Money Category		High
Non-monetised Impacts conclusion: At this stage of scheme development, high level environmental assessments have been undertaken, which when considered collectively, suggest a slight adverse effect as a result of the West and Wales SOP. A fundamental aim of TfN and Partners is to protect and enhance, where possible, the natural and historical assets of the North. Taking this into account and given the position of the BCR value within the High VfM category, it is not considered necessary to revise the VfM category following the consideration of the non-monetised impacts.		
Adjusted Value for Money Category		High

Appraisal of Passenger Rail Interventions

- 1.37 The passenger rail economic appraisal is at a northern level, so includes costs and benefits of appraised rail interventions within the Central Pennines 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 ⁵
Initial Value for Money Category		Low

Freight Benefits

- 1.38 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.

Table 3: Summary of Freight Benefits of the SOP

Freight scenario	Present Value Benefits (£m's- 2010 prices) ⁶		
	Allocated to the North	Allocated elsewhere	Total
Benefit of Highways SOP for the North (freight vans)	£3,020	£170	£3,190
Benefit of Highways SOP for the North (HGVs)	£844	£195	£1,039
Benefit of re-routing interventions (Based on 4 alternative rail freight paths)	£2,213	£3,789	£6,002
Benefit of removing rail freight capacity limits	1,683	4,080	5,763
Benefit of warehouse clustering	1,886	3,731	5,597
Benefit of Port measures (larger ferries)	761	1,929	2,690

- 1.39 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 Value for Money

- 1.40 The costs and benefits demonstrated above show that the transport interventions appraised in our SOP represent value for money based on the

⁵ 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.

⁶ Benefits cannot be treat as cumulative or added directly to the assessment of highway and rail benefits

evidence currently available, giving a justified basis for progressing the case for investment in this corridor.

Funding Requirement

- 1.41 The illustrative Strategic Development Corridor funding requirement for appraised (within the economic appraisal) and non-appraised interventions⁷ 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: SDC Illustrative Funding Requirement (£ millions in 2017 prices)

SPOC	Appraised Programme	Non-Appraised Programme	Full Programme
Highway: Central Pennines	£7,144m	£334m	£7,478m
Highway: Energy Coasts	£2,158m	£170m	£2,328m
Highway: South Pennines	£3,115m	£583m	£3,698m
Highway: West and Wales	£3,281m	£1,578m	£4,859m
Passenger Rail: North	£505m	£6,100m	£6,605m
Sub-Total⁸	£14,896m	£8,575m	£23,471m
Programme Contingency (5%)			£1,174m
Total Base Cost (including programme contingency)			£24,645m
Illustrative Total Funding Requirement (allowing for inflation)	£40,000 to £50,000⁹		

- 1.42 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

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

⁷ TfN is developing the transport modelling tools plan to take forward further analysis and appraisal of the full programme of transport interventions.

⁸ Double counting of interventions in more than one SDC removed

⁹ Illustrative Funding Requirement - (most likely base cost 2017 prices)

- 1.44 The SPOC for the West and Wales SDC provides a key part of the evidence base for TfN's Strategic Transport Plan and Investment Plan, which sets out TfN's priorities for investment in transport across the North.
- 1.45 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.
- 1.46 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

- 1.47 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 the Welsh Government, Highways England (for Strategic Road Network schemes), Network Rail and Local transport authority partners.
- 1.48 The programme of interventions proposed for the West and Wales 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

- 1.49 The proposed programme of interventions across the West and Wales 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 and Wales. The interdependencies with committed schemes such as HS2 and programmed road schemes are also a key factor to consider when developing the delivery plan.

- 1.50 It is envisaged that a number of early 'priorities for delivery' will be taken forward to SOBC 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.
- 1.51 In the next year, TfN plan to update the Strategic Programme Outline Cases to inform an update of the Investment Programme. This will include work on reviewing the current SDCs and Investment Programme, including the sequencing of schemes. The next stage of modelling will include transformational NPIER¹⁰ forecasts and the latest spatial planning information.
- 1.52 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.

¹⁰ Northern Powerhouse Independent Economic Review