



Strategic Development  
Corridors



Qualitative Sequencing



Draft Final Report



May 2020



## **Contents**

<b>1</b>	<b>Introduction .....</b>	<b>2</b>
<b>2</b>	<b>Qualitative Sequencing Framework .....</b>	<b>6</b>
<b>3</b>	<b>Reference Case Review .....</b>	<b>11</b>
<b>4</b>	<b>SDC1 SOP Schemes Removed from the Investment Programme....</b>	<b>15</b>
<b>5</b>	<b>Qualitative Investment Strategies .....</b>	<b>16</b>
<b>6</b>	<b>Assessment Outputs &amp; Next Steps .....</b>	<b>30</b>

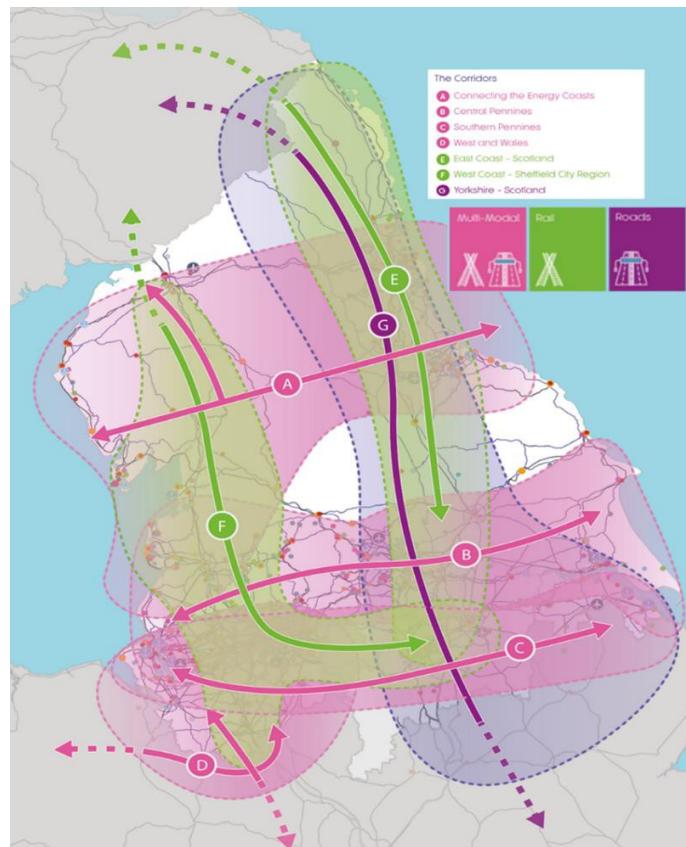
## **Appendices**

**Contained separately**

# 1 Introduction

## Strategic Development Corridors

- 1.1 The Strategic Transport Plan (STP)<sup>1</sup>, published in early 2019, was the culmination of an unprecedented collaborative effort between Transport for the North (TfN) and its Partners, that was underpinned by a long-term Investment Programme, which presented TfN's initial priorities for the North, to connect its regions based on economic strengths and addressing current constraints.
- 1.2 The Strategic Development Corridors (SDCs) reflect the views of TfN and its Partners, bringing regions together to consider transport solutions at a macro level to present a more strategic view of transport investment that connects the economic assets across the North, both internally to create an economic mass, but also externally as part of a global marketplace. They are not traditional transport corridors, but economic eco-systems where supported by the right conditions, there are the greatest opportunities for levelling up the economy, delivering a step-change in productivity and economic growth.
- 1.3 Each of the SDCs have a different scale of contribution towards achieving the outcomes of transformational economic growth and therefore different transport needs. However, investment in all of the corridors is critical to the collective ambitions of TfN and Partners.
- 1.4 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 impacts. TfN continues to 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.



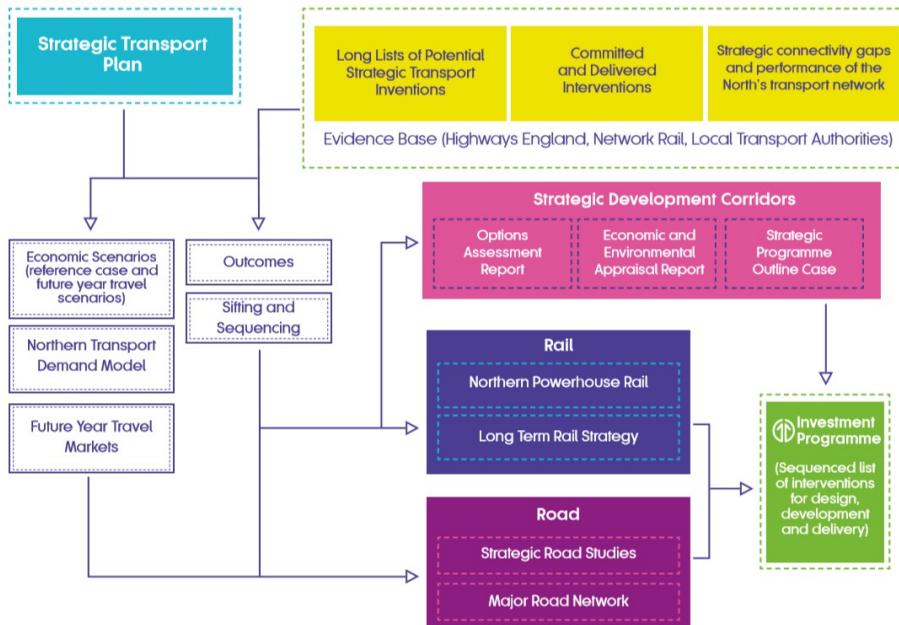
<sup>1</sup> <https://transportforthenorth.com/wp-content/uploads/TfN-final-strategic-transport-plan-2019.pdf>

## Investment Programme (January 2019)

1.5 The Investment Programme<sup>2</sup> (January 2019) has a horizon year of 2050, to align with the STP, and sets out TfN's view of the appropriate pipeline of investment in strategic transport to deliver those plans. This will enable TfN and its Partners to secure funding and delivery of the right schemes at the right time and aims to provide greater certainty for Local Transport and Highway Authorities to deliver complementary investment.

1.6 There are 4 tables in the initial Investment Programme (IP Tables 1-4):

- **IP Table 1** includes interventions or packages of interventions that were announced prior to the publication of the STP, including those which had received approval, have a confirmed funding stream, and are in the process of delivery.
- **IP Table 2** includes those interventions which are currently in development by Network Rail and Highways England, which TfN considers as needed. TfN supports a start to be made on their delivery **before 2027**.
- **IP Table 3** sets out the interventions additional to those in **IP Table 2** which TfN's evidence demonstrates could and should have a start made on their delivery **before 2027**.
- **IP Table 4** sets out the later phases of the Northern Powerhouse Rail programme and also includes further interventions where DfT Strategic Studies & TfN's SDC evidence suggests there may be a case for delivery during the lifetime of the STP.



<sup>2</sup> <https://transportforthenorth.com/wp-content/uploads/TfN-final-investment-programme-19-20.pdf>

- 1.7 The year 2027 was chosen as an initial point within the Investment Programme to reflect when HS2 was due to be completed to Crewe. It also lies in the middle of Road Investment Strategy 2 and 3, giving TfN flexibility.
- 1.8 The Investment Programme should be seen as a series of interventions rather than specific schemes as, given its long-term nature, the exact solutions will inevitably change over time.

### **Sequencing the Investment Programme - SDC Phase 2**

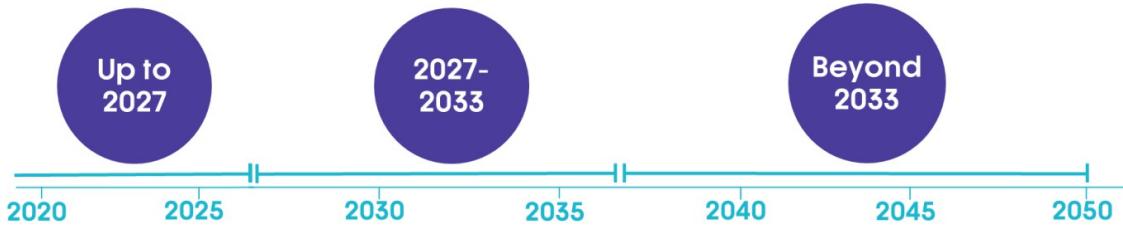
- 1.9 The TfN Business Plan for 2019/20 identified a need to: "*Commence work on sequencing of the TfN Investment Programme, building on the business case development work being undertaken on Northern Powerhouse Rail, Transpennine Route Upgrade, the Strategic Development Corridors, and the work programmes delivering the Long-Term Rail Strategy*". The SDCs comprising:
  - Central Pennines (multi-modal);
  - West and Wales (multi-modal);
  - Connecting the Energy Coasts (multi-modal);
  - Southern Pennines (multi-modal);
  - West Coast to Sheffield City Region (rail);
  - Yorkshire to Scotland (road); and
  - East Coast to Scotland (rail).
- 1.10 Each of the SDCs in Phase 1 developed a Reference Case, as the "do minimum" against which packages of possible pan-northern interventions were appraised. The Reference Case included both committed schemes and non-committed schemes being progressed through national programmes (HS2, Highways England's Roads Investment Strategy, DfT Strategic Studies, Network Rail's Enhancements Delivery Plan, Rail Franchises) and Northern Powerhouse Rail.
- 1.11 The programmes of interventions, Strategic Outline Programme (SOP), put forward within each SDC was developed to maximise the overall benefits of the schemes in the Reference Case and to improve the distribution of benefits across the North.
- 1.12 HM Treasury (HMT) public sector business case guidance describes a SOP business case<sup>3</sup> content to be appropriate to a programme of interventions, but at an early stage and with a relatively low level of detail, particularly in terms of Value for Money appraisal.
- 1.13 SDC Phase 2 (SDC2) introduces a 'sequential' assessment of when interventions are most needed to support delivery of the North's STP, as statutory advice to Government:
  - Update our evidence base from SDC Phase 1 for Strategic Outline Programme (SDC1 SOP) schemes
  - Review and update the Reference Case;
  - Split IP Table 4 into two time periods:

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<sup>3</sup>

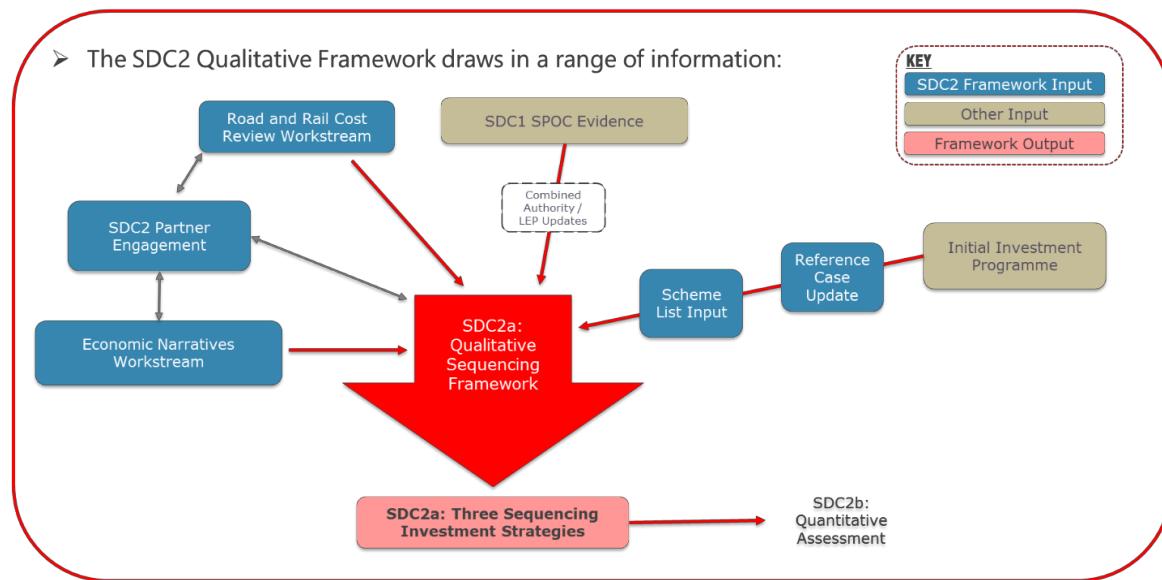
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/749085/Programme\\_Business\\_Case\\_2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/749085/Programme_Business_Case_2018.pdf)

- 2027-2033: Schemes that will provide the basis of a pipeline of future investment, in the late 2020's / early 2030's.
- 2033-2050: Schemes that are unlikely to be deliverable prior to the mid 2030's and/or schemes where delivery is less urgent to support TfN & Partner outcomes.



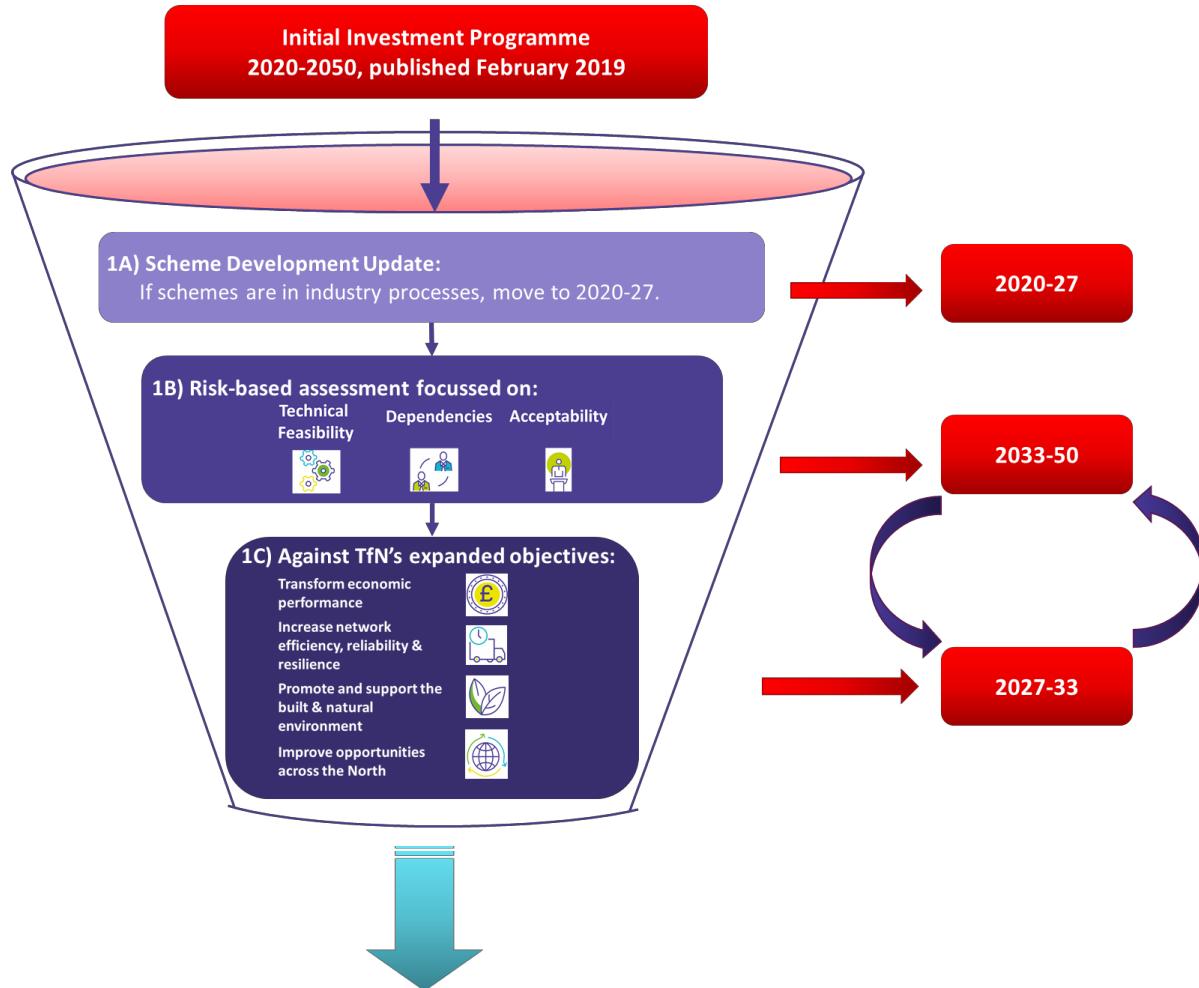
#### 1.14 SDC2 is divided in to two stages of work:

- **Stage 1:** Qualitative sequencing identifying three (supply-side) investment strategies for further analysis at the quantitative stage against four (demand-side) travel scenarios; and
- **Stage 2:** Quantitative sequencing benefits analysis, testing and refining the three investment strategies, using TfN's economic and transport models. To identify a preferred sequencing strategy and delivery programme.



## 2 Qualitative Sequencing Framework

- 2.1 A qualitative sequencing framework has been developed, with Partner input through a series of workshops held in October 2019 and at Strategic Oversight Group, that follows a staged approach to intervention assessment:



### Expanded objectives/criteria:

- Support decarbonisation of transport
- Support of the movement of freight, International Connectivity, UK Trade Investment
- Support the resilience of the North's transport network
- Higher Productivity
- Greater local investment and a more balanced Northern economy
- Greater labour market participation and/or greater net employment within the North
- Contribute towards improving conditions in air quality
- Contribute towards a more inclusive, and better integrated sustainable transport network

## **Sequencing Criteria**

- 2.2 Individual SOP interventions have been assessed against the following sequencing objectives:

<b>Ref</b>	<b>Step 1B) Tier One Assessment</b>
ST1	Does the intervention align with the STP vision and objectives?
ST2	To what extent is there a risk that the intervention could act in opposition to any of the applicable STP policy positions?
EC1	Does the intervention help support higher productivity, greater local and /or a more balanced northern economy, and greater net employment within the North?
SU1	Would delivering the scheme before 2033 support TfN and Government commitments for decarbonisation of transport?
AC1	Is the intervention anticipated to attract transport user, business user and political support, based on the nature of the intervention?
AC2	Is the level of disruption which may be caused by the construction of the scheme likely to be acceptable to customers?
DL1	To what extent is the scheme proposal (in as much detail as is currently understood), constructible and viable before 2037?
DL2	Are there significant external influences which could affect the viability or delay the scheme progressing (including DCO requirements) beyond a 2037 delivery date?
DE1	Is there any inter-relationship between this intervention and another scheme which may not be in place before 2037, where this intervention should only be delivered after another in completed, in order to achieve the best outcomes?
DE2	Is there any inter-relationship between this intervention and another scheme which may not be in place before 2037, where this intervention can only be delivered after another in completed, due to the technical dependencies between schemes?
<b>Ref</b>	<b>Step 1C) Tier Two Assessment</b>
ST3	Does the intervention address a significant current or future problem on the major transport network in terms of performance and/or resilience, which is expected to still exist in 2033 (with the Ref Case in place)?
ST4	Does the intervention present opportunities to support local strategies to support growth which will be in place by 2033? (e.g. spatial and economic plans). How dependent are these on improved transport connections?
ST5	Does the intervention align with national infrastructure schemes and priorities, which are expected to be in place by 2033?
ST6	Does the intervention support the movement of freight, international connectivity, UK trade and investment?
ST7	Does the intervention present opportunities for investment to align with the development of new technologies which are expected to be in place by (or soon after) 2033 and/or complementary behaviour change programmes?
ST8	Does the intervention present opportunities to improve the resilience of the north's transport network?
EC2	Does the intervention help support higher productivity, through reductions in the cost of travel for businesses and/or increased economic agglomeration?
EC3	Does the intervention help support greater local investment and/or a more balanced Northern economy?

EC4	Does the intervention help support greater labour market participation, and/or greater net employment within the North?
SU2	Does the intervention have the potential to contribute towards improving conditions in areas where air quality is anticipated to be a significant concern in 2033?
SU3	Could the scheme contribute towards a more inclusive, and better integrated sustainable transport network, including enhancing the potential for multi-modal journeys and active travel?
SU4	Are there any potential environmental constraints identified which could stop the scheme being delivered before 2033?
AF1	What is the scale of the whole life capital and operating costs? (Low / Medium / High / Very High)
AF2	Is the scheme affordable during the period 2027-2033 when considered as an individual intervention?
DE3	How strong would the case for this intervention be, should one or more element of the Reference Case be delayed or not realised?

### Assessment Principles

- 2.3 The general principles of how interventions have been assessed within the qualitative sequencing framework are presented below:

Expanded Objectives	Acceptability	Technical Feasibility	Dependencies	Rating
Strongly supports objective	Strong user, business or political support	No third-party interfaces or statutory planning requirements identified at this stage	Scheme is constructible and viable before 2037, with no associated risk	Scheme is not technically dependent on another scheme.
Aligns with objectives	Some user, business or political support	Limited interfaces identified, with third parties likely to endorse proposals. No statutory planning requirements expected	Marginal risk mitigation possible within usual structures	n/a
Limited or negligible contribution to the objective	No/limited user, business or political support	Many third-party interfaces, but with clear definition. Potential for conflict but expected to be manageable. Statutory planning likely	Some significant risk, mitigation possible	Scheme is dependent on at least one of scheme, which is considered more than likely to be completed by 2037
Potential hinders the objective	Likely to be opposed by some users, businesses or politicians	Significant and complex interfaces, across multiple third-party partners and organisations. High likelihood of conflict and need for negotiation. Statutory planning more than likely	Significant risk, no identifiable mitigation strategy at this stage	Scheme is dependent on at least one of scheme, for which delivery by 2037 is less than certain

## **Investment Strategies**

2.4 At a programme-level the qualitative sequencing has considered three distinct investment strategies for further consideration:

### **Strategy 1 (S1)**

- An increased Northern Budget between 2027 and 2033 in line with National Infrastructure Commission (NIC) expectations. Investment Programme deliverable by 2050.
- To support levelling up the economy, delivering a step-change in productivity and economic growth, as supported by the Northern Powerhouse Independent Economic Review (NPIER).
- An accelerated approach to delivering TfN and Government commitments for decarbonisation of transport.
- An approach where TfN is in the position to take a Northern Transport Charter approach to investment planning. With an emphasis on achieving a balanced approach to achieving economic, social and environmental benefits.
- Strategy 1 has a higher level of earlier investment in rail and public transport schemes over the period up to 2033.

### **Strategy 2 (S2)**

- An increased Northern Budget between 2027 and 2033 in line with NIC expectations. Investment Programme deliverable by 2050.
- To support levelling up the economy, delivering a step-change in productivity and economic growth, as supported by the NPIER.
- A continued focus on economics and cost-benefit analysis when making investment decisions, supported by wider growth and social outcomes.
- Strategy 2 has a higher level of earlier investment in road schemes over the period up to 2033.

### **Strategy 3 (S3 BAU) – Business-As-Usual**

- Continued levels of transport funding between 2027 and 2033. Full 2020-2050 Investment Programme unlikely to be delivered by 2050.
- To support continued levels of economic growth, that risks failing to support levelling up the economy.
- Continued governance arrangements for funding, including allocation of funds between Rail, Strategic Road Network and Major Road Network.

2.5 Strategies S1 & S2 build on the S3 BAU programme. These three (supply-side) investment strategies will then be used as the starting point for the quantitative sequencing benefits analysis work, alongside the following four distinct (demand-side) travel scenarios:

### **Future Scenario 1 – Just about managing**

- Existing trend of urbanisation and growth distribution continues. Little change in demographics and travel behaviour seen today.
- Modest technology uptake, widespread growth in electric vehicles and some autonomy. Net Zero 2050 target not met - climate change and travel disruption becomes more extreme.
- Moderate growth in remote working. Continuation of freight transportation as seen today.

- No transformation in level of economic growth. Reactive political direction results in a rigid economy, lacking agility and vulnerable to economic shocks.

#### **Future Scenario 2 – Prioritised Places**

- Bespoke local strategies, focusing on quality of life, place-making and community, rather than primarily economic growth. Slower growth in cities, more in towns and rural/coastal areas.
- Moderate growth in electric vehicles and some autonomy, especially in cities. Continued private mobility ownership sees a struggle to realise a zero-emission transport network.
- More active and public transport within communities. People value face to face interaction.
- No transformation in level of economic growth. Fairer distribution of prosperity. Focus on work-life balance and social equity within and between places.

#### **Future Scenario 3 – Digitally Distributed**

- Growth dispersed between cities and towns and less city-centric.
- High uptake of EV, ULEV's and driverless vehicles means target of zero emissions before 2050 is met (but slow progress in short term). Some fiscal and regulatory action to influence technology use, but congestion persists in places and opportunities not available to all.
- Increased digital remote working and dispersed employment > trip lengths are longer but less often. Willingness to embrace MaaS and shared mobility – through technology acceptance. Increase in road capacity. Freight warehousing distributed.
- Transformational economic growth as towns and cities become more interdependent.

#### **Future Scenario 4 – Urban Zero Carbon**

- Cities and large towns become more dense but attractive places to live. Large rural settlements may benefit, others will see reduction in population and employment without support of national policy.
- Strong fiscal and regulatory action set us on pathway to zero carbon before 2050. Increased devolution leads to integrated transport and energy systems which deliver clean networks.
- Urban living reduces remote working and increases freight consolidation centres. Increased public and active transport, including shared mobility as public and private travel becomes blurred.
- Transformational economic growth primarily through urban agglomeration and place-making.

2.6 The quantitative sequencing benefits analysis will test and refine the three investment strategies, using TfN's economic and transport models, to identify a preferred sequencing strategy and delivery programme.

#### **Completed Intervention Pro Forma**

2.7 Completed individual scheme pro forma are contained in **Appendix C** - these should be reviewed and updated periodically. Initial outcomes of the qualitative sequencing framework appraisal were subject to both internal TfN moderation and Partner moderation through a series of workshops held in February / March 2020.

### **3 Reference Case Review**

- 3.1 The Government is already funding a significant programme of transport interventions across the North.
- 3.2 Further investment planned by both central Government and local bodies including:
- Transport schemes developed by combined and local authorities across the North;
  - Major Road Network and Large Local Majors regional evidence base programme of schemes developed by TfN and local highway authorities;
  - Northern Powerhouse Rail (NPR) being developed by TfN;
  - High Speed 2 (HS2) being led by Central Government;
  - Road investment schemes put forward by Highways England; and
  - DfT Strategic Studies including: Trans-Pennine Tunnel and Manchester North West Quadrant.
- 3.3 In this context, a Reference Case, includes both committed schemes and non-committed strategic interventions that can be reasonably expected to be delivered in the medium and long term to meet the North's economic growth aspirations.
- 3.4 As part of this stage of work the Reference Case has been reviewed and updated to reflect any scheme development progress since Autumn 2018 taking account of:
- Major Roads Network Regional Evidence Base and Prioritisation (MRN1);
  - Combined & Local Authority Scheme Development and Funding Applications e.g. Transforming Cities Fund;
  - Highways England Road Investment Strategy (RIS2);
  - Network Rail Enhancements Delivery Plan Updates / Northern Powerhouse Rail; and
  - Government's response to the Oakervee Review of HS2.

#### **Major Roads Network Regional Evidence Base and Prioritisation**

- 3.5 The following MRN1 priority SDC1 SOP schemes are assessed to be deliverable before 2027:
- A1237 York Northern Outer Ring Road Phase 2
  - A1079 improvements at Wilberfoss
  - New link between A6 and A591 to the north of Kendal
  - Carlisle to Cockermouth capacity and reliability Improvements
  - Wigan to Bolton Strategic Route
  - A582 - South Ribble Western Distributor

#### **Combined & Local Authority Scheme Funding Applications**

- 3.6 The following combined & local authority SDC1 SOP schemes are assessed to be deliverable before 2027:
- Leeds Bradford Airport Parkway station
  - Durham Road (A690)/(A19) Junction Improvements
  - Port of Liverpool to West Coast Main Line enhancements
  - Energy Coast Rail Upgrade
  - A66/A596/Ramsay Brow Junction Improvements (Workington)
  - A1 to A1056 East Corridor (including A1 improvements and Rotary Way)

- A19 - A1018 improvement (Includes Sunderland CC) remodelling
  - Portrack Relief Road
  - A19 Grade Separated Junction, Elwick Bypass and Hartlepool Western Link
  - Lincolnshire Lakes Road Infrastructure
  - A494 River Dee Bridge Upgrade
  - A483 Improvements
  - A55 Northop to A494 Shotwick improvements
  - Warrington Growth Programme transport improvements package
  - Harrogate Line Improvements (formerly named Harrogate – Skelton junction)
  - Sheffield / Rotherham Innovation Corridor
  - Cottam Parkway
  - Thorpe Park new station
  - M6 Junction 33 Improvements
- 3.7 The following former combined authority SDC1 Reference Case scheme has been withdrawn:
- Leeds Bradford Airport link road
- Highways England Road Investment Strategy (RIS2)**
- 3.8 The following SDC1 Reference Case schemes were initially listed in RIS1, but no longer appear in RIS2 scheme lists:
- M62 Chain Bar
  - M53 J5-11
  - A1 and A19 technology Improvements
  - M56 J11a
  - A61 dualling
  - A1 in Northumberland
  - M60 J24-27 and 1-4
  - M56 J6-8
- 3.9 The following SDC1 Reference Case schemes are listed as committed for Roads Period 2 (2020-2025):
- A1 Morpeth to Ellingham
  - A19 Down Hill Lane
  - A1 Birtley to Coal House
  - A66 Northern Trans-Pennine
  - A585 Windy Harbour to Skippool
  - M60/M62/M66 Simister Island
  - A61 Westwood Roundabout
  - A5036 Princess Way
  - Mottram Moor Link Road & A57 Link Road
  - M6 Junction 19
- 3.10 The following SDC1 Reference Case schemes were subject to the Smart motorway stocktake. Following publication of the stocktake the current working assumption is that these schemes will proceed with compliance to its recommendations:
- M62 Junctions 20 -25
  - M6 Junctions 21A-26
  - M56 Junctions 6 -8

- 3.11 The following SDC1 Reference Case / SOP schemes were identified as RIS3 pipeline schemes or schemes that will be considered as part of future Route Strategies:
- A19 North of Newcastle Junctions (scope not fully defined SDC1 Reference Case & SOP)
  - A64 Hopgrove (SDC1 Reference Case)
  - M1 Leeds Eastern Gateway (SDC1 SOP)
  - M1/M62 Lofthouse Interchange (SDC1 Reference Case)
  - M6 Junctions 19-21A Knutsford to Croft extra capacity (SDC1 SOP)
  - M1 Junctions 35A-39 Sheffield to Wakefield extra capacity (SDC1 Reference Case)
  - A1 Doncaster to Darrington (SDC1 Reference Case, comprising A1(M) Doncaster Bypass and A1 Redhouse to Darrington)
  - M6 Junction 22 (SDC1 Reference Case)
  - Manchester South East Junction improvements (SDC1 Reference Case, formerly M60 J24-27 and 1-4 smart motorway)
  - A595 Whitehaven Relief Road (SDC1 Reference Case)
  - A590 Improvements (SDC1 SOP)
- 3.12 The DfT/Highways England expect Strategic Transport Bodies to play an active role in articulating the benefits of RIS3 pipeline / Route Strategies proposals being examined in their area, and for these reasons, all of the schemes listed above are now treated as SOP schemes, apart for M6 Junction 22 which will be delivered as part of the Parkside development (Phase 1) and developer funded.
- 3.13 RIS2 sets out the continued progress for the following SDC1 Reference Case (post 2027) Strategic Studies 'mega' schemes:
- M60 Manchester North West Quadrant including M62 to A57 Junction and Link (SDC1 SOP scheme)
  - Trans-Pennine Tunnel
- 3.14 RIS2 also identifies a new Strategic Study:
- Central Pennines – identified through the Central Pennines SDC1 study the component parts are retained as part the SDC2 SOP process, at this early stage of scheme development.

### **Rail Industry Schemes**

- 3.15 The following schemes previously identified for delivery before 2027 have been reassessed as SDC2 SOP schemes:
- Skipton - Colne - Gannow Junction (journey time and service improvements)
  - Skelmersdale Rail Link
- 3.16 The following SDC1 SOP schemes will be taken forward as part of the NPR programme (SDC2 Reference Case) before 2027:
- Middlesbrough Station
  - Darlington Station Growth Hub
  - Capacity improvements at Darlington
  - Chester Station – Passenger & track capacity enhancements
  - Improvements to the Northern Loop from Sheffield station to HS2, including new stations in South Yorkshire
  - Doncaster Station – Reducing conflicts

- 3.17 The following SDC1 SOP schemes will be taken forward as part of rail franchise commitments (SDC2 Reference Case) before 2027:
- Phase 1 – short term: Leeds City Region programme of capacity and capability works on the rail network, delivering improvements to support TRU, improve reliability and connectivity, and enable the provision of additional rail capacity to alleviate current overcrowding.
  - Crewe to Chester and Holyhead (service improvements)
  - Extension of North Staffordshire services to Nottingham
- 3.18 The following SDC1 SOP schemes will be taken forward as part of the NPR programme (SDC2 Reference Case) post 2027:
- Stockport Station (later phases) - noting that existing franchise commitments require early interventions to increase capacity at the Station pre-2027. And that TfN Board has advised that Stockport Station be designated a Congested Infrastructure priority intervention
  - Warrington Bank Quay station (or integrated station at Warrington)
  - York to Newcastle
  - Northallerton - Newcastle capacity enhancements and timetable resilience
  - Bradford to Leeds (journey time improvements)
- 3.19 The following SDC1 SOP schemes will be taken forward as part of the Midlands Engine Rail programme (SDC2 Reference Case) post 2027:
- Crewe – Stoke – Derby (journey time improvements)
- Government's response to the Oakervee Review of HS2**
- 3.20 After careful consideration of the independent Oakervee review, Government has confirmed its commitment to proceed with HS2. As well as committing to deliver HS2, Government remains strongly committed to Northern Powerhouse Rail, improving connectivity between northern cities as well as between London, the Midlands and the north.
- 3.21 The government agrees with the Oakerview Review that concluded that Phase 2b needs to be considered as part of an Integrated Rail Plan, for the north and Midlands, under the banner of "High Speed North", which also includes Northern Powerhouse Rail, Midlands Rail Hub, and other major Network Rail schemes to ensure these are scoped, designed, delivered, and can be operated as an integrated network.
- 3.22 The Integrated Rail Plan is scheduled to be published by the end of 2020.

## **4 SDC1 SOP Schemes Removed from the Investment Programme**

- 4.1 The following SDC1 SOP schemes have been removed from the Investment Programme, from a pan-northern perspective, based on an assessment of the most up-to-date evidence:
- A68 and A7 SRN (cross-border)
  - A19 Gap Closures between Sunderland and Tees Valley
  - A19 / A168 Gap Closures
  - A59 improvements (Preston to Harrogate)
  - A671 improvements (M65 to A59)
  - A59 Harrogate to York improvements
  - Crewe to Manchester Airport (Southern Link)
  - New Humberside Airport station between Barnetby and Habrough
  - Port of Workington to A66 connectivity improvements
  - Ponteland Relief Road
  - Durham Northern Relief Road
  - Durham Western Relief Road
  - M62 Junction 34a
  - Stoke park and ride
  - Northwich and Winsford transport improvements package (specifically the local transport elements – strategic schemes listed in each package are picked up separately in the Investment Programme)
  - Development of the Metrolink network on heavy rail lines within and surrounding Greater Manchester - as a generic programme of interventions. Individual interventions will be considered on their merits, from a pan-northern perspective
  - M1 Junction 47
  - A63 East of Leeds
  - Regular 1tph from Barnsley to Doncaster via Meadowhall
  - Greater Manchester New Eastern Gateway rail station
  - Chat Moss park and ride
- 4.2 In order to avoid the risk of the double counting of costs, the following named interventions have been removed from the programme from a housekeeping perspective:
- M62 Junctions 7 and 8 improvements – captured under "M62 Junction 5 to 10 Improvements"
  - East Lancashire Line (journey time and capacity improvements) – captured under "Preston to York via Calder Valley"
  - Colne to Accrington (journey time and service improvements) – captured under "Skipton - Colne - Gannow Junction" and "Preston to York via Blackburn"
  - Clitheroe to Blackburn increased frequency to 2tph – captured under "Clitheroe to Manchester Victoria via Blackburn and Bolton"
  - Improved or new routes connecting A650 and Keighley – captured under "New/upgraded route between A629/A650 and the A1(M)/M1"

## 5 Qualitative Investment Strategies

- 5.1 The following qualitative investment strategies beyond 2027 are additional to the major transformational (Reference case) interventions for example HS2, Northern Powerhouse Rail, Manchester North West Quadrant and Trans-Pennine Tunnel.

### **SDC2 SOP Qualitative sequencing 'Fixed Window' Schemes - 2027-2033 (S1-S3)**

- 5.2 The following SOP 'fixed window' schemes have been assessed with the potential of being deliverable between 2027 and 2033 under all three investment strategies (S1-S3):

*Ensure that the West Coast Main Line stations are ready for HS2 and Northern Powerhouse Rail*

- Wigan North Western station (or integrated station at Wigan)

*Ensuring the North is ready for HS2 to maximise the benefits of this nationally significant project*

- York to Scarborough (journey time improvements)
- Service frequency enhancements between Ormskirk and Preston
- Access improvements to Crewe HS2 Hub

*Enhance North-South strategic connections across the North to support UK competitiveness*

- Doncaster-Leeds - journey time & capacity improvements
- M1 Junction 35A to 39 Sheffield to Wakefield Extra Capacity
- A1 Doncaster-Darrington
- A19 North of Newcastle Junctions (Part) comprising; A19/A1 Seaton Burn Junction Improvements; A19 /A189 Moor Farm; A19/A1056 Killingworth; and A19/A193 Howdon Interchange

*Enhance East-West strategic connections across the North to support UK competitiveness*

- Skipton - Colne - Gannow Junction (journey time and service improvements)
- Preston to York via Blackburn (journey time improvements)
- M65 Junctions 2 to 6
- A64 Hopgrove
- M1/M62 Lofthouse Interchange

*Enhance access to the North's international gateways*

- Light Rail Links to Terminal 2 at Manchester Airport
- A174 Greystones Roundabout Improvements
- Port of Tyne Connectivity
- Tees Dock Road Roundabout Improvements
- Eastern route access package to Liverpool John Lennon Airport and associated developments
- A63/A1033 junction
- Grimsby Western Relief Road

*Ensure that the needs of Freight operators can be met*

- Selby to Port of Hull gauge enhancements and journey time improvements

- Port Salford rail freight access
- East-West Transpennine W12 gauge cleared rail freight route

*Improve connectivity and resilience to the Fylde Coast economic cluster*

- Preston to Blackpool South (South Fylde Line) - journey time and capacity improvements

*Improve capacity and resilience across Cumbria to connect with national energy infrastructure and economic clusters*

- A66 Improvements (Scales/Troutbeck)
- Newby Bridge Flooding Alleviation
- A595 Whitehaven Relief Road, Bigrigg Bypass & Egremont Junctions

*Improve connectivity and resilience to the North Tyne and North East economic clusters*

- Sunderland Station and Sunderland Station track layout improvements
- Newcastle to Middlesbrough (Durham Coast Line) - route & Hartlepool station upgrade and service improvements
- Sunderland Strategic Transport Corridor (Phases 4 & 5)
- A1068 Fisher Lane

*Improve connectivity and resilience to the Tees Valley City Region economic clusters, particularly the South Tees Development Corporation site*

- Middlesbrough to York (journey time and service improvements)
- A66 Darlington to Teesport capacity improvements

*Improve connectivity and resilience around the Humber economic clusters*

- A15 junctions (A63 to M180)

*Improve connectivity and resilience to the Liverpool City Region economic clusters*

- A558 Daresbury Expressway improvements

*Improve connectivity and resilience to the Cheshire, Warrington and the Potteries economic clusters*

- Northwich to Sandbach rail re-opening and new stations
- Manchester to Chester via Knutsford (Mid-Cheshire Line) - journey time and capacity improvements
- Liverpool to Manchester via Warrington (Cheshire Lines Committee) - capacity and service improvements
- A550 Chester Box Route Enhancements
- Chester – Broughton growth corridor
- Middlewich southern and western link (including access to the M6 from Winsford)

*Improve connectivity and resilience around the Greater Manchester City Region economic clusters*

- Bus Rapid Transit Schemes connecting Wigan Borough and Salford City
- Northern Gateway access and capacity enhancements
- Manchester South East Junction Improvements
- M60/M67 Denton Island improvements

*Improve connectivity and resilience around the Lancashire economic clusters*

- Burnley to Manchester (journey time and service improvements)

*Improve connectivity and resilience to the Leeds City Region economic clusters*

- Leeds North West Quadrant improvements
- M1 Leeds Eastern Gateway
- South East Bradford Link Road
- Shipley Eastern Relief Road
- A638 improvements – Dewsbury to the A1(M)

*Improve connectivity and resilience to the Sheffield City Region economic clusters*

- Leeds to Sheffield via Barnsley (Hallam Line) - journey time improvements
- Journey time and capacity improvements between Cleethorpes and Doncaster to increase links between Northern Lincolnshire and the Sheffield City Region and the North West

*Facilitating the delivery of housing and employment growth*

- Skelmersdale Rail Link
- New & Upgraded Stations in the Mersey Dee area (Shotton, Deeside Park, Broughton)

### **SDC2 SOP Qualitative sequencing ‘Fixed Window’ Schemes – Beyond 2033 (S1-S3)**

- 5.3 The following SOP ‘fixed window’ schemes have been assessed with the expectation that they will be considered as part of a future post 2033 pipeline of schemes, under all three investment strategies (S1-S3). In consultation with Partners, this has been based on an assessment of need, interdependencies with other projects/schemes, deliverability and affordability within the context of a comprehensive pan-northern programme of transport schemes:

*Ensuring the North is ready for HS2 to maximise the benefits of this nationally significant project*

- Southport to Wigan (journey time improvements)

*Enhance North-South strategic connections across the North to support UK competitiveness*

- East Coast Main Line (journey time and reliability improvements) - Doncaster to York
- Crewe to Preston additional calls (additional path between Winsford and Preston)
- M6 Junctions 19 to 21A improvements
- A1 North of Ellingham to Edinburgh Dualling (cross-border)
- A1 dualling and capacity improvements in the North East (A1(M) Barton to Chester-le-Street widening)
- North East new strategic river crossing
- A19/B1404 Seaton Lane to A19/A183 Chester Road

*Enhance East-West strategic connections across the North to support UK competitiveness*

- Preston to Sheffield (journey time improvements)
- Liverpool to Preston via Wigan (journey time and service improvements)

- New Manchester Airport - Nottingham via Crewe and Derby limited stop service, increasing Crewe-Derby frequency from 1 to 2tph
- A689 M6 to Carlisle Lake District Airport capacity improvements and improved M6 connectivity
- A69-A696-A1 link to form a NW ring road of Newcastle via the airport
- A66 to A1 New Link and Junction north of Scotch Corner
- M65 improvements
- New/upgraded route between A629/A650 and the A1(M)/M1
- A64 Technology Improvements - A1(M) Bramham to A1237 Hopgrove
- A64 Crambeck to Scarborough improvements
- A1079 York to Hull improvements
- A1 to A19 link
- A19 to M18 link
- A1 to M1 link, comprising A1 to HS2 link from Redhouse and M1 to HS2 link
- M1 to M18 link
- M18 Junctions 2 to 5 (and online improvements to M18 Junction 2)

*Enhance access to the North's international gateways*

- Windermere and Barrow to Manchester Airport (frequency and journey time improvements)
- A556 Corridor Improvements
- A63 Relief Route
- A63 technology improvements
- A180
- M18 Junction 4 connection to Doncaster Sheffield Airport

*Ensure that the needs of Freight operators can be met*

- North East rail freight enhancements (passing loops and port connections)

*Improve connectivity and resilience to the Fylde Coast economic cluster*

- A585 corridor improvements (M55 to Fleetwood)
- New Ribble Crossing

*Improve capacity and resilience across Cumbria to connect with national energy infrastructure and economic clusters*

- Windermere to West Yorkshire (service improvements)
- A590 South Cumbria (dualling and wider capacity, journey time and resilience improvements)
- A590 Ulverston bypass

*Improve connectivity and resilience to the North Tyne and North East economic clusters*

- Reinstatement of passenger services on Stillington Line (Stockton – Ferryhill)

*Improve connectivity and resilience to the Liverpool City Region economic clusters*

- A580 Dual Carriageway and Some Grade Separation
- M57 improvements

*Improve connectivity and resilience to the Cheshire, Warrington and the Potteries economic clusters*

- Birchwood park and ride

- A500 dual carriageway with grade separated junctions
- A34 (potential expressway)
- Nantwich Southern Relief Road

*Improve connectivity and resilience around the Greater Manchester City Region economic clusters*

- Heavy rail capacity and journey time improvements in the South Manchester area and on the Wilmslow and Buxton lines
- M62-Carrington-M60 link
- A6 Disley and High Lane bypass
- M6 Junction 25 slip roads

*Improve connectivity and resilience around the Lancashire economic clusters*

- Rossendale to Manchester public transport connectivity
- Clitheroe to Manchester Victoria via Blackburn and Bolton (journey time and service improvements)
- A59 corridor improvements (Liverpool to Preston)
- M58 & M6 Interchange
- A56 corridor improvements (M65 to M66)

*Improve connectivity and resilience to the Leeds City Region economic clusters*

- Phase 3 – long term: Leeds City Region additional works improving the capacity of the network to enable forecast growth, and realising the introduction of HS2 and NPR, enabling their benefits to be spread and maximised

*Improve connectivity and resilience to the Sheffield City Region economic clusters*

- Rotherham to Leeds (frequency improvements)
- M1 Junction 37a

*Enhance cross border movements into North Wales and the Midlands to support economic growth and UK competitiveness*

- Sheffield – Nottingham (journey time improvements)
- A534 route upgrade
- A51 Improvements (Nantwich to Chester – potential expressway)
- A54 Corridor Improvements (M6 to Chester)
- A15 improvements (M180 to A46 Lincoln Bypass)
- A1 improvements (south of Blyth)

## **SDC2 SOP Qualitative sequencing 'Edge' Schemes – 2027-2033 (S1, additional to S3 BAU)**

- 5.4 The following SOP 'edge' schemes have been assessed with the potential of being deliverable and necessary between 2027 and 2033 under S1, in addition to those listed in S3 (BAU), with more funding under a more rail-focussed investment strategy. In consultation with Partners, this is based on a more ambitious programme, with higher levels of funding and political support for accelerating development of schemes so they are ready for delivery between 2027-2033:

*Enhance East-West strategic connections across the North to support UK competitiveness*

- Newcastle to Carlisle (Tyne Valley Line) - route upgrade and journey time improvements

- York to Hull (service improvements)
- New/upgraded route around the North of Barnsley and Doncaster Districts or along the A6195/ A635 corridor

*Enhance access to the North's international gateways*

- Fixed infrastructure links to Liverpool John Lennon Airport
- Knutsford to Manchester Airport (Western Link)
- Rail connection and station for Doncaster Sheffield Airport (DSA)
- East Coast Main Line spur to Newcastle Airport

*Ensure that the needs of Freight operators can be met*

- Parkside enhanced freight connectivity
- West Coast Main Line freight capacity enhancements

*Improve connectivity and resilience to the Fylde Coast economic cluster*

- Enhanced public transport links to Fleetwood
- Journey time improvements Preston - Blackpool North

*Improve capacity and resilience across Cumbria to connect with national energy infrastructure and economic clusters*

- Barrow-in-Furness to Lancaster (Furness Line) - journey time and reliability improvements

*Improve connectivity and resilience to the North Tyne and North East economic clusters*

- Rail/ Metro integration improvements within Tyne and Wear to include routes, stations and timetabling
- South of Tyne rail-based Park-and-Ride at Follingsby

*Improve connectivity and resilience to the Tees Valley City Region economic clusters, particularly the South Tees Development Corporation site*

- Bishop Auckland to Saltburn, via Darlington and Middlesbrough (Bishop and Saltburn Lines) – service frequency and journey time improvements

*Improve connectivity and resilience around the Humber economic clusters*

- Hull to Scarborough (journey time and frequency improvements)

*Improve connectivity and resilience to the Liverpool City Region economic clusters*

- Extend Merseyrail City Line services to Liverpool Central via Wapping Tunnel re-opening

*Improve connectivity and resilience to the Cheshire, Warrington and the Potteries economic clusters*

- Chester – Warrington Bank Quay (journey time improvements)

*Improve connectivity and resilience around the Lancashire economic clusters*

- Lancaster - Morecambe additional services

*Improve connectivity and resilience to the Leeds City Region economic clusters*

- Phase 2 – medium term: Leeds City Region further programme of works delivering capacity to enable forecast growth, as well as reliability improvements, and supporting the introduction of HS2 & NPR

*Improve connectivity and resilience to the Sheffield City Region economic clusters*

- Sheffield to Lincoln (journey time, frequency and capacity improvements)
- Huddersfield to Sheffield (Penistone Line) - journey time, frequency and capacity improvements

### **SDC2 SOP Qualitative sequencing 'Edge' Schemes – 2027-2033 (S2, additional to S3 BAU)**

- 5.5 The following SOP 'edge' schemes have been assessed with the potential of being deliverable and necessary between 2027 and 2033 under S2, in addition to those listed in S3 (BAU), with more funding under a more road-focussed investment strategy. In consultation with Partners, this is based on a more ambitious programme, with higher levels of funding and political support for accelerating development of schemes so they are ready for delivery between 2027-2033:

*Enhance North-South strategic connections across the North to support UK competitiveness*

- M6 Junctions 16 to 19 corridor improvements
- M6 Junction 26 to 32 Improvements
- A194(M) Whitemare Pool Junction Improvements
- A19 North of Newcastle Junctions (Part) comprising: A19 junction and on-line improvements between Killingworth interchange and Coast Road/Silverlink interchange

*Enhance East-West strategic connections across the North to support UK competitiveness*

- A69 De-Trunking / A689 Trunking to improve the route function
- A69 route improvement, climbing lanes and targeted junction improvements (including the B6351 Hexham west junction)
- M62 Junctions 5 to 10
- New/upgraded route between the M65 and Skipton/A629/A650
- M62 Junction 32 to 30 westbound
- New/upgraded route around the North of Barnsley and Doncaster Districts or along the A6195/ A635 corridor

*Enhance access to the North's international gateways*

- Fixed infrastructure links to Liverpool John Lennon Airport
- M57 Junctions 4 and 5
- Switch Island (M57/M58/A5036)

*Ensure that the needs of Freight operators can be met*

- West Coast Main Line freight capacity enhancements

*Improve connectivity and resilience to the North Tyne and North East economic clusters*

- Rail/ Metro integration improvements within Tyne and Wear to include routes, stations and timetabling

*Improve connectivity and resilience around the Humber economic clusters*

- A164 dualling (A63 to B1232)

*Improve connectivity and resilience to the Cheshire, Warrington and the Potteries economic clusters*

- M56 Chester Box Improvements

*Improve connectivity and resilience around the Greater Manchester City Region economic clusters*

- M66 Improvements
- M60/M56 interchange improvements
- A663 Broadway / M60 Junctions 21 Upgrade

*Improve connectivity and resilience around the Lancashire economic clusters*

- Lancaster - Morecambe additional services

*Improve connectivity and resilience to the Leeds City Region economic clusters*

- M1 Online Improvements Junction 43 to Hook Moor
- M62 Junction 24a
- North Kirklees Orbital Route
- A638 improvements – Wakefield to the A1(M))

*Improve connectivity and resilience to the Sheffield City Region economic clusters*

- A61 Corridor Improvements
- A57 South Anston bypass

## Worked Examples

5.6 The following four worked examples, illustrate application of the qualitative sequencing process:

### **Example 1: Preston to York via Blackburn (journey time improvements) 2027-2033 (S1-S3)**

- Line speed improvements may involve:
  - 70mph sections west of Rose Grove upgraded to 100mph
  - 45mph sections between Rose Grove and Hall Royd Junction (Todmorden) upgraded to 60mph
  - 60mph or 70mph sections between Hall Royd Junction and Sowerby Bridge upgraded to 100mph
  - Elimination of lower speeds applying over level crossings on upgraded sections.
- East – west connectivity across the Central Pennines is particularly constrained, with low average speeds and frequencies on key routes providing poor connectivity between East Lancashire and West & North Yorkshire. Infrastructure capacity can be heavily utilised by the mix of traffic and stopping patterns which can present a barrier to service improvement.
- End to end direct connectivity is provided by the hourly service between Blackpool North and York. The service operates via the East Lancashire line (main 'Roses Line' section) and the Calder Valley, and serves many key intermediate flows (including East Lancashire to West Yorkshire centres). The service is relatively slow (36mph on average based on the rail mileage), and similar journey times can be achieved via interchange at Manchester. This

make rail a less attractive mode of travel, particularly for business to business trips and for commuting flows between East Lancashire and West Yorkshire.

- Preston - Blackburn - Leeds is one of TfN Strategic Rail's five Rail Journey Time 'potential early win routes'. Funding for this work has been agreed by DfT at Rail North Programme Board.
- The scheme is expected to attract strong support - poor east-west connectivity by rail (and road) between East Lancashire and West & North Yorkshire is a long-standing key issue<sup>4</sup>, irrespective of whether Colne-Skipton goes ahead.
- The scheme has been assessed as being constructible and viable before 2037 with marginal risk, with mitigation possible within usual structures.
- In terms of significant external influences – limited interfaces are identified, with third parties likely to endorse proposals. No statutory planning is expected at this stage.
- The scheme is estimated to be a medium cost range intervention (£50 million to £250 million).
- The service may benefit from journey time enhancements on the Calder Valley Line – set out in Network Rail's Enhancements Delivery Plan.

***Example 2: Extend Merseyrail City Line services to Liverpool Central via Wapping Tunnel re-opening  
2027-2033 (S1), Beyond 2033 (S2 & S3)***

- Wapping Tunnel re-opening
- A direct connection between the Northern and City Lines within central Liverpool has long been identified as a means of developing cross city connectivity and increasing capacity at the city's main rail termini of Central and Lime Street. Liverpool Central is Liverpool's busiest rail station – currently serving more than 15 million passengers per year it suffers from serious overcrowding and hotspots at peak times, particularly on the Northern Line island platforms, such as at the bottom of the escalator from the concourse. At the same time, two thirds of services that serve the Northern Line platforms terminate at Central from the north and are then required to layover to regulate the timetable, and then to reverse out of the platforms in the direction that they arrived.
- Wapping Tunnel has the potential to help to resolve both of these issues by providing additional destinations for southbound trains beyond Liverpool Central, allowing a proportion to extend to Edge Hill and beyond. This has the effect of reducing the dwell time of trains at Liverpool Central, reducing in turn the amount of time that passengers dwell in the platform vicinity.

<http://council.lancashire.gov.uk/documents/s109483/Central%20Trans-Pennine%20Corridor%20East%20West%20Connectivity%20Study.pdf>

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- Liverpool Lime Street is currently undergoing a remodelling that will expand the number of platforms from nine to 10. This solution, while addressing the immediate issues through to 2026, does not address the longer-term issues. The Wapping Tunnel scheme has the potential to divert a proportion of the local services on the City Line (which currently terminate at Lime Street) to Liverpool Central, extending these to Northern Line destinations. If 4-8 trains per hour were diverted away from Lime Street via Wapping Tunnel, this would provide significant opportunity for the station to become a dedicated inter-city and inter-regional hub for the City Region. The scheme would therefore be complementary to plans for High Speed North and Liverpool Lime Street as major hub where intervention is required to realise the benefits of improved connectivity of these national infrastructure schemes.
- The scheme is expected to attract strong support both through the Liverpool City Region Long Term Rail Strategy and the Liverpool Knowledge Quarter Transport Vision<sup>5</sup>.
- The 2016 City Line to Northern Line Connection Feasibility Study<sup>6</sup> did not identify any reason why the scheme could not be developed further. In particular, the civil engineering aspect of reusing the existing Wapping Tunnel, Cavendish Cutting and new link tunnel(s) to connect to the Northern Line were considered to be feasible. The scheme has been assessed as being constructible and viable before 2037 recognising there are some significant risks, with mitigation possible.
- There is a high likelihood of conflict & need for negotiation alongside statutory planning.
- The scheme is estimated to be a high cost range intervention (£250 million to £1 billion).
- Scheme would increase the demand at Liverpool Central. Merseytravel is undertaking a development review that will address the capacity constraints at Liverpool Central - potential solutions include: new station required at an alternative location; expansion of the current station which could be a widening of the current platform or the introduction of a new platform; and expansion of the concourse area

***Example 3: New/upgraded route between the M65 and Skipton/A629/A650  
2027-2033 (S2), Beyond 2033 (S1 & S3)***

- Provision of a new link road between the M65 and A629/ A650 Airedale corridor to a dual 2-lane high standard route.

<sup>5</sup> [https://www.kqliverpool.co.uk/wp-content/uploads/2017/10/7203\\_KO\\_Transport\\_Vision-AW\\_WEB.pdf](https://www.kqliverpool.co.uk/wp-content/uploads/2017/10/7203_KO_Transport_Vision-AW_WEB.pdf)

<sup>6</sup> <https://merseytravel.s3.amazonaws.com/Content/Freedom%20of%20Information/Disclosure%20Log/2017/December/RSN16726---FIR-Request---Wapping-Tunnel-Feasibility-Study.pdf>

- The abrupt termination of the M65 at Colne inhibits east-west trans-Pennine connectivity. There is no continuous dual carriageway route from East Lancashire into West Yorkshire. Average inter-urban speeds between important economic centres are low, typically less than 30 mph during peak periods, and below 40 mph during inter peak periods in the Corridor.
- Generally speaking, in Pan-Northern terms local policy recognises the benefits of well-developed north-south transport corridors, principally through the West & East Coast Main Lines and M1 & M6 motorways, but highlights that long term under investment in east-west connectivity has the potential to stifle growth in the economy of many of the LEP regions in the Central Pennines corridor.
- The STP highlights that:
 

*"East-West road connectivity is a significant barrier for future growth in the North, and a key constraint to agglomeration and transforming the North's economy. Currently the M62 is the only motorway standard East-West road link across the Pennines between Derby in the Midlands and Edinburgh in Scotland.*

*Addressing East-West connectivity is a priority for TfN, and a failure to address current connectivity constraints would critically restrict the transformational growth potential of this [Central Pennines] corridor and the wider Northern economy."*
- Building on the SDC1 Central Pennines study & SPOC, Highways England's Road Investment Strategy 2: 2020-2025 identifies Central Pennines (M6 to A1(M)) as one of three new strategic studies<sup>7</sup>. An early feasibility report is due to be released in May 2020.
- The scheme is expected to attract strong support. As part of the SDC1 stakeholder engagement process East-west connectivity on road & rail was highlighted as a big issue for businesses, hampered by restricted capacity and congestion;
 

*"journey times, reliability and capacity are all problems that compound challenges to travel across the region, not just on major routes or in / out of the big cities". Requiring, for example, "improvements to M6/Preston to East Lancs. and East Lancs. to Leeds/ Bradford and the A1(M)".*
- It is the physical challenge of the Pennines which is regarded as the key barrier to east-west connectivity – although slight by European standards the topography of the Pennines remains a formidable barrier to movement. This presents some significant technical challenges to delivering a practicable and economically viable solution that minimises its impact on the natural environment. The 'emerging preferred concept' includes proposals to bypass Colne, Foulridge, Kelbrook and Earby - the feasibility for which were considered as part of a Lancashire County Council M65 to Yorkshire Study<sup>8</sup>.

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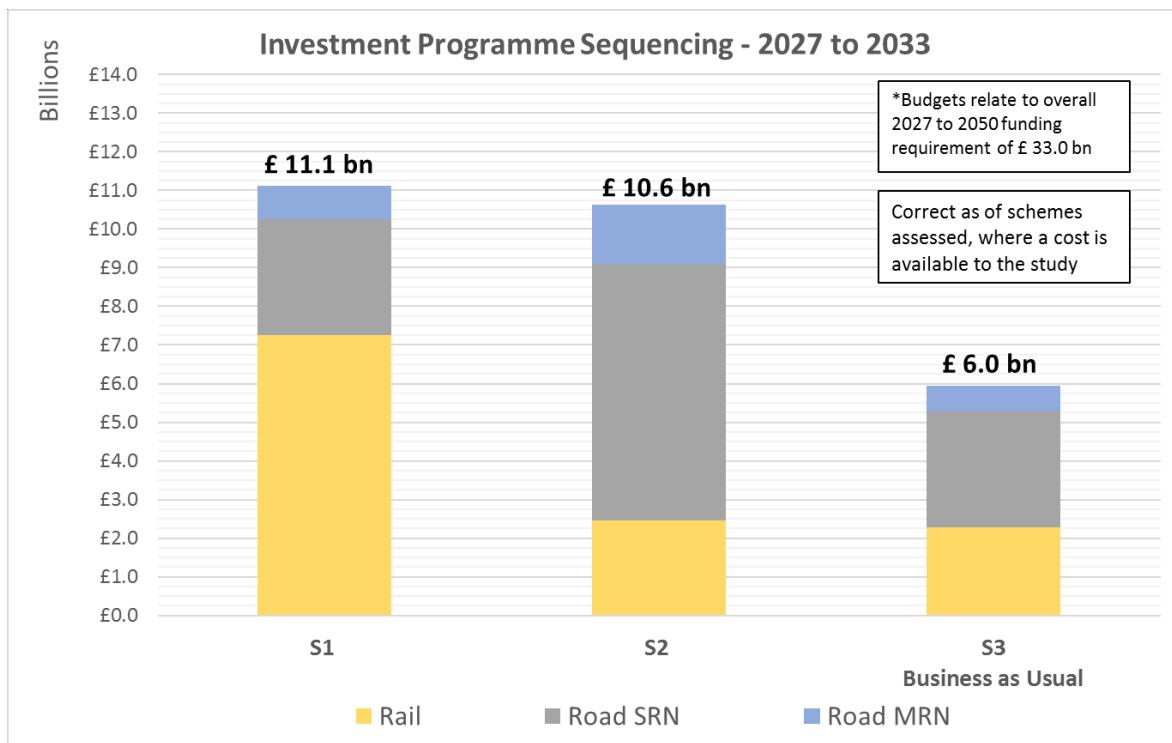
<sup>7</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/871978/road-investment-strategy-2-2020-2025.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/871978/road-investment-strategy-2-2020-2025.pdf)

<sup>8</sup> <https://www.lancashire.gov.uk/media/252030/M65-to-Yorkshire-Stage-3-Report.pdf>

<p>The scheme has been assessed as being constructible and viable before 2037 recognising there are some significant risks, with mitigation possible.</p> <ul style="list-style-type: none"> <li>In terms of significant external influences – any solution will involve significant and complex interfaces across multiple third-party partners and organisations. A lengthy scheme development and planning process may be expected. There is a high likelihood of conflict &amp; need for negotiation alongside statutory planning.</li> <li>The scheme is estimated to be a high cost range intervention (£250 million to £1 billion).</li> <li>The scheme has technical dependencies with proposals to reopen the railway line from Colne to Skipton.</li> </ul>
<p><b><i>Example4: North East New Strategic River Crossing Beyond 2033 (S1-S3)</i></b></p> <ul style="list-style-type: none"> <li>New River Tyne Crossing - east of the Tyne Bridge</li> <li>On the River Tyne, most crossing points are currently congested, with the Tyne Tunnel operating above capacity. The growth in usage of the Tyne Tunnel demonstrates that, subject to additional capacity being created, increased flows are realised year on year. Current issues primarily pertaining to congestion and limited capacity, as well as resilience and reliability, will be compounded in future, particularly if economic growth aspirations are to be realised.</li> <li>The scheme is intended to improve strategic connectivity within the North East, and the North of England more broadly, contributing to higher productivity. Business user benefits would be delivered through a reduction in journey times, delivering direct productivity benefits to the dense concentration of firms located within Tyne-and-Wear. Greater 'effective density' within this dense urban area will also support significant agglomeration benefits.</li> <li>Significant further work is required to define the location and form of a new strategic river crossing. Assumptions around the alignment being east of Tyne Bridge should be retained. There has been limited progress on option identification but this is expected to accelerate as the North East Combined Authority develop its regional transport plan and interventions plan. At this stage it is not possible to determine whether the intervention is constructible and viable before 2037.</li> <li>For the same reasons it is not possible to determine the extent of external influences and interfaces. It is reasonable, however, to assume that these interfaces will be significant and complex interfaces with a high likelihood of conflict and need for negotiation, alongside statutory planning.</li> <li>Any cost estimate is naturally highly uncertain at this stage but may assumed to be in a medium / high cost range (up to 1 billion).</li> <li>Scheme has no technical dependencies</li> </ul>

## Investment Programme Sequencing Summary

- 5.7 The overall SDC2 SOP to 2050 is estimated to be circa £33.0 billion, or c.£1.4 billion per annum, which assuming an evenly distributed level of spend would equate to c.£8.6 billion for the period 2027-2033. The compares to an estimate range of £18-£ 20 billion on Reference Case schemes over the same period, principally on High Speed North.
- 5.8 The level of SDC2 SOP funding required for each of the three investment strategies, split by rail, Road SRN, Road MRN is presented below:



- 5.9 Important points to note:

- Excludes costs for some schemes where estimates are yet to be determined due to limited detail on scope – these are mainly schemes later in the programme (beyond 2033). The majority are rail schemes e.g. East-West Transpennine W12 gauge cleared rail freight route. TfN Board preference is an enhanced W12 gauge cleared Transpennine Route Upgrade (SDC2 Reference Case) alongside W12 gauged cleared port connections. Current TRU plans provide an interim W8a solution for the critical Stalybridge - Huddersfield section. Network Rail is looking to progress a Continuous Modular Strategic Planning (CMSP) study for the TransPennine Freight market in due course.
- Notional budget allowances have been made for RIS3 pipeline / Route Strategy schemes that were not previously considered / costed through SDC1 e.g. A1 Doncaster-Darrington - cost estimates for these schemes have been requested from Highways England.
- Cost rates assume high quality sustainable principles are imbedded in the sequenced investment programme, in line with TfN's STP policy position and Corporate Plan including

- High quality environmental mitigation to deliver a net gain in biodiversity where possible,
  - Fully integrate non-motorised user facilities wherever possible, to encourage active travel and better health outcomes
  - To support carbon reduction fully integrate the latest infrastructure to accelerate the transition of the vehicle fleet towards ultra-low emission types
  - Developing designs which are future-proofed for integration with emerging technologies
- Alongside the Road and Rail Programme, policy interventions will be crucial to delivering TfN's overall vision. These can support the delivery of key aims including decarbonisation and innovation as well as impact on which future scenarios are most likely to come forward. Policy measures could include:
  - Expand digital signalling on the rail network
  - Increase efficiency of the road network through use of technology e.g. Connected & Autonomous vehicles
  - Use of data / technology to improve management of freight demand on the rail network
  - Improved integration across travel modes e.g. through smartcard / mobile technologies
  - Low emission & clean air zones
  - New pricing models for road and public transport
- **Reminder – the SDC2 SOP qualitative sequenced programmes are in addition to the SDC2 Reference Case schemes.**

## **6 Assessment Outputs & Next Steps**

- 6.1 This phase of work has developed three sequenced investment programmes:
- Based on three distinct investment strategies both in both the level of ambition in levelling the economy and approach to a decarbonisation pathway.
  - Focused on an assessment of need and deliverability between 2027-33.
  - Geographically inclusive.
  - Co-produced with and agreed by over 30 Partners representatives from all of TfN's partner Transport Authorities.
  - Detailed discussion, review and input from Highways England and Network Rail
  - For testing in the quantitative sequencing benefits analysis, the application of the Analytical Framework
- 6.2 In terms of next steps, we will:
- Share with the Strategic Oversight Group and seek final endorsement on 28<sup>th</sup> April 2020;
  - Present to TfN Partnership Board in summer 2020;
  - Through the quantitative sequencing benefits analysis, assess and refine the three sequenced delivery programmes against the four future scenarios – this provides agility and resilience;
  - Identify the programmes benefit realisation for social, economic, and environmental outcomes – this provides the transformational return on investment; and
  - Through the development of a single SDC2 SPOC for North provide TfN Board with a strong evidence base to support decision making on future investment and policy decisions.
- 6.3 In longer term the Investment Programmed will be periodically reviewed and updated through the Assurance Framework process.