Contents

1. Introduction 1
   Purpose of Route Strategies 2
   Strategic themes 2
   Stakeholder engagement 3
   Transport Focus 3

2. The route 5
   Route Strategy overview map 7

3. Current constraints and challenges 9
   A safe and serviceable network 9
   More free-flowing network 9
   Supporting economic growth 10
   An improved environment 10
   A more accessible and integrated network 10
   Diversionary routes 12
   Maintaining the strategic road network 13

4. Current investment plans and growth potential 15
   Economic context 15
   Innovation 15
   Investment plans 15

5. Future challenges and opportunities 17

6. Next steps 23
Route strategies
The division of routes for the programme of route strategies on the Strategic Road Network.
1. Introduction

The modernisation of England’s motorways and major A roads, also known as the strategic road network (SRN), is making a vital contribution to economic wellbeing and growth. This Route Strategy – one of 18 such reports – provides a statement on the current performance of, and perceived pressures on, the North Pennines route to inform the planning of future investment.

The SRN supports national and local economic prosperity by:

▪ linking together major cities
▪ connecting with extensive local road networks
▪ providing links to major ports, airports, and rail terminals
▪ enabling good access to regions and cross-border routes between the nations of the United Kingdom

The establishment of Highways England through the Infrastructure Act 2015 has changed fundamentally the way we plan investment in the network. Funding is now determined every 5 years, in the Road Investment Strategy (RIS), which is set by Government. We are currently delivering on the commitments that were set out in the first RIS covering 2015 to 2020, which are already making a difference for road users across the network.

At the same time, we are working closely with the other 3 bodies with statutory responsibility for the RIS – Department for Transport, Office of Rail and Road and Transport Focus – on preparing for the next RIS (RIS2) for the period after 2020.
Purpose of Route Strategies

Route Strategies provide a high level view of the current performance of the SRN as well as issues perceived by our stakeholders that affect the network. They are one of the key components of research required for developing the RIS. This suite of Route Strategies builds upon the analysis underpinning the first set of Route Strategies undertaken between 2013 to 2015, which together provided the first comprehensive assessment of the entire network. This time the Route Strategies aim to:

- bring together information from key partners, motorists, local communities, construction partners, environmental groups and across the business
- achieve a better understanding of the condition and performance of our roads, and local and regional aspirations
- shape our investment priorities to improve the service for road users and support a growing economy
- help inform the next RIS

Strategic themes

The Government’s vision for transforming the SRN is described in the Road Investment Strategy post 2020: Planning Ahead document available on www.gov.uk. This vision builds on the 5 broad aims published in the Road Investment Strategy for 2015-2020: economy; network capability; integration; safety; and the environment. It also builds on Highways England’s 5 strategic outcomes (see Figures 1.1 and 1.2). Using the evidence from this and the other 17 Route Strategies, we will develop proposals that can help bring the Government’s vision for roads to life.

RIS1 Strategic Vision as reiterated in “RIS Post 2020: Planning ahead”

- Supporting economic growth through a modernised and reliable network that reduces delays, creates jobs and helps business compete and opens up new areas for development
- More free-flowing network where routine delays are more infrequent, and where journeys are safer and more reliable
- Safe and serviceable network where no one should be harmed when travelling or working on the network
- Improved environment where the impact of our activities is further reduced, ensuring a long-term and sustainable benefit to the environment
- More accessible and integrated network that gives people the freedom to choose their mode of transport and enable safe movement across and alongside the network

Figure 1.1 - RIS1 strategic vision

Highways England Strategic Business Plan’s key outcomes

Figure 1.2 - Highways England strategic outcomes

1See Chapter 6 for more information on the next RIS
Stakeholder engagement

Building on the engagement we started in the first round of Route Strategies, we have continued to work closely with a wide range of stakeholders to enhance our understanding of the strategic road network, and identify where users and other stakeholders feel investment is needed.

We used a number of methods to collate information. For example, we launched an online tool for customers and stakeholders over the summer of 2016 to inform us of the issues and challenges on our roads that affected them. As well as information collated from a range of people within Highways England, more than 300 different stakeholder organisations provided important feedback on the network during the evidence collection period. There were also more than 370 individual members of the public who contributed information. In total, around 2,700 individual points were raised by external stakeholders.

Transport Focus

We commissioned Transport Focus, the road user watchdog, to undertake research on road user priorities. More than 4,400 interviews were undertaken with drivers across the SRN. Figure 1.4 below shows the breakdown by user type and purpose.

![Completed interviews](table)

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Completed interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commuting</td>
<td>501 (11%)</td>
</tr>
<tr>
<td>Business</td>
<td>1,367 (31%)</td>
</tr>
<tr>
<td>Leisure</td>
<td>2,457 (56%)</td>
</tr>
<tr>
<td>Others</td>
<td>206 (5%)</td>
</tr>
<tr>
<td>Individuals</td>
<td>407 (9%)</td>
</tr>
<tr>
<td>Local authority</td>
<td>322 (7%)</td>
</tr>
<tr>
<td>STBs/LEPs</td>
<td>3,487 (79%)</td>
</tr>
<tr>
<td>Business</td>
<td>354 (8%)</td>
</tr>
<tr>
<td>Leisure</td>
<td>716 (16%)</td>
</tr>
<tr>
<td>Others</td>
<td>1,233 (27%)</td>
</tr>
<tr>
<td>Individuals</td>
<td>233 (5%)</td>
</tr>
</tbody>
</table>

Figure 1.4 - Driver sample breakdown

The research found that the North Pennines route was the highest rated of the 18 routes, with 92% of users rating their experience of the route as either extremely good or fairly good. However, as Table 1.1 shows, 17% of users still experienced problems using the route, with roadworks and then delays caused by accidents/road closures as the two main causes.

The full report has been published on Transport Focus’s website [www.transportfocus.org.uk/research-publications/publications/road-to-the-future](http://www.transportfocus.org.uk/research-publications/publications/road-to-the-future). We will continue to work closely with Transport Focus to understand customer priorities to ensure that the next RIS reflects their needs.
<table>
<thead>
<tr>
<th>Experienced problems %</th>
<th>Route impacted</th>
<th>Largest problem</th>
<th>Second largest problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>61%</td>
<td>M25 to Solent</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>58%</td>
<td>London Orbital and M23 to Gatwick</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>50%</td>
<td>South Coast Central</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>46%</td>
<td>Solent to Midlands</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>44%</td>
<td>East of England</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>43%</td>
<td>Birmingham to Exeter</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>41%</td>
<td>South West Peninsula</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>41%</td>
<td>North and East Midlands</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>40%</td>
<td>London to Scotland East</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>40%</td>
<td>South Pennines</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>39%</td>
<td>Kent Corridor to M25</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>37%</td>
<td>London to Scotland West</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>32%</td>
<td>Midlands to Wales and Gloucestershire</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>30%</td>
<td>Felixstowe to Midlands</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>30%</td>
<td>South Midlands</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>28%</td>
<td>London to Leeds East</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>27%</td>
<td>London to Wales</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
<tr>
<td>17%</td>
<td>North Pennines</td>
<td>🌧️</td>
<td>🌧️</td>
</tr>
</tbody>
</table>

Table 1.1 - Transport Focus summary

- **Congestion/traffic queuing**
- **Roadworks**
- **Delays caused by accidents/roads closed**
- **Roads busy/high volume of traffic**
2. The route

The North Pennines route supports east–west travel across the north of England, and has a critical function in supporting the growth of the Northern Powerhouse, as well as the local economies.

The route is made of up 3 distinct east–west corridors of the A69, A595/A66 and the A590. The A69 and A66 provide trans-Pennine links between Carlisle and the Tyne and Wear conurbation, and between the M6 and the A1/A1(M) south of Darlington respectively. West of the M6, the A66, A595 and A590 provide links to the west and south Cumbrian coast, including links to the peninsula towns of Whitehaven, Workington, Ulverston and Barrow-in-Furness. The network is also essential in supporting the tourism economy across Northern England, providing access to a wide range of tourism destinations including the internationally renowned Lake District National Park.

There is no motorway within the route, which instead comprises a combination of high-standard dual carriageways with limited access roads, and lower-standard single carriageways with frequent accesses. In a national context, the route is relatively lightly trafficked. However, there are a number of sections which rank among the least reliable nationally.

The A69 is 52 miles long between Carlisle and Newcastle and links the industrial areas of the North East and Teesside with the North West, the west of Scotland and, via the west coast ports, with Northern Ireland. The road is part of the Trans-European Transport Network (TEN-T). It is primarily rural in nature, and is single carriageway except for a 19-mile dual carriageway section between Hexham and the A1, which is the busiest section of the route.

Figure 2.1 - Route overview map
The A66, which links the A1(M) at Scotch Corner to the M6 at Penrith, is a key national and regional strategic link for a range of south–north and east–west movements. It is the most direct route between the Tees Valley, north, south and west Yorkshire, the East Midlands, eastern England, north Cumbria, and the central belt of Scotland and Cairnryan (for access to Ireland). The A66 serves as an alternative and more direct east–west crossing than the M62 which is currently the only major east–west crossing of the northern UK between Derby and Edinburgh. The ongoing improvements to bring the A1 carriageway to motorway standards between Leeming Bar and the A66(M) is likely to increase the attractiveness of south-to-north movements along the A66.

During periods of snow or high winds, the elevated and exposed nature of parts of the A66 between A1(M) and the M6 can necessitate closure of the route to high-sided vehicles, or infrequently, to all vehicles. This can be especially detrimental to the movements of heavy goods vehicles (HGVs), which represent a significant proportion of A66 traffic.

From Penrith, the A66 continues to the north of the Lake District to Workington. The route is mainly rural and includes a mix of single and dual carriageways. To the west it becomes more urban, providing links to Workington, including its port, and to the south along the A595 to Whitehaven and Sellafield. The A590 links the M6 from junction 36 through Ulverston to Barrow-in-Furness, and is a mix of single and dual carriageway.

The route provides a vital pan-northern function and is of key importance to the transformational economic change being promoted by Transport for the North (TfN) and other bodies. The transport infrastructure, which includes the route, will be critical for realising the opportunities to transform the north’s economy.

The route facilitates a high proportion of long-distance journeys, both commercial and tourist related. The A69 and A66 between the A1 and M6 also serve local slow-moving agricultural traffic making short journeys which can have an impact on other users, especially on the single carriageway sections.

The A595 carries a large number of work-based trips, particularly to and from Sellafield, which is one of the largest employment sites in the Cumbria region. The A590 supports a mix of uses from long-distance freight traffic to the industries in Ulverston, Barrow-in-Furness, and the west coast ports, to local, short commuter trips. It also caters for a large number of tourists accessing the south of the Lake District National Park.
Figure 2.2 - Route Strategy overview map
3. Current constraints and challenges

This chapter outlines the emerging issues raised by stakeholders and is supplemented by Highways England information.

The following text and figures within this chapter provide a summary of the information collected and applied to our strategic themes.

**A safe and serviceable network**

The variable nature of the road standard, particularly along the A66 and A69, is considered to contribute to the road safety performance of the route, for road users including motorcyclists, with the following considered to be of particular concern:

- Collisions at T-junctions are a significant issue across the A66 between the M6 and A595. There is concern over the numbers killed and seriously injured on the section between Briery Interchange and the start of the climbing lane at Lowside.
- Collision clusters are located at various places along the A66 between the M6 and A1(M) including Hargill, West Layton, East Layton, Rokeby Park, Warcop and Sandford.
- The single carriageway sections of the A69 have high collision rates for all vehicle types. Collision clusters are also present at many of the staggered and grade-separated junctions of the A69.

**More free-flowing network**

The continuous variations in carriageway standard have an impact on journey time reliability, which is seen as more of a general issue than specific areas of congestion. There are some single carriageway sections of the route that are carrying traffic flows that are beyond the demand they were designed for.

In day-to-day operational terms, the route tends to perform relatively well in terms of overall delay, with congestion issues generally limited to the A595 between Workington and Sellafield. Sellafield is a major employer at the western extent of the route, with a wide catchment area that draws traffic into the A66/A595 corridor.

The A69 eastbound approach to the Tyne and Wear conurbation also suffers from congestion, with delay at the A69/A1 junction in the peak hours. Journey time reliability is an issue on the A69 between the M6 and Hexham, with the variability in average traffic speeds discouraging some freight operators from using the route.

The routes each suffer when disruptive incidents occur, and limited technology provision makes it more difficult to manage such events on the networks and communicate information to drivers. Issues can be particularly difficult during times of increased tourism and major leisure events, such as Appleby Horse Fair. The lack of suitable alternative and diversion routes means that incidents or planned roadworks can create severe disruption. This can be especially detrimental to HGVs where diversion routes can be more than 60 miles in parts of Cumbria.
The route supports east–west travel across the north of England, and therefore has a critical economic function in supporting the growth of the Northern Powerhouse, and the agenda being promoted by TfN. Improving connectivity across the northern Pennines would help to drive efficiencies between key economic hubs. West of the M6 the route provides a vital (and often only) strategic link to the rest of the UK for the business and communities in Cumbria. Variability and unpredictability across the route could impact on the attractiveness of the regions on either side of the Pennines and restrict the growth potential of their regional economies.

On the west Cumbria coast, the proposed developments of Moorside nuclear plant and a new coal mine in Whitehaven will increase the economic activity within the region, adding to the existing economic hubs of Whitehaven, Sellafield and the Port of Workington.

In south Cumbria, the A590 is essential for the regional business and tourism economies. Significant growth is expected around the Furness peninsula, including BAE Systems in Barrow-in-Furness. The success of this and other inward investment will depend on the continuing performance of the A590 corridor.

To the east of the A1, and beyond the North Pennines route, the use of the A66 for traffic from the Tees Valley and the major ports on the east coast is considered to be increasingly significant, especially given the status of Teesside and Teesport as international gateways, with anticipated development of the ports set to increase traffic on the A66.

Further north, at the eastern extent of the A69, the route again interacts with the A1, this time at the western edge of the large urban conurbation of Newcastle. As with the A66 between Darlington and Teesside, although not part of the North Pennines route, traffic associated with proposed development areas along the A1 and adjoining corridors east of the A69 is anticipated to utilise corridors of the North Pennines route. The future performance of the A69 is therefore likely to impact on the economic development potential of the communities and specific growth areas such as Newcastle International Airport, housing sites to the north-west of Denton interchange and the western Newcastle urban centre economic opportunity area.

The route has significant ecological, cultural and environmental sensitivities. It experiences consistent environmental challenges with a significant length passing adjacent to, and through, a number of national parks and also skirting a number of areas of outstanding natural beauty (AONBs). Throughout both the A69 and A66 there are multiple listed or designated cultural heritage, water environment and habitat sites.

There are environmental constraints along the A69, including the frontiers of the Hadrian’s Wall World Heritage Site, the North Pennines AONB, Northumberland National Park and Northumberland Dark Sky Park, which are all within 2 miles of the corridor.

Through its most urban environment at Denton, to the eastern extent of the A69 corridor, the route lies close to the Hadrian’s Wall UNESCO World Heritage Site.

Adverse weather conditions on higher ground can contribute to network resilience problems, with road closures being a particular issue on the A66 at Troutbeck. Other locations on the route that experience delay as a result of environmental challenges include:

- sections of the A590 corridor, which are prone to complete closure due to flooding, causing severe disruption and severing the main transport link for rural communities
- sections of the A66 near to Bassenthwaite Lake are prone to flooding, which can cause widespread disruption involving long diversions for road users

Despite the rural nature of the route, it frequently interacts with local communities and non-motorised users (NMUs). Several National Cycle Network paths meet the route, along with various public footpaths and bridleways which either run parallel or cross it. The following specific concerns were raised with regards to NMUs:

- The provision of pedestrian and cycle links at sections throughout the A595 is considered to be poor, especially near to Whitehaven
- On the A595, NMU safety issues have been identified near to Beckermet and Thornhill
- Improvements are required to enhance safety and ensure continuity of the national coast-to-coast cycle route where it interacts with the A66 and A595
- The route is of significant interest and concern to equestrian users and organisations

The route supports east–west travel across the north of England, and therefore has a critical economic function in supporting the growth of the Northern Powerhouse, and the agenda being promoted by TfN. Improving connectivity across the northern Pennines would help to drive efficiencies between key economic hubs. West of the M6 the route provides a vital (and often only) strategic link to the rest of the UK for the business and communities in Cumbria. Variability and unpredictability across the route could impact on the attractiveness of the regions on either side of the Pennines and restrict the growth potential of their regional economies.

On the west Cumbria coast, the proposed developments of Moorside nuclear plant and a new coal mine in Whitehaven will increase the economic activity within the region, adding to the existing economic hubs of Whitehaven, Sellafield and the Port of Workington.

In south Cumbria, the A590 is essential for the regional business and tourism economies. Significant growth is expected around the Furness peninsula, including BAE Systems in Barrow-in-Furness. The success of this and other inward investment will depend on the continuing performance of the A590 corridor.

To the east of the A1, and beyond the North Pennines route, the use of the A66 for traffic from the Tees Valley and the major ports on the east coast is considered to be increasingly significant, especially given the status of Teesside and Teesport as international gateways, with anticipated development of the ports set to increase traffic on the A66.

Further north, at the eastern extent of the A69, the route again interacts with the A1, this time at the western edge of the large urban conurbation of Newcastle. As with the A66 between Darlington and Teesside, although not part of the North Pennines route, traffic associated with proposed development areas along the A1 and adjoining corridors east of the A69 is anticipated to utilise corridors of the North Pennines route. The future performance of the A69 is therefore likely to impact on the economic development potential of the communities and specific growth areas such as Newcastle International Airport, housing sites to the north-west of Denton interchange and the western Newcastle urban centre economic opportunity area.

The route has significant ecological, cultural and environmental sensitivities. It experiences consistent environmental challenges with a significant length passing adjacent to, and through, a number of national parks and also skirting a number of areas of outstanding natural beauty (AONBs). Throughout both the A69 and A66 there are multiple listed or designated cultural heritage, water environment and habitat sites.

There are environmental constraints along the A69, including the frontiers of the Hadrian’s Wall World Heritage Site, the North Pennines AONB, Northumberland National Park and Northumberland Dark Sky Park, which are all within 2 miles of the corridor.

Through its most urban environment at Denton, to the eastern extent of the A69 corridor, the route lies close to the Hadrian’s Wall UNESCO World Heritage Site.

Adverse weather conditions on higher ground can contribute to network resilience problems, with road closures being a particular issue on the A66 at Troutbeck. Other locations on the route that experience delay as a result of environmental challenges include:

- sections of the A590 corridor, which are prone to complete closure due to flooding, causing severe disruption and severing the main transport link for rural communities
- sections of the A66 near to Bassenthwaite Lake are prone to flooding, which can cause widespread disruption involving long diversions for road users

Despite the rural nature of the route, it frequently interacts with local communities and non-motorised users (NMUs). Several National Cycle Network paths meet the route, along with various public footpaths and bridleways which either run parallel or cross it. The following specific concerns were raised with regards to NMUs:

- The provision of pedestrian and cycle links at sections throughout the A595 is considered to be poor, especially near to Whitehaven
- On the A595, NMU safety issues have been identified near to Beckermet and Thornhill
- Improvements are required to enhance safety and ensure continuity of the national coast-to-coast cycle route where it interacts with the A66 and A595
- The route is of significant interest and concern to equestrian users and organisations
The northern section of the A590 can experience safety issues throughout the dualled section

Frequent road closures near Lindal and Dalton due to flooding

Traffic conditions are heavily affected by the travel patterns of Sellafield employees. Congestion on the A595 can lead to rat-running through villages

Delays on the A590 through Ulverston

Single carriageway sections of the route can lead to congestion, especially near to Ulverston and Lindal

Single carriageway sections of the route can lead to congestion, especially near to Ulverston and Lindal

Safety issues at multiple locations along the A595 section past Whitehaven, as well as south on the A595 between Whitehaven and Bigrigg

The northern part of the A590 can lead to traffic congestion, especially near Ulverston and Lindal

Consequences of the A590 accesses to Broughton and Brigham

This junction where the A66 and A595 connect both experience congestion

Issues with network resilience near to Bassenthwaite Lake

Single carriageway sections of the route can lead to congestion

Frequent road closures near Lindal and Dalton due to flooding

For the A590, A66 and A69, diversionary routes are long and disruptive, especially for HGV movements

Route unreliability on the A66 due to winter weather and wind

For the A590, A66 and A69, diversionary routes are long and disruptive, especially for HGV movements

Traffic conditions are heavily affected by the travel patterns of Sellafield employees. Congestion on the A595 can lead to rat-running through villages

Supporting economic growth

Safe and serviceable network

Improved environment

Accessible and integrated network

Figure 3.1 - Key challenges for the route
An essential facet of a resilient road network is the ability to effectively divert traffic away from closed carriageways in the event of an unplanned incident. The map indicates the diversionary routes that currently exist on this route and that have been agreed with the local road network operator. However, it should be noted that the provision of these routes is dependent upon the nature of the incident and the suitability and availability of the surrounding network. In some instances, the diversion route may not be suitable for HGV traffic or might not be available due to events on the local road network. A review is currently underway to improve the quality and coverage of these routes, and to improve the traffic management procedures that are relied upon to implement these routes in the event of a carriageway closure.

Figure 3.4 - North Pennines diversionary routes
Maintaining the strategic road network

We carry out routine maintenance and renewal of roads, structures and technology to keep the network safe, serviceable and reliable. We also ensure that our contractors deliver a high level of service on the SRN to support operational performance and the long-term integrity of the asset.

The heavy year-round use of all our routes means that they require regular maintenance and inspections for repairs to keep them fully operational, in order to support economic growth. Our maintenance regime focuses on 4 key aspects of the routes: road surfaces, bridges and structures, drainage and earthworks. The summary condition of each on this route is set out below:

Road surface
The surface condition across the route is considered to be sound or having some deterioration, with less than 0.5% having severe deterioration that would require focused investigation.

Bridges and structures
The structures across the route are mostly in very good or good condition. According to an analysis of current data, fewer than 3% of our structures are in poor or very poor condition.

Drainage
Drainage assets are represented by both linear assets (for example pipes, channels, ditches, drains) and non-linear assets (for example gullies, chambers). Across the route, drainage assets are considered to be in fair condition for linear assets and very good condition for non-linear assets. Of those assets inspected, over 45% of assets have been assessed as having no defects for both linear and non-linear assets. Non-linear assets have also been assessed as having 55% of assets with superficial defects.

Earthworks
The geotechnical earthworks across the route are considered to be in good condition, with the total length of earthworks that require further investigation amounting to less than 1%.

New assets have an operational ‘life’, during which, under normal conditions and maintenance, the risk of failure is expected to be low. Beyond this period, the risk of asset failure is expected to increase, although for many types of asset the risk of failure remains low and we do not routinely replace assets solely because they are older than their expected operational life. We use a combination of more regular maintenance and inspection, along with a risk-based approach to ensure that assets remain safe while achieving value for money from our maintenance and renewal activities.

Future developments
We have taken steps to transform our approach to maintenance by establishing an asset management programme that develops and implements the Asset Management Framework for Highways England.

The framework aligns strategic objectives with regional asset management plans and lifecycle asset management plans. It also includes the analysis required to plan the investment and expenditure on the strategic road network during the next road period, developing the business case options for capital renewals. It will provide a clear articulation of the total value that will be delivered by investment in RIS2, including the costs and benefits of delivering the capital renewals programme.

Operations
We are establishing a nationally consistent approach to the management of our operational capability through our Operational Excellence change programme. This will deepen our understanding of how our interventions impact on the performance of the network and on the journeys of our customers. We are using the latest analytical software to process traffic data and gain insight into:

- how our operational services can improve safety and provide security to road users
- how the attendance of a traffic officer has an impact on incident durations
- how information provided by Highways England can benefit road users who plan their journeys beforehand and then while on their journeys

By better understanding our current operational performance, we can create a baseline from which we can identify opportunities for improvement.
4. Current investment plans and growth potential

Investment in the strategic road network can make areas more attractive for inward investment, unlock new sites for employment and housing and facilitate regeneration.

From servicing the UK’s logistics needs, linking our manufacturing heartlands and connecting to our international gateways, supporting services-driven activity in high-growth towns and cities, to meeting the needs of our visitor economy, the SRN is critically important to servicing the UK economy.

Economic context

Highways England has been working with a wide range of stakeholders to develop a strategic economic growth plan, which we are calling The Road to Growth. This plan explores the economic role of the strategic road network, and aims to explain how we will further increase our contribution to the UK economy. As part of the evidence base for The Road to Growth, over 400 economic hotspots – or economic opportunity areas (EOAs) – around the SRN have been identified in consultation with Local Enterprise Partnerships (LEPs). The figures in this chapter highlight the EOAs which most closely align and are supported by the route.

To inform the development of The Road to Growth and assess the relationship between the SRN and economic growth, a suite of evidence reports were completed. These reports were published alongside The Road to Growth discussion paper and were subject to public consultation from November 2016 to January 2017. Alongside the engagement we have undertaken with all LEPs across England, the following evidence reports have ensured we have a more comprehensive economic evidence base and a better understanding of future challenges and opportunities:

- economic growth and the SRN – an evidence review of the relationship between transport investment and economic growth
- commercial development – an assessment of the relationship between the main property sectors and the SRN
- international gateways – a review of principal international gateways (ports and airports) and their contribution to the economy
- socio-economic analysis and future forecasts – mapping of socio-economic data (population, deprivation and employment) and sectoral forecasts up to 2030. This included identification of the likely growth forecasts for all sectors with a particular focus on those sectors heavily dependent on the SRN.

The Road to Growth sets out our evidence findings to date and the steps we will take to enhance our enabling role in supporting economic growth.

Innovation

In April 2016, we published our Innovation, Technology and Research Strategy which set out how Highways England will use pioneering behaviours to help support our strategic objectives and create value for customers and stakeholders.

The £150 million Innovation Designated Fund was established to support innovative capital projects and to support developing the use of emerging technologies, new materials and ways of working.

Investment plans

The following figures show the location of Highways England major improvement projects which have previously been announced to help tackle some of the issues on the network. The Highways England website and delivery plan updates should be consulted for the latest information.

The figures also show strategic studies which have been progressed during RIS1, innovation projects and economic opportunity areas.
North Pennines - Route Strategy: Map 1 of 1

Figure 4.1 - Investment plans and economic opportunity areas
5. Future challenges and opportunities

Route Strategies have identified study areas on the strategic road network which require further investigation of the issues raised by stakeholders and identified through Highways England intelligence. These study areas will now be assessed further as part of our development for RIS2.

Figure 5.1 - Map of study area
A590 between Barrow-in-Furness and M6

- Given the significant levels of investment being concentrated around the Furness peninsula at Barrow and Ulverston, the A590 will have a key economic function in connecting the area to the M6 and the wider SRN.
- The route also helps serve the tourism market for people visiting the Lake District.
- Alternative routes are limited, and closures on the A590 often result in long diversion routes which are unsuitable for high flows and can lead to undesirable environmental impacts within the National Park, a problem which is exacerbated by limited driver information.
- Travel along the corridor is affected by congestion, particularly between Newby Bridge and Barrow, through Ulverston. Journey reliability is affected by the road standard regularly changing between dual and single carriageway through this section.
- There are locations within the A590 corridor that are prone to flooding, resulting in network closures.

A66/A595 between Cockermouth and Calder Bridge

- The A595 is a key link for the Cumbrian economy, providing connections to large employment hubs including Sellafield and Whitehaven and the Port of Workington. Proposed significant growth in the corridor, including the new Moorside nuclear site, will increase the demand within the corridor which is already congested.
- At the northern end of this section, the 2 junctions formed by the A595 and the A66 are both affected by congestion and there are frequently delay hotspots where the route passes Whitehaven.
- There are safety hotspots identified within the corridor, including on the A66 near Brigham/Broughton, and on the A595 near to Whitehaven and towards Bigrigg.
- The nature of the road network in the Lake District means that alternative routes are limited, and closures on the A595 result in long diversionary routes which are unsuitable for high flows.
This east-west link between the M6 and west Cumbrian coast is essential for connecting the employment areas in the coastal area to the M6 and wider SRN.

The route also helps serve the tourism market for people visiting the Lake District.

The mix of single and dual carriageway sections on this route can create congestion and safety issues.

The resilience of the route is a key issue, with incidents, and winter weather conditions, leading to route closures. The section of the A66 passing Bassenthwaite Lake has particular issues, including the network impact of flooding events.

The nature of the road network in the Lake District means that alternative routes are limited, and closures on the A66 result in long diversionary routes which are unsuitable for high flows.
There are journey time reliability issues along this section of the A66 due to the number of single carriageway sections and the high proportion of HGVs.

Collision clusters are located at various locations along the A66 between the M6 and A1(M) including Hargill, West Layton, East Layton, Rokeby Park, Warcop and Sandford.

The route is prone to closure from winter weather and high winds, and there are instances of severe flooding along the A66 between the A1(M) and M6, particularly at the eastern end between Bowes and Scotch Corner.

There are safety problems for cyclists at a number of locations on the A66, particularly between Bowes and Scotch Corner.
The single carriageway sections of the A69 have high incident rates for all vehicle types.

There are journey time reliability issues along the eastern section of the A69, generally due to the single carriageway, slower moving vehicles and the lack of overtaking opportunities.

There are environmental constraints along the A69, including the frontiers of the Hadrian’s Wall World Heritage Site, the North Pennines AONB, Northumberland National Park and Northumberland Dark Sky Park, which are all within 2 miles of the corridor.

Congestion and delays are experienced on the A69 eastbound approach to its junction with the A1.

There is a lack of real-time journey information along the A69, making it difficult to effectively manage any network incidents. There is a particular lack of information available on the approach to the A1 junction.
6. Next steps

Our findings from this and other Route Strategies, as well as other research, will inform our first Strategic Road Network Initial Report which is to be published later this year. This will form the basis of a public consultation, which in turn will feed into decision-making on the next Road Investment Strategy (RIS2).

We are looking ahead to the next RIS and how we can support the Secretary of State in ensuring that value for money investments are made in the road network. The process for developing RIS2 is set out in our licence, and is in 3 phases: research, decision and mobilisation.

We are currently in the first phase – research phase – where we are gathering wide-ranging evidence on the state of the network and how we can ensure that improvements have maximum impact. The series of Route Strategies, of which this is one, is an important part of this phase alongside the outcomes of strategic studies which looked at particularly complicated problems on parts of the network and how to tackle them. Another key source of evidence is the Strategic Economic Growth Plan (*The Road to Growth*), which examines where and how the SRN can help support economic growth. This will emphasise that sectors dependent on the road network employ 7.4 million people, that we are already doing a great deal to support growth and that we want to do even more.

Now that this series of Route Strategies is published, we will continue our engagement with stakeholders, including other transport providers and authorities, on how best to address problems and maximise opportunities. For example, in working towards seamless end-to-end journeys for our customers, we will be focussing on how the strategic road network links with local roads and other modes of transport.

Findings from the research phase will feed into Highways England’s Strategic Road Network Initial Report, expected to be published later this year, which will outline Highways England’s ambitions for the network across 2020–2025 and beyond. The Initial Report will be the subject of public consultation.

In the decision phase, the consultation feedback will assist the Department for Transport in developing RIS2. In turn we will develop a Strategic Business Plan (SBP) setting out how we will deliver RIS2 as a business. Both the RIS and SBP will be reviewed by the regulator of roads, the Office of Rail and Road, to ensure that we have made the most efficient decisions. The final documents are to be published in 2019.

<table>
<thead>
<tr>
<th>Research (2015-18)</th>
<th>Evidence used in drafting RIS2</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Strategic Studies</td>
<td>• Highways England produces Strategic Road Network Initial Report on the state of the network</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Decision (2018-19)</th>
<th>RIS2 finalised and published</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Department for Transport produces Road Investment Strategy</td>
<td>• Highways England produces Strategic Business Plan</td>
</tr>
<tr>
<td>• Highways England produces Strategic Road Network Initial Report</td>
<td>• Office of Rail and Road reviews the efficiency of both</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mobilisation (2020)</th>
<th>1 April 2020 - Road Period 2 begins</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Highways England produces the Delivery Plan</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 6.1 - RIS2 high-level process**
In the final mobilisation phase, we will set out a Delivery Plan with a detailed programme of investment to be carried out in 2020 to 2025 on the basis of the commitments in RIS2.

Continued investment in modernisation, maintenance and operation will further improve the road network on top of the measures and schemes currently being undertaken, and will allow us to further support users of the strategic road network and the UK’s economy. The rigorous process of developing RIS2 should ensure that the best use is made of taxpayers’ money and that investments have the maximum impact.

The views and perspectives of different stakeholders, including motorists, are important to us. Stakeholders may also wish to contact one of the partner organisations. For example, stakeholders can keep up to date with Transport Focus’ work, by signing up to their monthly electronic newsletter Road User Voice. Alternatively, stakeholders may prefer to make their views known through one of the many organisations involved in RIS2. They include the AA, RAC, RAC Foundation, Road Haulage Association, Freight Transport Association, Campaign for Better Transport, Confederation of British Industry and many others.

We will provide information about the process and emerging findings at events for representative organisations in spring 2017. At the same time, we are developing the dialogue with emerging STBs, local government, LEPs, business groups and environmental organisations. We want to align our analysis, and eventually our decision-making, with that of other organisations, so that we can maximise the benefit of investment, for example focusing on improving the interconnectivity between different modes and between the strategic and local road networks. This should lead to a richer discussion during public consultation on the Strategic Road Network Initial Report.