

# South Midlands Route Strategy Evidence Report April 2014



## Document History

### South Midlands route-based strategy evidence report

Highways Agency

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# 1 Introduction

## 1.1 Background

- 1.1.1 The Highways Agency is responsible for planning the long term future and development of the strategic road network (SRN).
- 1.1.2 Route-based strategies (RBS) represent a fresh approach to identifying investment needs on the SRN. Through adopting the RBS approach, we aim to identify network needs relating to operations, maintenance and where appropriate, improvements to proactively facilitate economic growth.
- 1.1.3 The development of RBS is based on one of the recommendations included in Alan Cook's report A Fresh Start for the SRN, published in November 2011. He recommended that the Highways Agency, working with local authorities (LAs) and local enterprise partnerships (LEPs), should initiate and develop route-based strategies for the SRN.
- 1.1.4 The then Secretary of State accepted the recommendation in the Government's response (May 2012), stating that it would enable a smarter approach to investment planning and support greater participation in planning for the SRN from local and regional stakeholders.
- 1.1.5 The Highways Agency completed the following three pilot strategies which have been published on the Highways Agency website:
- A1 West of Newcastle;
  - A12 from the M25 to Harwich (including the A120 to Harwich); and
  - M62 between Leeds and Manchester.
- 1.1.6 Building on the learning from those pilot strategies, we have divided the SRN into 18 routes. A map illustrating the routes is provided in Appendix A. The South Midlands route is one of that number.
- 1.1.7 RBS are being delivered in two stages. Stage 1 establishes the necessary evidence base to help identify performance issues on routes and anticipated future challenges, takes account of asset condition and operational requirements, whilst gaining a better understanding of the local growth priorities.
- 1.1.8 In the second stage we will use the evidence to take forward a programme of work to identify possible solutions for a prioritised set of challenges and opportunities. It is only then that potential interventions are likely to come forward, covering operation, maintenance and if appropriate, road improvement schemes.
- 1.1.9 The RBS process will be used to bring together national and local priorities to inform what is needed for a route, while delivering the outcomes in the performance specification.
- 1.1.10 Using the evidence base and solutions identification studies, we will establish outline operational and investment priorities for all routes in

the SRN for the period April 2015 – March 2021. This will in turn feed into the Roads Investment Strategy, announced by the Department for Transport in [Action for Roads](#).

## **1.2 The scope of the stage 1 RBS evidence report**

1.2.1 During the first stage of RBS, information from both within the Highways Agency and from our partners and stakeholders outside the Highways Agency has been collected to gain an understanding of the key operational, maintenance and capacity challenges for the route. These challenges take account of the possible changes that likely local growth aspirations, or wider transport network alterations will have on the routes.

1.2.2 The evidence reports:

- Describe the capability, condition and constraints along the route;
- Identify local growth aspirations;
- Identify planned network improvements and operational changes;
- Describe the key challenges and opportunities facing the route over the five year period; and
- Give a forward view to challenges and opportunities that might arise beyond the five year period.

1.2.3 The 18 evidence reports across the SRN will be used to:

- Inform the selection of priority challenges and opportunities for further investigation during stage 2 of route-based strategies; and
- Inform the development of future performance specifications for the Highways Agency.

1.2.4 A selection of the issues and opportunities identified across the route are contained within this report, with a more comprehensive list provided within the technical annex. This is for presentational reasons and is not intended to suggest a weighting or view on the priority of the issues.

1.2.5 The evidence reports do not suggest or promote solutions, or guarantee further investigation or future investment.

## **1.3 Route description**

1.3.1 The South Midlands route covers 440 carriageway miles (both directions) and provides the strategic link between the East and West Midlands as shown on figure 1, through the following roads:

- A38 from Lichfield to Derby (including the A5148);
- M42 from Birmingham to the M1 via the A42;
- A46/M69 from the M5 near Ashchurch to the M1 at Leicester;
- A449/A5 from the junction with the M54 to the A5 junction with the M1 at junction 18; and

- M45 and A45 from Coventry to the M1.

- 1.3.2 The route is mainly dual carriageway all purpose trunk road although there are significant sections of single carriageway on the A5 and A46. There are three motorway sections, the M45 (M1 to A46) M42 (junctions 9 to 11) these are two lane motorways, while the M69 (M6 junction 2 to M1 junction 21) has three lanes.
- 1.3.3 The M6 Toll is considered as part of this route as it connects the M6 junction 4 near Coleshill to junction 11A north of Wolverhampton, paralleling predominantly the A5 and M42 within the South Midlands route. However, the toll road construction is funded, operated and maintained, by Midland Expressway Limited which has a government commission to do so until 2054.
- 1.3.4 The route serves the major towns and cities surrounding the south east of Birmingham to the East Midlands, through Coventry, Tamworth, Lichfield, Nuneaton, Hinckley, Rugby, Leicester, and towards the south of the Midlands linking the major towns of Warwick and Stratford on Avon.
- 1.3.5 The route links the East and West Midlands and provides access to a number of significant traffic generators, including the National Exhibition Centre, Birmingham and the Donington Park Motor Racing Circuit. Coventry and East Midlands Airports are within the route and it links these major international hubs with the M1 and M6. The A5 is part of the Trans European Network.
- 1.3.6 On average, the route carries over 7 million vehicles miles per day. There is a wide variety of typical use of the route due to the variances in the rural and urban nature, major trunk roads and motorway compared with rural and single carriageway sections. A high proportion of commercial traffic uses the route for east-west movements between Birmingham and Coventry to the M1, with the A5 acting as a local distributor.
- 1.3.7 Variations in the type and level of traffic due to different times of the year can occur on the route, especially at the southern end where the route serves the historic towns of Warwick and Stratford on Avon where tourism is key part of the local economy. The traffic generators described above often hold major events throughout the year, for example Donington Park Motor Racing Circuit.
- 1.3.8 This route connects with a number of other routes for which RBS are also being developed. These are:
- Birmingham to Exeter (the A46 to the south west of this route connects with the M5);
  - London to Scotland West (the A46 crosses the M40 near Warwick, connects at junction 7 of the M42, and crosses the M6 at junction 12);
  - Midlands to Wales and Gloucestershire (after crossing the M6 the route connects with the M54 at junction 2 with the A449);

- Felixstowe to Midlands (connects with the M6 at junction 2 near Coventry);
- London to Scotland East (connects with this route three times along the M1); and
- North and East Midlands (connects where the A38 meets the A50 near Derby).



# Figure 1 South Midlands

Route-based strategy  
overview map



- South Midlands route
- Port
- Airport
- Junction number

## 2 Route capability, condition and constraints

### 2.1 Route performance

- 2.1.1 The SRN comprises only three per cent of England's road network, but it carries one-third of all traffic. Around 80 per cent of all goods travel by road, with two-thirds of large goods vehicle traffic transported on our network.
- 2.1.2 The M42 and M6 Toll around the West Midlands conurbation are the busiest motorway sections of the route. This is likely to be due to the available capacity on these sections which are either three or four lane motorways. Incident management clear up capability is key to keeping these roads moving. With the exception of M6 Toll, a high proportion of freight is common along the entire route, but is particularly concentrated on the M42, A42 and A5. The link with highest proportion of freight traffic is the A42 between M42 junction 11 and A511, which is 36% with 18% heavy good vehicles (HGVs)
- 2.1.3 The busiest trunk road on the route is the A46 south of Coventry (between A452 and A45). This link is near Coventry Airport and where the A45 and A46 meet known as Tollbar.
- 2.1.4 The ten most trafficked sections of this route are presented in Table 2.1. This is for the reporting period 1 April 2012 to 31 March 2013.

**Table 2.1 Ten busiest sections on the route (1 April 2012 to 31 March 2013)**

Rank	SRN section	Annual Average Daily Traffic (AADT)	National Rank
1	M42 between M42 J7 and M42 J7a	64,694	109
2	M6 Toll between M42 J8 and M6 Toll T1	63,958	117
3	M42 between M42 J8 and M42 J9S	63,958	117
4	M42 between M42 J7a and M42 J7	50,125	361
5	M6 Toll between M6 Toll T1 and M42 J8	46,350	430
6	M42 between M42 J9 and M42 J8	46,350	430
7	M42 between M42 J9S and M42 J9	34,139	769
8	M42 between M42 J10 and M42 J9	33,794	786
9	M42 between M42 J9 and M42 J10	33,712	793
10	A46 between A452 and A45	30,279	885

- 2.1.5 However, busy roads in themselves don't necessarily represent an issue – our customers' experience of driving on the network is important to us. The [Strategic Road Network performance specification 2013-15](#), sets us high level performance outcomes and outputs under the banner of an efficiently and effectively operated SRN. We currently measure how reliable the network is based on whether the 'journey' time taken to

travel between adjacent junctions is within a set reference time for that period, ie 'on time'.

- 2.1.6 Table 2.2 below shows that the sections of the route that suffer the greatest unreliability in terms of journey-time are in the main the all purpose trunk roads. The A5 between Hinckley and Nuneaton (eastbound) is the most unreliable and is ranked the 15<sup>th</sup> least reliable link nationally. This poor performance is directly related to the capacity issues at the Dodwells and Longshoot junctions. These junctions are at grade and will be improved as part of the Pinch Point scheme to be completed by 2015.

**Table 2.2 Ten least reliable journey-time locations on the route (1 April 2012 to 31 March 2013)**

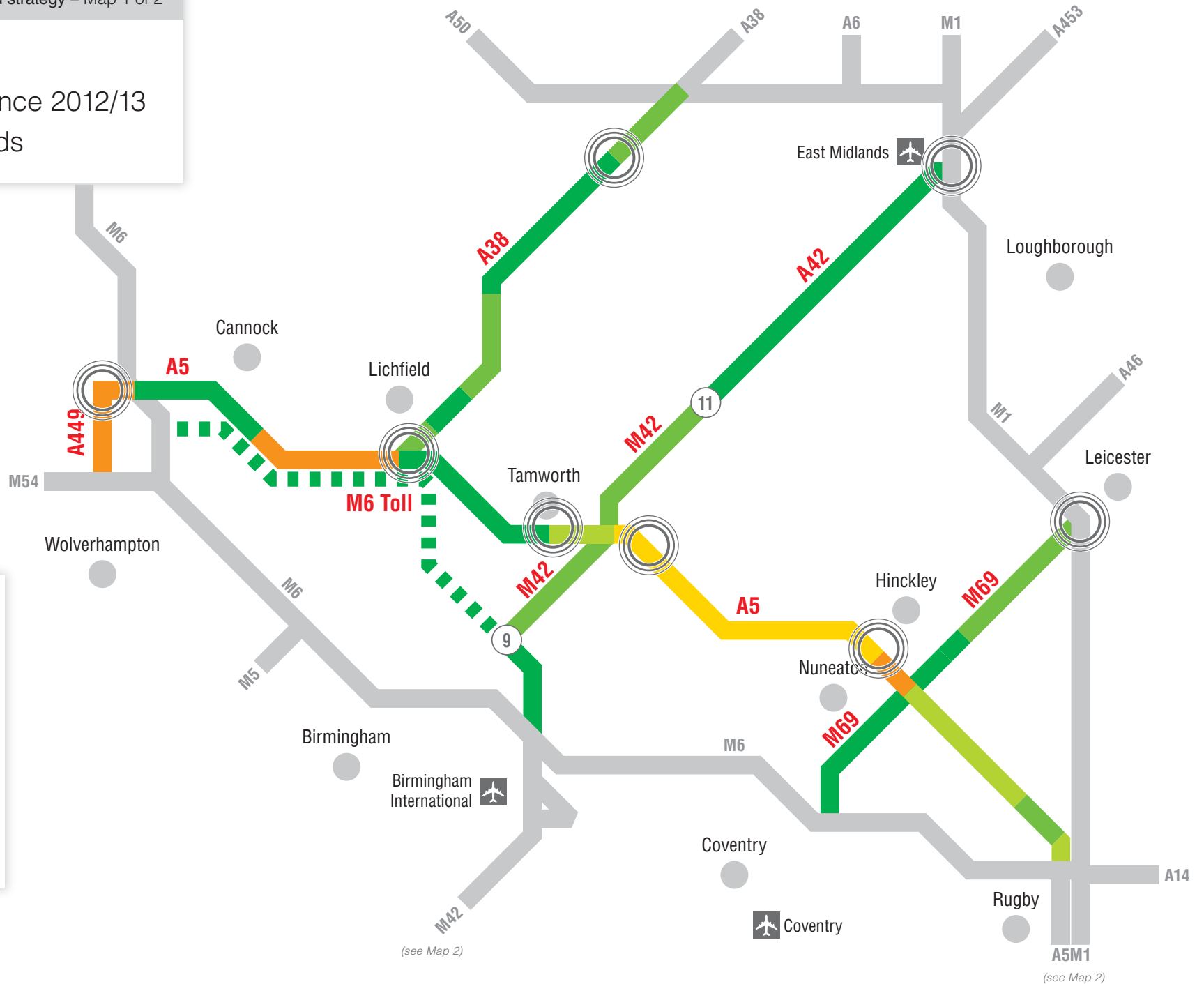
Rank	Location	On-time reliability measure	National Rank
1	A5 between A47 and A47 (east bound)	51.7%	15
2	A45 between A452 and M42 J6	57.8%	44
3	M6 Toll between M6 Toll T1 and M6 Toll T2	58.4%	55
4	A46 between A4184 and A44	60.0%	75
5	A38 between A5 and A5148	60.8%	97
6	A5148 between A5 and A38	61.2%	109
7	A5 between A47 and A47 (west bound)	61.3%	113
8	A5 between A5148 and A38	61.3%	115
9	A45 between M42 J6 and A452	61.9%	126
10	A5148 between A38 and A5	61.9%	129

- 2.1.7 The A45 near junction 6 of the M42 can be the subject of poor reliability during the winter particularly if the weather is severe, analysis shows the least reliable journey-times are during the winter months.
- 2.1.8 For the M6 Toll sections, the contributing factor to poor performance in terms of reliability is queuing at the junctions rather than on the M6 Toll links.
- 2.1.9 The A46 to the south east of the Evesham bypass, is displaying a lower than expected reliability measure. This is due to a local developer scheme on this section which was undertaken during the 2012/13 monitoring period. With the scheme now complete it is expected the reliability will improve
- 2.1.10 A number of the links in the table above relate to the journey-time reliability on the links between the A38, A5 and A5148 near Lichfield. This is a significant link between the north of Birmingham and major towns to the north and east, and used in the main by commuter based local trips. Due to the complex nature of the section with multiple vehicle movements, congestion can occur around the junctions and on the links leading to issues with reliability.

- 2.1.11 The route performs well in that the sections discussed in Table 2.1, the busiest links on the route, do not feature in the table above setting out the least reliable locations on the route. Whilst these sections, of the M42 are busy they do not suffer the same level of congestion as seen on the trunk road sections.
- 2.1.12 Figure 2.1 illustrates the average speeds during weekday peak periods between 1 April 2012 and 31 March 2013. The peak periods are generally the busiest periods on the network and help us to understand the impact of the worst congestion on customers' journey-times. Figure 2.1 also shows any known performance or capacity issues where the local road network interfaces with the route.
- 2.1.13 The A46 southbound near its junction with the M5 at junction 9 operates at an average speed for traffic of between 20mph and 30mph. This is in part due to the section being single carriageway with a speed limit of 40mph, but additionally queuing on this link is because of poor junction performance at M5 junction 9, resulting in traffic queuing back along the A46. There are also a number of local accesses and a concentration of employment along the A46 just to the east of junction 9. A number of issues associated with this junction will be addressed through a Pinch Point scheme.
- 2.1.14 Traffic travelling southbound on the A46 towards the Tollbar junction at the A45 experience peak hour speeds of 30 to 40mph slower than the speed limit of 60mph.
- 2.1.15 On the A5 between its junctions with the M69 and M42, the average speed at peak times is between 21 and 30mph. This section is generally single carriageway with a speed limit of either 40 or 50mph. The exception is towards the junction with the M69 where the average speed drops a further 10mph at peak times and where the speed limit is 40mph.
- 2.1.16 The M42 performs well in terms of reliability compared to other roads on this route. A four mile HGV overtaking ban is in place, from 7am to 7pm, on an uphill section between junctions 10 and 11. This has contributed towards a positive impact on reliability.

### Figure 2.1

Network performance 2012/13  
Peak period speeds



#### Average speed at peak times (mph) (April 2012 – March 2013)

Peak times are Monday to Friday 7–10am and 4–7pm

- █ Less than 20mph
- █ 21 – 30mph
- █ 31 – 40mph
- █ 41 – 50mph
- █ 51 – 60mph
- █ No data available

- Key junction capacity issue

Illustrative

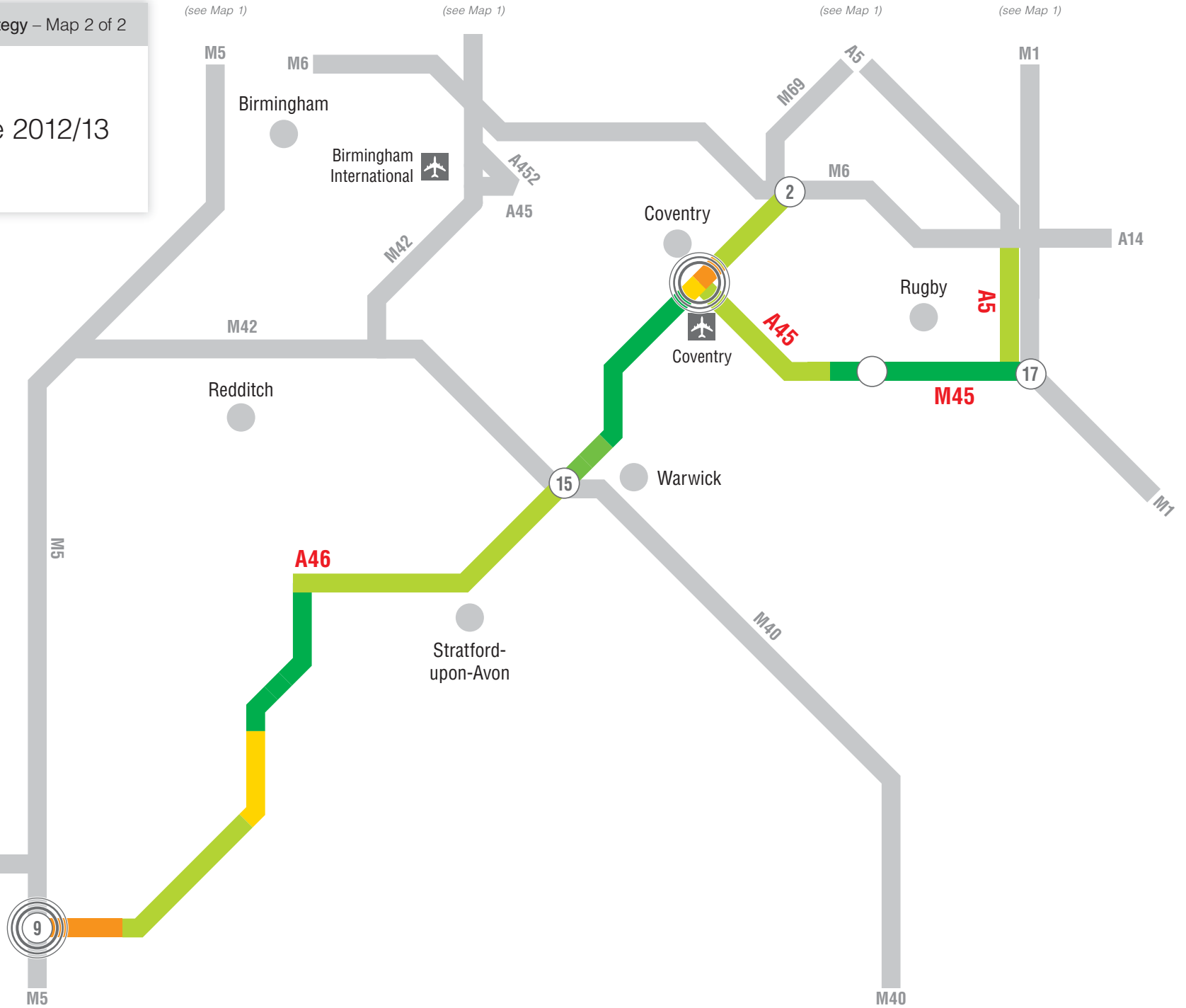
### Figure 2.1

Network performance 2012/13  
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#### Average speed at peak times (mph) (April 2012 – March 2013)

Peak times are Monday to Friday 7–10am and 4–7pm

- Less than 20mph
- 21 – 30mph
- 31 – 40mph
- 41 – 50mph
- 51 – 60mph
- 61 – 70mph
- No data available
- Key junction capacity issue

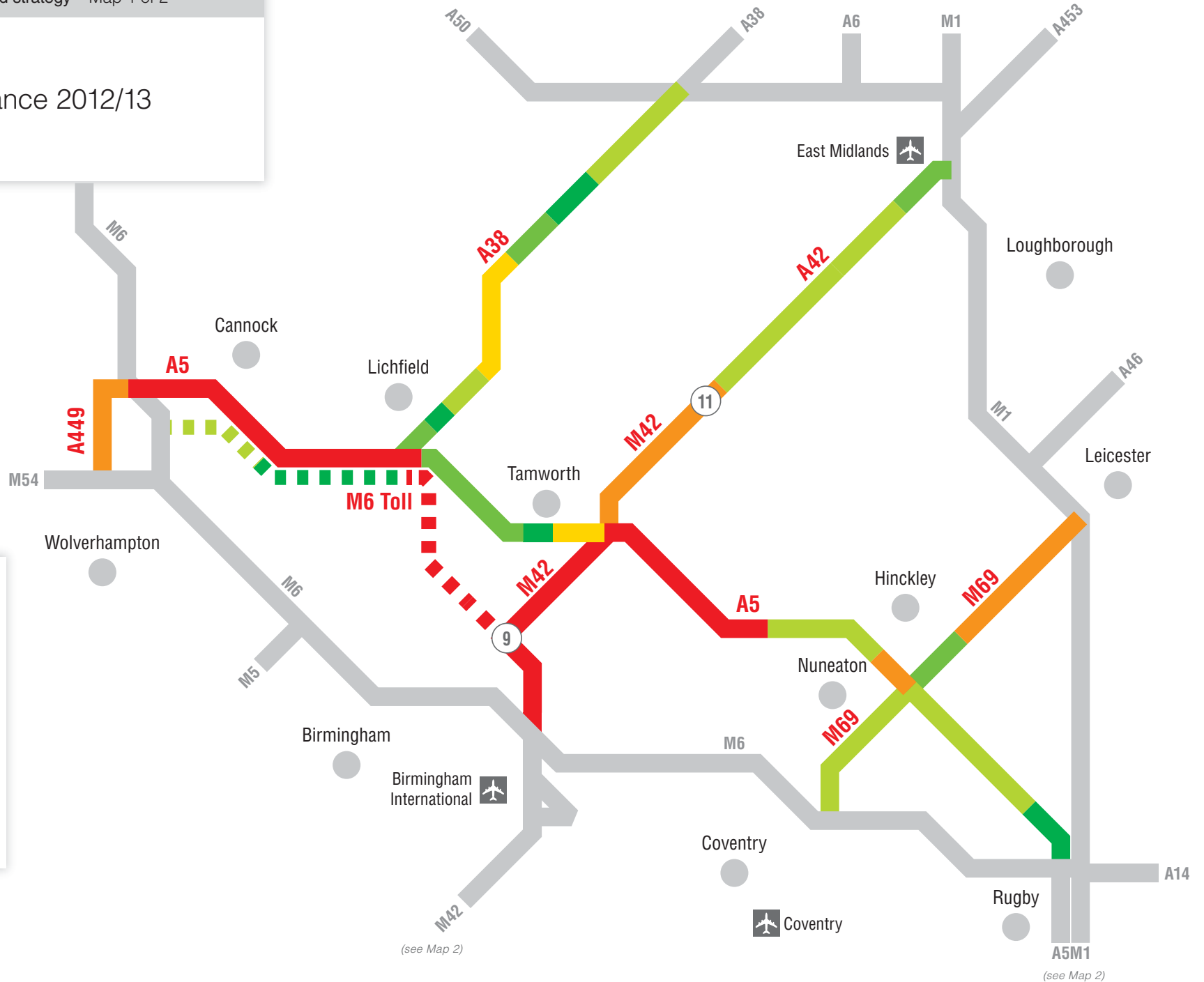


Illustrative

- 2.1.17 The SRN is key in promoting growth of the UK economy, and alleviating congestion can realise economic benefits.
- 2.1.18 Figure 2.2 shows the delay on our network compared with a theoretical free-flowing network.

### Figure 2.2

Network performance 2012/13  
Delay

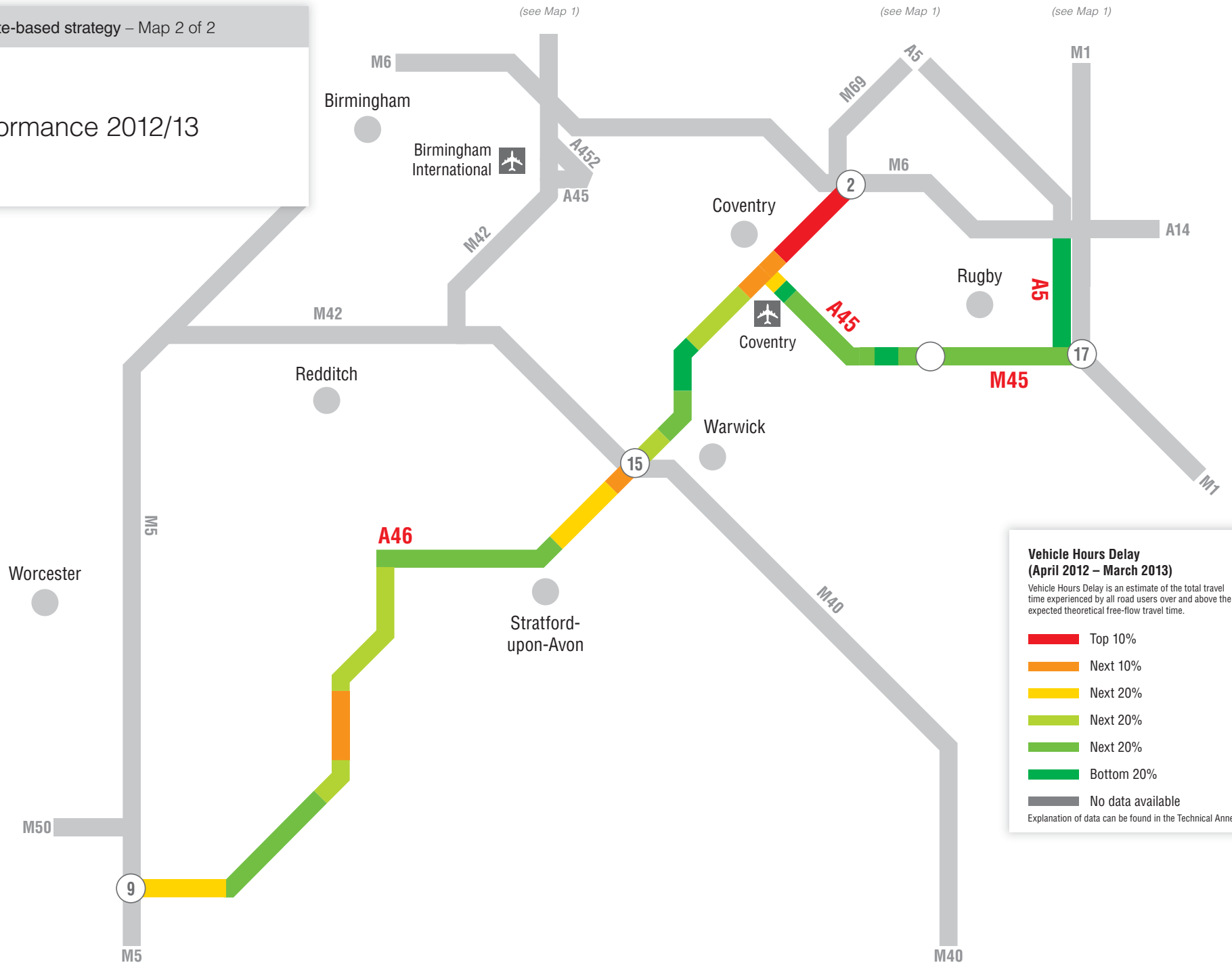


Illustrative



### Figure 2.2

Network performance 2012/13  
Delay



**Vehicle Hours Delay (April 2012 – March 2013)**  
Vehicle Hours Delay is an estimate of the total travel time experienced by all road users over and above the expected theoretical free-flow travel time.

- Top 10%
- Next 10%
- Next 20%
- Next 20%
- Next 20%
- Bottom 20%
- No data available

Explanation of data can be found in the Technical Annex.

Illustrative

- 2.1.19 The majority of the poor performing sections within the South Midlands route, compared with other parts of the SRN, are on the trunk road sections of the route around major towns and cities such as Coventry, Nuneaton, Lichfield and Tamworth. These are mainly single carriageway sections with lower speed limits.
- 2.1.20 The M42 between junctions 7 to 11, is a major strategic section of the route linking Birmingham and the M6 with the M1 via the A42 which, experiences delays and is the busiest section of the route. However, it does perform relatively well in terms of reliability compared to the rest of the route. Accessibility to East Midlands Airport is important, particularly for their freight and cargo distributions. There are in the region of 500 heavy goods vehicle movements to and from the airport on a typical week day where reliability of the A42 is key to delivering cargo on time for its next journey. The vast majority of these trips take place late at night (normally after 9pm) and early in the morning (between 2am and 5am), with shift patterns for most of the employees on this site, there is no “normal” peak.
- 2.1.21 Some sections of the route have poor performance for a number of reasons; the A46 at the Tollbar junction with the A45 is such a junction that impacts on the reliability of the surrounding links and the average speed at peak times. A major improvement scheme is due to start here in spring 2014 to address these issues.
- 2.1.22 The A5 between the M69 and M42 experiences delays and average speeds are significantly lower than the speed limit. There is a speed limit of 40 or 50mph along this section most of which is made up of single lane carriageway. The proportion of freight is high compared to the rest of the route which means that overtaking, often slower, heavy goods vehicles can be difficult. There is an issue with consistency of design standards on this route as there are a variety of speed limits, movement between single and dual carriageway sections and many accesses onto the trunk road.
- 2.1.23 The A5 to the north east of the route, from the A449 to M42, is predominantly urban in nature and the majority of traffic made up of locally based trips. There is a significant amount of traffic travelling from the north of Birmingham to the major towns of Cannock, Lichfield and Tamworth; these north-south movements on the local network interact with the east-west movement on the SRN at junctions resulting in queuing both ways.
- 2.1.24 The sections of the route that perform well are generally the motorway sections, which in comparison with most of the trunk road sections have consistent design standards with at grade junctions. We can see from above that whilst they carry the most traffic on the route they perform well in terms of journey-time reliability. In particular, the M69 performs well on all of the measures discussed above, apart from where the M69 meets the M1 northbound where there is peak time congestion. The junction with the M1 at junction 21 is identified as a junction with capacity issues.

2.1.25 The A46, at the southern end of the route from Coventry to the M5 is the best performing trunk road on the route. It is more rural in nature compared to the trunk roads in the north of the route, such as the A5.

## 2.2 Road safety

2.2.1 As a responsible network operator and through the [Strategic Road Network performance specification 2013-15](#), the Highways Agency works to ensure the safe operation of the network.

2.2.2 By 2020, [The strategic framework for road safety 2011](#) forecasts the potential for a 40% reduction of the numbers killed or seriously injured on the roads compared with 2005-2009. We are working toward this aspirational goal.

2.2.3 Figure 2.3 illustrates the rates of injury accidents and the top 250 casualty locations on the SRN between 2009 and 2011. Injury accidents are collisions where people were injured and their injuries were slight, serious or fatal. Damage only incidents have not been included. The top 250 casualty locations have been calculated nationally, and are based on the number of casualties which occurred within a distance of 100m. Locations with the same number of casualties have been given a “joint” ranking and therefore, there may be some locations with the same rank number.

2.2.4 Between 2008 and 2012 there were 2326 collisions on the route. The number per year has ranged from 438 to 514 over this 5 year period, and there is a downward trend.

2.2.5 Of the 2326 collisions recorded 60 (3%) included fatalities, 294 (13%) included serious injuries and the remaining 1972 (85%) included only slight injuries. The number of fatalities appears to remain steady across the 5 year period, with between 10 and 13 each year.

2.2.6 Within the 2326 collisions there 3412 casualties, at a rate of 1.47 casualties per collision.

2.2.7 In terms of vehicles/road users involved in the collisions:

- 80% involved more than one vehicle;
- 19% of vehicles involved were HGVs;
- Where the age of drivers was known 5% were young drivers (aged 16-19); and
- 10% were older drivers (aged 60 or over).

2.2.8 The causation factors for accidents indicate that in the main driver error or behaviour were the main causes. A summary of the main factors are as follows:

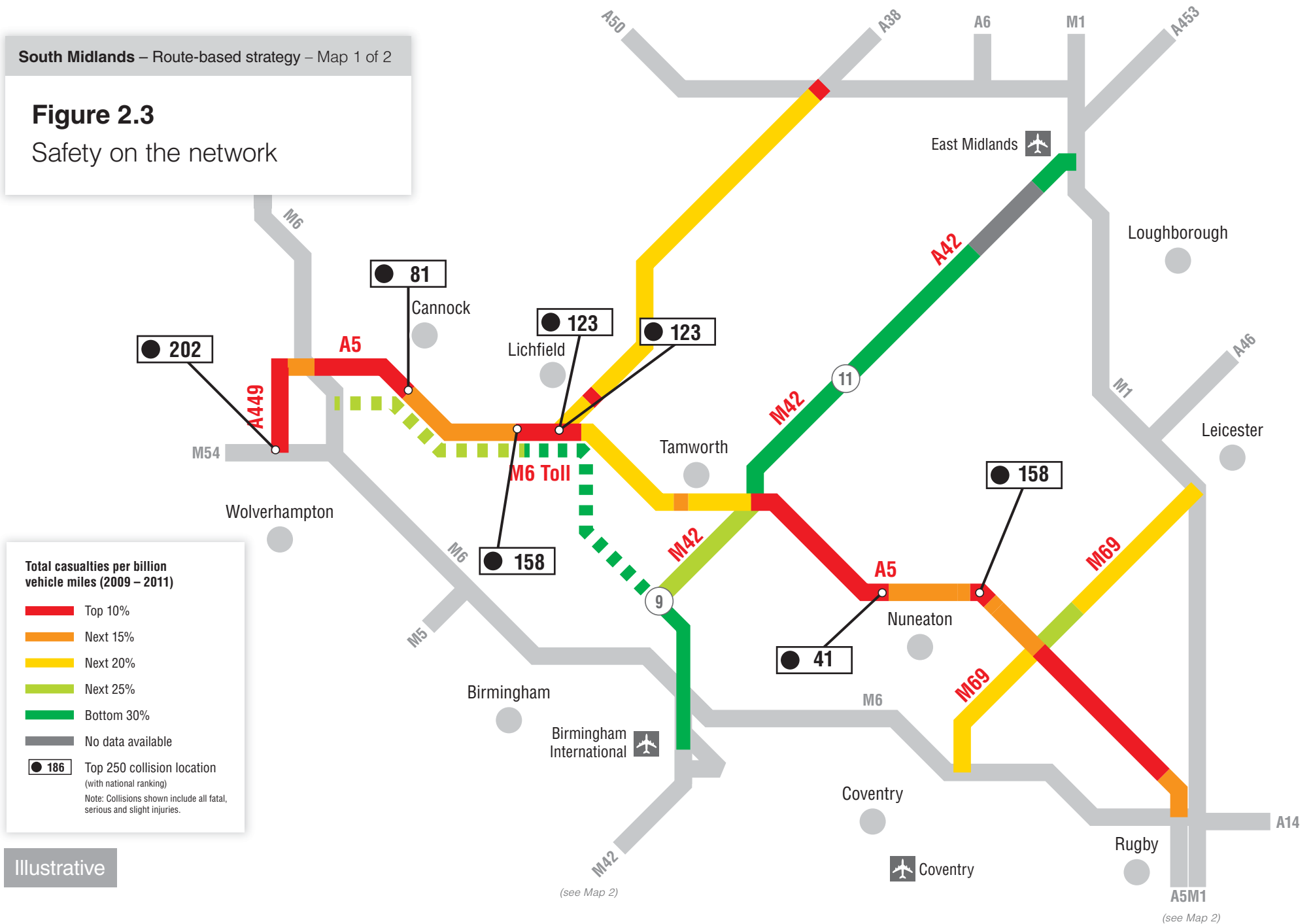
- 34% occurred where the driver ‘failed to look properly’;
- 26% occurred where the driver ‘failed to judge other person's path or speed’;
- 15% involved ‘loss of control’;

- 14% involved 'Poor turn or manoeuvre'
- 13% were 'travelling too close';
- 13% cited 'careless, reckless or in a hurry'
- 11% involved 'sudden braking';
- 9% cited 'slippery road'; and
- 8% were 'travelling too fast for conditions';

- 2.2.9 Motorways have generally have been constructed to a higher and more consistent safety standard, whereas trunk roads have varied design standards and speed limits, with a greater mix of traffic including non motorised users.
- 2.2.10 The A5 has four locations within the top 250 casualty locations nationally. These are near Hinckley, Atherstone, the junction with the A38 and another near the junction with the A461 Walsall Road. Stakeholders also raised concerns about the A5 and where it has single carriageway, poor junction performance and a lack of viable alternative routes.
- 2.2.11 Similarly, other all purpose trunk road sections were more likely to have collision locations within the top 250 across the SRN or within the top 10% of sections with total casualties per billion vehicle miles. The A46 around Coventry and Stratford on Avon and the A449 and A38 experienced safety performance issues in comparison with the rest of the SRN.
- 2.2.12 Despite the overall decline in injury accidents, local police have ongoing concerns over safety on the A42. The lack of a hard shoulder reduces access to accidents for emergency services and leaves broken down vehicles at a greater risk of collision. Further concerns are raised as the road is perceived as a motorway, with a high proportion of heavy goods vehicles, but lacks the same design standards as the M42. However, these concerns are not reflected in the rates of injuries and accidents.
- 2.2.13 A safety concern was raised by stakeholders on the A46 at Warwick, where queuing traffic backs onto the main carriageway due to capacity issues at Stanks junction. The evidence on the safety performance along this section shows no casualty locations in the top 250 sites across the country and the links have performed well compared to the rest of the SRN.
- 2.2.14 Various partners are contributing to reducing road casualties and improving road safety in the region. Partners relevant to this route have specific campaigns targeting motorcyclists and young drivers, cyclists and older drivers.
- 2.2.15 While we aim to reduce the numbers killed or seriously injured using and working on the SRN, we will always identify more safety interventions than our budget allows us to implement. We use a prioritisation process to help us and we review this regularly to ensure we are targeting the locations with the greatest opportunity to save lives and reduce the severity of injury.

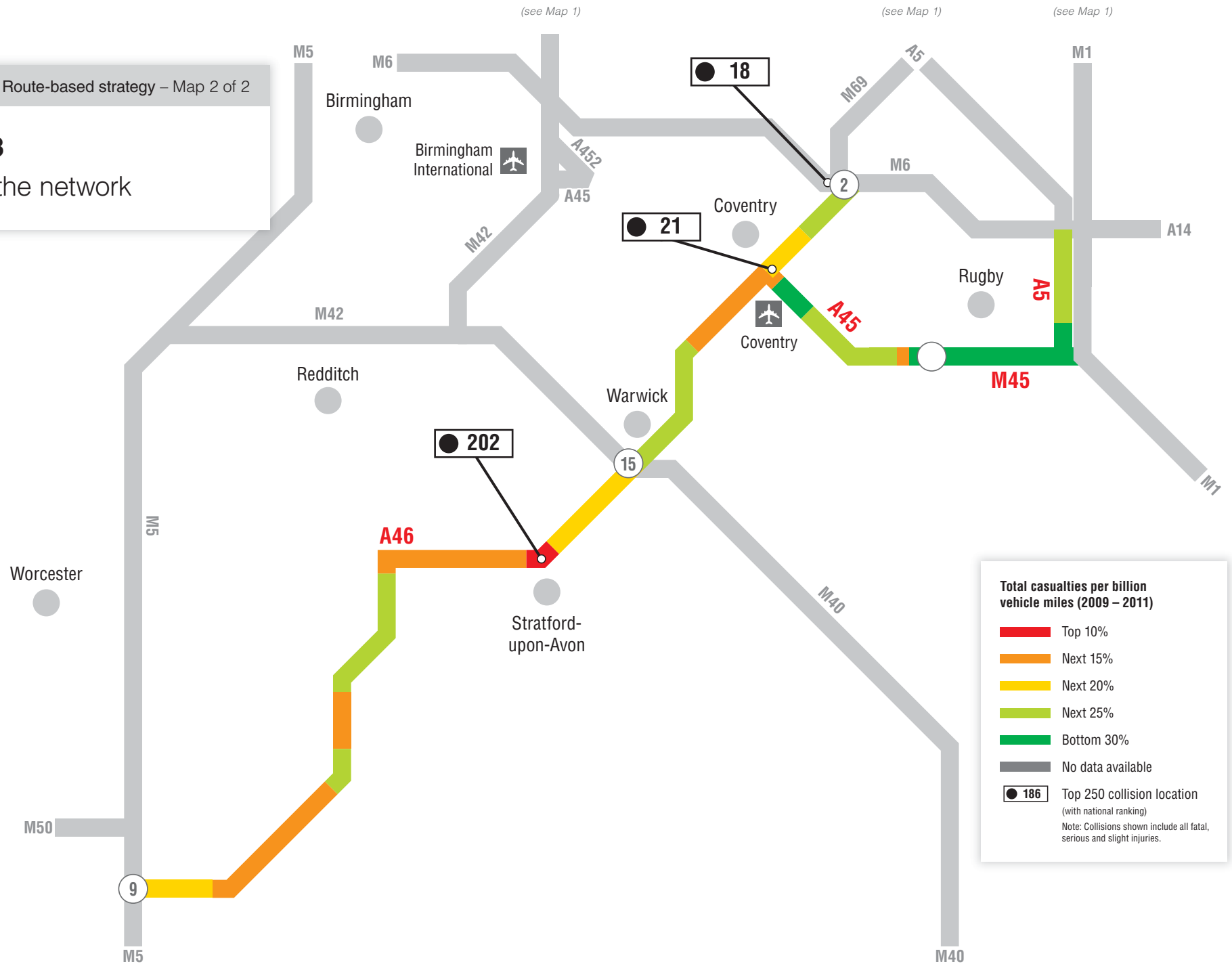
### Figure 2.3

### Safety on the network



Illustrative

**Figure 2.3**  
Safety on the network



Illustrative

## **2.3 Asset condition**

- 2.3.1 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.
- 2.3.2 From new, assets have an operational 'life' 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 on the basis that 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.
- 2.3.3 We maintain a National Asset Management Plan as an annual summary of the Highways Agency's network asset inventory and condition. It is aimed at ensuring there is sight of future issues affecting the asset and enabling strategic decision making.

### **Carriageway Surface**

- 2.3.4 The road surface on the SRN is primarily surfaced with two types of flexible bituminous materials, namely Hot Rolled Asphalt (HRA) which has an approximate design life of 25 years and Thin Surface Course System (TSCS) with a lower construction cost and shorter design life of 10-15 years. Large tranches of HRA were laid in the 1990s and TSCS tranches laid in the 2000s resulting in a significant proportion of the network reaching the end of its design life by 2020.
- 2.3.5 It should be noted that, although carriageway surfacing may be identified as reaching or exceeding its design life, the surfacing will not necessarily require treatment at this point. Carriageway surfacing that is beyond its design life is at a higher risk of failure, with such risks increasing the longer the surfacing exceeds its design life. The increasing age of the surfacing could manifest in an increased frequency of maintenance interventions which, if a renewals scheme are not funded, may result in a higher cost both financially and in terms of disruption to road users to maintain the asset in a safe and serviceable condition.
- 2.3.6 Key routes which will reach the end of their design life by 2021 are the A5 between the M42 and A38, the A46 from M6 to the lower county boundary of Warwickshire, the M42/A42 and the A38 from Lichfield to Burton-upon-Trent.
- 2.3.7 There has been an increase in rutting towards the eastern section of the route between 2010/11 and present. Deep ruts are indicative of a surface or whole foundation structure reaching the end of its serviceable life. Deterioration of road markings is also considered to be an issue.

- 2.3.8 Surface condition to the west of the South Midlands route is generally in line with the national average. The area is performing better in reducing below standard skid resistance, rutting and other defects in comparison to the national average.
- 2.3.9 There is concrete road surface material on some sections but this is only a very small proportion when compared to the length of flexible road surfaces. The amount of concrete road surface is also reducing as it is replaced by flexible material at the end of its serviceable life. Concrete is not a material we now use in new carriageway construction on any of the motorway and trunk road network.
- 2.3.10 Within this route there is a significant section of concrete along the M42 near Birmingham. This section is generally in good condition and it is anticipated that it will not require replacement by 2021.

### **Structures**

- 2.3.11 Generally the structures along this route are not in the same scale as other routes and currently no significant maintenance interventions are currently anticipated. We will continue to monitor and manage these structures through routine maintenance activities.

### **Other key asset issues for routes**

- 2.3.12 The percentage of high or severe risks for the geotechnical asset is slightly worse along parts of the route than the national average. This is particularly focused on a number of high risk areas in the south of the region, predominantly the M45. The M45 was built in the 1950's and the incline of the embankment and the composite materials would not be to today's standard. We continue to manage and monitor this section.
- 2.3.13 The A5 has a combination of segregated and unsegregated cycleways along the route as well as areas without provision. The condition varies along the route and is poor in some areas. Some areas contain York Stove paving, which can be more difficult to maintain and is frequently parked on by traffic, causing obstructions.
- 2.3.14 The A42 serves East Midlands Airport where the vast majority of freight vehicle movements take place late at night (normally after 9pm) and early in the morning (between 2am and 5am). Also the peak season for airport travel for passengers is in the summer and for the movement of goods in the run up to the Christmas holiday. Therefore, consideration is needed for how road works are undertaken on the M42/A42 corridor.

## **2.4 Route operation**

### **Incident Management**

- 2.4.1 We work hard to deliver a reliable service to customers and to reduce the number and impacts of incidents on road users.
- 2.4.2 Across the whole network, the Highways Agency Traffic Officer Service responds to around 20,000 incidents each month. We measure how



effective we are at managing incidents by looking at the time incidents affect the running lanes.

- 2.4.3 The motorway links on this route are covered by the Highways Agency's Traffic Officer Service providing dedicated or partial on-road incident management response. The service operates from two regional control centres (East and West Midlands) on this route.
- 2.4.4 The route's all purpose trunk roads do not have dedicated Traffic Officer Service patrols and the service only provides an on road response in exceptional circumstances. Identifying and verifying accidents on these sections can be difficult due to the limited technology on these routes and we rely on our partners for intelligence when they occur. The exception to this is the A42 on which a dedicated incident management response is provided, as an extension of the dedicated patrols on the M42.
- 2.4.5 We have a good understanding of the types of incidents which are quick to clear up and those which take longer. In general, there are far more incidents which don't affect the running lanes for very long, and mostly these are caused by breakdowns in the live lanes, debris or damage only collisions. The longest duration incidents are mostly caused by infrastructure issues, such as road surface repairs, bridge strikes, barrier collisions and spillages.
- 2.4.6 We continue to work with our partners in the emergency services to reduce the impacts on our network from serious collisions and long-duration incidents.
- 2.4.7 The three motorways on this route: M45, M42 and M69 perform relatively well in terms of average incident durations compared to the rest of the strategic network. Information on average incident impact for the all purpose trunk road sections of the South Midlands route is not available at this time.
- 2.4.8 Due to the nature of the West Midlands SRN with major arterial routes, the priority of the Traffic Officer Service is the motorway network. This is due to a combination of limited roadside technology, both in terms of information gathering and dissemination, and the lack of trunk road resource capability.
- 2.4.9 The quality and suitability of emergency diversion routes on this route vary significantly. Stakeholders raised concerns over the use of the A5 between the M1 and the M6 as an emergency diversion route for strategic traffic from the M6, which can cause congestion and major disruption in the local area. The low railway bridge between Dodwells and the M69 on the A5 provides a constraint for high sided vehicles, a particular issue with the A5 if used as a diversion route. Suitability of the A38, for similar to reasons mentioned above for the A5, were also raised by stakeholders.

### **Flooding**

- 2.4.10 We have a responsibility to reduce flooding. Flooding of the Highways Agency's network impacts upon network performance and the safety of

road users. Flooding off the network has an impact on third parties living adjacent to the network.

- 2.4.11 Based on recorded flooding incidents, we have identified those parts of the network that are at high risk of repeated flooding.
- 2.4.12 Many drainage systems are aging and were built to the design standards of the time they were constructed. Due to changes to land use in the area and deterioration over time there are issues with removing water effectively from the road surface. This can lead to saturated surface layers and increased water in and around structures particularly during the winter season.
- 2.4.13 The A38 near Burton-upon-Trent has the most significant cluster of sites with a flooding risk. Stakeholders also raised their concerns in relation to the suitability of the A38 as a diversion route as it is susceptible to flooding.
- 2.4.14 The A46, M69 and M45 pass through or alongside a total of 72 water bodies (these can be a creek, pond, river or a lake), from which arise a number of flooding hotspots.

### **Severe Weather**

- 2.4.15 The Highways Agency aims to minimise where possible the impacts of severe weather, i.e. strong winds and snow, on network performance and the safety of road users.
- 2.4.16 Certain roads along this route have become more susceptible to severe weather than others. Sensitive areas are along the A46 in particular Festival to Stoneleigh Islands (near the south of Coventry), which can be susceptible to fogging and misting conditions due to surrounding water bodies. The A46 north bound (between M40 junction 15 to the A4177) can be vulnerable to surface water in the event of large rain fall.

## **2.5 Technology**

- 2.5.1 The Highways Agency works hard to deliver a reliable service to customers through effective traffic management and the provision of accurate and timely information. We provide information to our customers before and during their journeys.
- 2.5.2 We monitor key parts of our network using CCTV and use sensors in the road to monitor traffic conditions. These are used by our National Traffic Operations Centre and seven Regional Control Centres to provide information to customers before their journeys, eg on the [Traffic England website](#) or through the [hands-free traffic app](#) for smartphones. Whilst on the network, we also inform our customers using variable message signs (VMS).
- 2.5.3 Technologies such as overhead gantries, lane specific signals and driver information signs also forms part of how we can operate our network efficiently. In some locations we have controlled motorways, which is where we can use variable mandatory speed limits to help keep traffic moving. Smart motorways use both variable mandatory speed

limits and the hard shoulder as an additional live traffic lane during periods of congestion. Ramp metering manages traffic accessing the network via slip roads during busy periods to help avoid merging and mainline traffic from bunching together and disrupting mainline traffic flow.

- 2.5.4 Whilst there is some technology on the motorway sections of these routes, there are significant gaps. Stakeholders raised the M69 could benefit from greater strategic signing due to providing a link to the M1 and M6, and as a major diversion route for M1 junction 19 (Cattthorpe). There is a technology Pinch Point scheme planned that will increase variable message sign provision on the M69.
- 2.5.5 There are gaps in the provision of technology on the trunk roads within the route, which coincides with poor journey-time reliability and lack of dedicated traffic officer resource for incident management. In particular, the A5 between Hinckley and Nuneaton is the least reliable section of this route and has little technology along its stretch from the M1 at junction 18 to Atherstone.
- 2.5.6 On the other trunk roads, the A449 and the A46 have very limited or no technology. This coincides with some poor performing sections on the A449 and the A46 around Coventry, Warwick and Evesham.
- 2.5.7 As opposed to other trunk roads on the route, the A42 has a good provision of technology, including queue protection (MIDAS), CCTV and message signs. This is because of its strategic importance in providing an east-west link between the M6 and M1.
- 2.5.8 The M42 has a comprehensive technology provision, including variable speed limits supporting queue protection, CCTV coverage, ramp metering and signs and signals.
- 2.5.9 The Burton Box is made up of 17 signs along the A38, M42, M69, A5 (Atherstone to the M6) and A50 and enables traffic to be strategically redirected. However, a lack of CCTV coverage along these routes means the RCC are limited in utilising the signs to inform road users of incidents and congestion.

## **2.6 Vulnerable road users**

- 2.6.1 For the purposes of the document, vulnerable road users are defined as pedestrians, cyclists, motorcyclists and horse riders.
- 2.6.2 On the motorway and high standard dual carriageways of the route there is restricted access for vulnerable users. The main concern is to facilitate safe crossing at junctions and designated crossing points.
- 2.6.3 On the rest of the trunk road network of the route, vulnerable users have unlimited access and here the focus is on ensuring they can do so safely. This is most relevant to the A5 and A46 where there are many communities that are adjacent to the SRN.
- 2.6.4 Some stakeholders consider the fact the A5 straddles the boundary between Leicestershire and Warwickshire means that there is a perceived barrier between communities on either side of the road, for

example between Hinckley and Nuneaton. Stakeholders also felt that this had a disproportionate impact on non-vehicle users, and particularly pedestrians crossing the A5.

- 2.6.5 Stakeholders were keen to promote cycling and concerns were raised regarding the mix of types of traffic that all use the route, for example heavy goods vehicles and cyclists. It was felt the promotion of cycle and HGV education awareness would help address this issue.
- 2.6.6 The Highways Agency, working in partnership with Sustrans has considered numerous locations to improve the connectivity, accessibility and safety of cyclists on the SRN. On this route, a scheme being taken forward is on the A46/A435 south of Alcester.
- 2.6.7 Stakeholders raised concerns regarding the crossing points on the A46 in Coventry, but did acknowledge that the planned major scheme at Toll bar will improve the current situation for cyclists. Also in relation to the A46, but around Stratford-upon-Avon, there was a call for greater segregation of cyclists with traffic and to review the pedestrian and cycle crossings in the area.
- 2.6.8 Recent correspondence to the Highways Agency has highlighted pedestrians' concerns on crossing over the A46 around Evesham and cycling facilities along this section. Also in this area, Sustrans highlighted they were looking to develop a major leisure route from Worcester to Oxford via the Cotswolds which would need support from the SRN. Further concerns have been raised about the suitability of cycling and pedestrian facilities at the southern end of this route where the A46 meets the M5.
- 2.6.9 Major employers around M1 junction 24, such as East Midlands Airport, are trying to increase the numbers of staff travelling to work on foot and bicycle as part of their Sustainable Travel Plans. These employers have expressed a desire to improve facilities for vulnerable road users to help achieve their Travel Plan targets.

## **2.7 Environment**

- 2.7.1 As a responsible network operator and through the [Strategic Road Network performance specification 2013-15](#), the Highways Agency works to enhance the road user experience whilst minimising the impacts of the SRN on local communities and both the natural and built environment.

### **Air quality**

- 2.7.2 We recognise that vehicles using our road network are a source of air pollution which can have an effect on human health and the environment. We also appreciate that construction activities on our road network can lead to short-term air quality effects which we also need to manage.
- 2.7.3 The Highways Agency is committed to delivering the most effective solutions to minimise the air quality impacts resulting from traffic using our network. We will operate and develop our network in a way that

works toward compliance with statutory air quality limits as part of our broader [Environmental Strategy](#).

- 2.7.4 A simple indicator of poor air quality is where a LA has declared an Air Quality Management Area (AQMA). An AQMA is a location – a whole, or a part of a LA - where air quality strategy objectives have been exceeded. Nitrogen dioxide, and to a lesser extent, particulates, are the main concerns for this route.
- 2.7.5 Within the South Midlands route there are a number of AQMAs, which the route passes through or close to.
- 2.7.6 There are AQMAs throughout the urban area of Rugby, up to the southern boundary with Daventry District Council. This includes A5, M6, A45 and M45.
- 2.7.7 Further AQMAs around Nuneaton are centred on the Leicester Road Gyrotory system and incorporating sections of the Leicester Old Hinckley and Weddington Roads. This is most relevant to the A5 but also, from stakeholder feedback, the impact on the local road network if there is significant congestion on the A5.
- 2.7.8 Within Staffordshire, an AQMA has been designated around Bridgtown near Cannock, which is relevant to the A5. The reason for this was the high percentage of heavy goods vehicles along this section and the close proximity of properties to the carriageway. Further AQMAs affecting the A5 in Staffordshire are at Wedges Mills and Muckley Corner.

### **Cultural heritage**

- 2.7.9 The Highways Agency is committed to respecting the environment across all its activities and to minimising the impact of the trunk road on both the natural and built environment. Wherever possible, balanced against other factors, Agency schemes are designed to avoid impacts on cultural heritage assets. These are described as a range of geographical components of the historic environment which have been positively identified as having a degree of significance meriting consideration in planning decisions.
- 2.7.10 The A42 was completed in the late 1980s, included here are sections of Roman roads crossing beneath the modern route, unregistered parks and elements of industrial heritage such as canals and railways.
- 2.7.11 The A5 originated as Roman Watling Street, and became a medieval and post medieval coaching route. Characterised by Roman towns and roadside remains, medieval settlements and field systems.
- 2.7.12 There are many heritage assets along this route including a listed grade II structure Dow Bridge Watling Street, and Manduessedum, a Roman Villa and settlement.
- 2.7.13 The Trent and Mersey Canal, which is a conservation area, runs along the A38 from Wychnor northward. The canal corridor contains listed assets such as mileposts and hump back bridges, some of which are in close proximity to the slip roads. Like the A5, the A38 corridor has

archaeological importance and significance as a Roman road, known as Ryknild Street.

### **Ecology**

- 2.7.14 The Highways Agency's activities, including road construction projects and maintenance schemes, have the potential to impact on protected sites, habitats and species. We aim to minimise the impact of our activities on the surrounding ecology and wherever possible contribute to the creation of coherent and resilient ecological networks by maximising opportunities for protecting, promoting, conserving and enhancing our diverse natural environment.
- 2.7.15 The A42 has the River Mease as a Special Area of Conservation which runs beneath the carriageway.
- 2.7.16 Burbage Wood and Aston Firs as Sites of Special Scientific Interest near to the M69 highway boundary. On the A46 at Salford Priors between Alcester and Evesham there is a former site compound that is now a nature reserve that the Highways Agency has enhanced over several years and continues to maintain.
- 2.7.17 The Cannock Extension Canal Special Area of Conservation (SAC) is located near the A5. The canal route has a junction with the A5 at Norton Canes.

### **Landscape**

- 2.7.18 Roads and other transport routes have been an integral part of the English landscape for centuries. However, due to large increases in traffic, combined with modern highway requirements, they can be in conflict with their surroundings. We are committed, wherever possible, to minimise the effect of our road network on the landscape.
- 2.7.19 The A5 and A42 have a number of registered parks, scheduled monuments and World heritage sites that are of landscape sensitivity. These include on the A5 near Bitteswell village, Munduessedum roman villa near Mancetter, and the Roman towns of High cross and Claybrooke. On the A42 Coalville there is Coleorton hall and Stauton Harold hall at Ashby.

### **Noise**

- 2.7.20 Traffic noise arising from the Highways Agency's network has been recognised as a major source of noise pollution.
- 2.7.21 We take practical steps to minimise noise and disturbance arising from the road network. This includes providing appropriate highway designs and making more use of noise reducing technologies.
- 2.7.22 In 2012, Defra completed the first round of noise mapping and action planning which identified the top one per cent of noisiest locations adjacent to major roads. These were based on the conditions in 2006. The locations in this top one per cent are known as Important Areas (IAs)

- 2.7.23 The action plans require those IAs with 'First Priority Locations' (FPLs) to be investigated as a priority. FPLs are those IAs which have locations with road traffic noise levels in excess of 76 decibels according to the results of Defra's strategic noise maps.
- 2.7.24 The following FPLs are present along this route on the A5, Atherstone, Hungry Hill, Harpers Hill and Nicolas Park, and on the A42 Ashby-de-la-Zouch and Measham.
- 2.7.25 The cause of noise can be the result of a number of factors including, high flows of traffic, type of road surface in place, and variable landscaping. The Highways Agency considers all these factors when designing and managing its roads.

#### **Water pollution risk**

- 2.7.26 We have a duty not to pollute water courses and ground water. We have identified those highway discharge locations across our network where there is an existing potential water pollution risk.
- 2.7.27 Generally on the route, there are limited sites where there are potential water pollution risks. To prevent the pollution of water bodies and spread of pollution during times of flooding there have been five pollution control stations implemented along the A46, M69 and M45.
- 2.7.28 The identification and control of areas of potential pollution are essential, when a spillage incident or flooding takes place across the network, it is necessary to ensure pollution controls are in place. The Highways Agency has pollution control tools in place across its network these include spill pod kits located at strategic areas of the network, and valve control over many of its balancing ponds. As further resilience the Highways Agency's Traffic officers now carry spill kits within their vehicles as additional resilience for such incidents.

## **3 Future considerations**

### **3.1 Overview**

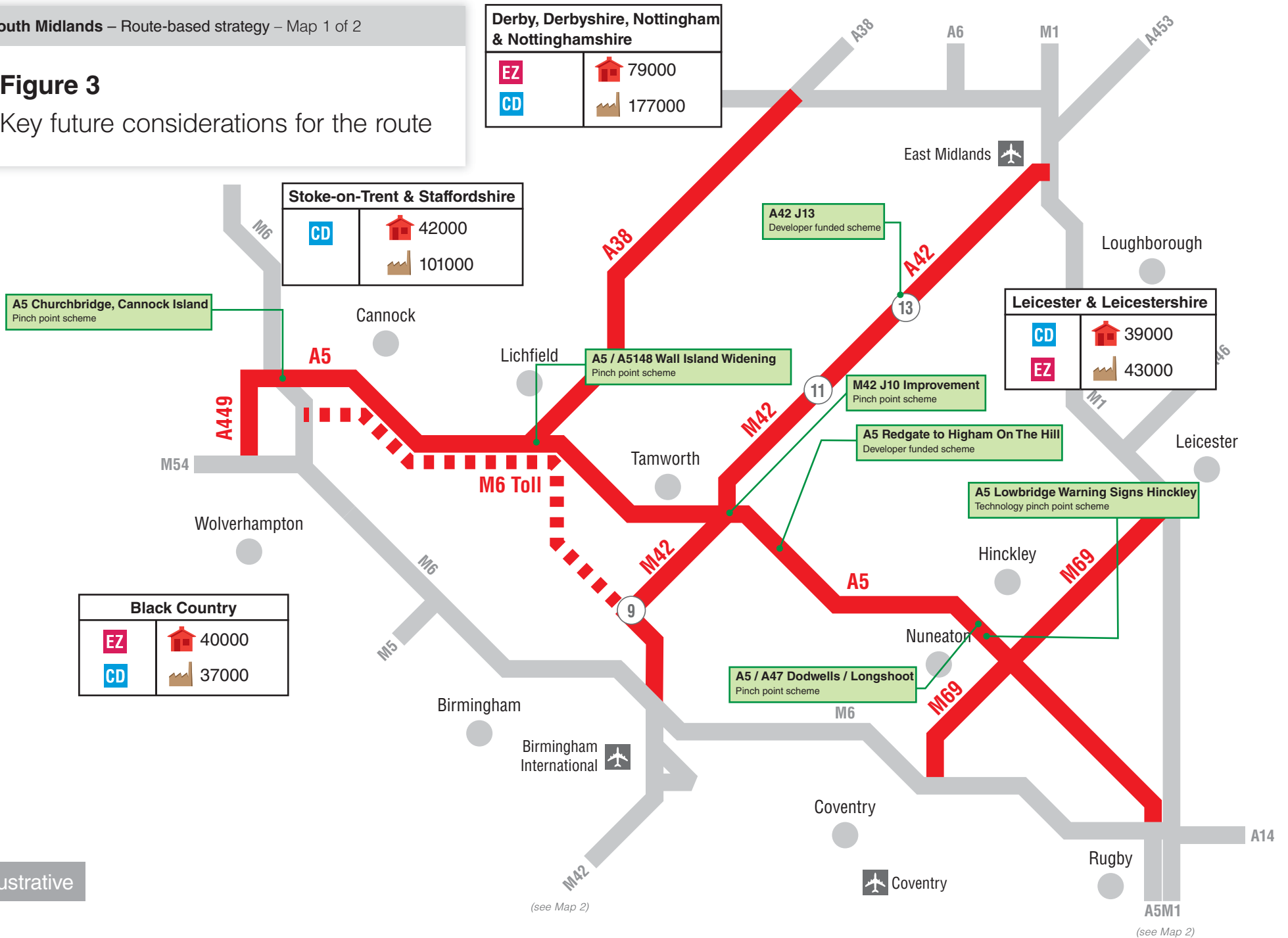
3.1.1 There is already a lot known about the planned changes to and around the route. LAs and the development community are already pushing forward the delivery of their housing and economic growth aspirations, as set out in their local plans. The Highways Agency has a large programme of schemes it has to deliver, plus an even larger programme of pipeline measures that could come forward after the general election. LAs, together with airport operators, are progressing measures to improve the operation and performance of their transport networks and facilities.

3.1.2 All of these issues have the potential to directly influence the ongoing performance and operation of the route. Figure 3 summarises the anticipated key future issues and the following sections summarise those issues in more detail.



### Figure 3

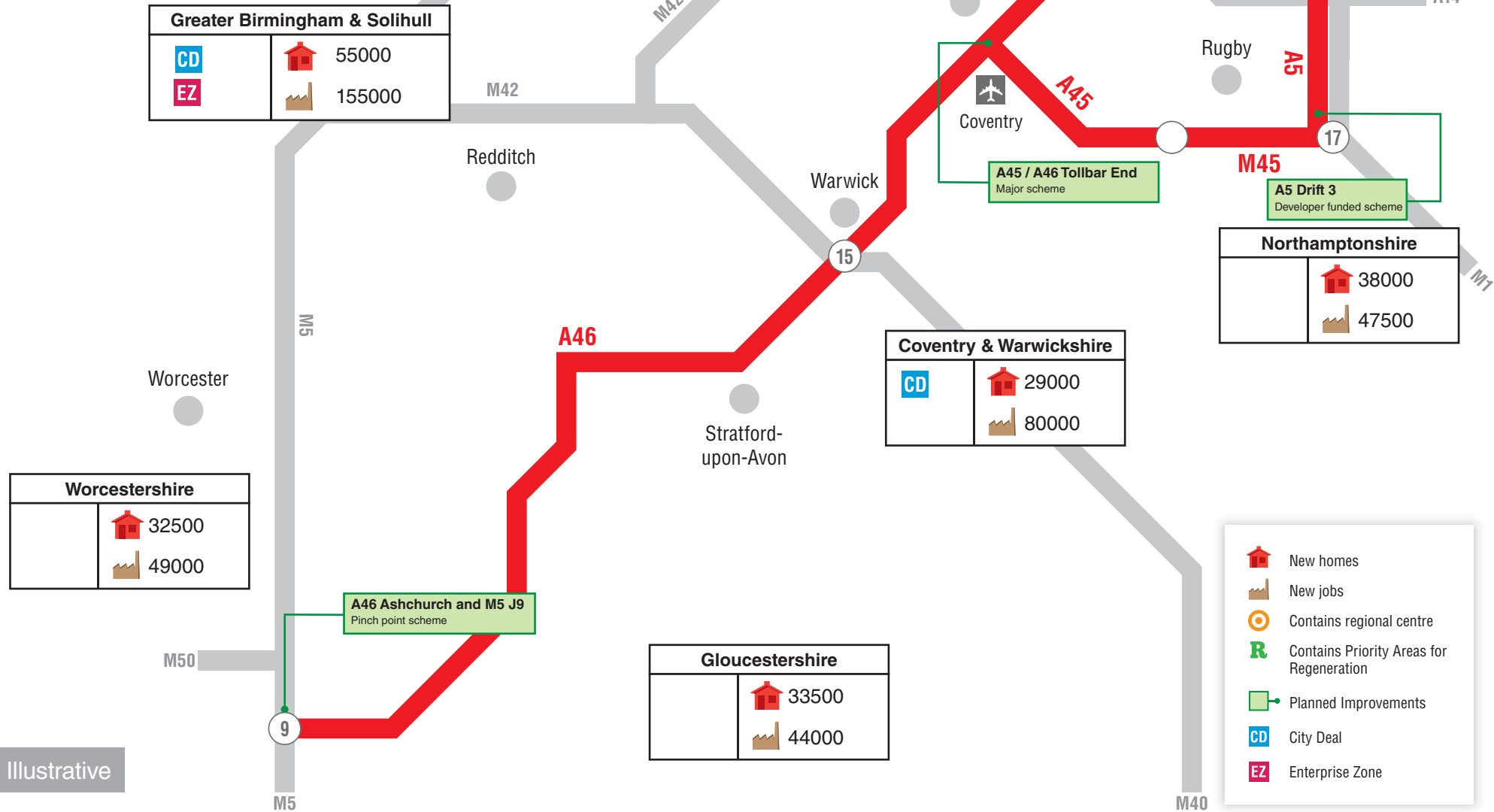
Key future considerations for the route



Illustrative

### Figure 3

Key future considerations for the route



Illustrative

## 3.2 Economic development and surrounding environment

3.2.1 A key aspect of managing the route effectively will be ensuring that it is capable of supporting future local housing and economic growth aspirations. This will involve preparing the route through effective management and public investment to be in the best possible position to cater for the planned demands placed upon it, whilst ensuring that the developments themselves effectively mitigate their local impacts.

3.2.2 Figure 3 summarises the known key housing and economic growth aspirations that would impact on the route, with Table 3.1 below providing more context about some of those key developments the nature, scale and timing of the proposals.

**Table 3.1 Key housing and economic growth proposals**

Location of Development	Development Type	Anticipated growth			Anticipated Location of Impact on Route
		2011 – 2015	To 2021	To 2031	
<b>Etwall strategic rail freight interchange (SRFI), near Derby</b>	Housing and commercial			6000 jobs	A38 (near junction with A50)
<b>MIRA, Hinckley (EZ)</b>	Commercial	200 jobs	400 jobs	700 jobs	A5
<b>I54 (EZ), Wolverhampton</b>	Commercial	1400 jobs	2900 jobs	3466 jobs	A449
<b>Four Ashes SRFI, South Staffordshire</b>	Commercial		1145 jobs	2291 jobs	A449
<b>South East Coalville SUE</b>	Housing			3000 dwellings	A42
<b>Barwell SUE, Hinckley</b>	Housing			2500 dwellings	A5
<b>Earl Shilton SUE, Hinckley</b>	Housing			1400 dwellings	A5
<b>Twin Rivers development, Lichfield</b>	Housing and commercial			7500 dwellings	A5 and A38
<b>Prologis Ryton Sites A and B (former Peugeot site), Coventry</b>	Housing		605 dwellings		A45
<b>Daventry International Rail Freight Terminal (DIRFT 3)</b>	Commercial			9000 jobs and 731,000m <sup>2</sup> of distribution land	A5
<b>Rugby SUE</b>	Housing and commercial		1725 dwellings and 3290 jobs	2375 dwellings and 1659 jobs	A5

<b>Kingswood Lakeside employment park, Cannock</b>	Commercial		1200 jobs		A5
<b>Vale Industrial Park, Evesham</b>	Commercial		1507 jobs	1696 jobs	A46
<b>Birmingham development plan, Sutton Coldfield</b>	Housing and commercial			6000 dwellings and 6133 jobs	M42 J9
<b>South of Branston, Burton-upon-Trent</b>	Commercial		4830 jobs	660 dwellings	A38
<b>Branston Locks, Burton-upon-Trent</b>	Housing and commercial		833 dwellings and 1294 jobs	1667 dwellings and 2588 jobs	A38
<b>East Midlands Airport</b>	Commercial			6.7million passengers per year (2030), 618,000 tons of cargo per year (by 2035)	A42
<b>Tewsbury Developments, Ashchurch</b>	Housing		2720 Dwellings	Unclear between 20000 and 35000 to plan for for the 3 strategy areas Tewkesbury Cheltenham and Gloucester	A46 (near M5 J9)

- 3.2.3 Within this route, there are nine LEPs, two of which have designated Enterprise Zones (EZs) affecting the route, and these are shown in Table 3.1 above.
- 3.2.4 There are four areas with approval for City Deals along the route. Greater Birmingham area was in the first wave of city deals which focused on the eight core cities. City deals for Coventry and Warwickshire, Leicester and Leicestershire, Stoke and Staffordshire are currently subject to negotiation.
- 3.2.5 Towards Stratford, there are two employment sites (18 hectares each) planned on the A46 in the vicinity of Stratford on Avon. The A46 at this location is single carriageway and could quickly become under pressure from future similar developments. Modelling of the preferred growth strategy predicts a growth of 2% to 6% on key road junctions, with the biggest impact on the A46 Stratford Northern Bypass. The biggest contributions to this increase would be the Gaydon/Lighthorne Heath new settlement, and South East Stratford Sustainable Urban Extension, although some mitigation as part of the proposals is expected.
- 3.2.6 The A46 will also be affected by future growth. Approximately 24,000 houses are proposed in the Coventry area, with the current SRN already under pressure. The TGI and Walsgrave roundabouts east of

Coventry are the only at grade junctions remaining along the corridor and are therefore Pinch Points along this section. The improvement to the A45 and Tollbar junction will increase pressure on these junctions.

- 3.2.7 It was noted that the Prologis Ryton Sites A and B south east of Coventry will generate a significant amount of traffic, which will increase congestion on the A45 link.
- 3.2.8 Further south, 7,000 new homes and 3 schools are planned for the Rugby 'Radio Mast' development as part of DIRFT 3 and Rugby SUE. This is likely to increase current capacity issues on the A5, M1 and M45, which are in close proximity.
- 3.2.9 A key development along the route is at the Motor Industry Research Association (MIRA) site, scheduled to be constructed in phases over the next 10 years. It is located in the Hinckley and Bosworth district, adjacent to the A5, with traffic generated by the development likely to impact on the A5.
- 3.2.10 Stakeholders identified the Sustainable Urban Extensions at Barwell and Earl Shilton potentially adding pressure to the A5. The route is considered to be at capacity already, which is reflected in the evidence provided in chapter 2.
- 3.2.11 Capacity problems at the A5/A449 Gailey junction were highlighted by stakeholders as having the potential to constrain economic growth. Significant development near junction 2 of M54 (junction with A449), particularly with the i54 EZ (part of the Black Country EZ) will put further pressure on this section for traffic wanting to travel north to the M6 and M6 Toll.
- 3.2.12 The M42 will be central to a large proportion of future development in the area, in particular HS2 and development proposals in the immediate proximity. The A46 will have a role in relieving the M42 it is acknowledged this section is already under pressure itself. At junction 9 on the M42 a significant development is planned to develop land around Sutton Coldfield.
- 3.2.13 Stakeholders identified the Twin Rivers development alongside the A38 in Lichfield and East Staffordshire as a key site which will provide 7,500 new homes and major employment opportunities. This site will potentially impact on an already congested link, with knock-on effects to junctions with the A5 and towards Derby. Further sites for development are identified in and around Lichfield, with anticipated growth in the region of 5150 dwellings and over 5000 jobs up to 2031. This is likely to put pressure on the A38, in particular the junctions at Wall Street, Streethay and Fradley, and Muckley Corner junction on the A5. The two sites around Burton-upon-Trent (Branston) will put further pressure on this route.
- 3.2.14 This route serves Birmingham International Airport (and HS2 station), Coventry Airport, East Midlands Airport, East Midlands Gateway Rail Freight Interchange, and Daventry International Rail Freight Interchange. Details of these are covered in Section 3.4.

### 3.3 Network improvements and operational changes

3.3.1 The Highways Agency is already delivering a large capital programme of enhancement schemes nationally. This includes Major Schemes greater than £10m in value, plus smaller enhancement schemes including the current Pinch Point Programme. Table 3.2 below summarises the current committed enhancement schemes proposed along the route, which have also been represented on Figure 3.

**Table 3.2 Committed SRN enhancement schemes**

Location	Scheme Type	Completion Year	Anticipated Benefits
<b>A46 Ashchurch / M5 J9</b>	Pinch Point scheme.	2015	Reduce congestion by realigning junctions and installing traffic signals
<b>A45/A456 Tollbar End</b>	Major scheme. Junction improvement	2017	Reduce congestion and improve capacity at Tollbar End roundabout and on A45 Stonebridge Highway
<b>A5 Hinckley</b>	Technology Pinch Point scheme. Low bridge warning signs	Completed (2014)	Enhance driver information and improve safety on the local road approach to the A5 junctions nearest the bridge, warning of low bridge height
<b>A5 /A5148 Wall Island</b>	Pinch Point scheme. Junction improvements	2014	Installation of traffic signals and widening of the junction approaches
<b>A5 Churchbridge Cannock Island</b>	Pinch Point scheme	2015	Reduce congestion through improving the junction and approach
<b>A5/A47 Dodwells and Longshoot</b>	Pinch Point scheme. Junction improvement	2015	Improve congestion through signalising Dodwells roundabout and pedestrian crossing at Longshoot junction
<b>A5 DIRFT 3</b>	Developer funded scheme. Access improvements	2014	Improve emergency access to DIRFT 2
<b>A5 Redgate to Higham on the Hill</b>	Developer funded scheme. Junction improvements	2015	Capacity improvements to accommodate additional traffic from the MIRA expansion
<b>A42 J13</b>	Developer funded scheme. Access improvements	2015	Increase capacity and introduce traffic signals to reduce congestion
<b>M42 J9</b>	Pinch Point scheme. Junction improvement	Completed (2014)	Reducing congestion by increasing capacity at the roundabout
<b>M42 J10, Tamworth</b>	Pinch Point scheme. Junction improvement	2014	Increasing capacity and introducing traffic signals to reduce congestion
<b>M69 J1</b>	Technology Pinch Point scheme.	Completed (2014)	Improve driver information through additional strategic message signs

3.3.2 [The 2013 Spending Review](#) and subsequent report from HM Treasury [Investing in Britain's Future](#) referenced a series of potential new pipeline schemes for the SRN. Table 3.3 below provides a summary of the pipeline improvement schemes that would impact this route, subject to value for money and deliverability.

**Table 3.3 Declared pipeline schemes**

Location	Scheme Description
M54 to M6 Toll Link Road	New link road improving access from the M54 to the M6.

### 3.4 Wider transport networks

3.4.1 The June 2013 report from HM Treasury [Investing in Britain's Future](#) also listed the local transport schemes either completed, under construction or due to start before May 2015. Table 3.4 below lists the schemes from that report that will influence the ongoing operation of this route, plus any other funded local network commitments that will be delivered before 2021.

**Table 3.4 Committed local transport network enhancement schemes**

Project	Scheme Type	Completion Year	Anticipated Impacts on the Route
Coventry A45 transport corridor efficiency scheme	Road	2019	Improve delays on both the A45 and local roads through improving accessibility to businesses along the corridor and efficiency of public transport movements

3.4.2 The Daventry International Rail Freight Terminal (DIRFT), located next to the M1/A5 junction east of Rugby, is undergoing major expansion and further development is currently going through the planning process. Phase 2 is anticipated to deliver 2,000 jobs once complete and a further 9,000 jobs are expected by the end of phase 3, subject to planning permission.

3.4.3 East Midlands Airport is located near junction 14 of the A42, south of Derby and Nottingham. In 2013, the airport handled around 4.3 million passengers and 300,000 tonnes of cargo. The draft Sustainable Transport Plan (March 2014), forecasts the airport could achieve throughput of 10 million passengers a year (by 2030) and handle 618,000 tonnes of freight a year (by 2035). The airport is the largest employment site in Leicestershire outside the City of Leicester. Nearly 7,000 employees are based on the airport site and with the increase in throughput it is reasonable to anticipate employment numbers on the airport site will grow by 2030.

3.4.4 There is also the proposal for the East Midlands Gateway Rail Freight Interchange, which would be developed adjacent to the airport. While the proposals are at an early stage, it is expected that there will be rail served warehousing and up to 6,000 jobs created, with subsequent impacts on the M1, A42 and the local road network.

- 3.4.5 Birmingham International Airport is located close to junction 6 of the M42 and lies just outside the area of this strategy. However, any growth plans will impact on the South Midlands route. The airport forecasts to grow from 11.5 million passengers per year (2010 figures) to 15.3 million passengers per year by 2015, and to 27.2 million by 2030.



## 4 Key challenges and opportunities

### 4.1 Introduction

4.1.1 This chapter summarises the key challenges and opportunities as identified by our internal and external stakeholders and supported by evidence. It is not possible to show all the challenges and opportunities identified however a full list is provided in the Technical Annex.

4.1.2 Figure 4 summarises the key challenges and opportunities that the route will experience during the 5 years from 2015, with the following sections and Table 4.1 explaining these issues and challenges in more detail.

#### Timescales

4.1.3 To understand the timescales of when the key challenges identified become critical and when opportunities on the route could be realised, the following definitions have been made in Table 4.1:

- **Short Term:** current
- **Medium Term:** before March 2021
- **Long Term:** not before 2021

4.1.4 These timescale categories provide a guide for informing when a future intervention may be required to meet the anticipated future operational performance needs, or when interventions may be needed to help facilitate local housing and economic growth aspirations.

#### Local Stakeholder Priorities

4.1.5 Input from stakeholder and road user groups linked to the route has been used to inform the development of this evidence report. This included getting views on their “top priorities” locally.

4.1.6 Table 4.1 presents a summary of whether the challenges and opportunities identified were a priority for our stakeholders in their particular area. This exercise does not seek to prioritise the challenges and opportunities along the length of the route by trying to compare one issue against another, but reports the feedback from local discussions.

4.1.7 This picture of stakeholder priorities is subjective and has been informed by discussions regarding the top priorities locally at the stakeholder events, and in conversations with stakeholders who couldn't attend the events.

4.1.8 We recognise that the picture we build through this categorisation will be influenced by the representatives and organisations we have engaged with and that consequently we may not have achieved a statistically balanced view. We will be conscious of these limitations in the reporting of stakeholder priorities as we move into the second stage of RBS.

## **4.2 Operational challenges and opportunities**

- 4.2.1 The level of operational coverage across this route varies. The trunk road sections, with the exception of the A42, have no dedicated Traffic Officer Service patrols and limited technology to support incident management. This coincides with sections of the network that are performing poorly, compared to the rest of the route, in terms of delay, journey-time reliability and safety. However, there is opportunity to obtain further data to understand the impact of incidents on these sections.
- 4.2.2 There are opportunities to improve our ability to identify real time traffic information to then inform road users on this route. Stakeholders identified the M69 as a particular section where road users would benefit from greater strategic information however this was not identified as a high priority for the route. There is also a technology scheme on the M69 near junction 1 to install variable message signs.
- 4.2.3 A challenge for the route is where the SRN is used as a diversion for the main arterial routes of the M6 and M1 in the Midlands. These sections have current issues in terms of their performance and stakeholders questioned the suitability of these sections to take significant additional strategic traffic.

## **4.3 Asset condition challenges and opportunities**

- 4.3.1 The asset within this route is in relatively good condition with recent and upcoming maintenance schemes being delivered to address current issues. Ongoing deterioration is anticipated with a number of assets reaching the end of their design life over the route based strategy period. The main assets of concern within this route are the condition of the pavement. This is particularly the case along the A5 between the M42 and A38, the A46 from M6 to the lower county boundary of Warwickshire, the M42/A42 and the A38 from Lichfield to Burton-upon-Trent. Managing the impact of maintenance schemes on road users and road neighbours will be a key challenge, especially along the single carriageway sections (such as the A5 and A46).
- 4.3.2 There are also geotechnical concerns along the M45 as slippage of the embankments has been observed in some areas. Schemes have already been delivered in such locations and we are continuing to bring forward schemes to provide permanent solutions to the on-going issues. It is likely that this will continue to be a challenge for the route.
- 4.3.3 The priority and number of concerns raised by stakeholders on the condition of the assets within the route were low. There were greater concerns regarding the capacity on the route, especially in and around towns and cities and single carriageway sections, and so where significant maintenance is required here, there is a challenge to manage the impact of road works.

## 4.4 Capacity challenges and opportunities

- 4.4.1 The route generally performs well in comparison to other parts of the SRN in terms of journey-time reliability, average speeds and average delays. However there are some capacity challenges at key locations which are predominantly around the larger settlements, where the route is single carriageway and has at grade junctions. Here, the route carries a wide variety of different road users and has local, commuters and strategic traffic. These include existing issues as well as those anticipated as a result of planned economic growth.
- 4.4.2 The A5 within this route (from the M1 to the M6) was a high priority for stakeholders and within the Leicestershire and Coventry and Warwickshire strategic economic plans. In particular, two sections of the A5 were highlighted through the congestion data as currently experiencing high delays and were also raised by stakeholders. These were the sections between the M6 / A449 and A38 and between the M42 and M69.
- 4.4.3 The A5 between the M6 / A449 and A38 serves the towns around the north of Birmingham including Cannock and Lichfield. There are capacity concerns at a number of the junctions along this section, particularly those that are at grade. Significant developments are planned within these urban areas and the traffic generated by these is expected to impact on the A5. There are Pinch Point schemes planned in the area. These will be delivered by Spring 2015 and will alleviate some existing issues as well as support economic development over the short term.
- 4.4.4 The evidence also shows that there are performance issues with the A449 in this area. This is also linked to capacity concerns about the M54 that are noted in the Midlands to Wales and Gloucestershire RBS. These sections carry northbound traffic as it leaves the M54 at junction 2 and travels along the A449 to reach the M6. This route is taken as there isn't a direct northbound connection between the M54 and the M6. There are significant development plans in and around junction 2 of the M54. It is expected that the traffic generated from these developments will exacerbate these existing capacity issues. This includes the EZ at i54 which has a dedicated access from M54 junction 2.
- 4.4.5 There is a scheme in the pipeline to provide a new road linking the M54 to the northbound M6 and M6 Toll. It is expected that such a scheme could resolve these capacity issues over the medium to long term.
- 4.4.6 At the stakeholder event, concerns about this section of the A449 and A5 were raised but were not given a high priority. However, stakeholders raised concerns that the M6 Toll is currently underutilised and they suggested that the performance of other routes, such as the A449 and A5, could be improved if the M6 Toll was to be made more attractive to traffic. Stakeholders identified this as one of the highest priorities for this route. The challenge will be how to increase utilisation given that the M6 Toll is a privately operated toll road on a 50 year concession that is not due to expire until 2054.

- 4.4.7 The A5 between the M69 and M42 experiences delays and average speeds are lower than the speed limit. Stakeholders attributed a high priority to this section near Hinckley and Nuneaton including the A5 / A47 Dodwells and Longshoot junctions. The link between these junctions is one of the least reliable sections on the route. There is significant economic development planned which will impact of these sections including the MIRA EZ. A Pinch Point scheme is being delivered at these junctions and it is anticipated that this will address some of the capacity issues over the medium term. However, the schemes are not addressing capacity of the A5 between the junctions and therefore the challenge for the strategy period will be to ensure that capacity issues here do not constrain economic growth.
- 4.4.8 The A46 and A45 around Coventry were identified as a key priority for stakeholders at the workshops. These parts of the route support locally based trips in and around Coventry and serves Coventry Airport. Approximately 22,000 houses are planned for the Coventry area. There is a major scheme at the A46 / A45 Tollbar junction which will solve existing and anticipated medium-term performance challenges. However stakeholders raised concerns about the subsequent impact of the scheme and traffic growth on other junctions along the A46 and A45.
- 4.4.9 The capacity of the M42 in this route was raised as a medium priority by stakeholders but one where interventions may be required in the short-term. Existing performance issues are noted in the evidence along the M42 between junctions 7 and 11 and these are expected to be exacerbated by development pressures including those related to HS2 and around Junction 9. Pinch Point schemes are to be delivered at junctions 9 and 10 by 2015. These are expected to support economic development over the short – medium term. Therefore the challenge for the RBS period will be to monitor the affect of these improvements to see if other interventions may be required at these locations and to identify any complementary measures that may be required to address capacity constraints along the remaining section of the M42 within this route.
- 4.4.10 A42 Junction 13 was raised as a concern by stakeholders for the medium to long term to support development. Whilst there are no existing capacity issues identified within the data presented in this report it is understood that future development will result in interventions being required here. However, depending on the build-out rates of these developments, such improvements may not be required until the later part of the RBS period.
- 4.4.11 A number of stakeholders also raised concerns about the performance of the A46 through Worcestershire although these were identified as low priorities at the workshop. This included the A46 junctions around Evesham and the section between Stratford-upon-Avon and Alcester. The evidence compiled in this report does not highlight a significant concern in these locations currently. However there is an opportunity to work with developers and the LAs to understand in more detail the impact of development proposals on the A46 in these areas.

4.4.12 In summary, the key locations where we anticipate that capacity improvements may be required by 2021 are as follows:

- A449 and A5 (in conjunction with the M54 from junctions 3 to 2) However, if a new northbound link between the M54 and M6 was to be provided, capacity improvements on the A449 and A5 may not be required;
- A5 between A47 Longshoot and Dodwells junctions;
- A45 / A46 around Coventry;
- M42 between junctions 7 and 11 (including mainline and junctions); and
- A42 Junction 13.

4.4.13 There is an opportunity to work with developers, LEPs and LAs to secure funding for the delivery of capacity improvements that may be necessary to support economic development.

## **4.5 Safety challenges and opportunities**

4.5.1 The overall safety performance of this route is variable with the highest casualty rates recorded on the A5 and A449. These are mostly single-carriageway roads with numerous at grade junctions and direct accesses. The highest casualty collision sites of this route were also found along the A46, one at the A45 Tollbar junction and the other where it meets with the M6 at Junction 2 north of Coventry

4.5.2 Safety along the A5 at the A47 Longshoot and Dodwells junctions was raised as a medium priority by stakeholders. This was the highest priority assigned to a safety concern.

4.5.3 There are a number of improvements planned along these parts of the route including a major improvement at Tollbar and a number of Pinch Point schemes including those at the A5 / A47 junctions. Whilst the focus of these is on providing capacity enhancements, safety issues have also been considered as part of the scheme designs. Therefore the challenge for this RBS period will be to monitor the impact of these schemes on safety and to identify any further opportunities at these, or other locations along the route, to reduce collisions and casualties.

## **4.6 Social and environmental challenges and opportunities**

4.6.1 This route has a number of trunk roads which pass directly through a number of settlements and communities. Facilities for vulnerable road users are therefore particularly important along these sections of the route. A number of concerns were raised at the stakeholder workshops about facilities for vulnerable users. These included concerns about provision for cyclists along the A38 between Lichfield and Burton and the A46 around Stratford. Concern over the provision of safe crossing points for pedestrians was also raised in relation to the A46 around Evesham and the A5 especially near Hinckley and Nuneaton. Providing appropriate facilities for these users will be a key challenge for this RBS.

- 4.6.2 The route passes through an air quality management area (AQMA) at Rugby. Stakeholders also raised concerns about the air quality in Hinckley and Nuneaton where AQMAs have also been designated. Whilst the route doesn't directly pass through these AQMA areas, stakeholders commented that when there is significant congestion on the A5 more traffic goes through the town centres which can exacerbate the air quality issues. Air quality will present a particular challenge during this period as particular care will be required when developing any improvements to ensure that they do not adversely affect air quality in these areas. There may also be an opportunity to develop interventions that may improve air quality through these existing locations.

**Table 4.1 Schedule of challenges and opportunities**

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
<b>Network Operation</b>	M69	Inadequate strategic signing.	No	X			✓	✓		
	A5 Diversion route	Stakeholders (outside of workshop) highlighted concerns over the use of the A5 as a strategic diversion route for the M6 and the impact on the local road network	No	X			X			
	Route-wide	Lack of incident data and duration, opportunity to increase this on the route through stakeholder partnership and utilising technology	Yes	X			X			
<b>Asset Condition</b>	A46	The A46 has quickly developing potholes which cause problems for all road users HA data demonstrates that the large proportions of the pavement will reach the end of its expected design life by 2021 (around Coventry and Stratford-upon-Avon)	Yes	X	X		✓	✓		
	A42/M42	Large proportion of pavement (non-concrete surface) will reach the end of its design life by 2021	Yes		X		X			
	A5	Large proportion of pavement will reach the end of its design life by 2021 Condition of the cycleways is poor	Yes		X		X			
	A38 Burton-upon-Trent	Large proportion of pavement will reach the end of its design life by 2021	Yes		X		X			

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
	M45	Geotechnical challenges on this section. Built in 1950s and designed to the standards of the time.	Yes	X	X	X	X			
<b>Capacity</b>	A5	Emerging as a key economical route which is already operating at capacity, and will be even more so from future development. A large amount of new development is planned along the corridor with direct access onto the A5.	Yes	X						✓
	A5 junctions with the M69 to M42	This section is highlighted by both Leicester and Leicestershire and Coventry and Warwickshire LEPs as a key priority. Development pressures along this section of the A5, including the EZ at MIRA.  Current Pinch Point scheme at Dodwells and Longshoot but stakeholders view was that further improvements were required to manage current and future traffic	Yes	X	X	X	✓			✓
	A46 Coventry	Growth plans will put a considerable strain on this section of the SRN (SRN). Requires a study similar to the A5. Approx. 21-22,000 houses proposed in the Coventry area.	Partial	X	X	X	✓		✓	



	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
	M42 J7-11	<p>Major capacity issues on M42. HS2 and the big allocation of development in the future close by will put greater pressure on this already struggling road. A46 will have a role in relieving the M42 but is under pressure itself.</p> <p>Centro's west midland freight strategy highlights some issues on these sections.</p> <p>Potential development near junction 9 and to the west, in and around Curdworth will cause congestion at this junction.</p>	Yes	X			✓		✓	
	A5 / M6 Toll Cannock	Effect on transport of growth at Cannock Chase (needs 5,300 dwellings). Churchbridge scheme has lifespan until 2020 - need to consider long term	Yes		X	X	✓	✓		
	A45 / A46 junctions	The TGI and Walsgrave islands around Coventry could undermine the existing investment that's being made on A46 improvements. They are the only at grade junctions remaining along the corridor and are therefore Pinch Points on the network. They were not put forward for Pinch Point funding due to enormous costs.	Yes	X			✓	✓		
	A46 Stratford	There is a change in lane widths between Alcester and Stratford, the carriageway reduces to a single lane. The single carriageway causes problems for drivers who get stuck behind large HGVs. Need a traffic management on the A46 such as the use of traffic lights at peak times	Partial	X			✓		✓	

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
	A42 J13	The nearby A511 is a growth corridor which would increase congestion at this junction. Strategic improvements are required to alleviate this pressure. A strategy to secure developer contributions is needed.	Yes		X	X	✓	✓		
	A46	A46, capacity issues, especially junctions around Evesham, impacted by development growth	Partial	X			✓		✓	
	M6 Toll	Underutilised but the alternative SRN (particularly the M42, M6 & M54) is generally operating over capacity. Although the toll road is not under the Highways Agency's remit, if M6 Toll was priced to attract more traffic it would alleviate a lot of the problems the Highways Agency face on the SRN, therefore affecting future HA strategies and spend.  Solihull Metropolitan Borough Council looking into the M6 Toll issue and its one of the joint LEP priorities.	Yes	X			✓			✓
	A449	Lack of technology provision coincides with poor performance on this section in terms of delay	Yes	X			X			
	A46 Stratford to Alcester	The A46 is only two lanes and carries a lot of traffic - not really suitable as SRN.	No	X			✓	✓		
	A46	Lack of technology provision on this section coincides with poor performance in the Coventry, Warwick and Evesham areas	Yes	X			X			
	A5	Lack of technology provision on this section coincides with poor performance along the A5	Yes	X			X			

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
<b>Safety</b>	A5 Longshoot and Dodwells	(Capacity and) safety issues along this stretch of the A5. As above Pinch Points not necessarily going to fix the problem. Dualling is needed to increase capacity and improve safety.  Ranked 158 <sup>th</sup> nationally for casualty locations across the SRN	Yes	X			✓		✓	
	A5	Safety performance across the A5 from Rugby to A449. Variable design standards and at grade junctions contribute and sites in the top 250 casualty locations along the A5	Yes	X			✓	✓		
	A449	Section is in the top 10% casualties per billion vehicle miles. Rural dual carriageway section which carries traffic from M54 to the M6 northbound	Yes	X			X			
<b>Social and environment</b>	A46 Stratford	More segregation for cyclists required to improve safety.  Pedestrian and cycle crossings near Stratford are an issue.	Yes	X			✓	✓		
	A38 Burton-Lichfield	Good off road cycle route but very stop-start in nature. Cyclists are poorly catered for at junctions so cyclists tend to go along the A38 which presents a safety issue and can reduce traffic speeds. Cycle network needs to be better coordinated and less disruptive.	Yes	X			✓	✓		
	A46 Evesham	Lack of safe crossing point at Bengeworth (Evesham) prevents Sustrans from developing major tourism / leisure route from Worcester to Oxford via the Cotswolds	No	X			✓	✓		

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
	A5	Severance for Pedestrian and cyclists trying to cross the corridor. Particular problem for pedestrians. Desire locally to cycle Hinckley to Nuneaton to Atherstone	No	X			✓	✓		
<b>Other</b>										

## 4.7 Conclusion

- 4.7.1 The South Midlands route includes mostly trunk roads with just three motorways, the M42, M69 and M45. It provides the strategic link between the East and West Midlands, between the M6 and Birmingham Box and the M1. The route is mainly dual carriageway all purpose trunk road although there are significant sections of single carriageway on the A5 and A46.
- 4.7.2 The evidence has shown that there are some capacity challenges at key locations along the route, predominantly around the larger settlements. These include existing issues as well as those anticipated as a result of planned economic growth. For example, the M42 around Birmingham Airport and Tamworth, the A5 and A449 in North Staffordshire and along the A5 near Hinckley and Nuneaton.
- 4.7.3 There is already some investment planned to improve the capacity of this route. This includes 8 Pinch Point schemes that will all be delivered by March 2015 and one major junction improvement at the A45 / A46 Tollbar Interchange. There is also a scheme in the pipeline looking at options for a link road between the M54 and the M6 and M6 Toll. These schemes are expected to address a number of existing capacity issues as well as facilitate development planned over the short and medium term.
- 4.7.4 Currently there are no other improvements planned for other locations where capacity has been identified as a current and future concern, including those identified as a high priority by stakeholders. These are summarised under 4.7.15 below. Stakeholders attending the workshops highlighted the A5 Junctions with the M69 to the M42 as a high priority. Some stakeholders also expressed views concerning the M6 toll being underutilised and what this means for the M42, M6 and M54.
- 4.7.5 Elsewhere the route tends to currently perform relatively well when looking at the capacity metrics and only limited development is planned in these locations. Whilst it could be argued that development would be more suitable in such areas due to capacity on our network, there are wider planning considerations which mean that significant development in these areas may not be appropriate.
- 4.7.6 The safety challenges along the route are particularly focused along the A5 and A449 where the highest casualty rates have been recorded. The highest casualty collision sites of this route were also found along the A46 at the A45 Tollbar junction and it's junction with the M6. Stakeholders also identified the A5 junctions with the A47 at Longshoot and Dodwells as the highest priority in relation to safety concerns. There are a number of improvements planned along these parts of the route including a major improvement at Tollbar and a number of Pinch Point schemes including those at the A5 / A47 junctions. Whilst the focus of these is on providing capacity enhancements, safety issues have also been considered as part of the scheme designs. Therefore the challenge for this RBS period will be to monitor the impact of these

schemes on safety and to identify any further opportunities at these, or other locations along the route, to reduce collisions and casualties.

- 4.7.7 From an operational perspective, there is varied coverage for this route with no dedicated Traffic Officer Service patrols for the trunk road sections, except for the A42. There is an opportunity to obtain more data to understand the impact of incidents on these sections. There were also opportunities identified to improve our ability to inform road users on this route with the M69 being identified by stakeholders as a key section which would benefit from greater strategic information.
- 4.7.8 A key operational challenge for the route is where the SRN is used as a diversion for the main arterial routes of the M6 and M1 in the Midlands. These sections have current issues in terms of their performance and stakeholders questioned the suitability of these sections to take significant additional strategic traffic.
- 4.7.9 The assets along the route are in reasonable condition however deterioration can be expected over the route-based strategy period. This is particularly the case for the pavement in key areas as significant sections are expected to reach the end of their design life by 2021. These areas include along the A5 between the M42 and A38, the A46 from M6 to the lower county boundary of Warwickshire, the M42/A42 and the A38 from Lichfield to Burton-upon-Trent. Managing the impact of maintenance schemes on road users and neighbours will be a key challenge. This will be particularly difficult in the single carriageway sections such as the A5 and A46.
- 4.7.10 There are also geotechnical concerns along the M45 as slippage of the embankments has been observed in some areas. Schemes have already been delivered in such locations and we are continuing to bring forward schemes to provide permanent solutions to the on-going issues. It is likely that this will continue to be a challenge for this route.
- 4.7.11 A number of social and environmental issues have also been identified. The trunk road routes, in particular the single carriageway sections, are often used for local journeys by vulnerable users. Ensuring appropriate provision for such users, especially cyclists, will be a key challenge. However, there could be the opportunity of improving such facilities at the same time as addressing other concerns.
- 4.7.12 Concerns over air quality were noted around the A5 at Rugby and on local routes close to the A5 in Hinckley and Nuneaton. There could also be opportunities to address the air quality issues at the same time as improving the capacity or safety of locations. However, air quality could also be a constraint as care will need to be taken to ensure that improvements do not result in breaches of the European air quality limits.
- 4.7.13 This route interacts with the following other route based strategies:
- Birmingham to Exeter (the A46 to the south west of this route connects with the M5 at Junction 9 for Tewkesbury);

- London to Scotland West (the A46 connects to the M40 at junction 15 near Warwick, the M6 Toll connects to the M42 at junction 7 and the M6 at junction 11, and the A5 connects to the M6 at junction 12);
- Midlands to Wales and Gloucestershire (after crossing the M6 the route connects with the M54 at junction 2 with the A449);
- Felixstowe to Midlands (the A46 connects with the M6 at junction 2 near Coventry);
- London to Scotland East (the route connects with this route three times along the M1); and
- North and East Midlands (connects where the A38 meets the A50 near Derby).

4.7.14 The South Midlands route includes roads of varying standards. The opportunities and challenges evidenced within the report are consistent with those expected for such a broad spectrum of road standards. A key pattern that has emerged is that the locations where capacity and often safety issues occur tend to be around key urban settlements. These are also the locations that have more notable economic development plans which are likely to generate additional traffic. Safety issues are also particularly noted on the lower standard roads within the route.

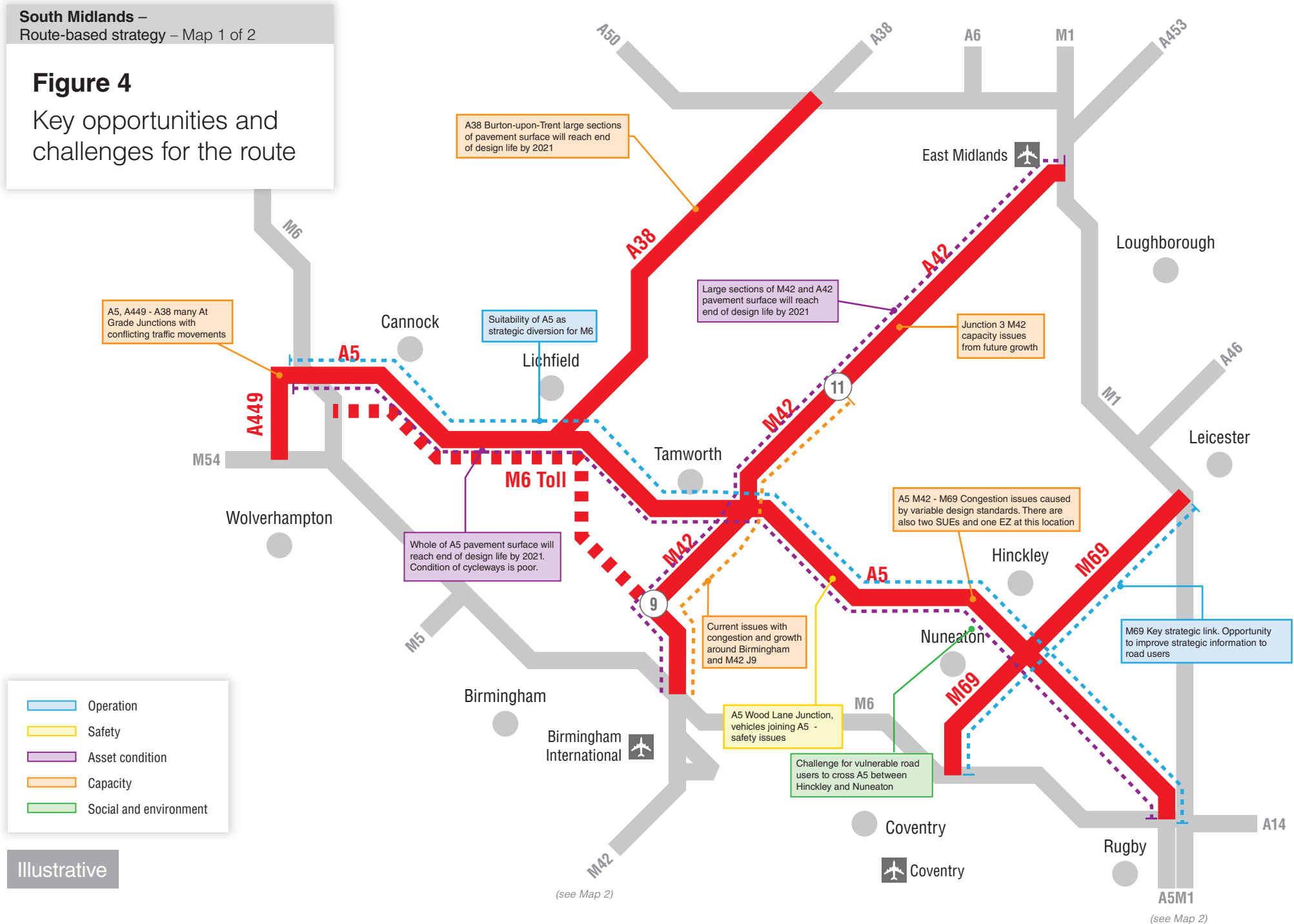
4.7.15 This report has identified a number of key challenges and opportunities. It has shown that capacity, safety and sometimes environmental issues often occur in similar locations. Of particular note within this report, and expected to require consideration over the RBS period (by 2021), are as follows:

- A449 and A5 (in conjunction with the M54 from junctions 3 to 2);
- A5 between its junctions with the M69 and M42;
- A45 / A46 around Coventry;
- M42 between junctions 7 and 11 (including mainline and junctions); and
- A42 Junction 13.

4.7.16 Stakeholders expressed a number of views specifically concerning the above in relation to capacity and environmental concerns.

### Figure 4

### Key opportunities and challenges for the route



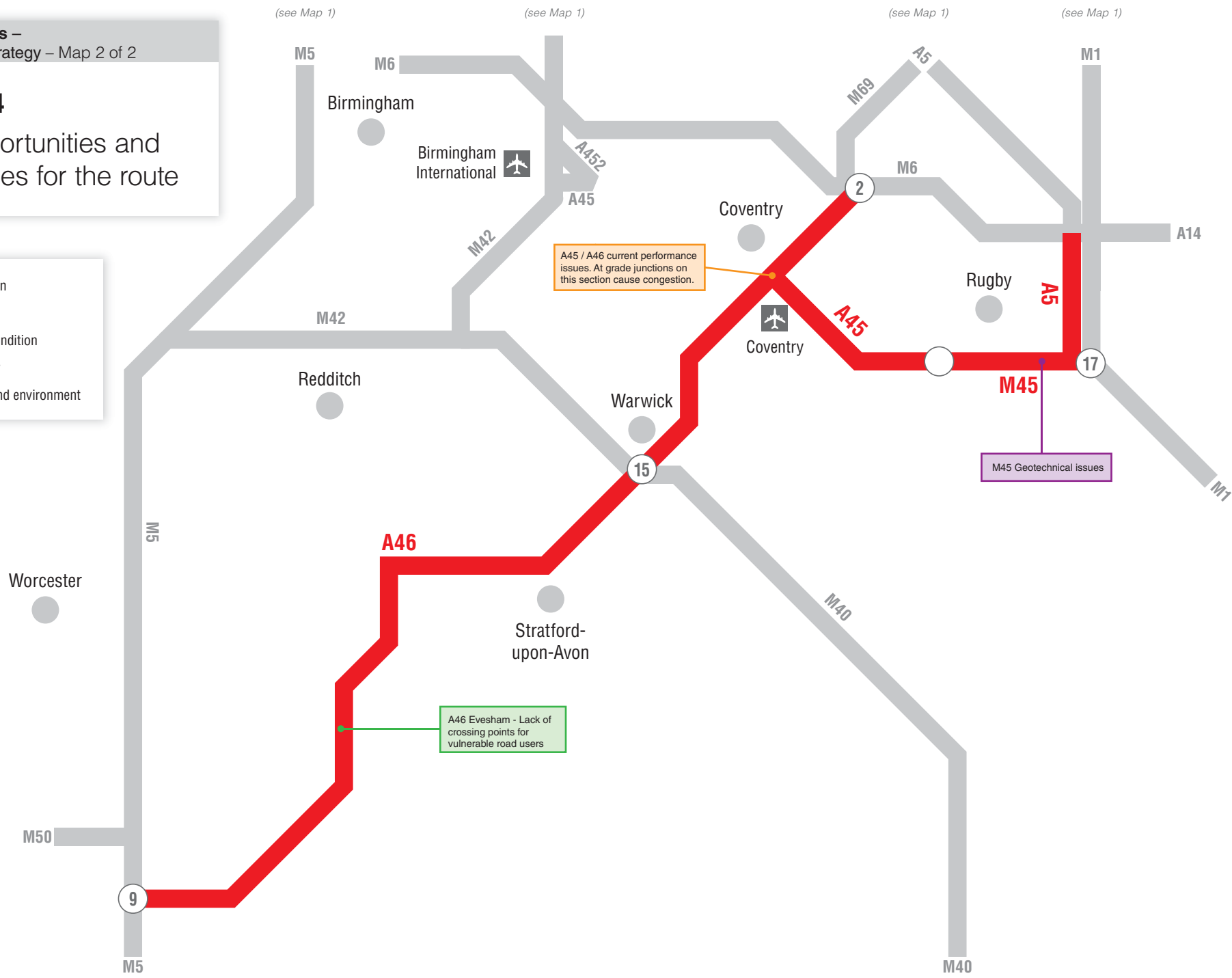
Illustrative



### Figure 4

Key opportunities and challenges for the route

- Operation
- Safety
- Asset condition
- Capacity
- Social and environment





















Illustrative

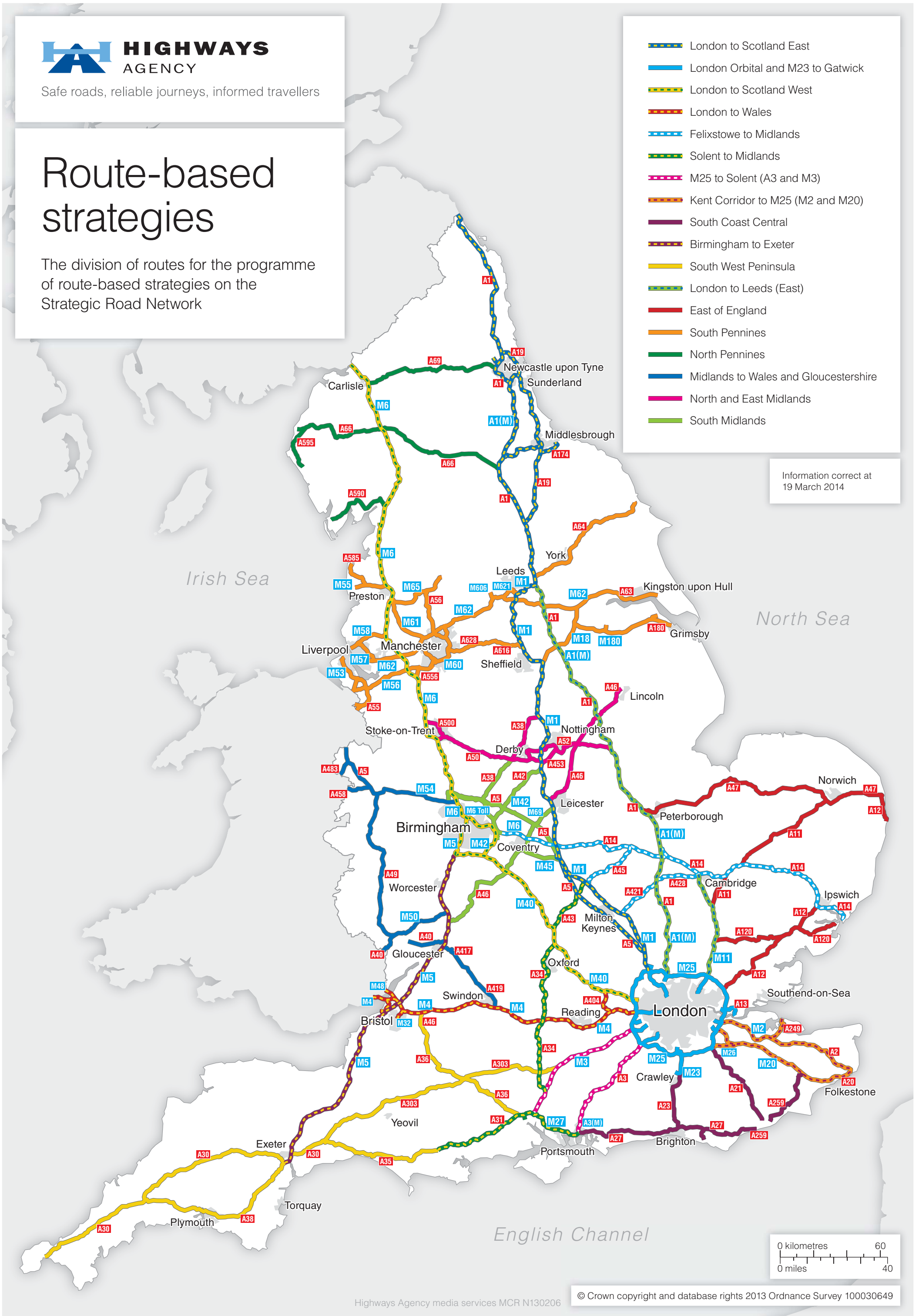
## Appendix A      Route map

# Route-based strategies

The division of routes for the programme of route-based strategies on the Strategic Road Network

-  London to Scotland East
-  London Orbital and M23 to Gatwick
-  London to Scotland West
-  London to Wales
-  Felixstowe to Midlands
-  Solent to Midlands
-  M25 to Solent (A3 and M3)
-  Kent Corridor to M25 (M2 and M20)
-  South Coast Central
-  Birmingham to Exeter
-  South West Peninsula
-  London to Leeds (East)
-  East of England
-  South Pennines
-  North Pennines
-  Midlands to Wales and Gloucestershire
-  North and East Midlands
-  South Midlands

Information correct at 19 March 2014



## Appendix B Glossary

Abbreviation	Description
AADT	Annual Average Daily Traffic
ANPR	Automatic Number Plate Recognition
AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Area
CCTV	Closed circuit television
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EZ	Enterprise Zone
FPL	First Priority Location
HGV	Heavy Goods Vehicle
HRA	Hot Rolled Asphalt
IA	Important Area
LAs	Local Authorities
LEPs	Local Enterprise Partnerships
MIDAS	Motorway Incident Detection and Automatic Signalling
NO <sub>2</sub>	Nitrogen Dioxide
NTOC	National Traffic Operations Centre
RBS	Route-based strategies
RCC	Regional Control Centre
SACs	Special Areas of Conservation
SPA	Special Protection Area
SRN	SRN
SSSI	Sites of Specific Scientific Interest
TEN-T	Trans European Transport Network
TSCS	Thin Surface Course Treatment
TOS	Traffic Officer Service
VMS	Variable Message Signs

## **Appendix C      Stakeholder involvement**

Further information on those stakeholders who were involved in the stakeholder events can be found within part B of the North and East Midlands Technical Annex.

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