

Felixstowe to the Midlands Route Strategy Evidence Report April 2014



Document History

Felixstowe to the Midlands route-based strategy evidence report

Highways Agency

This document has been issued and amended as follows:

Version	Date	Description	Author	Approved by
1	6/12/13	Draft for internal discussion	D. Abbott	
	13/1/14	Post internal review	D. Abbott	C. Brookes
	28/1/14	Draft for stakeholder comments	D. Abbott	C. Brookes
	4/4/14	Final	D. Abbott	C. Brookes

Table of Contents

Table of Contents	ii
Tables	iii
Charts	iii
1 Introduction	1
1.1 Background	1
1.2 The scope of the stage 1 RBS evidence report.....	2
1.3 Route description	2
2 Route capability, condition and constraints	8
2.1 Route performance	8
2.2 Road safety	21
2.3 Asset condition.....	27
2.4 Route operation.....	29
2.5 Technology.....	30
2.6 Vulnerable road users	31
2.7 Environment.....	31
3 Future considerations	35
3.1 Overview	35
3.2 Economic development and surrounding environment	40
3.3 Network improvements and operational changes	42
3.4 Wider transport networks	43
4 Key challenges and opportunities	44
4.1 Introduction	44
4.2 Operational challenges and opportunities	46
4.3 Asset condition challenges and opportunities	47
4.4 Capacity challenges and opportunities.....	47
4.5 Safety challenges and opportunities	48
4.6 Social and environmental challenges and opportunities	49
4.7 Conclusion	57
Appendix A Route map	64
Appendix B Glossary	66
Appendix C Stakeholder involvement	67

Tables

Table 2.1	Ten busiest sections on the route	8
Table 2.2	Ten least reliable journey-time locations on the route 2012/13	9
Table 3.1	Key housing and economic growth proposals	40
Table 3.2	Committed SRN enhancement schemes	42
Table 3.3	Declared pipeline schemes	43
Table 3.4	Committed local transport network enhancement schemes	43
Table 4.1	Schedule of challenges and opportunities	50

Figures

Figure 1: Overview Map	7
Figure 2.1: Network Performance 2012/13 – peak period speeds	12
Figure 2.2: Network Performance 2012/13 – delays	17
Figure 2.3: Safety on the network	23
Figure 3: Key future considerations for the route	36
Figure 4: Key opportunities and challenges for the route	60

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.
- 1.1.2 Route-based strategies (RBSs) represent a fresh approach to identifying investment needs on the strategic road network. 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 RBSs is based on one of the recommendations included in Alan Cook's report [A Fresh Start for the Strategic Road Network](#), published in November 2011. He recommended that the Highways Agency, working with local authorities (LA) and local enterprise partnerships (LEPs), should initiate and develop route-based strategies for the strategic road network.
- 1.1.4 The then Secretary of State's 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 strategic road network from local and regional stakeholders.
- 1.1.5 The Highways Agency completed the following three pilot strategies which have been published on the [Agency website](#):
- A1 West of Newcastle
 - A12 from the M25 to Harwich (including the A120 to Harwich)
 - M62 between Leeds and Manchester.
- 1.1.6 Building on the learning from those pilot strategies, we have divided the strategic road network into 18 routes. A map illustrating the routes is provided in Appendix A. The Felixstowe to the 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 strategic road network 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 Agency and from our partners and stakeholders outside the 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
- 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 strategic road network will be used to:

- Inform the selection of priority challenges and opportunities for further investigation during stage 2 of route-based strategies
- 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 Felixstowe to Midlands route covers a large area encompassing sections of the M6, A14, A45, A421 & A428. The corridor as a whole connects Felixstowe in the east towards Birmingham in the west. The A45 and A428/A421 form spurs from the A14 with connections to Northampton, Bedford and Milton Keynes. The route serves several functions.

1.3.2 As a strategic route it:

- Links the East Coast ports to the Midlands;

- Forms part of the Trans-European Network;
- Acts as a major transport link between the Midlands and the East of England;
- Acts as a key link for the movement of freight.
- Overlaps with other major strategic roads.

1.3.3 Regionally it:

- Links the major regional centres along the route, such as Ipswich, Cambridge, Coventry and Birmingham;
- Provides for the distribution of goods and services;
- Provides a bypass for through traffic.

1.3.4 Locally it:

- Provides local access to towns and villages along the route;
- Provides the only means of access to some communities along the route, particularly important in a part of the country where there is limited access to the strategic road network;
- Bypasses towns along the route;
- Provides distribution function around population centres.

A14 & M6

1.3.5 The section of M6 in this route is approximately 23 miles long and the A14 130 miles, and together run between Birmingham's motorway "box" and the port of Felixstowe. The M6 section is mostly contained within Warwickshire, fringing Coventry and ending in Leicestershire. The A14 corridor passes through Leicestershire, Northamptonshire, Cambridgeshire and Suffolk.

1.3.6 The M6 section provides connection with the West Midlands and the west and northwest of England. In combination with the M1 it also forms part of a strategic route connecting the south with the north-west. This section of the M6 is generally dual three lane motorway. It is part of the Trans-European Core Network.

1.3.7 The A14 trunk road is a 2-lane dual carriageway except for two short stretches between Bar Hill and Girton interchanges and between its two A11 junctions east of Cambridge, where briefly the road is dual three lanes. Its strategic role in connecting the East Coast ports to the Midlands affords it Trans-European Core Network status.

1.3.8 There are eight key interchanges along the route intersecting with other strategic roads: M42/M6 Toll (M6 J3A & J4), M69/A46 (M6 J2), M1 J19, A45 (A14 J13), A1 (A14 J21), M11 (A14 J31), A11 (A14 J36 & J38) & A12 (A14 J55). The A14 west of Newmarket serves as a link between sections of the A11. The A14 between the A1(M) (Alconbury) and M11 (Cambridge) also performs a strategic north-south function linking east London and the south east to the East Midlands and north east.

- 1.3.9 High volumes of traffic use the A14, including a very high proportion of HGVs (up to 25% of traffic) carrying freight from the Ports of Felixstowe (Britain's busiest container port), Harwich and Stansted Airport to the Midlands and the north. These factors, along with the frequent access roads along the route, contribute to the high congestion levels currently experienced on some sections of the A14 during peak periods. Furthermore, lower speeds due to the high proportion of HGVs and some short weaving sections on the route has resulted in a number of safety issues. The significant housing and employment growth proposed along the A14 corridor is likely to increase traffic and exacerbate these problems further.
- 1.3.10 The A14/M6/M1 Interchange (Catthorpe) is a recognised congestion hotspot. Currently there are no free flow links between the A14 and M6, with traffic required to negotiate at grade junctions, and no connection between M1(s) and A14. The high volume of traffic present result in extensive congestion and long queues.
- 1.3.11 The A14 at Ipswich forms its southern bypass. Part of this section, between junction 55 at Copdock and junction 58 at Bucklesham carries also serves the A12, carrying both strategic and local traffic (the A12 becomes a local road northeast of Ipswich). The most heavily trafficked length local to Ipswich is over Orwell Bridge, a substantial structure requiring considerable ongoing maintenance.

A45

- 1.3.12 The A45 section of the route is 25 miles long and runs from M1 J15 (Northampton) to A14 junction 13 (Thrapston), passing through Northamptonshire. It is mostly dual carriageway, predominantly two-lane with short wider sections near Northampton. A short stretch between Stanwick and the A14 is, however, single carriageway. Junctions are generally at-grade but with the Northampton junctions grade separated.
- 1.3.13 The A45 provides a key distributor route for Northampton, with 6 junctions serving the Northampton area of which 2 provide access to Northampton town centre. The route principally acts as a local distributor and as a gateway for Northampton and the Wellingborough areas to the M1 and other strategic routes via the A43. It does, however, provide the connection between the M1 and A14 that is not available at M1 junction 19.
- 1.3.14 The route carries a significant level of traffic and is particularly congested during peak periods at junctions serving Northampton town centre, at M1 J15 and at at-grade junctions serving Wellingborough and Rushden. A high proportion of these trips are local commuting trips.

A421

- 1.3.15 This section of route is 17 miles long and runs from M1 junction 13 to the Black Cat Roundabout on the A1 near St Neots. The corridor passes through Central Bedfordshire and Bedford Borough. It is dual carriageway and fully grade-separated between the M1 and A1. The

corridor acts both as a link for major urban settlements of south Midlands towards the east as well as a local distributor and gateway for Bedford to the M1 and A1.

- 1.3.16 Annual average daily flows (AADF) vary between 27,000 and 45,000 vehicles per day, around 6 to 7% of these being heavy goods vehicles. The most prominent traffic peaks occur at the junctions near to Bedford but the most notable delays are generally experienced on the approach to the A1 Black Cat roundabout during extended peak periods. The two junctions at either end of the route (M1 junction 13 and A1 Black Cat Roundabout) also experience safety concerns.

A428

- 1.3.17 This section of the route is 17 miles long and runs from the A1 junction near St. Neots to the A14 at its junction with M11 at Cambridge. It runs west to east and is single carriageway between the A1 and the A1198 with a series of at-grade roundabouts and give-way junctions. This section routinely experiences major delays both at its junctions and along its links during peak periods. This section of the route bypasses St. Neots where there are major growth proposals.

- 1.3.18 The route is a two lane dual carriageway between the A1198 Caxton Gibbet and the A14. This section bypasses Cambourne where considerable growth in housing and employment is planned. The A428 acts as a key corridor to accommodate Cambridge growth.

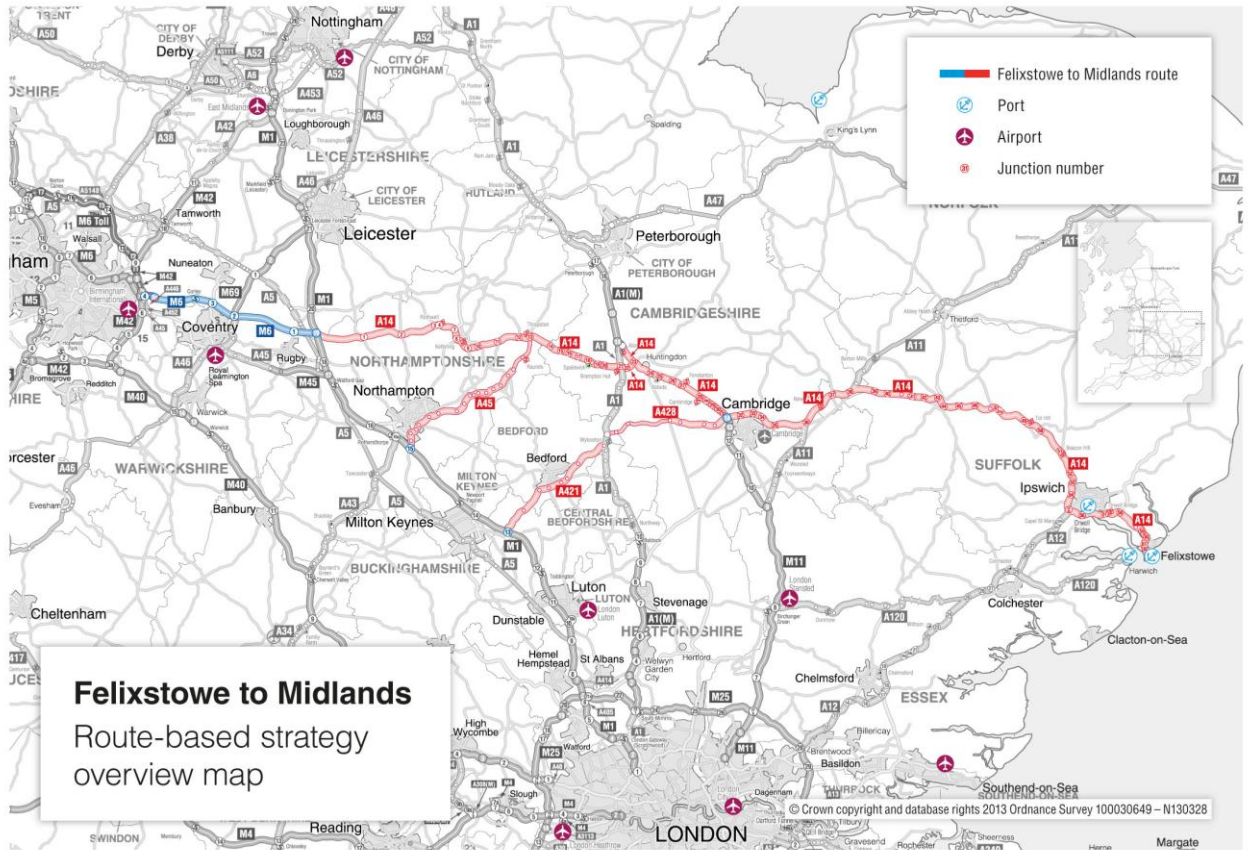
- 1.3.19 The AADF is around 18,000 vehicles per day along the single carriageway section, rising to 25,500 on the dual carriageway section between A1198 at Caxton and A1303 at Madingley, and 16,500 on the remaining dual carriageway section that links to the A14 Cambridge northern bypass. Though not forming part of the strategic road network, the A1303 Madingley Road provides the link between the A428 and the M11 south, there being no connection with the M11 at the A428/M11/A14 junction at Girton north-west of Cambridge.

- 1.3.20 This route connects with a number of other routes for which RBSs are also being developed. These are:

- **London to Scotland West** (connects at western end with M6 & M6 toll east of Birmingham);
- **South Midlands** (connects to M69/A46 at M6 junction 2 near Coventry);
- **London to Scotland East** (M6 crossed by M1 at junction 19 Catthorpe, A45 connects to M1 at junction 15 Northampton, A421 connects to M1 at junction 13 south of Bedford);
- **London to Leeds (East)** (A14 crossed by A1 at Huntingdon, A421 and A428 crossed by A1 near St Neots, and A14 connects with M11 west of Cambridge);
- **East of England** (A14 joins A11 near Newmarket, and connects to A12 south of Ipswich)

The route in its broader geographical context is shown in Figure 1 below.

Figure 1: Overview Map



2 Route capability, condition and constraints

2.1 Route performance

- 2.1.1 The strategic road network 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 most highly trafficked sections of this route are on the M6 between junctions 1 and 4. The M6 is mostly three lane motorway, providing a strategic link between the M1 and the Birmingham Box, serving the major city of Coventry. There are a high proportion of commuters travelling between Coventry and Birmingham as well as longer distance traffic, shown in the table below by higher flows to the western end of the route.
- 2.1.3 The ten most trafficked sections of this route are presented in Table 2.1. This is for the reporting period 1st April 2012 to 31st March 2013.

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

Rank	SRN section	Annual Average Daily Flow (One way)	National Rank
1	M6 between J3 (Bedworth) & J2 (Ansty) (LM997)	59,290	182
2	M6 between J2 (Ansty) & J3 (Bedworth) (LM996)	58,777	194
3	M6 between J3A (Coleshill) & J3 (Bedworth) (LM999C)	57,440	213
4	M6 between J3 (Bedworth) & J3A (Coleshill) (LM998C)	56,781	228
5	M6 between J4 (Chelmsley Wood) & J3A (Coleshill) (LM999D)	46,633	419
6	M6 between J3A (Coleshill) & J4 (Chelmsley Wood) (LM998D)	46,288	433
7	M6 between J1 (Rugby) & J2 (Ansty) (LM944)	44,078	490
8	M6 between J2 (Ansty) & J1 (Rugby) (LM945)	43,274	515
9	A45 between A508 (Hardingstone, Northampton) & A428 (Brackmills, Northampton) (AL395)	43,043	524
10	A45 between A428 (Brackmills, Northampton) & A508 (Hardingstone, Northampton) (AL2909)	41,420	563

- 2.1.4 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 strategic road network. 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'.

- 2.1.5 The links that perform least well against the on-time reliability measure within this route are all on the edge of large communities. In these locations there typically a great deal of traffic joining and leaving the route including substantial junction ‘hopping’ as part of relatively short journeys, clearly impacting on the efficiency of the route adjacent to and between those junctions.
- 2.1.6 All but two of the ten sections have grade separated junctions in favour of the trunk road suggesting that the reduced performance is influenced by merging, weaving or stationary queuing back onto the main line (or a combination of these).
- 2.1.7 The A14 Brampton to Spittals section and the A45 at Wilby Way are constrained by at-grade junctions which are known to routinely experience congestion at peak periods solely due to levels of demand. This constraint is frequently exacerbated by incidents such as collisions, be they on this route or others nearby.
- 2.1.8 It is worth noting that the ‘on-time reliability’ measurement, as listed in table 2.2, can be fairly coarse where, for instance, links vary in nature or circumstances along their length. In some cases it is possible to miss very localised problems when relying on this measure. On the Felixstowe to the Midlands route this is likely to be the case for a number of stretches of the A14 and the single carriageway sections of the A428 and A45.
- 2.1.9 Furthermore, as the reliability measure compares data year to year, route sections that have become consistently congested can be identified as ‘reliable’ in that delays can be confidently predicted. Such sections include the A428 between the A1 and A1198 in Cambridgeshire and the A14 between Huntingdon and Cambridge, both of which can be described as being reliably and heavily congested during peak periods.

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	A14 between J43 (A143) & A1101 (slip road, Bury St Edmunds) (AL279)	55.6%	30
2	A14 between A1101 (slip road, Bury St Edmunds) & J43 (A143) (AL278)	63.1%	166
3	A45 between A5076 (Gt Billing) & A43 (Lumbertubs Way) (AL2917)	64.0%	206
4	A14 between J31 & M11 J14 (Girton, Cambridge) (AL2864)	64.4%	228
5	A14 between M11 J14 & A14 J31 J14 (Girton, Cambridge) (AL2865)	65.4%	281
6	A45 between A509 (Lt Irchester) & A509 (Wilby Way, Wellingborough) (AL2922)	65.7%	302
7	A14 between J21 (Brampton Hut) & A141 (Spittals,	66.5%	360

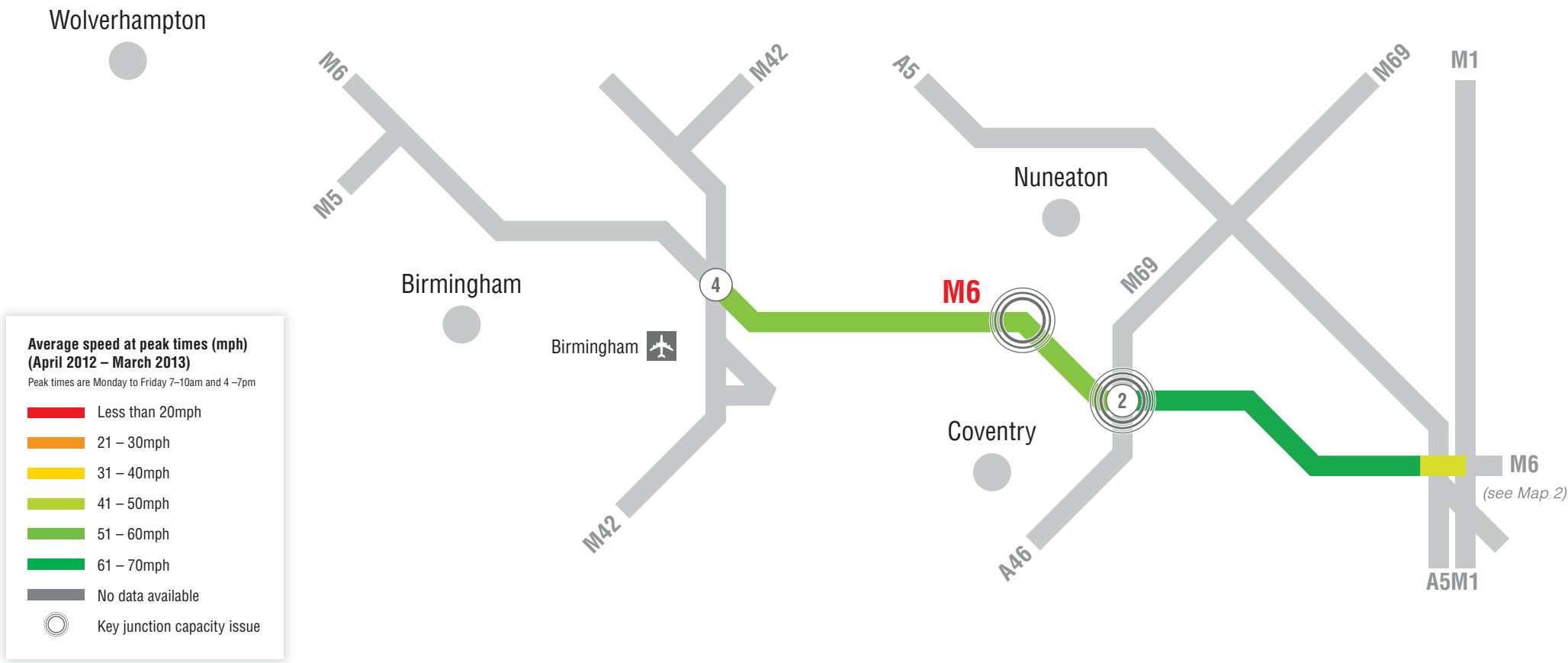
	Huntingdon) (AL2878)		
8	A45 between A43 (Lumbertubs Way) & A5076 (Gt Billing) (AL2918)	66.6%	361
9	A14 between J8 (A43 Sth, Kettering) & J7 (A43 Nth, Kettering) (AL418)	67.1%	414
10	A45 between A428 (Brackmills, N'hampton) & A43 (Lumbertubs Way) (AL373)	67.2%	421

- 2.1.10 Figure 2.1 illustrates the average speeds during weekday peak periods between 1st 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.
- 2.1.11 The M6 between junctions 2 and 4 is a key route between the cities of Coventry and Birmingham, where local traffic meets with longer distance, strategic traffic. The key issue is the capacity of the mainline. There is a climbing lane on a section between junctions 3 and 4 of the M6, that whilst aids congestion with overtaking slower heavy goods vehicles here, can cause some issues when traffic moves from four to three lanes. The Ricoh stadium, situated close to junction 3, hosts major sporting and entertainment events which can have major impacts on the M6.
- 2.1.12 At Catthorpe interchange (junction between the M1/A14/M6) queues are seen on the southbound carriageway of the M6 for vehicles travelling to the A14 or the local road network. Currently there is no free-flow link from the M6 to the A14 and the constraint at this junction is causing issues on the mainline. Average speeds here at peak times are around 20 to 30mph less than the national speed limit.
- 2.1.13 Low speeds are experienced on the A14 section between the A1 Brampton Hut (junction 21) and Spittals roundabout (junction 23). Both of these junctions are grade-separated but in favour of routes crossing the A14. As such, A14 traffic at both junctions is controlled by traffic signals which introduce delays even when operating well within capacity but especially so at the busiest times. This is also reflected in its relatively poor 'on-time' reliability measure (see table 2.2 and commentary above).
- 2.1.14 Between Spittals (junction 23) and Girton (junction 31) speeds routinely fall below 50mph with complete flow breakdown occurring frequently. The capacity of this section is in part constrained by the large number of minor side roads and private accesses along its length. Demand on this section is heavy due in part to it fulfilling both a north-south function (as part of the A1 and M11 corridor) along with its east-west function.
- 2.1.15 Speeds are seriously affected by the Girton interchange (junction 31) especially in the eastbound direction. The A14 through traffic in both directions is required to diverge onto a single lane through the junction, but eastbound traffic also has to merge onto the A428 where it joins the A14 at the start of the Cambridge Northern Bypass.

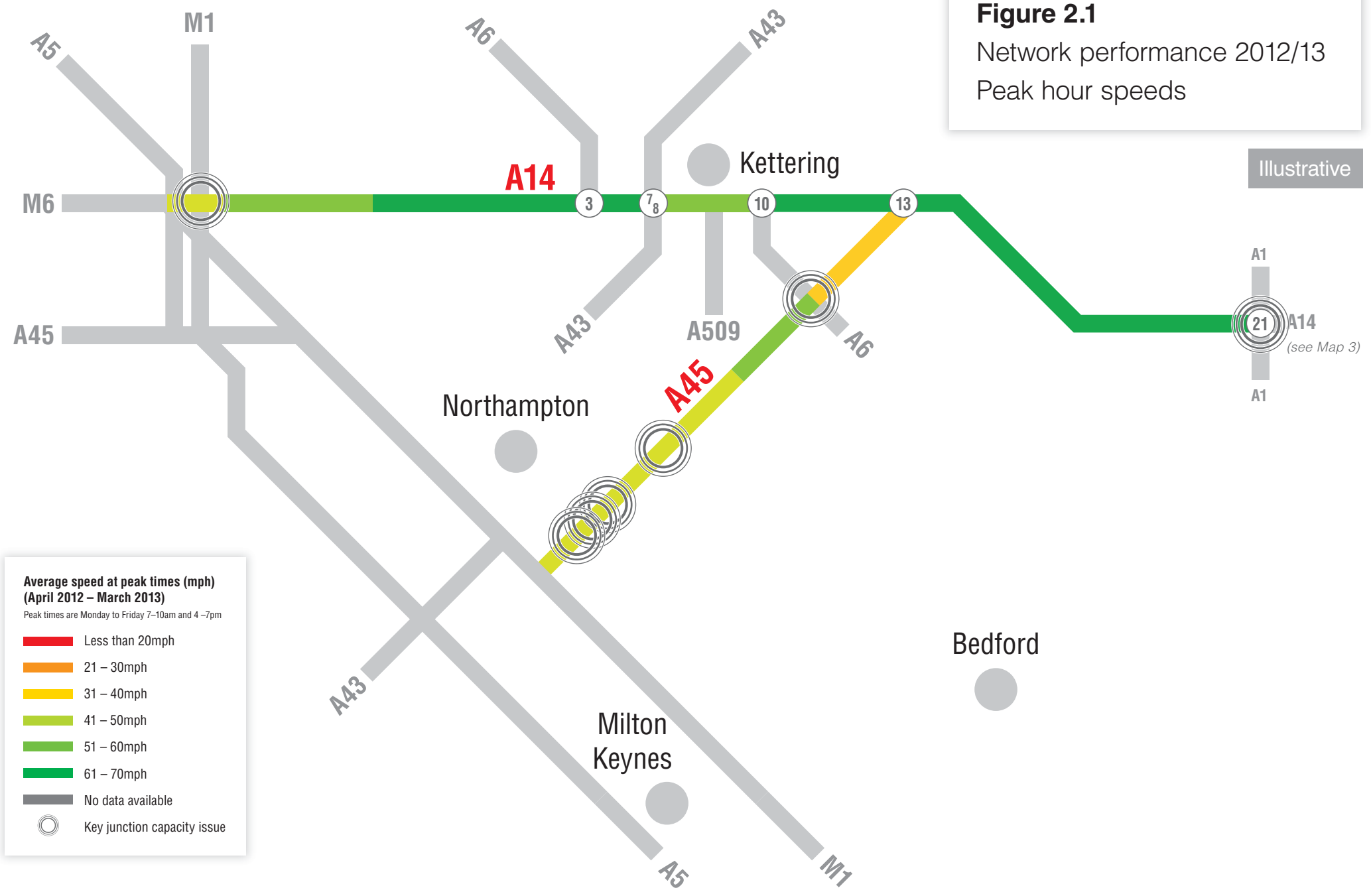
- 2.1.16 On the Cambridge Northern Bypass speeds are significantly reduced by very heavy merging and diverging between junctions 31, 32 and 33 (Girton, Impington/Histon and Milton respectively). These junctions distribute traffic around the northern fringe of Cambridge as well as being the primary access onto the A14 from major settlements north of Cambridge. Queues at these junctions are known to extend back onto the main A14 carriageway frequently, further exacerbating the weaving and merging issues.
- 2.1.17 The A421 between M1 junction 13 and Bedford was recently widened to dual carriageway with grade separated junctions, completing the full dualling between the M1 and A1. This has, however, increased pressure at the A1 Black Cat roundabout where the A421 terminates. Black Cat roundabout experiences severe and frequent congestion.
- 2.1.18 The A428 is single carriageway between the A1 near St. Neots and the A1198 at Caxton Gibbet, with all of its junctions at-grade. It forms the St. Neots southern bypass. There are proposals to substantially expand St Neots during the life of the Local Plan adding significantly to the existing pressures on the route which already experiences severe and frequent congestion. Several junctions on this stretch experience a combination of safety and congestion issues, including the 3 give-way junctions at Ellington and the A1198 Caxton Gibbet roundabout.
- 2.1.19 The A428 is dual 2 lane carriageway between the A1198 and the A14/M11 at Cambridge with full grade-separation. This section generally performs well, the exception being during major incidents involving the full or partial closure of the A14 and/or M11 near to Cambridge. There is no direct connection between the A428 and the M11, this connection being made via the A1303 local road, which also connects the A428 to the centre of Cambridge. While not part of the SRN the A1303 experiences severe congestion during peak periods in part caused by strategic traffic between A428 and M11.

Figure 2.1
Network performance 2012/13
Peak hour speeds

Illustrative



Illustrative



Average speed at peak times (mph)
(April 2012 – March 2013)
Peak times are Monday to Friday 7–10am and 4–7pm

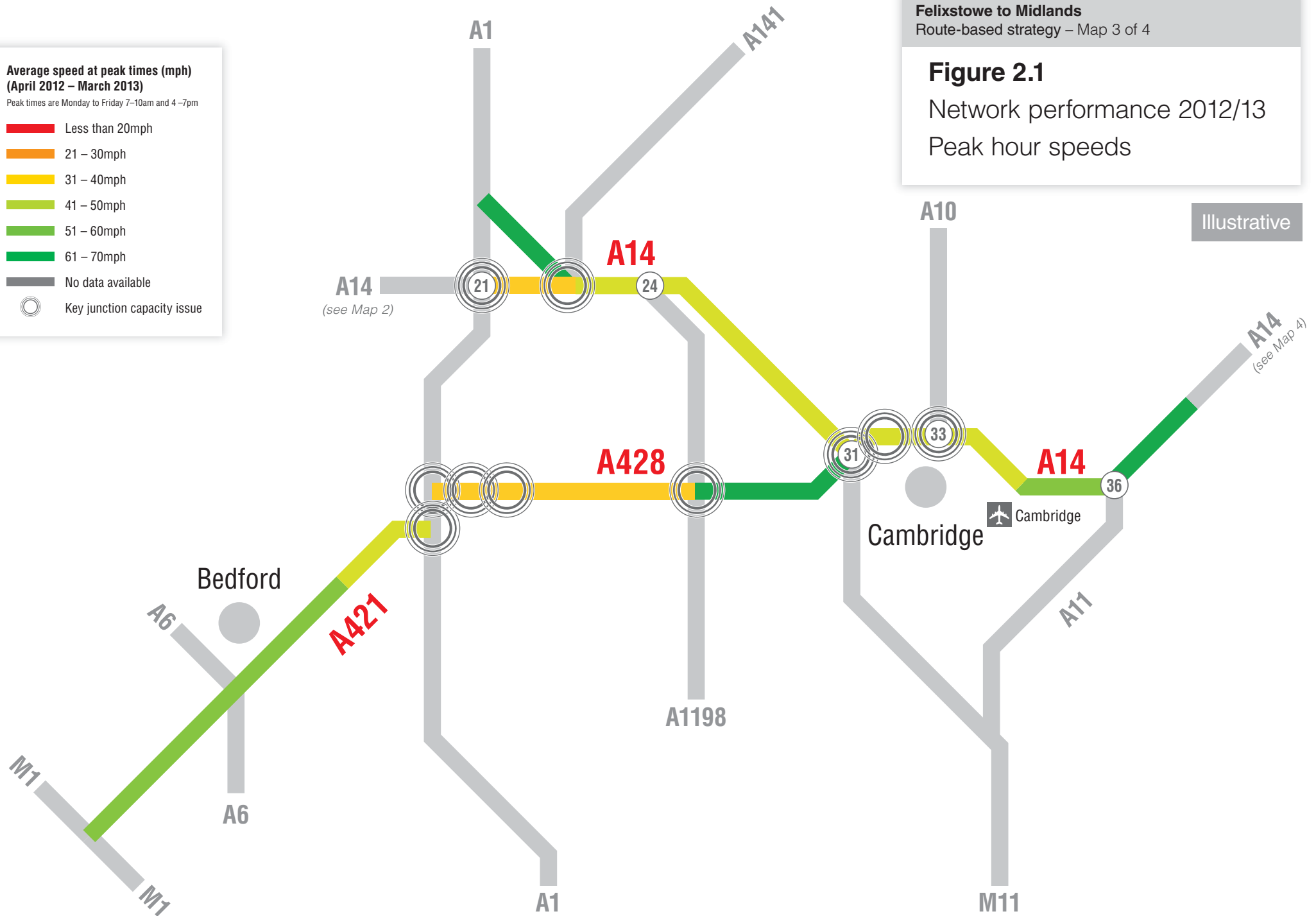
- Less than 20mph
- 21 – 30mph
- 31 – 40mph
- 41 – 50mph
- 51 – 60mph
- 61 – 70mph
- No data available
- Key junction capacity issue

Figure 2.1
Network performance 2012/13
Peak hour speeds

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

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

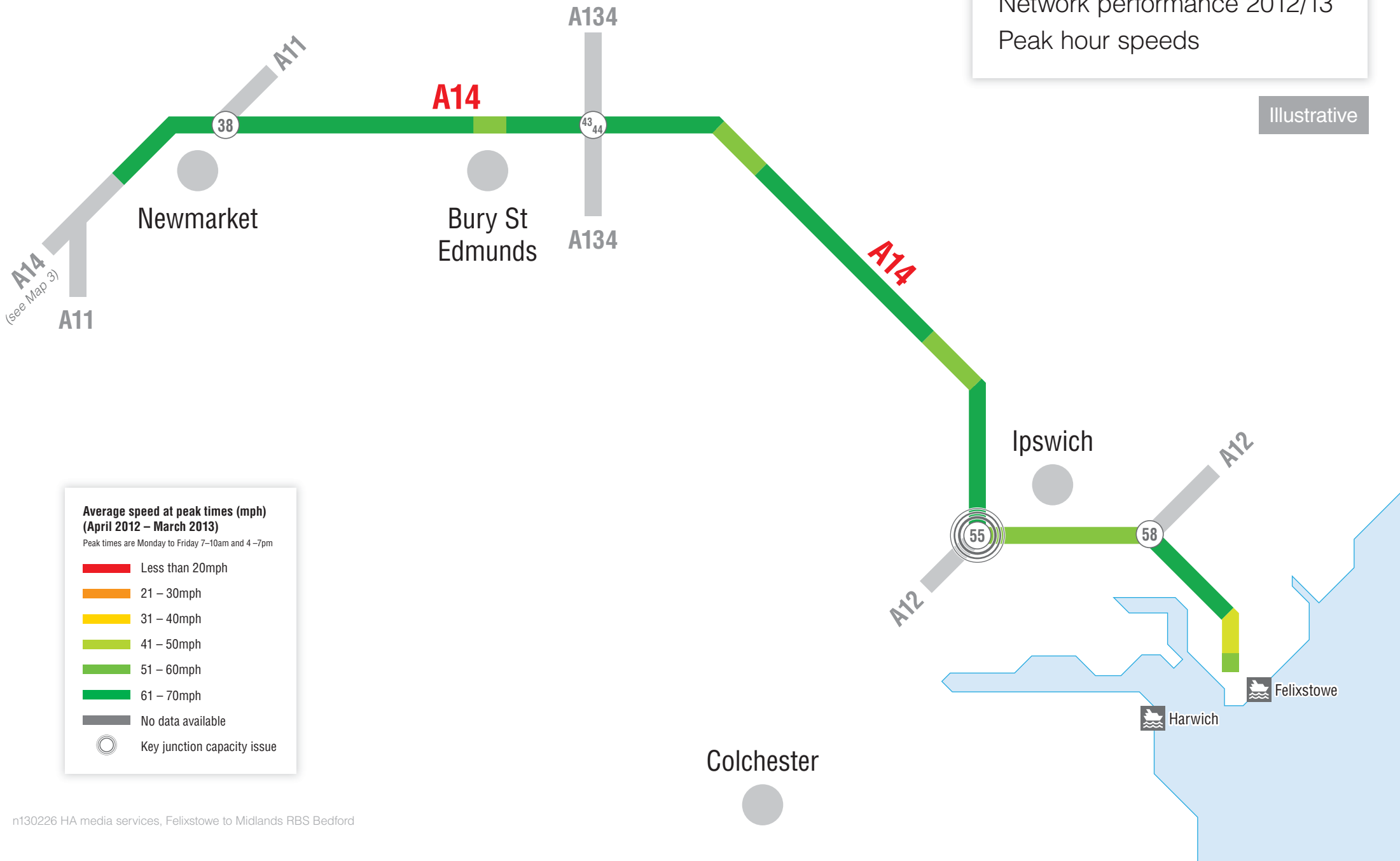
- Less than 20mph
- 21 – 30mph
- 31 – 40mph
- 41 – 50mph
- 51 – 60mph
- 61 – 70mph
- No data available
- Key junction capacity issue



Illustrative

Figure 2.1
Network performance 2012/13
Peak hour speeds

Illustrative



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

- 2.1.20 The strategic road network is key in promoting growth of the UK economy, and alleviating congestion can realise economic benefits.
- 2.1.21 Figure 2.2 shows the delay on our network compared with a theoretical free-flowing network.
- 2.1.22 Unsurprisingly, many of the issues identified with speeds are also reflected when considering delay and congestion. However, at a number of locations there are some differences worthy of note.
- 2.1.23 A major junction upgrade is underway to provide a continuous link between M6 and A14. This will relieve the severe delays referred to in 2.1.12 above.
- 2.1.24 The A14 between the A45 at Thrapston and the A1 at Brampton carries traffic levels that would not normally be of concern. However, there are a large number of give-way junctions interspersed with the grade separated junctions resulting in unexpected flow interruptions and safety issues. Delays are also caused on this section because the A1 junction is grade separated in favour of the A1.
- 2.1.25 The A14 between Huntingdon and Cambridge is the most heavily traffic section of the A14, in part due to its twin south-north and west-east functions. It also has the highest concentration of accesses and minor junctions. Consequently, this section experiences among the lowest speeds of the entire route. Even minor incidents tend to cause disproportionately severe delays and routine maintenance presents major challenges due to very limited alternative routes.
- 2.1.26 The A14 Cambridge northern bypass is a dual two lane carriageway, fully grade separated. Speeds routinely drop at its western end due in the main to junction activity. Westbound traffic has to merge and diverge onto a single lane at junction 31 Girton to then rejoin the A14, causing serious tailbacks during the peaks. The sheer volume of traffic joining and leaving the bypass can also cause standing traffic on the main line at times, further exacerbating the problems. A pinch-point scheme is currently underway to relieve some of these issues by adding an additional lane between junctions 31 and 32 (Girton to Histon).
- 2.1.27 Moderate peak period delays are experienced on the A14 at Bury St Edmunds, Ipswich and Orwell Bridge, related to peak demand and/or incidents.

Felixstowe to Midlands

Route-based strategy – Map 1 of 4

Figure 2.2

Network performance 2012/13
Delay

Illustrative

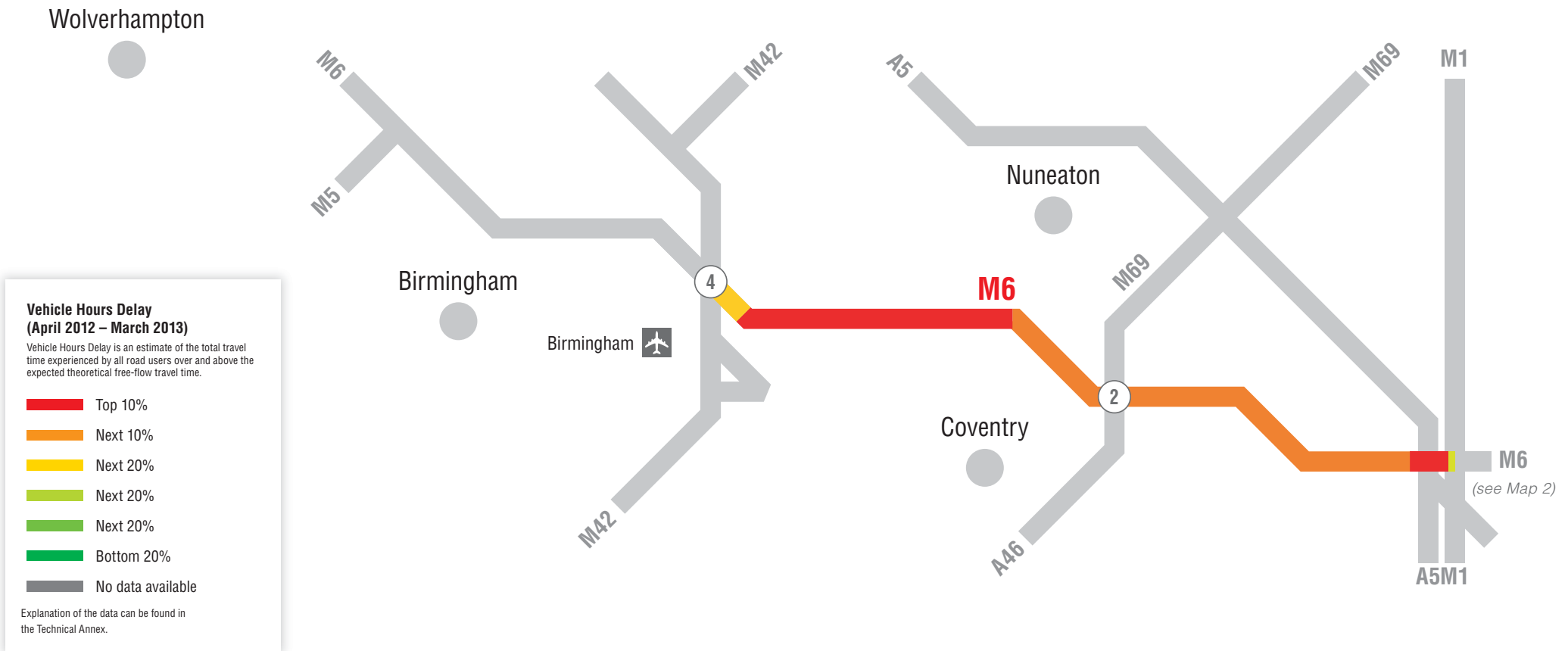


Figure 2.2

Network performance 2012/13
Delay

Illustrative

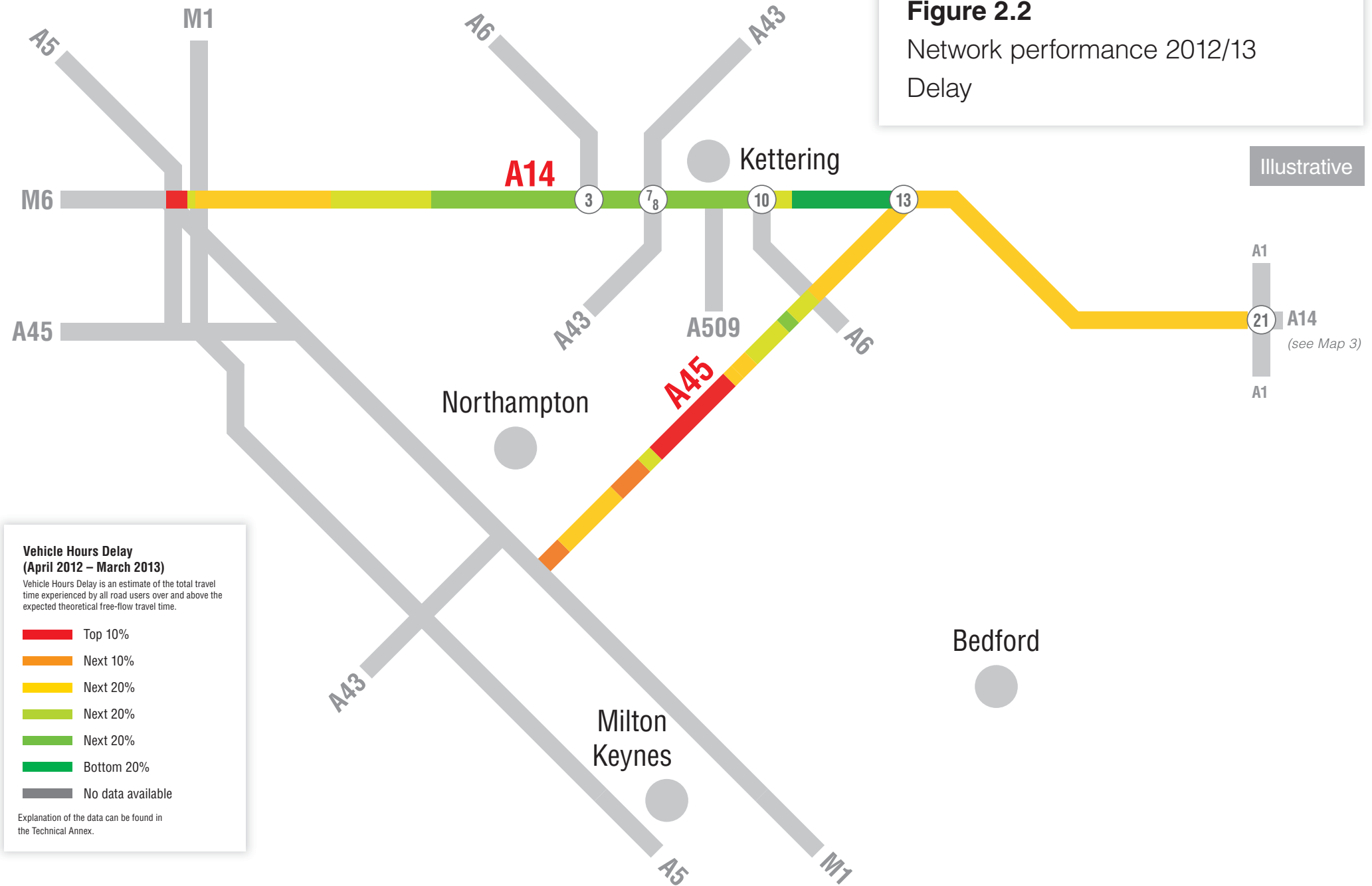


Figure 2.2
Network performance 2012/13
Delay

**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 the data can be found in the Technical Annex.

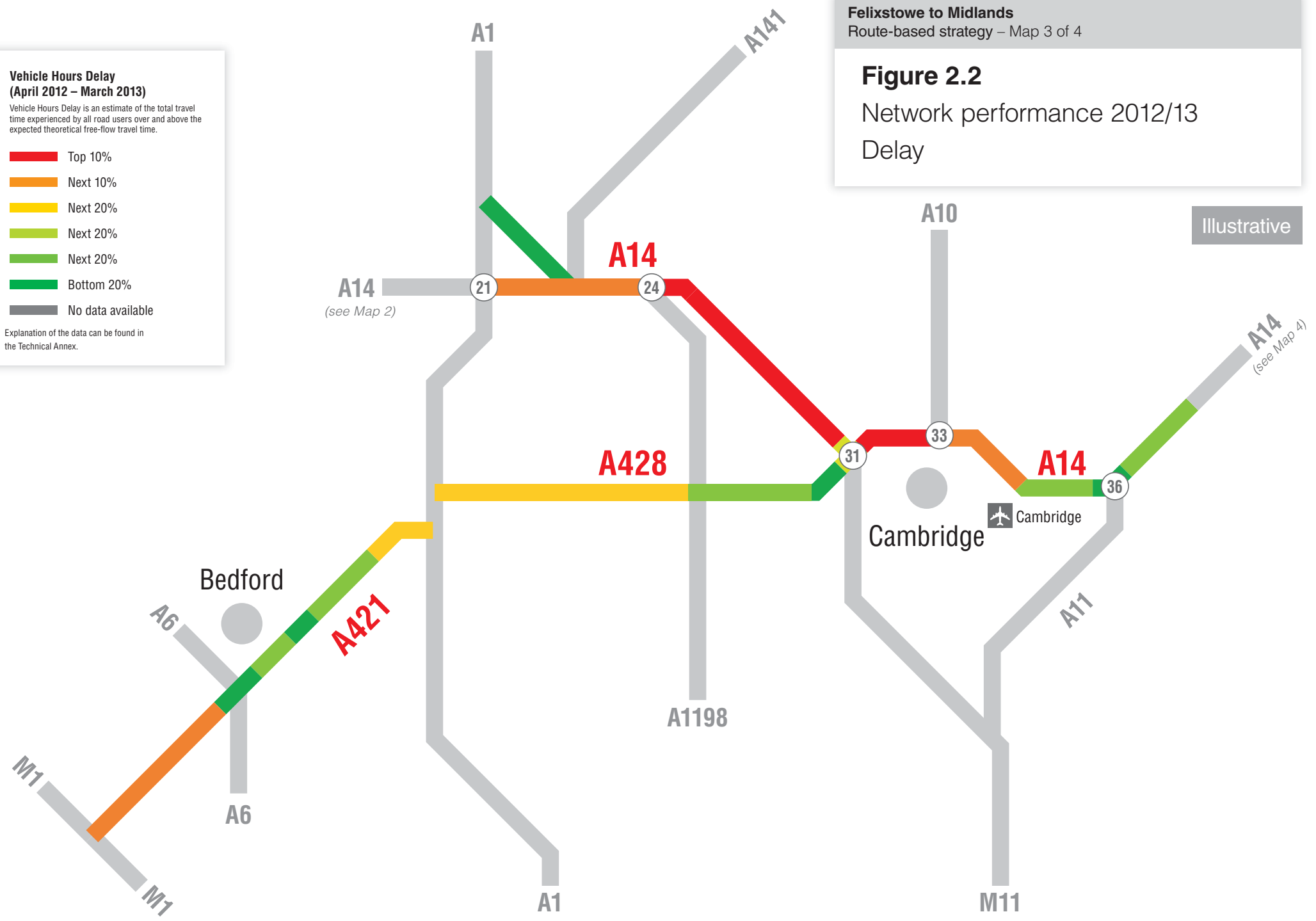
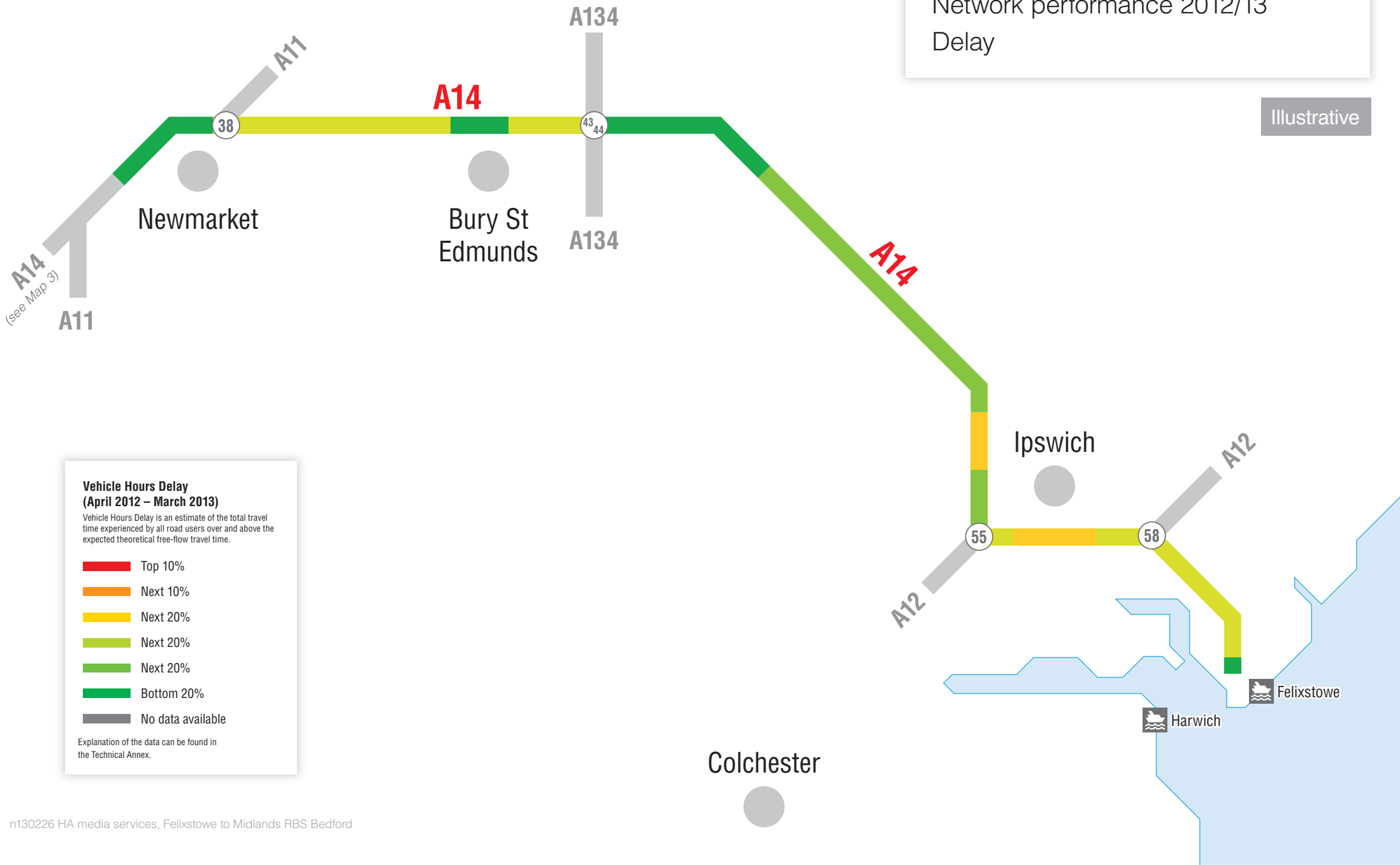


Figure 2.2

Network performance 2012/13
Delay

Illustrative



**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%
- Bottom 20%
- No data available

Explanation of the data can be found in the Technical Annex.

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 injury accident 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 2009 and 2011 there were 1,195 collisions on the Route. The number per year has ranged from 369 to 428 over this 3 year period, climbing very slightly year on year.
- 2.2.5 Of the 1,195 collisions recorded 27 (2.26%) included fatalities, 184 (15.40%) included serious injuries and the remaining 984 (82.34%) included only slight injuries. The number of fatalities appears to have at first dropped followed by an increase across the 3 year period, with 10 in 2009, 4 in 2010 and 14 in 2011.
- 2.2.6 Within the 1,195 collisions there were 1,804 casualties, at a rate of 1.51 casualties per collision.
- 2.2.7 In terms of vehicles/road users involved in the collisions:
- 36.08% involved more than one vehicle;
 - 13.88% of vehicles involved were HGV's;
 - Where the age of drivers was known 5.37% were young drivers (aged 16-19); and
 - 11.10% were older drivers (aged 60 or over).
- 2.2.8 The causation factors for collisions indicate that in the main driver error or behaviour were the main causes. A summary of the main factors are as follows:
- 13.69% occurred where the driver ‘failed to look properly’;
 - 6.04% occurred where the driver ‘failed to judge other person's path or speed’;
 - 4.38% were ‘travelling too close’;
 - 4.16% cited ‘slippery road’;
 - 3.66% involved ‘loss of control’;

- 2.44% were travelling too fast for conditions;
- 2.00% involved 'sudden braking';
- 1.44% cited 'Careless, reckless or in a hurry'.

2.2.9

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

Network performance 2012/13
Safety on the network

Illustrative

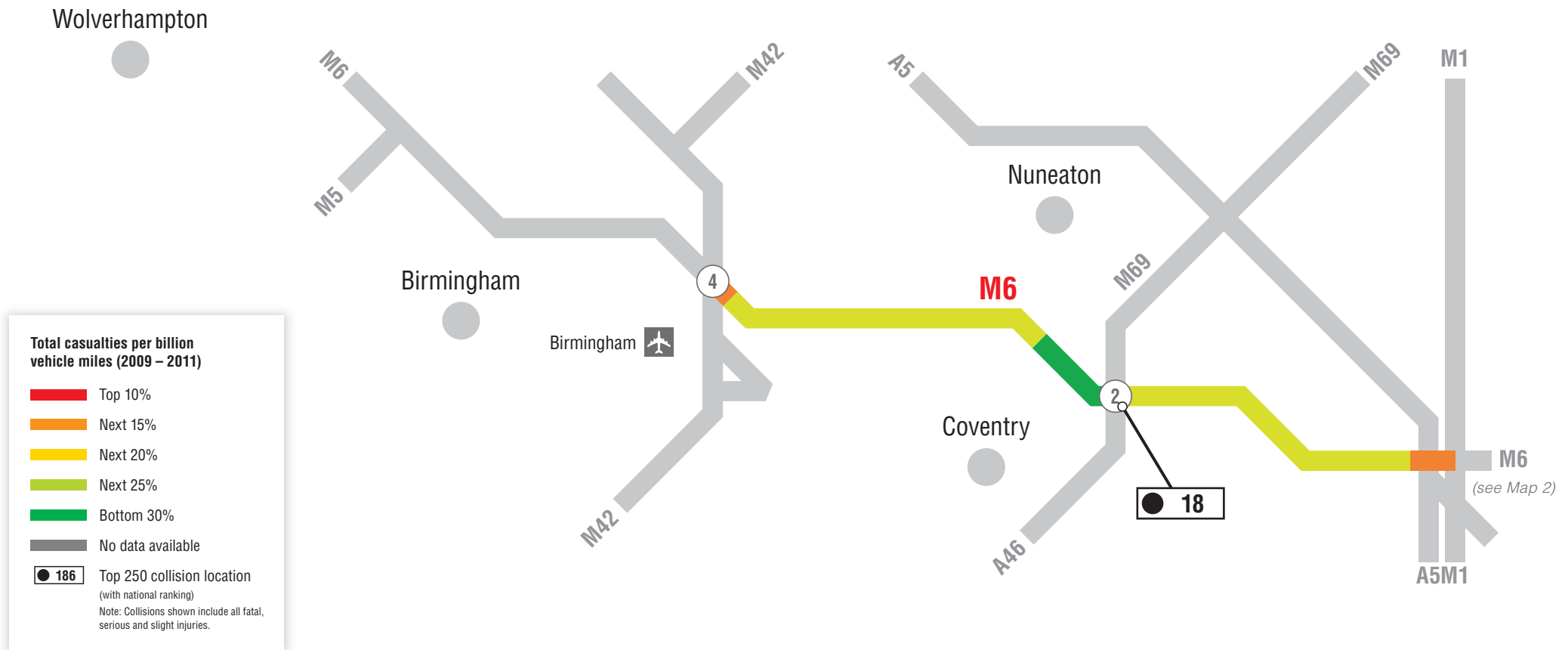


Figure 2.3

Network performance 2012/13
Safety on the network

Illustrative

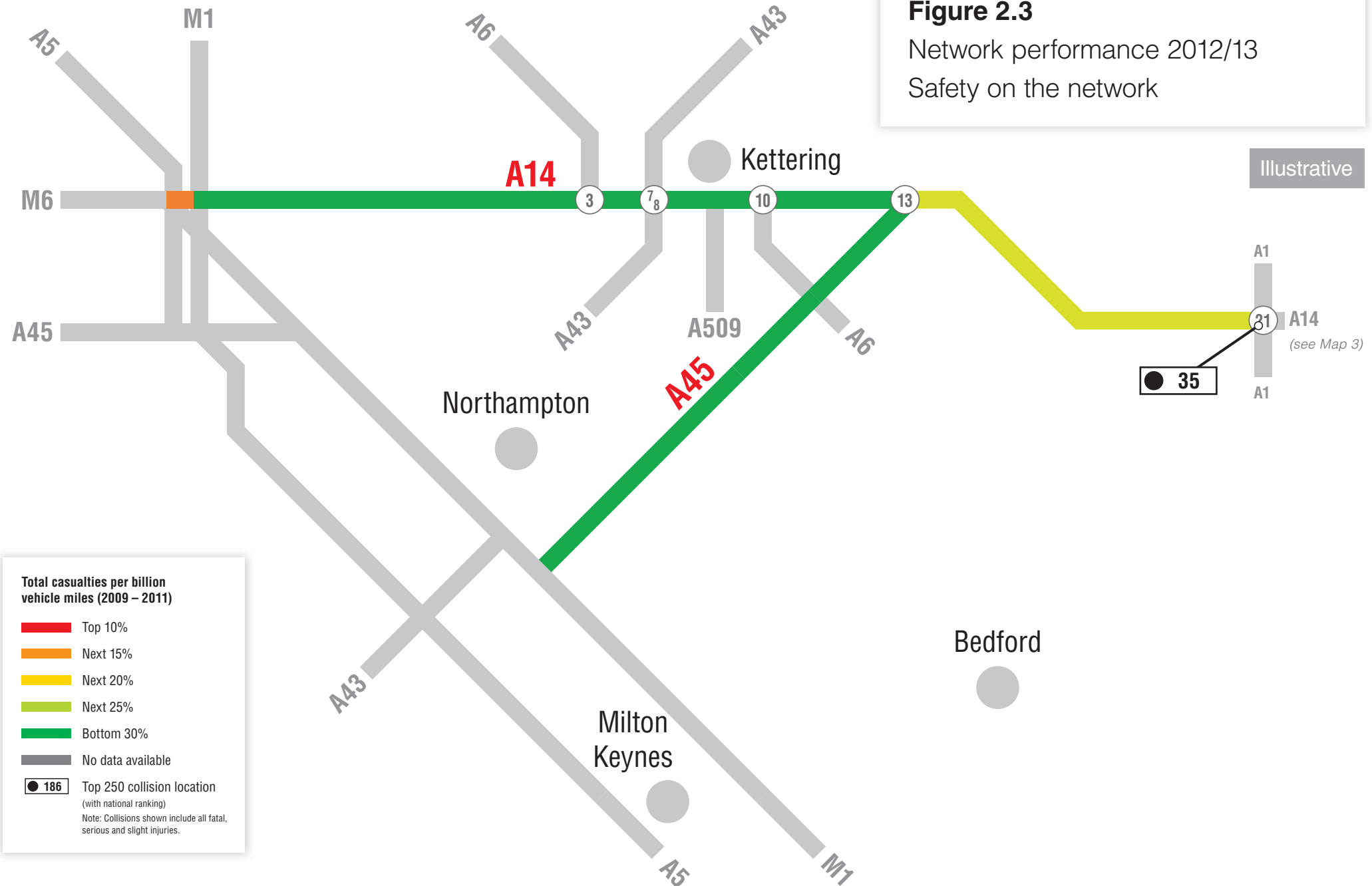


Figure 2.3

Network performance 2012/13
Safety on the network

Illustrative

Total casualties per billion vehicle miles (2009 – 2011)

- Top 10%
- Next 15%
- Next 20%
- Next 25%
- Bottom 30%
- No data available

186 Top 250 collision location (with national ranking)

Note: Collisions shown include all fatal, serious and slight injuries.

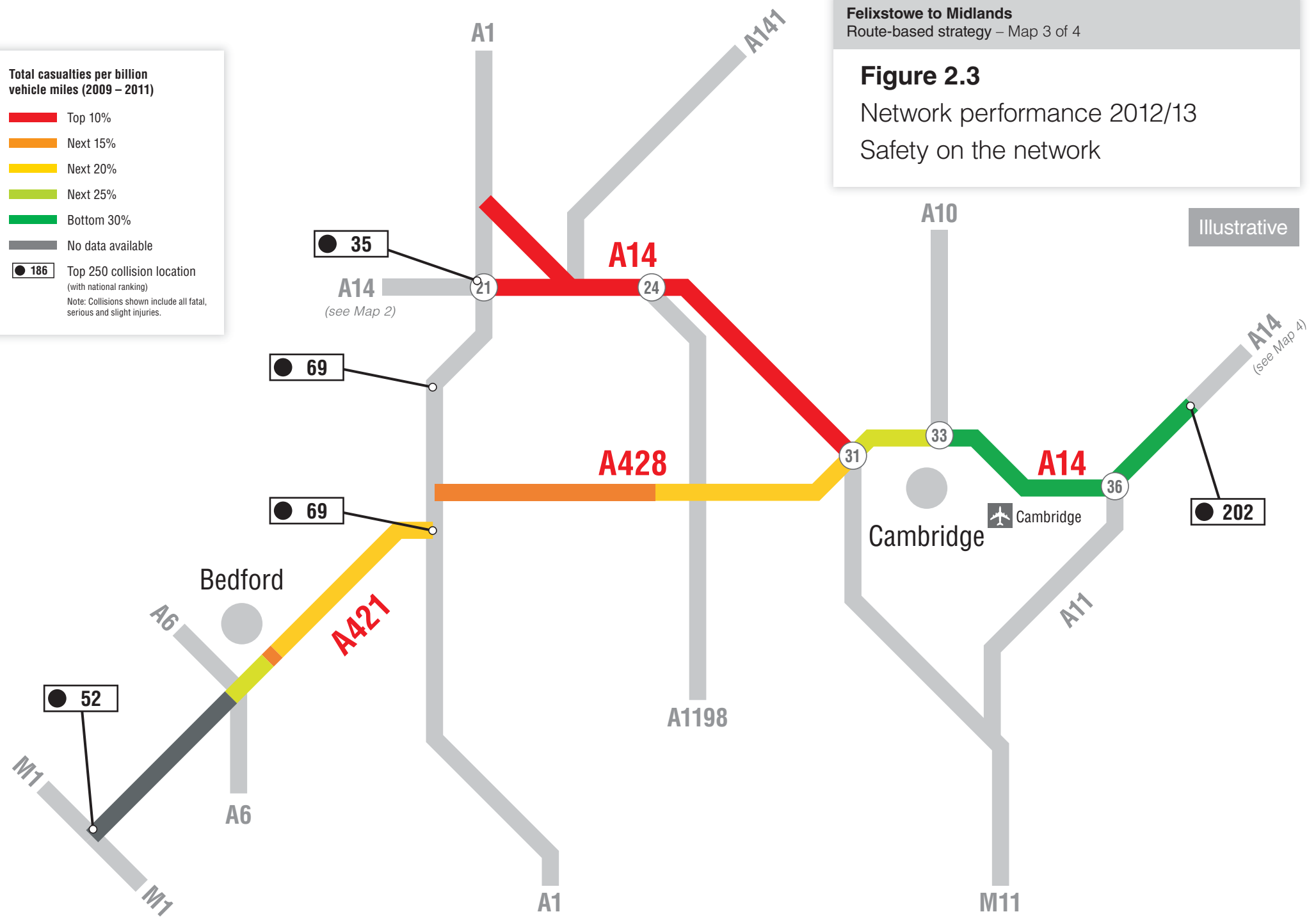
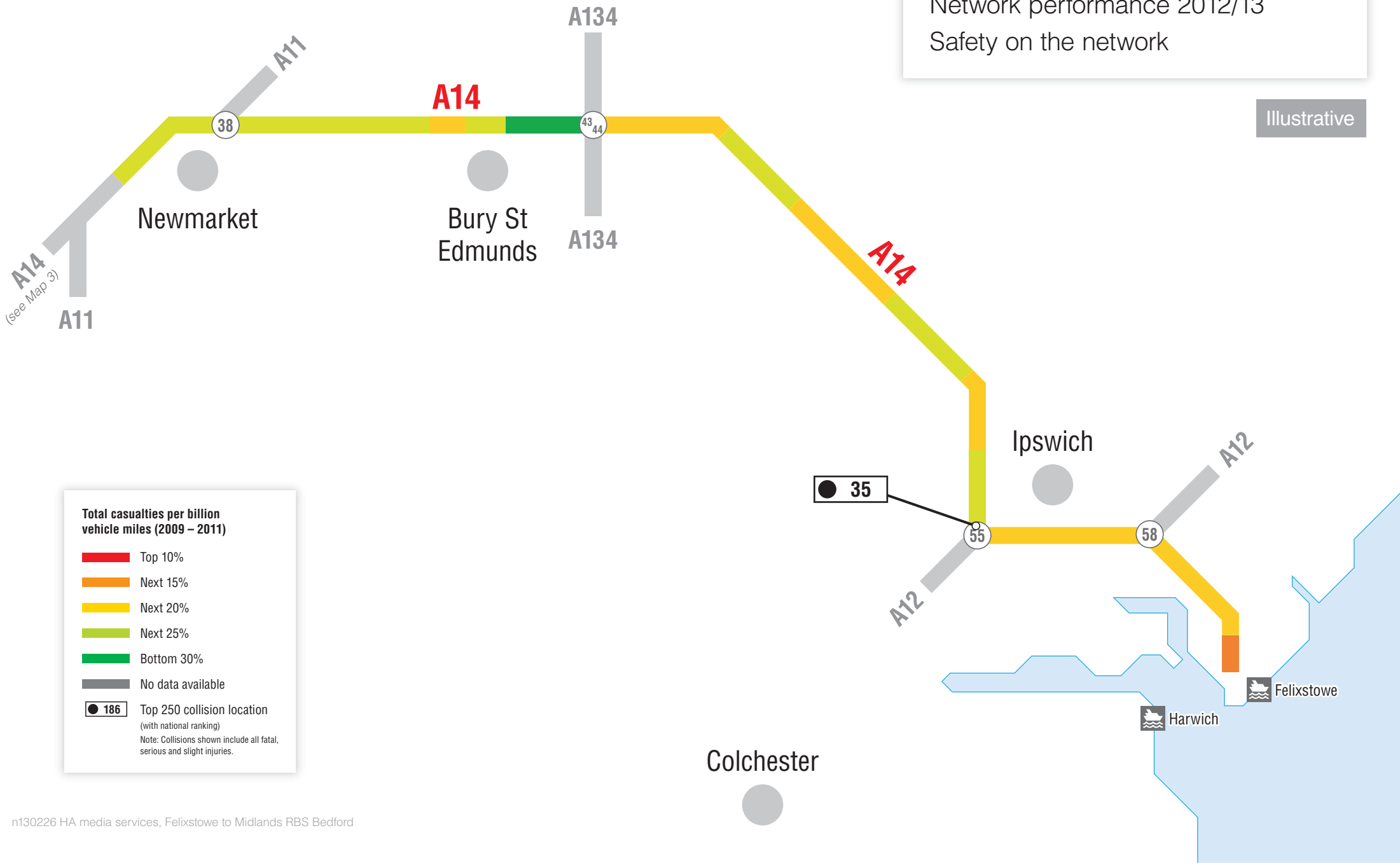


Figure 2.3

Network performance 2012/13
Safety on the network

Illustrative



Total casualties per billion vehicle miles (2009 – 2011)

- Top 10%
- Next 15%
- Next 20%
- Next 25%
- Bottom 30%
- No data available

● 186 Top 250 collision location (with national ranking)
Note: Collisions shown include all fatal, serious and slight injuries.

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 strategic road network to support operational performance and the long-term integrity of the asset.
- 2.3.2 From new, assets have an operational 'life' within 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 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 strategic road network 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 risk increasing the further that 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 is 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 This route has a higher than national average amount of Thin Surface Course (TSC) and other types of now non-standard surfacing (such as porous asphalt, macadam and eme2). These pavement types are more susceptible to deterioration. Almost the entire length of M6 and A14 between the M42 and Thrapston is expected to need re-surfacing by 2020.

- 2.3.7 There has been an increase in rutting along parts of the route between 2010/11 and present. Deep ruts are indicative of a surface, or whole pavement structure reaching the end of its serviceable life and is consistent with the data in figure 4 below. Similarly, deterioration of road markings also tends to be a clear indicator of pavement approaching end of life.
- 2.3.8 The non-motorway sections of the route give rise to operational issues during maintenance due to the requirement for Traffic Management for all activities on the network.
- 2.3.9 We also have concrete road surface material 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 There are significant lengths of concrete carriageway on the A14 in Suffolk. The lengths which are in poor condition and are likely to need major maintenance over the next 5 years are at Woolpit and on the Ipswich southern bypass between junctions 55 and 56.

Structures

- 2.3.11 The structures are generally in good condition presently but due to age their deterioration can be rapid as some elements are reaching the end of their economically viable life.
- 2.3.12 Structures constructed in the late 90's are reaching a point where, whilst predominantly in good condition, components with a limited lifespan (such as bridge joints) have age-expired which has resulted in a poor or very poor Critical Structural Condition.
- 2.3.13 A further problem across the network that results in some poor or very poor ratings is the failure of surfacing and/or waterproofing membranes. While these are predominantly a matter for routine or cyclic maintenance they are likely to become a significant challenge if left unchecked.

Other key asset issues for routes

- 2.3.14 The majority of Geotechnical risks/defects are located within embankments rather than in cutting.
- 2.3.15 As the majority of the drainage systems are aging they have not been designed to current standards and as a result they are not always adequate to remove water effectively from the asset. This is leading to saturated pavement layers and increased water in and around structures. Rapid deterioration is a direct result of this, especially during the winter season. The number of annual recorded flood events has more than doubled in the current year compared to 2010/11. The M6 filter drains are in excess of 50 yrs old and are in serious need of attention.

- 2.3.16 We are aware that there are a large number of ditches that are deteriorating in terms of shape and composition and that flooding of adjacent land is also an issue. While this predominantly relates to routine or cyclic maintenance it has the potential to become a significant challenge over time.
- 2.3.17 Due to the ageing of lighting columns and sign posts a more robust system of Structural Testing will be required to identify and combat metal fatigue.
- 2.3.18 The Technology Assets along the route are considered to be in good condition. New gantries have been provided to the A14 as part of Technology Improvements.

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 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.
- 2.4.4 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.
- 2.4.5 Stakeholders raised concerns around emergency diversion routes for the M6 and A14 at the workshops, particularly for the impacts on the A5 and on Market Harborough, and on the A428, A1303 and A1198 in Cambridgeshire.
- 2.4.6 Maintenance activity on the A14 between Huntingdon and Cambridge is increasingly challenging. Factors affecting this include lack of space for lane closures, high traffic levels, inadequate diversion routes and its twin south-north and west-east functions. It also has the highest concentration of accesses and minor junctions. The proposed A14 Cambridge to Huntingdon improvement scheme should effectively address these issues. Consequently, this section experiences among the lowest speeds of the entire route.
- 2.4.7 There are specific contingency plans in place when the Orwell bridge is closed to high sided vehicles in periods of strong wind and when the Port of Felixstowe is unable to operate in similar conditions.

Flooding risk and severe weather

- 2.4.8 We continue to assess the risks that climatic changes pose to the network and respond appropriately. A component of that is reviewing and assessing the network's resilience to flooding.
- 2.4.9 Based on recorded flooding incidents, we have identified those parts of the network that are at high risk of repeated flooding.
- 2.4.10 Areas susceptible to flooding risk through which the route passes are:
- A45 between M1 J15 and A428 junction, and between A509 and A6 junctions;
 - A421 southern edge of Bedford;
 - A14 west of A1 junction;
 - A14 section near M11 Junction 14;
 - Section of A428/A14 between A1303 and A10 junctions;
 - Section of A14 between A11 junction and Bury St Edmunds.

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 closed circuit television (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 The M6, A421 and most of the A14 have virtually full coverage of CCTV and VMS with motorway incident detection & signalling (MIDAS) at all major junctions. The exception on the A14 is on the section between Huntingdon and Cambridge which is expected to be provided for as part of the planned major improvement scheme. In the interim there are mobile VMS units at several key locations. The A14 has ramp metering on or near to the Kettering bypass. These are currently at junction 4

eastbound and junctions 7 and 8 westbound. However, the ramp metering at the latter two junctions will be removed with the current HA scheme to widen the A14 to three lanes between junctions 7-9.

- 2.5.5 The A428 has only minimal technology provision near to its intersections with the A1 and M11. The A45 has partial MIDAS coverage (4 sites) and two VMSs. There are no ramp metering installations on either of these routes.

2.6 Vulnerable road users

- 2.6.1 There is a culture in both Cambridge and large parts of Cambridgeshire that has led to exceptionally high take up of cycling both for work and leisure purposes. Unsurprisingly, a range of issues regarding pedestrians and cyclists were raised by stakeholders, predominantly in the Cambridgeshire section of the route, relating to gaps in provision for cycling and walking alongside the A14 and A428, lack of maintenance of existing facilities and the increasing difficulty and danger associated with crossing the network.
- 2.6.2 Most of the A14 between Alconbury (north of Huntingdon), Ellington (west of Huntingdon) and Fenstanton (midway between Huntingdon and Cambridge) is seen to be “unfriendly”, even “hostile” to cycling. Junctions in particular are considered to present particular problems for cyclists, and at a number of locations crossing the A14 is felt to be dangerous.
- 2.6.3 Similarly, the A428 between St Neots and Cambridge are considered by stakeholders to poorly serve cyclists. Examples cited are; on the southern edge of St Neots, close to where the A428 meets the A1, where cycle access to a number of business and retail parks is poorly defined; and along the single carriageway section between St Neots and the A1198 at Caxton Gibbet, which is tightly constrained at several points.
- 2.6.4 Further details of specific issues are outlined in the technical annex.

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 strategic road network 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 Air quality is particularly sensitive in a number of locations along the route where Air Quality Management Areas (AQMAs) have been declared at:

- A45/A428 at Brackmills, Northampton;
- A421 Bedford;
- A14 near J23 Huntingdon;
- A14 Cambridge near M11 J14 and A1303;
- Section on the A14 approach into Felixstowe.

Cultural heritage

2.7.5 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.

2.7.6 Areas of cultural heritage sensitivity include:

- Along A14 between A509 and A508;
- Area south of Northampton north of A45;
- Area north of the A45, east of A509 junction;
- Areas south of A428 between A1 and A1198 junction, and north of A428 between A1198 and M11 Junction 14;
- Area northeast of the A14/A11 junction;
- Area south of A14, southwest of Bury St Edmunds;
- Area north of A14, north of Bury St Edmunds;
- Area adjacent to the A14 section between A1120 junction and Ipswich.

Ecology

2.7.7 The 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.

2.7.8 Key areas of ecological designations through which the route passes are:

- Area along the A45 south of Northampton;
- The northern side of the A45 between A509 and A14 junctions;
- north of A14 between A11 junction and Bury St Edmunds;
- Huntingdon, south of A14 between A1123 and A1198 junctions;
- Some areas along the A14 located south of Ipswich.

Landscape

2.7.9 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.

2.7.10 Key areas of landscape sensitivity are:

- Area north of A14 between A11 junction and Bury St Edmunds,
- A14 between Ipswich and Felixstowe.

Noise

2.7.11 Traffic noise arising from the Highways Agency's network has been recognised as a major source of noise pollution.

2.7.12 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.

2.7.13 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.

2.7.14 The major noise Important Areas (IAs) are:

- Two sections on A14 south of Kettering;
- A45 sections south of Wellingborough and south of Northampton;
- A14 east of the A1 junction;
- A14 through Huntingdon, and 3 sections between Huntingdon and Cambridge;
- 3 sections on the A14 north of Newmarket;
- Part of the A14 through Bury St Edmunds.

Water pollution risk

2.7.15 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.

2.7.16 Areas of water pollution risk are:

- section of A45 west of A509 junction;
- sections of A14 west of A1 junction, between A1198 and M11 Junction 14, near A1303 junction;
- A14 east of Bury St Edmunds;
- section of A14 south of Ipswich.

3 Future considerations

3.1 Overview

3.1.1 There is already a lot known about the planned changes to and around the route. Local authorities 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. Local authorities, together with port and 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

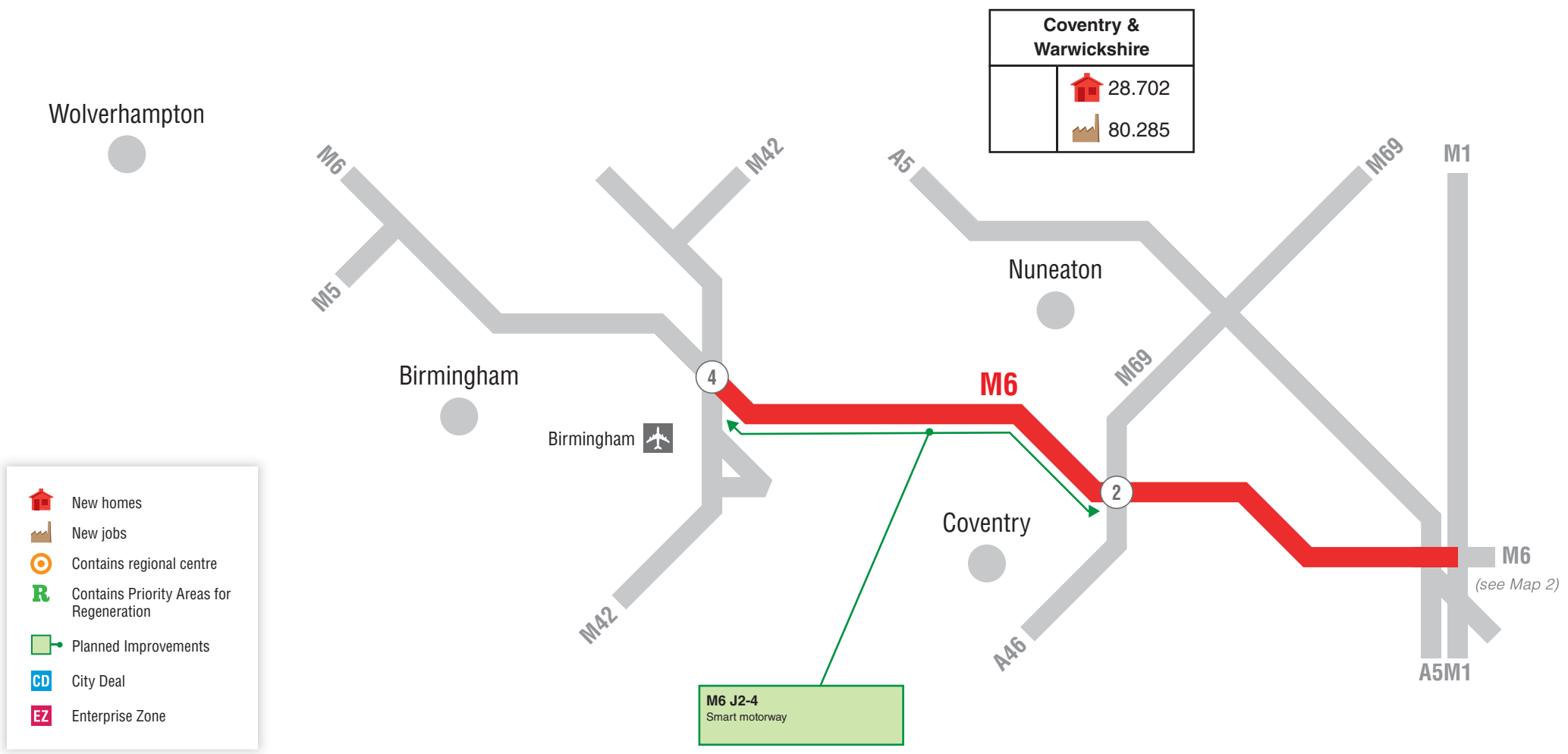
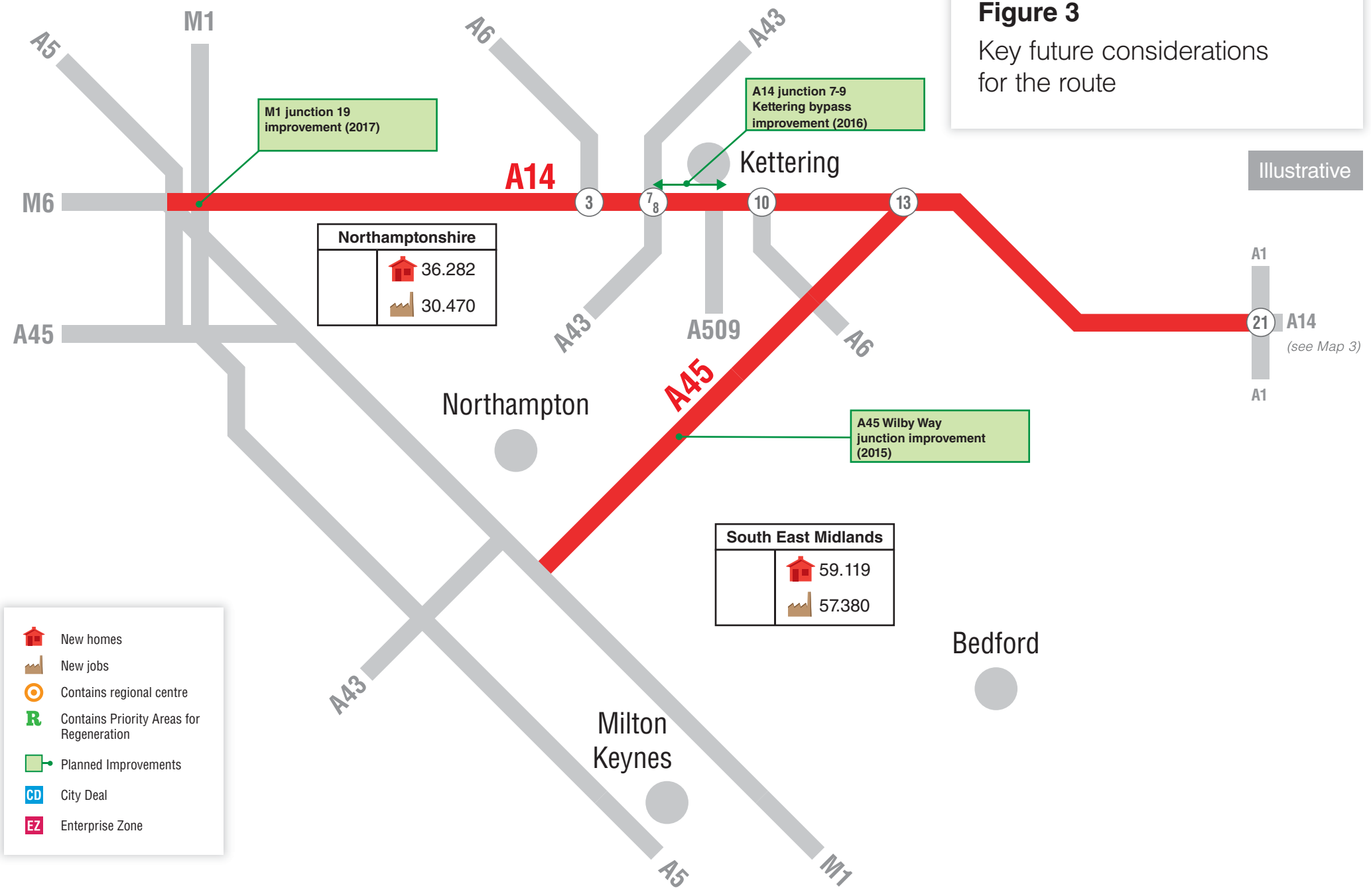


Figure 3
Key future considerations
for the route







Illustrative







- New homes
- New jobs
- Contains regional centre
- Contains Priority Areas for Regeneration
- Planned Improvements
- City Deal
- Enterprise Zone

Figure 3
Key future considerations for the route

Illustrative

-  New homes
-  New jobs
-  Contains regional centre
-  Contains Priority Areas for Regeneration
-  Planned Improvements
-  City Deal
-  Enterprise Zone

South East Midlands	
	59.119
	57.380

Greater Cambridgeshire	
	35.018
	31.850

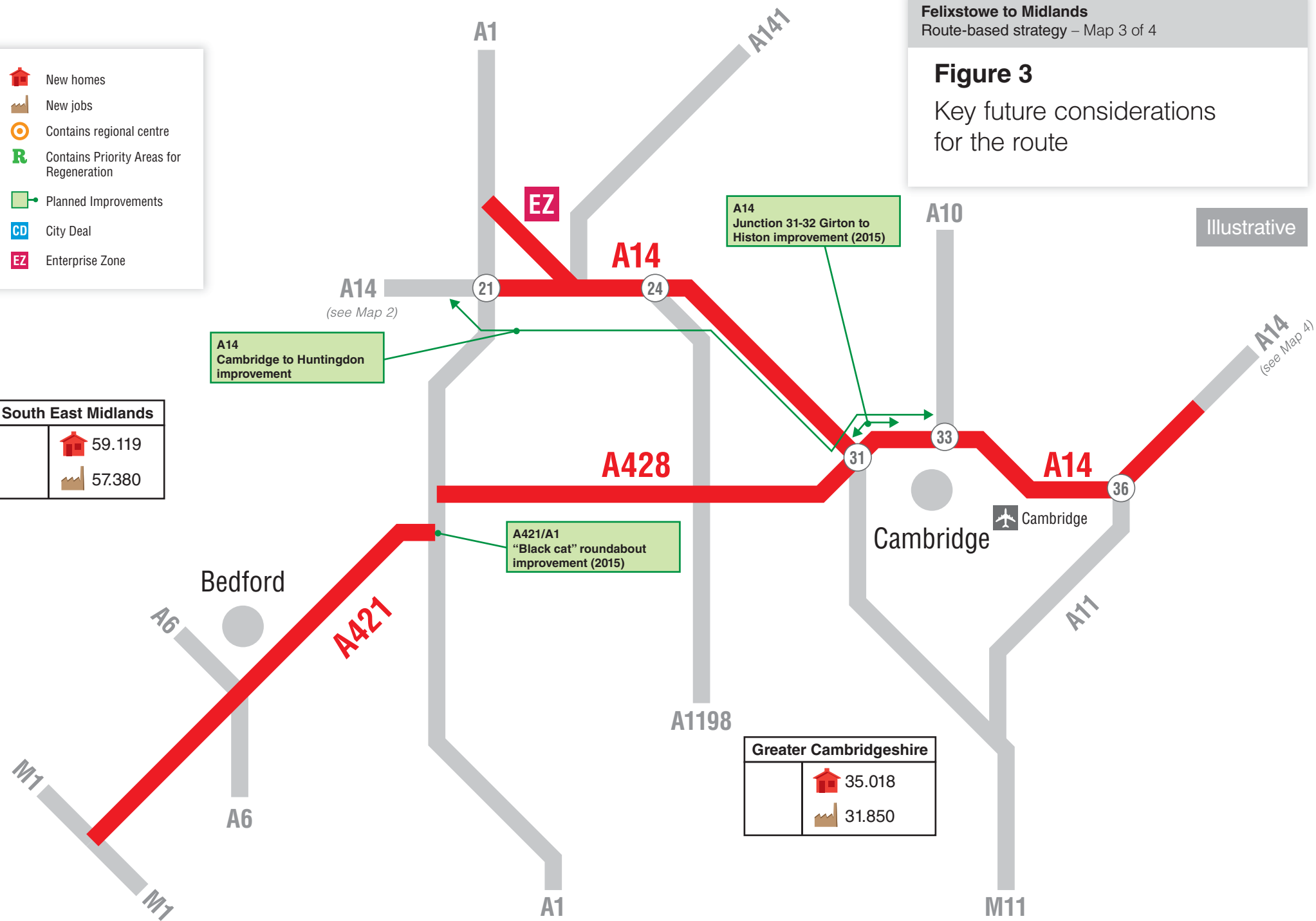
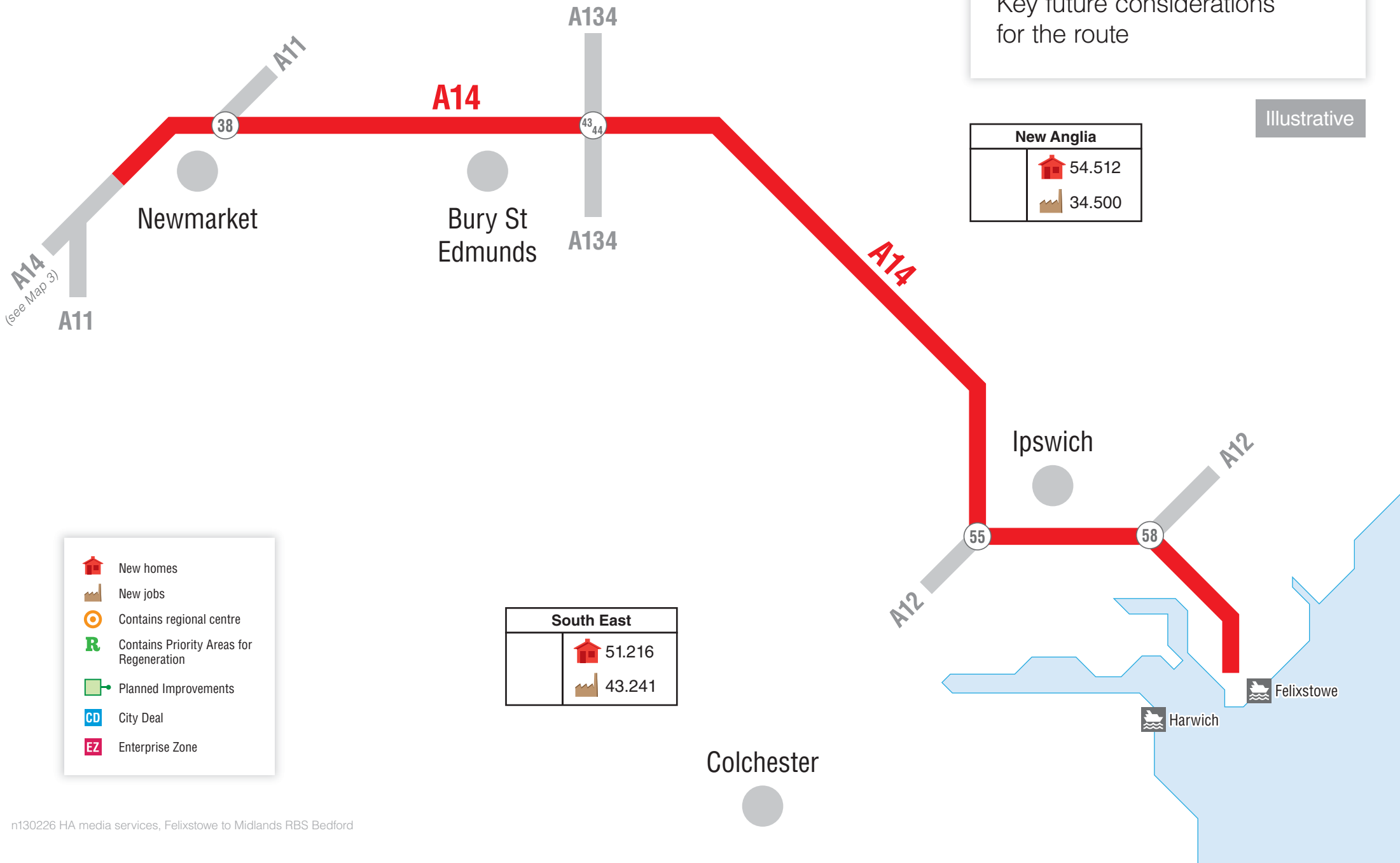


Figure 3
Key future considerations for the route

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	
Ansty Park	Commercial		5185 jobs	6481 jobs	M6 J2
Gateway, Rugby	Residential and commercial		1172 dwellings and 1766 jobs	128 dwellings and 884 jobs	M6 J1
Land at Leicester Road, Rugby	Residential and commercial		440 dwellings and 440 jobs	195 dwellings and 226 jobs	M6 J1
Bourn Airfield, Cambourne, South Cambridgeshire	Residential	0 dwellings	0 dwellings	1,700 dwellings	A428 junctions
Cambourne expansion and Land West of Cambourne, South Cambridgeshire	Residential	345 dwellings	1,450 dwellings	2,150 dwellings	A428 junctions
Northstowe, South Cambridgeshire	Residential Commercial	65 dwellings Not known	1,965 dwellings Not known	5,965 dwellings Not known	A14 J30
St Neots Eastern Expansion, Huntingdonshire	Residential Commercial	160 dwellings Not known	2,359 dwellings Not known	3,700 dwellings 25 ha	A428/B1428 junction
University Site, NW Cambridge	Residential Commercial	520 dwellings Not known	1,808 dwellings Not known	1,848 dwellings 111,800sqm	A14 J31 and 32
Nacton Road Re-Development, Ipswich	Commercial	Not known	Not known	16.7 hectares	A14 J57
Eastern Ipswich	Residential		1,700 dwellings	2320 dwellings	A14 J58

Felixstowe, Walton, Trimley	Residential		1200 dwellings	1760 dwellings	A14 J59 and J60
Suffolk Business Park, Bury St Edmunds	Commercial	Not known	Not known	4,080 jobs	A14 J45
Alconbury Weald, Huntingdonshire	Residential Commercial	Not known Not known	Not known Not known	5,000 dwellings 8,000 jobs	A14 J21 and 23
Kettering East Sustainable Urban Extension	Residential Commercial	Not known Not known	1,376 dwellings Not known	4,124 dwellings 53,950sqm	A14 J10-11
Northampton Central Area (including Northampton Waterside Enterprise Zone)	Commercial, education	Not known	Not known	195,500sqm	A45 junctions
Wellingborough East	Residential, services and employment	Not known	Not known	3100 dwellings 200,000sq m industry	A45 junctions
Rushden planned housing growth	Residential plus potential major retail (pending SoS decision)	Not known	Not known	3000 dwellings	A45 particularly Chowms Mill/Skew Bridge junctions
Northampton Related Development Area	Housing	Not known	Not known	22900+ homes pending Joint Core Strategy review	M1/A45 Northampton junctions (as covered in Northampton Growth Management Scheme)
Northampton Central Area	Commercial	Not known	Not known	195,500sqm	A45 junctions

3.2.3 There is significant growth planned within the Coventry area which will affect the M6 at junctions 2 and 3 and the already congested sections between junctions 2 and 4. Stakeholders raised concerns that to avoid these junctions, traffic uses the local road network creating congestion issues here.

3.2.4 The Ricoh stadium is at junction 3 of the M6 and stakeholders raised concerns that large events cause issues on the strategic road network.

3.2.5 There are various sites to the north of Rugby which will have an impact on junction 1 of the M6 (Gateway and Land at Leicester Road). Concerns were raised by stakeholders on the available capacity at junction 1 to manage the additional traffic generated by these developments.

3.2.6 In Cambridgeshire much of the growth is currently focused on a number of strategic sites, several on former airfields. These include the proposed new town of Northstowe between Huntingdon and Cambridge, a major expansion of Cambourne (and neighbouring Bourn Airfield) between St Neots and Cambridge, Alconbury Weald just north of Huntingdon (the employment area of which is also a Local Enterprise

Zone), and the eastern expansion of St. Neots. All of these are heavily reliant on the A14 and A428

3.2.7 In Cambridge itself there are also several slightly smaller but no less significant growth sites including: North West Cambridge and Darwin Green both on the north west fringe of Cambridge. Beyond this, both Bury St. Edmunds and Ipswich are focal points for growth of both jobs and homes.

3.2.8 Development proposed in Northamptonshire will put future pressure on the A14 and A45. Large-scale growth in and around Northampton depends on delivering traffic management schemes at the adjacent A45 junctions as detailed in the Northampton Growth Management Scheme. Improvements to the A14 and A45 will be needed to facilitate the future growth proposed in and around Kettering, Wellingborough and Rushden. The full build out of the East Kettering development will require a new A14 junction 10A, between junctions 10 and 11

3.3 Network improvements and operational changes

The 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
A45 Wilby Way Improvement, Wellingborough	Pinch point scheme: junction improvement	2015	Capacity and safety improvement
A14 Kettering	Major scheme	2016	Enhance the A14 between junction 7 and junction 9
M1 J19 Improvement	Major scheme	2017	Improve junction 19 of the M1
A1/A421 “Black Cat” roundabout	Pinch point scheme: junction improvement	2015	Capacity and safety improvement
A14 Girton to Histon (J’s 31-32)	Pinch point scheme: widening	2015	Capacity and safety improvement

3.3.1 [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 strategic road network. 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
Junctions between Coventry and Birmingham (M6 J2-4)	Introduce smart motorways between Coventry and the East of Birmingham
A14 Cambridge to Huntingdon	Major upgrade, Huntingdon southern bypass, local distributor road

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
Ipswich Transport Fit for the 21st Century	Mixed	2015	Mode shift, reduced travel demand leading to some reduced demand for A14
A43 Corby Link Road	Road scheme	2014	Improved access to strategic development. Potential additional demand for A14

4 Key challenges and opportunities

4.1 Introduction

4.1.1 It is not possible to show all the challenges and opportunities identified in this evidence report. This chapter shows a selection based on those where our internal and external stakeholders viewed these as a priority and these are supported by evidence. A full list of all the identified challenges and opportunities are provided in the Technical Annex.

4.1.2 Figure 4 summarises some of the key issues and challenges 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 have been used to inform the development of this evidence report. This included getting their views on what they deemed to be the priorities within their area and identifying their “top priorities” locally. This has been collated according to the route to which those views related.

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 and certain priorities may not have been identified as a

“top priority”. We will be conscious of the limitations of the reporting of stakeholder priorities as we move into the second stage of RBS.

4.2 Operational challenges and opportunities

- 4.2.1 The A14 is a popular, heavily trafficked road, and a lack of viable and attractive alternative roads means that when incidents occur, motorists have limited options to avoid delays and congestion. The absence of hard-shoulders over a large part of the route is considered to be one factor which can contribute to poor resilience because emergency and rescue services can have difficulty in reaching incidents.
- 4.2.2 Provision of reliable and useful information to motorists using the network presents the opportunity to improve the management of traffic flows during times of congestion, particularly where traffic volumes are expected to increase in the future as a result of local growth. Gaps in provision along the A14 could be provided as part of the A14 Cambridge to Huntingdon scheme but there are opportunities to make further provision along the A45, A421 and A428.
- 4.2.3 The remaining sections of single carriageway, namely the A45 between Stanwick and Thrapston, and the A428 between the A1 and Caxton Gibbet, create a range of operational challenges – capacity, safety, maintenance and incidents. These leave the routes very vulnerable both at regular peak periods and during unplanned events. Both of these sections also form parts of diversion routes for the A14 but, in practice, are not well suited for that purpose.
- 4.2.4 While there is scope largely within the highway to widen the A45 the A428 corridor is tightly constrained at several key locations, though there may be scope at some locations for interim improvements such as at Croxton, Eltisle and Caxton Gibbet.
- 4.2.5 Incidents on the M6 section of the route have a profound affect on the A5 (part of the London to Scotland East Route) in the Hinckley area, which acts as the primary diversion in such cases. However, this section of A5 itself has both height and weight constraints.
- 4.2.6 Where the A428 meets both the A14 and junction 14 of the M11 there are a number of key movements that are not provided for within the SRN. In particular, there is no direct connection between the A428 and M11. This is facilitated via the local highway authority route A1303 to M11 junction 13, which has only south facing slip roads. This section of A1303 is a single carriageway road which also serves as a major radial route into Cambridge. Unsurprisingly, it experiences severe congestion during peak periods. This also has a knock-on effect at M11 junction 14 where stationary queues can extend back onto the main M11 northbound carriageway.
- 4.2.7 Traffic levels along the Northampton section of the A45 are reaching capacity and this is made worse by the junctions being closely spaced. The route is also located next to the Billing Aquadrome in Great Billing, which hosts a variety of shows and festivals throughout the year.
- 4.2.8 The town of Northampton has been identified as an area where substantial residential and employment growth will take place. It is therefore likely that the congestion issues experienced in this area on

the A45 will be exacerbated in future. As a result, the Highways Agency has identified the A45 Northampton Growth Management Scheme (NGMS) which is intended to be delivered through developer contributions in accordance with a Memorandum of Understanding between the HA, local planning authorities and the local highway authority.

4.3 Asset condition challenges and opportunities

4.3.1 Whilst a large proportion of junctions on the A14 are grade-separated, there remains number of at-grade priority junctions, including those with gaps provided in the central reserve to enable traffic to turn right in/out of side roads adjoining the route. These potentially pose safety concerns therefore a challenge will be to ensure that conflicting traffic movements along the route are minimised.

4.4 Capacity challenges and opportunities

4.4.1 A number of capacity challenges have been identified, some which exist already and some which exist and/or are anticipated in the future. Not all the problem junctions are located near to settlements and a challenge will be to secure improvements to these junctions.

4.4.2 Such an example is the A421/A1 Black Cat Roundabout which currently experiences severe congestion especially during peak times. This junction is a meeting point between major west-east and south-north movements. The junction is located away from major urban centres, however local housing and economic growth likely to come forward around settlements including Bedford (including the Marston Vale), St Neots, Cambourne and Bourn Airfield between 2015 and 2031 (and beyond) which is likely to generate additional traffic demand on the A421 and A428, converging at the junction. Improvement to the junction is considered to be a major opportunity for improving west-east links between Cambridge and Milton Keynes, and a confluence of traffic.

4.4.3 A Pinch Point scheme is programmed and will comprise of part-signalisation, enlargement and some widening of the approaches. This will alleviate some of the capacity problems currently experienced and make the area better connected and better placed to attract new investment and jobs. The scheme's benefits were found to be limited by the likely transfer of some delays to other parts of the nearby network, especially on the A1 at Wyboston and Buckden to the north, and Sandy to the south, and to a lesser extent on the A428. A longer term challenge then will be to monitor the effectiveness of this improvement scheme and identify larger-scale improvements and ensure these are implemented to support growth coming forward beyond 2021.

4.4.4 The A428 junctions at Croxton, Eltisley and Caxton Gibbet all suffer peak congestion. In the absence of a wholesale upgrade of this section of the route there is a pressing need to address these junction issues in order to accommodate growth in the South Cambridgeshire and Huntingdonshire districts.

- 4.4.5 The A421 on the southern edge of Bedford experiences increasing congestion at its junction with the A6 during peak periods which, at times, can queue back onto the main A421 carriageway. This area is a growing business and retail hub but with substantial housing growth taking place nearby.
- 4.4.6 A14 junction 55 (the Copdock Interchange) is heavily trafficked especially during the peak weekday periods. Works were undertaken in 2011 to improve and upgrade the junction to accommodate additional traffic generated by expansion of the Port of Felixstowe. Although improvements have been made to the Copdock junction it remains a key junction along the route and therefore continued assessment of it should take place to ensure it is able to accommodate the current and future growth plans at the Port of Felixstowe and in surrounding areas including Ipswich.
- 4.4.7 There are many junctions closer to settlements and key local housing and economic growth. These include A14 junction 10 (Kettering), A45 junctions round Wellingborough, the A45/A6 junction at Rushden, A428/A1198 Caxton Gibbet roundabout (near to Cambourne); A14 junction 33 'Milton Interchange' (development is expected to take place in Cambridge City to the south and in Waterbeach, Ely and Littleport to the north); and A14 junction 43 and 44 (planned Bury St Edmunds urban extensions and Suffolk Business Park will generate additional traffic movements). A notable challenge will be to ensure that identified improvements to the junctions (or a new junction 10a in the case of growth at East Kettering) coincide with the opening of key developments and that locally-derived funding opportunities are secured. In some cases measures will need to be delivered to manage the impact of development growth on the SRN, such as through the adopted Northampton Growth Management Scheme relating to developer funded improvements to the A45 junctions between Billing and M1 junction 15
- 4.4.8 The planned A14 Cambridge to Huntingdon improvement scheme terminates at its eastern end at junction 33 at Milton. If previously shelved growth proposals at Cambridge Airport were to re-emerge on a substantial scale then the need for possible enhancements on section between junctions 33 and 34, and possibly 35, may need to be re-examined.
- 4.4.9 The need for additional capacity on the A14 east of Cambridge, particularly at Bury St. Edmunds and Ipswich, may need to be examined in the light of growth proposals. The key issue at Bury St Edmunds is the interaction of junctions along the A14 bypass especially at peak periods. The issues at Ipswich are partly related to cross-town movement but there are also a number of substantial traffic generating businesses on the peripheries of the town.

4.5 Safety challenges and opportunities

- 4.5.1 Safety issues along the route fall broadly into two main categories: road users and road workers. Clearly, below these there will be a number of further categories.

- 4.5.2 The A14 between the A45 at Thrapston (junction 13) and the A1 at Brampton Hut (junction 21) suffers relatively high casualty numbers. There are numerous at-grade give way junctions and accesses along this length which contribute to this. Also, the roundabout at Brampton Hut has itself a poor safety record, with high incidence of red light contravention at its traffic signals.
- 4.5.3 Regarding road worker safety, large sections of the A14 are hazardous to maintenance personnel particularly when placing temporary signs. Specific problems regular occur on the section between Huntingdon and Newmarket. Problems include regular collisions with mobile crash cushions, especially by lorries, while setting up a road work site. Also, access to structures for maintenance operations is unduly hazardous at a number of key locations on this stretch.
- 4.5.4 Inadequate layby and lorry parking provision has long been a concern along much of the A14, particularly given the extraordinarily high proportions of large goods vehicles, UK and continental, that use much of the route.

4.6 Social and environmental challenges and opportunities

- 4.6.1 A key challenge will be to give appropriate consideration to the needs of non-motorised road users including cyclists at junctions on the route. Such major routes can be intimidating to non-motorised users, and can cause severance hindering the ease of movement from one side to the other. The A421/A6 interchange between Bedford and the Wixams development is one example where improvements to cycle facilities at the gyratory will considerably enhance the connectivity by active modes. Severance issues on sections of the A45 around Rushden and Stanwick have also been reported.
- 4.6.2 Parts of the A428 corridor are well served for cyclists but there are a number of significant gaps in provision both along the single and dual carriageway sections of the route. Take up of cycling is exceptionally high in this area.

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
Network Operation	A14 Orwell Bridge	NO1: Need to reduce knock-on effects of incidents onto the local road network	Yes				Yes			✓
	A14	NO2: Need to improve resilience. Lack of hardshoulder exacerbates effects of breakdowns/incidents.					Yes		✓	
	A14 Lay-bys	NO3: Inadequate provision of additional Lorry Parking	Yes	✓			Yes	✓		
	A14 east of Newmarket	NO4: Calls to increase HA traffic officer coverage		✓			Yes	✓		
	A14 and A12	NO5: Calls to improve VMS signage	Yes	✓			Yes	✓		
	M6 & A14 (but also general)	NO6: M6 incidents have profound effect on A5 in Hinckley. Strategic diversion routes need to be suitable for HGVs ie no height or weight restriction. Better incident management techniques, resources and procedures required. Diversion route plans need to be kept up to date	Yes	✓			Yes			✓
	All routes	NO7: Calls to improve road user awareness eg use of smart motorways		✓			Yes	✓		
	All routes	NO8: incidents reduced by better enforcement – more platforms needed on all-lane-running sections for this		✓			Yes	✓		

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
	A14/A428/M11 junction at Cambridge	NO9: Movements between A428 and M11 are provided only by single carriageway local route A1303 (also a main radial route into Cambridge)	Yes	✓	✓	✓	No			
Asset Condition	A14 J31-34	AC1: earthworks problems with reworked Oxford Clay. Settlement, pavement cracking and deformation. Damaged drainage system and deformed earthworks	Yes		✓		Yes (after events)			
	A14 J16-19	AC2: Concrete V channel in central reserve is prone to surcharge and flooding of c/way	Yes		✓		Yes (after events)			
Capacity	A421 / A1 Black Cat Roundabout	C1: Insufficient junction capacity: (Pinch point scheme planned, part time signals)	Yes	✓			Yes		✓	
	A45 / A6 nr Irthlingborough & Wellingborough	C2: Insufficient junction capacity	Yes	✓			Yes		✓	
	A45 / A6 near Rushden/	C2: Insufficient junction capacity, notably to Chowns Mill junction	Yes	✓			Yes			✓

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
	A421 /A1 East / West Constraints including Black Cat Roundabout (Pinch point scheme is planned for Black Cat Rbt which will address part of the problem identified)	C4: Insufficient capacity :	Yes	✓			Yes	✓		
	A14 J35 and J37 Exning	C5: Insufficient capacity	Yes			✓	Yes	✓		
	A14 J43 to J44	C6: Insufficient capacity				✓	Yes	✓		
	A14 J33	C7: Insufficient junction capacity (see C12)	Yes		✓		Yes	✓		
	A14 Kettering West (and connection to Corby)	C8: calls for improved connectivity	Yes		✓		Yes	✓		
	A14 Junctions around Ipswich, particularly Copdock	C9: Insufficient junction capacity	Yes	✓			Yes	✓		
	A45 junctions Rushden & Stanwick	C10: calls for Junction layout/ capacity enhancements (see also C2)	Yes		✓		Yes	✓		
	A1(M) /A14 Alconbury	C11: calls for network improvements: (non specific)					Yes	✓		
	A14 J33 Milton Interchange	C12: Insufficient Junction capacity. : <i>(Some capacity improvements included within A14 Cambridge to Huntingdon Scheme planned, additional measures likely to be required)</i>	Yes				Yes		✓	

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
	SRN around Cambridge A14, M11 and associate junctions	C13: calls to improve capacity and access.: Also see C12 above: <i>(Some capacity improvements included within A14 Cambridge to Huntingdon Scheme planned, additional measures likely to be required)</i>	Yes				Yes	✓		
	A14 J32, J33 Histon and Milton Interchanges	C14: Insufficient junction capacity (see C7, C12)	Yes				Yes		✓	
	A45 and M1 around Northampton	C15: Calls for traffic management measures to the A45 junctions between M1 J15 and Billing as supported through developer contributions via the Northampton Growth Management Scheme and Memorandum of Understanding	Yes				Yes		✓	
	A14 Thapston to Brampton	C16: Calls for Link capacity and safety improvement (could require provision of alternative routes/structures/new junctions)	Yes		✓		Yes	✓		
	A428 St Neots to Caxton Gibbet	C17: Insufficient link capacity	Yes				Yes		✓	
	A14/M11 Junction (and M11 J13 part of London to Leeds)	C18: Insufficient junction capacity: <i>(A14 Cambridge to Huntingdon Scheme planned)</i>	Yes		✓		Yes		✓	
	A14 Kettering East	C19: Insufficient junction capacity (including new Junction 10a)	Yes				Yes		✓	
	A14 Cambridge to Huntingdon	C20: Insufficient capacity : <i>(A14 Cambridge to Huntingdon Scheme planned): (see also C2)</i>	Yes				Yes		✓	
	A14 Junctions 3 - 7	C21: Insufficient capacity					Yes	✓		

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
	A14 J55 to J57	C22: Insufficient capacity					Yes		✓	
	A14 and A12	C23: Insufficient link capacity.: (non specific programme of improvements ensuring routes serve strategic function)					Yes	✓		
	A14	C24: Insufficient capacity and resilience : (also see C7 above)					Yes	✓		
	<i>Network adjacent to A14 Toll Scheme</i>	C25: Insufficient capacity and calls for network management signing strategy. Strategy and measures required to limit reassignment : (also see C20, C23 and C24 above) <i>(Note: the government have since announced that The A14 scheme will no longer include tolling!)</i>	Yes				Yes	✓		
	A421/A6 Bedford	C26: Insufficient capacitys	Yes			✓	no			
	A428 between A1 and Caxton Gibbet	C27: Insufficient capacitys	Yes			✓	no			
	A428 between A1 and Caxton Gibbet	C28: interim junction improvements (pinchpoints / super pinchpoints etc) at Croxton, Eltisle & Caxton Gibbet	Yes		✓		no			
	M6 J1 Rugby	C29: Development pressures here will affect junction performance		✓	✓	✓	Yes			✓
	M6 J2 to J4	C30: current congestion causes instability, unreliability and diversion to local routes		✓	✓	✓		✓		
	A45 Stanwick Thrapston	C31: Insufficient capacity				✓	Yes			✓

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
Safety	A14 (whole route)	S1: improved lay-by and lorry parking/resting facilities	Yes		✓	✓	no			
	A14 (whole route),	S2: Road workers - no safe maintenance hardstandings to enable TTM vehicles to pull up and install TTM. Vehicles need to ramp onto soft verge. Specific problems occur on A14 J23 to J35.	Yes		✓		Yes (after events)			
	A14 J23-37	S3: Road workers - IPV strikes at night by road users. HGV or LGV running into crash cushions whilst TTM is being established or removed	Yes	✓			Yes (after events)			
	A14 (whole route)	S4: Road workers - ONDR flap trigger signs for symbol signed diversion routes need to be operated manually. Some have no safe pull off areas or safe footing to stand on to unbuckle the sign	Yes	✓			Yes (after events)			
	A14 (whole route)	S5: Road workers - Safe access to structures. Lack of safe parking areas, steep embankments & revetments to negotiate. Heavy vegetation around culverts creating high risk of slips, trips & falls trying to access for inspection	Yes	✓			Yes (after events)			
	A14 (whole route)	S6: Road workers - Clearing of dead animals in carriageway puts roadworkers at risk. Suggest improved wildlife fencing at high risk locations	Yes		✓		Yes (after events)			
	A14 (whole route)	S7: Road workers - igh number of barrier repairs in central reserve put road workers at safety risk, especially A14. Suggest concrete CR barriers	Yes		✓		Yes (after events)			

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
	General	S8: Vulnerable road users have difficulty crossing SRN	Yes	✓			Yes			✓
Social and environment	A45 around Rushden and Stanwick (near A6)	SE1: Reduce severance effects	Yes				Yes		✓	
	A451/A6 Junction	SE2: Reduce severance effects	Yes				Yes		✓	
	A421 around Bedford	SE3: Reduce congestion	Yes				Yes	✓		
	A428 corridor	SE4: enhanced cycling / walking / equestrian facilities offline	Yes		✓		Yes (after events)			
	General	SE5: in some locations the most direct route for cyclists is not along SRN but only RoW is along SRN. More dedicated direct routes required		✓			Yes		✓	
Other	Improve quality of highway links between Sizewell and A14, wider SRN	O1: Improve connectivity between Sizewell and wider SRN					Yes	✓		
	General	O2: are there plans to use autonomous vehicles on the SRN?				✓				✓

4.7 Conclusion

- 4.7.1 The evidence compiled about the Felixstowe to the Midlands route has shown that it is a significant focus for future growth and will continue to be a key corridor for international freight. Substantial growth is planned in the Coventry & Warwickshire, South East Midland, Northamptonshire, Greater Cambridge/Greater Peterborough and New Anglia Local Enterprise Partnership (LEP) areas.
- 4.7.2 The route acts as an important artery across England, linking the Port of Felixstowe on the eastern coast with the Midlands, and intercepting a number of key north-south corridors including the London to Scotland (East) and London to Leeds (East) routes. It is therefore pivotal to facilitating long-distance and inter-urban traffic movements across a large area.
- 4.7.3 In general, the higher standard route sections that run between main urban areas tend to perform the best. Such sections include the A421 (now entirely dual carriageway), A428 between Caxton Gibbet and Cambridge, and the A14 between Newmarket and Bury St Edmunds.
- 4.7.4 The A14 is a popular, heavily trafficked road, and a lack of viable and attractive alternative roads means that when incidents occur, motorists have limited options to avoid delays and congestion. Lack of wide hard strips or hard shoulders is seen to exacerbate this, as are those sections of the route (on A45 and A428) which remain single carriageways.
- 4.7.5 The route will continue to be a focal point in the future, with local housing and economic growth likely to take place around a number of large and medium-sized urban centres within the West Midlands urban conurbation in the west. Across the central belt growth will be focused on the sub-regional centres of Milton Keynes, Northampton and Kettering. Key centres across the East of England will see growth focused at Bedford, St Neots, Huntingdon, Cambridge, Bury St. Edmunds and Ipswich. More than 200,000 new homes are expected to be built and almost a quarter of a million new jobs created by 2021 across the LEPs traversed by the route. There are likely to be concentrations of local housing and economic growth around all the major urban centres as well as the creation of new standalone communities including Northstowe, located between Huntingdon and Cambridge up to and beyond 2031.
- 4.7.6 Figure 4 summarises some of the key issues and challenges 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. High priority issues for stakeholders include management of incidents on the M6 junctions between junctions 2 and 4, and on the A14 at the Orwell Bridge (both of these examples being characterised by their lack of suitable alternative routes), development pressures on the south-eastern end of M6, difficulties for vulnerable road users using or crossing the route and the potential for harnessing new in-vehicle technologies.

- 4.7.7 Our own network intelligence also highlights: a growing challenge to maintain deteriorating assets such as surfacing and vehicle restraint systems; limited capacity to accommodate significant growth aspirations; and network resilience and capacity weaknesses particularly on lower standard route sections.
- 4.7.8 The Agency's planned A14 Cambridge to Huntingdon improvement scheme should alleviate severe capacity problems currently experienced on that section of the route, with implications to the efficient operation of the route beyond into neighbouring sections. The planned scheme should improve accessibility to the Cambridge sub-region, which is expected to be a major focal point for future growth, and make the route more suitable for long-distance journeys. Concerns had been raised by stakeholders about the proposed tolling that formed part of the scheme, the potential for traffic to reassign to other routes to avoid toll charges and its possible adverse effect on growth. However, the government confirmed in their National Infrastructure Plan published in December 2013 that tolling would no longer form part of the scheme.
- 4.7.9 M1 Junction 19, linking the A14 with the M1 and M6, is important for north/south and east/west traffic movements across the UK. In the November 2011 Autumn Statement, the Government confirmed the M1 Junction 19 Improvement scheme, which subsequently started construction in January 2014. The junction currently experiences delays and long queues. The proposed scheme, comprising a new interchange links that will provide uninterrupted journeys between the A14 and the M6 and M1, will relieve congestion at the junction and improve journey reliability, and improve road safety. Construction also recently commenced on a widening scheme on the A14 Kettering bypass which has been a regularly congested section.
- 4.7.10 It is expected that capacity problems will exist on other parts of the route. Junctions currently experiencing regular congestion include M6 junctions 2 and 3, A45 junctions around Northampton, Wellingborough and Rushden, A421 junction with the A1, A428 junctions along the single carriageway section between the A1 and A1198, and A14 at junctions 21 (A1), 23 (A141), 31 to 33 (Cambridge northern bypass) and 55 (A12 Ipswich). A number of links are also routinely congested, including the A428 between the A1 and A1198 in Cambridgeshire, the A45 between the A6 and A14 in Northamptonshire, and the A14 Orwell Bridge near Ipswich. These sections are expected to experience increased traffic demand in the future.
- 4.7.11 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. Air quality and noise are particularly sensitive in a number of locations along the route. Air Quality Management Areas (AQMAs) have been declared alongside the route at Northampton, Bedford, Huntingdon, Cambridge and near to Felixstowe. Locations particularly vulnerable to traffic noise (classified as Important Areas) are declared at Kettering, Wellingborough, Northampton, Huntingdon, Cambridge, Newmarket and Bury St Edmunds. There are known areas of water pollution risk at

- Wellingborough, Huntingdon, Cambridge, Bury St Edmunds and Ipswich.
- 4.7.12 We are also aware of a number of locations of cultural heritage, ecology and landscape sensitivity all of which we aim to mitigate in our operations and in the design of maintenance and improvement schemes.
- 4.7.13 Stakeholders have expressed a desire for traffic management activities to be enhanced so that they can play a much enhanced role in the operational arrangements of the route, including the managing of traffic following incidents and the provision of more intelligent information for motorists. The Agency's traffic officer service currently provides full coverage on the M6 and a part of the A14 between Huntingdon and Newmarket, with notable success. Other sections of the non-motorway parts of the route have safety and congestion issues, but are not currently benefitting from full traffic officer service coverage.
- 4.7.14 Maintenance was not identified by stakeholders as a key challenge for the route during the initial period up to 2021. However, our evidence suggests that maintenance remains a longer-term challenge across the route.
- 4.7.15 Large sections of the route are likely to require major maintenance, particularly surfacing, by the end of this decade. Managing this will be a significant and growing challenge.
- 4.7.16 Committed and pipeline schemes will be capable of accommodating some of the growth envisaged and at least partially address network weaknesses, but it is likely that without further investment the rate of growth will not be able to be sustained on some sections of the route by the end of this decade.

Figure 4
Key opportunities and challenges for the route

Illustrative

M6 incidents have marked effect on other routes (e.g. A5 Hinckley). Diversion routes need to accommodate HGVs. Better Incident management required. (Whole route issue)

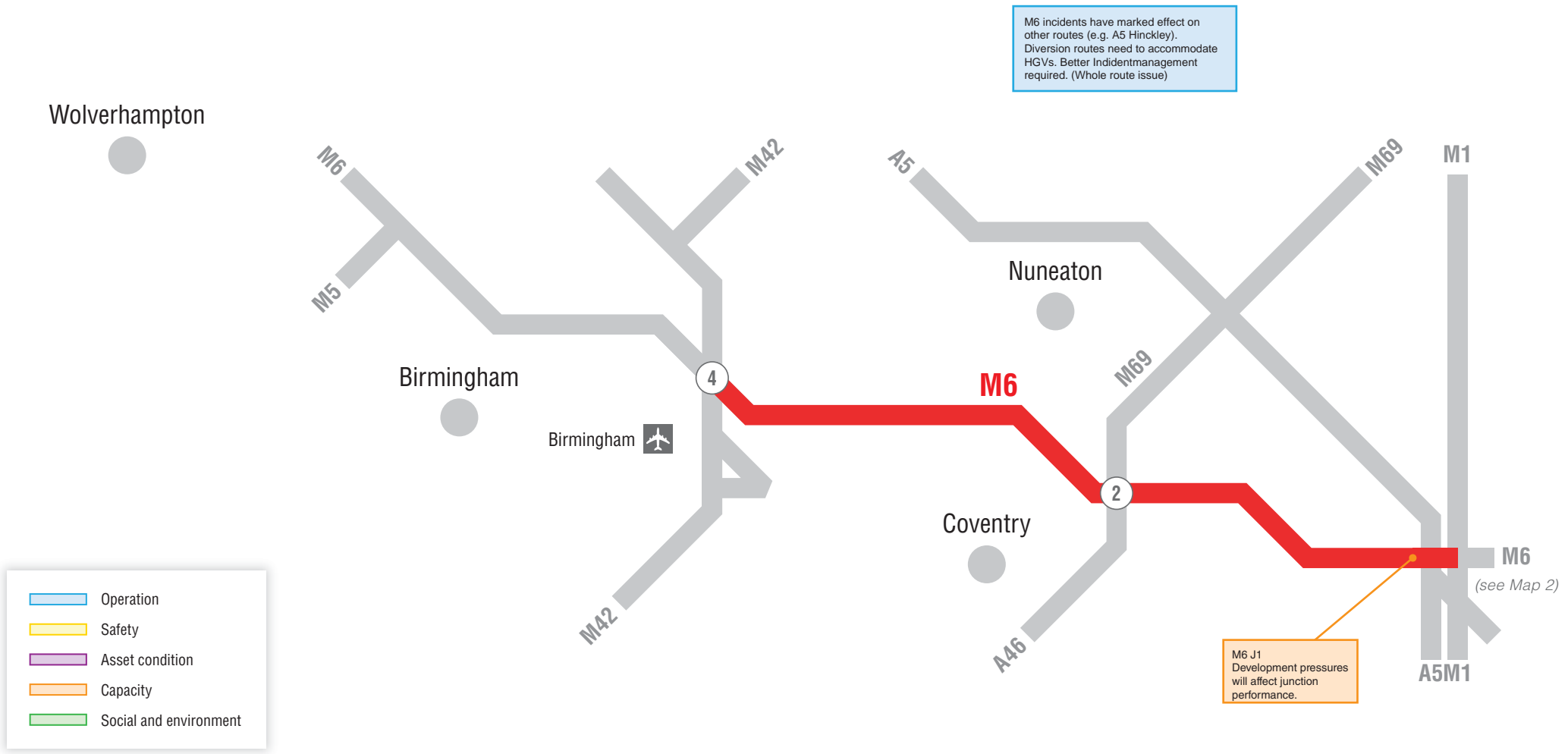


Figure 4
Key opportunities and challenges for the route



Illustrative

(see Map 3)

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

Figure 4
Key opportunities and challenges for the route

Illustrative

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

Road worker safety: Flap signs, access to structure, removing dead animals, CRSF repairs. A14 whole route

VRUs have difficulty crossing SRN. A14 whole route.

Junction capacity improvements
A14 Cambridge northern bypass and M11 junction

A14
Cambridge to Huntingdon Improvements

Better, more direct facilities for VRUs needed. APTRs general

Junction capacity improvements (pinchpoint), A421 "Black Cat" roundabout

Severe lack of capacity (links and junctions)
A428 between A1 and A1198

Junction capacity concerns
A421/A6 Bedford south

Need to improve resilience. No hard shoulder exacerbates incidents. A14 general

Improve lay-bys & lorry parking/resting facilities. A14 whole route

Roadworkers vulnerable to frequent IPV strikes. A14 J23-37

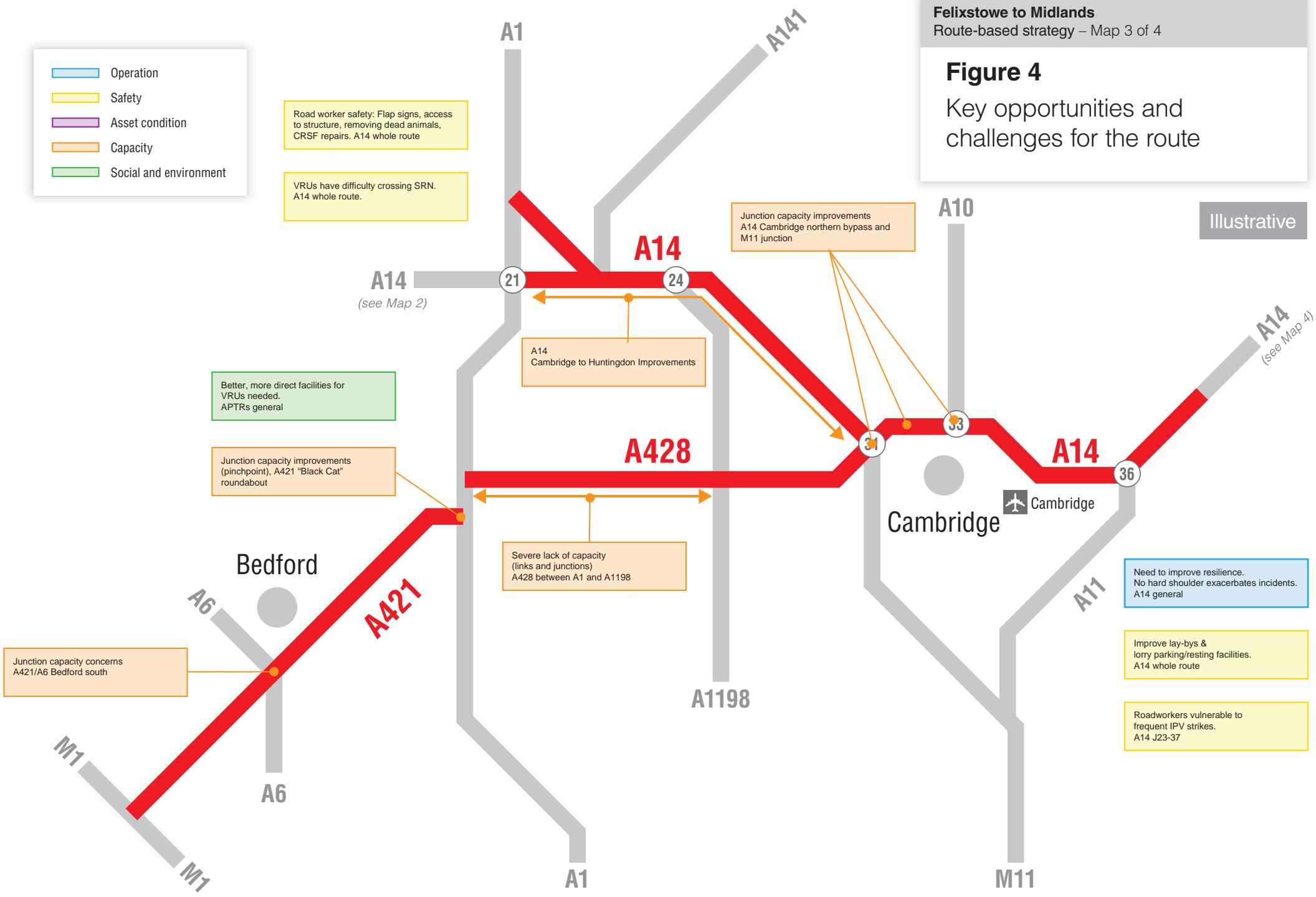
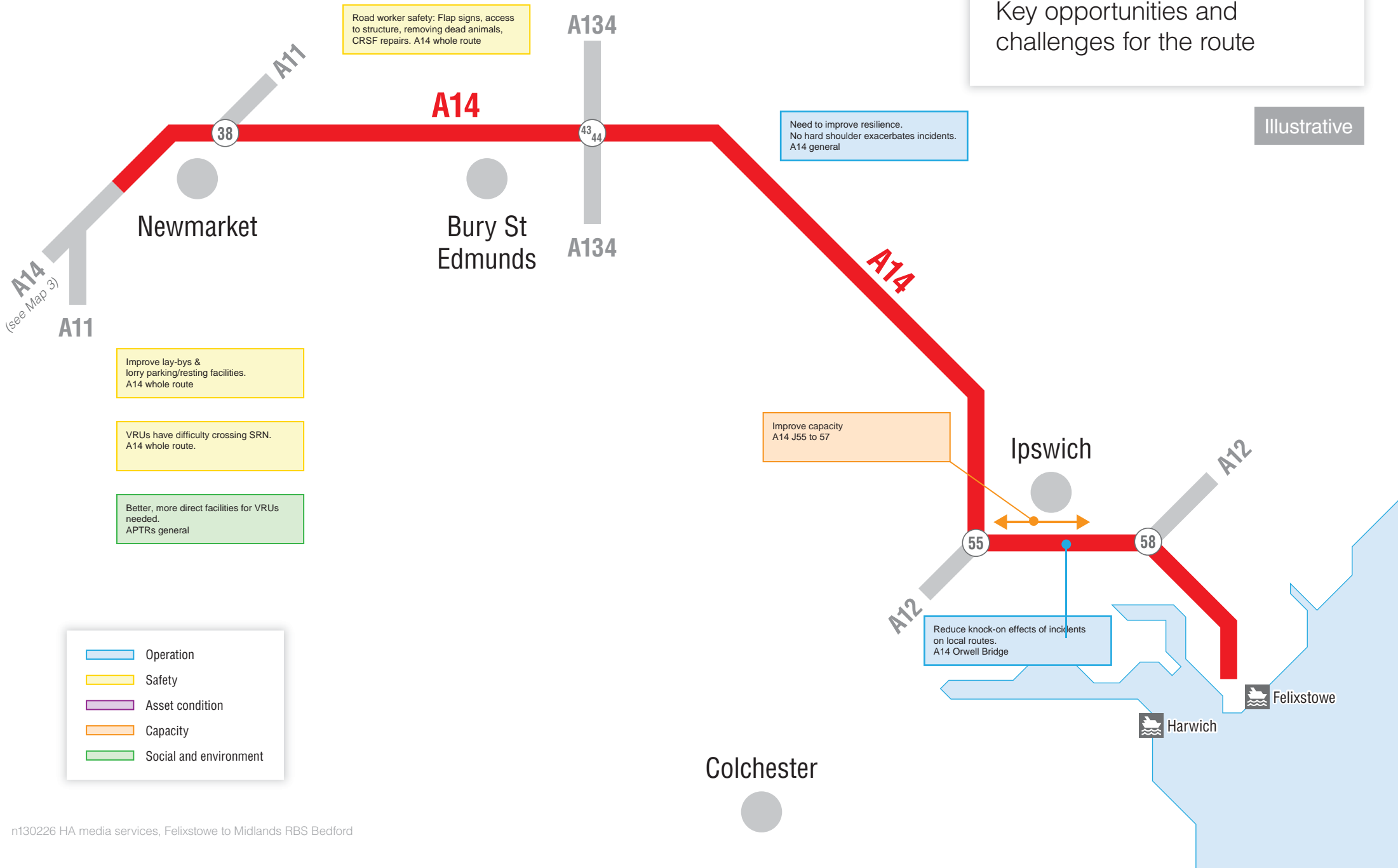


Figure 4

Key opportunities and challenges for the route



















Illustrative



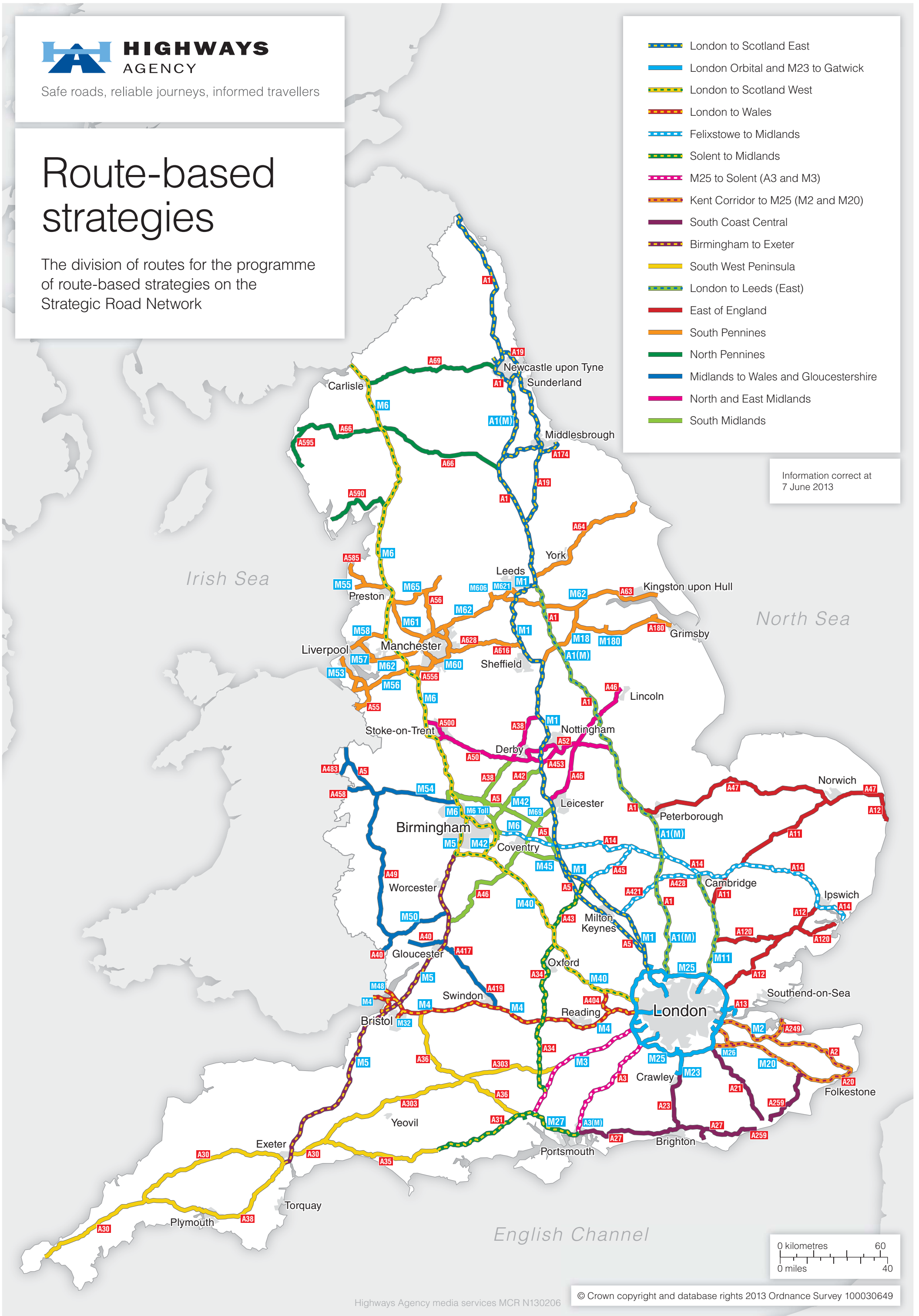
Appendix A Route map

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
7 June 2013



Appendix B Glossary

Abbreviation	Description
AQMA	Air Quality Management Areas
CCTV	Closed Circuit Television
CR	Central reservation
Defra	Department of Environment, Food and Rural Affairs
ERCC	Eastern Region Control Centre
FtM	Felixstowe to Midlands
HGV	Heavy goods Vehicle
HRA	Hot Rolled Asphalt
IA	Important Areas
IPV	Incident protection vehicle
KSI	Killed and Serious Injury
LA	Local Authority
LEP	Local Enterprise Partnership
LGV	Light goods Vehicle
LNMS	Local Network Management Schemes
MIDAS	Motorway Incident Detection and Automatic Signalling
MP	Major Projects
NGMS	Northampton Growth Management Scheme
ONDR	Off Network Diversion Route
RBS	Route Based Strategy
S278	Section 278 of the Highways Act Schemes
SRN	Strategic Road Network
TMD	Traffic Management Division
TOS	Traffic Officer Service
TSC	Thin Surface Course
TSCS	Thin Surface Course System
TTM	Temporary traffic management
VMS	Variable Message Sign
VRU	Vulnerable road user

Appendix C Stakeholder involvement

Organisation	Contact Name	Provided Input
A47 Alliance Norfolk County Council	Cllr David Harrison	
A5 Partnership and Hinckley and Bosworth District Council	Bill Cullen	
AMEY	Ben Gadsby	
Anglia Ruskin University	Sandy Lynam	
Bedford Borough Council	Brian Hayward	
Bedfordshire and Luton Fire & Rescue Service	Ade Yule	
BIS	Ian Smith	
Breckland DC	Phil Mileham	
British Horse Society	Vicky Allen	
Broadland DC	John Walchester	
Cambridge AirPort	Steve Sillery	
Cambridge Chamber of Commerce	Gill Prangnell	
Cambridge City Council	Ben Bishop	
Cambridge University (represented by PBA)	John Hopkins	
Cambridgeshire CC	Bob Tuckwell	
Cambridgeshire County Council	Mike Salter	
Campaign for Better Transport	Andrew Allen	
Campaign for Better Transport	Sian Berry	
Carillion/WSP (MAC8)	Peter Smith	
Central Bedfordshire Council	Geraldine Davies	
Central Bedfordshire Council	Manouchehr Nahvi	
Charnwood Borough Council	Paul Tebbitt	
Councillor for Babergh DC	Cllr John Hinton	
Coventry City Council	Mike Waters	
Coventry CTC	George Riches	
Daventry DC	Simon Bowers	
Department of Business Innovation & Skills	Clare Milton	
Department of Business Skills & Innovation	Mick Lazarus	
Department of Transport	Richard Mace	
DfT	Susanne Isaacs	
DfT	Lee Sambrook	
East Cambridgeshire DC	Sally Bonnet	
East Northamptonshire DC	Karen Britton	
East of England Ambulance Service	Paul Frost	
Environment Agency	Fiona Keates	
Environment Agency	Tim Andrews	
Evergreen Extra MSA	Mike Stanley	
Fenland District Council	Wendy Otter	

Forest Heath DC	Magnus Magnusson
Friends of the Earth	Terry Kirby
GCGP Enterprise Partnership	Adrian Cannard
Great Yarmouth BC	David Glason
Haven Gateway Partnership	Steve Clarke
Highways Agency	Neil Hansen
Huntingdonshire DC	Stuart Bell
Ipswich BC	Michael Newsham
Kettering Borough Council	Simon Richardson
King's Lynn and Wes Norfolk	Peter Jermany
Leicestershire Chamber of Commerce	Martyn Traynor
Leicestershire County Council	Paul Sheard
Leicestershire Police	Graham Compton
Luton Borough Council	Keith Dove
Mid Suffolk DC	David Sparkes
Milton Keynes Council	Ishwer Gohil
MIRA Ltd	James Sharma
Natural England	Gordon Wyatt
New Anglia Local Enterprise Partnership	Marie Finbow
Norfolk CC	David Cumming
Norfolk Chamber of Commerce	Eddie Tyrer
North Northamptonshire Joint Planning Unit	Andrew Longley
North Northamptonshire Joint Planning Unit	Paul Woods
North Northamptonshire Development Company	Caroline Wardle
Northampton BC	Richard Palmer
Northamptonshire CC	Helen Russell-Emmerson
Norwich City Council	Joanne Deverick
Nuneaton and Bedworth Council	Sarah Hines
Office of Richard Bacon MP	Mike Rigby
Open University Milton Keynes	Dorian Holloway
Peterborough City Council	James Harrison
Port of Felixstowe	Paul Davey
Port of King's Lynn - King's Lynn Docks, Norfolk	Graham Tetley
Prologis	Chris Lewis
Prologis	Chris Lewis
RAC foundation	Ken Treadaway
Road Haulage Association	Rhys Williams
Rugby Borough Council	Ross Middleton
Rutland County Council	Gary Toogood
SEMLEP	Hilary Chipping
Skanska (MAC6)	Nick Mills
South Cambridgeshire DC	Tumi Hawkins

South Cambridgeshire DC	Keith Miles
South Norfolk Council	Ian Lambert
South Northamptonshire DC	David Allen
St Edmundsbury DC	Ian Poole
Stadium MK (MK Dons)	Sue Dawson
Stratford-upon-Avon District Council	Paul Harris
Suffolk Chamber of Commerce	Richard Perkins
Suffolk Coastal DC	Carolyn Barnes
Suffolk Constabulary	Steve Griss
Suffolk County Council	Peter Grimm
Suffolk University	Sarah Collins
Sustrans	Rohan Wilson
Sustrans	Anthony Wright
Sustrans - Beds and Herts	Peter Bate
Sustrans - Midlands and EOE	Peter Orban
Thames Valley Police	Neil Biggs
The Broads Authority	Natalie Beal
Vectos - on behalf of Fosse Park Shopping Centre	Chris Slack
Warwickshire and West Midlands Police	Phil Moore
Warwickshire County Council	Adrian Hart
Waveney DC	Desi Reed
Wellingborough Borough Council	Sue Bateman

If you need help using this or any other Highways Agency information, please call **0300 123 5000*** and we will assist you.

© Crown copyright 2014.

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence: visit <http://www.nationalarchives.gov.uk/doc/open-government-licence/> write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email psi@nationalarchives.gsi.gov.uk.

This document is also available on our website at www.highways.gov.uk

If you have any enquiries about this document email ha_info@highways.gsi.gov.uk or call **0300 123 5000***. Please quote the Highways Agency publications code PR199/13

* Calls to 03 numbers cost no more than a national rate call to an 01 or 02 number and must count towards any inclusive minutes in the same way as 01 and 02 calls. These rules apply to calls from any type of line including mobile, BT, other fixed line or payphone. Calls may be recorded or monitored.

Highways Agency media services Bedford Job number s130629