HIGHWAYS AGENCY

Safe roads, reliable journeys, informed travellers

London to Leeds (East) Route Strategy Evidence Report

April 2014

An executive agency of the Department for Transport

Document History

London to Leeds (East) route-based strategy evidence report

Highways Agency

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Table of Contents

Tables

Figures

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 London to Leeds (East) 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 London to Leeds (East) route comprises the A1/A1(M) (between M25 junction 23 in Hertfordshire and the northern end of the M1 east of Leeds) and the M11 (between M25 junction 27 in Essex and A14 junction 31 in Cambridgeshire). Both of these routes serve at their southern ends as radial routes to and from London. The major centres served by the A1 and A1(M) include Stevenage, Huntingdon, Peterborough, Doncaster and Robin Hood Airport. The M11 serves Harlow, Stansted Airport and Cambridge. Both the A1/A1(M) and M11 form part of the trans-European comprehensive network.

1.3.2 The A1 changes several times between motorway and all purpose standards. It is a motorway between the M25 at South Mimms and J10 at Baldock, with sections of both two and three lanes. From Baldock to junction 14 at Alconbury it is then a dual-two lane carriageway all purpose route with predominantly at-grade junctions and frequent direct frontage accesses. This section includes what is in practice a short section connecting the A421 (at the Black Cat roundabout) to the A428 (at Wyboston) thus acting as both north-south and east-west routes.

1.3.3 Between Alconbury and junction 17 at Peterborough it is a motorway, with sections of both three and four lane carriageways. It then reverts again to an all-purpose route until junction 34 at Blyth being predominantly dual two lane.

1.3.4 North of junction 34, the route is a two lane motorway section which extends for approximately 16 miles to junction 38, north of Doncaster. Junctions 35 to 38 consist of grade separated junctions between the A1(M) and routes leading into Doncaster.

1.3.5 Between junction 38 (Redhouse) and junction 41, the A1 reverts to being a two lane trunk road with no hard shoulder. On this section, short slip roads provide access to numerous local lanes, residential properties and local businesses located adjacent to the route. There are several bus stops and lay-bys and, due to the rural nature of the surrounding area, use of the route by slow moving farm vehicles is common, illustrating the multifunctional nature of this section.

1.3.6 Between junction 41 and 43, the route is a three lane motorway section. This section of the route was upgraded to motorway standard and opened to traffic in 2006. This section is now maintained and operated by the DBFO Company 'Road Management Services (Darrington)' and will be handed back to the Agency at the end of the contract period in 2036. This section intersects with the M1 in East Leeds, which marks the northern extent of the route covered under this evidence report. This section effectively provides a motorway standard route between the M62 at Ferrybridge and the A1(M) north of Leeds. The corridor then continues to Scotland (forming part of the London to Scotland (East) RBS)

1.3.7 The M11 is dual three lane carriageway between the M25 and junction 8 near Stansted airport. It is then dual two lane for the remainder of the route, ending at junction 14 at Cambridge. In practice, the corridor then continues northwards to rejoin the A1(M) via the A14 between Cambridge and Huntingdon (this route forms part of the Felixstowe to the Midlands RBS).

1.3.8 The A1/A1(M) corridor carries between 27,000 and 86,000 vehicles per day, of which as much as 19% is large good vehicles. The M11 carries between 40,000 and 104,000 vehicles per day, of which around 10 to 12% is freight.

1.3.9 Neither the A1/A1(M) nor the M11 are exceptionally influenced by seasonal factors. However, significant spikes are experienced resulting

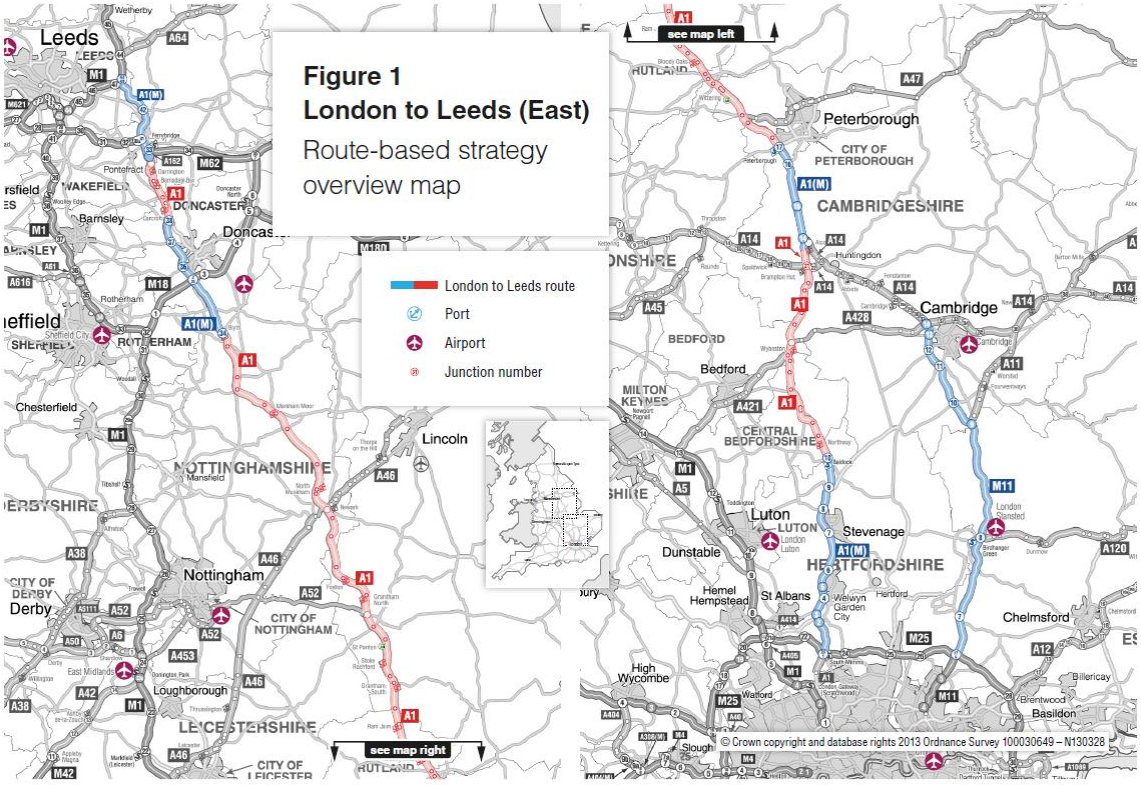
from major concert events at Knebworth House near Stevenage (accessed via A1(M) at J7)

1.3.10 This route connects with a number of other routes for which RBS are also being developed. These are:

- **London Orbital & M23 to Gatwick** (crossing A1(M) and M11 at M25 junctions 23 and 27 respectively);
- **East of England** (connects to A120 at M11 J8, A11 at M11 J9 & A47 at the A1 at Peterborough);
- **Felixstowe to the Midlands** (crossing A1 at A421 / A428 near St Neots and A14 at Huntingdon);
- **North and east Midlands** (connects to A52 at A1 Grantham and to A46 at A1 Newark);
- **South Pennines** (crossing A1(M) at the M18 Doncaster & M62 at Pontefract
- **London to Scotland** East (A1(M) joins M1 east of Leeds)

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 Average daily traffic flows vary between 27,000 and 103,000 vehicle per day (two-way), with large goods vehicles making up between 3% and 19% of flows.

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 (AADF) (One way)	National Rank
1	M11 between J6 (M25) & J7 (Harlow) (LM117)	52,347	313
2	M11 between J7 (Harlow) & J6 (M25) (LM118)	51,134	344
3	M11 between J8 (Bishops Stortford) & J7 (Harlow) (LM120)	45,825	441
4	M11 between J7 (Harlow) & J8 (Bishops Stortford) (LM119)	45,631	449
5	A1(M) between J4 (Hatfield N) & J3 (Hatfield S) (LM31)	43,064	523
6	A1(M) between J3 (Hatfield S) & J4 (Hatfield N) (LM30)	41,814	555
7	A1(M) between J9 (Letchworth) & J8 (Stevenage N) (LM59)	39,614	610
8	A1(M) between J7 (Stevenage S) & J6 (Welwyn) (LM55)	39,587	611
9	A1(M) between J6 (Welwyn) & J7 (Stevenage S) (LM54)	39,580	612
10	A1(M) between J5 (Lemsford) & J6 (Welwyn) (LM40)	38,684	629

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 Four of the ten least reliable links (1, 2, 4 & 9) adjoin or are close to the M25. Here, both the M11 and A1(M) serve large communities and business areas adjacent to them and are major arteries for communities further north. These include Welwyn Garden City, Harlow, Hatfield and Stevenage. The M11 also serves Stansted airport. Recent transport

studies indicate that very large proportions of trips on these stretches begin and/or end local to them.

2.1.6 Three of the top ten (3, 6 & 7) cover the section of A1 between Sandy (Central Bedfordshire) and Huntingdon (Cambridgeshire). These are also some of the least trafficked sections of the entire route. They contain three of the five remaining at-grade roundabouts on the entire length of A1 south of Leeds (the other two being at Biggleswade in Central Bedfordshire). This section of route has numerous frontage accesses and minor side roads, severing a number of communities, all of which contribute to serious degradation in performance.

2.1.7 The remaining three of the top ten (5, 8 & 10) are sections close to Stamford and Grantham in Lincolnshire.

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.

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 and, hence, do not appear near the top of the list. Such sections include the A1 between junctions 8 and 6 near Stevenage, 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 (OTRM)	National Rank
1	A1(M) between J3 (Hatfield S) & J2 (Nth Mimms) (LM13)	61.3%	116
2	M11 between J7 (Harlow) & J6 (M25) (LM118)	62.9%	159
3	A1 between A428 (Wyboston) & A421 ('Black Cat') (AL2967)	63.6%	185
4	A1(M) between J2 (Nth Mimms) & J1 (Sth Mimms) (LM11)	64.4%	230
5	A1 between A6121 (Tinwell Rd) & A606 (Stamford N) (AL462)	66.9%	389
6	A1 between A428 (Wyboston) & J21 (Brampton Hut) (AL2969)	67.1%	409
7	A1 between A603 (Sandy) & A421 ('Black Cat') (AL2958)	67.4%	442
8	A1 between A52 (Barrowby) & A607 (Grantham S) (AL1073)	67.6%	453
9	M11 between J6 (M25) & J7 (Harlow) (LM117)	67.7%	463
10	A1 between A43 (Stamford S) & A6121 (Tinwell Rd) (AL457)	68.1%	503

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 lowest speeds are routinely experienced northbound on the A1(M) between Welwyn and Stevenage, and on the A1 north and southbound approaches to the Black Cat roundabout in Bedford Borough. On all of these links the average speeds are less than 40mph during peak periods. At the Black Cat roundabout this is largely due to heavy demand limited by the junction's lack of capacity. The issues on the Welwyn to Stevenage section are more complex, involving a number of factors such as a lane-drop at junction 6, a climbing gradient and junction limitations.

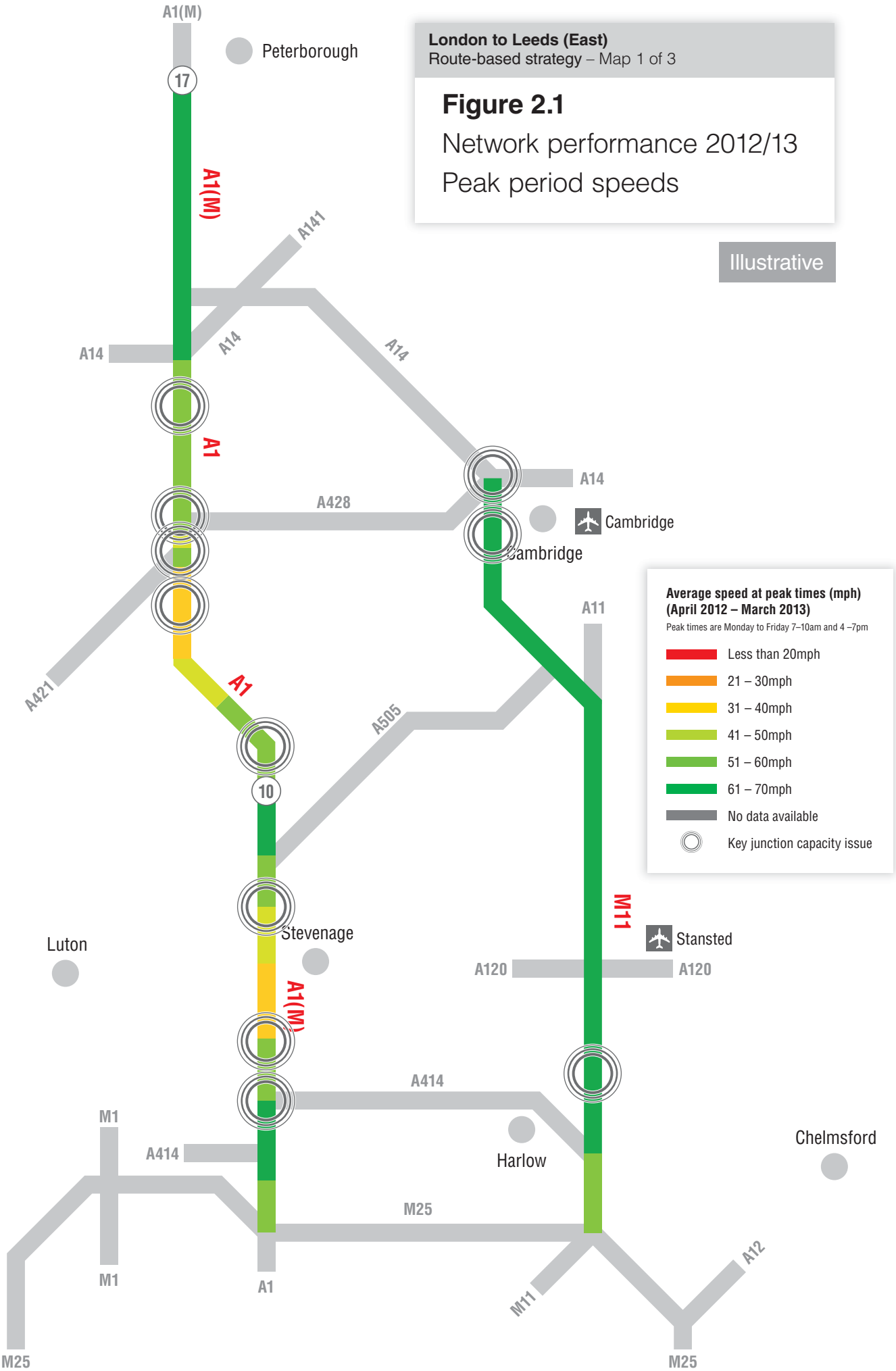
2.1.12 Speeds drop below 50mph at a number of locations; A1(M) southbound between Letchworth and Stevenage; A1 north and southbound between Roxton and Biggleswade;

London to Leeds (East)
Route-based strategy – Map 1 of 3

Figure 2.1

Network performance 2012/13
Peak period speeds

Illustrative



London to Leeds (East)
Route-based strategy – Map 2 of 3

Figure 2.1

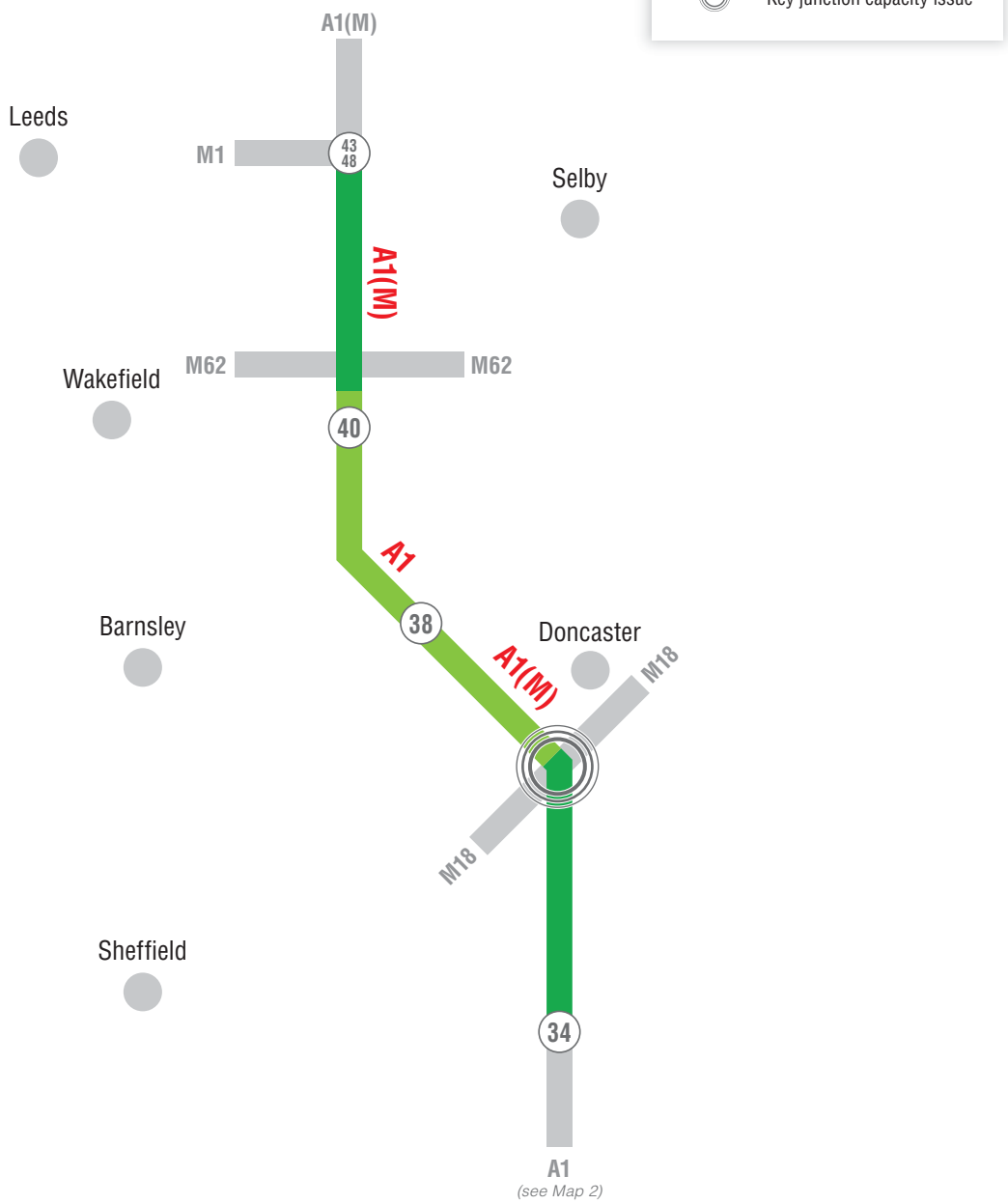
Network performance 2012/13
Peak period speeds

Illustrative

London to Leeds (East)
Route-based strategy – Map 3 of 3

Figure 2.1

Network performance 2012/13
Peak period speeds



Illustrative

2.1.13 The strategic road network is key in promoting growth of the UK economy, and alleviating congestion can realise economic benefits.

2.1.14 Figure 2.2 shows the delay on our network compared with a theoretical free-flowing network.

2.1.15 The A1(M) between junction 1 (the M25) and junction 10 (Baldock) is among the most important with regard to Hertfordshire's current and future economic growth prospects; and as indicated above, there are substantial potential opportunities linked to some key sectors, and to the possibility of forging better connections between some key growth towns.

2.1.16 It is already a centre of excellence for a variety of science and technology industries, with a large number of major employers. Significant levels of both housing and employment growth are planned along the corridor. However it is facing severe congestion-related challenges and the intrinsic economic potential may not be realised unless these can be addressed.

2.1.17 For instance, studies carried out for Stevenage Borough and North Hertfordshire District Councils show that significant housing and jobs growth will not be achievable without additional capacity in the corridor between junctions 6 and 8.

2.1.18 The northern section of the route beyond junction 34 experiences delay. This is particularly evident on the dual carriageway sections around Doncaster and Wakefield. There is a particular issue southbound after Holmfield Interchange where the section changes from 3 to 2 lanes.

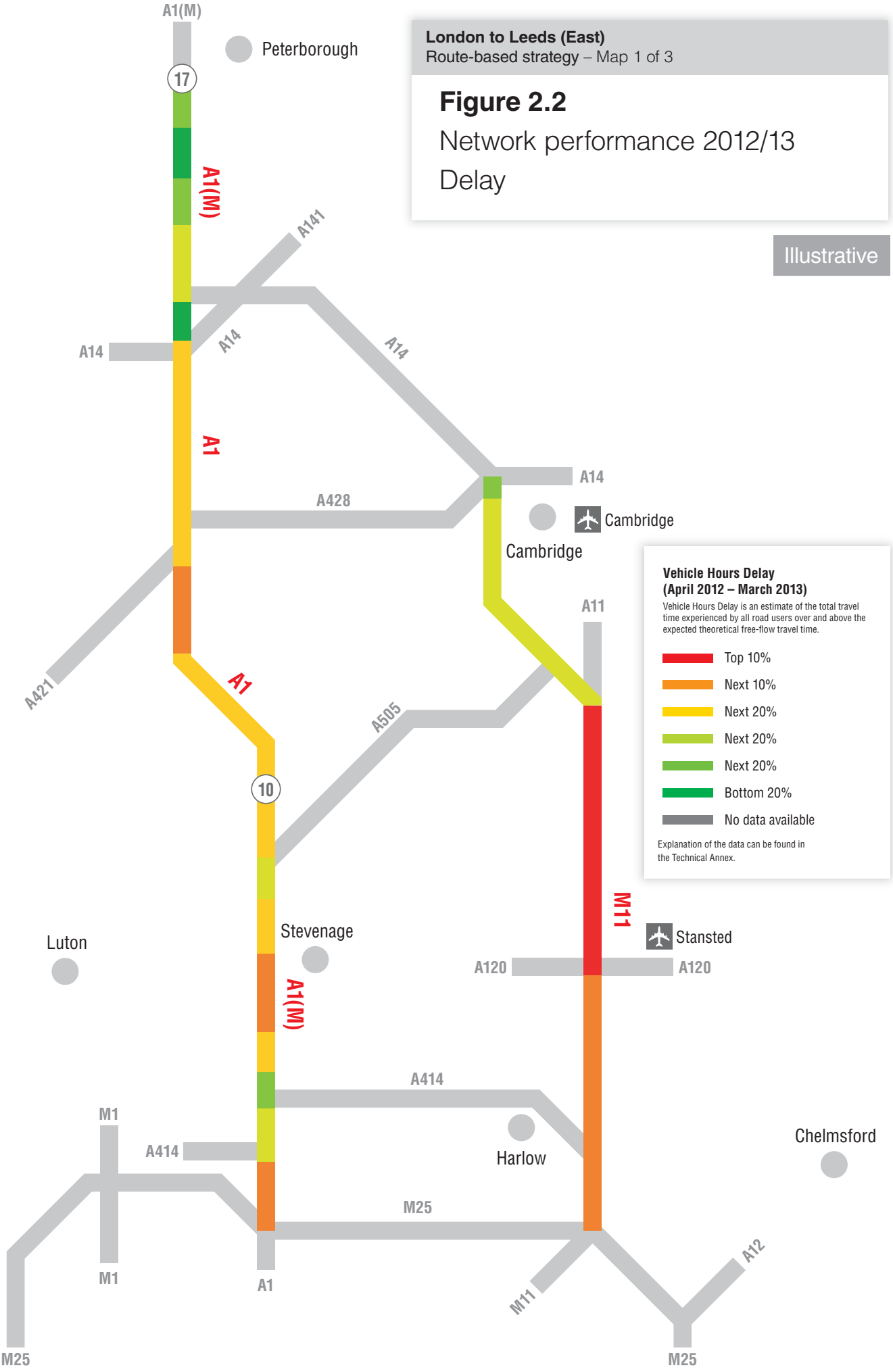
London to Leeds (East)
Route-based strategy – Map 1 of 3

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

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

London to Leeds (East)
Route-based strategy – Map 2 of 3

Figure 2.2

Network performance 2012/13

Delay

Illustrative

Vehicle Hours Delay (April 2012 – March 2013)

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London to Leeds (East)
Route-based strategy – Map 3 of 3

Figure 2.2

Network performance 2012/13

Delay

Illustrative

Vehicle Hours Delay
(April 2012 – March 2013)

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- 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 casualty locations on the strategic road network 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 1,191 collisions on the Route. The number per year has ranged from 358 to 434 over this 3 year period, gradually climbing year on year.

2.2.5 Of the 1,191 collisions recorded 22 (1.85%) included fatalities, 146 (12.26%) included serious injuries and the remaining 1,023 (85.89%) included only slight injuries. The number of fatalities appears to have remained steady across the 3 year period, with 7 in 2009 and 8 in both 2010 and 2011.

2.2.6 Within the 1,191 collisions there were 1,922 casualties, at a rate of 1.61 casualties per collision.

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

- 33.50% involved more than one vehicle;
- 8.16% of vehicles involved were HGV's;
- Where the age of drivers was known 4.76% were young drivers (aged 16-19); and
- 13.38% 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:

- 10.15% occurred where the driver 'failed to look properly';
- 4.99% occurred where the driver 'failed to judge other person's path or speed';
- 4.58% involved 'loss of control';

- 4.27% cited ‘slippery road’;
- 3.80% were ‘travelling too close’;
- 2.76% involved ‘sudden braking’;
- 2.65% cited ‘Careless, reckless or in a hurry’;
- 1.35% were travelling too fast for conditions.

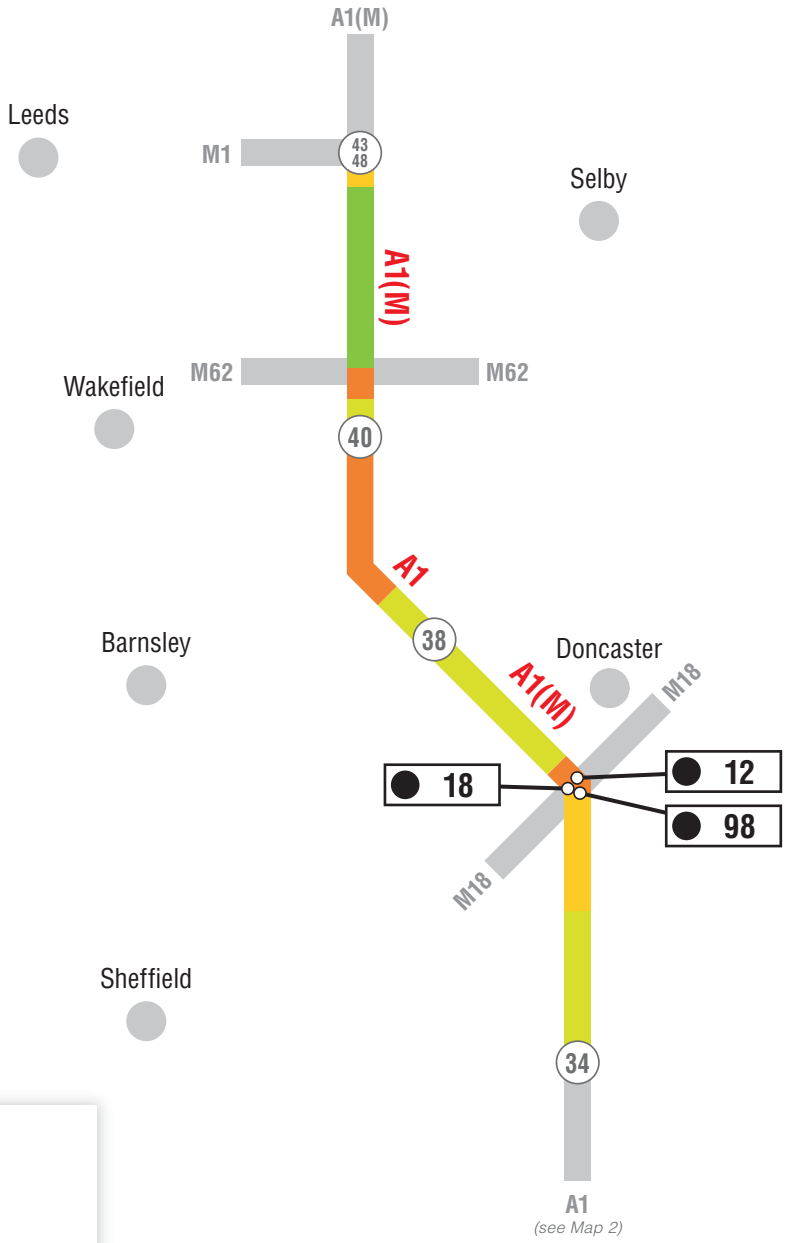
2.2.9 While we aim to reduce the numbers killed or seriously injured using and working on the SRN, we will always identify more safety interventions than our budget allows us to implement. We use a prioritisation process to help us and we review this regularly to ensure we are targeting the locations 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



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.

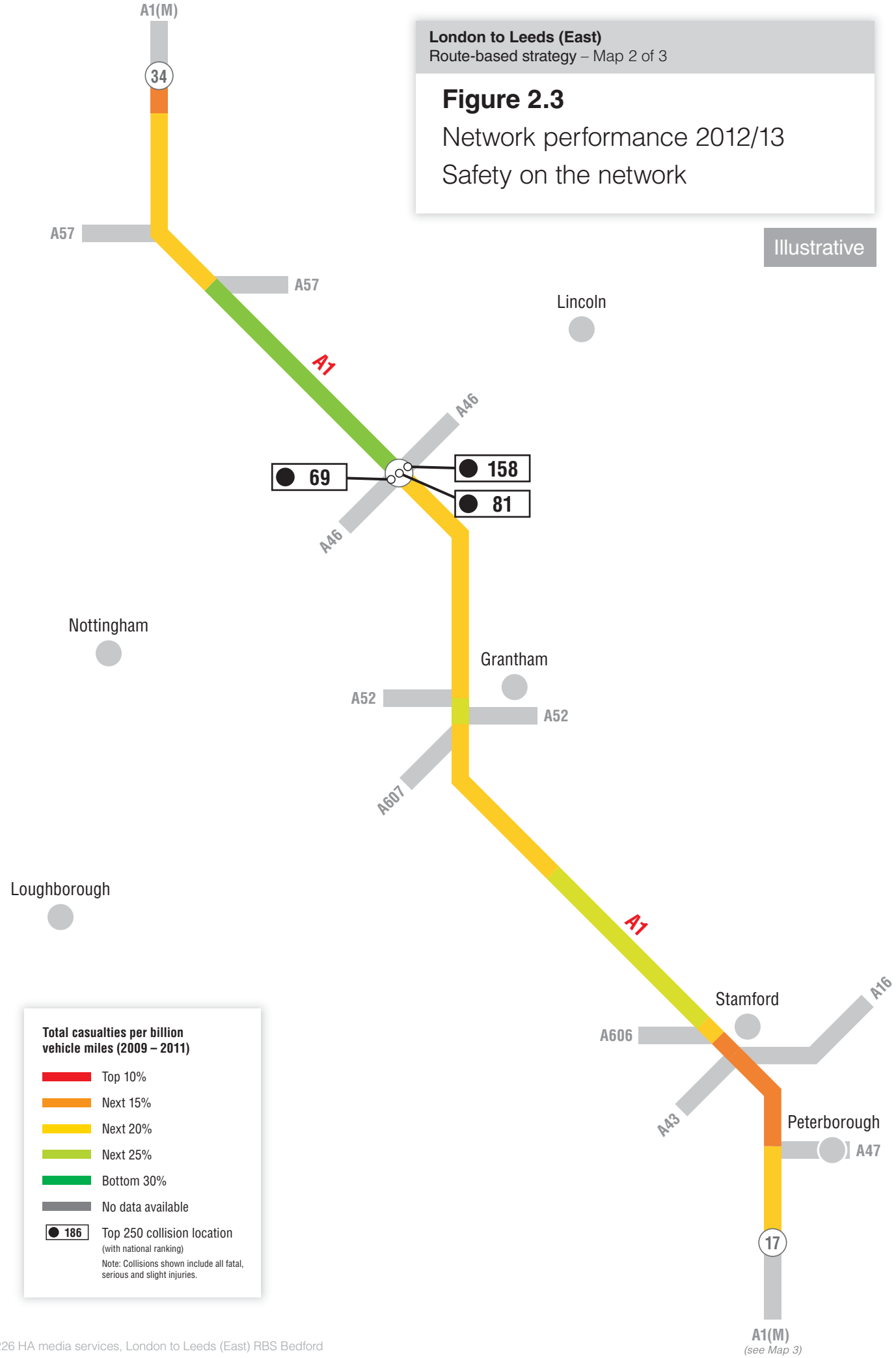
London to Leeds (East)
Route-based strategy – Map 2 of 3

Figure 2.3

Network performance 2012/13

Safety on the network

Illustrative

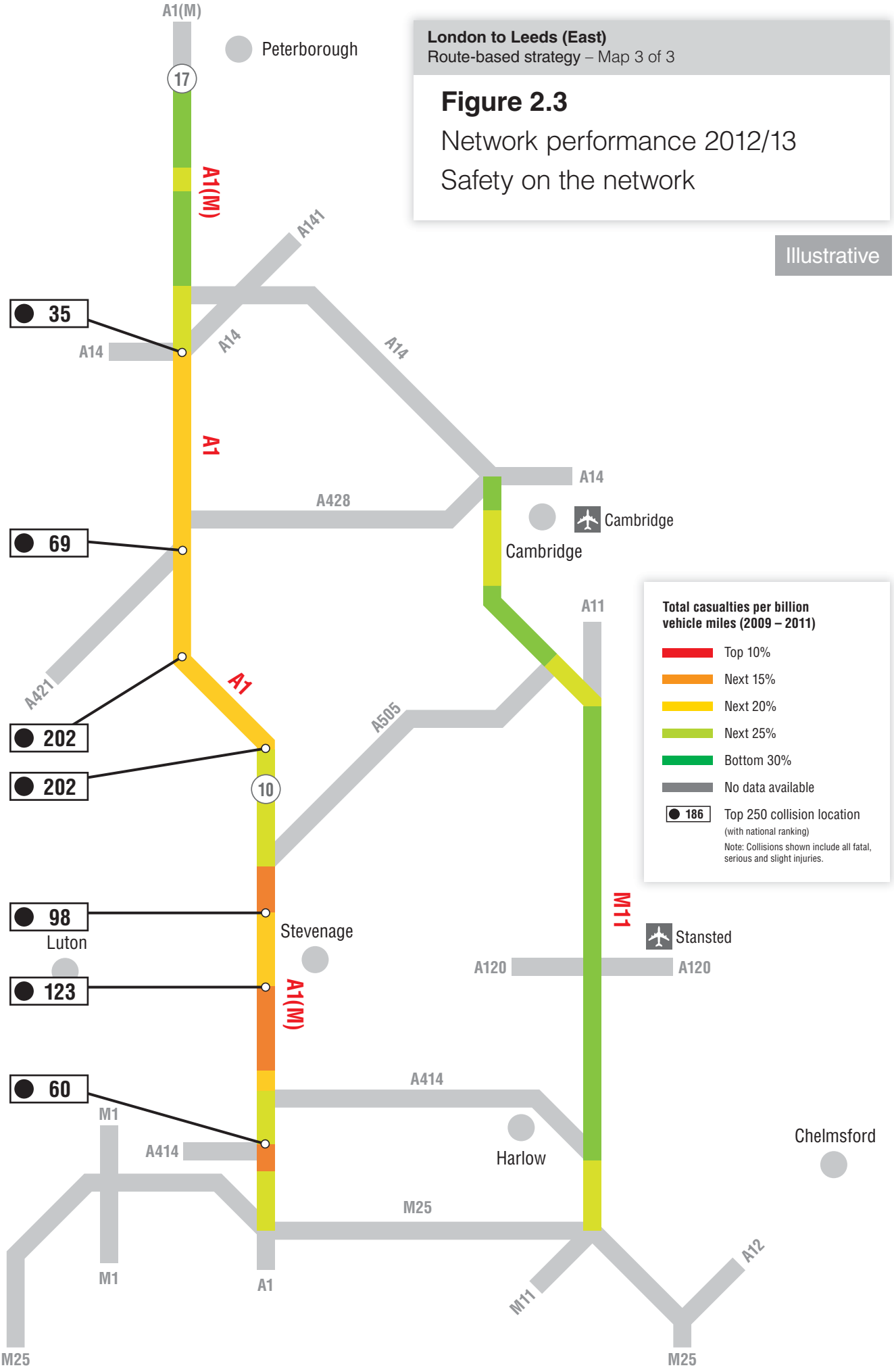


London to Leeds (East)
Route-based strategy – Map 3 of 3

Figure 2.3

Network performance 2012/13
Safety on the network

Illustrative



2.3 Asset condition

2.3.1 We carry out routine maintenance and renewal of roads, structures and technology to keep the network safe, serviceable and reliable. We also ensure that our contractors deliver a high level of service on the 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 The M11 is a major north-south link for local, regional and international traffic between London and Cambridge. In general the carriageway surfacing on the M11 is of a good standard with only very short lengths of non-standard surface types.

2.3.7 The A1 represents a key north-south link for local, regional and international traffic. Between the A47 at Peterborough and the A57 at Blyth in Nottinghamshire much of the carriageway of the A1 does not conform to current Agency standards, having a higher than national average proportion of thin surface course (TSC) along with other

surfacing such as porous asphalt, macadam and eme2. These pavement types are more susceptible to deterioration due to issues with the depth of construction and/or drainage.

2.3.8 The section of the A1 near the A46 Lincoln is likely to need re-surfacing by 2020. There has been an increase in rutting along parts of the A1 between 2010/11 and present. Deep ruts are indicative of a surface or whole pavement structure reaching the end of its serviceable life. Deterioration of road markings is also considered to be an issue.

2.3.9 Other key sections of A1 between Stamford and Peterborough and south of the A52 junction at Nottingham will require re-surfacing by 2020.

2.3.10 Between junctions 34 (Blyth) and 41 of the A1 / A1(M) there are significant lengths where pavement condition is indicated to reach the end of its design life within a decade. The non-motorway section has a very old and evolved underlying pavement structure which leads to localised surfacing issues. Treatment of defects can be problematic as large scale diversions are required to implement works.

2.3.11 The A1(M) section between Darrington and Hook Moor is managed and maintained by the DBFO Company 'Route Management Services (Darrington) Ltd' and as such will be maintained to the standards set out in that particular contract and handed back to the Agency in that condition at the end of the contract period.

2.3.12 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.

Structures

2.3.13 Some structural issues on the M11 are related to geotechnical issues and are described in more detail below. The M11 Shelford rail bridge is currently below Network rail containment requirements and has sub-standard safety fence connections. Further it appears that the approach safety fence is approaching the end of its life and will require replacement.

2.3.14 The A1 Tempsford Flood Arches, just south of the A421 Black Cat roundabout, are listed as "Ancient Monuments" which places a legal obligation on the HA to maintain the structures in an appropriate condition.

2.3.15 The average age of structures on the section of the A1(T) is older than the national average so they are more likely to be at more advanced stages of deterioration. Much of the A1(T) section of the route does not have a hard shoulder which complicates renewal and maintenance schemes. Key issues affecting the route are:

- Concrete repairs – The age of structures on the route means ongoing deterioration of structural concrete is at a point, in some cases, where further deterioration will be structurally significant. Failure to carry out repairs within the period to 2021 may require

the instigation of load management measures ie lane closures to protect structurally weak elements.

- Bearings – The bearings on a number of structures have reached or are reaching the end of their serviceable life. Life expired bearings tend to create structural capacity issues as structures are no longer free to move as designed leading to stress redistribution and potentially cracking in structural members. This could require load management measures i.e. lane closures to protect structurally weak elements.
- Waterproofing – A number of the bridge deck waterproofing systems will be life expired by 2021.
- Expansion joints – Bridge joints will continue to deteriorate, many rapidly with little warning. Some joint types are difficult to manage safely as the joint construction does not lend itself to temporary repairs which fail almost immediately.
- Parapets – We have an ageing parapet stock with a small number nearing a condition whereby they will be classed as substandard. Management of weak parapets is often only achievable in the short term by deploying temporary barriers.

2.3.16 A number of structures on this route may require maintenance schemes before 2021, however these are all being bid for through our annual bidding cycle. There aren't any locations where we expect significant technical challenges or issues with traffic management.

Other key asset issues for routes

2.3.17 **Geotechnical**

- The M11 has ongoing issues relating to gault clay in the Cambridge area which is causing earthworks risks on M11 embankments. These have resulted in slippage of the earthwork, and deformation / settlement of the road pavement.
- The M11 also has cuttings excavated through chalk between Junctions 9 and 10 which experience numerous instances of minor rock slips and erosion caused by mechanical and chemical weathering. Rock traps and catchment zones prevent these from becoming immediate risks but it is indicative of potential longer term issues.

2.3.18 **Drainage**

- Changing weather patterns will have a significant effect on precipitation levels.
- The trunk road sections have no hard shoulder which makes maintenance or investigative work on drainage assets resource intensive and disruptive to traffic.

2.3.19 **Lighting**

- On the M11 areas of ageing lighting asset are coming to, or are already at the end of their structural life, requiring renewal in a systematic manner. The A14 / M11 Girton Interchange is a high priority for this.
- A1 Barnsdale Bar to Skellow; An energy efficient lighting scheme was undertaken in 2010 to renew the Road Lighting Units (Lanterns), however this did not extend to the actual lighting column. These are at the end of design life.

2.4 Route operation

Incident Management

2.4.1 We work hard to deliver a reliable service to customers and to reduce the number and impacts of incidents on road users.

2.4.2 Across the whole network, the Highways Agency Traffic Officer Service responds to around 20,000 incidents each month. We measure how effective we are at managing incidents by looking at the time incidents affect the running lanes.

2.4.3 The motorway sections of the Route benefit from the highest level of Traffic Officer Service which includes a dedicated on road response service which effectively means the routes are patrolled. The all-purpose, non-motorway sections have a lower level of provision where the Traffic Officer Service does not routinely patrol but will provide a response service if required

2.4.4 Often incidents affect running lanes for less than 30 minutes which, while never welcomed, tends to be bearable. A number of stretches suffer lane interruptions of up to an hour. This is typically the case along almost the whole of the M11 (except for the length west of Cambridge), the A1(M) near Stevenage in Hertfordshire, near Alconbury in Cambridgeshire, south of Doncaster in South Yorkshire and near Pontefract in West Yorkshire.

2.4.5 Along a very few stretches lane interruptions routinely exceed an hour. These include The A1 between Baldock and Biggleswade in Bedfordshire and close to the A1(M) junction with A605 on the southern edge of Peterborough. Both of these locations are on the edge of routinely patrolled sections.

2.4.6 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.

2.4.7 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.

Flooding

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 The route is intersected by a number of rivers which have a flooding plain indicated on the Environment Agency (EA) flood risk map, The route is generally elevated in these areas and therefore sits above the risk of flooding.

2.4.11 The M11 is susceptible to flooding near to where it joins the A14 at Cambridge at junction 14. The key flood risks on the A1 and A1(M) are between junctions 6 and 7 Welwyn to Stevenage, sections between Baldock and Wyboston in Bedfordshire, near the end of the A1(M) at Adwick Le Street, near Upton and near Wentbridge, and are a result of highway surface water runoff

Severe Weather

2.4.12 The Agency aims to minimise where possible the impacts of severe weather, ie strong winds and snow, on network performance and the safety of road users.

2.4.13 There are sections of the route that are exposed to high winds – these are Darrington and Wentbridge.

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 Technology provision for the London to Leeds (East) route is detailed in full in the technical annex (table c.2) but highlights are summarised below:

2.5.5 The section of A1(M) between the M25 and Baldock has significant gaps in provision of CCTV, motorway incident detection & signalling (MIDAS) and VMS. There are also some gaps in national road telecommunications system (NRTS) provision. Most of the all-purpose non-motorway section of A1 has almost no technology provision at all. Exceptions are at points crossing other routes on the strategic road network (SRN) such as the A14.

2.5.6 The M11 has full NRTS coverage but CCTV, MIDAS and VMS are all absent north of the A120 at junction 8

2.5.7 The section of the A1 / A1(M) between junction 34 (Blyth) and the northern extent at junction 43 (Hook Moor) benefits from some technology provision. Between junction 34 and junction 38 the technology provision is limited to CCTV and the all-purpose non-motorway section between junction 38 and Darrington does not benefit from any technology. The section from junction 41 (Holmfield Interchange) to junction 43 (Hook Moor) has full CCTV, VMS and MIDAS coverage

2.6 Vulnerable road users

2.6.1 Accidents involving the vulnerable user groups of pedestrians and cyclists are very rare. Interactions between vulnerable users and vehicular traffic are limited, but tend to be more frequent on the trunk road sections. Some pedestrian and equestrian crossing opportunities do exist. Pedestrian casualties tend to be confined to those injured when walking on or near to the carriageway, following breakdowns or other incidents.

2.6.2 The Agency is pursuing a scheme to close the crossing point at Jacksons Lane near Wentbridge.

2.6.3 The stakeholder workshops also identified issues with the safety of bridleways and crossings on the A1

2.6.4 Specific issues raised by stakeholders on the M11 included difficulties routinely encountered at junction 10 at Duxford. This is adjacent to Duxford air museum that is a very popular tourist destination and attracting frequent visitors by bicycle.

2.6.5 Similarly, issues raised on the A1 and A1(M) include:

- An opportunity exists to create an alternative pedestrian and cycle route between Barnack and Stamford as an alternative to using the A1;
- Cycle visitors to Nene Valley Railway, again a popular tourist destination, are poorly served on the A1 at Wansford near to Peterborough;

- Restricted crossing for cyclists at Water Newton near Peterborough;
- The A1(M) at Stilton north of Huntingdon requires cyclists to use a fast straight local road felt to be dangerous. Safer potential alternatives exist;
- Between Southoe and Little Paxton north of St Neots, the footway cycleway is felt to be inadequate for current usage.

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 the 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 local authorities have designated the following Air Quality Management Areas (AQMAs) that encompass the following sections of this route:

- East of M11 south of A11 junction;
- A1(M) between junctions 4 and 5;
- Hatfield Tunnel and area surrounding A1(M) junction 3;
- A1(M) between junction 2 and the M25;
- Doncaster MBC, A1(M) J36 corridor;
- Wakefield MBC, A1 Ferrybridge to Wentbridge.

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 strategic road network 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 The A1 in general follows a historic route linking London to York, dating back as far as the Roman era.

2.7.7 During the construction of the A1(M) at junction 6 the Welwyn Roman Baths were discovered and these were preserved within the motorway embankment by constructing a structure around them. The Baths are open to the public at specific times.

2.7.8 During the construction of the A1(M) section from Darrington to Hook Moor a number of important archaeological finds were made in particular around the Holmfield Interchange. The most significant was the discovery of an Iron Age chariot burial at Fryston Park. The chariot was an unusual find which attracted wide spread media attention.

2.7.9 The A1(T) from Darrington to A1(M) junction 38 Redhouse) part of the route also contains two designated assets (listed buildings and structures). Wentbridge Viaduct is a Grade II listed road bridge from 1961. An ornamental well cover on Robin Hood's Well is a Grade II listed which dates to around 1710.

2.7.10 The A1(M) from junction 38 Redhouse to junction 34 Blyth is 23.4km in length. The section of road largely shadows the old Great North Road, but the motorway largely runs along new sections of road cut through fresh ground, away from the historic route.

2.7.11 This route contains two designated assets. Cusworth Park is a Grade II 18th century landscape park set out around Cusworth Hall. This extends across Highways Agency property. This includes an 11th century motte, designated as a scheduled monument.

2.7.12 In contrast, cultural heritage along the M11 corridor is somewhat less extensive. The Imperial War Museum owns the air museum at Duxford in Cambridgeshire which lies alongside the M11 and relies heavily on it for visitor access.

Ecology

2.7.13 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.

2.7.14 The key designated nature conservation sites associated with the route are as follows:

- A1(M) Hertfordshire between junctions 1 and 2, and between junctions 5 and 6 , and between junctions 6 and 7
- Area adjacent to the A1, north of the A1/A14 junction near Huntingdon
- Hook Moor Site of Special Scientific Interest (SSSI), located at the northern extent of the A1(M) where it meets the London to Scotland East route.

- Micklefield Quarry SSSI located 500m to the west of the A1(M).
- Madbanks and Ledsham SSSI located 700m to the west of the A1(M).
- Fairburn Ings and Newton SSSI – located 250m to the west of the A1(M).

Landscape

2.7.15 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.

2.7.16 The A1(M) bisects Cusworth Park, an 18th century landscape park which English Heritage has designated as a Grade II Registered park and Garden. This lies to the north of Sprotbrough between junction 36 and junction 37. There are also pockets of ancient and semi-natural woodland within the road corridor, such as Marr Grange Holt to the south-west of junction 37.

2.7.17 Other landscape sensitivities include sections of A1 and A1(M) near South Mimms and Stevenage in Hertfordshire, Huntingdon in Cambridgeshire, and Stamford in Lincolnshire.

2.7.18 There are no significant landscape sensitivities along the M11.

Noise

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

2.7.20 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.

2.7.21 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.

2.7.22 A number of Important Areas have been identified by Defra along this route. On the M11 a site exists near to junction 8 at Bishop's Stortford. On the A1(M) in Hertfordshire there are sites near Stevenage and Hatfield. In Cambridgeshire there are a number of sites on the A1 and A1(M) between Cambridge and Peterborough. On the A1/A1(M) in Yorkshire these are focussed around the A1(M) at Blyth, Styrrup, Tickhill, Warmsworth and Sprotbrough and on the A1 between Redhouse and Darrington.

Water pollution risk

2.7.23 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 a potential water pollution risk.

2.7.24 The key water pollution risks are along a section of A1(M) in Hertfordshire between junctions 1 and 4, south of Cambridge on the M11 between junctions 10 and 11 and near Doncaster on the A1M.

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.

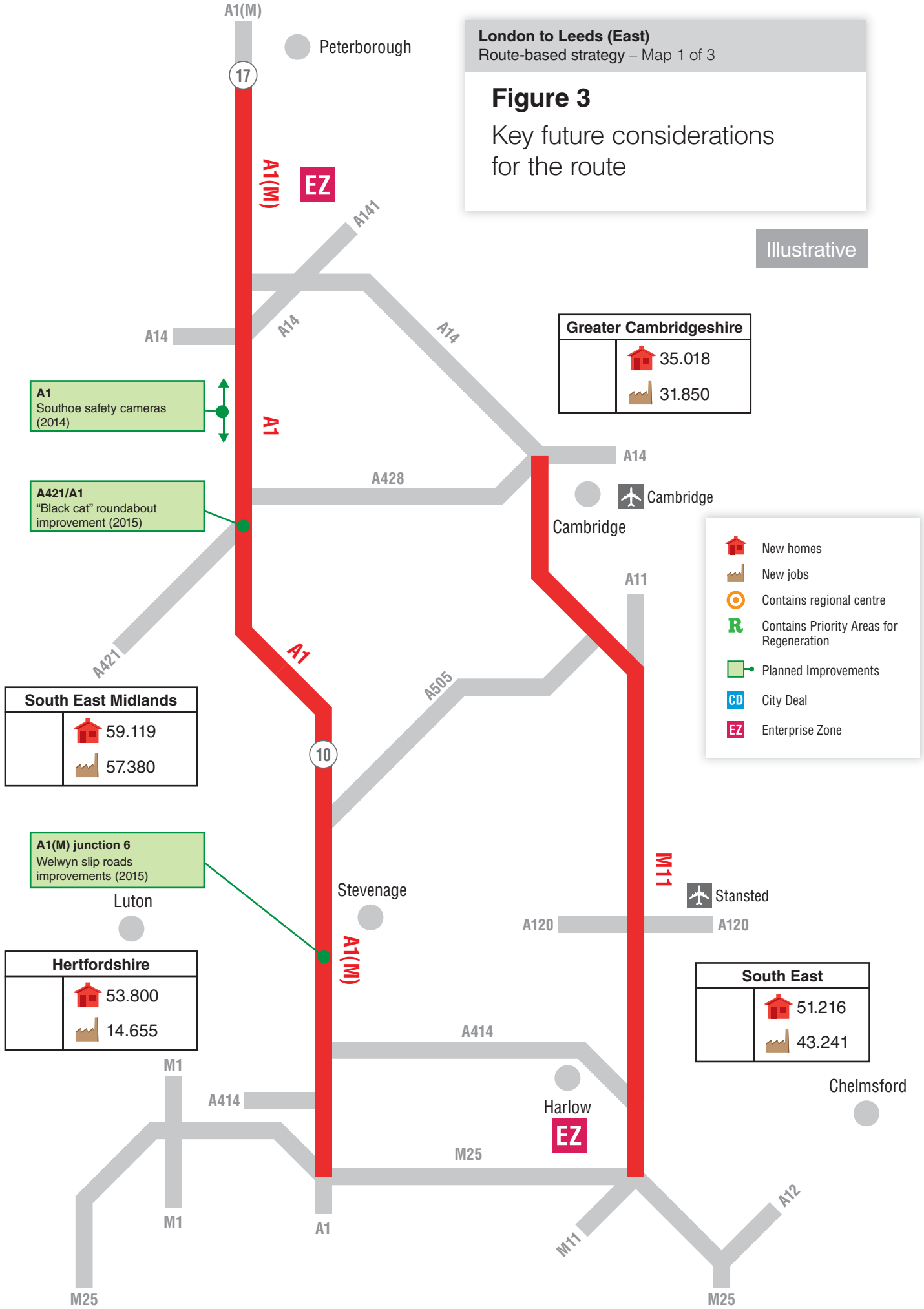
3.1.2 All of these issues have the potential to directly influence the ongoing performance and operation of the route. Figure 3 summarises the anticipated key future issues and the following sections summarise those issues in more detail.

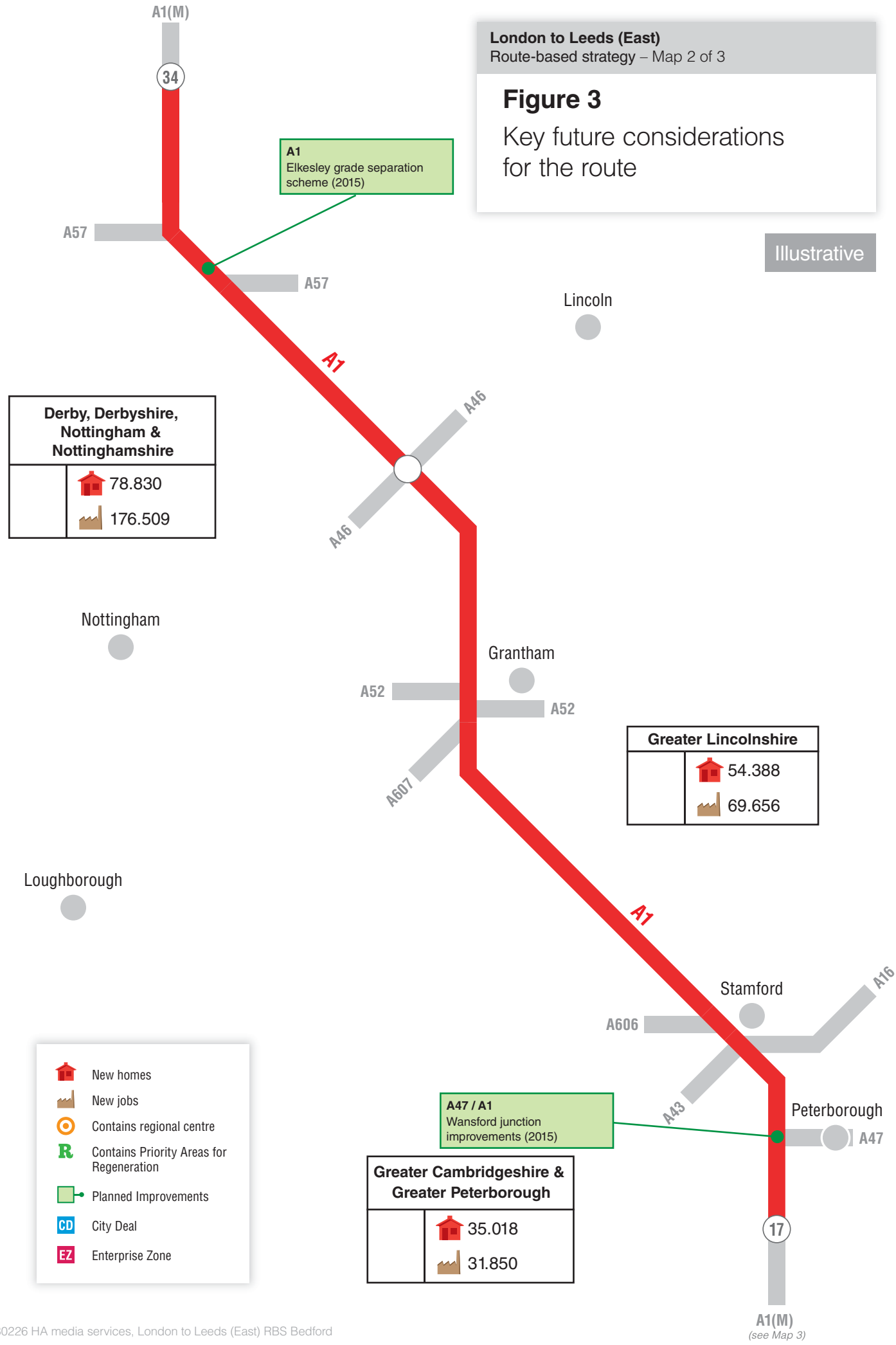
London to Leeds (East)
Route-based strategy – Map 1 of 3

Figure 3

Key future considerations for the route

Illustrative

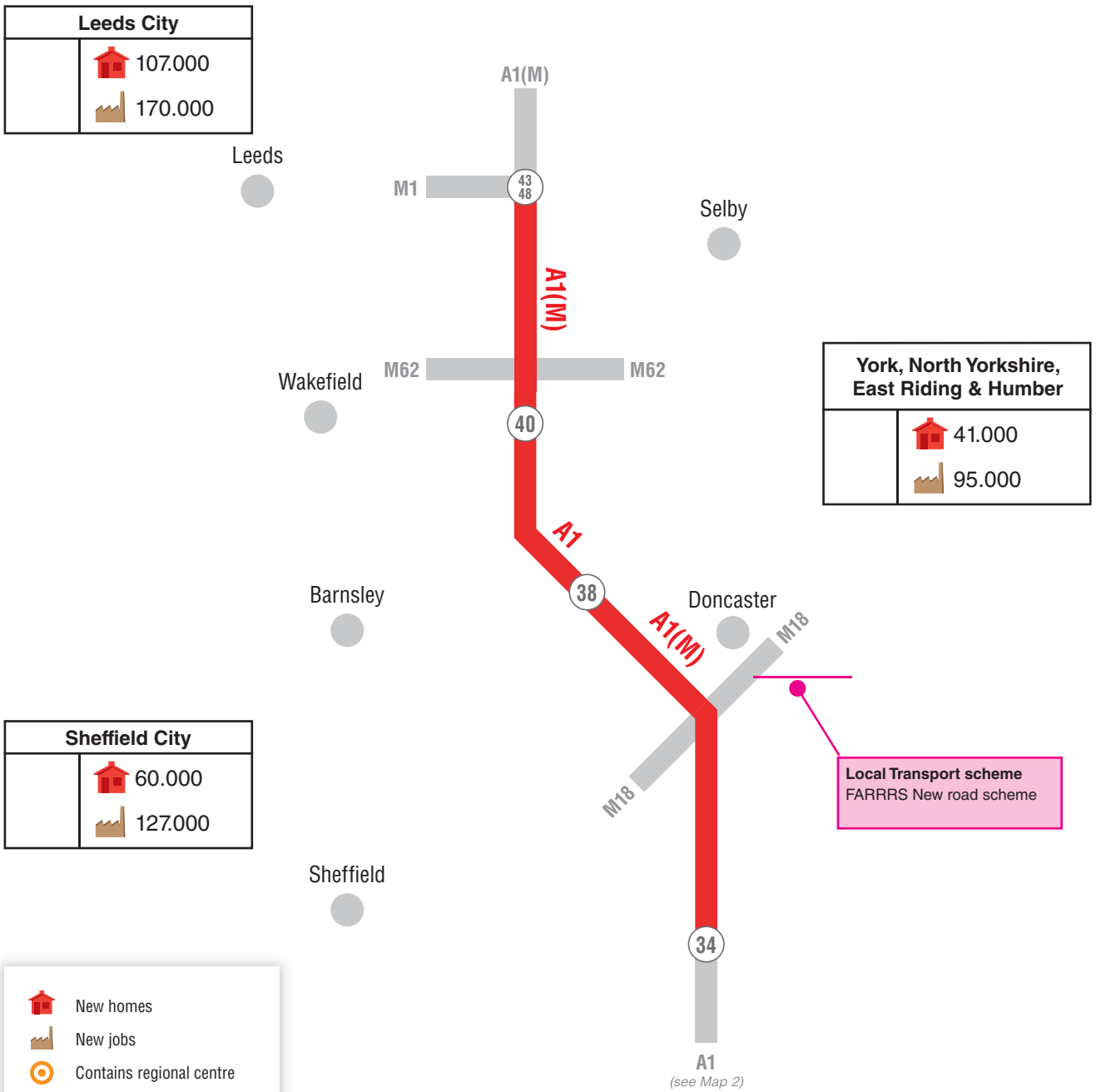



London to Leeds (East)
Route-based strategy – Map 2 of 3
Figure 3
Key future considerations for the route
Illustrative
A1(M)
34
A1
Elkesley grade separation scheme (2015)
A57
A57
Lincoln
A1
A46
A46
Derby, Derbyshire, Nottingham & Nottinghamshire
78.830
176.509
Nottingham
Grantham
A52
A52
A607
Greater Lincolnshire
54.388
69.656
Loughborough
A1
Stamford
A606
A16
A43
A47 / A1
Wansford junction improvements (2015)
Peterborough
A47
Greater Cambridgeshire & Greater Peterborough
35.018
31.850
17
A1(M)
(see Map 3)
New homes
New jobs
Contains regional centre
Contains Priority Areas for Regeneration
Planned Improvements
City Deal
Enterprise Zone

London to Leeds (East)
Route-based strategy – Map 3 of 3

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	Scale by 2015	Scale by 2021	Scale by 2031	Anticipated Location of Impact on Route
Stevenage	Residential Employment		 5000 jobs	5300 units	A1(M) J7 & 8 A1(M) J7
Stratton Farm, Biggleswade, Central Bedfordshire	Employment	Not known	Not known	22 hectares	A1/A6001 junction
Alconbury Weald, Huntingdonshire	Residential Employment	Not known Not known	Not known Not known	5,000 units 8,000 jobs	A1/A14 and A1/A1M/B1043 junctions
Great Haddon, Peterborough	Residential	0 units	2,050 units	4,950 units	A1M J16-17
Hampton, Peterborough	Residential	1,148 units	2,688 units	4,641 units	A1M J16-17
Clay Farm, Trumpington, Cambridge	Residential	1,031 units	2,225 units	2,225 units	M11 J11
Harlow Enterprise Zone	Employment	Not known	Not known	5,000 jobs	M11 J7
RHADS, Doncaster	Employment	0 jobs	0 jobs	186,000 jobs	A1(M) J35
Knottingley	Employment				A1 (M)

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
A1(M) J6 Welwyn	Pinch point scheme: improved entry slip road	2015	Safety and capacity improvements and better access to development sites around Welwyn
A1/A421 Roxton ("Black Cat" roundabout)	Pinch point scheme: roundabout enlargement & traffic signals	2015	Safety and capacity improvements and better access to development sites around Bedfors and Huntingdonshire
A1 Southoe bends	Pinch point scheme: safety cameras and lower speed limit	2014	Safety improvement, reduced delays due to incidents, better access to Huntingdonshire development sites
A1/A47 Wansford	Pinch point scheme: junction improvement	2015	Safety and capacity improvement and better access to Peterborough development sites
A1 Elkesley	Local management scheme: Grade separation of existing junction	2015	Safety improvements and improved access

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.

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 3.3 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 3.3 Committed local transport network enhancement schemes

Project	Scheme Type	Completion Year	Anticipated Impacts on the Route
Finningley and Rossington Regeneration Route Scheme (FARRRS)	Road	2016	**Scheme provides improved access to Robin Hood Airport and an inland port development via junction 3 of the M18, therefore impacting upon movements to these strategic developments from the A1.**

3.4.2 Doncaster Robin Hood Airport handled almost 700,000 passengers in 2012 and is forecast to increase to 10.8 million per year by 2030. Freight cargo is also forecast to grow to 125,000 tonnes per year by 2030. The Finningley and Rossington Regeneration Route Scheme

(FARRRS) will however provide a new link between M18 J3 and the airport. The route will also open up significant development opportunities.

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 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.

4.2.2 A1 Newark Variable Message Sign Installation, a Pinch Point Programme scheme, was completed in late 2013 with the objective of providing better information on conditions on the Highways Agency strategic network, helping to reduce daily congestion, reducing journey times, delivering improvements to safety as well as contributing towards boosting the economy. There will be opportunities to provide similar schemes across the route where similar benefits to motorists can be generated.

4.2.3 Stakeholders highlighted potential problems on the A1 with strategic diversion routes due to weight & height restrictions on the local authority network.

4.2.4 Stakeholders also highlighted the lack of technology on some routes. Although not specifically highlighted by stakeholders, the London to Leeds route has a significant gap in technology on the trunk road section between junction 38 (Redhouse) and Darrington. This section does not have any CCTV, VMS or MIDAS provision. The section to the south between junction 34 and junction 38 also has some gaps in provision of CCTV and MIDAS. This lack of technology restricts the ability of the Highways Agency to manage incidents and communicate to customers. An opportunity exists to improve network operation by filling the identified gaps in technology provision

4.3 Asset condition challenges and opportunities

4.3.1 There are a 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, including on sections within Central Bedfordshire, Huntingdonshire district, Peterborough (north of the A47), Rutland, Lincolnshire and Nottinghamshire. These potentially pose safety concerns therefore a challenge will be to ensure that conflicting traffic movements along the route are minimised through the provision of junction improvements.

4.3.2 The layout of a number of grade-separated junctions along the route, including at Little Paxton (southbound) near St Neots and at Stamford (northbound and southbound at the junctions with the A606 and A6121) may be addressed through the widening of the entries and exits to improve the safe movement of traffic using this section of the route.

4.3.3 The northbound exit slip road at A1M Junction 9 incorporates a give-way layout for left-turning traffic which is heading towards Letchworth Garden City. The layout is intended to enable motorists to bypass traffic signals which are positioned at the end of the slip road, however the give-way movement is considered to be inefficient. The operation and

safety of the junction will be monitored in the short-term with a view to implement improvement measures to address any significant issues identified.

4.3.4 With the exception of the DBFO parts of the route the asset is generally ageing. Significant lengths of the network are likely to need resurfacing and a number of the structures on the corridor are older than on other parts of the network.

4.4 Capacity challenges and opportunities

4.4.1 A number of capacity challenges have been identified, some which exist already and some which are anticipated in the future.

4.4.2 Several junctions along the M11 are at or close to capacity causing regular or occasional queuing onto the main carriageway. These include junctions 11, 12 and 13. Junction 13 is seriously restricted by a lack of capacity on the A1303 which links to the centre of Cambridge. This is also further exacerbated by the A1303 being used as the “missing” link between A428 to the west of Cambridge and the M11 to the south despite it being a local single carriageway road not part of the SRN.

4.4.3 The A1(M) through Hertfordshire already presents significant capacity issues and is therefore a priority challenge that should be addressed. Capacity issues occur on both the mainline carriageway and at the junctions adjoining the A1(M) which can cause delays. All of the junctions between J2 (M25 South Mimms) and J9 (Letchworth) experience heavy congestion during the peak periods, often leading to stationary queues on the main carriageway.

4.4.4 A Pinch Point scheme including a lane drop at the A1(M) Junction 6 northbound exit and an extended entry onto the A1M northbound is intended to improve the flow of traffic which currently experiences significant congestion especially during the PM peak hours.

4.4.5 A1(M) at both junctions 4 and 8, both controlled by traffic signals, experience delays and congestion disrupting the flow of traffic entering and exiting the A1(M). Both junctions facilitate the movement of traffic using the A1(M) as well as local movements, for example the A414 at Junction 4 which is a major east-west corridor across Hertfordshire, and the A602 at Junction 8 which provides the main link between Hitchin, A1M and Stevenage north.

4.4.6 The all purpose section of A1 between junction 10 at Baldock and junction 14 at Alconbury has a large number of accesses, at-grade roundabouts and minor side roads, many with central reserve gaps, and frontages very close to the carriageway in places. This severely restricts free flow especially at peak periods, and several sections have lower speed limits as a consequence.

4.4.7 Tempsford bends between Sandy and Roxton have severely substandard alignment. This is sometimes exacerbated by stationary queuing northbound from the Black Cat roundabout. This also causes safety issues.

4.4.8 The A1/A421 Black Cat Roundabout currently experiences severe congestion especially during peak times. This junction is a meeting point between major south-north and west-east and movements. The junction is located away from major urban centres however local housing and economic growth plans likely to come forward including around the towns of Bedford and St Neots, is likely to generate additional traffic demand on the A421 and A428, converging at this junction. Improvement to the junction is considered to present a major opportunity for improving west-east links between Cambridge and Milton Keynes, and a confluence of traffic. A Pinch Point scheme is being delivered comprising an enlargement of the roundabout, widening of approaches and installation of traffic signals, which is anticipated to alleviate existing capacity issues at the junction in the short to medium term. However in the longer term additional improvements are likely to be required to the A1/A421/A428 corridors to ensure the network in this location can operate efficiently with increases in demand resulting from growth.

4.4.9 The efficient operation of the A1 in the vicinity of A1/A14 Junction 21 and A1(M) Junction 14 will be pivotal to enable planned growth at Alconbury including 5,000 new homes and the creation of 8,000 jobs as part of the Enterprise Zone to realise its full potential. The planned A14 Huntingdon to Cambridge scheme on the adjoining Felixstowe to Midlands route, which incorporates significant alterations to the connections with the A1, will improve connectivity to the development.

4.4.10 Capacity problems currently occur at M11 Junction 7 at Harlow. Significant levels of growth are planned around Harlow, including the Enterprise Zone (Enterprise Essex West) and to the north of the town, with sustained calls from local authorities for a new Junction 7a with links to development and to A414 to improve east-west linkages across Hertfordshire.

4.4.11 Capacity along the M11 north of junction 8 is seen to be inadequate. The M11 narrows from three to two lanes north of junction 8. Extensive development in and around Cambridge and the proposed improvement to the A14 between Cambridge and Huntingdon are both likely to further exacerbate this.

4.4.12 To the north, planned local housing and economic development at Bishop's Stortford and Elsenham, as well as further expansion at London Stansted Airport (with a commitment to increase to 35 million passengers per annum) is likely to generate additional traffic movements at M11 Junction 8/8a.

4.4.13 Capacity problems are anticipated on the A1(M) to the west of Peterborough, including Junction 17 Fletton Parkway, where significant local housing and economic development is planned including at nearby developments at Hampton and Great Haddon.

4.4.14 Planned development growth around Cambridge, including on land between the M11 and the existing edge of the city around Trumpington and Addenbrooke's Hospital, is likely to generate additional traffic demand on the M11. Improvements to M11 Junction 11, comprising of

partial signalisation, has already been implemented to better manage traffic flows.

4.4.15 A Pinch Point Programme funding scheme to widen the southbound exit slip road at the A1/A47 junction near Wansford is expected to be completed in 2014/15 and should improve the movement of traffic between the east-west and north-south routes.

4.4.16 The combined safety and capacity issues identified especially on the trunk road section between Redhouse and Darrington are a significant issue but provide a significant improvement opportunity which would support the growth in the local area as well as providing a quality strategic alternative to the M1.

4.4.17 North of A1 junction 34, the main capacity problem identified by stakeholders is the reduction from three lanes to two lanes to the south of Holmfield Interchange. Stakeholders generally considered the A1 to represent a poor standard alternative to the M1 and current congestion in the Wakefield area is considered to exacerbate the problem. Future growth proposals in Wakefield are likely to impact further on the capacity constraints between Redhouse and Darrington. Hence enhanced capacity may be needed to support growth in this location.

4.4.18 On the motorway section between junction 35 and 36, traffic flows are within the highest 30% across all of the 18 RBS routes and journey time reliability is within the worst 25% across all of the 18 RBS routes. This is a concern for the economic performance of the Doncaster area, given that the A1 provides strategic north and south access to the Robin Hood Airport and the planned inland port development at M18 junction 3. In addition, the planned future development at Robin Hood Airport alongside the Finningley and Rossington Regeneration Route Schemes (FARRRS) are likely to encourage further trips to the airport from the A1, leading to a further deterioration of journey time reliability between junction 35 and 36

4.5 Safety challenges and opportunities

4.5.1 There are general safety concerns regarding the M11 most of which is suffering higher than average incident-related delays. Many of these incidents do not involve casualties but are nonetheless indicative of conditions that can easily result in injury. As such, there are few if any clues thrown up by casualty records which, at face value, raise no undue concerns, but closer scrutiny of incident data may help to determine the true nature of any existing problems.

4.5.2 A recent trial of a lorry overtaking ban along a section of M11 has recently been assessed and found to deliver some safety and reliability benefits. Consideration can now be given to making this permanent.

4.5.3 There are no motorway services on the M11 north of junction 8 near Bishop's Stortford, the next services being on the A14 three miles west of Cambridge.

4.5.4 Casualty rates on the A1(M) between Stevenage and Letchworth are very high. These are partly related to the traffic conditions rather than to specific highway features.

4.5.5 There are a series of casualty clusters along the A1 in Bedfordshire and Cambridgeshire, mostly related to at-grade roundabouts and one related to bends at Southoe. A pinchpoint scheme to install safety cameras at Southoe bends is expected to be completed in 2014 but it has been necessary to introduce a reduced speed limit alongside the cameras.

4.5.6 There is a history of collisions involving casualties along the A1 between Peterborough and Newark resulting in a higher than average casualty rate. The main junctions on this section are grade separated but there remain a significant number of accesses and minor side roads. Several safety investigations have been, or are in the process of being, conducted to determine causes and possible trends. A combination of poor alignment and accesses at Water Newton near Peterborough is a prime example of this.

4.5.7 North of A1 junction 34, the main safety issues are caused by the mix of uses on the trunk road section of the route between junction 38 and 41. Numerous lay bys and side road accesses cause issues and stakeholders identified issues with slow moving farm vehicles pulling out onto the A1 as an issue.

4.6 Social and environmental challenges and opportunities

4.6.1 Noise and air pollution may be a key challenge on the route, notably on the A1(M) through Hertfordshire between Junctions 4 and 8 which runs close to a number of urban areas including Hatfield, Welwyn and Stevenage.

4.6.2 The safe movement of non-motorised users in the vicinity of the route is a priority. A1(M) Junction 7 and the A1/A428 junction serve as examples where there is a current under-provision for pedestrians and cyclists. Improvements could greatly enhance the connectivity between Knebworth House and the hotel site on the western side of the junction with Stevenage town on the eastern side at A1(M) Junction 7, and between the main urban area of Eaton Socon and St Neots, with the Phoenix Park commercial area and Wyboston Lakes at the A1/A428 junction.

4.6.3 The A1 at Beeston suffers severe severance, environmental and accessibility problems due to the nature of the frontage development. A similar set of issues are also experienced at Wyboston near St Neots.

4.6.4 The combined safety and capacity issues identified especially on the trunk road section between Redhouse and Darrington are a significant issue but provide a significant improvement opportunity which would support the growth in the local area as well as providing a quality strategic alternative to the M1.

4.6.5 The stakeholder workshops identified issues with the safety of bridleways and crossings on the A1.

4.6.6 Vehicular traffic using the strategic road network is a source of air pollution, which has an impact on air quality. The Highways Agency approach to air quality is driven by the EU directive on ambient air quality and cleaner air for Europe, which sets limit values for certain pollutants. There are two Air Quality Management Areas (AQMAs) that may impact on the route within the period. These locations will continue to constrain improvement opportunities on the road network with regard to schemes needing to demonstrate that air quality will not be worsened by the proposals.

4.6.7 Noise pollution from the strategic road network is also a particular challenge when the network is close to populated areas for example near Darrington. There are a number of noise First Priority Locations (FPLs) on the route.

4.6.8 The route is sensitive from a cultural heritage perspective and any improvements would need to be mindful of this especially the archaeological aspect of this.

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	A1/A47 Junction at Wansford	**NO1:** Calls for junction safety improvements	Yes	✓			Yes		✓	
	A1/A606 Stamford Junction	**NO2:** Calls for junction safety improvements			✓		Yes		✓	
	A1 Junctions	**NO3:** Infrastructure issues (non specific): (repeated as **AC1**)					Yes	✓		
	M11 J9	**NO4:** Calls for junction design improvements			✓		Yes	✓		
	M11 J4	**NO5:** Calls to improve traffic management and information systems			✓		Yes	✓		
	A1(M) J9	**NO6:** Calls for junction safety improvements			✓		Yes	✓		
	A1 in south Yorkshire	**NO7:** Need to co-ordinate works and ensure adequate provision of strategic diversion routes on local road network.	Yes	✓			Yes			✓
	A1 J34 to J41	**NO8:** Gaps in technology provision	Yes	✓			Not specifically at this location	✓		
	A1 J38 to J41	**NO9:** Gaps in Traffic Officer Service on trunk road section.	Yes	✓			no	✓		
	M11 J8 to 9 N/B	**NO10**: Temporary Overtaking ban successful	Yes	✓			no			

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
	Whole route	**NO11**: Challenges for managing network posed by larger freight vehicle in future	No			✓	Yes	✓		
	Whole route	**NO12**: Need to achieve balance between strategic and local roles of SRN			✓	✓	Yes	✓		
	Whole route	**NO13**: General concerns over diversions during unplanned closures		✓			Yes	✓		
	A1 in Midlands	**NO14**: concerns that A1 incidents have growing impacts on M1 and other major routes. Call for better evidence		✓			Yes	✓		
	Whole network	**NO15:** need greater coordination between HA improvements and LEP strategies to ensure strategic economic development is aligned		✓			Yes			✓
Asset Condition	A1 Junctions	**AC1:** Infrastructure issues (non specific): (repeated as **NO3**)	Yes		✓		Yes	✓		
	A1 J34 to J41	**AC2:** Pavement reaching end of design life. Renewal needed in RBS period	Yes	✓			Yes	✓		
	A1 J38 to J41	**AC3:** Ageing structures requiring intervention during RBS periods	Yes	✓			No	✓		

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
Capacity	M11 J7	**C1:** Calls for junction capacity Improvements : (Provision of new J7a could relieve pressure on J7 and J8)	Yes		✓		Yes			✓
	M11 J14, J13	**C2:** Calls for junction Capacity Improvements: (planned Cambridge to Huntingdon improvement, includes improvements to the M11/A14 Interchange, improvements to M11 J13 could be an addn scheme)	Yes		✓		Yes		✓	
	A1 Black Cat Roundabout	**C3:** Calls for junction Capacity Improvements: (Pinch point scheme planned, part time signals)	Yes	✓			Yes		✓	
	A1(M) J8	**C4:** Calls for junction Capacity Improvements	Yes		✓		Yes			✓
	A1(M) J4	**C5:** Calls for junction capacity improvements, connectivity with A414	Yes		✓		Yes	✓		
	A1(M) /A14 Alconbury	**C6:** Calls for network improvements			✓		Yes	✓		
	M11 J8	**C7:** Calls for junction capacity Improvements	Yes		✓		Yes	✓		
	A1(M) J17 Peterborough	**C8:** Calls for junction capacity Improvements	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
	A1 around Wyboston between A428 and A421 (incl Black Cat Roundabout)	**C9:** Calls for link/Junction Capacity improvements (also see **C3**): (Pinch point scheme planned, for part time signals at Black Cat)				✓	Yes	✓		
	A1(M) Corridor J1 to J10	**C10:** Calls to enhance link capacity: (*potential more critical D2L sections to be addressed first)*	Yes		✓		Yes			✓
	M11 west of Cambridge	**C11:** Calls for capacity improvements (also see **C2**): (suggestion that motorway should be widened to dual 3 lanes):	Yes		✓		Yes	✓		
	M11 west of Cambridge	**C12:** Calls for improved capacity and access: (also see **C2** and **C11)**: (planned Cambridge to Huntingdon improvement, includes improvements to the M11/A14 Interchange and adjacent A14 junctions)	Yes			✓	Yes	✓		
	A1 J34 -J41	**C13:** Capacity challenge now and in future to support growth around Doncaster and Wakefield on the two lanesection between Holmfield Interchange and J34. In particular the trunk road section from Redhouse to Darrington.Stakeholders consider A1 to represent a poor standard alternative to M1.	Yes	✓	✓		Yes			✓
	M11 J8-14	**C14:** Lack of capacity on D2 section	Yes			✓	no			

	Location	Description	Is there supporting evidence?	Timescales			Was this Identified through stakeholder engagement?	Stakeholder Priorities		
				Short-term	Medium-term	Long-term		Low	Medium	High
	M11 Js13 &14	**C15:** lack of connectivity with A428 at J14 causes serious congestion at J13 and on A1303 local road	Yes			✓	no			
	A1 and A57, Worksop	**C16:** local assessments indicate pinch points at several junctions in Worksop area	Yes	✓			Yes			✓
	A1 Harwood Bircotes	**C17:** local assessments indicate pinch points at several junctions in Harwood area which could constrain employment development	Yes	✓	✓	✓	Yes			
	A1 Winthorpe, Newark	**C18:** growth points (~9000 homes) constrained by A1 and A46 around Newark	Yes		✓		Yes		✓	
	A1 Newark	**C19:** (relates to C18) people avoid Newark with consequent effects on trade & business	Yes	✓	✓	✓	Yes	✓		
	A1 general	**C20:** A1 improvements successful but further problems to north of Mids region			✓		Yes	✓		
Safety	A1 Southoe Bends, Cambridgeshire	**S1:** Calls to install safety cameras / introduce lower speed limit (scheme in progress)	Yes	✓						
	A1 J38 to J41	**S2:** High collison risk identified on trunk road section between Redhouse and Darrington.	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
	A1/M18 Wadworth Interchange	**S3:** Top 250 worst accident location	Yes	✓			no		✓	
	A1 Baldock to Alconbury	**S4**: Accesses, minor side roads and central reserve gaps a constant source of incidents and/or casualties	Yes		✓		no			
	A1 Biggleswade, Sandy, Black Cat, Buckden	**S5**: At-grade roundabouts cause delays, congestion and safety problems	Yes			✓	no			
	A1 Water Newton	**S6**: Poor alignment coupled with numerous accesses	Yes			✓	no			
	A1 Wittering	**S7**: At-grade junction causes safety issues	Yes			✓	no			
	A1 Wansford	**S8**: Substandard slips and small roudabouts cause on-line queues	Yes	✓			no			
	M11 J8 N/B	**S9**:lane drop causes driver misjudgement	Yes			✓	no			
	M11 J8-14	**S10**: lack of motorway services	Yes			✓	no			
Social and environment	A1(M) nr J7 (connectivity from Knebworth to Stevenage)	**SE1:** Calls to reduce severance effects. Provide additional facilities for NMU	Yes		✓		Yes	✓		
	A421 & A1(M) Baldock to Letchworth	**SE2:** Calls to reduce severance effects. Provide additional facilities for NMU	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
	A1(M) J4 to J8	**SE3:** Calls to reduce noise and air pollution	Yes		✓		Yes	✓		
	Accessibility and severance issues, Bedford and A1 areas	**SE4:** Calls to reduce severance effects. Provide additional facilities for NMU	Yes		✓		Yes	✓		
	Across Route?	**SE6:** Air quality issues, AQMA's.	Yes		✓	✓	No	✓		
	A1 near Darrington	**SE7:** Defra Noise First Priority Locations identified	Yes	✓			Yes	✓		
	A1 Darrington to J36	**SE8:** Sensitive from cultural heritage perspective Future improvements will need to be mindful of this.	Yes	✓			No	✓		
	A1 north of Newark	**SE9:** concerns re. flood areas	Yes	✓			Yes	✓		
	A1 Markham Vale EZ	**SE10:** concerns re. connectivity (that could develop into capacity issues later)		✓			Yes	✓		
Other	General	**O1**: Need to challenge assumptions re. 'peak car' growth in light of recent declines		✓			Yes		✓	

4.7 Conclusion

4.7.1 The evidence compiled about the London to Leeds (East) route has shown that the route will be a focal point for growth in the future, with local housing and economic growth likely to take place around a number of large and medium-sized urban centres including Hatfield/Welwyn Garden City, Stevenage, Hitchin, Harlow, Bishop's Stortford, St Neots, Cambridge, Alconbury/Huntingdon, Peterborough, Wakefield and Doncaster.

4.7.2 The route serves as a key artery between London, East Midlands and the north-east of England, running parallel to the M1 corridor (forming part of the London to Scotland East strategy). Its key challenge is to achieve and maintain a satisfactory level of operation whilst accommodating future growth. Many parts of the route are already congested and these existing problems are expected to be exacerbated with the addition of traffic arising from new development.

4.7.3 Some sections of the route currently perform well. These include the dual three and four lane sections of A1(M) between Alconbury and Peterborough and the dual three lane section of A1(M) between junctions 41 and 43 near Leeds.

4.7.4 Whilst it can also be expected that some level of mitigation in the form of capacity improvements will be provided by developers it is unlikely that these will ever be sufficient alone to accommodate the planned growth. Where such mitigation is difficult to achieve or requires a step change in network provision, it tends to be more elusive, becoming an unreasonable imposition upon an individual developer or requiring measures well beyond an individual developer's gift.

4.7.5 The wider reaching effects of development growth on capacity could, in practice, be left to accumulate until network performance reaches an unsatisfactory level and significant funding is required to achieve a resolution to poor network performance. This, however, has the effect of restraining growth as congested areas with inadequate highway infrastructure provision are unattractive to investors.

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 calls to better coordinate strategic diversion routes where they impact upon local routes, the need to closely align Agency strategy with strategic economic plans promoted by Local Enterprise partnerships, inadequate network connectivity on the M11 near Harlow and Stansted, insufficient capacity and safety concerns on the A1 between Redhouse and Darrington that could threaten planned growth, and capacity pinch points at A1 junctions near Worksop.

4.7.7 Our own network evidence indicates a number of junctions currently experiencing regular congestion. These include M11 junction 7 (Harlow) and junctions 13 & 14 (Cambridge), A1(M) junctions 3 & 4

(Hatfield), junctions 7 & 8 (Stevenage) and junction 35 (M18 near Doncaster), and the A1 junctions at Biggleswade, Sandy, Wyboston, Buckden, Wansford, Wittering, Newark, Markham Moor, Blyth, Redhouse and Derrington.

4.7.8 The all purpose section of A1 between junction 10 at Baldock and junction 14 at Alconbury has a large number of accesses, at-grade roundabouts and minor side roads, many with central reserve gaps, and properties very close to the carriageway in places. This severely restricts free flow especially at peak periods, and several sections have lower speed limits as a consequence.

4.7.9 A series of schemes are planned for the route, including Pinch Point Programme schemes at A1(M) Junction 6 and A1/A421 Black Cat Roundabout, which should provide short-term relief. Larger scale schemes, notably the A14 Huntingdon to Cambridge improvement scheme, will improve the movement of traffic along the A14 between the A1/A1(M) near Huntingdon to the M11 near Cambridge (part of the Felixstowe to the Midlands route but significantly impacting on this route). Existing capacity problems on the A1(M) around Stevenage and Welwyn are expected to continue without more extensive intervention.

4.7.10 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 South Mimms, Hatfield, Doncaster, Wakefield, Wentbridge and Ferrybridge.

4.7.11 Locations particularly vulnerable to traffic noise (classed as Important Areas) have been declared at Bishop's Stortford, Stevenage, Hatfield, between Cambridge and Peterborough, Blyth, Styrrup, Tickhill, Warmsworth, Sprotbrough, and between Redhouse and Darrington.

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 M11 and the motorway sections of the A1, with notable success. The following sections of the non-motorway parts of the A1 have safety and congestion issues, but are not currently benefiting from full traffic officer service coverage.

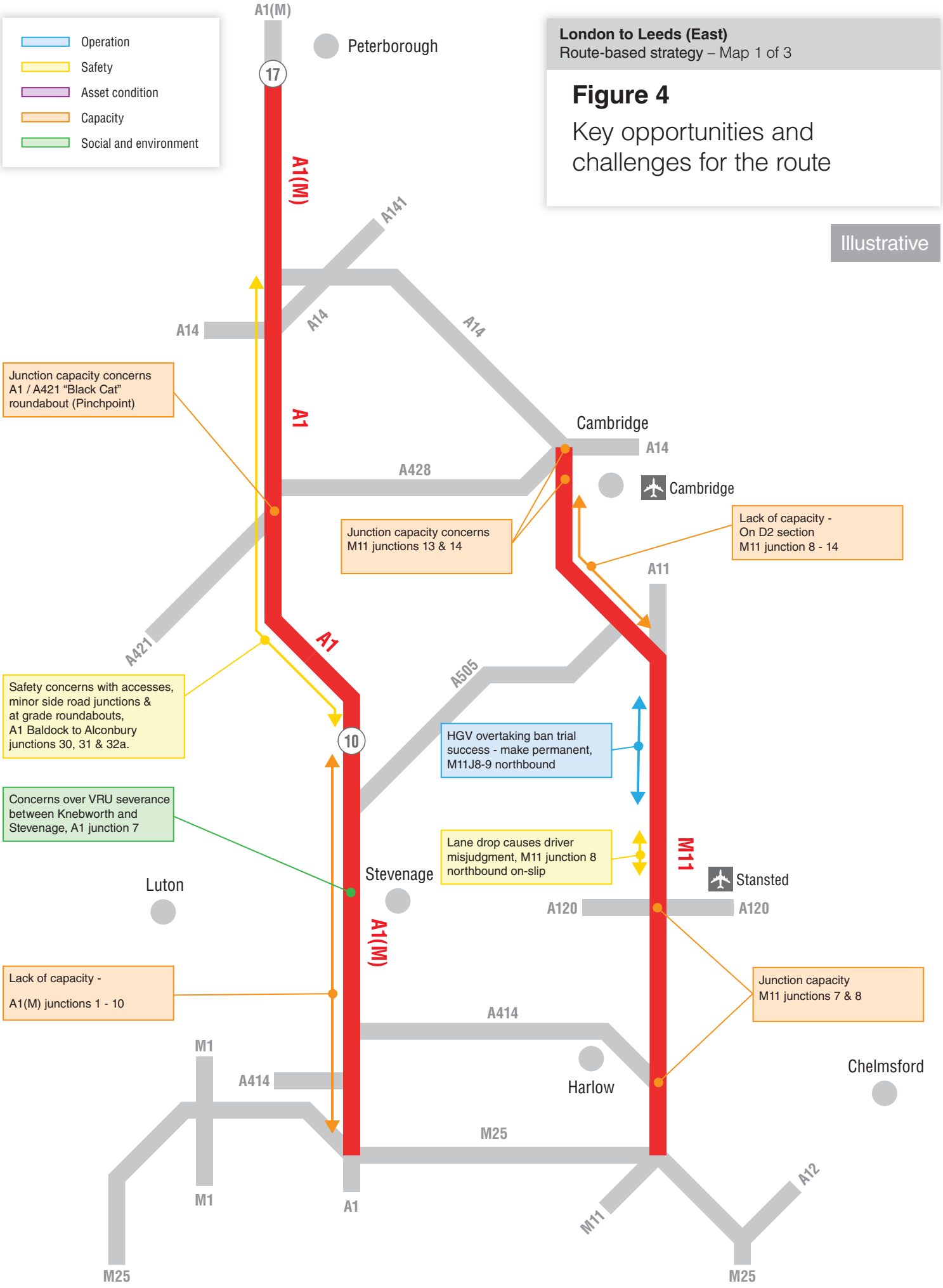
4.7.14 Maintenance is not identified as one of the key challenges for the route during the initial period up to 2021, however it is recognised that maintenance will remain a longer-term priority.

London to Leeds (East)
Route-based strategy – Map 1 of 3

Figure 4

Key opportunities and challenges for the route

Illustrative

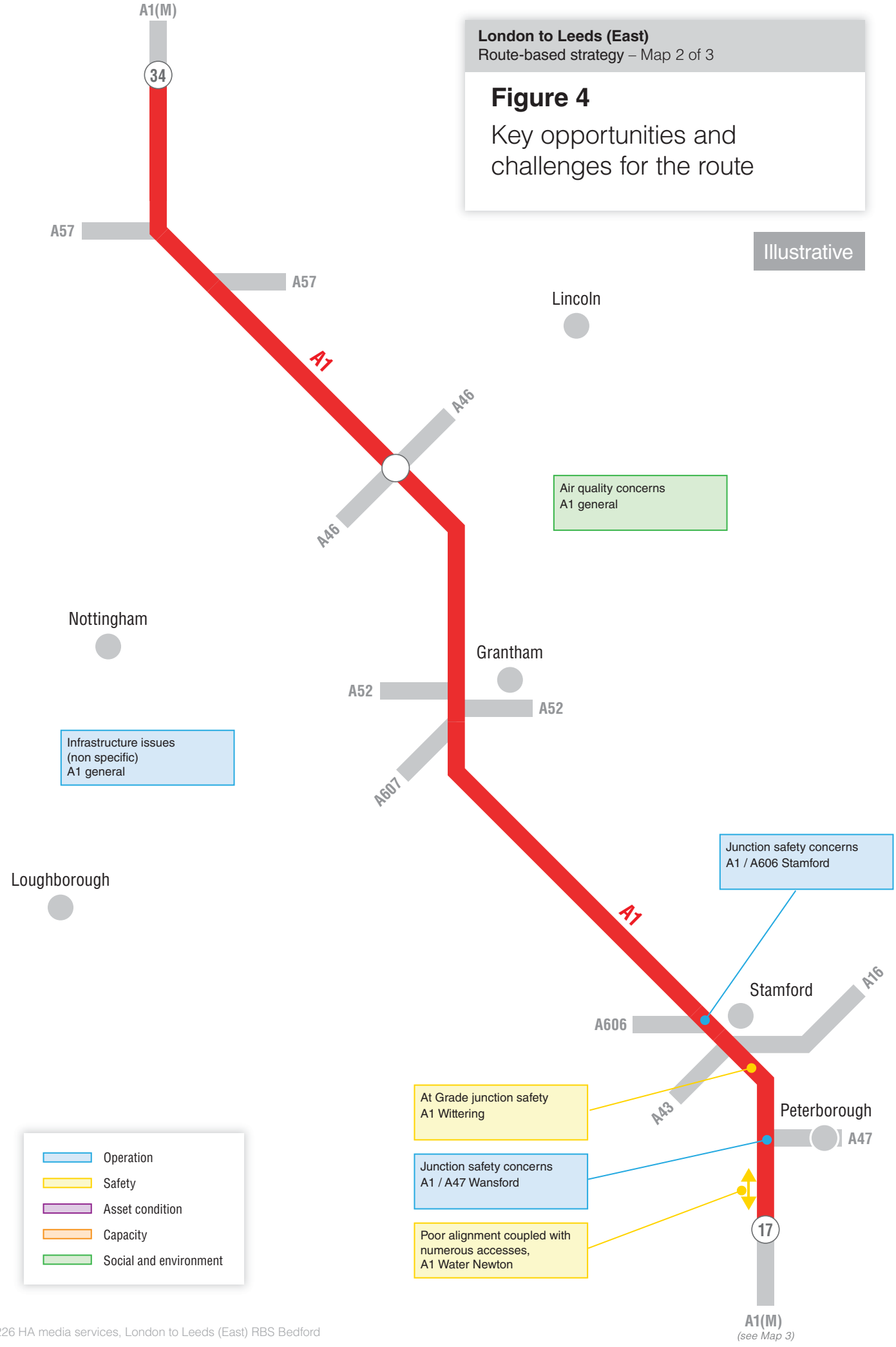


London to Leeds (East)
Route-based strategy – Map 2 of 3

Figure 4

Key opportunities and challenges for the route

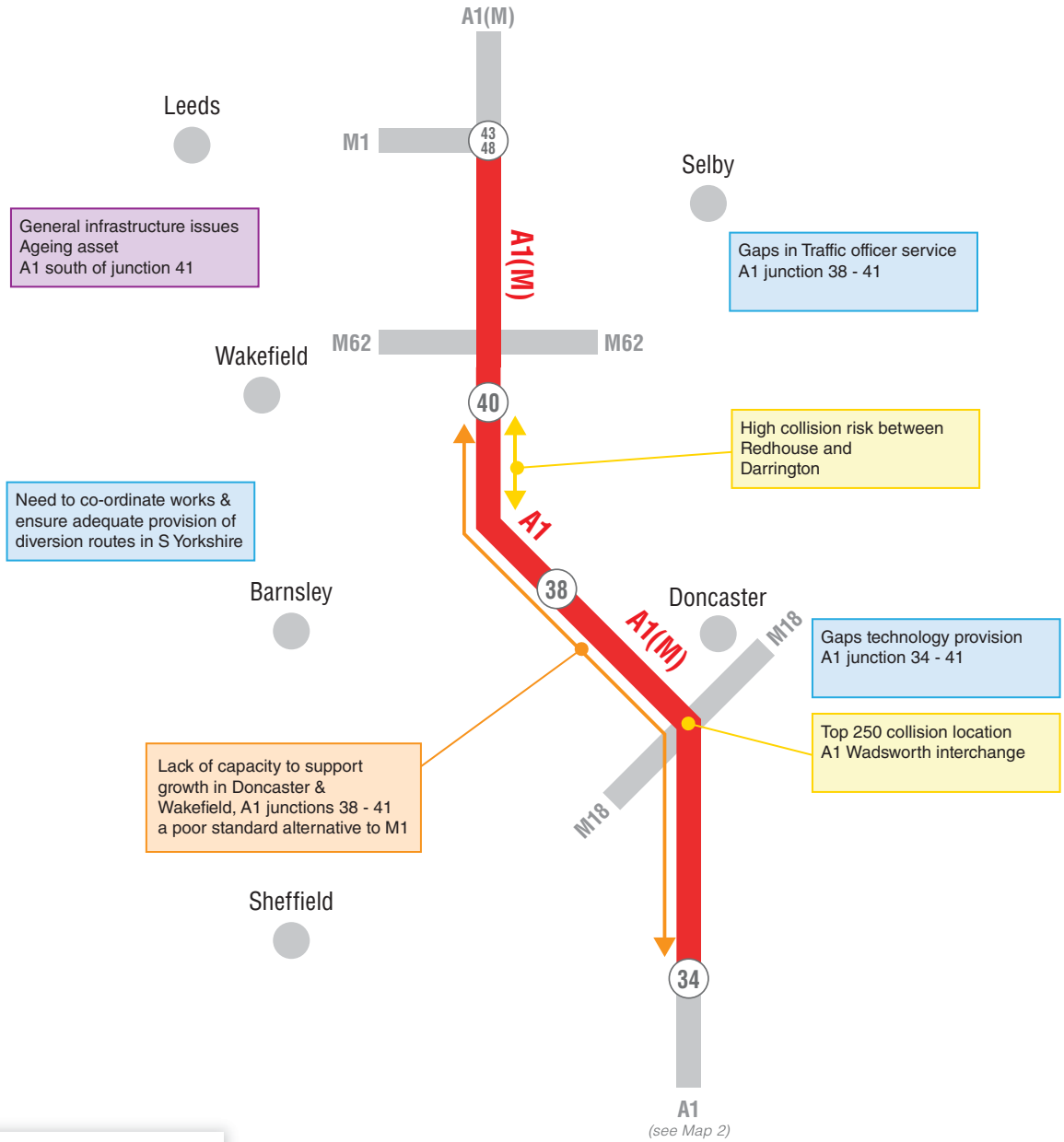
Illustrative



London to Leeds (East)
Route-based strategy – Map 3 of 3

Figure 4

Key opportunities and challenges for the route



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

Illustrative

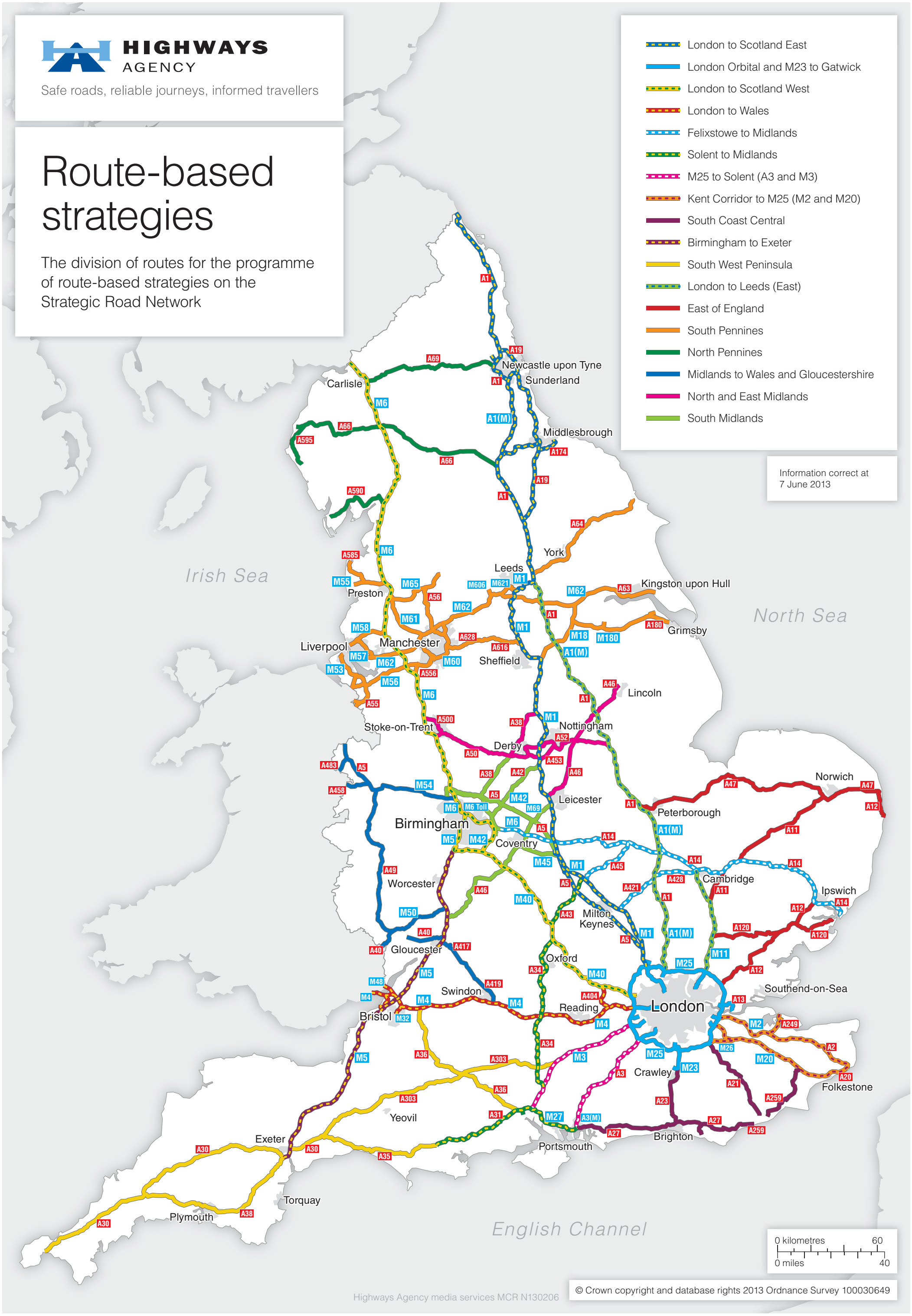
Appendix A Route map

HIGHWAYS AGENCY

Safe roads, reliable journeys, informed travellers

Route-based strategies

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



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Appendix B Glossary

Abbreviation	Description
AQMA	Air Quality Management Areas
CCTV	Closed Circuit Television
D2	Dual two-lane carriageway
DBFO	Design Build Finance Operate
Defra	Department of Environment, Food and Rural Affairs
ERCC	Eastern Region Control Centre
FARRRS	Finningley and Rossington Regeneration Route Scheme
FPL	First Priority Location
HGV	Heavy goods Vehicle
HRA	Hot Rolled Asphalt
KSI	Killed and Serious Injury
LA	Local Authority
LEP	Local Enterprise Partnership
LNMS	Local Network Management Schemes
MIDAS	Motorway Incident Detection and Automatic Signalling
MP	Major Projects
NRTS	National Roads Telecommunications Service
NMU	Non-Motorised User
PIC	Personal Injury Collisions
RBS	Route Based Strategy
S278	Section 278 of the Highways Act Schemes
SRN	Strategic Road Network
TERN	Trans European Road Network
TMD	Traffic Management Division
TOS	Traffic Officer Service
TSC	Thin Surface Course
TSCS	Thin Surface Course System
VMS	Variable Message Sign
VRU	Vulnerable road user

Appendix C Stakeholder involvement

Organisation	Contact Name	Provided Input
AECOM on behalf of Herts CC	Jameel Hayat	Yes
AMEY	Ben Gadsby	
Anglia Ruskin University	Sandy Lynam	
Ashfield District Council	Julie Clayton	
Baldock A1 (M) (Extra)	Terry Ager	
Basildon Borough Council	Carl Glossop	
Bassetlaw District Council	Joelle Davis	
Bedford Borough Council	Brian Hayward	
Bedfordshire and Luton Fire & Rescue Service	Ade Yule	
Berkhamstead and District CoC	David Steadman	
BIS	Maria Hallam	
Braintree District Council	Peter Smith	
Broxbourne DC	Colin Haigh	
Cambridge Airport	Steve Sillery	
Cambridge Chamber of Commerce	Gill Prangnell	
Cambridge City Council	Ben Bishop	
(PBA on behalf of) Cambridge University	John Hopkins	
Cambridgeshire County Council	Mike Salter	
Cambridgeshire County Council	Bob Tuckwell	Yes
Campaign for Better Transport	Andrew Allen	
Carillion/WSP (MAC8)	Peter Smith	Yes
Castle Point Borough Council	Kevin Wright	
CBT - Campaign for Better Transport	Sian Berry	
Central Bedfordshire Council	Geraldine Davies	
Central Bedfordshire Council	Manouchehr Nahvi	
Chelmsford City Council	Derek Stebbing	
Chesterfield Borough Council	Scott Nicholas	
Colchester Borough Council	Rachel Forkin	
D2N2 LEP	Jim Seymour	
Dacorum BC	Kevin Langley	
Daventry DC	Simon Bowers	
Department for Business Skills & Innovation	Iain McNab	
Department for Transport	Susanne Isaacs	
Department of Business Skills & Innovation	Mick Lazarus	
Department of Transport	Richard Mace	
Derbyshire County Council	Geoff Blisset	
DfT	Joshua Fox	
DfT	Natasha Kopala	

DfT	Lee Sambrook
East Cambridgeshire DC	Sally Bonnet
East Herts DC	Martin Paine
East Midlands Councils	Andrew Pritchard
East Midlands Transport Activists Roundtable (EMTAR)	Bettina Lange
East Northamptonshire DC	Karen Britton
East of England Ambulance Service	Paul Frost
Environment Agency	David Hoskins
Epping Forest District Council	John Rowley
Essex Chambers of Commerce	John Dallaway
Essex County Council	Chris Stevenson
Essex Fire and Rescue Service	Gary Church
Evergreen Extra MSA	Mike Stanley
Facilitator	Dan Bent
Fenland District Council	Wendy Otter
GCGP Enterprise Partnership	Adrian Cannard
Gedling Borough Council	Stephen Bray
Greater Lincolnshire LEP	Richard Wills
Harlow Council	Paul MacBride
Hertfordshire CC	Sanjay Patel
Hertfordshire LEP	Joan Hancox
Hertsmere BC	Mark Silverman
Hertsmere Borough Council	Simon Warner
Highways Agency	Kam Khokhar
Huntingdonshire DC	Stuart Bell
Ketterins Borough Council	Simon Richardson
Knebworth House/Stadium	Martha Lytton-Cobbold
Luton Borough Council	Keith Dove
Maldon District Council	Gary Sung
Milton Keynes Council	Ishwer Gohil
MP for Castle Point	Rebecca Harris
MP South Basildon & East Thurrock	Stephen Metcalfe
National Express	Chris Atkinson
Natural England	Ross Holdgate
Natural England	Gordon Wyatt
Newark and Sherwood District Council	Andrew Mutter
North Herts DC	Chris Carter
North Herts DC	Lorraine O'Gorman
North Northamptonshire	Andrew Longley
North Northamptonshire	Paul Woods
North Northamptonshire Development Company	Caroline Wardle
Northampton BC	Richard Palmer

Northamptonshire CC	Helen Russell-Emmerson
Note-taker	Jonny Browning
Nottingham Chamber of Commerce	Ian Bates
Nottingham City Council	Steve Hunt
Nottingham Friends of the Earth	Nigel Lee
Nottinghamshire County Council	Peter Goode
Nottinghamshire County Council	David Jones
Nottinghamshire County Council	David Pick
Open University Milton Keynes	Dorian Holloway
Pedal	Peter Briggs
Peterborough City Council	James Harrison
Port of King's Lynn - King's Lynn Docks, Norfolk	Graham Tetley
Prologis	Chris Lewis
RAC foundation	Rik Thomas
Representing Andrew Bingham MP	Jamie Douglas
Rochford District Council	Samuel Hollingworth
Rutland County Council	Gary Toogood
SEMLEP	Hilary Chipping
Skanska (MAC6)	Nick Mills
South Cambridgeshire DC	Tumi Hawkins
South Cambridgeshire DC	Keith Miles
South Derbyshire	Richard Groves
South Northamptonshire DC	David Allen
Southend-on-Sea Borough Council	Karen Gearing
St Albans DC	Chris Briggs
Stadium MK (MK Dons)	Sue Dawson
Stevenage Borough Council	Viv Evans
Sustrans	James Lowe
Sustrans	Kris Radley
Sustrans	Rohan Wilson
Sustrans - Beds and Herts	Peter Bate
Sustrans - EoE	Nigel Brigham
Sustrans - Midlands and EOE	Peter Orban
Tendring District Council	Tom Gardiner
Thames Valley Police	Neil Biggs
Three Rivers DC	Steve Farrell
Thurrock Council	Les Burns
Trent and Barton	Keith Shayshutt
Uttlesford Council	Melanie Jones
Watford BC	Philip Bylo
Wellingborough Borough Council	Sue Bateman
Welwyn Hatfield DC	Sue Tiley

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