

South Central Strategic Radial Corridors

Introduction

The South Central Radial Corridors encompass the corridors that share the London – Gatwick corridor in the north and ‘fan out’ in the south to connect much of the Sussex coastline to the capital, from Eastbourne in the east to Chichester and Bognar Regis in the west. This corridor serves the Brighton and Hove built-up area, which is home to nearly half a million people. It also includes Britain’s second busiest airport and two ports.

The corridors included in this pack are:

- **SC1:** A22/A264/Oxted Line (Crawley – Eastbourne);
- **SC2:** M23/A23/Brighton Main Line (Brighton – Coulsdon); and
- **SC3:** A24/A264/A29/Arun Valley Line (Crawley – Fontwell).

The International Gateways included in this pack are:

- London Gatwick Airport;
- Port of Newhaven; and
- Shoreham Port.

South Central Strategic Radial Corridor SC1

A22/A264/Oxted Line (Crawley – Eastbourne)

Description

This corridor links London Gatwick Airport to Eastbourne via East Grinstead and Uckfield. The key highways on this corridor form part of the Major Road Network. There is no continuous railway route on this corridor, although many towns are served by stations on routes that cut across this corridor.

This corridor passes through a very diverse set of geographies, from 'Gatwick Diamond' economic hub at London Gatwick Airport and Crawley, through rural countryside to the coastal town of Eastbourne. At its southern end it includes short sections of the A2270 and A2021 roads, which link the A22 to the A259 corridor.

The key issues affecting this corridor are:

- **Relatively poor connectivity to coastal communities:** Journey times between London and Uckfield (75 mins) and Eastbourne (88 mins) are relatively slow. Coastal journeys by both road and rail are also relatively slow. This means many coastal communities on this corridor are relatively 'cut-off' from the rest of the South East.
- **Relatively poor inter-urban public transport options:** There are no direct rail services between East Grinstead and Uckfield or Uckfield and Eastbourne. Similarly, there are few (if any) direct bus services between Uckfield and Hailsham/Lewes/Eastbourne.

The key opportunities to consider for this corridor are:

- **A22 highway:** The standard of this Major Road varies significantly across this corridor and there are several road safety 'hot-spots' on this route. Should this highway be improved?
- **Uckfield branch:** Could the Uckfield branch be electrified (enabling it to be incorporated into Thameslink) and/or extended to join the rest of the railway network at Lewes?

Economic Context

Wealth

Median resident earnings along this corridor are £32,013, which is around average for the South East.

Priority Industrial Sectors

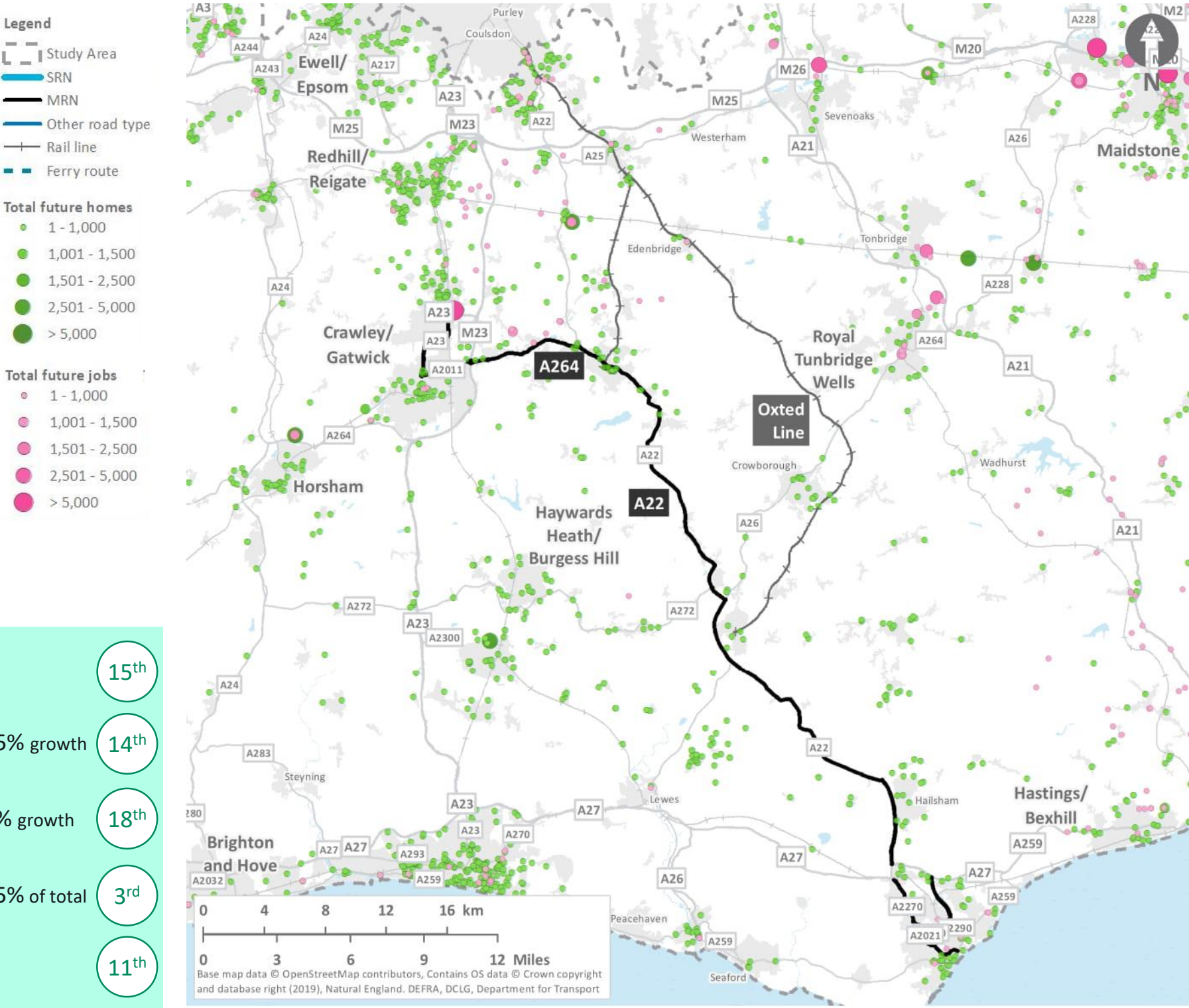
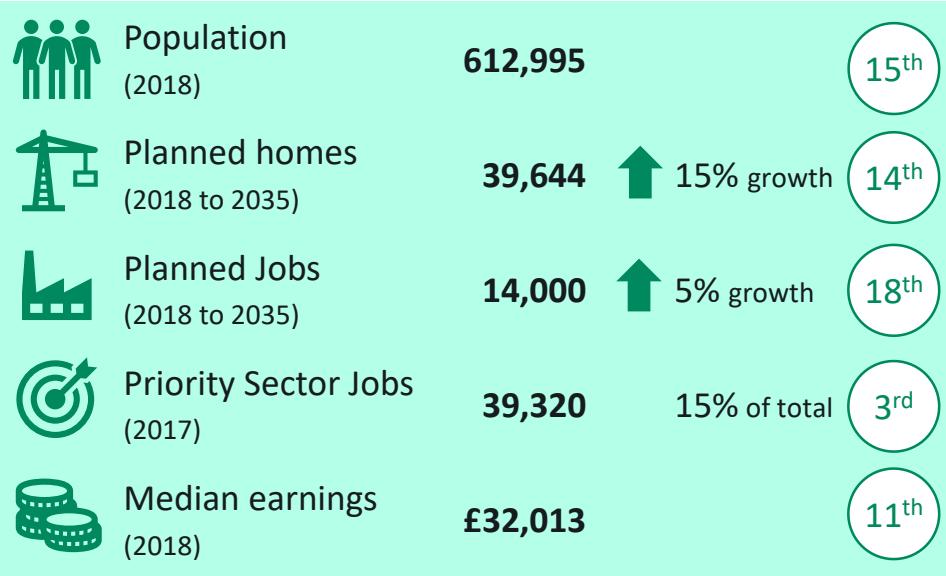
The priority industrial sectors on this corridor are:

- Advanced manufacturing;
 - Air transport;
 - Automotive manufacturing;
 - Computer and consumer electronic manufacturing;
 - Computer software programming and publishing;
 - Creative, cultural and media and the visitor economy (and support services);
 - Data processing and hosting;
- Electric power generation and transmission;
 - Environmental technology and energy;
 - Horticulture and food manufacturing;
 - Insurance and financial services;
 - Life sciences and healthcare;
 - Medical technology;
 - Pharmaceuticals;
 - Telecommunications; and
 - Transport and logistics.

15% of jobs on this corridor are in priority sectors, which is high compared to the rest of the South East area. This is partly due to the large number of priority sectors identified by the Local Enterprise Partnerships that cover this corridor. There is a particularly high concentration of priority sector jobs in Crawley.

Development

Most of the employment development planned for this corridor is focussed on the ‘Gatwick Diamond’ (an economic hub encompassing Gatwick Airport, Crawley, and surrounding areas). Housing growth is expected to be clustered in urban areas on the corridor, notably Crawley, Eastbourne and South Wealden



Social Context

Deprivation

This corridor passes through largely rural areas with generally low levels of deprivation. However, the corridor does provide important connectivity between Eastbourne and Hailsham (where there are several deprived areas), and the rest of the South East.

Education

43% of the population on this corridor has a National Vocational Qualification level 4 or above on this corridor, which is above average for the South East. However there are significant variations in education level by area. Educational attainment is relatively high education levels in Mid Sussex (55%), but much lower in Eastbourne (33%).





Safety

There were several clusters of incidents resulting in people being Killed or Seriously Injured on this corridor during the period 2015-17, notably on the A2270 and A2021 roads in the Eastbourne area.

Housing Affordability

The affordability ratio is close to average on this corridor. House prices and median resident earnings are also around average for the South East area. Housing affordability ratios range significantly along this corridor, from 8.1 in Eastbourne to 11.5 in Tandridge.



	Deprived areas (2018, England)	8%	16 th
	Highly educated population (2018, % NVQ Level 4 or above)	43%	8 th
	Average house price (2018, average of corridor's districts)	£321,909	13 th
	Housing affordability ratio (House price / earnings)	10.1	12 th

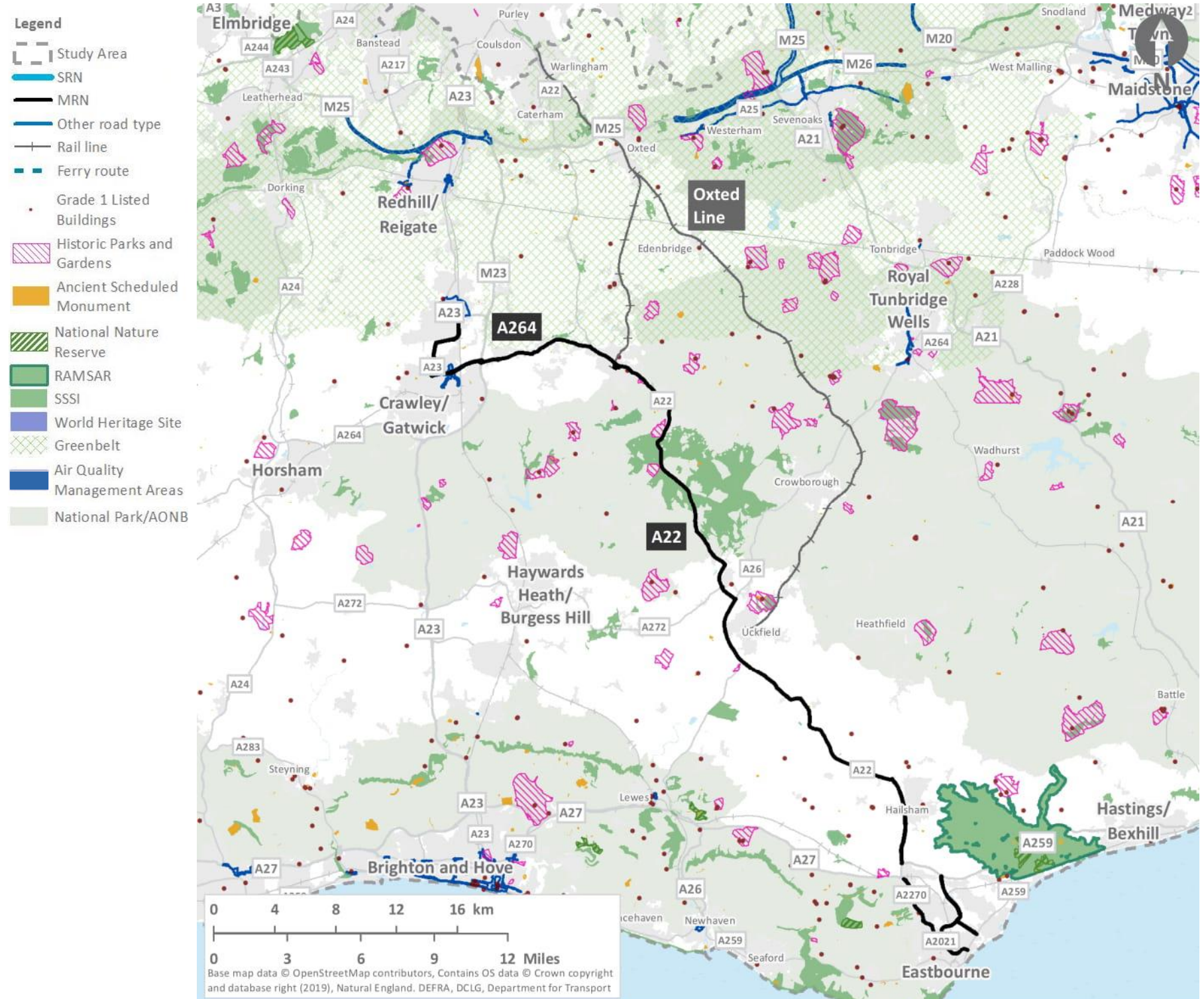
Environmental Context

Protected Areas

This corridor is constrained in its central sections by the High Weald Area of Outstanding Natural Beauty and at the northern end by the Surrey Hills Area of Outstanding Natural Beauty. The southern end of the route runs close to the South Downs National Park and the Pevensey Levels Ramsar site. This corridor also runs through the Ashdown Forest Site of Special Scientific Interest.

Air Quality

There is a relatively small Air Quality Management Area at the northern end of this corridor where it enters the Crawley urban area.



Highways

Demand

It is estimated that this corridor carries 2,856 vehicles per hour on its busiest section during the AM peak.

Issues and Opportunities

There are several congestion ‘hot-spots’ on this corridor. The first is the A27/A22 junction to the North of Eastbourne, where the AM peak speed is less than 40% of the night time speed. Just to the north of this, at Boship Roundabout, there is a significant pinch-point where the dual carriageway narrows to single lane. Finally, there are issues between East Grinstead and Felbridge, where the A264 merges with the A22.

Enhancements

East Sussex Council is sponsoring a Major Road Network Priority scheme that aims to deliver a **package of improvements at the southern end of the A22**. This will support housing and employment growth in the Eastbourne and Hailsham.



Peak hour highway demand
(Vehicles/hour on busiest section)

2,856

15th

Railways Context

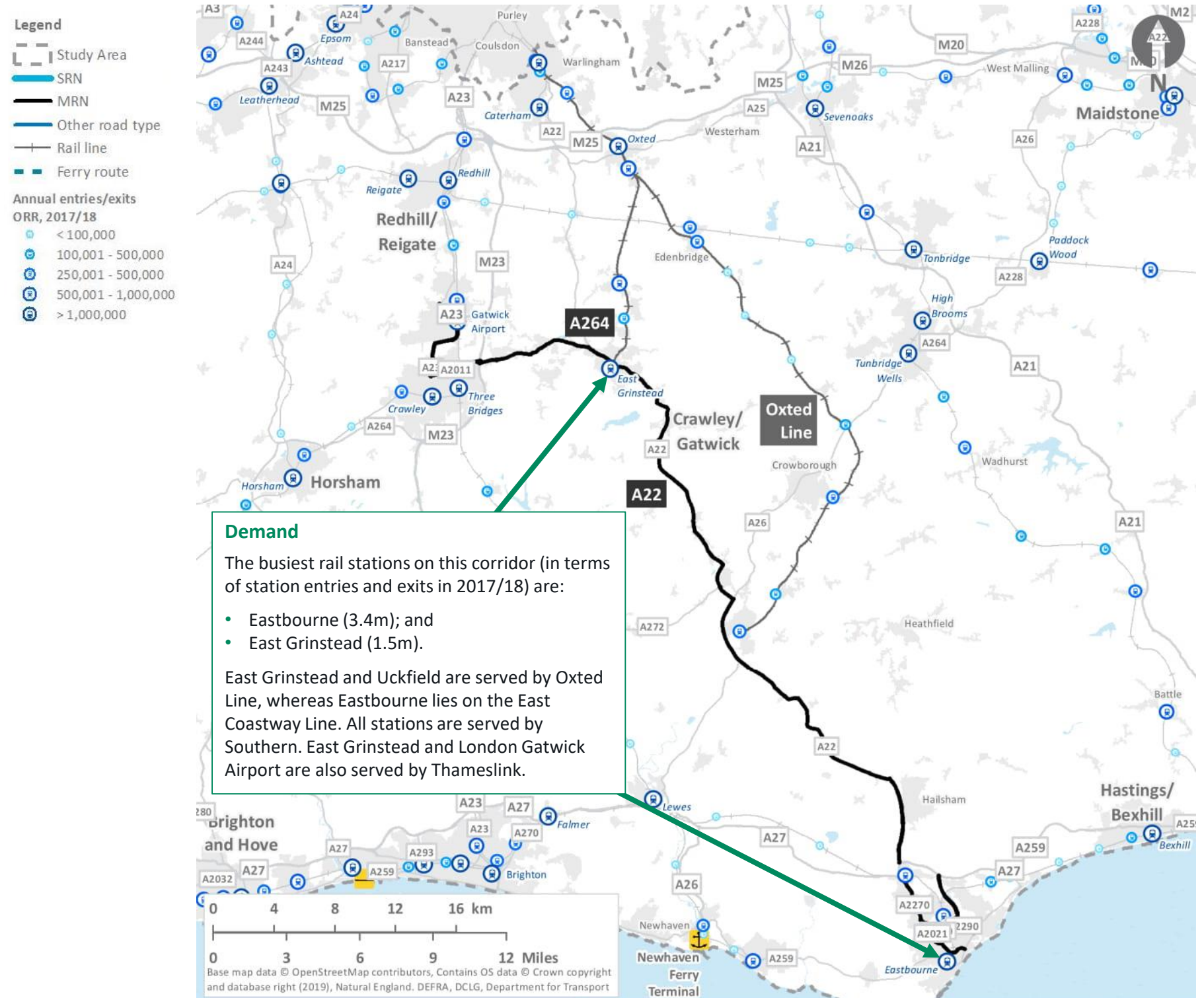
Issues and Opportunities

The Uckfield branch of the Oxted Line is not electrified. This presents some operational challenges as this branch can only be served by diesel rolling stock. This constraint also undermines resilience (due to its dependency on a small diesel fleet) on this branch and limits the scope for improving it (e.g. by extending peak-hour Thameslink services to Uckfield).

The percentage of passengers standing at London Bridge and London Victoria – the termini that serves stations on this corridor – in the AM peak in 2018 was 22.5% and 14.5% respectively. Blackfriars, which can be accessed by Thameslink services (which serve East Grinstead in peak hours), has some of the highest levels of crowding in the country. In 2018, 32.7% of passengers arriving in the AM peak at this station were forced to stand.

Enhancements

There have been local aspirations for a number of years to extend the Oxted line and reinstate the railway between Uckfield to Lewes. Latterly this has expanded to consider rail connectivity between the south coast and London and the concept of a second Brighton mainline with the reinstatement south of Uckfield being an integral part of this. The concept was most recently considered in the Department for Transport's London to South Coast Rail Connectivity Study, which identified that there currently was no case for the for the government to take forward development of the scheme. Therefore, the schemes is not currently being taken forward by Network Rail, East Sussex County Council or any local sponsor.



South Central Strategic Radial Corridor SC2

M23/A23/ Brighton Main Line (Brighton – Coulsdon)

Description

The M23/A23/Brighton Main Line Corridor connects London to Brighton and Hove via London Gatwick Airport. It is one of the busiest corridors in the region, especially on the Brighton Main Line railway. The northern part of the corridor also connects neighbouring A22/A264/Oxted Line and A24/A263/A29/Arun Valley Line corridors to London and the M25. This corridor therefore serves a large part of the South Coast, from Chichester in the west to Eastbourne in the east.

This corridor passes through three protected landscapes (two Areas of Outstanding Natural Beauty and one National Park). Future development is generally focussed in Brighton and Hove and between Gatwick and the M25. This corridor has significant capacity constraints on both the road and rail network, particularly on the rail network north of Crawley where several branches merge at Three Bridges.

The key issues affecting this corridor are:

- **Brighton Main Line capacity and reliability:** This corridor is served by a relatively fast and frequent rail service on the Brighton Main Line. However, it is operating at close to capacity, which is contributing to poor resilience on this route. The enhanced Thameslink service presents more connectivity opportunities but also more punctuality and reliability challenges (as many services on this corridor operate 60+ miles north of London).
- **London Gatwick Airport expansion:** London Gatwick Airport station is the busiest railway station in the South East area. Demand at this station is expected to grow as London Gatwick Airport expands in the future.
- **Housing affordability:** This is one of the least affordable corridors in the South East area. There is less available land for development due to the large amount of protected areas on this corridor.

The key opportunities to consider for this corridor are:

- **Public transport potential:** This corridor has significant inter-urban flows along the railway corridor. Could public transport mode share be boosted on this corridor?
- **Cycling potential:** Similarly, Brighton and Hove is well suited to cycling, both within it and connecting with the adjacent built-up areas within the Greater Brighton City Region. How can active travel be boosted in this area?

Economic Context

Wealth

Median resident earnings along this corridor are £31,614, which is around average for the South East.

Priority Industrial Sectors

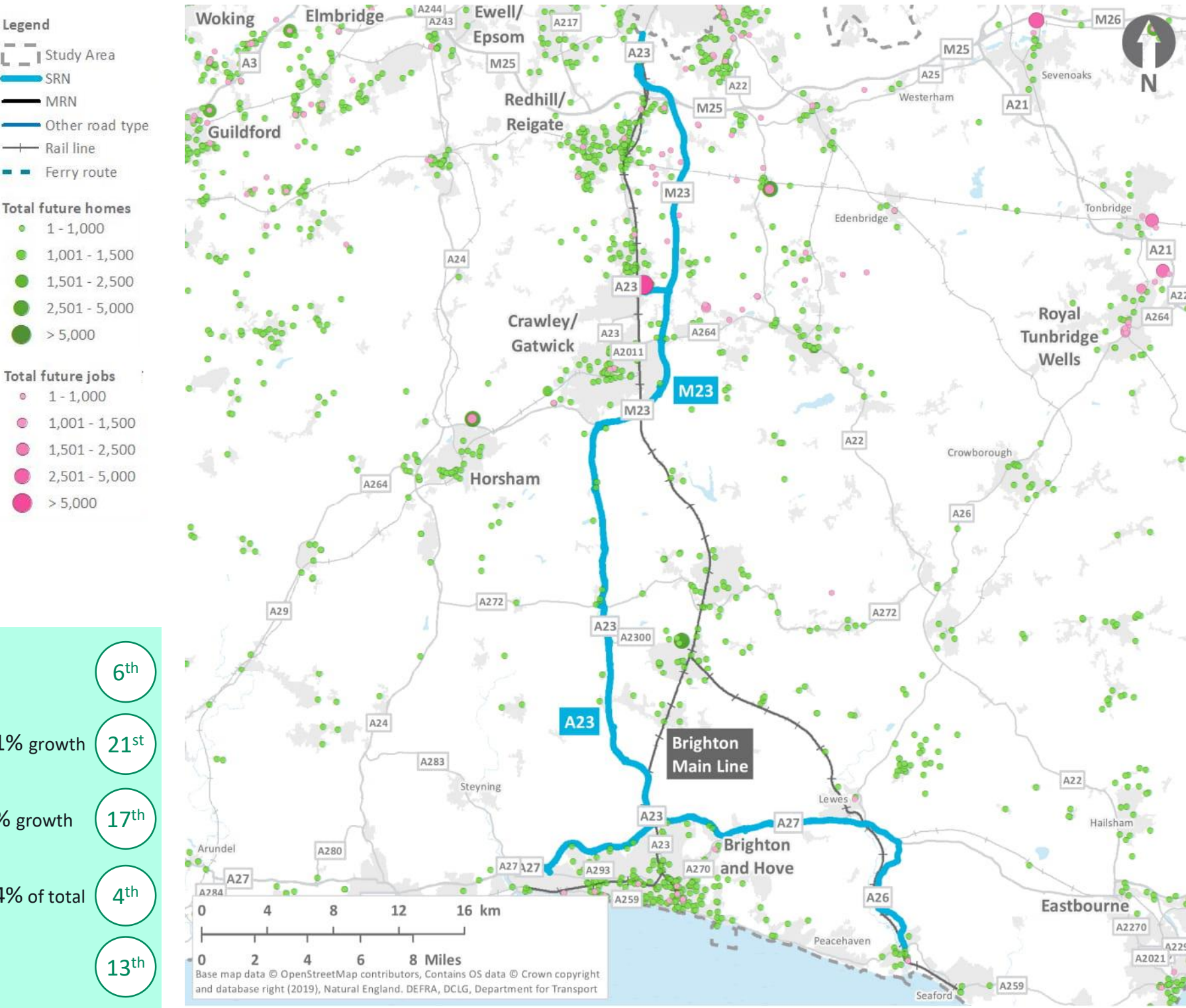
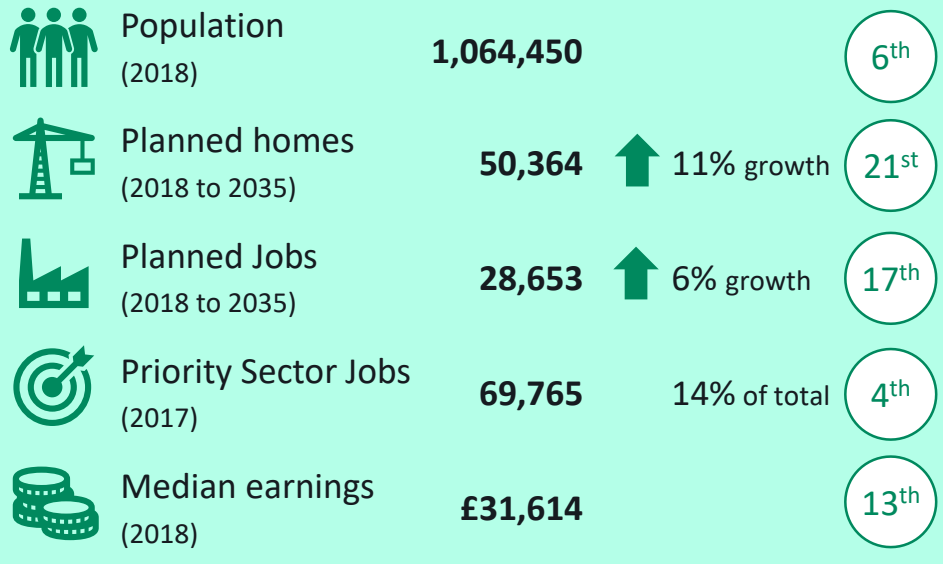
The priority industrial sectors on this corridor are:

- Advanced manufacturing;
 - Air transport;
 - Automotive manufacturing;
 - Computer and consumer electronic manufacturing;
 - Computer software programming and publishing;
 - Creative, cultural and media and the visitor economy (and support services);
 - Data processing and hosting;
- Electric power generation and transmission;
 - Environmental technology and energy;
 - Horticulture and food manufacturing;
 - Insurance and financial services;
 - Life sciences and healthcare;
 - Medical technology;
 - Pharmaceuticals;
 - Telecommunications; and
 - Transport and logistics.

14% of jobs on this corridor are in priority sectors, which is high compared to the rest of the South East. This is partly due to the large number of priority sectors identified by the LEPs that cover this corridor. There is a particularly high concentration of priority sector jobs in Crawley (but a lower one in Lewes).

Development

Housing development on this corridor is focussed around Brighton and Hove, Burgess Hill, Haywards Heath, Crawley/Gatwick and Redhill. The largest housing development sites are at Burgess Hill. There is also a large volume of coastal development between Brighton and Hove and Newhaven.



Social Context

Deprivation

There are relatively high levels of deprivation within and around Brighton and Hove, in Newhaven/Peacehaven and, to a lesser extent, around Crawley/Gatwick. There is much lower deprivation in the rural sections of the corridor between Brighton and Hove and Crawley.

Education





46% of the population on this corridor has a National Vocational Qualification level 4 or above on this corridor. Adur, however, has very low levels of education (just 29% hold qualifications at NVQ4+). The high number of students living along this corridor (e.g. University of Brighton and the University of Sussex) may be contributing to this high figure.

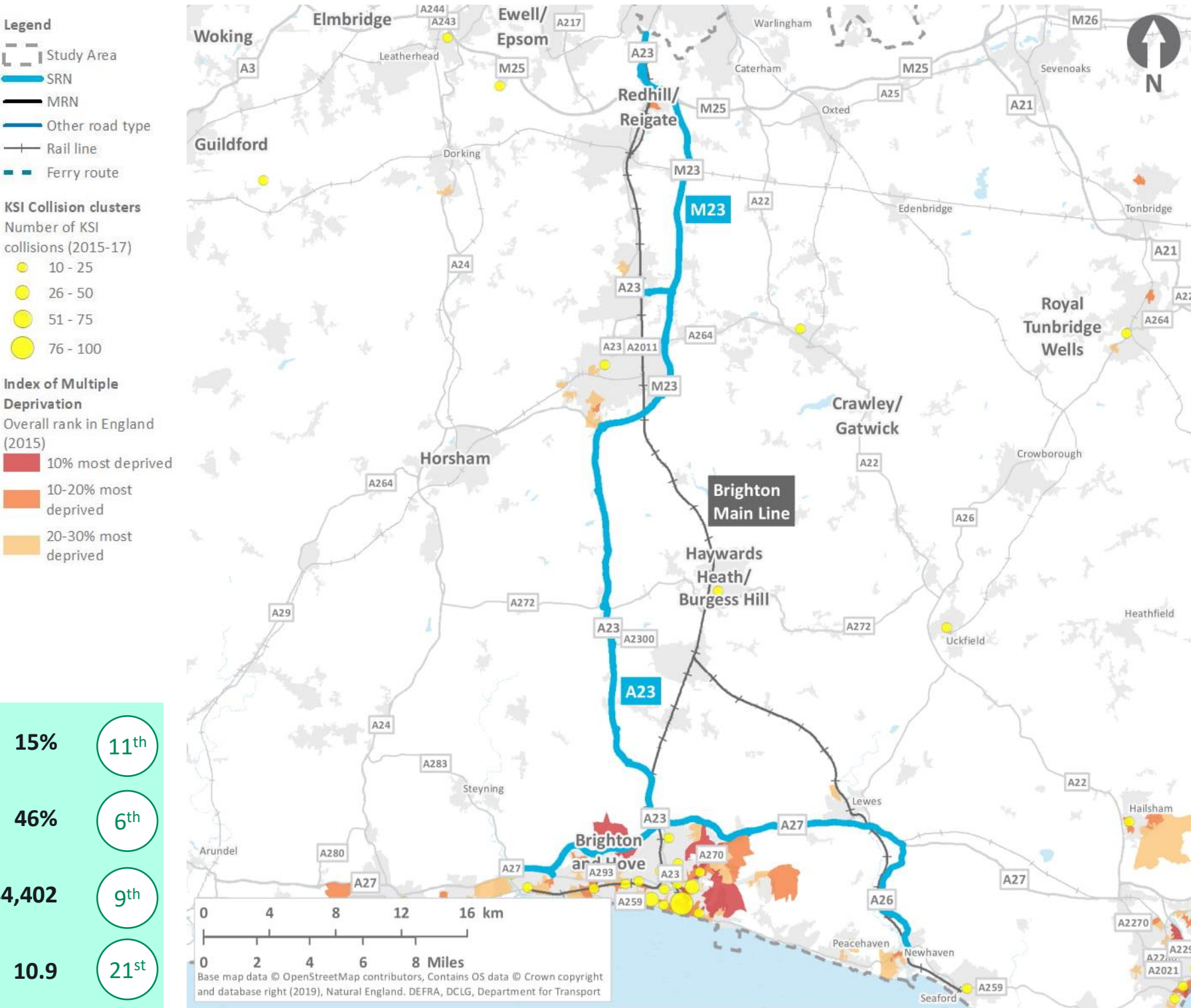
Safety

There were several clusters of incidents resulting in people being Killed or Seriously Injured on this corridor during the period 2015-17, particularly within the busy Brighton and Hove urban area.

Housing Affordability

Housing affordability is very low on this corridor (across all the districts on this corridor). This is driven by relatively high house prices compared to the average for other corridors in the South East area.

	Deprived areas (2018, England)	15%	11 th
	Highly educated population (2018, % NVQ Level 4 or above)	46%	6 th
	Average house price (2018, average of corridor's districts)	£344,402	9 th
	Housing affordability ratio (House price / earnings)	10.9	21 st



Environmental Context

Protected Areas

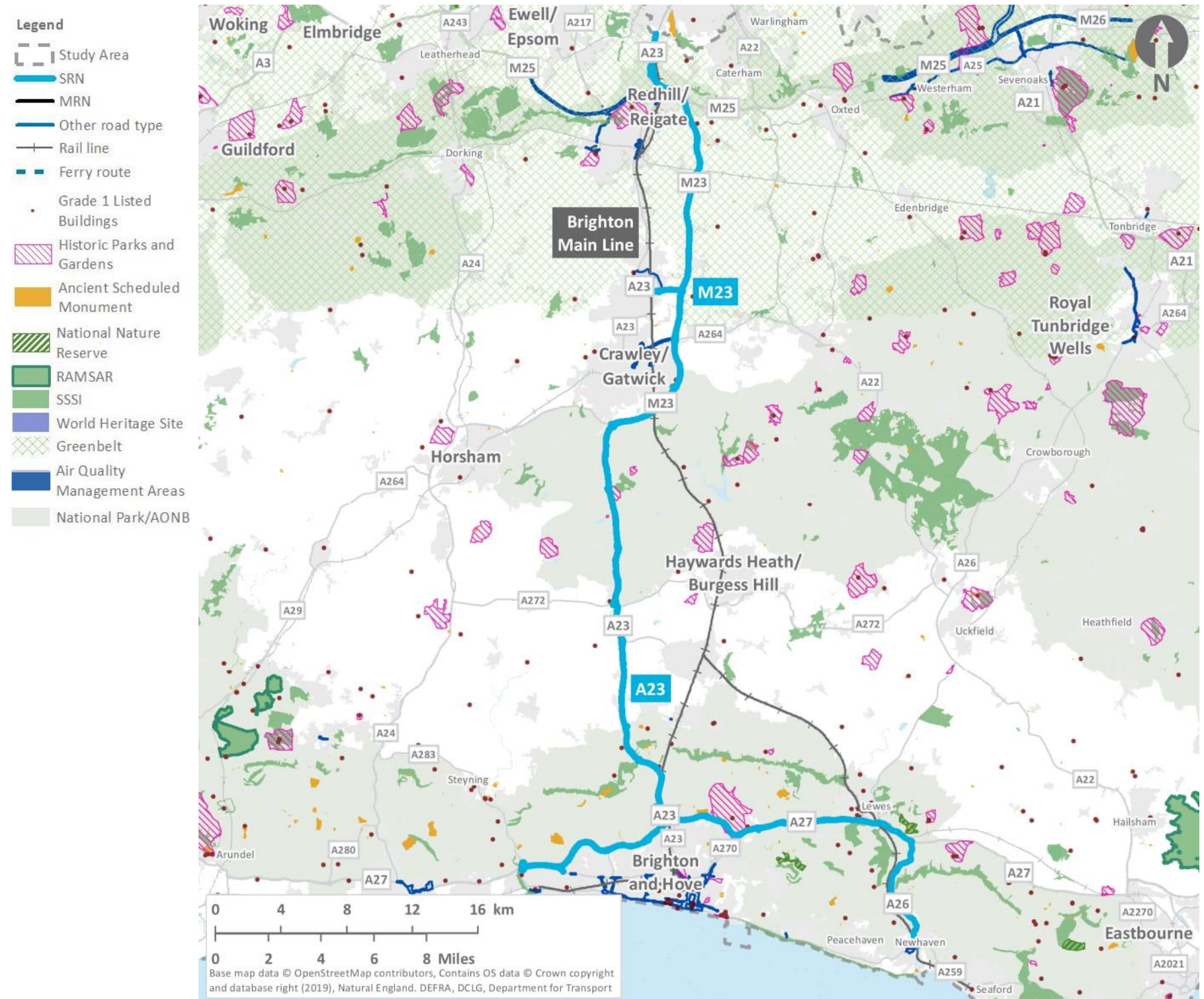
This corridor passes through several nationally and regionally important protected areas, including:

- the South Downs National Park (at the southern end of the corridor);
- the High Weald Area of Outstanding Natural Beauty (in the middle of the corridor);
- The Surrey Hills Area of Outstanding Natural Beauty (at the northern end of the corridor)
- the London Greenbelt (also at the northern end of the corridor).

There is relatively little land available for development on this corridor, particularly south of Crawley (other than a 7km gap between protected areas near Bolney and Hurstpierpoint).

Air Quality

There are three clusters of Air Quality Management Areas on this corridor. The first is at the northern end on the M25 motorway (where it intersects with the M230), the second is in the Crawley/Gatwick area, the third is on several major roads in the Brighton and Hove urban area.



Highways

Demand

It is estimated that this corridor carries 4,785 vehicles per hour on its busiest section during the AM peak.

Issues and Opportunities

There are several congestion hotspots along this corridor. The first is at the northern end where it intersects with the M25. Here the AM peak speed drops below 40% of the free flow night-time speed. At the southern end of the corridor around Brighton and Hove there are smaller pinch points along the A23 and the A27 where the AM peak speed also drops below 40% of the free flow night-time speed. Close to Crawley/Gatwick there is also an area where the AM peak speed drops below 80% of the night-time speed.

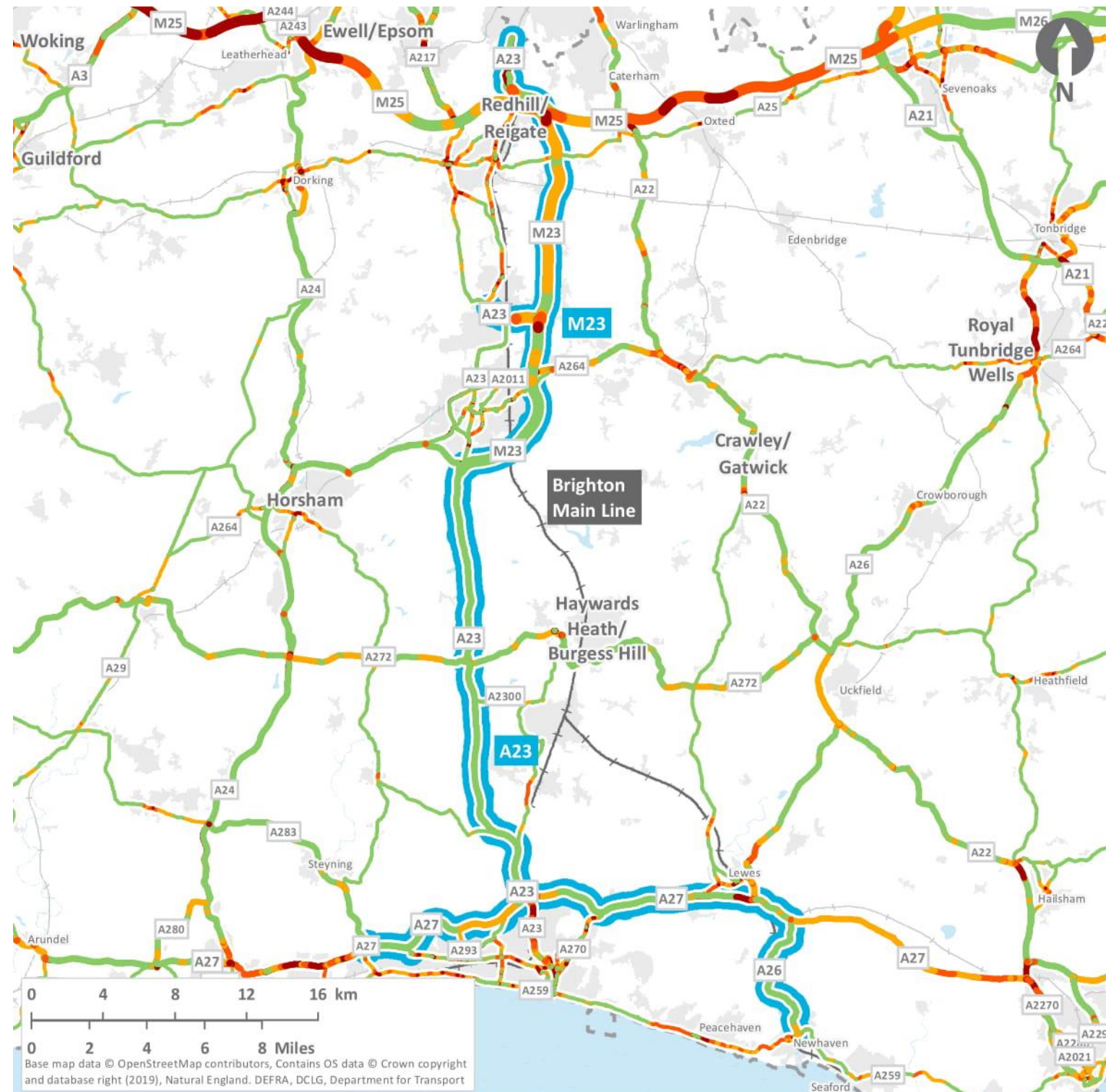
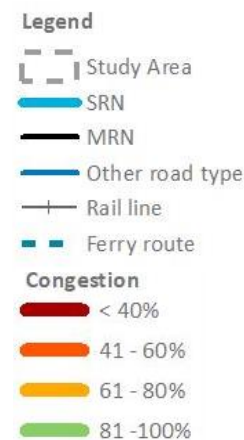
Highways England (in their **Route Strategy for the London Orbital and M23**) have identified road safety, air quality, and congestion concerns on the northern part of the M23, notably north of the M23 where this highway enters Greater London.

Enhancements

Highways England is currently upgrading the M23 to a fully-running **smart motorway** (all lane running) between junctions 8 and 10, which should alleviate congestion at the northern end of the corridor.

In the longer term, Transport for the South East would like to see further **improvements to the M23/A23** at:

- Crawley to Burgess Hill; and
- Hooley Interchange.



Peak hour highway demand
(Vehicles/hour on busiest section)

4,785

7th

Railways

Issues and Opportunities

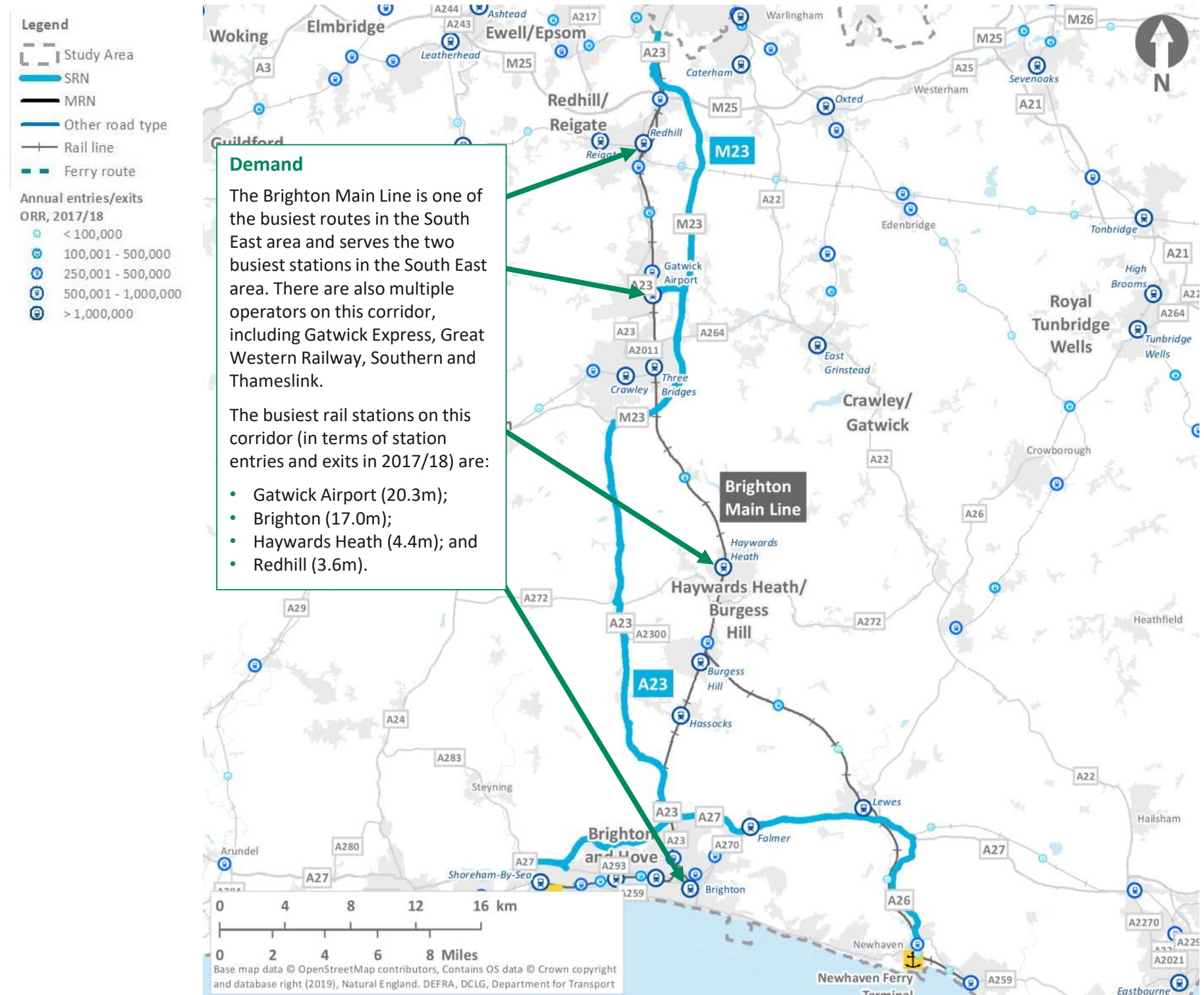
The Brighton Main Line provides multiple destination choices on the London end of the corridor, with some services terminating at Victoria and London Bridge and others passing through the Central London towards Bedford, Peterborough and Cambridge. This is a complex and heavily utilised railway, which means it is challenging to maintain high levels of frequency, punctuality, and resilience on it.

The radial passenger rail services that serve this corridor terminate at or pass through some of the busiest railway stations in London. These include London Blackfriars, London Bridge, London St Pancras International, and London Victoria. According to a Department for Transport survey held in Autumn 2018, 32.7% of passengers arriving at London Blackfriars during the AM peak were forced to stand, which is the highest level of crowding recorded in this survey. Crowding levels were also high at London Bridge at 22.5%, while St Pancras and Victoria were comparatively lower at 17.1% and 14.8% respectively. The same survey also recorded 6.5% of passengers standing at arrival into Brighton during the AM peak. This indicates that crowding is a serious problem on the Brighton Main Line and its branches, particularly on London Bridge services and Thameslink.

Enhancements

Network Rail is investing in significant improvements in the **Brighton Mainline** to improve resilience and capacity. Network Rail is also developing plans to remodel the railway in the Croydon area to improve the operating performance of the railway at this key bottleneck.

The recent completion of the **Thameslink programme** has improved connectivity on this corridor too. Capacity improvements are planned for London Gatwick Airport Station to allow more passengers and trains to use this station.



South Central Strategic Radial Corridor SC3

A24/A264/A29/
Arun Valley Line
(Crawley – Fontwell)

Description

This corridor encompasses the Arun Valley railway and the highways that shadows this railway between the Crawley area and Chichester. It passes through several environmentally protected areas, including the South Downs National Park. It provides important connectivity between the Gatwick Diamond and South Hampshire conurbation. It also serves the town of Horsham, which is a focus for future housing development.

The area served by this corridor has the highest density of priority industrial sector jobs in the South East area. However, this strength this does not appear to translate into particularly high residence based earnings.

The key issues affecting this corridor are:

- **High density of priority sector jobs, but low housing affordability:** Despite having the highest density of priority sector jobs in the South East area, this corridor has below average earnings and above average house prices. Housing affordability is therefore low on this corridor, which risks holding back its potential.

The key opportunities to consider for this corridor are:

- **Arun Valley Line:** This railway is relatively slow south of Horsham and the service is relatively infrequent (compared to other nearby corridors). Could be scope for improving journey times on this corridor, which would benefit towns such as Bognor Regis, Chichester and Littlehampton?

Economic Context

Wealth

Median resident earnings along this corridor are **£30,350**, which is relatively low for the South East.

Priority Industrial Sectors

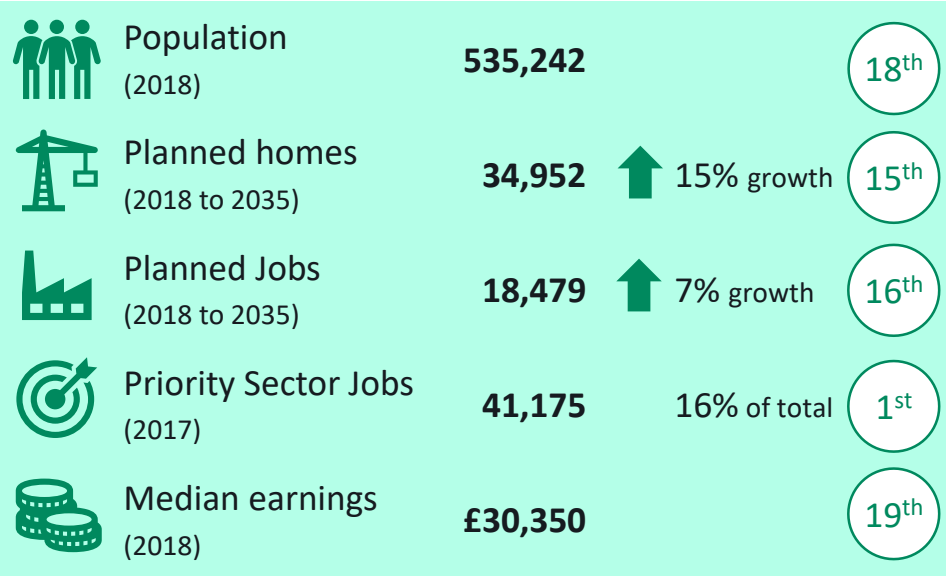
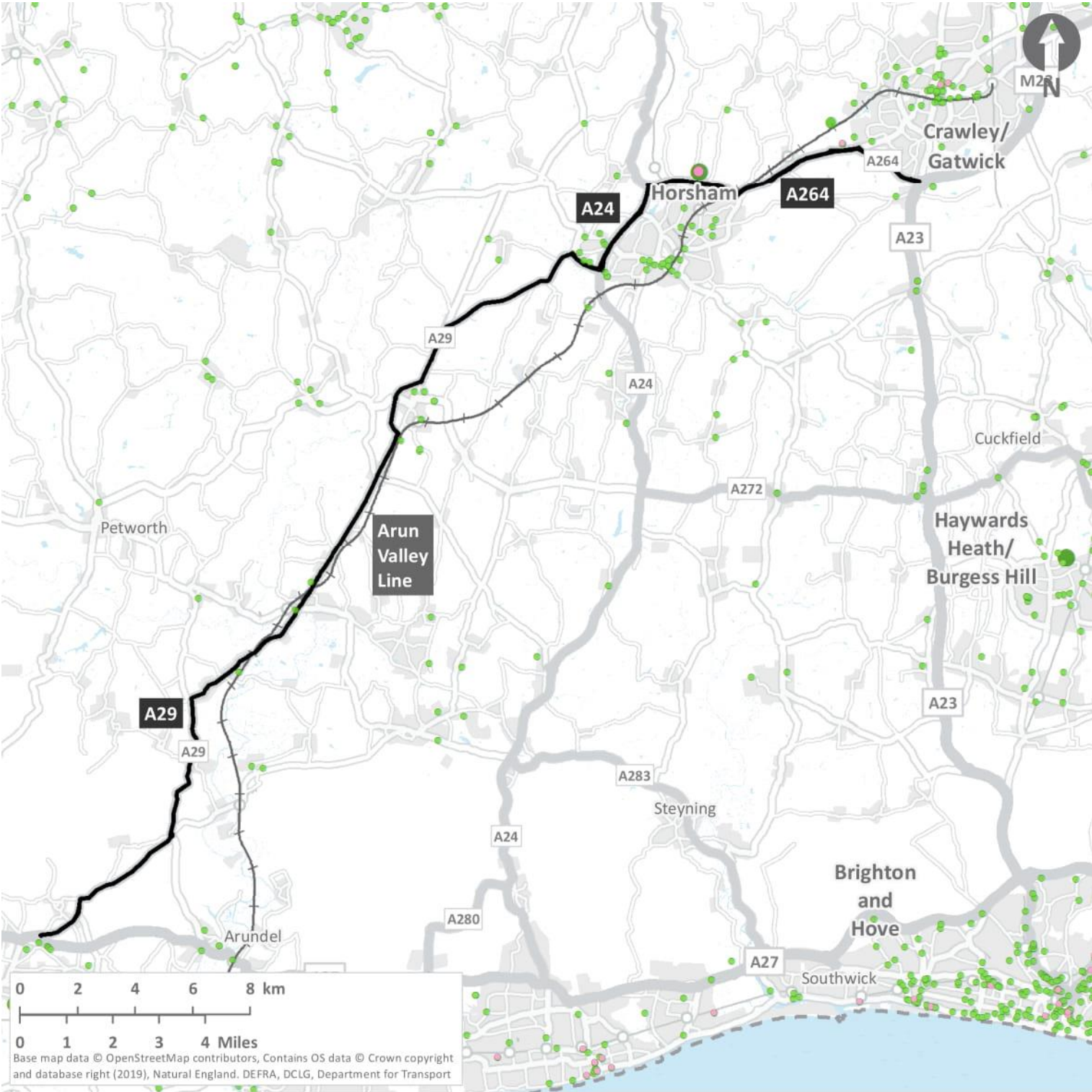
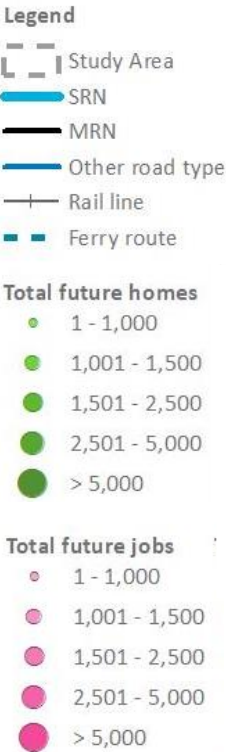
The priority industrial sectors on this corridor are:

- Air transport;
 - Automotive manufacturing;
 - Computer and consumer electronic manufacturing;
 - Computer software programming and publishing;
 - Data processing and hosting;
- Electric power generation and transmission;
 - Horticulture and food manufacturing;
 - Insurance and financial services;
 - Medical technology;
 - Pharmaceuticals;
 - Telecommunications; and
 - Visitor economy and support services.

16% of jobs on this corridor are in priority sectors, which is very high compared to other corridors in the South East area.

Development

A significant portion of the southern part corridor runs through the South Downs National Park, which limits scope for development here. There will be some housing and employment development at the northern end of the corridor, around Horsham and Crawley/Gatwick.



Social Context

Deprivation

Deprivation levels along this corridor are relatively low. The most deprived areas are concentrated at the northern end of the corridor (to the south of Crawley/Gatwick).

Education

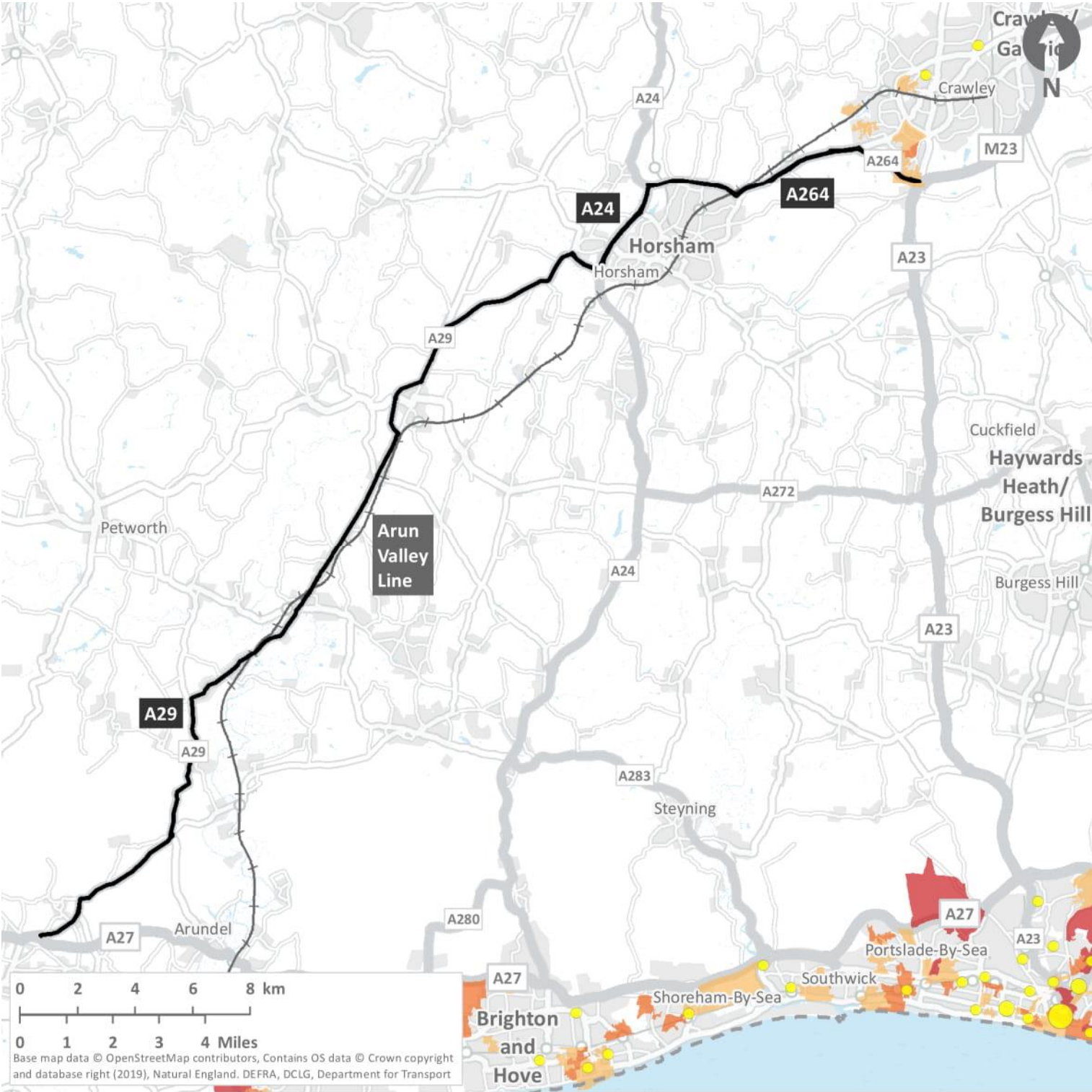
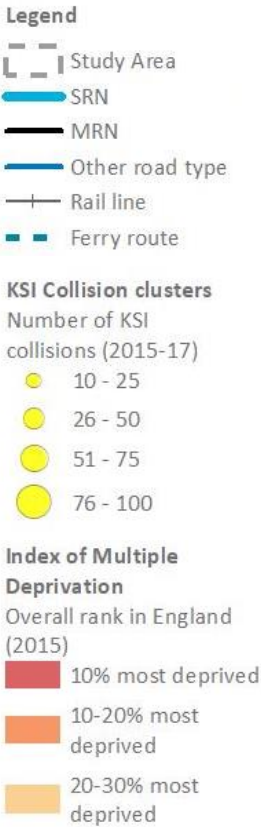
39% of the population on this corridor has a National Vocational Qualification level 4 or above, which is just below average for the South East area.

Safety

There were relatively few clusters of incidents resulting in people being Killed or Seriously Injured on this corridor during the period 2015-17. This reflects its largely rural geography and low population density.

Housing Affordability

Housing affordability is relatively low on this corridor due to relatively low median resident earnings (set against above average house prices).



	Deprived areas (2018, England)	9%	15 th
	Highly educated population (2018, % NVQ Level 4 or above)	39%	14 th
	Average house price (2018, average of corridor's districts)	£326,431	11 th
	Housing affordability ratio (House price / earnings)	10.8	20 th

Environmental Context

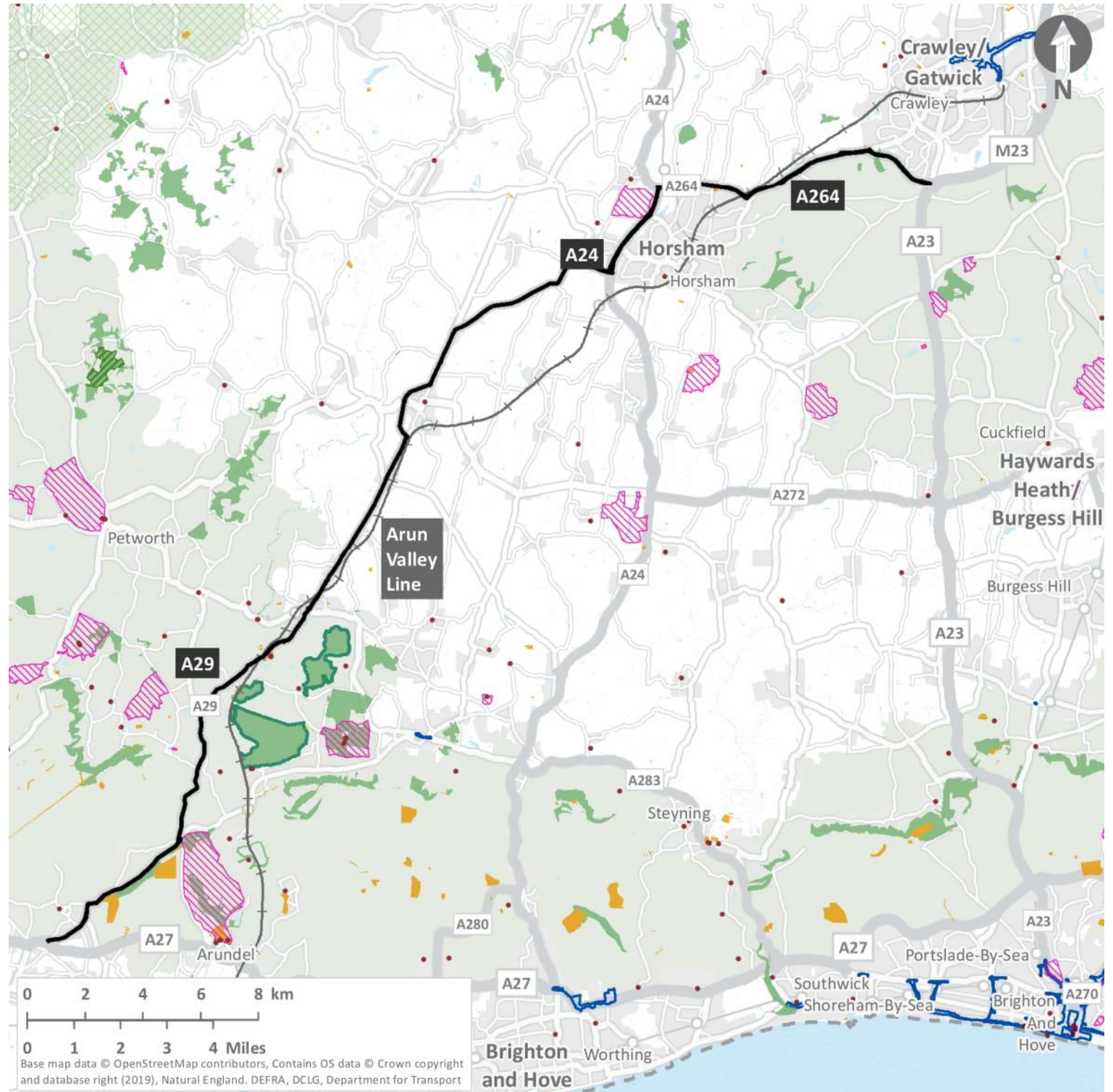
Protected Areas

This corridor passes through the High Weald Area of Outstanding Natural Beauty at its northern end and the South Downs National Park at its southern end.

This route also runs close to a Site of Special Scientific Interest and a historic park at the southern end of the corridor near Arundel.

Air Quality

There is one Air Quality Management Area at the northern end of this corridor in the Crawley/Gatwick built-up area.



Highways

Demand

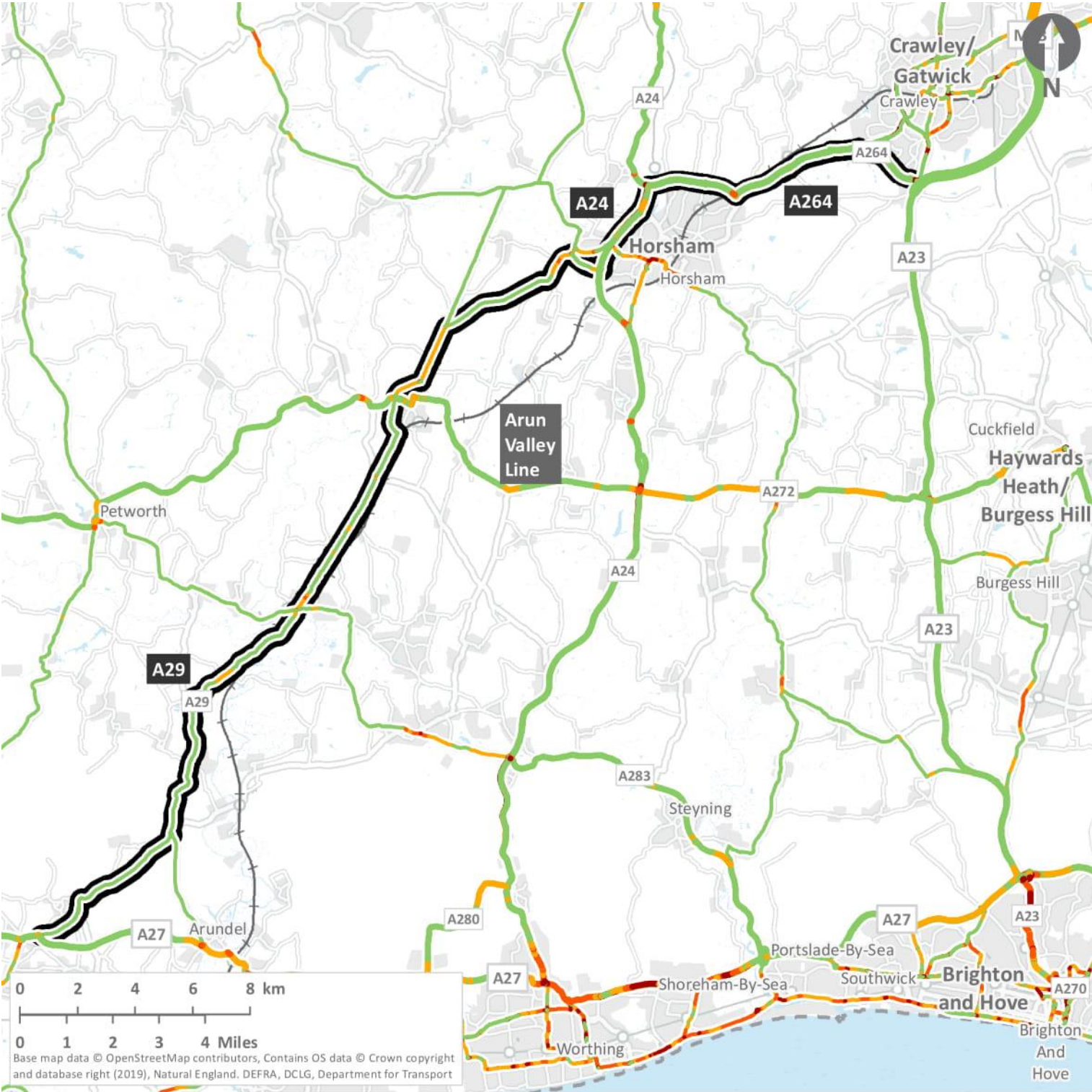
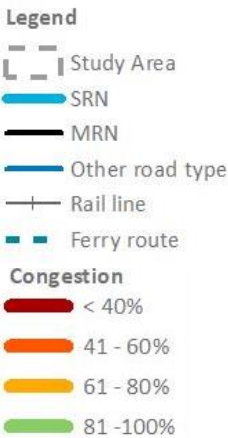
It is estimated that this corridor carries 1,851 vehicles per hour on its busiest section during the AM peak.

Issues and Opportunities

There are relatively few congestion sites along this corridor. Where the corridor intersects other minor roads there are some points where the AM peak speed falls to below 80% of the night-time speed.

Enhancements

West Sussex County Council is currently delivering a scheme at **Broadbridge Heath** (near Horsham), which will provide a relief road for this community. This will relief some pressure on the A24 and A264 and support future housing development in this area.



Peak hour highway demand
(Vehicles/hour on busiest section)

1,851

20th

Railways

Issues and Opportunities

Rail journey times on this corridor are relatively slow due to track alignment. Some stations have relatively short patterns, which limits the capacity for stopping services on this corridor.

The radial passenger rail services that serve this corridor experience similar crowding issues as those described for the M23/A23/Brighton Main Line corridor.

Enhancements

No significant rail enhancements are planned for this corridor. That said, this corridor will benefit from upstream improvements to the Brighton Main Line north of Three Bridges.

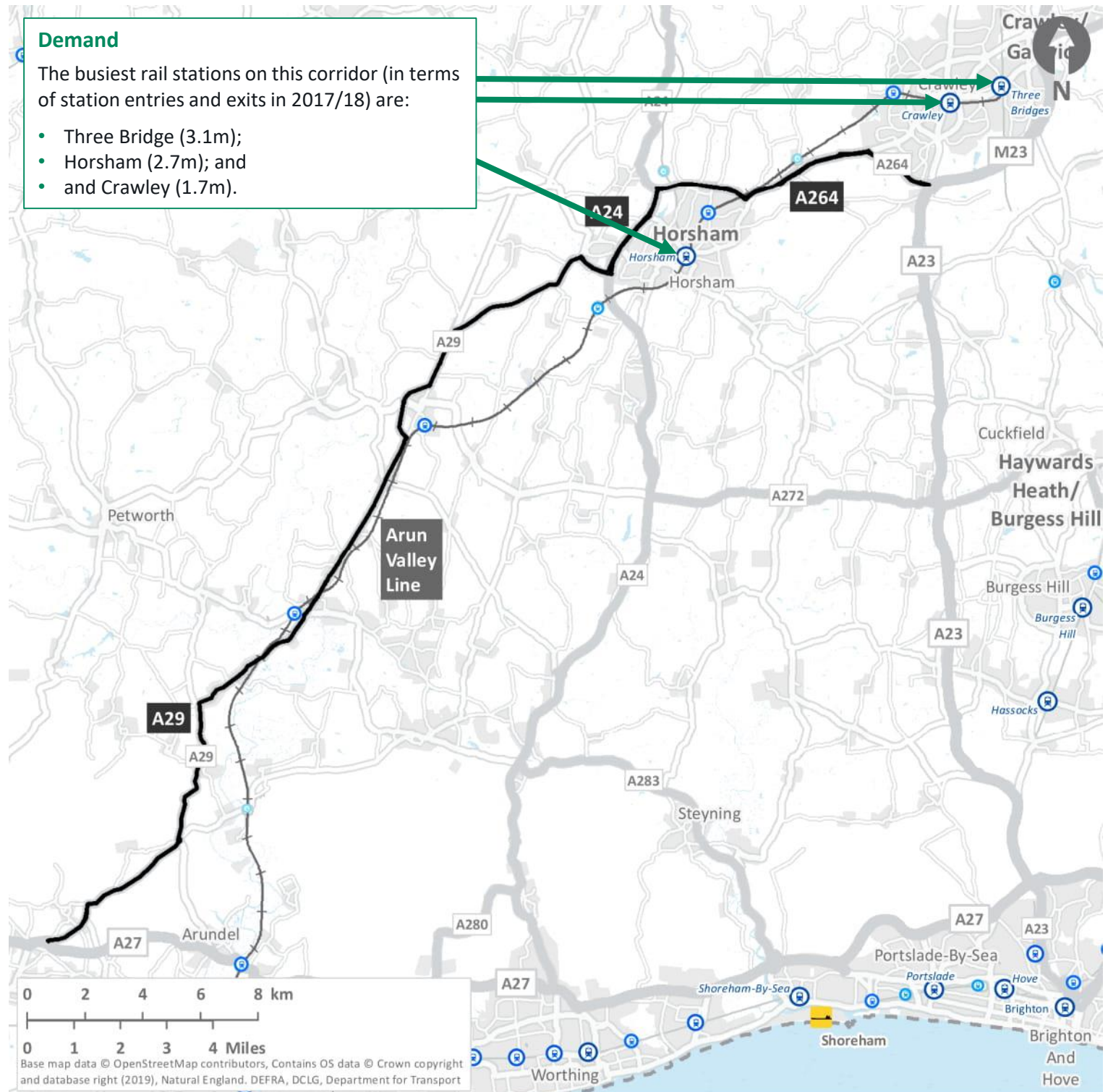
Legend



Demand

The busiest rail stations on this corridor (in terms of station entries and exits in 2017/18) are:

- Three Bridge (3.1m);
- Horsham (2.7m); and
- and Crawley (1.7m).



South Central Strategic Radial Corridors

International Gateways

International Gateways

The M23/A23/Brighton Main Line corridor connects London, the South Coast, and other parts of the South East with London Gatwick Airport. This corridor also serves the Port of Newhaven and Shoreham Port.

Issues and Opportunities

London Gatwick Airport is the 2nd busiest UK airport and the 8th busiest airport in Europe, with over 45 million passengers in 2017. It is a hub for three airlines, including British Airways, and a focus city for further three. It is the busiest single runway airport in the world and regularly experiences congestion during the summer. Gatwick Airport put forward proposals to develop a second runway to the Davies Commission, however, the Department for Transport currently favours providing an additional runway at Heathrow Airport only. Gatwick Airport are currently progressing a Development Consent Order in support of their masterplan, which will bring their standby runway into use on a permanent basis (for departures only).

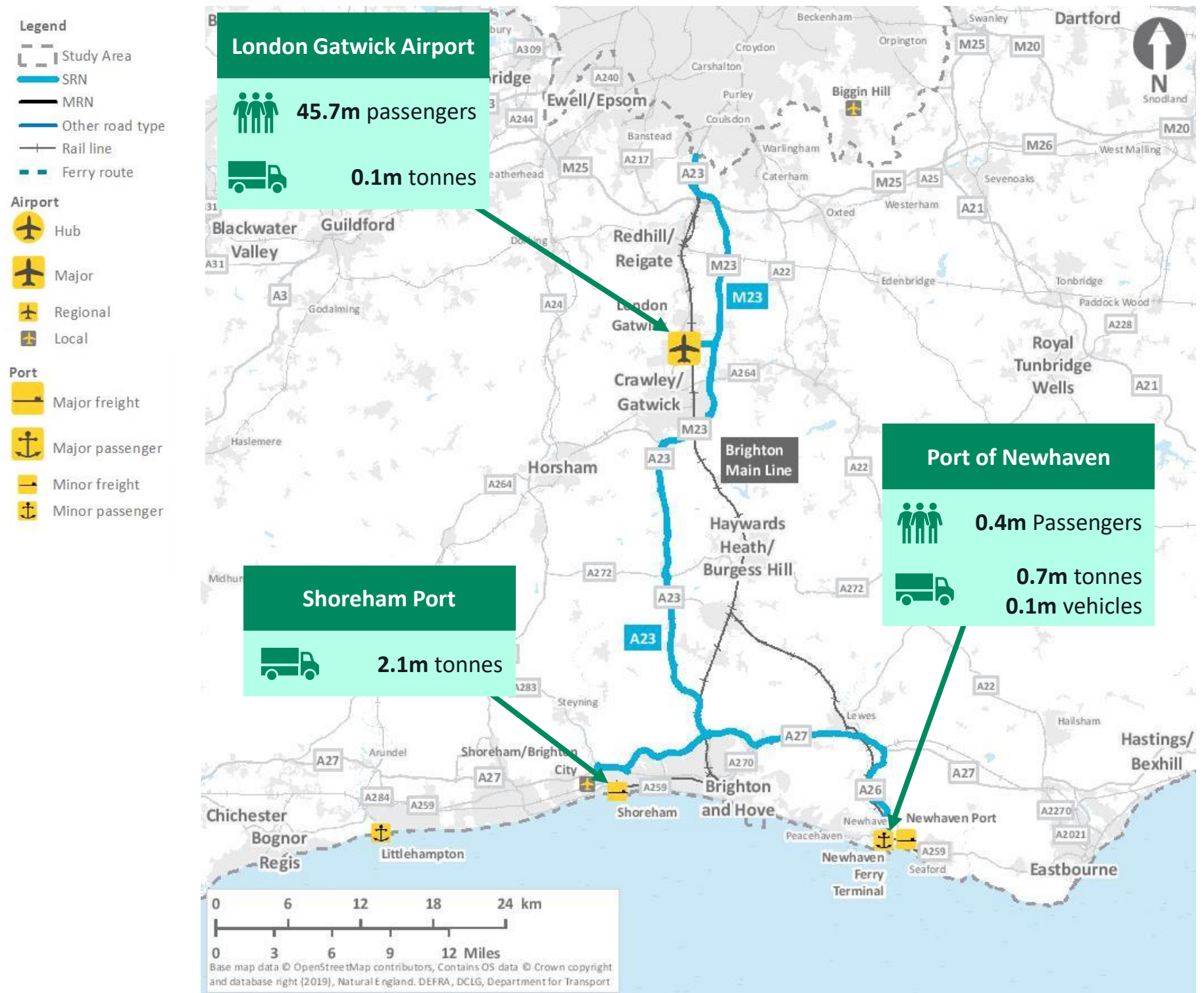
The **Port of Newhaven** may be adversely impacted by changes in border/ferry operations that might arise from the UK's departure from the European Union.

Enhancements

London Gatwick Airport has published a draft Master Plan that sets out how the airport proposes to grow within its existing footprint. This will be achieved through making more use of the runway during off-peak periods, by making greater use of the second (standby) runway during peak operations, and by increasing airplane occupancy and capacity.

In the longer term, there are opportunities to improve **cross-regional rail connectivity to Gatwick Airport** by running more direct services to the airport from places such as Ashford and the Medway Towns.

East Sussex County Council and the Department for Transport are investing in a new **Port Access Road for Newhaven Port**, which is expected to open in 2020.



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