



*Anglia Route Study
Long Term Planning Process
Summary Document
March 2016*



The Railway in Anglia

The railway in Anglia plays a vital role in the region's economy, providing links between communities and employment, industry and markets, and conveying nationally important freight flows from ports where container traffic arrives in the UK.

The rail industry has delivered more trains, reduced delays and improved safety, at the same time as improved efficiency and value over the last 20 years.

Over the next 30 years more and more people are expected to travel by train, and more freight traffic is forecast to come off the road and onto the railway. This presents significant challenges which are explored and options to address them presented in the Anglia Route Study.



Planning for Growth

The Anglia Route Study identifies key corridors and highlights expected increases in passenger and freight flows, proposing options to meet this demand

The Anglia Route Study examines options to improve the railway in East Anglia, setting out a long term strategy to meet growing passenger and freight demand on the railway from 2019 and beyond.

The Route Study sets out a vision for the next 10 to 30 years of a much busier railway, with investment enabling faster, more frequent and more reliable journeys. It presents choices for funders to meet this future demand.

Outside London, the Anglia region has the fastest growing employment in England and needs a rail service to support this economic growth. The benefits of these potential investments will flow far beyond the railway, leading to:

- economic growth
- reduced environmental impact
- regeneration of communities

The Route Study forms part of a suite of Studies for the UK rail network, which represent a crucial component of the railway's Long Term Planning Process (LTPP). Looking ahead to 2043 ensures that those requirements prioritised for the next ten years are consistent with longer-term developments.

The choices set out in the Route Study have been developed together with industry partners to deliver a railway that offers value to taxpayers, users and funders.

The Anglia Route Study Draft for Consultation was published in November 2014 and the consultation ran until February 2015. Over 190 responses were received and have been used to review, update and complete further analysis to support the final strategy for Anglia.



A COLLABORATIVE PROCESS



Anglia Route

The Anglia Route comprises 1,426 track miles covering the whole of East Anglia and routes into and around London

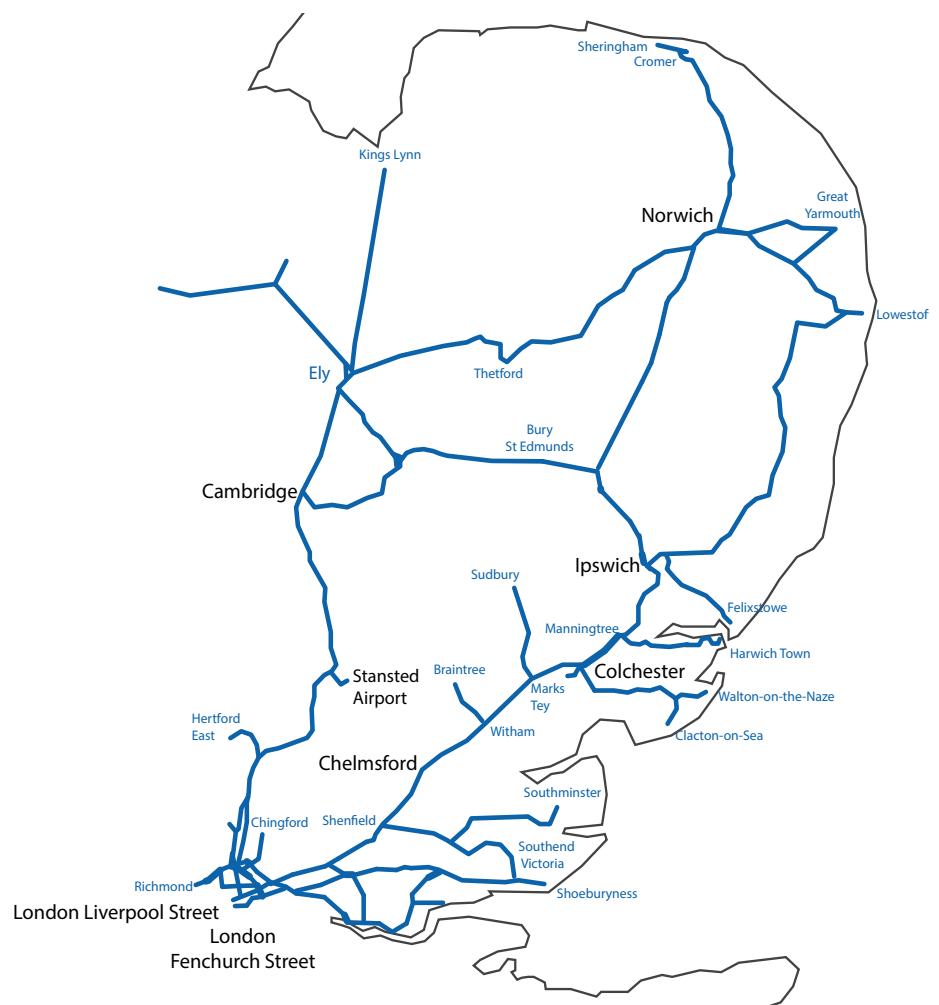
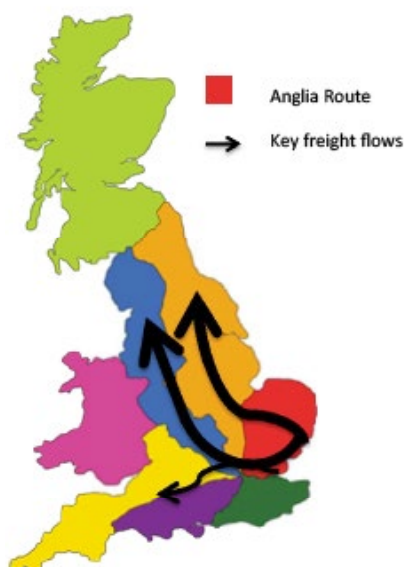
The **Great Eastern Main Line** runs between London Liverpool Street and Norwich and carries key commuter flows into London, a fast-growing long distance flow connecting world leading centres for biosciences, engineering and renewable energy, as well as a significant amount of freight.

The **Cross country corridor via Ely** supports freight between the Port of Felixstowe and other regions such as the Midlands, Yorkshire and Scotland alongside busy inter-regional passenger services.

The **West Anglia Main Line** runs between London Liverpool Street and Kings Lynn and carries busy commuter and leisure traffic from Stansted Airport and Cambridge into London Liverpool Street. It has the potential for significant housing and employment growth.

The **Orbital Routes** include the North London Line (NLL) and Gospel Oak to Barking line (GOB), providing a major link between key arterial routes to and from the capital. It carries a busy commuter service and provides connections for freight to other routes across London.

The **Essex Thameside** route runs from London Fenchurch Street to Shoeburyness and carries a mixture of commuter and leisure traffic along with container traffic to and from the ports at Tilbury and London Gateway.



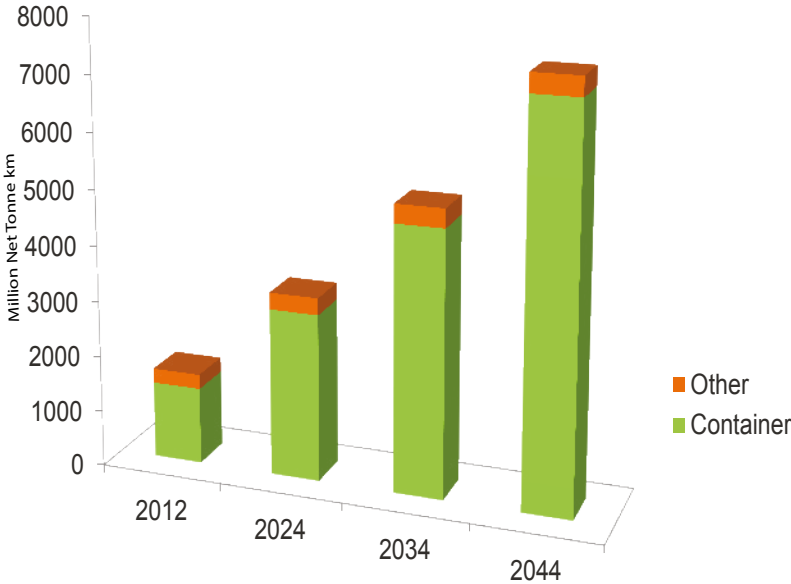
Priority flows and growth

The forecast growth in passenger and freight demand is significant across all main service groups in the Anglia region

In terms of peak-level demand, the pattern for the Anglia route is largely driven by commuting habits to and from London. As a result, additional growth will be driven by employment growth rather than people transferring to rail from other modes of transport.

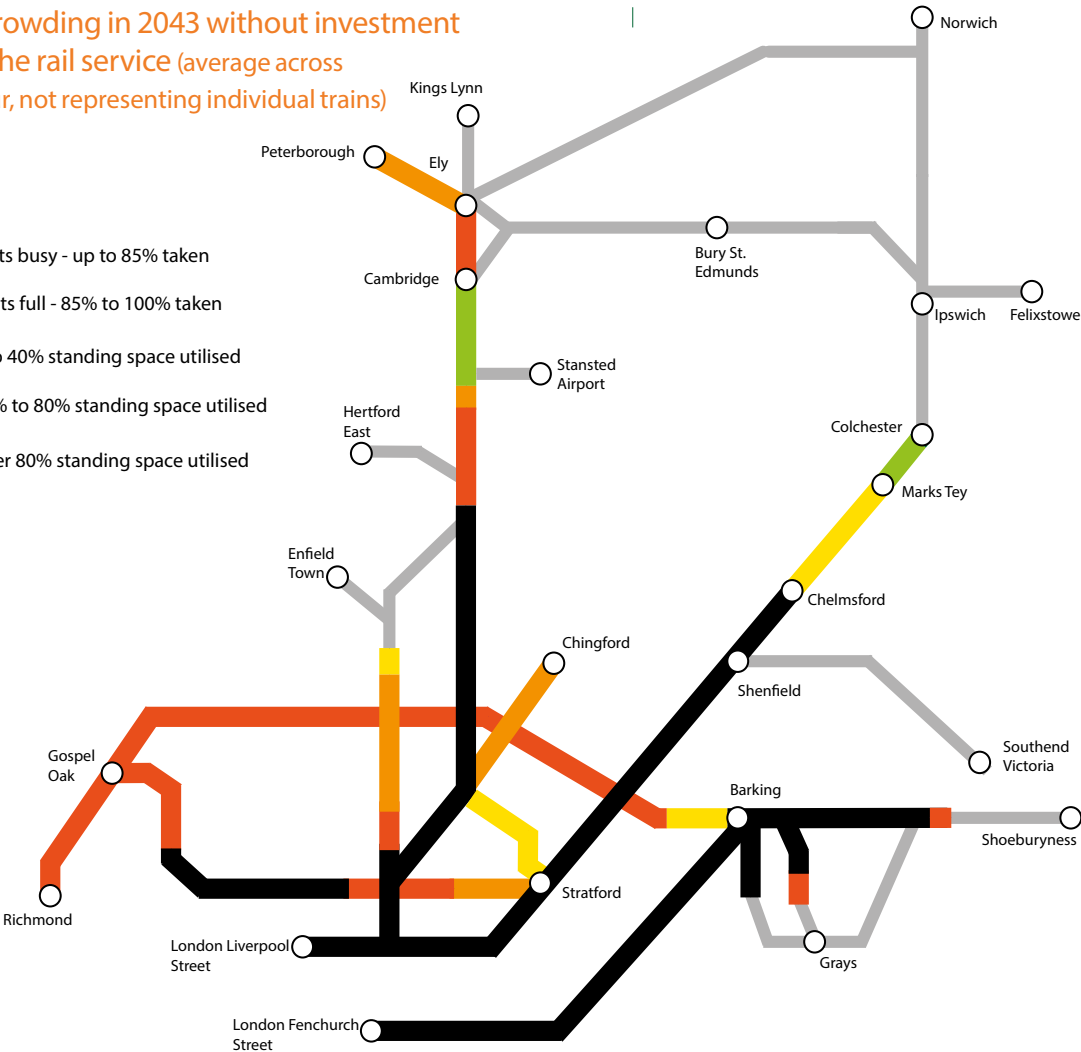
The forecast growth in freight over the next 30 years is significant across the region, particularly in container traffic which is conveyed on the main routes both via London and via Ely to other parts of the country.

Freight growth across Anglia to 2043



Passenger crowding in 2043 without investment to improve the rail service (average across high-peak hour, not representing individual trains)

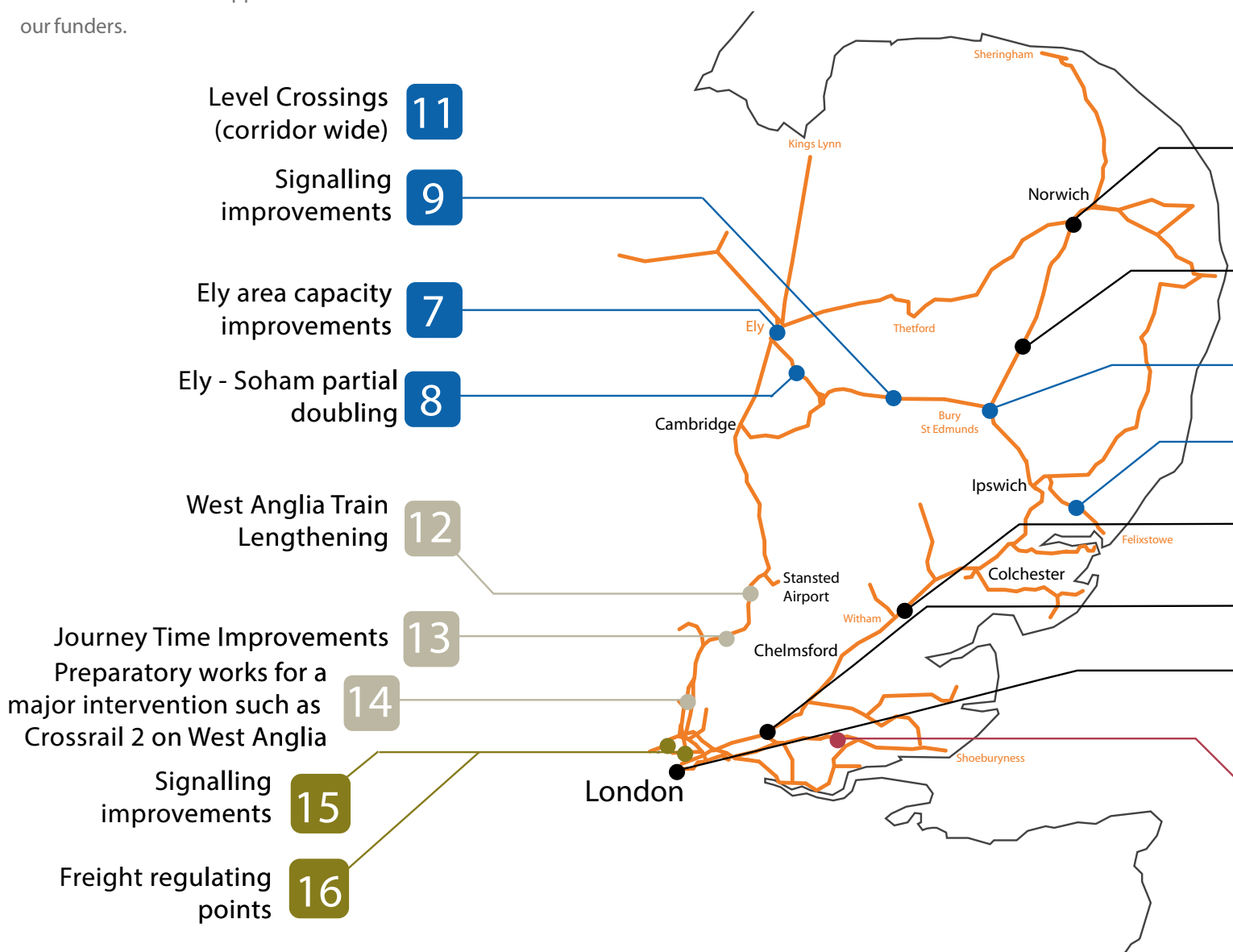
- Seats busy - up to 85% taken
- Seats full - 85% to 100% taken
- 0 to 40% standing space utilised
- 40% to 80% standing space utilised
- Over 80% standing space utilised



Choices for funders

Investment is required in Anglia to meet forecast growth in both passenger and freight numbers

There is the clear potential in Anglia for further growth and expansion which would be significantly supported and enhanced by improvements to the railway. We have therefore set out a number of investment opportunities for our funders.



- 4** Doubling Trowse Bridge
- 5** GEML Level Crossings
- 10** Haughley Junction Doubling
- 6** Felixstowe Branch Capacity Enhancement
- 3** Loop north of Witham
- 2** Signalling improvements
- 1** Liverpool Street Station Capacity
- 17** Essex Thameside Train lengthening

Great Eastern Main Line
To deliver more and faster trains
<ol style="list-style-type: none"> Improvements at London Liverpool Street station including more passenger space and additional platform(s) Improvements to signalling to allow more trains to run between Chelmsford and Stratford (through Digital Railway) Passing loop north of Witham Doubling of Trowse Swing Bridge Level crossing closures or improved safety mitigations

Cross country corridor via Ely
To deliver more freight trains and better connectivity
<ol style="list-style-type: none"> Felixstowe Branch capacity enhancements Ely area improvements, including signalling improvements to allow more trains to run, Ely North Junction and level crossings Partial doubling of the Ely to Soham single line Improvements to signalling to allow more trains to run at Ely and Bury St Edmunds Haughley Junction doubling Level crossing closures or improved safety mitigations

West Anglia Main Line
To enable housing growth and economic development through more and faster trains
<ol style="list-style-type: none"> Longer trains on peak services Line speed improvements to support faster journeys Preparatory works for a major intervention such as Crossrail 2 on West Anglia

Orbital Routes (NLL & GOB)
To deliver more freight and passenger trains
<ol style="list-style-type: none"> Improvements to signalling to allow more trains to run Regulating points enabling freight to wait for a path without detaining passenger services

Essex Thameside
To deliver more seats in peak hours
<ol style="list-style-type: none"> Longer trains on peak services <p>Train lengthening comprises both the medium and long term strategy on this corridor. Should the realised rate of growth out-perform the forecasts in the medium term, it is still likely to fall within the longer term demand forecasts. The strategy will therefore still cater to this speedier passenger increase, but may require earlier implementation.</p>

Longer Term

An intervention such as Crossrail 2 is required to meet demand and improve the frequency of services on the West Anglia Main Line to support further economic growth on the corridor and support improved cross-London capacity.

On the Great Eastern Main Line further enhancements to support peak growth will be required.

Planning for the Future

Improving Safety

There are over 800 level crossings on the Anglia Route.

In order to run more trains, the risk of either people or vehicles interacting with trains will likely increase. The most effective way of reducing level crossing risk is to remove the crossing completely.

Network Rail is working on a rolling programme to reduce level crossing risk. Each public level crossing closure is examined on its merits and in the context of the surrounding network of rights of way and where required, alternative access routes provided.

A more resilient railway

The resilience of the railway to extreme weather events is a considerable part of Network Rail's future plans for a safer and more reliable network.

The railway was severely affected by the winter storms of 2013/2014. These events have brought into sharp focus the vulnerability of parts of the railway to changes in climate and the increase of extreme weather events. The Anglia Route has developed a Weather Resilience and Climate Change Adaptation Plan (WRCCA) which sets out a management plan.

There are a number of proposed interventions that need investment to increase the resilience of the railway. These need to be considered in conjunction with any proposed enhancement options, so that the foundations for a robust network are in place to meet the needs of all rail users.

Digital Railway

Investing in technology will help us improve the way that we manage the railway.

The Digital Railway programme is being developed by Network Rail and rail industry partners to accelerate the introduction and roll out of new technologies across the network.

The Anglia Route Study has identified where new technology can support more trains and faster journeys. There are clear opportunities on the Great Eastern Main Line and Cross country corridor via Ely where the European Train Control System (ETCS), combined with changes to the network, can be used to improve the train service, providing vital new capacity on the lines.

We are working on the potential early deployment of Digital Railway technology on the Norwich - Yarmouth - Lowestoft (NYL) lines, which could bring benefits to passengers in terms of performance.



Focus on Journey Time

Faster journeys are very important for rail customers - there are clear aspirations to see reductions in journey times on the Great Eastern Main Line and for Stansted - London services

Quicker journeys are made difficult by the mix of trains utilising the same tracks. The Great Eastern Main Line and West Anglia Main Line (Stansted route) both support semi-fast services which call at the majority of stations, freight which generally travels at between 60 and 75mph and fast services which call at only limited points on the route. With no opportunities for services to overtake, the fastest service is constrained by the slowest train using the route.

The strategy for faster journeys therefore comprises a combination of changes to the type of trains in use (the speed and acceleration of the train), the infrastructure and the timetable. Increasing the line speed capability alone will not achieve faster journeys when slower trains (calling at more stations) are still using the same track.

A combined approach

Line speed improvements have been investigated on both the Stansted route and Great Eastern Main Line. These would require complex changes to many parts of the railway, such as signalling, overhead line electrification, level crossings, bridges and track.

The Great Eastern Main Line comprises two tracks north of Shenfield and therefore improvements to journey times will require alterations to the track layout to increase track capacity for more trains and new overtaking facilities so that faster services can overtake the slower traffic.

The West Anglia Main Line currently comprises two tracks and therefore improving Stansted service journey

times again is limited by the slower passenger services on the route which stop at inner stations between Bishops Cleeve, Tottenham Hale and Liverpool Street. More tracks on this route will allow for service increases on the West Anglia Main Line and also provide journey time

improvements for Stansted services through the ability to route fast and slow services on different tracks. In the shorter term, faster journeys can be achieved through combined changes to the type of trains, service pattern and increasing the line speed at a number of locations.



Anglia Route Study

Acknowledgements

The development of the Anglia Route Study has been made possible through close collaboration with funders, customers and stakeholders. Over 190 consultation responses were received and we would like to thank everyone for their contribution to the final document.

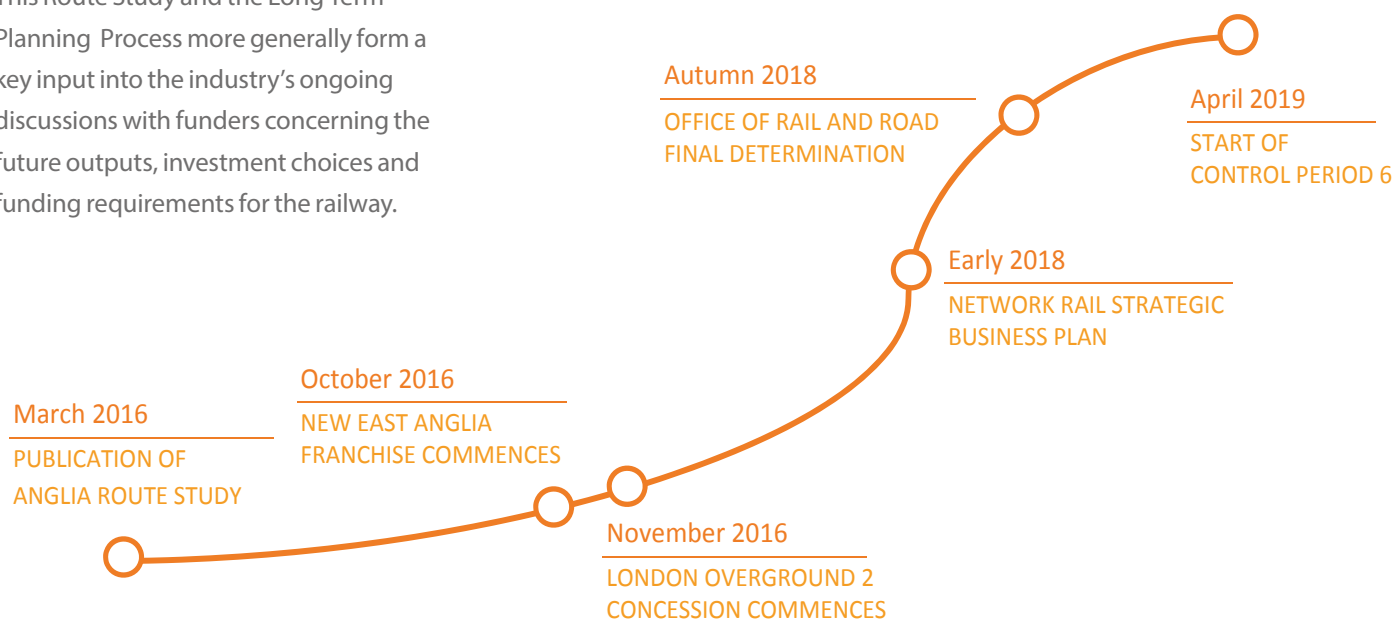
We would also like to thank the Great Eastern Main Line Taskforce and West

Anglia Main Line Taskforce for continuing to promote improvements to rail and for contributing valuable analysis and information on the benefits which improved rail services can contribute to the economy.

Network Rail will continue to work closely with both taskforces and stakeholders.

Next Steps

This Route Study and the Long Term Planning Process more generally form a key input into the industry's ongoing discussions with funders concerning the future outputs, investment choices and funding requirements for the railway.



There is a lot of detailed analysis in the Anglia Route Study that underpins the summary we have presented here; the full document is available at:

www.networkrail.co.uk/long-term-planning-process/Anglia-route-study/