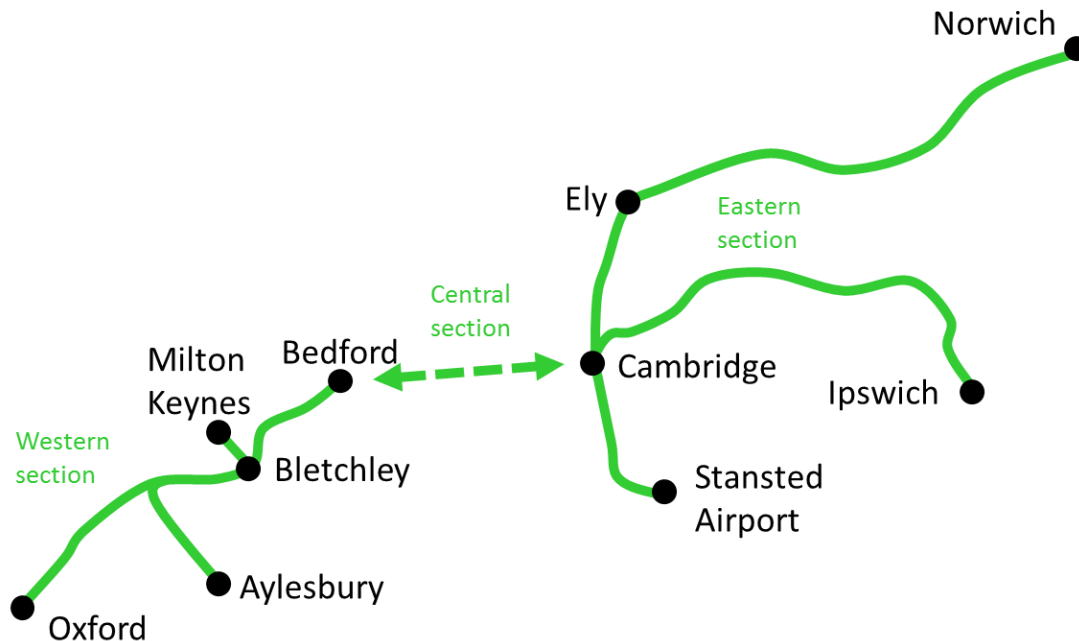


## Railfuture Oxford to Cambridge (East West Rail) campaign

### Briefing note on route options for the Central Section from Bedford to Cambridge

#### Introduction

The government and the Office of Rail Regulation have approved the upgrading and rebuilding of the railway between Oxford and Bedford, the Western Section of East West Rail. Railfuture is a long-term campaigner for the completion of the East West Rail project to Cambridge and into East Anglia. The Eastern Section of the route is already in use from Norwich and Ely to Cambridge via the soon to be opened Cambridge Science Park station; from Ipswich via Bury St Edmunds and Newmarket to Cambridge; and from Stansted Airport to Cambridge.



*Map 1: The East West Rail Link*

Between Bedford and Cambridge some of the original route is lost to development and population growth in the region has occurred away from the original stations. The question of corridor and route selection is therefore a key factor in making the case for the Bedford to Cambridge (Central) section of East West Rail. Railfuture is assessing the candidate corridors that have been identified by the East West Rail (EWR) Consortium. An early conclusion is that routes for possible approaches to the two nodes, Bedford and Cambridge, should be agreed and protected at an early stage, such is the pace of growth and development.

## Purpose

The purpose of this document is to set out the options for EWR route options for the approach to Cambridge from the west. The options for Bedford will be covered by another document. The intention is that the options should be reviewed by the local planning and transport authorities and appropriate protection from development incorporated into Local Plans.

## Assumptions

The primary origin / destination of passenger trains will be Cambridge station. We have not considered alternative destinations. Cambridge Science Park is another important station in Cambridge, but we take this as a secondary destination; it can be served by EWR trains en route from Norwich. We assume that Cambridge station has the capacity for the new service from Oxford, or could be expanded into the sidings on the east side of the station.

Routes which would require extensive tunnelling, e.g. to avoid disruption to urban areas have not been considered.

All the options use a southern route from Cambridge station. Routes to the north have a number of significant disadvantages:

- number of road crossings;
- continuous built-up areas making it difficult to find a route;
- longer distance to Bedford;
- need for trains from Norwich or Ipswich, which enter Cambridge station from the north, to reverse in the station to proceed west. However, a northerly route out of Cambridge would be convenient for the continuation of trains from Stansted Airport.

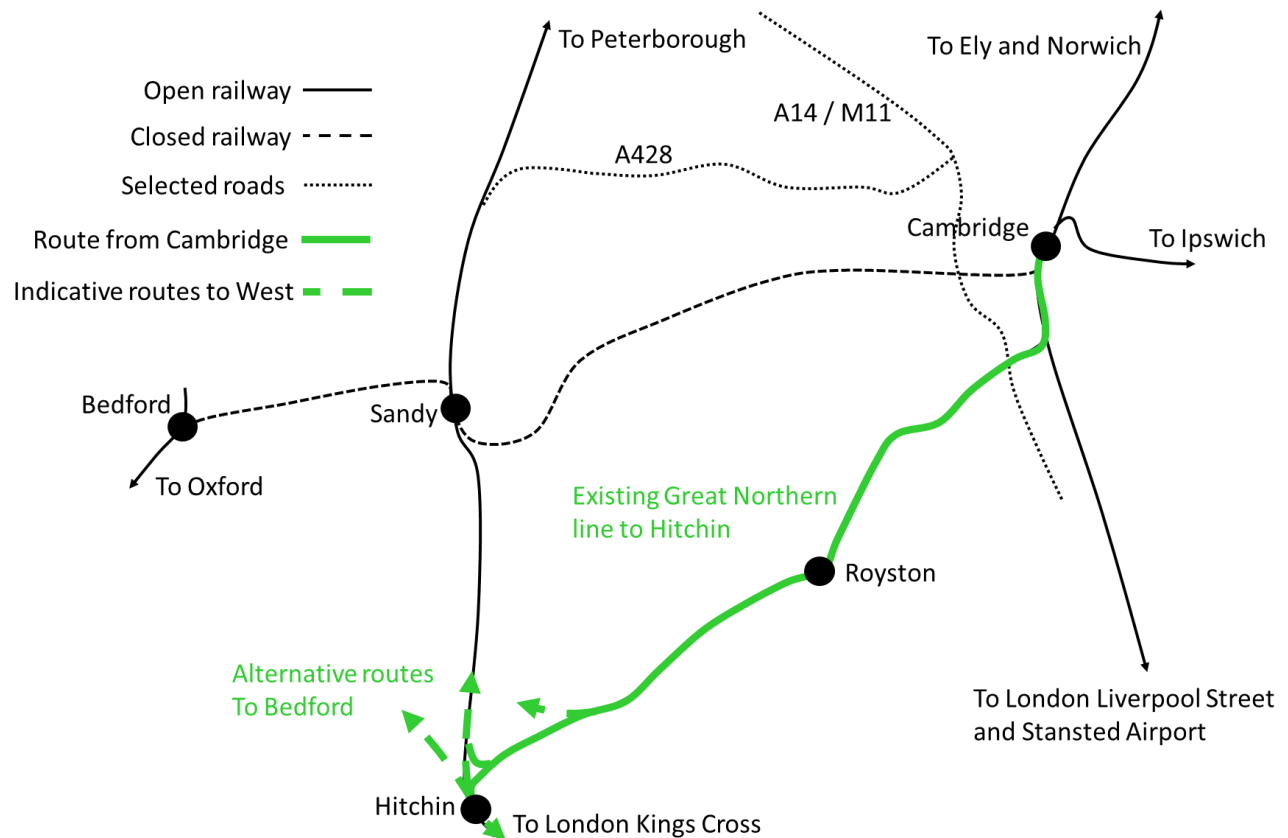
The railway will consist two tracks designed for main line running speeds (100 mph or above). The line should be designed to accommodate overhead electrification equipment.

***Note that the maps to illustrate the options are only indicative and do not show or imply the exact route which a particular option will take, but instead show broad route corridors.***

## ROUTE OPTIONS

### Option A1 – Existing Great Northern route to Hitchin

Option A1 uses the existing Great Northern Line south to Shepreth Branch Junction (where the Liverpool Street line diverges) then via Royston line to Hitchin from where a number of options are available to access the western section at Bedford.



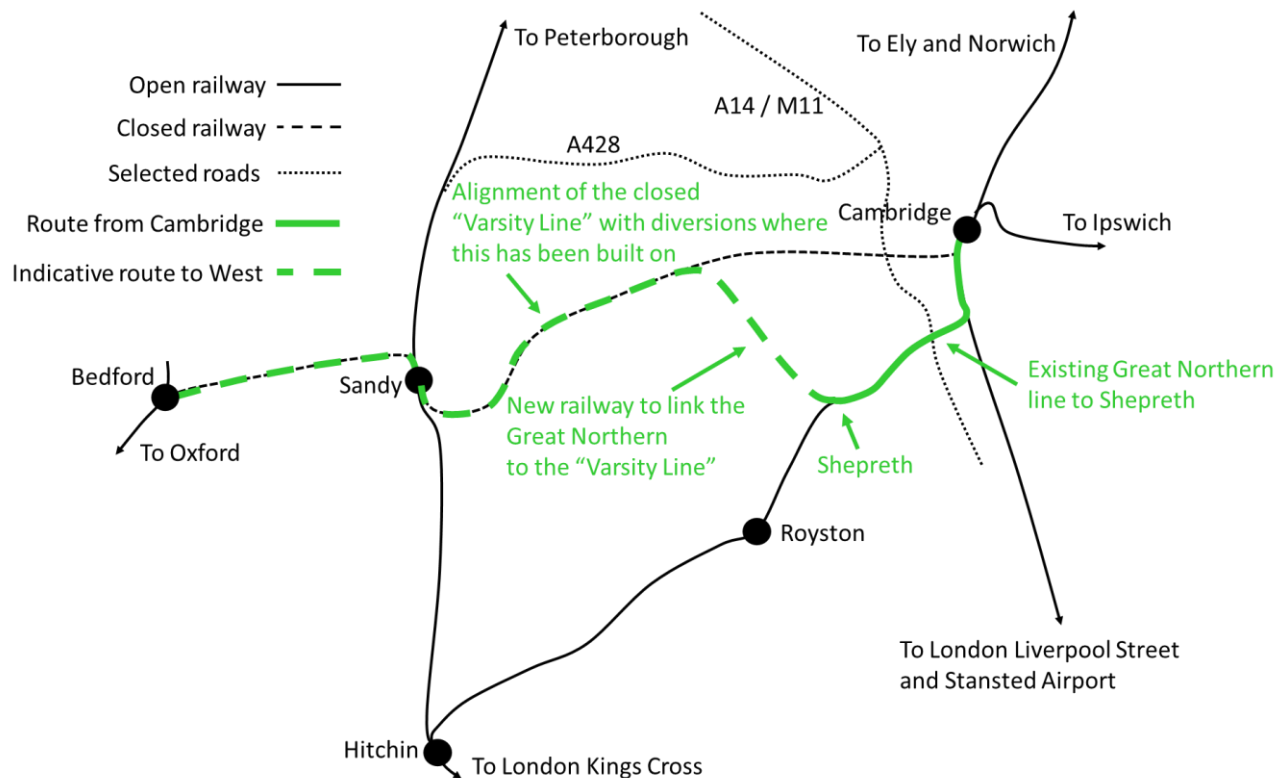
*Map 2: Southern Corridor route largely using the existing Great Northern railway*

Some enhancements to the existing line may be necessary owing to the increased frequency of trains; for example reinforcement of the power supply between Cambridge station and Shepreth if electric trains are used. There is also the issue of the A10 crossing at Foxton. The existing level crossing is likely to require upgrading or replacing by a road bridge or road tunnel. Other minor pedestrian and farm crossings will require similar upgrade or replacement. These crossing issues may be addressed under the Thameslink project which involves an increase in the frequency of trains between Cambridge and London via Shepreth.

### Option A2 – Existing Great Northern route to Shepreth linked to the former Varsity Line

In Option A2 the existing Cambridge to Royston and Kings Cross line is used as far as a new junction near to Shepreth station. At this location a new line takes the route north towards the original railway via a short tunnel in the Barrington area. The original route is gained near the Mullard Radio Astronomy Observatory (MRAO) to join an alignment making use of the trackbed of the former Varsity Line.

Further west there are other interruptions to the original route owing to development. However, a new route through South Cambridgeshire based on this corridor is possible on land currently designated for agricultural and miscellaneous unbuilt purposes.



Map 3: Central Corridor route accessed via the existing Great Northern railway

This route option can be easily electrified throughout as the existing line is electrified and the new railway is outside built-up areas. Upgrading of the existing Great Northern line to Shepreth may be necessary owing to the increased number of trains, in a similar way to Option A1.

The following would need to be protected:

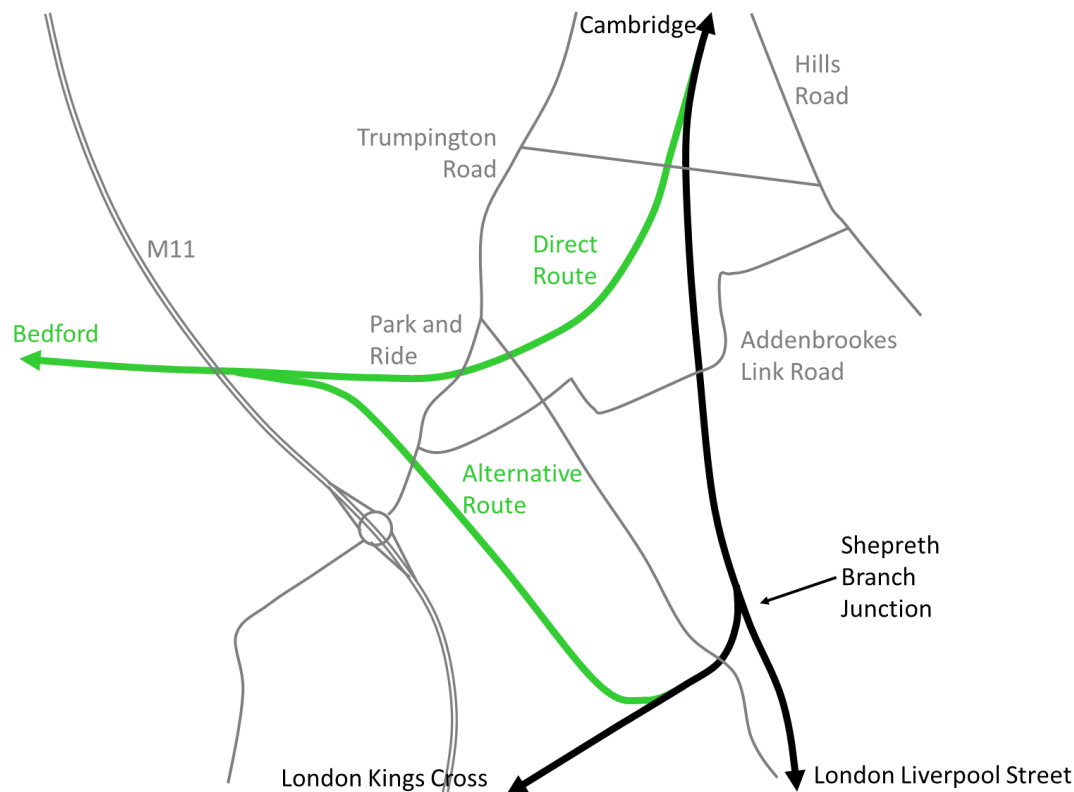
- Site for replacement of Foxton Level Crossing by a road bridge or road tunnel;
- Site near Shepreth for a junction and new railway north to MRAO.

### Option B1 – Route to Trumpington Park and Ride then a new railway along the A428 Corridor via Cambourne/Bourn Airfield

This option is based on a new railway diverging from the existing southbound line from Cambridge station a short distance south of Hills Road bridge. The new line runs on the same alignment as the existing guided busway. The busway alignment would need to be widened in order to accommodate a twin track railway at about the same level. Measures to reserve land for this widening should be considered.

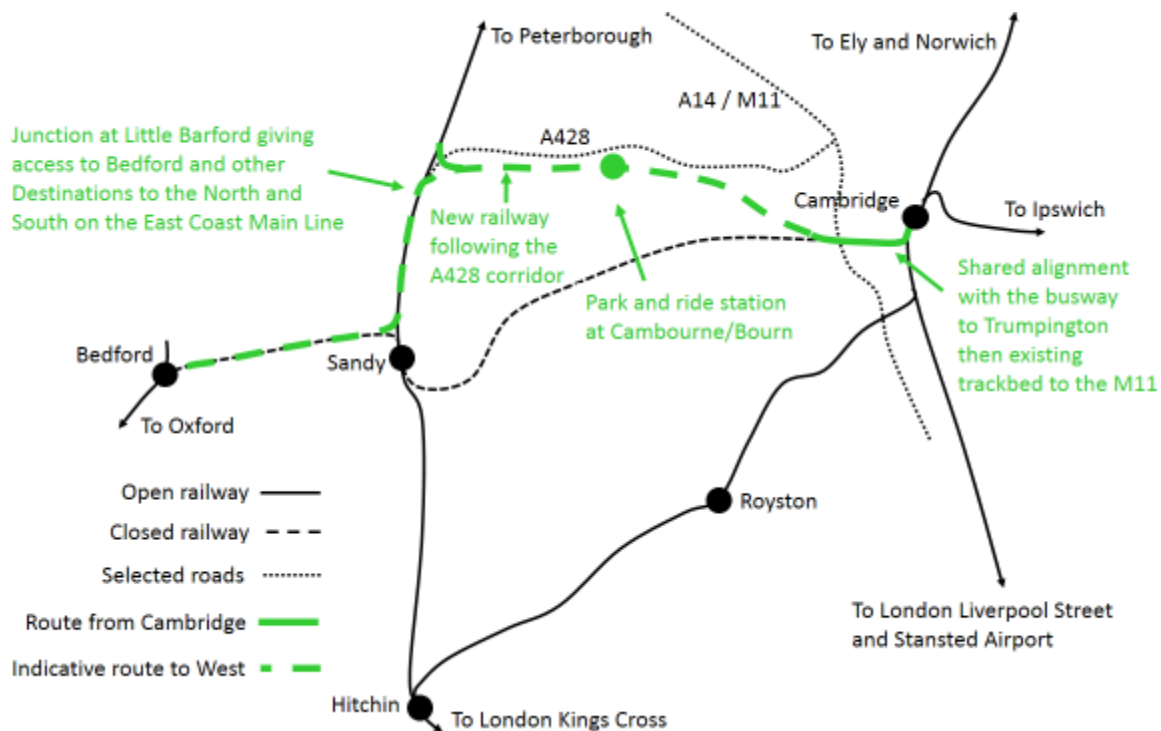
Approaching Trumpington, the line continues at a low level in the existing cutting with the bus / cycle ways re-routed over it at ground level. The cutting may have to be deepened and boxed in to achieve this. The rail route enters the Trumpington Park and Ride site via this shallow box and this could be designed as a station.

A possible alternative option would be to leave the Great Northern Route further south after Shepreth Branch Junction. However this would add additional mileage and would put pressure on the already busy Shepreth Branch Junction.



Map 4: Accessing the former Varsity Line and A428 Corridors

The line would follow the old route for a short distance then head in a northwest direction to a completely new alignment, running cross-country along the A428 corridor and serving Cambourne/Bourn Airfield developments.



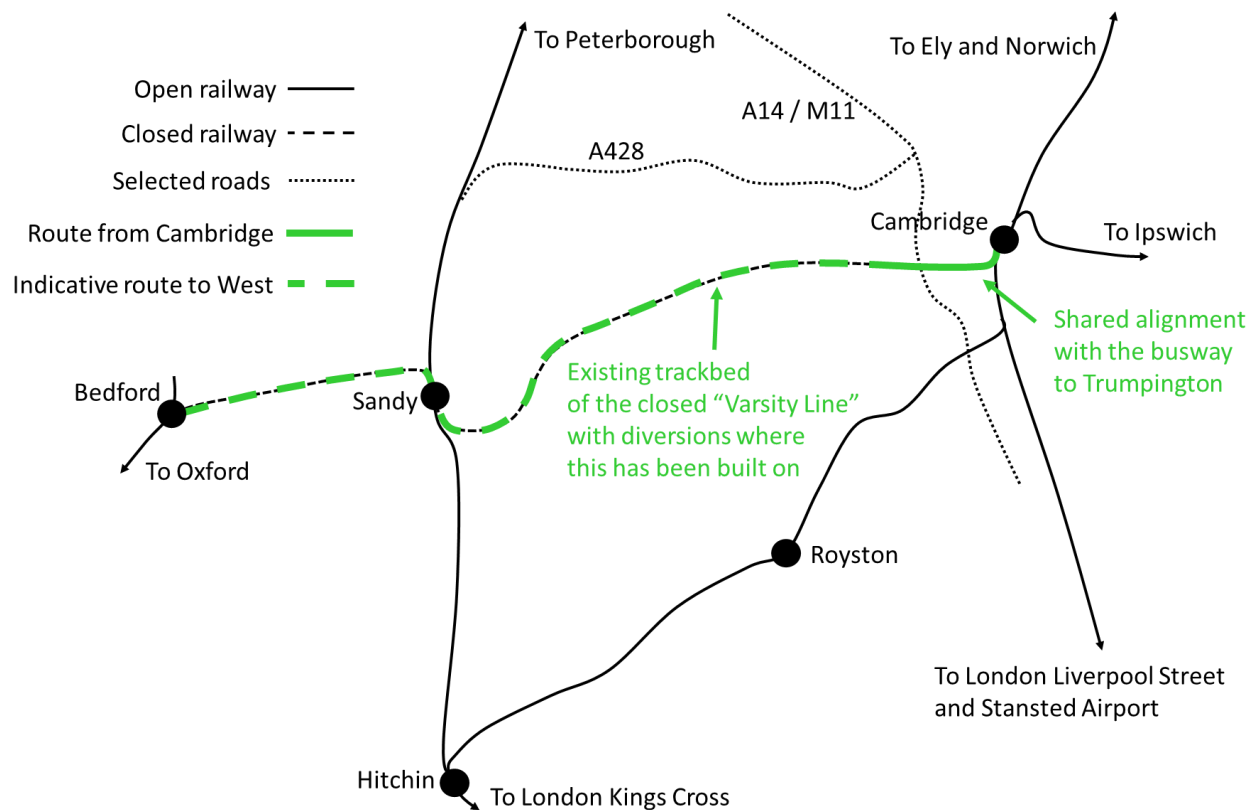
Map 5: Northern A428 Corridor route

The following would need to be protected:

- A linear site from the existing railway south of Cambridge station, to the Trumpington cutting, wide enough to allow co-location of a new railway and busway;
- Protection of the Trumpington cutting from crossings by utilities to ease the construction of a deeper cutting or shallow tunnel;
- Land near or on the Trumpington Park and Ride site for use as a temporary construction base.
- A linear site west from the Park and Ride site to a crossing of the M11;
- A linear site west of the M11 following the designated route running along the A428 corridor.

## Option B2 - Route through Trumpington Park and Ride then the trackbed of the former Varsity Line to Sandy

This is a hybrid of Option B1 (following the route via Trumpington Park and Ride out to the trackbed of the former Varsity Line) but then continuing along the Varsity line as described in Option A2 rather than following the A428 corridor.

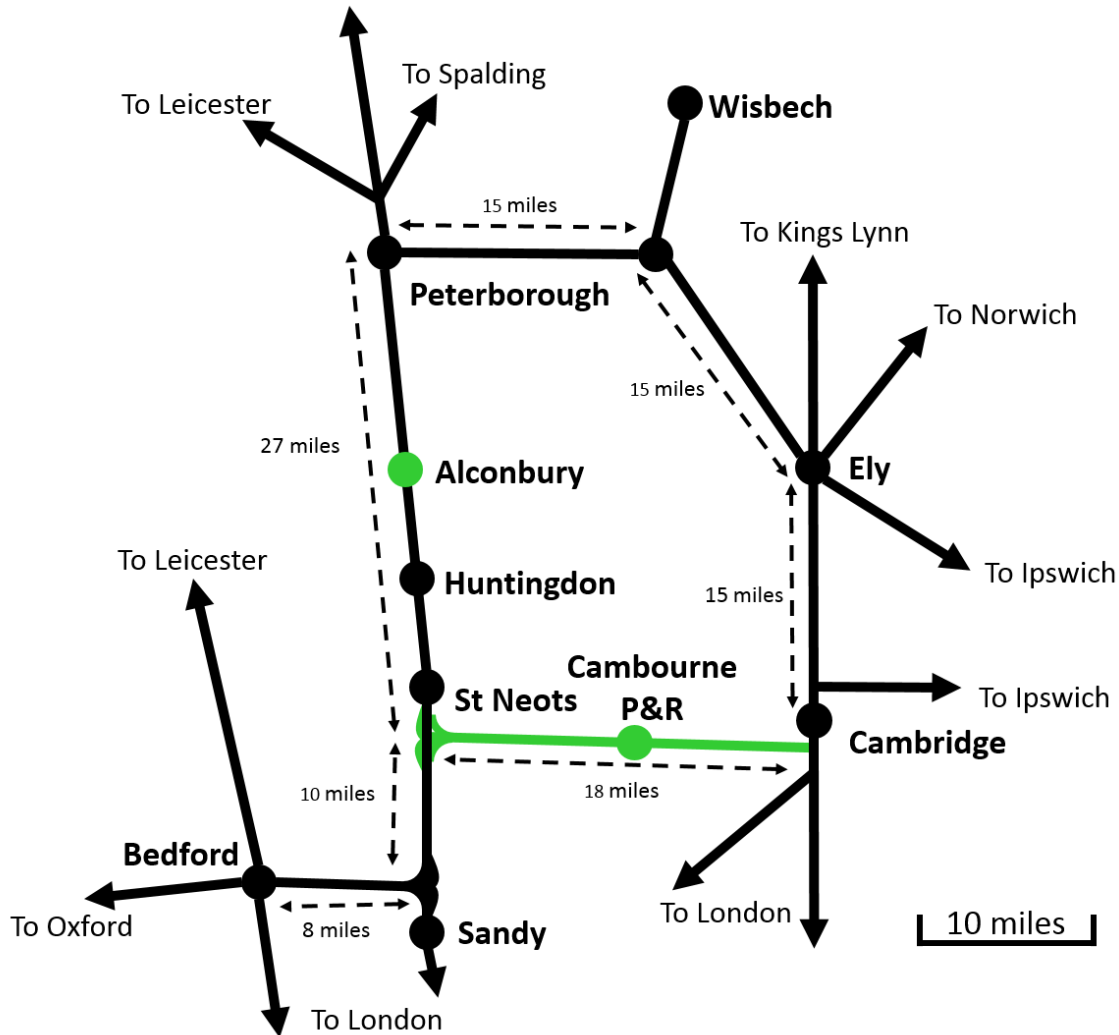


Map 6: Central Varsity Line Corridor route

Refer to options A2 and B1 for details of what would need to be protected.

## Benefits of Option B1

Option B1 could provide additional benefits to Cambridgeshire by following an alignment focused on emerging needs from population growth, increased economic activity, and capacity pressures on other roads and railways. The other options (A1, A2 and B2) in general follow existing railway alignments including in-use routes and former routes. *Railfuture will provide a more detailed analysis of these options in a future report.*



Map 7: Diagrammatic Map showing possible added value of the Northern A428 Corridor route



**Option B1 would allow the following passenger and freight services to be developed:**

**Cambridge to Bedford and Oxford**, the distance between Cambridge and Bedford being just under 35 miles via Little Barford and Sandy, Bedford St Johns. Fast limited stop express trains could run twice an hour to Oxford via Bedford and Milton Keynes–Bletchley.

**Cambridge, St.Neots, Huntingdon, Alconbury, Peterborough**. This route would be about 45 miles long, about the same as the Cambridge – Peterborough route via Ely/March. (This based on the assumption that the ECML is 4 tracked in its entirety between Huntingdon and Peterborough.

It would, however, be a faster route enabling a Cambridge to Peterborough timing of about 35 - 40 minutes, providing a high **volume/velocity passenger train route** from Peterborough, Alconbury , Huntingdon and St. Neots to Cambridge and beyond.

**Cambridge – Cambourne Park & Ride – London** fast passenger services could be developed (as could Bedford to via Stevenage services if a south facing junction were to be installed at Sandy.)

**A Cambourne /Bourn Airfield park and ride station** would significantly improve public transport provision to the west of Cambridge, including the new Cambridge University developments to the west of the city.

**It would also provide additional freight train paths from Felixstowe etc. to Peterborough, relieving the Ely to Peterborough route and via ECML to Sandy and Bedford, providing easier access to Daventry freight terminals, in particular.**

**It would provide the following Additional Benefits:**

The A14 trunk road would have relief in that passenger trains via Alconbury to Cambridge could be available.

Additional freight trains could be provided to take more railfreight traffic from Felixstowe docks.

In an age when the rail network is increasingly busy, new routes to provide easier access to the network will be invaluable as will be the possibility of more network flexibility in times of planned and unplanned disruption.

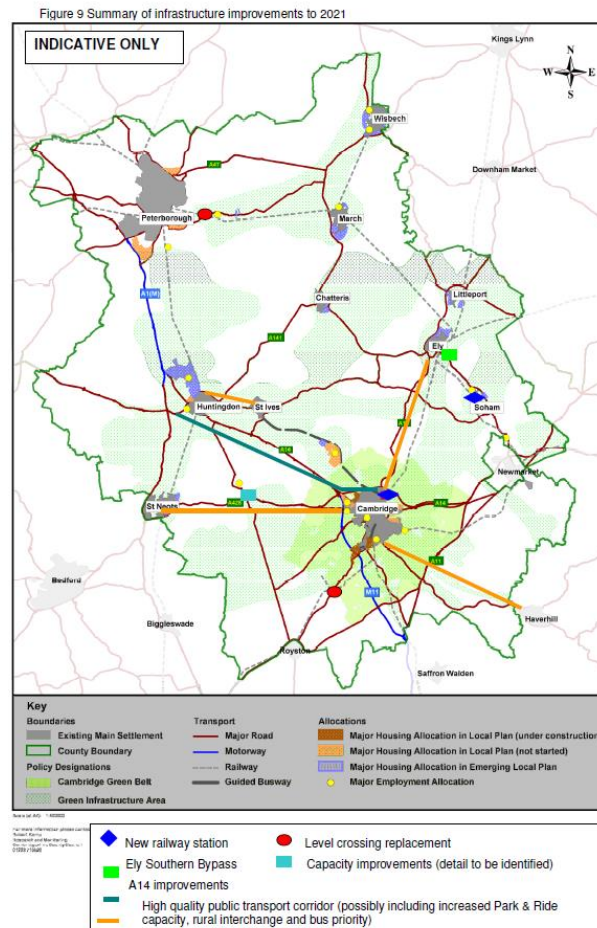
The Cambridgeshire County Council Long Term Transport Strategy identifies both East West Rail and the need for a "High quality public transport corridor (possibly including increased park and ride capacity, rural interchange, guided bus, bus priority or rail)" following the A428.

**Option B1** would not only provide the East West Rail Link, but would also provide high quality public transport for the A428 corridor.

<http://goo.gl/PkaHNR> (PDF

Download of plan from Cambridgeshire County Council).

See figures 9 and 10 on pages 28 and 29; figure 9 showing infrastructure improvement to 2021 reproduced to the right:



Map 8: Cambridgeshire Council Council's indicative map of aspirations for transport improvements

**Railfuture East Anglia** [www.railfuture.org.uk/East+Anglia](http://www.railfuture.org.uk/East+Anglia)

Paul Hollinghurst, Secretary Railfuture East Anglia [paul.hollinghurst@railfuture.org.uk](mailto:paul.hollinghurst@railfuture.org.uk)  
110 Catharine Street, Cambridge CB1 3AR

**Railfuture Oxford to Cambridge Campaign** [www.railfuture.org.uk/ox-cam](http://www.railfuture.org.uk/ox-cam)

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