

# Rail Haverhill Viability Study

The Greater Cambridge City Deal commissioned and recently published a Cambridge to Haverhill Corridor viability report.

[http://www4.cambridgeshire.gov.uk/citydeal/info/2/transport/1/transport\\_consultations/8](http://www4.cambridgeshire.gov.uk/citydeal/info/2/transport/1/transport_consultations/8)  
[http://www4.cambridgeshire.gov.uk/citydeal/download/downloads/id/170/rail\\_viability\\_technical\\_note.pdf](http://www4.cambridgeshire.gov.uk/citydeal/download/downloads/id/170/rail_viability_technical_note.pdf)

The following questions and answers explore the information in this report and the way ahead.

## What was the conclusion?

This report concluded by saying “the reopening of the disused rail line is not judged to be viable as part of the current A1307 Haverhill to Cambridge corridor study”.

## Isn't this saying reopening the line is not viable?

Not at all. The study was commissioned by the Greater Cambridge City Deal who say the “The current budget for sustainable travel improvements in the A1307 transport corridor is around £39m”. Reopening of the railway is well beyond the budget of this Cambridge focussed source of funding.

The final scheme will require support from the 3 counties in the Haverhill area; Suffolk, Cambridgeshire and Essex, along with central government.

## How viable is it?

The viability of public transport schemes is measured as a Benefit to Cost Ratio (BCR); the higher the BCR, the more viable the scheme. A BCR of 2.0 or above is seen as desirable by the government. This would mean that for every £1 put into the scheme, you would get £2 out.

The draft viability report gives a BCR of up to 0.99, which is around half the figure desired by government. However, this is a very early estimate and there are numerous ways in which this can be increased.

	Rail - Double	Rail - Single
<b>Benefits</b>		
Revenue	268.8	268.8
Journey Time	31.2	31.2
Non User	32.3	32.3
<b>Total Benefits (a)</b>	<b>332.2</b>	<b>332.2</b>
<b>Costs</b>		
Capital	438.0	261.3
Operating	115.2	68.7
Indirect Taxation	6.34	6.34
<b>Total Costs (b)</b>	<b>559.6</b>	<b>336.3</b>
<b>Net Present Value (a-b)</b>		
Net Present Value	-227.3	-4.1
<b>Benefit Cost Ratio (a/b)</b>		
Benefit Cost Ratio	0.59	0.99

## How can the Benefit to Cost Ratio be increased?

The (BCR) is calculated over a period of 60 years so there are plenty of ways in which its value can be reassessed. Broadly speaking these are:

1. Decrease the capital cost of building the line
2. Reduce the day to day costs of running the line
3. Increase the value of the line to the region

1 and 3 are usually where there is the most scope to improve the BCR.

## How can the Capital Cost be reduced?

The headline capitals costs in the report are:

Scheme	Capital Costs (£m)
Rail – Double Track	£652.6m
Rail – Single Track	£388.7m

Note that these costs are estimates of how much the scheme will have cost when it opens in 2025, so have been increased above present day prices.

The double track option is unnecessary as the report concludes a single track with passing place can accommodate the desired half hourly train service and therefore the single track scheme should be the starting point.

However, even accounting for 10 years of inflated construction costs this is very high. **The recently reopened Borders Railway cost approximately the same as this, but is approximately twice the length and has twice the number of stations.**

**If the railway to Haverhill could be delivered for the same cost per mile as the Borders Railway, then the cost would fall by half, and the Benefit to Cost Ratio (BCR) would reach the magic figure of 2.0.**

## Why is the capital cost per mile twice that of other schemes?

This is difficult to say, as the report doesn't have any costs breakdowns for the different sections of the line, and enquiries to try and obtain such a cost breakdown have been given the response that there isn't one as the report only obtains an indicative cost estimate.

There are a number of factors which could explain a high cost estimate:

1. Pricing for contingency and risk at this early stage in the project
2. Assumptions about what needs to be built
3. An overestimate of the costs involved

## How much is added for contingency and risk?

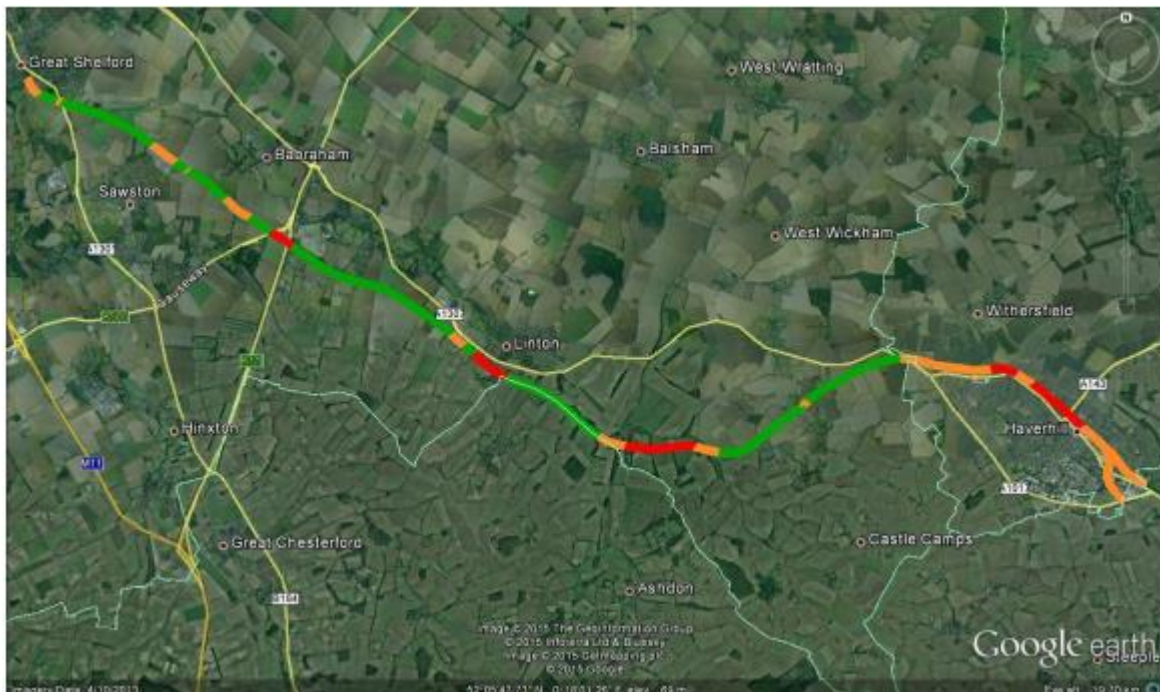
The following figures in the annex give some background to the high costs. **Although the basic construction costs are only £148m**, a number of additional costs are added including a contingency and risk of 20% + 40% = 60% on top of other fees and costs, so this 60% ends up being an additional £45.7m + £114.3m = £160m. **So the £160m figure for contingency and risk is greater than the original**

basic **£148m capital cost estimate**. This is a very high level, but is the figure which the government requires to be added to the cost of a project at this stage of development.

<b>Sub - Total *1</b>				<b>£148,102,305.09</b>
Contractor's Preliminaries : 25.0 %				£37,025,576.27
Fee : 7.5 %				£13,884,591.10
Prep Costs: 20%				£29,620,461.02
Contingency : 20% (of cost excluding risk)				£45,726,586.70
Risk: 40% (of cost excluding contingency)				£114,316,466.74
				<b>£388,675,986.92</b>
<b>Per Km Track</b>				<b>£18,508,380.33</b>

### How cost effective is the route?

Although there are no cost breakdowns available, the map below showing the low (green), medium (orange) and high (red) cost parts of the route give a clue. A significant portion of these are centred on the route through Haverhill itself. These would be unnecessary if a new station was built on the western side of Haverhill. Again this is likely to help explain the current cost estimate being twice that of the Borders Railway.



### So could the capital cost be reduced to half?

The evidence of the Borders Railway and observations above indicate this could be done.

## But can the Benefits also be increased?

There are 2 main ways in which benefits the benefits can be increased:

1. Looking at wider economic benefits
2. Looking at whether the benefits already identified have been understated
3. Adapting the plans to include more people

## What are the wider economic benefits?

The first point covers benefits which have not yet been identified. Inevitably early studies such as the Haverhill one cannot identify every person who would benefit from the new railway line, particularly in cases where growth in employment or housing are uncertain or changing, or the catchment area is wider than initially thought. Initial studies also focus on the benefits to users of the line, and do not include benefits to businesses. It has been observed that 15% extra benefits are often identified through later studies.

## Which benefits could be underestimated?

Regarding the understatement of already identified benefits, the main component of the benefits relates to time savings for passengers. It is easy for journeys to Cambridge to see how future savings may be underestimated, especially in cases where passengers are using the line to link to other proposed but expected transport schemes (such as the East West Rail Link to Oxford). A rail connection from Haverhill will give efficient access to this.

The report uses a value of £6.81 per/hr for time savings and uses the 2011 census data to calculate a baseline figure for the number of passengers who would have been carried in 2011 had the line existed. **It is estimated that in 2011 the line would have carried 1509 people to work each day** (as shown in Table 7 from the report reproduced below) and 50% of these will be existing car users, and 50% existing bus passengers. **Adding leisure journeys, it was estimated that 1,540,000 passengers would have used the line in 2011.**

OD	Cambridge	Sawston & Babraham	Granta Park	Linton	Haverhill	Total
Cambridge	-	198	83	27	22	330
Sawston & Babraham	351	-	-	-	5	356
Granta Park	46	-	-	-	2	48
Linton	179	-	-	-	-	179
Haverhill	478	77	41	-	-	596
<b>Total</b>	<b>1,054</b>	<b>276</b>	<b>124</b>	<b>27</b>	<b>29</b>	<b>1,509</b>

## Are the growth assumptions right?

The report suggests very modest growth in the number of passengers using the line as shown below:

- 1,540,000 in 2011 (assuming the line had been open then)
- 1,770,000 in 2025 (additional 15% over 2011)
- 1,810,000 in 2031 (additional 2.2% over 2025)

The report states that its ridership figures include the following:

- The proposed Haverhill Research Park, located just outside of Haverhill is to provide 47,613sqm of B1 development, 150 homes, a hotel and public houses/restaurants. Using the assumption of 2.5 persons per dwelling and 1 job per 210sqm, an estimate of 375 residents and 2,400 jobs has been assumed. This has been assumed to be delivered by 2025.
- Consultation has taken place for 3,500 homes to the North West and North East of Haverhill. Using the same dwelling occupancy assumption, this would add 8,750 residents to Haverhill. This has also been assumed to be delivered by 2025.

The latter alone would **increase the Haverhill population to 32% above the 2011 census population of 27,041 so the much lower rail growth figures of only 15% over 15 years from 2011 to 2025 look unduly pessimistic.**

### What about the influence of other rail developments?

The line will also pick up benefits and growth from the rest of the rail network.

**A station at Addenbrooke's is planned to be delivered in the next few years providing significant additional journey time benefits to people travelling to the large and expanding employment centre there. The viability study does not include this in the benefit calculations.**

There is also a general increase in the use of rail, with Cambridge station having seen **a growth of 25% in passengers using Cambridge Station in 5 years has been recorded. The study has not included this influence in its figures.**

### Is the mode share right?

The current number of commuters on the corridor is show in the table below extracted from the report. The report assumes 20% of these will travel by rail in the Cambridge to Haverhill direction and 28% in the Haverhill to Cambridge. **Is this pessimistic?**

	Cambridge	Sawston & Babraham	Granta Park	Linton	Haverhill	Total
Cambridge	-	985	411	132	109	<b>1,637</b>
Sawston & Babraham	1,256	-	95	30	23	<b>1,404</b>
Granta Park	166	41	-	12	10	<b>229</b>
Linton	641	91	67	-	73	<b>872</b>
Haverhill	1,708	276	148	311	-	<b>2,443</b>
Total	<b>3,771</b>	<b>1,393</b>	<b>721</b>	<b>485</b>	<b>215</b>	<b>6,585</b>

The rail mode share was determined using patterns on the Royston and Baldock to Cambridge services.

A rail mode share was also determined using 2011 census travel to work data for similar proxy routes as a useful comparator. Two routes were selected:

- Royston - Cambridge (2 trains/hr); and
- Baldock - Cambridge (2.2 trains/hr).

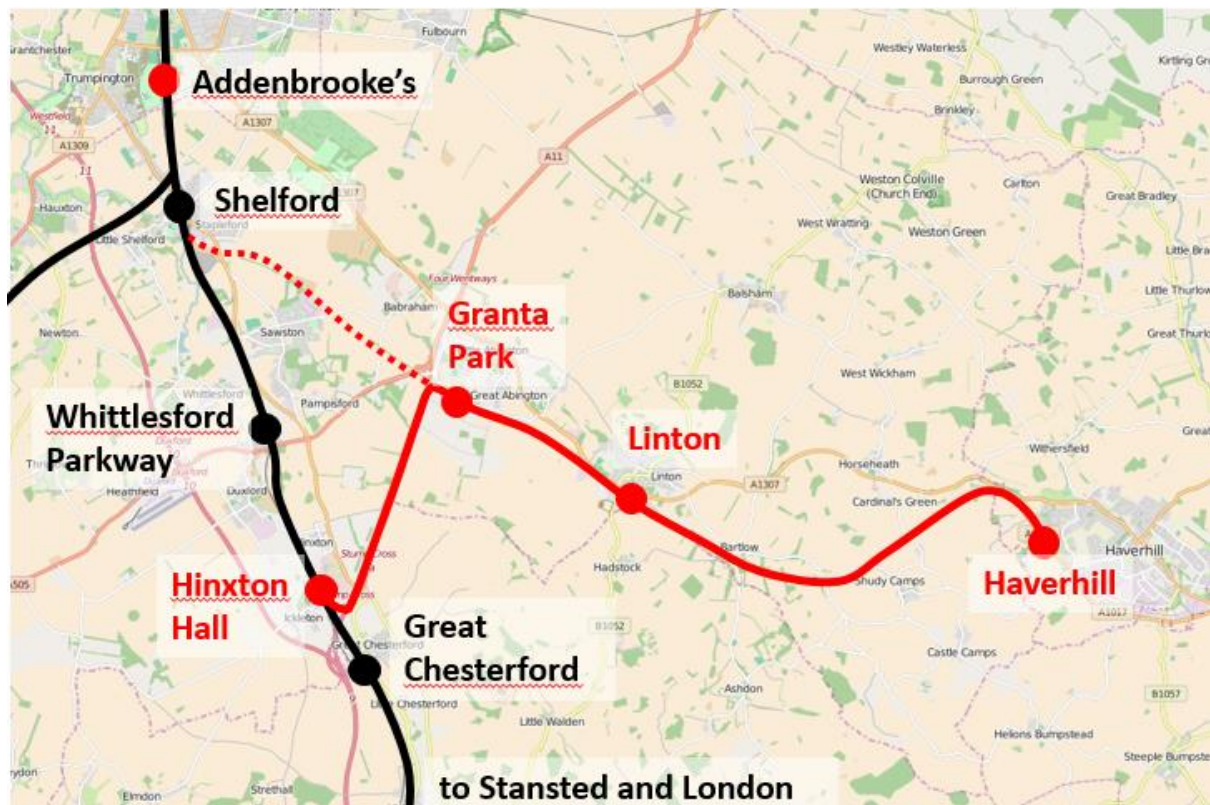
These services are currently seriously overcrowded which it likely to be supressing demand for rail with people staying with their cars until the service is dramatically improved with longer trains under the Thameslink upgrade in 2018.

Rail has a modal shared of 40% on the Ely to Cambridge corridor.

Other line reopenings, for example the recent Borders Railway, have shown that passenger estimates have been seriously underestimated in study work preceding the reopening.

### Could the benefits be spread to more places?

An example of this can be illustrated by proposing a modification to the route to give **direct access to the growing employment area around Hinxton Hall**, bring extra passengers and additional time savings for people commuting from Haverhill to Hinxton Hall. This could also **shorten the journey time for people travelling to Stansted and London**, and **link the Haverhill line directly to Whittlesford Parkway**. Such a scheme **would however reduce the benefit to people directly travelling from Haverhill to London as the route is around 4.5 miles longer so would add several minutes to the journey time**. It is therefore presented here as a discussion point to illustrate the idea of how diversions away from the existing line could affect the benefits, but in this particular case the journey time penalty of the longer route may reduce the BCR relative to the more direct route.



## Conclusion

The Benefit to Coast Ratio (BCR) in the study is around half than needed to hit the figure of 2.0 needed for the scheme to be considered viable. **However, the study only presents a very early analysis of the BCR and there are numerous reasons why it will substantially increase with further study.**

- The capital costs have been assumed to be around **twice the cost per mile compared to other recent reopenings**
- The capital cost contains a **very high figure of 60% for risk and contingency**
- The study assumes an expensive route to the centre of Haverhill; **other lower cost options should be studied**
- Passenger growth has been assumed to be low with the figure for 15 years given as 15%, **whereas rail travel to Cambridge has seen growth of 25% in the last 5 years alone**
- **Haverhill's population is expected to increase by over 30% by 2025** which again makes the study's modest 15% increase look very pessimistic
- The wider economic benefits have not yet been assessed. **This typically adds an additional 15% of benefits**
- A figure of **28% for the modal share for rail into Cambridge could be pessimistic as Ely has a figure of 40%**
- Variations of the route could draw in additional passengers, **for example a direct connection to the major employment centre at Hinxton Hall along with reduced journey times to Stansted and London** (although at the cost of journey times to Cambridge)
- There are a number of other rail schemes which are due to be delivered in the next 10 years, **for example the East West Rail link from Cambridge to Oxford, which will magnify the benefits of the Haverhill scheme.** A proposed new station at **Addenbrooke's** will provide **significant additional journey time benefits to rail passengers from a reopened Haverhill line**

When the multitude of factors above are taken into account by further studies, the BCR will increase substantially and into the region above 2.0 which will allow this valuable scheme to go ahead and benefit Haverhill for generations into the future.

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