

Carterton-Witney-Oxford Rail Corridor Strategic Outline Case 'Lite' summary

What is the context of the study?

The three towns of Carterton, Witney and Eynsham are connected by the A40, which carries nearly all journeys to Oxford city centre. The populations of each town are forecast to increase, and this will put additional pressure on the A40.

A major project is under way to reduce congestion and increase capacity providing additional bus lanes each side of the A40, and a bus park and ride at Eynsham. This will provide much-needed improvement over the next few years, but is expected to reach a practical and economic capacity by 2031 when buses run every three minutes and car journeys take up to 30 minutes longer.

A local special interest group known as the Witney Oxford Transport Group (WOTG) recently developed a proposal for a railway route connecting Carterton, Witney, and Eynsham to Oxford. Oxfordshire County Council (OCC) has commissioned Cadenza Transport Consulting Ltd ("Cadenza"), a railway consultancy specialising in rail feasibility studies, to investigate this idea further.

What is the purpose of the study?

OCC set the brief of this study to **"further investigate the concept of a possible new railway line solution from Carterton and Witney to Oxford"**, preparing outputs in a Strategic Outline Case (SOC) – 'Lite' format **"to establish if there is a strategic need for the proposed railway line and any resulting investment required."**

The study was to be informed by previous work by WOTG and others, but not bound to it, to allow fresh thinking and innovative solutions where practicable.

Did the study consider other public transport options apart from rail?

Yes, the study considered bus, light rail, and tram-train as alternate transport modes, but concluded that these (and similar) transport modes would not deliver the journey time savings of a railway, and/or the capacity, and/or would require significant additional infrastructure such as depots that would make them less cost-effective.

What route will the railway take?

No route has been decided. In order to understand the likely costs and benefits of a new railway, a range of potential routes was developed, and the more likely route corridors shortlisted (Figure 1), but it is not the purpose of this study to select or recommend any one particular route.

Figure 1: Routes long list showing rejected (red) and shortlisted (green) routes



Aerial image mapping source: Google Earth Pro

Where would the railway stations be?

It is concluded that the full scheme would consist of four stations: Carterton West, Carterton North, Witney and Eynsham, though these would be likely to be delivered in phases (see Figure 2) as funding allows.

Figure 2: Potential stations and delivery phases



What type of trains would be used, and how frequent would they be?

It has been assumed that trains would be two-car length battery trains, recharging at Oxford, and running every half hour in the peak.

How long would the journey take?

Initial assessment suggests the journey would take approximately 23 minutes from Carterton, 16 minutes from Witney, and 11 minutes from Eynsham.

The journey time savings compared to anticipated bus and car journey times in 2031 are considerable with nearly an hour saved against the relevant car journey from Carterton and Witney, and more than half an hour from Eynsham. Compared with buses, the time savings are about an hour from Carterton, 40 minutes from Witney, and 25 minutes from Eynsham (Figure 3).

Figure 3: Journey time comparisons 2021/2031 (sources: AECOM; Cadenza)



Do we still need the A40 enhancements?

Yes. The A40 enhancements are needed in the short to medium term before the railway can be built, but even when the railway is in place, buses will be needed as part of an integrated and resilient transport system to fill in gaps between the half-hourly train services, to access other destinations (e.g. the hospital), and to connect people to/from the railway.

When would the railway be delivered?

A phased approach could allow the first phase of the railway to be delivered by late 2031, at roughly the same time when the A40 reaches capacity. The timescales for delivery are dependent on assumptions about the time to develop the designs, the consultation approach, planning and procurement strategies, and the availability of funding.

How much will it cost?

The range of estimated costs at current prices for each phase is shown in Table 1 with an estimated entry into service date. Assumptions and exclusions apply.

Table 1: Phased route costs at Medium risk level (@ 2023Q1 price base)

Potential phases	Least cost route	Greatest cost route	Estimated delivery
Phase 1: Yarnton to Eynsham	£180M	£250M	2031H2
Phase 2: Eynsham to Carterton North	£420M	£540M	2035H1
Phase 3: Carterton North to Carterton West	£100M	£100M	2035H1

The all-in costs are broadly in line with comparator railway projects, and in the same order of magnitude as an alternative highway solution.

How will it be funded?

It is beyond the scope of the study to determine funding sources, but it is likely to come from a range of public and private sources including development, land value capture, and local/national government.

What would be the benefits of the railway?

Once the whole railway is open, it is expected to handle a very significant number of journeys, saving every year more than one million car miles, 5-6 full-time person-years, 100 tonnes of carbon emissions from car use, and generating an annual operating profit (Table 2) of about £1.5 million. Owners of properties near the stations should see their house values rise, because they will have improved access to jobs, leisure, learning and wider travel opportunities.

Table 2: Base Model Results Summary, Carterton North - Oxford, 2031

	Passenger Trips	Car miles saved	Value of Travel Time Savings	Operating Profit	BCR*
<i>units</i>	'000/yr	Millions /yr	£Millions /yr	£Millions /yr	Ratio
2031 base	570,000/yr	1.4 M/yr	£1.2 M/yr	£1.5 M/yr	0.17

* The Benefit to Cost Ratio (BCR) assumes a 'do nothing' option is viable, though if compared against a highway alternative, the net BCR becomes 1.6.