

An outline case for restoring the railway line to Marlborough



Prepared by Transition Marlborough's Transport Group, December 2013



An outline case for restoring the railway line to Marlborough

Executive Summary

Many residents of Marlborough use national rail services on a regular basis but the lack of a local station means that they must travel to stations at Swindon (28 miles return), Bedwyn (15 miles return), Hungerford (22 miles return) or Pewsey (14 miles return). These journeys are made almost wholly by car.

The station at Bedwyn is the popular choice for many travellers given the lower cost and convenience of this stopping service to London. But this small village is quite unsuitable as a railway terminus and residents are greatly inconvenienced by the daily influx of cars and associated parking problems.

Meanwhile, the planned electrification of the Great Western Railway is expected to provide faster, cleaner, quieter and more reliable rail services. In turn, these improved services are expected to attract more passengers, which would exacerbate the problems in Bedwyn.

So this is an appropriate time to consider re-establishing a station in Marlborough as the terminus for the stopping service from London. This would naturally relieve the environmental issues in Bedwyn, reduce car travel and allow for a purpose-built station in Marlborough as part of the proposed housing area to the south of Marlborough, known as the Salisbury Road development.

This proposal would require the construction of a single track railway from Savernake to Marlborough along the line of a disused rail track.

The headline figures at this very early stage indicate that the capital cost of the scheme would be in the order of £30 million. The benefit to cost ratio would be around 2.0 when considered as part of the extension of the electrification from Newbury.

An early assessment of environmental impacts indicates that there would be relief to the problems in Bedwyn and overall reduced car usage while the re-establishment of the rail link is not expected to be environmentally intrusive.

Marlborough Town Council has formally supported the outline scheme and there is popular support within the community.

The next step is to approach the appropriate authorities with a request to carry out a feasibility study to understand better the viability and impacts of the proposal, using this note as a starting point and with appropriate consultation.

Introduction

Marlborough is an attractive and thriving market town that lies within reach of the two main east-west railway lines in the south of England. In consequence the national railway system is well-used by the residents of Marlborough, even though the nearest station is 7 miles away.

The lack of a local station means that residents wishing to use the railway must travel to stations at Swindon (28 miles return), Bedwyn (15 miles return), Hungerford (22 miles return) or Pewsey (14 miles return), often on a daily basis. These journeys are made almost wholly by car.

There is currently an opportunity to re-assess the need for a railway station in Marlborough as a result of a series of converging issues. Firstly, the planned electrification of the Great Western Railway provides an opportunity for capital funding and a review of the case for a station in Marlborough. Secondly, the planned housing area to the south of Marlborough on land currently owned by the Crown Estates, known as the Salisbury Road development, provides an opportunity to build a new station and attract funding from a developer through a Section 106 agreement. Thirdly, the imposition of migrant traffic on the nearest local station in Bedwyn is clearly unacceptable and will only get worse. A station in Marlborough would relieve this issue. And finally, the routes of the disused railway lines to the south of Marlborough provide an opportunity to re-establish the railway link to Marlborough

The station at Bedwyn is the nearest one to Marlborough, and this is a popular choice for many travellers given the lower cost and convenience of this stopping service to London. But this small village is quite unsuitable as a railway terminus and residents are inconvenienced by the influx of cars that inundate this otherwise quiet village on a daily basis.

There is therefore good reason for a line to Marlborough, which is a more natural place for a local railway terminus than Bedwyn, and which could yield economic and environmental benefits.

This note explains how a single-track branch line and station could be provided, along with preliminary estimates of revenue, cost and economic benefits. Environmental impacts are also considered in outline as well as other transport issues.

This is an outline assessment, prepared by Transition Marlborough, to show that there is a case for further study and consideration of this proposition.

The proposed route

There are two disused railway lines to the south of Marlborough that linked the town to the main line at Savernake. The attached sketch shows the approximate route for a proposed new link, which would broadly follow one of the disused routes. The route would require around 5.4 miles of new track with a connection point to the existing main railway line, two bridges over existing roads and a new station at Marlborough.

This arrangement implies that the local stopping service that currently runs from London to Bedwyn would extend to, and terminate at, Marlborough.

Currently it is proposed to electrify the line to Bedwyn and this proposal therefore includes electrification to Marlborough.

Passenger estimates

The Office of the Rail Regulator publishes figures for annual usage of stations on the rail network based on counts at station barriers and ticket sales ¹. The table below shows the total number of passengers using local stations in 2011-12.

Location	Station usage
Bedwyn	106,872
Hungerford	292,774
Pewsey	208,068
Swindon	3,234,682

However, these figures are known to be unreliable for Bedwyn station because there is no system for counting passengers at the platform. Unpublished work by the Bedwyn rail passenger group and Wiltshire Council indicates that the ORR figures undercount actual passengers by the following amounts (Source: Bedwyn Trains Passenger Group)

Year	% undercount
2004/05	19.1
2005/06	18.2
2006/07	30.4
2007/08	30.3
2008/09	23.2
2009/10	38.3

Accordingly, the values for Bedwyn are adjusted by +30% to allow for known undercounting in the table below. The table also shows population figures from the 2001 census ² and the ratio of station usage to population.

Location	Station usage (A)	Population (B)	Ratio (A/B)
Bedwyn	138,817	1,347	103
Hungerford	292,774	5,559	53
Pewsey	208,068	3,237	64
Swindon	3,234,682	115,249	28

The high ratio of passengers to population at Bedwyn reflects the large numbers of non-residents using the station. A short survey by Transition Marlborough ³,

published on its website, shows that around 60% of passengers using Bedwyn Station live outside Bedwyn.

In order to assess the likely usage of a station at Marlborough we have re-assigned passengers as shown in the table below.

Location	Station usage 2011-12	Transfer to Marlborough	Remaining passengers
Bedwyn	138,817	70,000	68,817
Hungerford	292,774	30,000	262,774
Pewsey	208,068	50,000	158,068
Swindon	3,234,682	140,000	3,094,682
Marlborough	-	30,000	New passengers
Total		320,000	

This gives a revised station usage as shown in the table below.

Location	Station usage (A)	Population (B)	Ratio (A/B)
Bedwyn	68,817	1,347	51
Hungerford	262,774	5,559	47
Pewsey	158,068	3,237	49
Swindon	3,094,682	115,249	27
Marlborough	320,000	8,009	40

By inspection it is possible to see that the 'A/B' ratio is reasonable for Marlborough and the relief at Bedwyn is demonstrated by the reduced A/B ratio

The estimated usage of a station at Marlborough, based on current figures, is therefore 320,000 passengers per annum. This implies 160,000 return journeys per annum or around 440 travellers per day using the station for a return journey.

Revenue estimates

The incremental return fare to travel between Hungerford and Bedwyn when travelling from London or Reading is currently (September 2013) £2.70 in the peak and £1.40 in the off-peak, an overall average of £2.05 for a return journey distance of $4.8 \times 2 = 9.6$ miles, which is £0.21 per mile. This compares closely with the annual average figure of £0.19 per mile (12.1p per km) published by the ORR.⁴ The ORR figure is used in this note to estimate revenue.

The distance from Bedwyn to Marlborough would be approximately 8.9 miles implying an incremental fare of £1.69 for each return journey to Marlborough. This would yield a revenue of $320,000 \times £1.69 = £541,120$ per annum.

Operating cost estimates

At present there are 22 trains per day arriving at and departing from Bedwyn Station. If this level of service were carried through to Marlborough, a one-way distance of around 8.9 miles, the annual distance run would be $365 \times 22 \times 2 \times 8.9 = 142,934$ train-miles.

According to work published by the ORR⁴, Section 3.28, the average operating cost is £2.2 per vehicle-kilometre, or £3.5 per vehicle-mile. This figure includes all

operating costs including fixed costs such as administration and capital expenditure. The incremental cost of extending an existing service would only add costs for on-board staff and energy, so would only be a proportion of the whole operating cost. For the purpose of this note the incremental cost is taken to be 50% of the total operating cost, that is £1.75 per vehicle mile. Also, according to work published by Network Rail ⁵ electrification yields a saving of 19 to 26p per vehicle mile over diesel trains, so a value of £1.53 per vehicle-mile is used to calculate the incremental operating cost.

Assuming that a three vehicle train is used, the operating cost for the train would be £4.59 per mile. And therefore the annual operating cost would be 142,934 x £4.59 = £660,355.

In addition we have made an allowance of £108,000 per annum for track maintenance and renewal based on figures published by the ORR ⁴. This is about 25% of the maintenance cost for existing route costs reflecting the fact that the new track from Savernake to Marlborough would be new-build, single-track and lightly used.

So, overall operating and maintenance costs are estimated to be £768,355 per annum.

Economic benefit estimates

Economic benefits are those benefits that accrue to the community as a result of the proposal. These are listed as follows.

- Reduced car usage resulting in savings in vehicle running costs
- Reduced car usage resulting in savings in vehicle ownership costs
- Reduced car usage resulting in lower carbon emissions (not assessed)
- Savings in traveller time
- Relief from traffic congestion in Bedwyn (not assessed)

The assessed items are discussed below.

Passengers who divert to a new station in Marlborough would save on vehicle running costs as shown in the table below. Vehicle running costs are based on information published by the AA on motoring costs ⁶.

Location	Diverted passengers	Distance miles	Total miles	Running Cost per Mile	Less rail Cost per mile	Net cost per mile	Total £
Bedwyn	70,000	7.2	504,000	0.25	0.19	0.06	30,240
Swindon	140,000	13.5	1,890,000	0.25	0	0.25	472,500
Hungerford	30,000	10.5	315,000	0.25	0	0.25	78,750
Pewsey	50,000	6.5	325,000	0.25	0.19	0.06	19,500
Total	290,000		3,034,000				£600,990

Additionally, based on anecdotal evidence, it is assumed that 20% of passengers travelling to Bedwyn and Pewsey, and 10% of passengers travelling to Hungerford and Swindon are driven to the station by others, involving double mileage, commonly referred to as chauffeuring. The calculation for this is shown in the table below.

Location	Diverted Passengers	Distance Miles	%	Total Miles	Running Cost per Mile	Total £
Bedwyn	70,000	7.2	0.2	100,800	0.25	25,200
Swindon	140,000	13.5	0.1	189,000	0.25	47,250
Hungerford	30,000	10.5	0.1	31,500	0.25	7,875
Pewsey	50,000	6.5	0.2	65,000	0.25	16,250
Total	290,000			386,300		£96,575

With regard now to savings in car ownership costs, we begin by estimating that 50% of Diverted Passengers (see table above) are regular week-day commuters. This equates to an estimated 142 week-day commuters. The average journey length to a station is 10.5 miles, 21 miles return, and this indicates a mileage of 5,440 miles per annum for each vehicle used for commuting. Using figures published by the AA ⁶ annual standing charges are estimated to be £3,350 per annum, and if we estimate a 50% saving by prolonging the life of a vehicle or reducing car ownership for the 142 commuters, we arrive at an annual benefit of £237,850 (£3,350 x 142 x 50%).

With regard now to savings in time, overall journey times are unlikely to be much reduced by having a station in Marlborough. However, journeys from Marlborough would be at least as quick as alternatives and would avoid the initial car journey. Time spent on the train can be utilised more effectively than time spent in a car, so it is reasonable to take say 50% of current car journey times as time savings on the basis that time on the train has 50% of the value of time at work or on other activities.

Based on information published by the Department for Transport ⁷ current average generalised values of time are as shown in the table below.

Journey purpose	Value of time £ per hour
Working, average	24.52
Non-working, commuting	4.53
Non-working, other	4.00

The proportions of Diverted Passengers attributed to the above groups are estimated as follows.

Journey purpose	% of Diverted Passengers
Working	4
Commuting	36
Other	60

Applying the above proportions gives an average value of time of £5.00 per hour and therefore for the purpose of this analysis we use 50% of this i.e. £2.50 per hour.

An estimate for annual road travel time to local stations from Marlborough is shown in the table below. Journey times are based on estimates from Google Maps.

Destination	Estimated annual trips from Marlborough	Estimated trip time, mins	Annual trip time, mins	Annual trip time, hours
Bedwyn	70,000	18	1,260,000	21,000
Swindon	140,000	28	3,920,000	65,333
Hungerford	30,000	22	660,000	11,000
Pewsey	50,000	15	750,000	12,500
Total				109,833

If we assume a 90% saving in road travel time, the time benefits are estimated as
 $109,833 \times 90\% \times \text{£}2.50 = \text{£}247,124$

The overall estimate for current annual economic benefits is shown in the table below.

Item	Estimated annual benefit £
Reduced car running costs	660,990
Reduced car running costs - chauffeuring	96,575
Reduced car ownership costs	237,850
Time saving benefits	247,124
Total	1,182,540

Capital costs

Capital costs are estimated as shown in the table below. All figures are £ millions. Estimates for the cost of electrification are broadly based on a study on the Great West Electrification by Arup⁸.

Item	Quantity	Rate	Amount £ million
New track and embankment from Burbage to Marlborough, miles	5.4	1.20	6.5
New bridges over existing roads	2	0.75	1.5
Electrification, double track, miles	3.5	2.50	8.8
Electrification, single track, miles	5.4	2.00	10.8
Preparation and land			2.0
Total			29.6

It is assumed that station and car parking construction costs would be met by the Salisbury Road housing developer under a Section 106 agreement.

Benefit to cost ratio

For the purpose of this note it is assumed that the scheme would have an economic life of 60 years and for simplicity, growth in revenue due to growth in GDP and increased use of railways would be equal to standard discount factors used by HM Treasury (30 years at 3.5% and 30 years at 3%). Similarly it is assumed that operation costs would increase in line with standard discount rates to reflect real growth in wages and real rises in energy costs.

So the estimated lifetime cost of the scheme becomes:

	Quantity	Rate	£ million
Capital cost			29.6
Operating cost, years	60	0.77	46.2
Revenue, years	60	0.54	(32.4)
Total			43.4

Estimated lifetime benefits would be £1.183m x 60 = £70.98 million.

So, the estimated Net Present Value of the scheme is £27.58 million and the estimated benefit to cost ratio is 71/43.4 = 1.64. It is worth noting that a modest reduction in service frequency from 22 trains per day to say 18 trains per day would lift the BCR to around 2.0.

If we consider this in conjunction with Option 1 of the Arup Report we find the following results.

Item	PV Benefits	PV Costs	NPV
Arup Option1	63.3	24.6	38.8
Extension to Marlborough	71.0	43.4	27.6
Total	134.3	68.0	66.4

This indicates an NPV of £66.4 million and a BCR of 2.0.

Environmental impacts

A full environmental impact statement would be required for this proposal. However, at this stage the most important issues are likely to be as described below.

The most significant environmental impact resulting from this proposition would be the benefits to the village of Bedwyn resulting from the removal of much of the traffic currently using Bedwyn Station.

There are also likely to be significant positive social impacts arising from better connectivity between Marlborough and adjacent communities to the east.

Restoring the line between Burbage and Marlborough would introduce a new railway line into the landscape but the visual and noise impacts are unlikely to cause significant nuisance in this relatively unpopulated area and shielded area. The line would cause severance of agricultural land which would require further study and discussion with landowners.

The reduction in individual car journeys in favour of the use of the electrified train service would reduce carbon emissions and operate a more efficient means of travel. This would be in line with Wiltshire Council's sustainable transport policies⁹.

It would be necessary to identify the likely changes to traffic patterns in Marlborough and respond accordingly. A new railway station in Marlborough should be easily and safely accessible by foot, cycle or bus from all parts of the town. 'Improved access to

a full range of opportunities for people without cars', is a key objective in Wiltshire's Local Transport Plan¹⁰.

Next steps

The next step is to approach the town council and local businesses to see if there is local support for this proposal. If so, the appropriate authorities could be lobbied for financial support for a study to understand better the viability and impacts of the proposal, using this note as a starting point.

If the proposal is to be carried forward, it is recommended that it be considered as part of the scheme for the Great Western Electrification beyond Newbury, with Marlborough as the most suitable terminus.

References

1. Estimates of station usage 2011-12. Steer Davies Gleave.
2. 2001 Census. Office for National Statistics
3. Transition Marlborough website www.transitionmarlborough.org
4. Costs and Revenues of Franchised Passenger Train Operators in the UK. Office of Rail Regulation. November 2012
5. Network RUS. Electrification. October 2009. Network Rail
6. AA Motoring Costs 2013
7. Values of Time and Operating Costs. WebTAG Unit 3.5.6. DfT. April 2011
8. Great Western Electrification. Extension Review Study. Presentation of Results. May 2013
9. Wiltshire Council Core Strategy, February 2012, Core Policies 60 & 61 <http://www.wiltshire.gov.uk/wiltshire-core-strategy-pre-submission-document-with-bookmarks-february-2012>
10. Wiltshire Local Transport Plan, 2011-2026 <http://www.wiltshire.gov.uk/ltp3-public-transport-strategy.pdf>

Transport Group
Transition Marlborough
December 2013