

High Wycombe Regional Hub Development

Background Note - Comparison between Jacobs and egis-Mobilite estimates

Introduction

During June 2009, Buckinghamshire County Council was given access to the Feasibility Study on the reopening of the High Wycombe to Bourne End rail line commissioned by Summerlease Ltd and published in January 2009. The study was undertaken by the consultants egis-Mobilitéé UK Ltd.

The feasibility study developed both cost and patronage estimates for the implementation of a number of options for the Wycombe to Bourne End route, including Hybrid Ultra Light Tram System (HULTS) and Bus Rapid Transit (BRT)

This note compares the cost and patronage estimates developed by egis-Mobilite and Jacobs for the Light Rail option – referred to as HULTS by egis-Mobilite and ULR by Jacobs.

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Costs

The investment cost for the optimal system described in the egis-Mobilite report is £41.74M (Figure 50). This compares with £60.63M for 'Option 2' in Jacobs 'Background Note - Comparison between Ultra Light Rail and Coachway options' issued on 13th July.

Each of these cost estimates have been broken down into their constituent parts and the results shown in Table 1 below.

Cost Element	Egis-Mobilite	Jacobs	Difference
Trackwork	£9,580,000	£11,639,000	£2,059,000
4 Bridges	£6,000,000	£5,255,285	-£744,715
2 additional bridges	£6,000,000		-£6,000,000
Level Crossings	£600,000	£249,000	-£351,000
Property	£3,000,000	£13,882,412	£10,882,412
Vehicles	£5,000,000	£7,200,000	£2,200,000
Depot & Warehouse	£1,500,000	£11,559,000	£10,059,000
Stops	£2,860,000	£180,000	-£2,680,000
Signalling & Telecommunications	£7,200,000		-£7,200,000
Site Clearance		£619,530	£619,530
Preliminaries & Design		£5,311,073	£5,311,073
Convert Heavy Rail to ULR		£1,500,000	£1,500,000
Legal Costs		£634,800	£634,800
Start up Costs		£2,599,620	£2,599,620
TOTAL	£41,740,000	£60,629,720	£18,889,720

Table 1 – Comparison of ULR Cost Estimates – egis-Mobilite and Jacobs

It will be seen that many of the cost elements are broadly similar between the two costings – e.g. Trackwork, Bridges and Vehicles. Where there are significant differences this is due to different assumptions being made regarding the scheme requirements.

For example, the Jacobs land purchase costs are over £10M higher than those in the egis report – primarily due to including over £8M to purchase 15 units at Treadaway Business Park. This is not considered necessary by egis. Similarly, the Jacobs depot costs are over £10M higher than for egis – mainly due to including elements for Trainwash Plant Room & facilities, permanent way works, external works and client fit out, which are not shown by egis. The scope of the depot facilities would need to be agreed with the vehicle supplier and system operator; the lack of comparable systems at the present time makes this element particularly difficult to estimate.

Conversely, some egis costs are higher than those shown by Jacobs. For example, egis have included £7.2M for signalling and telecommunications, whereas Jacobs have assumed 'line of sight' operation with no need for lineside signalling equipment. Similarly egis have included additional bridges to replace level crossings where Jacobs have not.

These are all issues where a preferred approach would develop if the scheme were taken forward beyond the current 'pre-feasibility' stage and the requirements in the above areas reviewed in more detail.

In summary, the two sets of estimated scheme costs are considered to be 'in the same ball-park' and provide a basis for developing a firmer estimate should this be required.

Patronage

There is a much greater variation between the Jacobs and egis-Mobilite reports in terms of patronage forecasts.

The executive summary of the egis-Mobilite report states, on page 10 :

"The vehicle capacity calculated (based on initial patronage analyses done in this study) is up to 2900 passengers in the peak hour per direction. The journey time is assumed to be approximately 18 minutes, resulting in a requirement for a fifteen minute service requiring approximately 10 vehicles with a vehicle capacity of approximately 60 people, with spares."

The capacity requirement of 2,900 appears to be derived from Figure 68 on page 76 of the egis-Mobilite report. (Note that this is actually a two-way flow rather than a per direction flow.)

It is based on assuming that 25% of all work trips of the economically active population within a 500m radius of the proposed stops would consider mode shift from cars. However, using this 25% figure in its raw form does not seem appropriate for forecasting patronage of the ULR system - as it ignores whether the ULR scheme would be of any relevance to the trips concerned.

We suggest that it would be more sensible to break down this calculation into two parts:

- i) what proportion of these work trips could reasonably make use of the ULR system (i.e. what proportion have suitable onward PT routes from Wycombe or Maidenhead)
- ii) what proportion of those would consider mode shift.

To derive these figures we have examined the 2001 census data for travel-to-work, which yields the following matrix of trips for travel between Wycombe District and the Thames Valley Districts of Slough, Windsor & Maidenhead and Reading. The matrix of work trips between these districts is shown in figure 2.

From	High Wycombe	Maidenhead	Slough	Reading	TOTAL
High Wycombe		3,147	2,161	680	5,988
Maidenhead	2,298				2,298
Slough	826				826
Reading	455				455
TOTAL	3,579	3,147	2,161	680	9,567

Table 2 : Matrix of travel to Work trips between Wycombe District and Thames Valley

Assuming a round trip of 30 miles gives a daily total of around 287,000 miles generated by these trips on the road network south from High Wycombe towards the Thames Valley.

In adopting part (i) of the above approach, we have identified those wards which would have reasonable access either to the rail system or the proposed ULR scheme. These are

Wycombe : The Risboroughs, Abbey, Terriers & Amersham Hill,
 Ryemead, Tylers Green & Loudwater, The Wooburns
 Windsor & Maidenhead : Bisham & Cookham, Furze Platt, Belmont, Boyn Hill, Oldfield,
 Castle Without
 Slough : Baylis & Stoke, Central, Chalvey, Haymill, Upton
 Reading : Abbey.

The relevant trips from Wycombe District to the Thames Valley are shown in Table 3, and from the Thames Valley to Wycombe District in Table 4.

To Ward	Wycombe - Abbey	Wycombe - Ryemead	Wycombe - Terriers and Amersham Hill	Wycombe - The Risboroughs	Wycombe - The Wooburns	Wycombe - Tylers Green and Loudwater	Grand Total
Reading - Abbey	7	6	15	8	10	19	65
Slough - Baylis and Stoke		3	3		3	3	12
Slough - Central	14	8	13	3	9	22	69
Slough - Chalvey	12	6	8		9	18	53
Slough - Haymill	15	12	23	4	31	19	104
Slough - Upton	10	7	17	4	22	4	64
Windsor and Maidenhead - Belmont	11	7	13		21	8	60
Windsor and Maidenhead - Bisham and Cookham	19	3	8	4	29	12	75
Windsor and Maidenhead - Boyn Hill	5	3		3	10	8	29
Windsor and Maidenhead - Castle Without	6	7	10		16	14	53
Windsor and Maidenhead - Furze Platt	7	6	10	3	10	5	41
Windsor and Maidenhead - Oldfield	60	27	31	7	57	62	244
Wokingham - Twyford		3					3
Grand Total	166	98	151	36	227	194	872

Table 3 – Matrix of relevant Travel to Work trips from Wycombe to the Thames Valley

From Ward	Wycombe - Abbey	Wycombe - Ryemead	Wycombe - Terriers and Amersham Hill	Wycombe - The Risboroughs	Wycombe - The Wooburns	Wycombe - Tylers Green and Loudwater	Grand Total
Reading - Abbey	7	3	3			3	16
Slough - Baylis and Stoke	11		3			3	17
Slough - Central	16		3		3	3	25
Slough - Chalvey	15	3	3			6	27
Slough - Haymill	30	3	3		15	13	64
Slough - Upton	18	3				4	25
Windsor and Maidenhead - Belmont	44	5	3		12	9	73
Windsor and Maidenhead - Bisham and Cookham	40	17	6		18	8	89
Windsor and Maidenhead - Boyn Hill	30		6		10	9	55
Windsor and Maidenhead - Castle Without	14				8	6	28
Windsor and Maidenhead - Furze Platt	37	11	4		12	4	68
Windsor and Maidenhead - Oldfield	25	3	4		11	4	47
Wokingham - Twyford	18	3			8	3	32
Grand Total	305	51	38		97	75	566

Table 4 – Matrix of relevant Travel to Work trips from the Thames Valley to Wycombe

The total of relevant work trips in both directions is therefore 1,438, or 15% of the trips between Wycombe District and the Thames Valley.

To estimate the proportion of these trips which would be likely to consider ULR, we have looked at two flows in the area where rail services provide a realistic alternative to the private car. These are Princes Risborough to Wycombe (Abbey), where 10.2% of work trips are by train and Marlow to Windsor and Maidenhead (Oldfield), where the percentage is 10.5%.

Both of these routes provide regular, reasonably fast rail services, and can be considered representative of the market share which ULR could hope to achieve.

Taking the share of 10.5% gives a potential total of 151 work trips in both directions between Wycombe and the Thames Valley – or 1.6% of the total. Even this is likely to be an overestimate - as the 10% share would be unlikely to be achieved for trips where a change between ULR and train is necessary.

Our conclusion from this analysis is that considerably more work needs to be done to demonstrate that a re-instated rail line between High Wycombe and Maidenhead would be justified in demand terms.