MEMO

TO	East Dunbartonshire Council	**FROM**	WSP
DATE	**13 November 2017**	**CONFIDENTIALITY**	**Public**
SUBJECT	**A81 Bus Loop Memorandum**		

This memorandum has been prepared by WSP in response to a request from EDC to consider the option of a dedicated shuttle bus loop providing access from residential areas around the A81 to Milngavie and Hillfoot rail stations. This memo outlines the professional opinion of WSP with regards to the feasibility and viability of this option.

Indicative Costs

As a high level estimate, it is generally accepted that a bus service will cost £100k-£120k per annum to supply and operate on a cost per vehicle basis. The cost does vary, however peak hour services tend to attract significantly higher costs than off-peak services, particularly the AM peak when chartered bus services tend to be used for school transport.

Routing

As part of the A81 Options Appraisal Study, a Rail Accessibility Assessment was undertaken to show the residential catchments within a 10 minute walk of both existing and the potential Allander rail station along the A81 study area. This has been included in Appendix A of this memo for reference.

A bus loop connecting residential areas to the existing rail stations in the corridor would need to serve areas outwith an 800m (10 min walk) catchment to capture potential users who might otherwise drive to the stations, or to Glasgow City Centre. If a bus loop were to operate predominantly within these catchments, uptake in usage would be expected to be by mobility impaired users and incidental usage where timings align to provide a journey time saving compared to walking.

Frequency

Due to the residential road layout within the study area, routing options designed to serve the greatest residential catchment would likely result in a 30 minute journey time to complete the loop. Assuming the service utilises one vehicle, this would result in a frequency of 2 services per hour.

Residential areas located at the start of the looped route could therefore be subject to a maximum wait of 30 minutes, in addition to a maximum 25 minute bus journey (assuming those located within 800m of the station would walk). This is unlikely to be attractive to new users who are more likely to opt to drive in private vehicles and make use of the free parking at the rail stations.

To alleviate this issue and make the bus loop as attractive as possible to all along the bus loop, it would be more viable to have two alternate buses operating the loop in opposing directions. This would increase attractiveness to all by minimising journey times, but would result in a doubling of operating costs with the physical catchment area remaining the same.

Demand

The periods of greatest demand for travel to and from the local rail stations from the surrounding residential areas are expected to the AM and PM commuting periods. Outside of these times it is expected that demand will be very low with a smaller number of trips spread across the inter-peak period.

In this instance however, the shuttle bus is in effect, specifically intended to be an alternative to an expanded rail station car park. Consequently, we have considered three options for user demand, optimistic, pessimistic and average, assuming a daily passenger usage of 150, 50 and 100 respectively. The optimistic option of 150 passengers assumes that everyone who would potentially use an expanded car park would use a new shuttle bus, and pessimistic option of 50 passengers assumes one third of those would use the service (similar to the level of patronage of the Edinburgh Park shuttle bus service discussed below), and an average option of 100 passengers.

Fares

A fared service is unlikely to be attractive to users making a modal switch from private cars. This is because of the perceived disbenefit of bus waiting times, and the presence of free car parking at rail stations along the corridor creating an incentive towards private car use to access the rail stations.

Whilst a fared service would have the potential to lessen the operational cost to EDC, the decrease in usage is expected to offset this benefit. We have therefor considered both options, with and without a fixed charge for the bus service. Several fare options can be considered, however for the purposes of this study, we have tested for a free service, and a £1 return fare option, and these are presented the in the cost benefit analysis below.

Potential User Catchment

As noted previously, it is expected that the user catchment would lie predominantly outwith an 800m walk of the rail stations. Furthermore, the potential users would be dispersed due to the low development densities of the residential catchment areas, and it is expected that the majority of potential users would currently walk, cycle or drive to the stations. The bus loop option is therefore not expected to provide a benefit that outweighs the flexibility and certainty that independent travel provides. As previously stated, as the shuttle bus is specifically intended to be an alternative to an expanded rail station car park, the catchment is assumed to be those same users who would have used an expanded car park.

Edinburgh Park Bus Loop Case Study

By comparison, Edinburgh Park Business Park operates a successful rail shuttle service serving the Edinburgh Park and Gyle Centre rail stations. The service is routed through the business park, and as such users are densely located with a high number of users requiring access to and from a relatively small area within a short time frame (i.e. peak commuting times). A high bus frequency is therefore possible due to the short distance of the loop, providing a time saving benefit compared to independent travel modes. A high frequency of service also allows for users to better optimise their journey by minimising waiting times for both the shuttle bus and their onward rail travel.

This shuttle bus service only operates during the AM and PM peak commuting periods, and generally serves 40-50 passengers per day. The service is fully funded by the Edinburgh Park Management company and free to use for all passengers.

Cost Benefit Analysis

In order to allow EDC to fully compare the viability of a Shuttle bus service, in comparison to other investment options, a cost benefit analysis had been carried out. The results are presented below, which demonstrates that all scenarios are either low or poor value for money. The introduction of a fare makes little difference to the over BCR's. The optimistic scenario of 150 daily passengers shown in Table 1 return BCR's of 1.27 and 1.47 for a free and charged service respectively, with represents 'low value for money' according to WebTAG. The pessimistic scenario of 50 daily passengers shown in Table 2 return BCR's of 0.42 and 0.49 for a free and charged service respectively, with represents 'poor value for money' according to WebTAG. The average scenario of 100 daily passengers shown in Table 3 return BCR's of 0.85 and 0.98 for a free and charged service respectively, with also represents 'poor value for money' according to WebTAG.

Table 1: Shuttle Bus Service Economic Appraisal Results

150 passengers daily (Optimistic), with Free (and Charged) Fare Option

BCR CALCULATION	2010 PRICES AND VALUES	
Carbon	£	9,308
Time - Non users	£	49,937
VOC Costs - New users	£	106,741
Accident Benefits	£	88,888
Revenue – Free (£1 per day fare)	£	0 (39,000)
Total Benefits - Free (£1 fare)	**£**	**254,874 (293,874)**
Time – Existing users (wider disbenefit)	£	-
Local Funding	£	-
Capital Costs	£	200,000
Developer Contribution	£	-
Operating Costs	£	-
Indirect Tax Cost	£	-
Total Costs	**£**	**200,000**
Benefit to Cost Ratio – Free (£1 fare)	**BCR = 1.27 (1.47)**	

Table 2: Shuttle Bus Service Economic Appraisal Results

50 passengers daily (Pessimistic), with Free (and Charged) Fare Option

BCR CALCULATION	2010 PRICES AND VALUES	
Carbon	£	3,102
Time - Non users	£	16,645
VOC Costs - New users	£	35,580
Accident Benefits	£	29,629
Revenue – Free (£1 per day fare)	£	0 (13,000)
Total Benefits - Free (£1 fare)	**£**	**84,956 (97,956)**
Time – Existing users (wider disbenefit)	£	-
Local Funding	£	-
Capital Costs	£	200,000
Developer Contribution	£	-
Operating Costs	£	-
Indirect Tax Cost	£	-
Total Costs	**£**	**200,000**
Benefit to Cost Ratio – Free (£1 fare)	**BCR = 0.42 (0.49)**	

Table 3: Shuttle Bus Service Economic Appraisal Results

100 passengers daily (Average), with Free (and Charged) Fare Option

BCR CALCULATION	2010 PRICES AND VALUES	
Carbon	£	6,204
Time - Non users	£	33,291
VOC Costs - New users	£	71,172
Accident Benefits	£	59,258
Revenue – Free (£1 per day fare)	£	0 (26,000)
Total Benefits - Free (£1 fare)	**£**	**169,925 (195,925)**
Time – Existing users (wider disbenefit)	£	-
Local Funding	£	-
Capital Costs	£	200,000
Developer Contribution	£	-
Operating Costs	£	-
Indirect Tax Cost	£	-
Total Costs	**£**	**200,000**
Benefit to Cost Ratio – Free (£1 fare)	**BCR = 0.85 (0.98)**	

Conclusion

Due to the dispersed and residential nature of the study area, providing a level of frequency that would provide a journey time saving incentive to users would require a minimum of 2 buses running in conjunction. However, the level of demand in the corridor is not expected to meet this level of provision.

Based on the above considerations, it is concluded that there is unlikely to be a sufficiently robust business case for the provision of a shuttle bus loop serving rail stations in the corridor. The majority of users in the study area would not consider the service to provide a benefit compared to private travel modes, in particular users of private vehicles are unlikely to change modes due to free parking at rail stations in the corridor, a shuttle bus service would provide minimal or no monetary incentive and a value of time disincentive. Indeed, the BCR values confirm this, with values ranging from 0.42 to 1.47, all falling into the poor/low value for money categories.

The users most likely to benefit from this service would be people with mobility impairments. As there is no viable business case for its provision, the service would require significant or full subsidisation. If EDC are keen to progress this option is it suggested that, due to the expected benefit to mobility impaired users, it be provided through a platform such as East Dunbartonshire Community Transport which is funded by SPT with support from EDC.

APPENDIX A

Rail Accessibility Assessment

Date Modified: 08/11/2016

Drawn By: UKCXK707

Key

Walking Distance

0 - 5 minutes (0 - 400 m)

5 - 10 minutes (400 - 800 m)

Milngavie

Allander

Hillfoot

Bearsden

Contains Ordnance Survey data © Crown copyright and database right 2016.

0 0.075 0.15 0.3 0.45 0.6

Kilometres

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CN
Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User

WSP | PARSONS BRINCKERHOFF

TITLE:

A81 Transport Options Study
Rail Accessibility Assessment

File: \\uk.wspgroup.com\central data\Projects\700244xx\70024474 - A81 Transport Options Study\E Models and Drawings\Development\GIS\ArcGIS\Map Documents\Rail Isochrones.mxd