MOTT MACDONALD

Aberystwyth to Carmarthen Rail Reinstatement

Feasibility Study - Executive Summary

19th September 2018

Transport for Wales
367590-WTD-CAR-3201-Executive Summary

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Transport for Wales (TfW) commissioned Mott MacDonald to undertake a feasibility study into the reinstatement of a modern heavy railway link and attractive passenger rail services between the towns of Aberystwyth and Carmarthen.

The study was funded by the Welsh Government in recognition of the 'Case for Change' in the improvement of the strategic connections between Aberystwyth and Carmarthen, as identified by the WelTAG Stage One: Outline Case Report of November'16, and their wish to further explore the opportunities suggested by the previous Route Scoping Study of September'15.

Whilst this study broadly confirms the technical feasibility of reinstating a modified route and train service, it also highlights a number of key constraints/impacts to be resolved, and confirms the environmental importance and sensitivity of much of the route.

The identified scheme is believed to be close to optimal (within fixed constraints), but true viability would only be determined once the scheme has been more fully reconciled, through further detailed study, and in close consultation with the relevant local and statutory stakeholders.

Particular challenges include:

- **Cors Caron:** Identification of appropriate engineering solutions to address anticipated dynamic displacement and settlement issues related to the peat geology, whilst also being fully compatible with the environmental protection of the bog, and its flora and fauna.
- **Carmarthen Afon Towy Crossing and A484 Closure:** Resolution/mitigation of the impacts of the required A484 link bridge closure to through traffic, and potential flood risk impacts of new bridge(s) across the Afon Towy.
- **Accommodation of the Gwili Railway Preservation Company:** Where it has been determined that the Gwili Railway could not continue to operate in its current form, the availability and cost of appropriate re-provision at another location.
- **Mitigation of extensive Flood Risks:** Measures required in regard to the significant lengths of the route that are within Flood and Tan15 Development advice zones.
- **Property Impacts:** There would be some level of unavoidable residential property loss, together with noise and visual impacts on several communities along the route.
- **Environment and Consents:** The route passes through, or close to, a large number of sites and features which are protected by a range of statutory designations, which would require careful consideration during the planning and implementation of the project.
- **Ground Conditions, Residual Structures and Earthworks:** In advance of in-depth investigation, the specific measures required to bring the historic infrastructure back into use cannot be fully determined. Similar ground condition risks exist in regard to major new works, such as the Pen-Y-Banc Tunnel, Llanfarian cutting, and other new earthworks and structures related to the various deviations from the historic route.

Subject to the satisfactory resolution of the above, initial operational assessments have determined that the reinstated route could provide a regular hourly train service between Aberystwyth, Llanilar, Tregaron, Lampeter, Llanybydder, Pencader and Carmarthen, with an end to end journey time of around 85 minutes.

It is suggested that these services may be most economically and beneficially provided by extension of existing services on the adjoining routes (e.g. the Manchester to Carmarthen services), with local infills to the achieve higher (hourly) frequencies where required.

On the basis of these assumed services, and an opening year of 2024, initial demand assessments indicate that the reinstated railway service could attract up to 370,000 trips in its first year of operation, rising to 425,000 and 489,000 in the assessment years of 2027 and 2037 respectively.

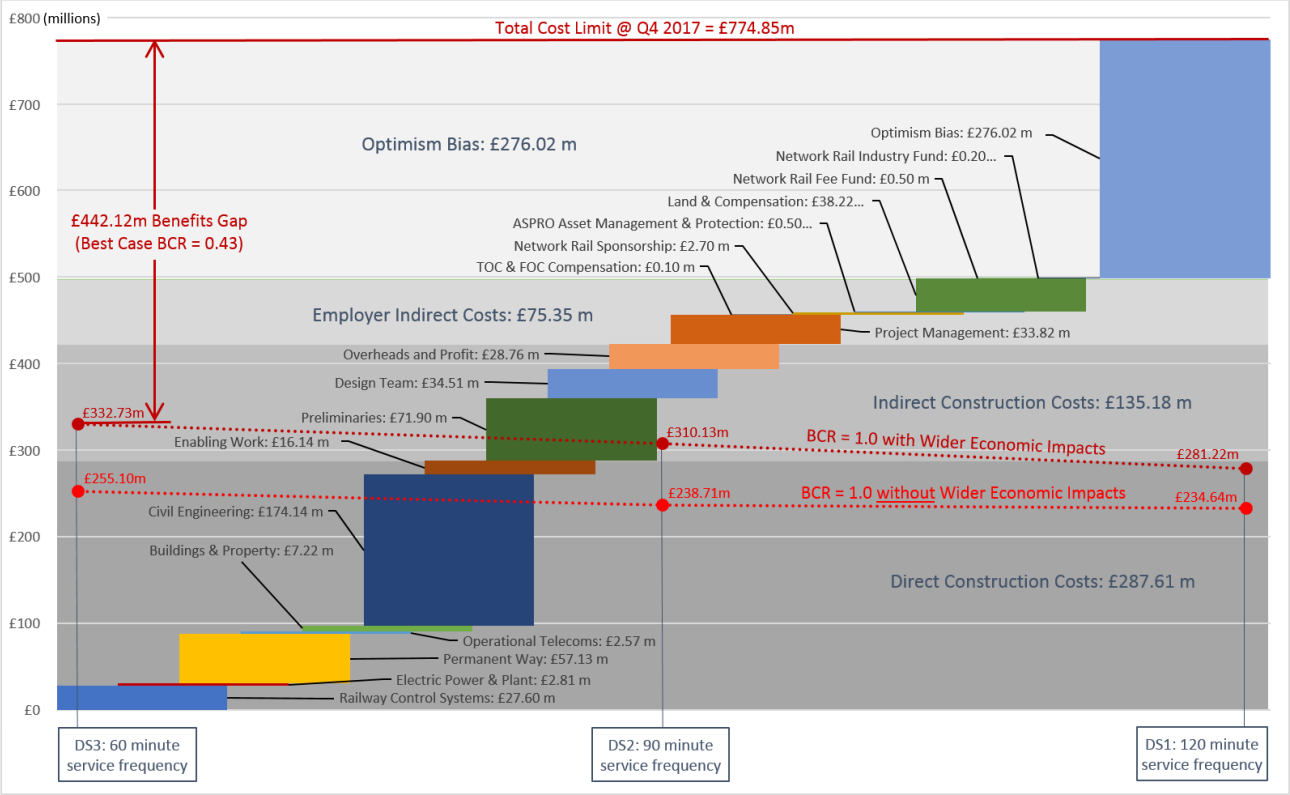

Figure 1: Affordability Summary

Figure 1 provides an 'Affordability Summary' of relevant scheme financial and economic factors, as determined by the Capital Cost, Economic, and Wider Economic Impact assessments which were undertaken as a part of the study, to advise:

- A total cost build-up of £775 million (@ Q4 2017 prices) for the assumed single core option, incorporating two passing loops, and configured to the delivery of a 60 minute service frequency in accordance with the findings of the technical study (as DS1). It should be noted that there are a range of specific assumptions and exclusions to this cost build-up.
- To the current level of scheme maturity, the cost build-up includes an optimism bias uplift of £276m, which is a general risk allowance reflecting HM Treasury/DfT guidance. Were the scheme to be progressed further, risk allowances would more appropriately be defined via quantified risk assessments to the particular challenges of the scheme, noting that this may identify a need for higher contingency values than given above.
- Considering a standard range of costs and benefits (to PDFH v.5.1) a CAPEX affordability limit (to a BCR of 1.0) has been determined in the range of £230m to £255m, dependent on the service interval adopted.
- By extension of the above assessment to include Wider Economic Impacts, CAPEX affordability limits (to a BCR of 1.0) were subsequently raised to a range of £281m to £333m, again dependent on the service interval adopted.

- Economic Assessments to a range of 60, 90 and 120 minute service intervals demonstrate little sensitivity (£16m total variance) to improved frequencies against the standard assessment, with an increased (if still moderate) impact of £47m total variance, once Wider Economic Impacts are included.
- Even with overall journey times reduced by around a quarter (n.b. an undeliverable reduction from 85 to 65 minutes), separate time sensitivity tests also show only moderate impacts, with a Maximum NPV increase of £42m.
- A best case BCR of 0.43, or a £442m benefits gap to the assessed total scheme for a target BCR of 1.0 (as the point at which economic costs and benefits are equal).

Where the above demonstrates the absence of any realistic prospect of either improving the economic benefits of the scheme, or reducing its overall cost, it is readily apparent that the scheme does not present a positive economic case. As such the scheme is only likely to be progressed in regard to wider societal needs, and strategic aims, the consideration of which is beyond the scope of this study.

Low local population levels (and levels of business, leisure, tourism activity, etc.) impose the key constraint on realistic demand levels, and thus achievable economic benefit. The achievement of a core BCR of 1.0 would require demand to more than double from the forecast, as shown relative to local populations in Figure 2 below.

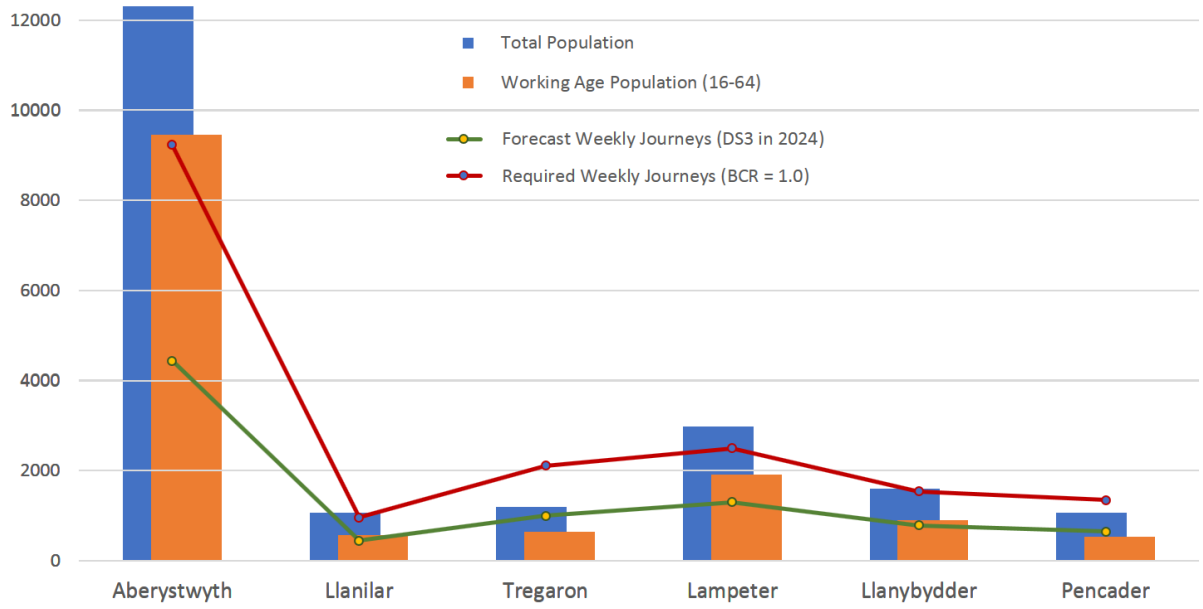

Figure 2: Forecast & Required Journeys per Week versus Local Population

To the original context of the WelTAG Stage One: Strategic Outline Case Report for “Improving Strategic Transport Connections between Aberystwyth and Carmarthen”, the completion of the study is useful in directly addressing many of the noted key risks, uncertainties, adverse impacts and constraints attributed to a new rail route. Workable solutions are presented to various of the issues raised, although concerns relating to the capital costs, environment, insufficient population, and the continued operation of the Gwili Railway are confirmed.

Where the WelTAG Stage One “Case for Change” remains to be addressed, it is hoped that the findings of this study will provide useful benchmarks for cost and BCR comparison to the alternative options that have been recommended to be taken forward. In this regard, it should be noted that whilst the study has attempted to provide a comprehensive high level overview of principal issues and approaches, significant further detailed work would be required to fully define a deliverable scheme.

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