

JASPERS

Project Screening Note

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Project title:	Western Rail Corridor Phase 2/3: Athenry to Claremorris.
Country(s)	Ireland

1. Context

- 1.1 The Western Railway Corridor broadly defines the partially decommissioned railway corridor in the west of Ireland, connecting Limerick City to Sligo via Ennis, Athenry, Tuam and Claremorris. In 2010, phase 1 of the corridor was opened to services, providing connectivity between Limerick City and Galway City via Athenry. Phases 2 and 3 propose to continue the corridor north from Athenry as far as Tuam and Claremorris respectively. The rail corridor was the subject of a report by the McCann Working Group in 2005, which recommended reopening of the line.
- 1.2 In June 2020, a Financial and Economic Appraisal of the development of Phases 2 and 3 of Phase 2 and 3 was prepared by EY. That report outlined the case for recommissioning of the 52km section between Athenry and Claremorris. The analysis assumed an hourly service between Claremorris and Galway, with the line constructed to a design speed of 90mph(150kph) at a cost of €264m. The report concluded that the economic case for reopening was very weak, with a Benefit Cost Ratio of 0.21, implying a very low Internal Rate of Return.
- 1.3 In July 2020, JASPERS was requested by the Department of Transport, Tourism and Sport to undertake a review of the project material prepared by EY, and provide independent technical advice regarding the potential of the project to attract CEF grants, as well as its potential candidacy for IFI financing.
- 1.4 This Guidance Note outlines the findings of our review. Our note addresses the main aspects of project preparation and how well these are covered within the work that has been undertaken. We should highlight that our note is not a critique of the EY report, but is instead a broad assessment of the maturity and feasibility of the project based on material that has been published to date.

2. The Need for the Project

- 2.1 A fundamental element of project preparation is the definition of the project need and in turn the examination of strategic options. This is recognised in the Irish Public Spending Code, which mandates the undertaking of a Strategic Assessment to develop the investment rationale and objectives, as well as preparing a preliminary assessment of the costs, benefits and impacts of the project.
- 2.2 For the Western Rail Corridor, however, the underlying need does not appear to be elaborated in any detail based on the information provided to us. The EY Report does present a broad picture of population growth in the region and of strong economic growth (up until the time of completion of the report), and also paints a picture of low use of public transport in the region. Whilst this is a true representation of the existing context, there is no evidence of specific transport or social constraints, nor of clear objectives that any investment on this corridor is required to meet. It is therefore difficult to assess the final project in the context of meeting objectives, whether these be social, economic or environmental.

3. Technical Option Analysis

- 3.1 The Technical Option Analysis stage is an element of project development that attracts increasing scrutiny. The importance of Option Analysis is reflected in the requirements of

the Public Spending Code, as well as relevant EU Regulation (Regulation No 1316/2013 setting out the requirements for access to Connecting Europe and Regulation (EC) 1303/2013 setting out the requirements for access to Cohesion Funds).

- 3.2 Whereas the strategic options analysis examines the broad types of solution that respond to the needs and objectives already defined, the technical options analysis focuses more on the design solutions and the various parameters adopted. For a railway project such technical options include consideration of alignment, design speed, operating concepts, maximum train lengths and bridge/tunnel gauge.
- 3.3 For the current project, the analysis is based on predefined design parameters that are not subject to an appropriate level of examination. This is a weakness of the information prepared to date, and would most likely lead to an additional body of work to prepare any such investment for an external review. It is suspected, however, that any strategic or options analysis of such nature may lead to a different solution to that being presented.

4. Project Design and Costing

- 4.1 The investment is presented as a rehabilitation project, covering a length of 52km. It appears that the works would all be undertaken within the existing curtilage of the railway, to include reconstruction of the permanent way and of structures. The design speed is defined as 90mph (150kph).
- 4.2 As the design parameters of the existing railway are not known, however, it is not clear if a 150kph design speed can be achieved within the existing railway lands, and any realignment to achieve the design speed would therefore escalate costs.
- 4.3 The project cost of €263m includes rolling stock and an 8% contingency on construction costs. The report notes that these are based on rates used in UK projects, but it is not known if those comparable rates were based on forecast rates or outturn costs. The contingency is also quite small given this early stage of design, and the cost estimate does not take account of inflation.
- 4.4 The unit rate of €5m/km is at the higher end of the range when benchmarked against comparable European projects and is not an unreasonable estimate. It is clear, however, that risks may exist due to poor underlying ground conditions and interfaces with environmentally sensitive areas. It is also noted that the inclusion of electrification would likely increase this cost by a further 10% to 20%.

5. Passenger Demand Forecasts

- 5.1 There have been a number of studies that have assessed passenger demand on the line. The EY report forecasts an additional 575,000 passengers per year by 2030. The conclusion that 2/3 of demand will be taken from other public transport modes (bus) is consistent with projects of this nature.
- 5.2 In relation to the aggregate demand forecast, we consider that existing comparable sections of the network provide a useful comparison for benchmarking of the current forecasts. Examining the existing stations between Ennis and Athenry inclusive, it is seen that these currently support a combined population of approximately 34,000 persons and generate

approximately 500 daily passenger boardings in total (according to the National Rail Census, 2018 for Regional Services).

- 5.3 By comparison, and assuming that the catchment of Athenry is additionally associated in its entirety with Phase 2/3, the combined population of the towns served by Phase 2/3 (Athenry to Claremorris) is approximately 18,000 persons. This direct comparison of catchments would suggest that the demand for Phase 2/3 might be roughly half of that for phase 1. Nevertheless, at a proposed frequency of 15 trains per day (as compared to 5 trains per day in phase 1) it is reasonable to assume that this might double passenger demand (applying elasticity of demand with respect to total vehicle km of 0.75 from TRL Report 593 of 2004), concluding that the boarding/alighting at stations between Athenry and Claremorris could be of the same order of magnitude (500 boardings per day). This suggests that the passenger forecast of 575,000 passengers per annum might be a challenge to achieve, although not impossible with a considerable improvement in the marketing and delivery of the service.
- 5.4 A further benchmark is possible by comparing Tuam and Ennis. Tuam and Ennis are both connected to their nearby city by a high quality road that can compete with the rail connection. Ennis, catering for a population of 25,000 persons with 8 trains per day to Limerick generated a demand (boarding plus alighting) of approximately 500 passengers per day in 2018. Tuam with a population of close to 9,000 is forecast to generate some 750 passengers per day (boarding plus alighting) according to the EY report, albeit at a proposed hourly service.
- 5.5 The relative attraction of the railway service is better understood when examining competing modes. The journey from Tuam to Galway is expected to take 50 minutes by train (assuming a 150kph design speed). This compares, however to journey times as low as 40 minutes by bus, using a relatively direct routing and with quite competitive fares. Attracting patronage from buses on this corridor is therefore a significant challenge.
- 5.6 In conclusion, the passenger demand forecasts for Phase 2/3 appear high in comparison to Phase 1, although perhaps not unachievable with significant service improvements and with a range of supporting measures to improve the overall offering to passengers. Nevertheless, it is considered that a further, more detailed demand analysis would be warranted to support the definition of a more optimal operating concept and project design.

6. Freight Demand Forecasts

- 6.1 The development of new rail connections can have significant impacts on the movement of freight, with new connections facilitating additional freight movements over very long distances that would traditionally travel by road. Projects that remove significant bottlenecks or bridge non-existing connections can lead to widespread changes in the pattern of logistics and can be justified by the resulting strategic impacts on freight movement.
- 6.2 For the current project, a number of features suggest that there may not be a significant benefit for freight. Although there have been various studies to examine the potential for the freight business across the Irish railway network, the demand remains low, and is limited to a limited volume of transportation to/from key ports. Whilst the proposed project does develop a direct connection between Ballina and Galway, thereby facilitating onwards access to Foynes and the Port of Cork, it is noted that such connectivity is already available via the railway node at Athlone, perhaps with some local improvements needed to improve

operations. As such, the proposed project is unlikely to lead to any significant changes in strategic connectivity.

- 6.3 Nevertheless, this is not to say that freight impacts are not relevant. For this project, a full rail freight assessment would require a more granular understanding of rail freight patterns. For the two trains per day that are assumed in the forecasts, this would need to be underpinned by a credible analysis of the new freight opportunities and related industries, as well as how the project might impact on the business decisions of such industries.

7. Operational Plan

- 7.1 The project assumes an hourly service frequency with the alignment reconstructed to a design speed of 90mph (150kph). The hourly frequency is an ambitious assumption, given the population catchment of the corridor. Likewise, the 150kph design speed is ambitious, and is more consistent with design speeds on sections on the main inter-urban corridors. A more detailed analysis of the factors defining this operational solution would normally be expected for a project of this type. It is noted that any reduction in the design speed and service frequency would lead to a decrease in costs, but would also lead to a reduction in passenger numbers.

8. Financial and Economic Appraisal

- 8.1 The financial and economic analysis has been undertaken according to national standards, and considers the typical range of cash flows and benefits that result from an investment of this nature. The analysis, however, points to a net increase in travel time and also an increase in noise, both of which reduce the scheme benefits. The increase in travel time is not unexpected, as seen from the comparative analysis of journey times with other modes. The noise impacts, however, appear to be unduly influenced by the assumption of two freight trains per day and possibly also the assumption of diesel railcars for passenger services as opposed to the quieter electric railcar solution.
- 8.2 The Benefit Cost Ratio of the investment is presented in the EY report at 0.25, with a Net Present Value of -€286m. This is a very weak result for the project, but is consistent with the findings set out above. Whilst a reduced service frequency and a lower design speed would reduce the project capex and opex, this would also lead to a reduction in passenger numbers, and the underlying conclusion is unlikely to change.
- 8.3 The EY report also examines the Wider Economic Benefits of the project, and specifically the agglomeration benefits. The report states that such agglomeration effects are unlikely to be significant, given that the rail would attract a limited demand and that both bus and car journey times would continue to be attractive.
- 8.4 The use of Wider Economic Benefits to communicate the overall benefit of a project is the subject of much ongoing debate across the EU. The default position within EIB¹ is that such benefits should not be included as part of the primary economic analysis, but that under some strict conditions there may be a case for supporting Wider Economic Benefits. Even

¹ https://www.eib.org/attachments/thematic/economic_appraisal_of_investment_projects_en.pdf

so, the Wider Economic Benefits should not be relied upon to justify a project with a poor underlying Internal Rate of Return.

- 8.5 For Phase 2/3 of the Western Rail Corridor, Tuam will be the main new generator of activity, reflecting its definition as a Key Town in the Regional Spatial and Economic Strategy. That strategy, however, appears to focus on modest population growth in Tuam (and other towns in the hinterland) with Galway remaining the main centre of commercial activity. There is therefore no real sense of a fundamental shift in the patterns of activity as a result of the development of the rail corridor.
- 8.6 If it is considered that the project will generate a fundamental change in the regional economy, then the investment should be presented as part of a broader strategic concept for the corridor. Such a plan could set out how the corridor is expected to grow, its relationship with the main centres of population (Galway/Limerick), the nature of activity that it is expected to attract, proposals for clustering or for new industries, with this then driving the resulting population, employment and industry growth forecasts. It would also address how the development of a new transport corridor would support such a development concept, thereby capturing the broader economic effects of the transport corridor itself.

9. Climate Change

- 9.1 In accordance with the Effort Sharing Regulation (Regulation (EU) 2018/842) Ireland has a binding national target of 30% reduction in Greenhouse Gas Emissions by 2030 against 2005 levels. Each Member State is obliged to detail the measures for achieving this reduction in a National Climate and Energy Action Plan. The Irish NECP outlines a number of transport objectives to meet this intended reduction, although without specific reference to the current project proposal.
- 9.2 The EY Report does note the importance of meeting the climate change objective, although a specific analysis of GHG impact arising out of the current project is not undertaken. It is noted that the demand forecast assumes that 2/3 of the passenger demand will be drawn from existing bus trips, but with the use of diesel traction the actual GHG impact of this may be somewhat muted. Furthermore, with the electrification of public transport fleets as envisaged under the NECP, this might foreseeably see passengers being drawn from electric bus vehicles to diesel railcars, which does not reflect positively on the climate agenda. In addition, the objective to significantly increase the electrification of the private car fleet by 2030 further erodes the ability of the project to support climate objectives.

10. TEN-T and Financing aspects

- 10.1 The Trans-European Transport Network (TEN-T) describes a Europe-wide network of rail, road, inland waterway and maritime shipping corridors, as well as significant ports, airports and railroad terminals. The ultimate objective is to close gaps, remove bottlenecks and technical barriers across Europe, as well as to strengthen social, economic and territorial cohesion in the EU. The TEN-T policy defines two main objectives:
- Completion of the Core Network by 2030; and
 - Completion of the Comprehensive Network by 2050 .
- 10.2 The Connecting Europe Facility (CEF) for Transport is the funding instrument of the TEN-T policy, as defined mainly by the TEN-T Guidelines according with the Regulation (EU)

1315/2013. As such, CEF funding is directed towards investments in the Core and the Comprehensive Networks through regular calls for proposals. During the period 2014-2019, CEF Transport awarded €23.3 billion in grants to co-finance projects of common interest.

- 10.3 Examining the TEN-T policy, it is evident that the Western Rail Corridor is not located on the Core or Comprehensive network. Nevertheless, the TEN-T guidelines are currently under revision, and there may be a case for including the Western Rail Corridor in the Comprehensive Network through a legislative process involving the European Commission, Parliament and Council. Such inclusion would require a robust argument for the strategic nature of the corridor and its contribution to TEN-T policy.
- 10.4 Even as part of the Comprehensive Network, the European added value of the current project would still need to be demonstrated, which would require an elaboration of its strategic role in providing connectivity to nodes of the Core Network. It is noted that the award of grants through CEF is subject to a competitive evaluation, and traditionally there is a significant oversubscription of available funding. As such, the probability of being selected in a competitive call cannot be considered as high in the absence of such a case.
- 10.5 In the context of lending from EU Financing Institutions (most notably EIB), the project selection process is subject to technical reviews of the project documentation, examining the financial and economic case, as well as general project need, scope, risks and impacts. It is likely that during such review that the issues noted throughout this note would be highlighted, and would influence the final decision. We consider that that gaining support for project financing of the proposal in its current form would be a challenge.

11. Conclusions and Recommendations

- 11.1 This note has been prepared to provide an independent review of the proposed investment for reconstruction of the Western Rail Corridor phases 2 and 3, connecting Athenry to Tuam and Claremorris respectively. The review has examined the full range of material available on the project, with specific reference to the Financial and Economic Appraisal prepared by EY in June 2020.
- 11.2 The review has concluded that the findings of the Financial and Economic Appraisal are not unreasonable, namely that the project in its current form is likely to present a very weak justification for investment. We consider the cost estimates and demand forecasts to be within reasonable ranges, although these are based on a design solution and operational plan that might be considered overly optimistic.
- 11.3 Our most significant findings are the gap in the demonstration of the project need, the analysis of strategic and technical options, the chosen operational plan and the contribution of the project to climate change objectives. We also note that the wider economic benefits of the project are unlikely to be significant and in any case would need to be presented in the context of a broader economic plan for the development of the corridor.
- 11.4 The project is not currently part of the TEN-T Core or Comprehensive corridors, and to include this in the revised corridor would require a strong demonstration of the strategic nature of the corridor. Even so, the weak forecast demand and the limited role for freight would limit the ability of the project to attract grant funding.

11.5 In terms of financing, we consider that a fundamental review of the basis for the project and the regional context, as well as a more detailed assessment of the ability to support climate objectives would be needed before bringing the project forward for financing.