

ArupTransport

Tyne and Wear Passenger Transport Authority

New Tyne Crossing

Summary of Proof of Evidence on Transport

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1. QUALIFICATIONS AND EXPERIENCE

- 1.1 I hold a Bachelor of Science in Civil Engineering from the University of Glasgow and a Master of Science in Traffic and Transportation Planning from the University of Birmingham. I am a Chartered Engineer, a Member of the Institution of Civil Engineers, a Fellow of the Chartered Institute of Transport, a Fellow of the Institute of Logistics and Transport and a Fellow of the Association of Consulting Engineers.
- 1.2 I am Director of Ove Arup & Partners Ltd (Arup) with particular responsibilities for transportation and traffic planning within the firm.
- 1.3 I have worked in both the private and public sectors and have over 30 years experience in directing or managing a wide range of transportation projects involving evaluation of major highway and public transport infrastructure worldwide. I have given evidence on transport issues at Local Planning Inquiries and to Select Committees in the House of Lords and the House of Commons.
- 1.4 Since 1999 I have been responsible for all aspects of the transport and traffic studies undertaken by Arup in connection with the New Tyne Crossing. I have also been the Director responsible for all of the firms involvement in undertaking the Government's multi modal studies including the Tyneside Area Multi-Modal Study (TAMMS) which Arup has undertaken on behalf of the Government Office for the North East (GONE).

2. EXISTING TUNNEL

- 2.1 The existing vehicle tunnel links the A19 on the north and south sides of the river. Vehicles using the tunnel pay tolls which are collected at the north end where four toll booths are located on both the exit from and entry to the tunnel.
- 2.2 The most recent revision of tolls was undertaken under the Tyne Tunnel Revision of Tolls and Traffic Classification Order 2001. From 23rd August 2001 the car toll was raised from 80p to £1 and the goods vehicle toll from £1 to £1.20. Passenger service vehicles and coaches are subject to tolls, with only emergency vehicles and Orange Badge holders being exempt.

3. POLICY CONTEXT

- 3.1 A scheme for the new crossing is supported in both the North Tyneside and South Tyneside Unitary Development Plans (UDPs). The scheme is also included in the Proposals Plan associated with both documents.
- 3.2 The Local Transport Plan for Tyne & Wear 2001-2006 considers the scheme to be *“one of the more important transportation projects completed during the life of the first Local Transport Plan”*. The plan also identifies the main problems of the tunnel as being delays and congestion creating localised noise and air pollution and the spread of congestion on to local roads and other river crossings.
- 3.3 The Tyne & Wear Economic Strategy (March 2002) also supports the scheme complemented by support for public transport improvements. The Regional Planning Guidance for the North East identifies the new Tyne Crossing as *“a high quality strategic link which will maintain and improve the regional competitiveness and promote regeneration”*.
- 3.4 In the Draft Regional Transport Strategy, the new crossing is highlighted as *“one of the major schemes that should aim to be delivered in the short term”*.
- 3.5 With regard to the national context, the need to address congestion on the A19 is identified in the Transport White Paper, ‘A New Deal for Transport. Better for Everyone’ (1988) and other associated documents including ‘Transport 2010 – The 10 Year Plan’.
- 3.6 The New Tyne Crossing is therefore firmly bedded in local and regional policy and is consistent.

4. BACKGROUND STUDIES

- 4.1 I have examined previous studies which have addressed the issue of Cross Tyne capacity and the provision of a new crossing.
- 4.2 The first phase of the Cross Tyne Study undertaken in 1990 identified and quantified the capacity shortfall and the need for a new crossing. The second phase of the study examined the relative merits of alternative crossing locations, following which a decision was taken to favour St Bede's. The study concluded that even the most adventurous public transport scheme combined with traffic restraint would not remove the need for a new road crossing.
- 4.3 The Tyneside Area Multi-modal Study which commenced in 1998 addressed the issue of congestion on the A1 and A19 corridors in the context of a multi-modal approach to developing a balanced solution. The study concluded that the existing and future problems could not realistically be solved without a new road crossing and confirmed the New Tyne Crossing as an integral element of a wider package of measures, including public transport improvements and demand management measures such as cross river tolling. The recommended strategy is currently being considered by the Regional Planning Bodies.
- 4.4 The TWPTA (Nexus) are promoting a new tram based system linked to the existing Metro. It is noted that the study which is currently being undertaken to evaluate possible options has not included a cross river option in its list of feasible corridors for more detailed assessment, thus reinforcing the conclusions reached in previous studies regarding the viability of such a scheme and its ability to address the Tyne Tunnel issues.

5. EXISTING TRANSPORT CONDITIONS

- 5.1 The Annual Average Daily Traffic Flow (AADT) in the existing tunnel is around 31,000 vehicles per day resulting in a stress level (ratio of traffic flow to capacity) of 124%. As a consequence of this, general traffic and public transport services are subjected to serious congestion and delays during peak periods.
- 5.2 There is also clear evidence of peak spreading reflecting the tendency for commuters to re-time their journeys to avoid congestion in the peak hour. To illustrate this the peak hour flows have remained static for a number of years due to the limitations of the existing tunnel capacity. At the same time the peak hour, as a percentage of the daily flow, has steadily declined from 10% to around 8%. Serious delays and queuing at the tunnel now occur over extended morning and evening peak periods. These delays are highly susceptible to modest changes in traffic flows, with day-to-day fluctuations producing disproportionately large changes.

6. SCHEME OBJECTIVES

6.1 The following objectives have been established for the scheme:

- to solve the problems of congestion in the tunnel and at its entrances and approaches;
- to improve public transport access through the tunnel and in the vicinity;
- to improve safety and lower the risk to the travelling public in the tunnel; and
- to provide wider economic benefits in the region.

6.2 In addition to the above, it is relevant to consider the Government's five overarching transport objectives related to environment, safety, economy, accessibility and integration.

7. TRANSPORT MODEL

7.1 A transport model was developed to produce traffic forecasts for the anticipated year of opening of the scheme 2006 and for the design year 2021. The model was used to evaluate the effects of the scheme (do-something scenario), as well as the transport implications if the scheme were not to proceed (do-minimum scenario). The model forecasts were based on the Department for Transport's National Trip End Model.

8. DO MINIMUM SCENARIO

8.1 The do-minimum scenario or reference case scenario provides a basis against which to evaluate the impacts of the scheme. The scenario only included those relevant schemes which had funding approval at the commencement of the study.

8.2 The forecasts indicate clearly that there would be a significant deterioration in existing traffic conditions at the tunnel, with traffic flows increasing from 31,000 vehicles per day (AADT) to 32,700 vehicles per day (AADT) in 2006 and 39,000 vehicles per day (AADT) in 2021. The resulting stress levels would rise to 131% and 156% in 2006 and 2021 respectively, compared to an existing level of 124%.

8.3 The clear implications of these forecasts are that, if nothing is done, congestion at the tunnel will worsen, resulting in more peak spreading and significantly increased delays and disruption to traffic and public transport services over longer periods of the day.

9. SCHEME IMPACT – DO-SOMETHING

- 9.1 In terms of the tunnel itself the scheme will reduce the stress level from 131% in the do-minimum to 46% in 2006 and from 156% in the do-minimum in 2021 to 61%. As a consequence, the tunnel will operate with generally free flow conditions at all times of the day and there will be significant reductions in travel times for all users. The New Tyne Crossing will therefore deliver substantial benefits and will eliminate the delays associated with the existing tunnel. The associated improvement in operation conditions will significantly improve journey time reliability for car traffic and public transport.
- 9.2 The traffic forecasts associated with the scheme can comfortably be accommodated within the link capacity of the A19. Although some of the at-grade junctions are currently operating at or near capacity the impact of the New Tyne Crossing on them is small and will not have a material effect on their operation. As a result no improvements are proposed on the A19 as a direct consequence of the scheme. The recommended transport strategy in the Tyneside Area Multi Modal Study (TAMMS), however, included improvements to some of the junctions on the A19. If confirmed these improvements will be promoted by the Highways Agency which has indicated its strong support for the new crossing.
- 9.3 In terms of the local road network the effects of the scheme are generally beneficial in terms of reducing traffic flows, the exception being Tynemouth Road and the short section of Wallsend Road west of the East Howdon Bypass.
- 9.4 Considering the wider network, the scheme will reduce the overall vehicle kilometres travelled by car by removing the need for traffic to travel longer distances to avoid congestion of the existing tunnel. In the scheme opening year a reduction of over 4 million vehicle kilometres is anticipated.
- 9.5 The scheme therefore meets the first key objective relating to solving the problems of congestion at the tunnel. In doing so it will make a positive contribution to the achievement of the Government's congestion reduction targets, as set out in the 10 Year Plan.

10. SAFETY BENEFITS

- 10.1 The scheme will result in a reduction of over 500 personal injury accidents on the wider road network. Within the tunnel the separation of the carriageways will provide an inherently safer traffic arrangement and will allow greater flexibility in monitoring two-way traffic flow should an incident occur in one of the tunnels. The scheme therefore achieves its key objective related to improving safety and is also consistent with the Government's wider safety objectives.

11. ECONOMIC BENEFITS

- 11.1 The new tunnel will deliver substantial economic benefits through traveller time savings due to the reduction in congestion. This will result in a positive net present value of £114m and a cost benefit ratio of 1.8 thus achieving that aspect of its key economic objective relating to the economic efficiency of transport schemes.

12. PUBLIC TRANSPORT

- 12.1 In addition to the benefits to existing bus services, the bus operators have responded positively to the scheme and have indicated that the reduction in congestion and the increase in reliability will provide an opportunity to improve the frequency of these services, the range of destinations served and the interchange opportunities with the core routes thus increasing the public transport options available.
- 12.2 In recognition of the benefits of the scheme to public transport, plans are being considered for the extension of the Stephenson Corridor Jobs Link bus services to the south of the river creating further opportunities for alternative public transport services across the Tyne.
- 12.3 In addition to the above, the design of the scheme incorporates a bus only link from the East Howdon Bypass which allows buses to avoid the toll booths when travelling southbound, giving priority over any traffic using the tolls.
- 12.4 The scheme will therefore offer significant opportunities for enhancing public transport in the A19 corridor and as such fully meet its objective of improving public transport access through the tunnel. Such objectives are also consistent with PPG13 and the Government's wider aims to increase accessibility, particularly for those without a car.

13. CONCLUSIONS

- 13.1 In summary the proposed New Tyne Crossing fully meets the objectives set by the TWPTA and is consistent with the Government's own transport objectives and with national transport policy. The scheme is also firmly bedded in both regional and local planning policies.