TWPTA 3

ArupTransport

Tyne & Wear Passenger Transport Authority

New Tyne Crossing

Proof of Evidence on Review of Options

ArupTransport

Tyne & Wear Passenger Transport Authority

New Tyne Crossing

Proof of Evidence on Alternative Options

by Malcolm James Simpson,
BSc, Dip. HTE, CEng, FICE, FIHT, MRTP

Ove Arup & Partners Ltd
Central Square, Forth Street, Newcastle upon Tyne NE1 3PL
Tel +44 (0)191 261 6080 Fax +44 (0)191 261 7879
www.arup.com

Job number 57621/76

CONTENTS

1. QUALIFICATIONS

1.1 I am Malcolm James Simpson. I have a honours degree in Civil Engineering from the University of Bristol and a postgraduate diploma in Highways and Traffic Engineering from the University of Newcastle-upon-Tyne. I am a Chartered Engineer and Town Planner. I am a Fellow of the Institute of Civil Engineers, a Fellow of the Institute of Highways and Transportation and a Member of the Royal Town Planning Institute.

1.2 I have over 37 years experience of directing and managing a wide range of transport studies in many countries.

1.3 I founded Ove Arup and Partners (Arup) Transport Planning group in 1965 and the Environmental group in 1988. I was the Director responsible for all transport planning work until I retired in 2002. Since then I have acted as a Consultant to Arup.

1.4 I have undertaken many studies in the Tyneside area including transport planning for the Gateshead Western By Pass (now the A1), the Gateshead Highway and many site development studies.

1.5 I have carried out many studies for the Government including a review of PPG13 and have acted as reviewer for Multi Modal studies. I have given expert evidence at a large number of Public Inquiries.

2. INTRODUCTION

2.1 My Proof of Evidence primarily covers the following matters on which the Secretary of State wishes to be informed.

2.2 "The justification for the particular proposals in the TWA Order including:

- the extent to which they are consistent with national, regional and local planning and transport policies; and

- the main alternatives considered as regards location, type of crossing or other means of meeting the objectives of the scheme."

2.3 I have carried out a review of the crossing, its location and whether it complies with current selection processes. I have not been directly involved in any of the relevant studies and was therefore able to give an independent and objective view.

2.4 My proof considers the original decision making process in the early 1990s that led to the justification of the need for a new crossing of the River Tyne and the selection of the proposed crossing at St Bedes. The decision was taken by the elected authorities in the context of the national and local transport policies that were current at the time and the period that has elapsed since then is part of the inevitable process of developing a major scheme of this nature.

2.5 However, in order to demonstrate the robustness of the decision, this proof considers, as far as is possible, the likely outcome of the process if it were to be considered in the light of current transport, economic and planning policies, traffic flows and recommended methods of evaluation.

2.6 I have also considered the changes that have taken place since the original decision was made and the need for and viability of providing segregated public transport crossing facilities at the new crossing.

3. PREVIOUS STUDIES

3.1 There have been many transport studies undertaken which are relevant to the consideration of a New Tyne Crossing to the east of the existing central bridges and the key studies are as follows:

- 1988/91 MVA Study
- 1992 Study by The Cross Tyne Technical Steering Group
- 1996 Study by Hambros/Babtie/Stear Davies Gleave/Freshfields/Chesterton.
- 2000 study of the Tyne Tunnel by Arup
- Tyneside Area Multi Modal Study by Arup and Scott Wilson
- Current ORPHEUS Study by Jacobs/Steer Davies Gleave

3.2 These studies cover transport in the Tyneside area including travel by all modes of public transport. The objectives, data and conclusions for each of the studies is summarised in the following sections of my proof of evidence.

4. 1988/91 MVA CROSS TYNE TRANSPORT STUDY – PHASE 1

4.1 The MVA Consultancy was commissioned in 1988 to work with Newcastle City Council under the guidance of the Tyne and Wear Countywide Transportation Modelling Team [CTMT]. MVA produced an inception report in June 1988 which set down the approach to the study, the surveys required and the modelling to be carried out.

4.2 The objectives set down by the CTMT were:

- provide a full understanding of present day trip movements by all modes across the Tyne.
- provide a full understanding of car and commercial vehicle movements in the Newcastle and Gateshead central areas.
- allow the appraisal of benefits of additional cross-river capacity and to whom the benefits would accrue.
- allow the appraisal of highway schemes in the central areas.
- provide the upgrading of CMTM's County highway network.
- provide an upgrading of CMTM's County Travel Matrix, utilising matrix-updating techniques.

4.3 In September 1988 MVA were commissioned to carry out Phase 1 of the study and a model was developed which allowed mode choice effects to be included. The study conclusions were reported in January 1990 and were that, without the provision of at least one further river crossing, there would be a shortfall of highway capacity by the late 1990's and, as a consequence, identified three potential crossings of the River Tyne in addition to the existing ones:

- a low level single carriageway crossing between Newcastle East Quayside area and Salt Meadows - St Lawrence
- a high level crossing between St Anthony's and Heworth – St Anthony's

- additional cross-river capacity adjacent to the existing Tyne Tunnel – St Bedes

5. 1991/2 CROSS TYNE STUDY – PHASE 2

5.1 Following consideration of the Phase 1 report, a Technical Steering Group was set up by all relevant parties – Newcastle City Council, Gateshead MBC, North Tyneside MBC, South Tyneside MBC and the Tyne and Wear Development Corporation – under the chairmanship of Professor Peter Hills, the Director of the Transport Operations Group at the University of Newcastle upon Tyne.

5.2 The Terms of Reference for the Phase 2 study were, in summary:

- to develop the findings of Phase 1
- to prepare an individual report on each of the three schemes identified in Phase 1, and to identify alternative possible means of addressing the problems of cross-Tyne travel e.g. through traffic restraint measures/public transport improvements, which would form the basis of a further report;
- to produce a final summary report.

5.3 The Steering Group considered other possible crossing points and added one to those previously identified – at Walker a short distance to the east of the St Anthony's crossing location.

5.4 The general method adopted in the study was to model trips across the Tyne and to include a public transport improvement/traffic restraint option. The basis for the restraint alternative was to assume a very substantial improvement in public transport services combined with a vigorous restraint policy in the centres of Newcastle and Gateshead. The "restrained" assessment was compared with the case where none of these measures were in place. The forecasting was for the year 2001 which was assumed to be the year of opening for any new crossing.

5.5 The evaluation of the alternative crossing included the following criteria in addition to the effect of the restraint measures outlined above.

- Operational evaluation to assess flows and delays.

- Economic evaluation to assess values of time, operating costs, accident values and other parameters.
- Environmental assessment based on the following criteria.
- Residential properties demolished.
- Other properties demolished.
- Residential properties within 50m.
- Other properties within 50m.
- Visual impact.
- Heritage and Conservation impact.
- Open space affected
- Severance
- Construction disturbance.

5.6 The main findings of the study were:

- Without trip redistribution and suppression of trips the existing crossings could not accommodate the demand for cross river movements
- Any restrained trips would be replaced by suppressed trips
- The imbalance of jobs north/south of the River affects the demand for new river crossings.
- All options show good value for money
- Each option provides a solution to a different problem

- The decision on which crossing to choose depends on the political weightings given to different impacts,

- Traffic forecasts used in the study are likely to be conservative

- Funding would be difficult

5.7 In order to provide the decision makers with a structure for their appraisal a decision tree was produced and is described in John Miller's proof of evidence.

5.8 The study also included a report on the public transport/private traffic restraint scenario which was produced in July 1992. This part of the study was undertaken in the context that "people are increasingly questioning the wisdom of continuing to invest in major new highways to solve urban traffic problems." One of the key issues related to the restraint scenario is that no strategic body is empowered to plan for both highway and public transport investment for the conurbation as a whole and, as any restraint policy must contain a range of interrelated policies, it is not capable of being effectively implemented.

5.9 Although the scenario was therefore considered unrealistic the conclusions of the study were nevertheless pursued. The overall conclusion was that with the "draconian" measures proposed the effect would be to postpone the need for an additional crossing by 3 years or 7 years if the High Level Bridge were not closed to cars.

5.10 After the TWCC had considered the report they concluded, in 1993, that there was a need for new crossing capacity to be provided downstream of the Tyne Bridge and that the preferred location was at St Bedes. Details of the decision making process are given in John Miller's proof of evidence.

6. 1992 TRANSPORT POLICY

National Policy

6.1 In the early 1990's the national transport policy was undergoing a change in emphasis from primarily highway solutions towards multi-modal sustainable solutions.

6.2 PPG 13 related solely to roads and developments until the revised version was produced in 1994. This changed the emphasis to reducing the number of trips, reducing car use and increasing the proportion of travel by sustainable modes of transport.

6.3 National transport policy focussed on road construction following "Roads for Prosperity" the 1989 White Paper. This was supported by the 1990 DTP report "Trunk Roads, England. Into the 1990s".

6.4 Despite the emphasis on roads in the Department of Transport's policy there was a growing awareness that this policy may not solve the countries transport problems. One of the significant publications was "Transport: The New Realism" published in 1991 [Goodwin et al] which drew attention to the need to consider a policy mix including public transport, traffic calming, traffic management systems and road pricing.

6.5 The Government first set out its strategy for sustainable development in the 1990 White Paper "This Common Inheritance" which included the effect of transport on the environment.

6.6 From these publications it is clear that, although the Department of Transport policy focussed on road building there was a widespread recognition that this would not solve future transport problems without the need to consider trip reduction and the provision of sustainable modes of transport including more emphasis on public transport.

7. 1996 STUDY

7.1 Following discussions with MPs and Ministers which took place in 1994 to 1995 and led to the conclusion that government would not provide public funds for the scheme, a consortium of Hambros/Babtie/Steer Davies Gleave/Freshfields/Chesterton were appointed in May 1995 by the Tyneside Authorities, the TWPTA, the former UDC and the Government Office for the North East [GONE]. The brief for the study was to examine the engineering, programming and financing of the project and, in particular, the potential to engage private sector funding.

7.2 The study concluded that a tunnel crossing at St Bedes was an attractive and viable PFI opportunity and that an immersed tube solution was the most suitable.

8. TYNE TUNNEL STUDY – 1999

8.1 Arup was appointed in November 1999 as technical advisor to the TWPTA and undertook a study on the crossing options at St Bedes.

8.2 The review of the crossing options concluded that an immersed tube tunnel was preferred and Richard Thurlow's evidence covers the details of this study.

9. MULTI MODAL STUDIES

9.1 Following the Government publication on "A New Deal for Trunk Roads in England" consultation was undertaken with Regional Planning bodies. This resulted, in 1999, on guidance for two types of study.

- Road based studies related to particular problems on the road system
- Multi-Modal Studies to consider problems and solutions affecting all modes of travel.

9.2 The aims of the Multi-Modal studies are to investigate problems and solutions for all modes of transport. The output will be a number of different options and analysis of options needs to be sufficiently detailed to ensure that robust decisions can be made. The results of the studies will be used by Regional Planning Bodies in developing and reviewing Regional Transport Strategies.

9.3 Extensive guidance has been given by the Government on the issues to be considered as part of these studies. The five main criteria set down in the guidance are:

- Environmental Impact – to protect the built and natural environment
- Safety – to improve safety
- Economy – to support sustainable economic activity and get good value for money
- Accessibility – to improve access to facilities for those without a car and to reduce severance
- Integration – to ensure that all decisions are taken in the context of the Government's integrated transport policy.

9.4 Following analysis of the sub objectives under these five main headings, the findings are summarised in an Appraisal Summary Table in which each option is summarised on a single page.

9.5 The overall appraisal process which is used by the appropriate authorities to make their decisions contains five strands;

- The Appraisal Summary Tables
- Assessment of the degree to which local and regional objectives would be achieved
- Assessment of the degree to which problems would be ameliorated

- Supporting analysis of the implications for distribution and equity, affordability and financial sustainability, and practicality and acceptability.
- Contribution to the Government's 10 year plan targets.

10. TYNESIDE AREA MULTI-MODAL STUDY

10.1 A joint venture of Arup and Scott Wilson was commissioned in January 2000 to carry out the Tyneside Area Multi-Modal Study [TAMMS].

10.2 The central objective of the study was to develop a transport strategy to address problems on the A1 and A19 trunk roads in the Tyneside area, which is consistent with both national and local objectives for sustainable transport in the medium to long term.

10.3 Other key objectives of the study were the Government's five overarching objectives described in Section 9. In addition, the study Steering Group and the consultants agreed additional local objectives.

- To reduce congestion on the A1 in Tyneside
- To reduce congestion on the A19 approaches to the Tyne Tunnel
- To improve safety on the A1 in Tyneside
- To improve safety on the A19 in Tyneside
- The accrued benefits to the A1 and A19 should be achieved without causing unacceptable problems on the other transport networks in the area.

10.4 The study has involved extensive data collection, the construction of a full multi modal model, widespread consultation and consideration of a wide range of options.

10.5 Three scenarios were considered:

- Highway infrastructure
- Making Best Use
- Enhanced Public Transport

10.6 The New Tyne Crossing was not included in the base/reference case and was therefore subject to the full appraisal process. The conclusion of the long and complex study has resulted in draft strategy measures which include a New Tyne Crossing, improvements to the A1 and A19, tolls on all river crossings, Metro Centre parking charges, rail and Metro improvements together with a reduction in fares and a range of measures to encourage use of sustainable transport modes. It has been emphasised that the measures are complementary and should be implemented as a whole if the objectives are to be achieved.

10.7 The study recommendations have been put to GONE and the Regional Planning Body who will, after consideration, make recommendations to the Government and other transport authorities.

10.8 Gordon Henderson's evidence gives more detail on this study.

11. PROJECT ORPHEUS

11.1 The PTA commissioned a study in 2002 to evaluate the feasibility of constructing a network of street trams to complement the Metro system.

11.2 The first stage of the study has identified ten possible routes for detailed investigation out of the initial list of twenty-nine. Services on the routes will be provided by guided buses or trams. The trams will run on the same type of track as the Metro and will eventually replace the rail system when the present fleet of trains is retired in twenty years time. It is hoped that the first services will run by 2008 and that the network will be largely complete by 2015.

11.3 It is particularly relevant to note that the short list of ten additional lines does not include a new crossing of the Tyne. It is clear that this comprehensive study of public transport in Tyne and Wear does not consider that a new fixed track public transport across the Tyne is justified.

12. CURRENT NATIONAL AND LOCAL TRANSPORT PLANNING POLICIES.

12.1 The two main national transport planning policy documents are the Ten Year Plan published in 2000 and PPG 13, Transport, revised in 2001.

12.2 **The Ten Year Plan – Transport 2010** set the agenda for improvements to road and public transport systems in order to reduce congestion and encourage the use of sustainable modes of transport. The North East regional fact sheet included improvements to the A1 and local road and public transport scheme improvements. It also stated that major proposals would result following the TAMMS and Orpheus studies.

12.3 The current status of the 10 year Plan is in some doubt as the Government are reconsidering aspects of the Plan in the light of changes in the economic situation and the slow progress that has been made on achieving the plan targets,

12.4 **PPG 13** aims are summarised as:

- *"Promote more sustainable transport choices for both people and for moving freight*
- *Promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling,*
- *Reduce the need to travel, especially by car." (Paragraph 4)*

12.5 However the guidance acknowledges that "*the car will continue to have an important part to play...*" (Paragraph 5) PPG 13 also emphasises the need to link planning and transport.

12.6 Local policies that are relevant are summarised below:

12.7 **North Tyneside UDP [March 2000]** – includes the need for "*facilitating movement across the Borough and sub-region through improved public transport and strong support for a new lower Tyne River crossing*". The Tyne crossing is included as a major improvement to the highway network.

12.8 **South Tyneside UDP [October 1999]** – promotes the importance of improving the A19 corridor to support regeneration and improve access to enable economic development. Land is safeguarded for construction of the new crossing.

12.9 **Local Transport Plan for Tyne and Wear 2001-2006** – identifies the New Tyne Crossing as *"key to the Local Transport Plan strategy"* in order to significantly improve access to jobs and enable improved cross river public transport provision in association with the Stephenson Corridor Jobs Link Metro Complementary Route.

12.10 **Tyne and Wear Economic Strategy [March 2002]** – supports the New Tyne Crossing and improvements to the A1 and A19 in order to assist regeneration.

12.11 **Regional Planning Guidance for the North East, RPG 1 [November 2002]** – identifies the need to improve accessibility in support of economic development and regeneration. The New Tyne Crossing is identified as one of the improvements.

12.12 **Draft Regional Transport Strategy [June 2002]** – identifies the New Tyne Crossing as one of the schemes that should aim to be delivered in the short term.

12.13 Regional Economic Strategy - **Unlocking Our Potential [October 2001]** – recognises the need for the New Tyne Crossing as important for the regeneration of the area.

12.14 The Nexus strategic policy **"Towards 2016"** provides a visionary statement of public transport development in the area and it is interesting to note that it includes no reference to new fixed public transport links across the River Tyne.

13. COMPARISON OF 1992 AND 2002 TRANSPORT POLICIES

National policies

13.1 Since 1992 national transport policies have broadly followed the same theme of encouraging the reduction in demand for travel and the encouragement of a shift from private to public transport and other sustainable modes of transport. The ability to deliver a change in emphasis to public transport has, however, been hampered by the increasing difference in costs between private and public transport. Car travel has been steadily reducing in price in real terms whilst public transport fares have continued to rise. This has led to the current Government reconsideration of the Ten Year Plan and related policies.

13.2 Although the emphasis has been on sustainable transport modes this does not eliminate the need for highway improvements. The increasing road traffic, which represents the vast majority of transport, is leading to increasing congestion throughout the country. In order to avoid unacceptable congestion some road building is necessary. The various multi-modal studies that have been carried out have demonstrated that some road building is the only way to solve transport problems in the absence of national policies to reduce traffic which would be politically totally unacceptable.

13.3 In parallel with this road building, extensive sustainable transport improvements are being planned and the overall policy cannot be described as predict and provide for road planning.

Local policies

13.4 Local policies have generally followed the national themes. However the same background in travel demand exists. Car ownership continues to increase leading to increasing traffic flows on the highway network. Over the same period public transport patronage continues to decline due to increasing fares and car ownership. The result is that the North East, which had the highest mode split by public transport of all the metropolitan areas in the country with the exception of London has seen a trend towards private car use and away from public transport. As in the country generally this trend is contrary to the policies set down at national and local level. This apparent failure to effectively implement authorities' policies is clearly a major issue in formulation of national and local transport policies in the future.

13.5 In addition, the need to improve accessibility by all modes of transport is considered as an essential ingredient of stimulating regeneration and economic development of the Tyneside area.

13.6 Local policies follow national aims to limit road transport but all local plans include the New Tyne road crossing and even public transport authorities do not include a fixed public transport crossing in their long term strategies.

14. EVALUATION OF CROSSING LOCATIONS USING GOMMMS METHOD.

14.1 In order to fully answer the Secretary of State's questions, I have used current policies and assessment techniques to review the original decisions on the type and location of the New Tyne Crossing and to assess the validity of these decisions.

14.2 Use of the full GOMMMS appraisal technique is not practical in the time available so I have followed the technique and its intent as far as possible in this review. I have carried out the exercise in two stages. Firstly the consideration of the four short listed locations previously assessed and, as a separate exercise, the consideration of a public transport alternative

14.3 The key objectives for the new crossing are given by John Miller and are:

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

14.4 The need for additional Tyne crossing capacity has been clearly made. The original studies in the early 1990's and recent studies have shown the undesirable consequences of not providing more road capacity. It is not realistic to suggest that trips can be suppressed to such an extent that a new crossing would be unnecessary. Trends nationally and locally continue to show increasing road traffic and reducing public transport use. Reversal of this trend can only be achieved by national policies backed by appropriate financial measures and an integrated structure of policy implementation rather than the diverse range of transport authorities and operators that exist today. Gordon Henderson's proof of evidence gives the details of the transport assessment.

14.5 The assessment of the four alternative crossing options is included as my Appendix 1. The true use of the GOMMMS method has been summarised in Section 9 of my proof and the decisions are made by appropriate authorities after full consultation. This lengthy process clearly cannot be undertaken as part of my exercise but the Appraisal Summary Tables together with supporting information would certainly not dismiss the chosen option and, in my view , support the preferred option at St Bedes

14.6 The suggestion that a fixed public transport crossing is more appropriate is clearly not sustainable. The current crossing gives the option of improved bus services because of less delay, provision of bus priorities and the support of the operators. Gordon Henderson gives more details.

14.7 The provision of a fixed public transport link has been ruled out several times both in the original study, TAMMS, the Orpheus Study and does not feature in the Nexus strategies for the future.

14.8 In the light of policies that have been increasingly emphasising the public transport priority in transport strategy, there has never been justification or official support for a fixed link public transport link due to insufficient patronage to make the high investment worthwhile.

15. COMPARISON OF 1992 AND 2002 STUDIES

15.1 A comparison of the models and inputs between 1992 and the recent models show that the inputs are generally consistent and models reflect the improvements to model techniques and the change in planning horizons. They do not give any reason to doubt that they formed a robust basis for evaluating the need for, location and type of New Tyne Crossing.

15.2 The need for a new crossing was clearly made in the original studies and has been confirmed by very recent comprehensive multi-modal studies. Details are given by Gordon Henderson.

15.3 The location of the crossing in 1992 was arrived at after a detailed transport study, a consultation process and a decision by the elected authorities. The GOMMMS type study which I have described whilst not involving a full process has given no reason to doubt the original decision or to suggest that, in the light of current circumstances and appraisal techniques, another option has clear advantages over the proposed solution.

16. CONCLUSIONS

16.1 Transport policies have evolved since the early 1990's and the realisation that predict and provide methods were not sustainable and more emphasis had to be placed on trip limitation and provision of public transport. This theme was clearly recognised in the original studies. However even recent studies have confirmed that it is necessary to improve roads to avoid unacceptable congestion and its consequences on economic development and regeneration. Without effective national policies to restrain traffic growth the Government has recognised that some road improvement is essential.

16.2 The need for a new road crossing has been confirmed in all the relevant studies carried out since 1990 including the most recent and most comprehensive multi-modal study.

16.3 The new crossing will provide substantial opportunities to improve bus based public transport by reducing delays, ensuring more reliable travel times and the introduction of bus priorities. This has been confirmed by the bus operators who have indicated a willingness to increase services. A fixed link crossing for the Metro or similar system has been considered in several studies which have all reached the conclusion that such a crossing would not be viable. Such a crossing is not even included in the long term public transport strategy for the area.

16.4 The original crossing location was selected after a long process based on a robust transport analysis. An appraisal based on current techniques has confirmed that no other crossing has clear advantages over the chosen location at St Bedes.

16.5 The benefits of the proposed new crossing are described fully in other proofs of evidence and include reduction in congestion, improvements to public transport and assisting regeneration. These factors assist in achieving national and local transport and planning policies.

16.6 On the basis of my assessment I conclude that the original selection process was robust and the decision made complies with current policies and does not conflict with the current decision making process. There is no reason to change the original decision

16.7 I therefore conclude that the proposed crossing is consistent with current national, regional and local planning and transport policies, complies with scheme objectives and is the appropriate type of crossing at the best location.