2.1 ENVIRONMENTAL IMPACT - ST ANTHONY'S

TABLE 2.1.1 VARIANT A – RAILWAY ROUTE

	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
South of Tyne	0	2 Social Clubs	45	1 Public House 1 Ind Unit Church Hall Heworth Graveyard Heworth Bus Stn	Severe at Heworth	Demolition of Heworth Constitutional Club (Grade2) Within 100m of Heworth Church (Grade2)	2.0 hectares	Slight	Severe at Heworth and Low Heworth Lane
North of Tyne Shields Road – Walker Rd	0	2 Light Ind Units	165	1 Public House St Silas Church Byker Police Stn 22 Retail Units 12 Ind Units	Slight	Passes adjacent to St Silas Church (Grade2)			Severe at Shields Rd and Walker Rd & Rodney St
Walker Rd - Bridgehead	0	3 Ind Units Shepherds Scrap Yard	130	1 Office Unit Byker Reclamation Plant 8 Ind Units	Severe at St Peters Basin and along Walker Riverside	0	3.0 hectares	Slight	Severe at St Peters Basin, Rodney St, alongside the Oval and Evistones Gdns
Bridgehead – White St	0	1 Public House 1 Scrap Yard	83	4 Ind Units 1 Small Office	Slight	0	2.8 hectares	None	Great alongside Bernard St and Merton Rd

TABLE 2.1.2 ENVIRONMENTAL IMPACT – ST ANTHONY'S – VARIANT B ALLENDALE RD ROUTE

	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
South of Tyne	0	2 Social Clubs	45	1 Public House 1 Ind Unit Church Hall Heworth Graveyard Heworth Bus Stn.	Severe at Heworth	Demolition of Heworth Consitutional Club (Grade 2). Within 100m of Heworth Church (Grade 2).	2.0 hectares	Slight	Severe at Heworth and Low Heworth Lane.
Shields Rd – Walker Rd	15	4 Retail Units	67	3 Retail Units	Slight	-	1.3 hectares	Slight along Allendale Rd	Severe along Allendale Rd and Bothal St
Walker Rd – Bridgehead	0	Large proportion of Walker Rd allotments	76		Severe at Allendale Rd and along Walker Riverside	-	2.4 hectares	None	Severe at the Oval
Bridgehead – White St	0	1 Public House 1 Scrap Yard	83	4 Ind Units 1 Small Office Unit	Slight	0	2.8 hectares	None	Great alongside Bernard St and Merton Rd

2.2 ENVIRONMENTAL IMPACTS – ST BEDE'S

TABLE 2.2.1 ENVIRONMENTAL IMPACT – ST BEDE'S – 2-LANE BRIDGE

	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
South of Tyne	13	Grange Nursing Home-1 Retail Unit-St Peters Primary School-Electricity Sub Station-1 Office Unit	92	Tyne Tunnel Offices 4 Retail Units 3 Ind Units 2 Public Houses Jarrow Cemetery	Severe at Heworth	Viaduct passes within 20m of the Tunnel Tavern (Grade 2) Viaduct passes close to statue of Sir Charles Mark (Grade 2) Revised junction arrangements affect conservation area	1 hectare	Slight	Severe for section throughout Jarrow
North of Tyne	0	Office Units	0	0	0		-	-	-

TABLE 2.2.2 ENVIRONMENTAL IMPACT – ST BEDE'S – 4-LANE BRIDGE									
	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
South of Tyne	13	Grange Nursing Home-1 Retail Unit-St Peters Primary School-Electricity Sub Station-1 Office Unit	92	Tyne Tunnel Offices 4 Retail Units 3 Ind Units 2 Public Houses Jarrow Cemetery	Severe at Heworth	Viaduct passes within 20m of the Tunnel Tavern (Grade 2) Viaduct passes close to statue of Sir Charles Mark (Grade 2) Revised junction arrangements affect conservation area	1.0 hectare	Slight	Severe for section throughout Jarrow
North of Tyne	0	Office Units	0	0	0		-	-	-

TABLE 2.2.3 ENVIRONMENTAL IMPACT – ST BEDE'S – 2ND TUNNEL									
	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
South of Tyne	0	0	6	Jarrow Cemetery	None	Revised junction arrangements affect conservation area	1.0 hectare	None	Severe around portal area
North of Tyne	0	1 Office Unit	0	0	0		-	-	-

2.3 ENVIRONMENTAL IMPACT – ST LAWRENCE

TABLE 2.3.1 ST LAWRENCE ENVIRONMENTAL IMPACTS

	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
South of Tyne	0	2 Ind Units 2 Social Clubs (One a listed building)	44	2 Public Houses 32 Ind. Units Water Sports Club Chruch Hall Heworth Graveyard Heworth Bus Station Hotel	Severe at Heworth	Demolition of Heworth Constitutional Club Grade II Listed Bldg. Within 100m of Heworth Church (Grade 2) Passes through site of Nature Conservation interest at Friar's Goose. Passes through site of local archaeological importance at Friars Goose.	4.2 hectare	Severe at Corrofell Gdns otherwise slight	Severe at Heworth and Low Heworth Lane
North of Tyne	0	6 Ind Units 1 Timber Yard	165	1 Public House St Silas Church Byker Police Stn 22 Retail Units 17 Ind. Units	Slight	Passes adjacent to St Silas Church (Grade 2)	-	None	Severe at Shields Road and at Walker Road

2.4 ENVIRONMENTAL IMPACT – WALKER CROSSING

TABLE 2.4.1 ENVIRONMENTAL IMPACT – WALKER CROSSING VARIANT A

	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
South of Tyne	7	1 large Electricity Sub Station	28	3 light Ind Units 1 Retail Unit 1 Gdn Centre	Severe at Southern B/head	Southern Bridgehead on site of Nature Conservation interest. At Monkton Mill route passes through area with proposals for community forest	9.8 hectares	-	Severe at Mill Crescent, Marion Drive
North of Tyne Shields Rd – Walker Rd	0	2 Light Ind Units	165	1 Public House St Silas Church Byker Police Stn 22 Retail Units 12 Ind Units	Slight	Passes adjacent to St Silas Church (Grade 2)	-		Severe at Shields Rd and Walker Rd/Rodney St
Walker Rd – Bridgehead	0	3 Ind Units Shephards Scrap Yard 1 Public House (derelict)	171	1 Office Unit Byker Reclamation Plant 9 Ind Units	Severe at St Peters Basin and along Walker Riverside	0	4.3 hectares	-	Severe at St Peters Basin, Rodney St and alongside the oval and Evistones Gdn. Great alongside Merton Rd.
Bridgehead – White St	0	1 Scrap Yard	30	1 Small Office 3 Ind Units	-	0	0.9 hectares	-	Great alongside Bernard St

TABLE 2.4.2 ENVIRONMENTAL IMPACT WALKER CROSSING VARIANT B

	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
South of Tyne	7	1 large Electricity Sub Station	28	3 light Ind Units 1 Retail Unit 1 Gdn Centre	Severe at Southern B/head	Southern Bridgehead on site of Nature Conservation interest. At Monkton Mill route passes through area with proposals for community forest	9.8 hectares	-	Severe at Mill Crescent, Marion Drive
North of Tyne Shields Rd – Walker Rd	15	4 Retail Units	67	3 Retail Units	Slight		1.3 hectares	Slight along Allendale Road	Severe at Allendale Road and Bethal Street
Walker Rd – Bridgehead	0	Large proportion of Walker Road allotment	117	1 Industrial Unit	Severe at Allendale Road and along Walker Riverside	0	3.7 hectares	Slight	Severe at the Oval and Evistones gardens. Great alongside Mertin Road.
Bridgehead – White St	0	1 Scrap Yard	30	1 Small Office 3 Ind Units	-	0	0.9 hectares	-	Great alongside Bernard St

2.5 CROSS TYNE STUDY PHASE II – COST BENEFIT ANALYSIS (COBA) OF ALTERNATIVES (SUMMARY)

Option	Residential Properties Demolished	Other Properties Demolished	Residential Properties within 50m	Other Properties within 50m	Visual Impact	Impact on Heritage and Conservation Areas	Open Space Affected (hectares)	Severance	Disturbance likely during construction
St. Lawrence	0	7	209	78	Slight	Significant	4.2	Slight	Moderate
St. Anthony's Variant A – Railway Route	0	10	423	63	Considerable	Significant	7.8	Slight	Severe
St Anthony's Variant B – Allendale Road	15	8	271	11	Considerable	Significant	8.5	Slight	Severe
Walker Variant A – Railway Route	7	7	394	54	Considerable	Moderate	15.0	Slight	Severe
Walker Variant B – Allendale Road	22	7	242	13	Considerable	Moderate	15.7	Slight	Severe
St Bede's Variant A – 4 lane bridge	18	5	92	10	Considerable	Moderate	1.0	None	Severe
St Bede's Variant B 2nd Tunnel	0	0	6	0	None	Slight	1.0	None	Slight
St Bede's Variant C – 2 lane bridge	13	5	92	10	Considerable	Moderate	1.0	Slight	Severe

2.6 CROSS TYNE TRANSPORT STUDY PHASE II - SUMMARY REPORT OF THE TECHNICAL STEERING GROUP – JULY 1992 (EXTRACTS)

2.6.1 Conclusions

Figure 8.1 describes the conclusions drawn and general recommendations offered by the Technical Steering Group in the form of a "decision tree". The Technical Steering Group considered carefully whether it was appropriate for them to give recommendations at all in the context of the many different interactions described in the decision tree and given the need for political judgments and weightings. Informal advice was taken from the chief officers of the clients and, although no directive in any sense was implied, there was an indication that additional guidance on how to move to a decision would be greatly appreciated. It was therefore concluded there was a need to give recommendations but, in doing so, the Technical Steering Group has tried to minimise the political judgements implicit in the guidance they offer.

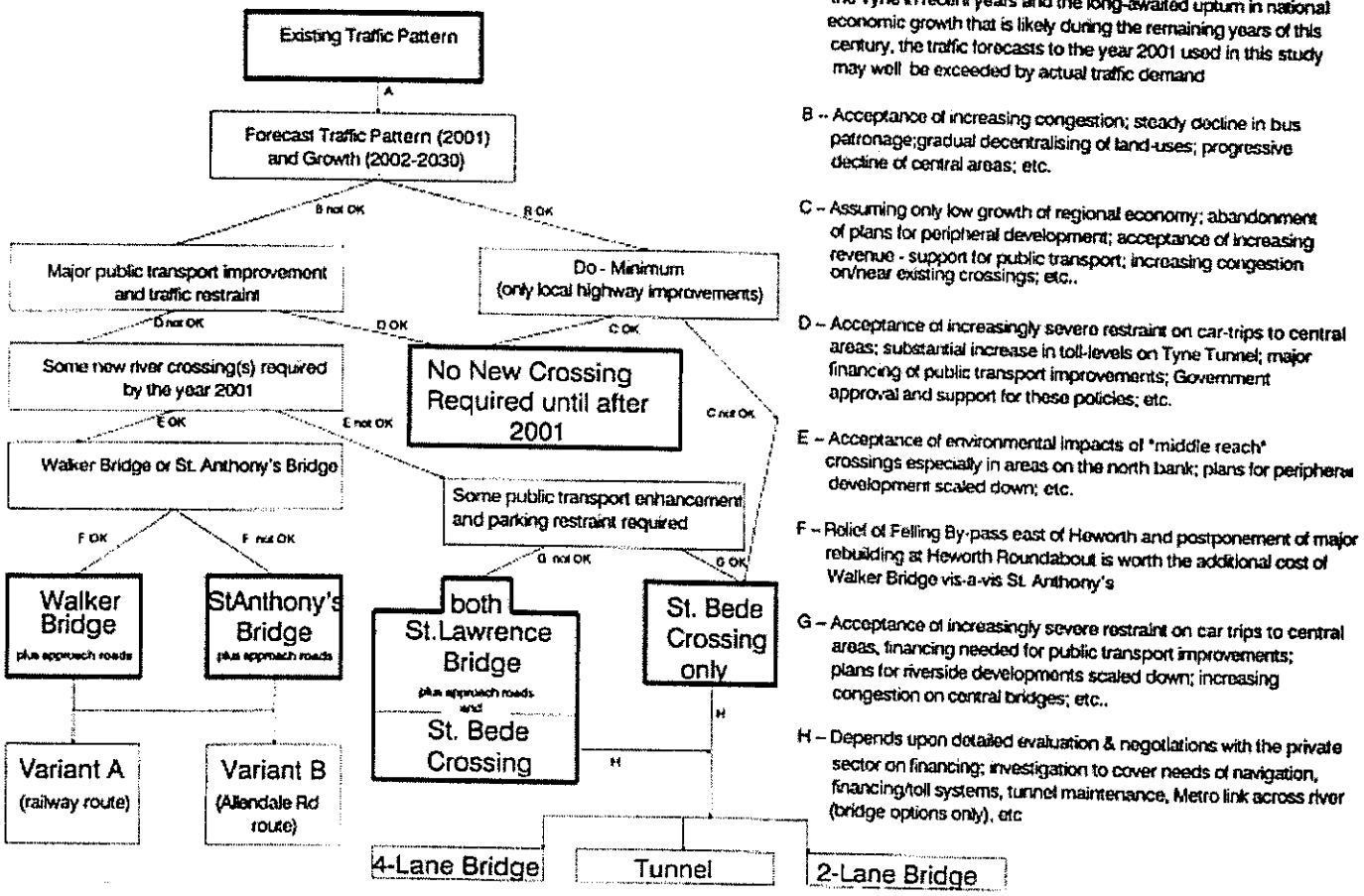
2.6.2 Recommendations and Guidance

2.6.2.1 Decision Tree

Arising from our discussions within the Technical Steering Group, as to the interpretation of the findings of the study, an hierarchical "structure" of the decision process emerged. Thus, it became clear that certain key decisions, on some of the main determinants of cross-river travel-demand, would have to be faced before a final choice could be made as to which crossing or crossings (if any) should be implemented. Due to the fact that the options considered here are serving different (though overlapping) catchments and are seen to have different relative impacts (on the environment, on access to new developments, on congestion-relief and soon), a logical thread appears to run through these intermediate decisions. Depending on the direction taken by these decisions, one is led towards a particular recommended outcome and away from others.

This is illustrated by the branched "decision tree" in Figure 8.1. At each branch, the appropriate conditions or circumstances that govern the decision are listed, (A) to (H), down the right-hand side. The conditions listed derive either from the real-world context or from the findings of our work. Acceptance or otherwise of these conditions goes beyond the technical remit of the study but, in order to reach recommendations of any kind, it is necessary to make judgements in respect of the issues raised: In doing so, we are aware of the essentially political nature of some of the trade-offs. To that extent, our recommendations can only be offered as 'guidance' towards any final decision.

Figure 8.1 = CROSS-TYNE PHASE 2: "Decision Tree"



Conditions Governing Decision

A – Given the marked increase in traffic growth observed across the Tyne in recent years and the long-awaited upturn in national economic growth that is likely during the remaining years of this century, the traffic forecasts to the year 2001 used in this study may well be exceeded by actual traffic demand

B – Acceptance of increasing congestion; steady decline in bus patronage;gradual decentralising of land-uses; progressive decline of central areas; etc.

C – Assuming only low growth of regional economy; abandonment of plans for peripheral development; acceptance of increasing revenue - support for public transport; increasing congestion on/near existing crossings; etc..

D – Acceptance of increasingly severe restraint on car-trips to central areas; substantial increase in toll-levels on Tyne Tunnel; major financing of public transport improvements; Government approval and support for these policies; etc.

E – Acceptance of environmental impacts of "middle reach" crossings especially in areas on the north bank; plans for peripheral development scaled down; etc.

F – Relief of Felling By-pass east of Heworth and postponement of major rebuilding at Heworth Roundabout is worth the additional cost of Walker Bridge vis-a-vis St. Anthony's

G – Acceptance of increasingly severe restraint on car trips to central areas, financing needed for public transport improvements; plans for riverside developments scaled down; increasing congestion on central bridges; etc..

H – Depends upon detailed evaluation & negotiations with the private sector on financing; investigation to cover needs of navigation, financing/toll systems, tunnel maintenance, Metro link across river (bridge options only), etc

For each of the intermediate decisions needed, the conditions governing the decision and the views of the Technical Steering Group are as follows:

(a) "Given the marked increase in traffic growth observed across the Tyne in recent years and the long-awaited upturn in national economic growth that is likely during the remaining years of the century, the traffic forecasts to the year 2001 may well be exceeded by actual traffic demand".

Realistic -the potential for future traffic growth based upon increasing *levels* of private car-ownership is very *considerable.* The forecasts used in this study, over the 8 years from now to the base year (2001) and for the 30 year period thereafter (2002-2030), are based upon DTp *official* predictions. In the past, these have proved conservative.

(b) "Acceptance of *increasing* congestion; steady *decline* in bus patronage; gradual *decentralising* of land uses; progressive decline of central areas; etc.."

Not acceptable -some public transport improvements and traffic restraint will be essential, especially if regional economy expands at predicted rate.

(c) "Assuming only low growth of regional economy; abandonment of plans for peripheral development; acceptance of increasing revenue support for public transport; increasing congestion on/near existing river crossings; etc."

Not acceptable -without any public transport improvement/traffic restraint being feasible away from the central areas, St Bede's option (either a new tunnel or bridge) or Walker Bridge, with a northward extension to connect with the Coast Road, would be an inescapable minimum.

(d) "Acceptance of increasingly severe restraints on car-trips to central areas; substantial increases in toll-levels on Tyne Tunnel; major financing of public transport improvements; Government approval and support for these policies etc.."

Probably not realistic -to achieve restraint on the scale required to obviate any new crossings, Tunnel tolls would have to be especially high and prospects for developments such as Royal Quays would be poor.

Therefore, ***A crossing of some kind, downstream of* the *Tyne Bridge, is recommended,*** especially since all the crossings evaluated give good value for money in the terms required by the Department of Transport (i.e. Net Present Value (NPV) is positive). The choice of which crossing is simplified to an extent by the fact that the "upper" and "lower"-reach crossings (St Lawrence and St Bede's respectively) could be complementary to each other but are mutually exclusive to the "middle"- reach Crossings (St Anthony's and Walker). The ensuing logic in the decision tree reflects this.

(e) "Acceptance of the environmental impacts of "middle"-reach crossings especially in areas on the north bank; plans for peripheral development scaled down; etc.."

Not entirely appropriate for recommendation -essentially political judgment required as to whether traffic benefits outweigh environmental costs. Nevertheless, technically, either Walker or St Anthony's would perform well and be economically worthwhile.

(f) "Relief of Felling Bypass east of Heworth and postponement of major rebuilding at Heworth Roundabout is worth the additional cost of Walker Bridge vis-a-vis St Anthony's."

Not entirely appropriate for recommendation -again political judgment required. Technically, there is not much to choose between Walker Bridge and St Anthony's, as each would provide considerable traffic benefits and be economically worthwhile. Walker Bridge could act as a more effective alternative to the Tunnel than St Anthony's (see (C) above). In either case, for the connection to Shields Road Bypass, variant A (along the railway cutting) is preferred on balance to variant B (along the line parallel to Allendale Road). The choice would depend upon detailed design considerations both for the environment and for traffic.

(g) "Acceptance of increasingly severe restraint on car-trips to central areas; financing needed for public transport improvements; plans for riverside developments scaled down; increasing congestion on central bridges; etc.."

Not entirely appropriate for recommendation -essentially political judgment about extent of restraint in central areas that is attainable/acceptable and on scaling down riverside developments. There are some environmental problems in developing the old railway cutting route to connect with Shields Road Bypass. Nevertheless, technically, St Lawrence Bridge would perform well and be economically worthwhile.

(h) "Depends upon detailed evaluation of options and successful negotiations with the private sector on financing; investigation to cover needs of navigation, financing/toll systems, tunnel maintenance, Metro link across river (bridge options only), etc.."

Recommendation should wait outcome of detailed evaluation -but preference would probably be for a bridge rather than a duplicate tunnel (lower operating costs, enables Metro link, etc.,). Moreover, the environmental gain from a duplicate tunnel as compared to a bridge is not likely to *justify* its (20M lower NPV. The advantage of a 2-lane bridge over 4-lane bridge is fairly clear, as the existing tunnel would still be needed anyway, for diversions -during times of bridge closure. Incidentally, the economic values of the St Bede's options show consistently lower NPV's than the other bridge crossings (Table 7.2). This is largely due to the fact that investment in duplication at the existing Tunnel merely removes a bottle-neck on the A 19 and has little beneficial effect for traffic elsewhere in the network. As a crossing, in terms of additional capacity, it is also the most costly. Nevertheless, we believe that the financial returns may be sufficient to attract some private capital to finance it, provided that the operator was given reasonable commercial freedom to set the toll levels, and that a suitable agreement was reached on the write-off of the accumulated debt.

2.6.2.2 Recommendations and Guidance

On the basis of the conclusions outlined above the Technical Steering Group are unanimous that the case for an additional crossing to meet the needs for cross Tyne traffic in 2001 has been demonstrated. Rightly, we feel unable (for the reasons already mentioned) to make a precise and unequivocal recommendation as to which scheme(s) should actually be constructed. However, given that all schemes provide good value for money in economic terms, and that the problems associated with cross- river movements are predicted to be severe by 2001, necessitating a new river-crossing open to traffic by, at the latest, the year 2001, it might be appropriate to give a high weighting in the decision- process to the ease of funding and programming of the scheme selected for construction.

As well as thinking ahead (which we have tried to do in the Study), it is important to think in broad strategic terms too. Thus, in terms of development on a conurbation-wide scale, the greatest pressures are currently experienced to the west of Newcastle and Gateshead, with a strong focus on the Al corridor from Team Valley to the Airport. This pressure results from the market's perception of where the most attractive sites are located, and good accessibility in the west is a major contributing factor. However, as witnessed in other cities, these pressures can have cumulative effects. The first developments spawn further developments so that, over time, a considerable imbalance can result, with often serious economic and social consequences for those parts of the conurbation which "lose out". It was for this reason that, in the case of London, the Department of the Environment has commissioned the East Thames Corridor Study; and the Department of Transport favoured a high-speed route from the Channel Tunnel passing through Stratford rather than Bromley. Without wishing to draw too strong a comparison, there may be a danger of the Tyneside conurbation developing too "westward" an orientation. Of the options under consideration, the crossing at St Bede's would do most to counteract this tendency, but any new bridge located downstream of the Tyne Bridge would help in this respect.

Mindful of the problem of "blight", if uncertainty remains unresolved for too long, early decisions on these options are to be recommended. However, this should be off-set by the substantial advantage that will accrue in future if routes for approach roads, bridgehead junctions, etc. have been safeguarded between now and the date of their construction. Who could doubt that the Newcastle Western Bypass (for example) could not have been implemented but for the foresight of those who safeguarded the route many years ago?

Finally, regardless of the decisions made as a result of this study, it is strongly recommended that the modelling/information base used for this study is updated. Certain of the data used in this study is based on the information collected by Tyne and Wear County Council in 1975 and even the cross-river surveys, specifically undertaken for Phase 1 of the Study, were

carried out prior to the opening of the Blaydon Bridge and the Newcastle Western Bypass. If this new data collection is not undertaken in the near future, it might be impossible to support the decision regarding a new bridge/crossing at a public enquiry after 1993. The same is true of any policy based on public transport improvement and/or traffic restraint -much more up-to-date information is needed on a network wide basis about the use made of public transport on Tyneside. Future planning and sound decision-taking depend on it.