

TRANSPORT AND WORKS ACT 1992

Proof of Evidence:

Mr Robert Menzies:

Procurement and Operating Procedures CCC/RDM/11

September 2004

Contents	Page
1. INTRODUCTION	2
Outline of Proof	2
2. PROCUREMENT STRATEGY AND CONTRACTING PROCEDURES	3
3. OPERATIONS AND MAINTENANCE	5
Access, Management and Regulation	5
Statutory Safety and Management	6
Operational Facilities	7
Operational Safety and Management of Emergencies	8
Maintenance	9
4. OBJECTIONS TO THE ORDER	12
Maintenance Track will not be Fenced from the Operating Guideway	12
Buses will not be able to Reverse on the Guideway, nor Push Other Buses	12
Breakdown Procedures for Guided Buses give cause for Concern	12
Buses will not be able to Carry Bicycles	12
Untried Guided Bus Technology gives rise to Safety Concerns	13
Policing of the System will Prove Difficult	13
Guidewheels may be Snapped Off	13
Buses are believed to have Crashed in Adelaide in Fog	14
Health and Safety Measures have not yet been Proposed	14
How Frequently the Maintenance Track will be required for Guideway Maintenance	14
Disaster and Emergency Handling Procedures not explained	14
Guideway will Fill with Rubbish	15
Road Crossings will be Hazardous	15
Concerns over Disabled Passengers	15
Unauthorised use of the Guideway	16
5. STATEMENT OF MATTERS	17
6. CONCLUSION	18

1. INTRODUCTION

- 1.1 I am Robert Douglas Menzies, Deputy Assistant Director, Highways and Engineering with Cambridgeshire County Council (“the County Council”).
- 1.2 I am a Chartered Civil Engineer and a Member of the Institution of Civil Engineers.
- 1.3 I have worked for 24 years in Local Government Highways, predominantly in Traffic Management. I was employed by Lothian Regional Council, Highways Department from 1980 to 1988. I joined Cambridgeshire County Council Environment and Transport Department in August 1988 as a Road Safety Engineer. Since September 1996 I have been Group Manager responsible for Road Safety and Traffic Signals countywide, and all aspects of managing the highway network in Cambridge. On 1st March 2004 I was seconded to the role of Deputy Assistant Director, Highways and Engineering.
- 1.4 As Group Manager I have been responsible since 1996 for delivering integrated transport schemes in Cambridge, including the operation of Park and Ride.
- 1.5 I have been involved in Guided Bus since 1999, initially reviewing the superCAM proposals for on-street running in Cambridge, and subsequently developing the Cambridgeshire Guided Busway (CGB) proposals for bus priority measures in Cambridge and between Huntingdon and St Ives.
- 1.6 I have experience of the procurement of highway, traffic management and design services. In my role as Deputy Assistant Director I am responsible for overseeing all contractual arrangements for the Highways and Engineering Division. I have been appointed to manage the procurement of the construction and operations of the guided bus way.

Outline of Proof

- 1.7 Section 2 contains the procurement strategy and contracting procedures.
- 1.8 Section 3 contains the operations and maintenance plans.
- 1.9 Section 4 responds to objections to the draft Transport and Works Act Order application relating to procurement and operating issues.

2. PROCUREMENT STRATEGY AND CONTRACTING PROCEDURES

- 2.1 The timely implementation of Cambridgeshire Guided Bus is an important element in the County Council's Structure Plan. The procurement process is intended to commence in 2004 to allow time for the design, construction, and equipping, testing and opening phases to be delivered by 2007.
- 2.2 The County Council is proposing to select a form of contract that positively encourages a collaborative, risk-sharing outcome. The proposed contract will involve both Early Contractor Involvement and Target Cost.
- 2.3 Early Contractor Involvement and Target Cost contracts are now the standard methods used by the Highways Agency for major highways schemes in the United Kingdom. The County Council is experienced in applying these methods and has adapted and applied them to schemes such as the Fordham Bypass construction project and for the Major Schemes Framework Contract which is currently out to tender. The Major Schemes Framework Contract is a term contract for the delivery of major capital schemes costing from £0.5 million to £30 million. With Early Contractor Involvement the contractor is engaged in the detailed design and planning of the project. The Contractor is best placed to know the construction techniques most appropriate to delivering a quality scheme and can adapt the design accordingly. The contractor will be able to sensibly plan logistics and construction methodologies well in advance.
- 2.4 Target Cost contracts are based on an agreed price for the works accompanied by an agreed "pain and gain" plan for sharing both cost increases and, just as importantly, cost savings. Target Cost Contracts reward the contractor for innovation, remove any incentive for the contractor to increase costs and split the risk of any unforeseen circumstances increasing costs between the County Council and the Contractor.
- 2.5 To be able to agree a price for the works, with a Target Cost contract, a price is developed using an outline or reference design and a risk register, which identifies all the potential risks. The price is then refined as the identified risks are eliminated through further design work. During construction the actual cost of carrying out the works is recorded by what is known as an open book basis, with an agreed allowance for overheads and profits. At the completion of the works the difference between the

actual costs and the target costs is split between the contractor and the client on an agreed percentage basis. There is a facility to adjust the target cost in response to changes in the scope of the project and other specified events outside the control of the Contractor.

3. OPERATIONS AND MAINTENANCE

Access, Management and Regulation

- 3.1 An open access system is proposed under which all bus operators will be able to run services on the guideways subject to meeting minimum quality standards.
- 3.2 As described by other witnesses, the minimum quality standards which it is envisaged will be imposed include low floor access arrangements, low emissions to Euro IV standard, air conditioning and double-glazing.
- 3.3 Such standards will either be imposed as a condition of access to the guideways by licence or contract or may be the subject of an informal quality partnership or a statutory quality partnership under the Transport Act 2000 (CCC.C62). Quality partnerships are arrangements under which bus operators agree to meet certain standards in return for the provision by a local authority of additional facilities (e.g. bus lanes). The Transport Act 2000 provides a formal mechanism for the establishment and enforcement of such contracts.
- 3.4 The precise level of pattern of services will be developed in consultation with the operators. It may be that market forces will themselves be sufficient to ensure the appropriate level and spacing of services. It will be possible, however, for the County Council as owner of the guideways to prescribe the level and pattern of services in agreeing access arrangements with the operators. Provision has also been included in the draft Order to allow service frequency to be one of the matters addressed in any statutory quality partnership. This is currently already possible in Scotland but not in England and Wales.
- 3.5 Joint (multi operator) ticketing is proposed which would enable passengers to get on any guided busway service no matter who was the operator. Currently, the ability of bus operators to offer joint ticketing is strictly constrained by the terms of a block exemption under the Competition Act 1998 (CCC.C90). Discussions held with the Office of Fair Trading have indicated, however, that it should be possible for full joint ticketing to operate in relation to guided busway services through the issue of a special exemption.

- 3.6 Depending upon further discussions with bus operators, the County Council may establish a management company to oversee the operational requirements. It will also encourage the formation of an operators user group to discuss matters of operational interest.

Statutory Safety and Management

- 3.7 The HMRI (Her Majesty's Railway Inspectorate) will be responsible for certifying the safety of the system and authorising its use. It will expect to be presented with a safety procedures case and operating regime covering:

- access control;
- maintenance of standards of driving;
- recovery of breakdowns and disabled vehicles;
- safety at stops;
- safety and emergency procedures including access;
- signal and real time information maintenance plans, particularly the co-operation with the local highway authority;
- production of an enduring manual of off and on guideway operation;
- regulations governing speed of operation on the guideway, at junctions and any public rights of way crossings.

- 3.8 The HMRI will need to certify the system for trials and then for public use. A set of speed limits will be set at different locations. The existing County Council relationship with HMRI will continue.

- 3.9 The Eastern Traffic Commissioner, coincidentally based in Cambridge, who has responsibility for the safe operation of all on-road bus services and is the registrar of all bus service licence applications in this part of the UK, will continue to exercise these functions over bus operators and their services running on the guideway.

- 3.10 Services running on the guideway will be "local services," as will be the off-guideway elements of those services. Operators may claim fuel duty rebate (or other forms of central Government grant that may be introduced in the future).

- 3.11 The HMRI has indicated that it may consider certifying the system or part of it, as available for training ahead of formal certification of the system for public use, therefore the majority of drivers could gain early practice on the guideway. Responsibility for training would rest with operators, but regional training and re-education budgets will be investigated by the County Council to assist with this task. The County Council has already retained expertise from the Leeds and Bradford guided systems regarding driver training policies.

Operational Facilities

- 3.12 A control centre will be provided to supervise the day to day running of the system. This will be located within the curtilage of the system to give a visible presence and focus, following the example of the already-established five Cambridge Park and Ride sites. A duty supervisor would develop close real time working knowledge of operations.
- 3.13 All buses working on the system will be in radio contact with the control centre as well as their own operating base. The specification for the County Council's Real Time Bus Information system currently being procured, will include further communications possibilities between individual buses, drivers, the control centre as well as with bus management at the fleet base.
- 3.14 It is anticipated that operators will wish to garage and maintain their buses in their present depots. Operators have expressed their wish to have overnight layover facilities at St Ives so that some services may begin there early in the morning at a point convenient to the build up of traffic flows towards Cambridge. A suitable layover compound is proposed within the Park and Ride site, capable of housing up to 25 vehicles. Additional overnight stabling may be provided at the Longstanton Park and Ride, dependent on operator requirements.
- 3.15 There will be the need to layover buses at off peak times and when awaiting their next journey. Four locations where operators are likely to want to layover are Trumpington Park and Ride site, the new settlement, St Ives Park and Ride site/control centre and Huntingdon Bus Station. The current practice of limited layover in St Ives Bus station would be better transferred to the Park and Ride site thus relieving the Bus Station area.

At all layover sites messing/toilet facilities will be provided. Cars belonging to bus drivers can be parked near the overnight stabling area for buses in the Park and Ride site.

Operational Safety and Management of Emergencies

- 3.16 Close liaison is being developed with emergency services (over and above existing extensive County Council links) including the fire and rescue, ambulance and police services. Clear guidelines and rules are to be established with the emergency services to ensure urgent and targeted responses. Emergency staff will practice on the guideway in dealing with incidents. Procedures to adapt the operation of the bus services at times of incidents will be established in consultation with bus operators.
- 3.17 To maintain services, any instances of passenger illness or passenger action or vehicle breakdowns resulting in a stationary vehicle, will be addressed immediately. Following buses would be diverted from that length of guideway on to the public highway and pre-arranged diversion schedules put in hand. To remove the vehicle it would be towed forward either by a suitably adapted towing vehicle as in the long-established but infrequently needed Adelaide Guided Busway operating procedure. It is most likely that breakdown and recovery attendance would be undertaken as a supplement to the maintenance contract. Approved recovery methods, vehicles and training would be put in place.
- 3.18 The Fire and Rescue vehicles would respond to an incident by obtaining access at the nearest point from the access track. While bus fires are a very rare event provision will be made for access to within 45m of any incident on the guideway. This would also enable the emergency services to attend in the rare event of other obstructive incidents on the guideway or access track requiring attendance, possibly with specialist cutting equipment.
- 3.19 The expectation is that ambulance access will be via the access track with co-ordination from the system's control centre and the police control centre.
- 3.20 Inter-service communications will be provided. The Police have suggested linkage of the CCTV system and other controls with the Police' own control centre. Linkage to the County Council's prospective Cambridge traffic

control centre is also planned and the Real Time Bus Information project specification provides for supplementary communications methods, subject to contract.

- 3.21 The bridleway and cycleway running alongside the guideway will be operated and maintained as part of the County Council's Public Rights of Way Network, except that the facilities will also be kept available for occasional emergency access and maintenance.

Maintenance

- 3.22 The guideway system will be a valuable public asset. Maintenance will include several features:

- maintenance should be preventive, rather than responsive;
- minor off guideway maintenance tasks could proceed whilst the guideway is in operation with appropriate safety procedures. Sweeping and de-icing could proceed whilst the guideway services are in operation;
- the two way guideway should be available for use 100 per cent of the time between 6.00am and 12.00pm on Mondays to Thursdays, 6.00am and 2.00am on Fridays (into early Saturday mornings), 7.00 am to 2.00am on Saturdays (into early Sunday mornings) and 7.00am and 11.00pm on Sunday, unless an emergency or accident occurs.

- 3.23 Initially, the maintenance tasks will be contained as part of the procurement contract of the guideway, later, the system maintenance could be merged with the County Council's own highway maintenance system

- 3.24 The County Council has extensive experience of comparable highway maintenance operations. It also has extensive experience of maintaining five large Park and Ride sites around Cambridge and well understands and monitors standards of maintenance both for basic service provision and for maintaining amenity standards and values for its customers.

- 3.25 The County Council is considering extending the main construction contract to include the maintenance and operational management of the guideway.

3.26 Maintenance of the guideway will be, as with public roads, a relatively simple, repetitive task. The programme is likely to include:

- daily monitoring exercises (periodic visual safety inspection by maintenance staff) would be required as part of the regime. Initially, after opening of the guideway, daily drive-through inspections would be supplemented by on-going weekly or monthly walk-throughs to examine the state of the guideway and its ancillary equipment.
- regular periodic inspection of the drainage facilities and structures would also be undertaken. The relative frequency of these inspections would become apparent and could be reviewed, with operational experience gained in the early years of operation;
- an early morning scouting exercise on a daily basis in the early days of operation to establish the likelihood of vandalism or deposit of abandoned cars or other obstructions on the guideway. This would enable removal of such obstructions before daily operations begin;
- routine sweeping, sign cleaning, shelter cleaning, signal cleaning, daily emptying of cash from ticket machines, where provided. Park and Ride sites would need maintenance comparable to that undertaken at the existing Cambridge sites;
- periodic maintenance including drainage, minor repairs to the guideway, servicing CCTV and Real Time Bus Information equipment.

Major maintenance to the guideway is unlikely to be necessary in the early years of operation. Bus axle loadings are comparatively light and the wear and tear on the surface and guidewheel side kerbs is likely to be minimal, based on the extensive operating experiences in Adelaide, Essen, Leeds and Bradford. Any localised repair work might be carried out during normal operating hours, accessed via the maintenance track.

3.27 Winter maintenance will include the application of non-corrosive de-icers to remove ice, to avoid any possibility of build up of ice and snow and to avoid deterioration of the guideway concrete structure. Based on County Council weather records for the last three winters, snow has fallen in combination with sub-zero temperatures, which might have allowed it to settle, on an average of six occasions per year. However the depth of snow is not recorded and on only one occasion in the last three years has a County Council road been blocked by snow. On this basis it can be predicted that a heavy fall requiring extensive snow clearance will only rarely occur. On such occasions the surrounding roads are also likely to be blocked, restricting opportunities for bus services to approach guideway

thresholds and limiting prospects for passengers to reach the guideway stops as well. Further work will establish whether attempts should be made to clear the guideway on these occasions. Bus operators' experiences of running on public highways will, in large measure determine whether the guideway remains open, when other roads are already closed.

- 3.28 For dealing with ice and snow removal a term maintenance contractor may find it more effective to fit guide wheels on to several heavy vehicles or to employ a specialist, multi-purpose truck capable of handling other maintenance duties.
- 3.29 The signals at highway junctions will be connected to the County Council's UTC system equipment to enable automatic monitoring of faults to be undertaken. The standard for call out time for faults from a signals company would be within the highest category. Remote monitoring and fail-safe mechanisms are standard components of traffic signals.

4. OBJECTIONS TO THE ORDER

- 4.1 The following section addresses some of the comments made through the objections to the draft TWA Order which have not already been covered above.

Maintenance Track will not be Fenced from the Operating Guideway

- 4.2 In the UK and elsewhere road vehicles are normally to be found relatively close to other highway users such as pedestrians and horse riders. Conditions on the maintenance track will be similar to relationships between users to be found on footways or cycletracks alongside rural roads designed to current standards albeit with a much lower flow of vehicles on the guideway. Fences would prevent people or animals that had strayed onto the guideway from stepping clear and would impede egress should evacuation from a bus be required. Where the guideway is situated close to houses in Histon an acoustic barrier is proposed. This will be located between the maintenance track and the guideway and a 700mm evacuation strip will be provided between the face of the barrier and the guideway.

Buses will not be able to Reverse on the Guideway, nor Push Other Buses

- 4.3 The contractor will have available a vehicle capable of removing broken down buses. Operating procedures will ensure that following buses are notified and will divert to the adjacent road network.

Breakdown Procedures for Guided Buses give cause for Concern

- 4.4 Although mechanical failures with modern buses are a rare event, various types of passenger action such as a passenger being taken ill may also cause a bus to stop. Procedures will be put in place and regular training provided to ensure that technical assistance could reach the bus either via the maintenance track or public highways, often in combination.

Buses will not be able to Carry Bicycles

- 4.5 At many stops secure bicycle storage will be provided as an integral part of the infrastructure design. Although buses in the UK do not regularly carry

bicycles, contemporary vehicles, all of which are low floor and have step-free entrances, will be able to carry wheelchairs and buggies.

Untried Guided Bus Technology gives rise to Safety Concerns

- 4.6 Several manufacturers and researchers in Germany developed guided bus technology in the 1970s. Many millions of miles of safe operation have now been achieved in Adelaide, Essen and in Leeds and Bradford in the UK, now joined by the Gatwick-Crawley Fastway operation. The Adelaide guided bus has only recorded one injury accident and two non-injury accidents in 18 years and 30 million kilometres of operation. For comparison on British roads in 2002 there were 204 personal injury accidents (PIA) involving buses per 100 million vehicle kilometres (100 mvkm). The reported rate for Adelaide equates to 3.3 PIA per 100 mvkm or one sixtieth of the rate on British roads. This is not surprising given the segregation from other traffic afforded by the guideway.
- 4.7 On the basis of mileage, guided bus operation in Essen is reported to be safer than the rest of the public transport system. In this context it should be noted that the operator EVAG also operates trams and light rail in addition to buses.

Policing of the System will Prove Difficult

- 4.8 Passive policing of the system will be provided by CCTV cameras at stops monitored from the control centre at St Ives park and ride site; by observations of the bus drivers themselves who will be in radio contact with the St Ives Park and Ride control centre; the planned county real time bus information system will also provide a policing, locating and reporting facility. The guideway will be one of the most policed pieces of transport infrastructure in the County.

Guidewheels may be Snapped Off

- 4.9 Operational experience from elsewhere suggests this is very unlikely; were it to happen the driver can quickly return to full steering control of the vehicle. He or she will in any case be able to immediately and successfully brake the bus to a halt. Operators report a greater likelihood of guidewheels being damaged during on street operation. A survey of on-

street routes will be undertaken to identify kerbs that may present a risk to guidewheels and suitable adjustments will be made.

Buses are believed to have Crashed in Adelaide in Fog

- 4.10 The Adelaide operator has no recorded incidents involving bus crashes in fog.

Health and Safety Measures have not yet been Proposed

- 4.11 The HMRI (Railway Inspectorate) have been consulted about safety and operational matters concerning the guideway since 2002. Consultants have been retained from Adelaide and Leeds to advise on safety matters. Full safety approval will be required from the HMRI before the guideway can open, for which an operational procedures plan will be prepared and the contents will become part of the relevant training for bus drivers, operators and control centre staff.

How Frequently the Maintenance Track will be required for Guideway Maintenance

- 4.12 In practice maintenance requirements will be light. Further inspections may be undertaken from the front of a bus at any time. Periodic removal of litter, clearance of drains and gulleys, inspection of any signs and notices installed, are all likely to be relatively low frequency events. Concrete guideways in Essen, which are over 20 years old, have required no structural maintenance.

Disaster and Emergency Handling Procedures not explained

- 4.13 The emergency services are already involved in planning for dealing with any emergencies that may arise on the guideway. The HMRI (Railway Inspectorate) will be responsible for giving approval to open the guideway and will as a matter of course vet all emergency plans, all training procedures and will require demonstration of the handling of incidents before the guideway can open.

Guideway will Fill with Rubbish

- 4.14 Other guideway operators do not report this as a problem. The maintenance contract will include periodic rubbish removal and the frequency of carrying this out can be adjusted in the light of operational experience.

Road Crossings will be Hazardous

- 4.15 The highway junctions between public roads and the guideway have been designed by the County Council, as the Highway Authority and safety audited as are all other new road junctions in the County.
- 4.16 As these will be orthodox traffic signal controlled junctions all road users will be familiar with them.
- 4.17 As buses on the guideway will be given priority at the traffic signal junctions visibility splays will be provided as an additional safety measure. These are not normally required at signal junctions but will ensure intervisibility between road users at the stop line and drivers of buses approaching on the guideway. A maximum speed limit of 30mph will be enforced on the guideway at junctions. Where full visibility splays cannot be provided the maximum speed limit will be reduced accordingly.
- 4.18 A system of busways operates in Peterborough consisting of both lengths of dedicated bus way and culs de sac linked by short sections of busway. There are nine locations where these bus routes cross the highway network at signal controlled junctions. On average at each junction there has been less than one personal injury accident involving a bus in the last ten years.

Concerns over Disabled Passengers

- 4.19 All buses operating on the guideway will conform to all current access provisions for mobility-impaired passengers and the applicable requirements of the Disability Discrimination Act 1995 (CCC.C18). These already include flat floors and no-step entrances. The guideway design can automatically provide a close, level fit between the bus stop platforms and the floor of the bus at the entrance step. Access to bus stops on the

guideway will include appropriate use of gently ramped surfaces and tactile features.

Unauthorised use of the Guideway

- 4.20 Other guideway operators report very little unauthorised use. For pedestrians, cyclists and horse riders the maintenance track presents an attractive alternative. Road signs and markings at all junctions will clearly indicate that there is no access to the guideway for non-guided vehicles. In addition a number of measures can be adopted to inhibit unauthorised motor vehicles from accessing the guideway, such as shallow pits between the rails, which vehicles narrower than buses will not be able to cross.

5. STATEMENT OF MATTERS

- 5.1 The Statement of Matters does not address any of the issues which are directly relevant to this Proof of Evidence which are not dealt with in more detail in other evidence of the County Council.
- 5.2 In particular questions relating to the effects on highway capacity, traffic flow, pedestrian movement and road safety are considered in the Proof of Evidence of Mr Stephen Davies (CCC/SHD/5) and Dr Alan Brett (CCC/ACB/14).
- 5.3 As respects the public health and safety and security implications in relation to the maintenance track this has been dealt with in this Proof of Evidence at paragraphs 3.7 and 4.2 above and in the evidence of Mr Stephen Davies (CCC/SHD/5).

6. CONCLUSION

- 6.1 The County Council is putting in place a procurement strategy based on current best practice which will ensure the guideway is delivered in 2007.
- 6.2 Experience of other guideways is that they are low maintenance and safe. The County Council will put in place operating procedures to manage routine operations and emergencies to the satisfaction of Her Majesty's Railway Inspectorate.