5.4.4 System Procurement

This will be the key stage in the process when **tie** will procure all of the physical works required for the system (other than the utility diversions which are being carried out in advance.

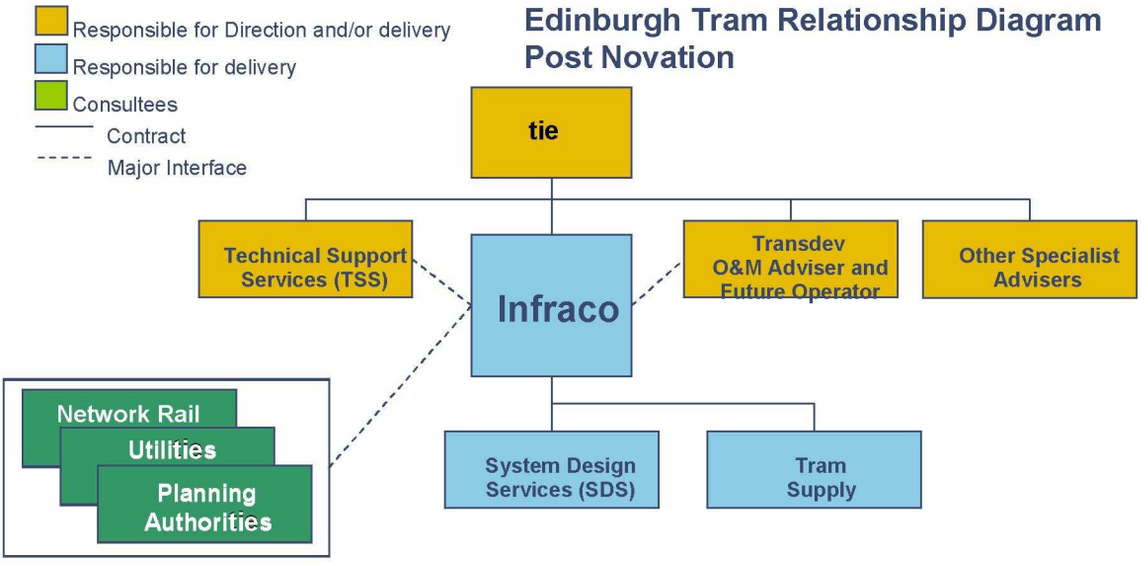
During this stage the contracts procured will be:

- Tram Supply Contract; and
- Infraco Contract.

On completion of the letting of contracts, **tie** will have two significant principal contracts, with the Operator and the Infraco. This will have been achieved by novating the SDS and Tram Supply Contracts to the Infraco.

tie will continue to have the TSS and its other specialist advisers on board. In addition, the Joint Revenue Committee will enter into its fully active stage, monitoring revenue and instructing consultants to carry out up to date forecasts of revenue.

The contractual position on conclusion of this stage is shown in Figure 5.2 below.



5.4.5 Integration of Contracts

From the above it is clear that it is essential for **tie** to be able to bring the system design and tram supply contracts under the responsibility of the Infraco.

This section sets out the steps that are required to effect a novation, the risks to novation not being achieved and the consequences of a failure to novate. This is considered separately for the two key contracts that **tie** intends to novate to the Infraco.

In addition, it is important to stress that the proposed structure transfers all of the systems integration and interface risk to the Infraco. This approach is entirely analogous to that taken on the Docklands Light Railway projects.

5.4.5.1 Novation of SDS Contract to Infraco

The Infraco and SDS Providers would be required to accept the proposed novation as part of their tenders, and the bidders for the Infraco will know who the SDS Provider is before they bid. It is likely therefore that **tie** will have 'early warning' of any possible difficulties with this proposal.

However, it is still possible that situations may arise where the preferred Infraco or incumbent SDS will have difficulties accepting the novation. For example, disputes may have arisen between the two parties on contracts elsewhere that were not known at the time of tender.

If this was the case **tie** may need to take a view on whether to insist on the novation. Under the drafting of the SDS contract with **tie**, **tie** will have to give approval for the SDS contract to be novated to the Infraco. Therefore, **tie** will be acting completely within its rights if it were to decide not to novate the SDS contract when signing the contract with Infraco. It would have to consider the impact of a failure to novate (the details of which are set out below). If **tie** chose to continue to novate then it could be faced with either an Infraco tenderer which is unwilling to close the contract, or an SDS which will terminate its relationship with **tie** (and therefore avoid being forced to novate to the Infraco).

If the Infraco refuses to sign the contract because it does not want to novate the SDS contract, **tie** could reconsider whether to insist on novation, or dismiss the Infraco preferred bidder, and take up negotiations with the Infraco reserve bidder. An Infraco would be unlikely to want to do this because it has the right to amend the scope of the SDS contract post novation, and could effectively take on only the warranty benefits arising from the SDS contract. In addition, the SDS knowledge of the planning process is likely to be attractive to any Infraco.

If the SDS chose to terminate its relationship with **tie**, then it would lose the element of its payment which is retained by tie (3% of the total amount) as well as any amounts that would have been paid on the achievement of the next milestone under the SDS contract. This is in addition to the risks that they would be taking with regard to market reputation.

In the event that the SDS contract is not novated, as a result of **tie** viewing it as the least unfavourable solution at that time, there would be implications for the procurement, but these would not cause the procurement strategy to fail.

If the SDS contract was to be retained by tie, this would not reduce the Infraco's requirement to implement the elements of design already developed by the SDS, because these would be included in the contract. The Infraco would also be required to complete the design, presumably using its own selected designer. **tie** would not be required to pay the SDS to provide a duplicate design.

This highlights that the benefits of the novation of the SDS accrue in the main to the Infraco, and this should be reflected in the pricing of tenders.

5.4.5.2 Novation of Tram Supply Contract to Infraco

When **tie** issues tender documentation for the Infraco and Tram Supply contracts, it will set out the details of how novation should occur for both of the sets of tenderers.

Each set of tenderers will know who is tendering for both competitions, and will be required to provide a statement to the effect that it is willing to undertake the novation with any of the tenderers for the other competition. Again, therefore, **tie** will have 'early warning' of any possible difficulties with this proposal.

However, as is the case with the SDS, events may lead to the withdrawal of support for novation. For example, one of the tenderers may be experiencing financial difficulties. While this may not be sufficient for **tie** to believe that they should be released from the tender, it may mean that other companies are unwilling to take risk on such a company.

tie's focus at this stage will be to deliver the optimal combination of Infraco and Tram Supplier. If, at any stage, tenderers for either of these roles indicate that they are unwilling to work together, this reduces one of the combinations available to **tie**. **tie** would select the best combination from those remaining. **tie** would also be able to dismiss any tenderer who refuses to accept a novation.

A failure to novate the tram supply contract would result in a situation where the responsibilities of Infraco and Tram Supplier would have to be reconsidered. This may require a re-tender of either or both contracts. However, this does not appear to be any more likely to occur in reality than the public sector losing all of the bidders due to disputes between partners where infrastructure and tram suppliers are asked to bid together.

In order to avoid such a situation occurring, **tie** intends to formally consult with the vehicle and infrastructure markets on the precise details of proposals for tram supply contract novations, and if appropriate revise the details of the tram novations on the basis of this consultation

5.4.6 Overall Procurement Process and Timetable

tie has already signed a contract with the operator of the system and intends to enter into a series of contracts over the next two years. These are as follows (with expected commencement dates):

- Selection of Operator
    - DPOFA – 2004 (Actual);
- System Development
    - Joint Revenue Setting Committee – July 2005;
    - TSS Contract and SDS Contract – July 2005;
    - Utilities Diversion Framework Contract – February 2006;
- System Procurement
    - Tram Supply Contract – June 2007;
    - Infraco Contract – June 2007;

A more detailed Programme is presented in Section 9.

5.5 Overview of Key Contracts

A detailed description and justification of **tie**'s approach to the key contracts that it will enter into is set out below in Sections 5.6 – 5.12.

tie has considered a number of options for procurement strategy before selecting the option set out in this document. The alternatives considered are set out in Appendix B to this IOBC. However, in considering the pros and cons of the approach to each of the contracts, **tie** has selected a single benchmark against which to evaluate the proposed Procurement Strategy.

After consideration, **tie** has selected as the benchmark a Design, Build, Finance and Maintain approach, aligned with a short term operating contract. This is similar to the model used on Docklands Light Railway, and while it has not yet been used on a street running light rail system, it is being considered as a model by a number of procuring authorities. The results of this comparison are shown in boxes in Sections 5.6 – 5.12.

In order to further test the selected option, in section 5.13 below we have analysed the benefits and risks of a number of further potential modifications or developments of the preferred Procurement Strategy.

5.6 Selection of Operator: DPOFA

tie believe many recent tram procurements have suffered from insufficient operator engagement throughout the Parliamentary and development phases of these projects.

On this basis, **tie** has decided to separate the operation of the system from its construction, and has already appointed Transdev as the future operator, under the terms of the DPOFA. This was done through a competitive procurement process, evaluated on the basis of both quality and cost.

Transdev representatives are part of **tie**'s core team for the project, and will be playing an active role in the development of the subsequent contracts. It is **tie**'s primary objective that this process will form the foundation for a strong and mutually beneficial long-term partnering relationship with Transdev for the later operation of the Edinburgh Tram system.

5.6.1 DPOFA Risk Transfer Issues

Two issues were seen as key to the DPOFA development process.

5.6.1.1 Operation and Performance Risk

The Operator will ultimately be in day to day control of the quality of service provided to the public. However, responsibility for the project development lies with **tie** and its advisors. One of the main issues involved in bringing in an Operator during the early phases of the project is to inject their perspective into the development of the network, and hence to facilitate the development of the optimum tram network. **tie** anticipates that this approach, which has been endorsed by CEC and was supported by operators interviewed at the PIN stage, should facilitate the successful delivery of the project.

To address performance issues during the operating phase of the contract, the DPOFA incorporates a Payment Mechanism which **tie** believe offers the Operator an appropriate risk/reward share. The proposed payment mechanism is explained in section 5.6.2.4. In summary, the Operator will be penalised under a KPI regime for not delivering service to the required specification, whilst being incentivised by the agreed pain/gain sharing mechanism to minimise costs and maximise revenue. The final element of the payment mechanism, namely the Vision Achievement Incentive, reflects a longer term goal to which the Operator should aspire. This payment will only be made in circumstances where the tram project's financial performance exceeds defined expectations, and where the quality of service delivery also exceeds a pre-agreed challenging target level.

5.6.1.2 Pricing and Revenue Risk

A key element of retained risk for the public sector relates to ongoing farebox revenue and operating costs. One of the factors influencing the decision to proceed with separate procurement of DPOFA and Infraco contracts was the past underperformance of a number of the full PFI/PPP structures where 100% farebox risk was transferred to the private sector. In more recent deals, financiers have applied a heavy discount to revenue projections as a result of recognising that revenue is affected by many factors outside the operator's control and that operators therefore have great difficulty in forecasting it reliably.

It is therefore proposed to retain the majority of farebox revenue and operating cost risk with the public sector. However, the means to manage the public sector's exposure to operating costs and revenues has been built into the DPOFA approach in the form of the development of a pain/gain sharing mechanism.

This mechanism, which rewards the operator for the degree to which actual costs and revenues outperform pre-agreed targets, has the joint benefit of incentivising the operator to minimise costs and maximise revenue, whilst helping to manage the public sector's risk.

5.6.2 Activities Under the DPOFA

5.6.2.1 From June 2004 to April 2005

The Development Phase of the DPOFA (Project Phase A) is currently in progress and Transdev are engaging with **tie** technical advisors on a daily basis. Transdev have reviewed the parliamentary submissions and whilst they are generally comfortable with the viability of each scheme they have suggested improvements that are aimed at delivery of a fast, safe, efficient and reliable system. Transdev will continue to be involved through the design process of the network and will input their wider commercial and practical experience of operating and maintaining tram (and bus) networks in the UK and elsewhere.

In the current development phase of the project, and during the creation of the TEL framework, Transdev has:

1. Carried out a comparative analysis of journey times by bus and tram between a range of key locations, in order to establish whether, or under what circumstances, interchange and service integration could be effective, including:
    - What bus services could be affected e.g. withdrawn, diverted, truncated or created; and
    - What physical interchange facilities are required, and what scope there is for providing them;
2. Supporting input to the design of Princes Street to maximise remaining bus capacity (but within the context of a fully segregated tramway, which is regarded as fundamental to the project);
3. Reviewed potential sources of more socio-demographic and population data for potential use in the development of new transport models; and
4. Agreed with Lothian Buses on a set of data which to be provided by Lothian to support integration planning.

Transdev have also reviewed the existing patronage and revenue projections in detail in order to develop an understanding of the Edinburgh environment. It is anticipated that this knowledge will contribute to future work more directly addressing integration.

In the next few months in is intended that Transdev will:

1. Continue to validate existing patronage predictions and the existing view of integration opportunities;
2. Develop integrated network proposals with Lothian Buses, for consideration and evaluation;
3. Identify key omissions from the data, to focus survey or other work to be carried out by **tie**'s advisors over forthcoming period; and
4. Further develop integration plans.

These activities have all advanced since commencement of the DPOFA and have informed this IOBC.

5.6.2.2 From April 2005 to Signing of Infraco Contract

During the Infrastructure and Vehicle Procurement Phase (Project Phase B), Transdev will provide continuity and assist **tie** by being a key component of a group of advisors acting as the 'Intelligent Customer', assisting with the shaping and preparation of information for the

market to ensure that **tie** creates the best possible offer for the market, thereby generating a healthy competition and consequent value for money.

The following activities will be carried out at this stage:

- Establishment and implementation of TEL and the revenue setting regime;
- Consideration of the underlying operational aspects of the tram project and the presentation of these to the CEC planning department;
- Consideration of underlying demand assumptions and issues;
- Consideration of the operational implications of the overall tram Procurement Strategy;
- Consideration of revenue impact of the tram including ticketing arrangements and potential for third party sources of funding ;and
- Ongoing assistance in development of the contractual arrangements for the proposed tram procurement structure.

tie anticipates further development of the DPOFA during 2005-06 prior to Infraco Contract award..

5.6.2.3 After award of contracts for infrastructure and vehicle delivery

During the Design, Build and Commissioning Phases (Project Phases C1 and C2), it is envisaged that Transdev will be a member of **tie**'s project management team. They will undertake system mobilisation in order to prepare for full operation and complete arrangements on service integration.

During the Operations Phase (Project Phase D), Transdev will run the network. Should a phased construction be necessary Transdev will accept the elements of the network incrementally. Transdev will continue to fulfil the functions for Project Phases A, B and C, as required by **tie**, in relation to any further Lines and expansion beyond the core network.

5.6.2.4 Incentivisation and Remuneration structure under the DPOFA

Transdev is remunerated as follows:

For Phases A to C1, a time based fee subject to an agreed cap and a retention

During Phase C2, a share of any under/outperformance against an agreed target cost

During Phase D, a payment comprising:

- actual operating costs and an agreed fixed profit;
- a pain/gain share payment calculated as follows:
    - A target operating cost is agreed for each three year period of the contract and Transdev receives/pays a contractually share of any out/underperformance
    - A target revenue will be agreed under the auspices of an Independent Revenue Setting Committee for each three year period and Transdev receives/pays a contractually agreed share of any out/underperformance; and

- a performance regime payment calculated to incentivise performance against a set of KPIs covering the following:
    - Headway;
    - First and last tram;
    - Customer survey;
    - Security;
    - Cleanliness of tram interiors and stops;
    - Information and signage; and
    - Revenue generation and protection.

These arrangements reflect the fact that revenue and costs are determined by a mixture of factors only some of which are controllable or influencable by the operator. This approach therefore avoids the risk premium that has been included in the pricing of other tram projects due to start up uncertainty and other economic factors.

Finally, Transdev may be entitled to a Vision Achievement Incentive if it satisfies certain longer term requirements.

Attributes of Early Operator Involvement

Benefits

The recent NAO report pointed strongly to early operator involvement as a means of improving the execution of tram procurement and achieving a stable and affordable system with a smooth, well planned commencement to operations.

The DPOFA enables an operator to play an integral role in the development of key aspects of the procurement including:

- Robust service specification and timetable;
- Specification and design of tram vehicles and maintenance facilities;
- Specification and design of infrastructure; and
- Operational requirements and specification of the tram system.

The structure proposed reduces overall risk by avoiding unnecessary risk transfer to the private sector and reducing uncertainty in the project as a whole.

Risks

The majority of revenue risk remains substantially with the public sector.

If the Operator does not fulfil adequately **tie**'s requirements to support the development of the project, the DPOFA would need to be terminated and there would be a subsequent delay to the overall timetable as an alternative operator was appointed – however the DPOFA incentivises the operator to perform.

5.6.3 Process of appointment of DPOFA contractor

tie consulted the market through the issue of a PIN followed by meetings with six respondents in May 2003. Following the enthusiastic response to **tie**'s proposals, the detail of the contract was developed and an OJEU notice was issued on 11 June 2003 for the procurement of a 15 year DPOFA.

Prequalification submissions were received from six candidates, the majority of which were market leading operators. Four bidders were invited to respond to the ITN issued on 25 September 2003. Transdev was selected from these as the preferred partner, following which the DPOFA was signed in May 2004.

5.7 System Development: SDS and TSS Contracts

The letting of an SDS Contract early in the tender process is a key element in delivering **tie**'s objectives. **tie**'s intention is to have a well advanced design by the time that bids are sought from the private sector for the vehicles and infrastructure. The SDS Contract will then be novated to the Infraco which will thereby take responsibility for the design obligations of the SDS. **tie** will retain collateral warranties over the work of the SDS.

Therefore, **tie**'s approach will provide the benefits of having the Infraco's designer involved in the project from an early stage, along with all design risk being transferred to the private sector.

tie recognises that this approach is different from that taken on other light rail projects and PFI projects. However given the environment within the light rail sector at present and the planning risks and other challenges of working in close proximity to a World Heritage Site, **tie** believes that the advantages of starting the design early far outweigh the potential risks.

The primary advantage of this approach is the reduction in overall risk to the project which it facilitates. In addition, **tie** expects that this approach will reduce the overall procurement timetable, reducing the lead time between Royal Assent and commencement of operations by at least a year. Whilst **tie** is keen to adhere to an ambitious procurement timetable, this will not be done at the expense of increased cost or risk.

The SDS Provider's responsibilities are set out below in detail, but their overall objectives will include:

- tackling the critical design elements as early as possible;
- optimising whole life system cost;
- reducing the project risk for the Infraco bidders;
- application of industry best practice;
- avoiding solutions which restrict **tie** or the Infraco bidders to a single supplier for elements of the infrastructure or vehicles if this would reduce the scope for competition;
- working with Transdev to design for optimised system performance;
- generating design solutions that an Infraco can competitively price; and
- designing to maximise construction productivity and minimise disruption during the construction period.

All of the above are consistent with developing a good value for money solution.

5.7.1 Activities under the System Design Services Contract

The overall design process will take between 2 and 2.5 years. It is expected that the design work will be around 60-70% complete when the Infraco Contract is signed.

5.7.1.1 Pre Royal Assent

The principal reason for undertaking early design work is to reduce tenderers' perception of the risks associated with the project, thereby reducing risk margin. **tie** believes that undertaking design work in advance of Royal Assent will save time on the overall programme (and reduce cost), without pre-empting the outcome of the legislative process.

It is essential that this work (which goes well beyond what would be required to support the bill process) is carried out at this stage in order to gain benefits in terms of planning, utilities and reduction in Infraco overheads.

The design process for a project of this type is usually undertaken in three stages:

- Conceptual;
- Preliminary; and
- Detailed.

tie has already substantially completed an early conceptual design as part of its requirements definition for the SDS Contract.

It is envisaged that the initial task for the SDS Provider will be to carry out the preliminary stage of design, with a completion target for the entire network of mid 2006.

There will also be a requirement for detailed design to have been completed on the sections where there are the most significant challenges, either technical or aesthetic. **tie** has categorised the system into sections by criticality of the obtaining of planning consents e.g. the section from Haymarket to St Andrew's Square is in the most critical category.

In addition, during this period the SDS Provider will also have a key role in liaising with the planning authorities, assisting with the development of other enabling activities (such as the application for Traffic Regulation Orders) and assisting with the development of parameters for the rights of access for the contractors who will need to take possession of streets along the proposed route.

At the forecast date of Royal Assent, around 25% of the Detailed design for the entire network will have been completed, including:

- A design sufficiently detailed to apply for planning permission for significant elements of the infrastructure (which are the track bed, OLE, building fixings and those tram stops which are in sensitive locations);
- A specific design for the significant utilities diversions (ie those which are currently intended to be under the track slab); and
- A more highly developed design than other UK light rail schemes have had for the infrastructure and vehicle providers to price.

This will allow **tie** (through the SDS Provider) to apply for planning permissions and secure wayleaves, develop and let the framework contract for the diversion of utilities and commence the tender competitions for the infrastructure and tram providers.

5.7.1.2 Between Royal Assent and Signing Infraco Contract

At this stage the role of the SDS Provider will be to:

- Complete the process of designing the utilities diversions;
- Continue to support, progress and manage the planning applications that will have been made;
- Further refine the design; and

- Input into the tender process to confirm design and pricing by the Infraco.

It is likely that there will be significant communication required between the planning authorities and the SDS Provider in order to achieve the planning permissions being sought for the new lines. The proposed programme anticipates that planning permissions for the core elements of the scheme (namely, the Haymarket – St. Andrews Square link) will have been achieved by the time of signing the Infraco Contract.

The SDS Provider will also continue to refine the design. Because **tie** will have already launched the tender process, this will necessitate a managed release of further design information to the tenderers. Further details on this process are given below in section 5.12.4

5.7.1.3 Post Signing Infraco Contract

When the Infraco Contract is signed, the contract for the SDS Provider will be novated to the Infraco.

tie expects that the Infraco will benefit significantly from the SDS Provider's work and its experience of the planning and utilities diversion processes. **tie** also believes that that the planned novation will mean that the SDS Provider will consider issues of practicality, cost and 'constructability' more than if it was simply **tie**'s consultant.

The Infraco will be required to adopt the SDS Provider's design as at Infraco Contract signature. Variations to this design could be introduced with the agreement of **tie**, but at the risk of the Infraco.

The novation of the SDS Contract to the Infraco will mean that responsibility for the design and all risks arising are transferred to the private sector system integrator without the normal disadvantage of an increased risk premium which bidders would apply due to uncertainty if they had to carry out the design work post signature.

The SDS contract is capable of being flexed by **tie** prior to the point of novation or by the Infraco after novation to reflect any services not required by the particular Infraco and therefore avoid duplication with the Infraco's own designers. **tie** would like to retain flexibility, but would expect to negotiate at preferred bidder stage on the role that the Infraco would like the SDS Provider to perform after its contract is novated. The Infraco may already have had a designer working on detailed aspects of the contract, and may wish to use **tie**'s designer in only a limited role.

5.7.2 Control and Management of Activities under SDS Contract

tie will monitor the reasonableness of the solutions being identified by the SDS Provider with the assistance of the Technical Support Services Contractor and Transdev, and drawing on the significant experience of other schemes within **tie**.

The purpose of this will be to avoid 'gold plating' of the system, and any tendency towards low risk, high cost options which do not provide the overall best value for money that **tie** is seeking. **tie** will track the cost of the system throughout the design period, so that cost overruns can be identified quickly and mitigating actions taken while there is still scope to change the solution.

Attributes of tie's Approach to System Design Services Contract

Benefits

Shorter period from letting Infraco contract to completion of the system A shorter

procurement process not only helps achieve the target date for delivery of the project. It also reduces the overheads incurred by the Infraco, because it allows them to reduce the period for which they are involved

Removes substantial planning permission risk from the private sector Obtaining planning permission is a risk which **tie** believes is best tackled before asking the private sector to develop their bids. This should be reflected in a reduction in the margin that bidders would apply to cover the risks of increase in scope, quality and construction period as a result of the planning requirements. **tie**'s intention is to have critical approvals completed by the time that the Infraco Contract is signed.

Reduces risks associated with utilities diversion and Network Rail Immunisation work Early completion of utilities diversion will mean a reduced likelihood that utilities works will interfere with the main infrastructure work. It will also reduce risk margins because utilities diversion cost is a risk that the private sector finds difficult to assess, quantify and then manage.

Greater level of support for Parliamentary process This will ensure that stakeholders have greater certainty and clarity about the plans for the network which may avoid disputes and delays at a later date.

Risks

Potential reduction in innovation Because design is carried out in advance of tendering for the Infraco, the Infraco's ability to innovate is restricted, possibly preventing them from realising possible cost efficiencies or design improvements. **tie** will mitigate this risk by inviting variant bids for any alternative design solutions or technical approaches which bidders believe might offer improved value for money. **tie** will also critically review the proposals of the SDS Provider, with the assistance of the TSS Consultant, the Operator and the expertise within **tie**.

Risks associated with novation This strategy requires the Infraco to take over responsibility for the SDS contract. This is clearly a potential risk, but one which tie believes it can manage. More details on this are provided in paragraph 5.4.5.1.

No direct incentive for Infraco to optimise system performance or constructability Because the direct link between the designer and the Infraco will only be made once the SDS contract is novated to the Infraco, there is a risk that the SDS will not focus on the objectives of optimising system running time or developing a project which is easy to construct. **tie** believes that this will be mitigated by the combined review of **tie**'s internal experts, the TSS, Transdev, along with the incentive that SDS will have that it will eventually be accountable to the Infraco.

Comparison with Benchmark Option

Under a DBFM approach, the private sector has more design work to do, and therefore more scope to innovate. However, **tie** believes that, because of the complexity of light rail projects, bidders would rather have more of the design provided to them, allowing them to concentrate on enhancing value through management of their supply chain and application of their construction methods.

5.7.3 Process of Appointment of SDS Provider

An OJEU notice for the role of SDS Provider has been issued and the following bidders have been prequalified:

- Atkins

- Mott McDonald/Faber Maunsell
- Scott Wilson
- Parsons Brinkerhoff

Documentation for the SDS Contract tender process has been completed and was issued to the four tenderers on 30 March 2005. Initial bids were received on 16 May.

If funding is approved by the Scottish Executive, the intention is to appoint the SDS Provider in June 2005.

5.7.4 Technical Support Services (TSS) Contract

tie have selected a short-list of **eight** potential TSS candidates following an OJEU notice and evaluation of expressions of interest received from 16 companies.

tie has issued an ITT which will lead to contract award June 2005.

The scope is identified and linked directly to the SDS Provider scope of works namely to be primary support technical reviewer, and provide technical consultancy services and support to **tie.** The TSS team will be based in **tie** offices.

The contract is based on **tie**'s in-house standard consultancy contract. It will remain with **tie** and will not be subject to a novation since **tie** will require technical support after the SDS novation and beyond.

5.7.5 Other Survey Work

tie have established a schedule of advanced works which would support / assist the SDS going forward.

As part of the development of the utilities diversions and design relating to the overall scheme, **tie** plans to carry out extensive advance survey work ranging from ground penetrating radar, open cut ground investigations, structural surveys, topographical surveys and other surveys to help establish information needed to aid detailed design, such as virtual walk through surveys. A full schedule of surveys is being prepared. Some of these surveys will be carried out by the TSS Contractor but the majority will be within the scope of the SDS Contract. Prior to letting either contract, **tie** will also progress a number of non intrusive activities, such as transport surveys.

5.8 System Development: Utilities Contracts

It is clear from other light rail projects that the risks associated with utilities diversions are among the most difficult for the private sector to manage and price and have been a barrier to progressing with light rail schemes as highlighted by the NAO.

One of the underlying reasons for this is that utility companies are not usually willing to negotiate with the private sector while there remain several competing bidders. However, for one or more preferred bidders to be selected, all bidders will have to provide costings, which include the costs of utility diversions for their specific solutions.

This means that much of the work related to Utilities is delayed until after a contract is signed. The process of agreeing a programme, designing the solution and carrying out the utility diversion works adds significant cost, time and risk to the development programme. A consequence of this is that there is a risk that utilities work can delay the scheduled construction works, and that the works are priced at a premium at bid stage.

Increased forecasts of the costs of utilities diversions have been one of the reasons for cost overruns on other tram procurements.

tie propose to retain and manage the significant risks associated with Utilities and implement the major identified utilities diversions through a single framework contract with a contractor approved by all the affected utilities.

5.8.1 Activities under the Utilities Contracts

tie will directly let the framework contract to divert utilities.

The scope of this contract will be determined by **tie** based on advice from the SDS Provider and input on scope from the utilities themselves. The SDS Provider will determine the area of the track bed and which utilities underneath it will need to be diverted or protected. It should be noted that other utilities diversion work will be the responsibility of the Infraco, since it will relate to their specific design e.g. re-siting of utilities as a consequence of the location of supports for overhead line equipment. The Infraco will, however, have a degree of flexibility in the design of these foundations which will mitigate its risk. The utilities activities will be underway by the time that the Infraco Contract is tendered.

It is important to recognize that there are multiple utility companies that may need to have their facilities diverted. This represents a number of interfaces which would be a major risk for the Infraco, and this would be reflected in risk margins applied by Infraco bidders.

Instead, **tie** and CEC will use their powers under the tram acts and as the roads authority to negotiate with the utilities, with the objective of developing framework contract(s) which will allow works to be carried out on all of the utilities assets at a single site under a single contract. This will help minimise cost and disruption to the public and to road users, maximising construction productivity.

In terms of the scope of utilities diversion, **tie** has decided not to move any utilities which are deeper than 1.9m. Where utilities are less deep than this a view of Utilities will be sought for the extent of PU diversions will be taken by **tie** and its advisers on whether to move the utility or leave it in situ. A large number of the more complex issues regarding utilities are already being progressed through negotiations with the utility companies, with whom **tie** has agreed heads of terms for utilities diversion works. These negotiations have resulted in a number of innovative solutions for utility issues, highlighting the benefits of early engagement with the utilities companies. Such early engagement would be impossible if utility diversions were to be left to the Infraco.

The majority of utilities work is scheduled for early 2006. This will result in significant utilities diversion works being completed prior to commencement of tram infrastructure works so potential conflicts between the utilities and infrastructure works will be minimised.

Attributes of tie's Approach to Utilities Contracts

Benefits

Reduces cost and disruption Allows the public sector to use its greater negotiating power to develop single contract solutions for all utilities in an area - thereby reducing cost and disruption to the public.

Reduces overall programme Removes design of diversions, negotiations with utilities and carrying out of diversion works from being critical path activities for the Infraco – thereby saving substantial time from the overall programme.

Reduces price uncertainty for Infraco Removes a large source of cost uncertainty and therefore risk premium from the Infraco Contract.

Removes a source of delay for the Infraco Reduces likelihood of knock-on delay for the Infraco due to delays in utility diversions and therefore eliminates a further source of risk premium from Infraco bids.

Allows better forward planning for utilities This avoids the utilities having to make difficult decisions about whether to tackle problems now or wait and see whether there will be a diversion required on the problem area later.

Reduced Cost This strategy provides the public sector with the strongest argument for statutory cost contributions from the utilities.

Risks

Potential reduction in innovation If utilities were the Infraco's responsibility then they would have the opportunity to propose an alternative approach to utilities which could potentially more cost effective. However **tie** believe the scope to innovate with regard to utilities under the swept path of the tram line is very limited and the SDS Provider will have the specific remit of devising innovative but robust solutions to Utilities diversion issues.

Risk retention The risks associated with Utilities work (cost and time) will remain with **tie** under this approach; therefore **tie**'s ability to manage these will be critical. The TSS will assist tie in managing this risk.

Comparison with Benchmark Option

It is a possibility that the proposed approach reduces the potential for the Infraco to coordinate the utility diversion and tram infrastructure works, which, if achievable, could reduce the level of disruption caused to users.

tie has considered this argument, but believes that experience on other light rail projects shows that contractors have had little success in coordinating their own work with the utilities.

Leaving the management of utilities to the private sector is likely to result in multiple contracts with various utilities at the same site – which would mean that disruption would be caused by repeated works on the same sections by each of the utilities. The cost overheads associated with this approach would clearly be adverse to the project as a whole.

5.8.2 Process of Appointment of Utilities Framework Contractor

The Utilities Framework contract will be let directly by **tie**. Other than reliance on the design of utilities diversions under the SDS Contract, there should be no interface with any of the other contracts in the system development or system procurement phase.

The intention is that the process of letting the contract will be commenced towards the end of 2005, assuming the SDS Provider has made sufficient progress with the design. No works will take place until Royal Assent is gained. A potential exception is likely to arise if utilities companies want to carry out non-tram related work along the route in 2005 then **tie** will (through separate Executive funding) arrange for the diversions required for the tram project to be carried out, resulting in a substantial cost saving for the Project.

5.9 System Development: Joint Revenue Committee

Edinburgh is in a fortunate position, in that the main bus operator in the city is majority owned by the public sector. Therefore, the procurement strategy is seeking to exploit this opportunity by establishing TEL, with responsibility for coordinating the services of Lothian Buses and the tram.

The Joint Revenue Committee ("JRC") is being appointed by **tie** to develop a comprehensive and interdependent hierarchical Modelling Suite ("the Modelling Suite"), which shall include a strategic model, a public transport model, a network assignment model and a micro-simulation model to support the development of the Edinburgh Tram Network. The JRC will be responsible to **tie** along with the SDS Provider on a jointly and severally liable basis, (this will be supported through an agreement between JRC and the SDS Provider) for the development, testing and successful commissioning of the Modelling Suite. The Modelling Suite shall be delivered to **tie** starting in the second quarter of 2006.

The JRC shall also be providing advisory support to **tie**. As part of this advisory support, the JRC shall advise on:

- both short term and longer term target revenues for the Edinburgh Tram Network;
- consider the impact of specific system design features and of service and frequency changes on revenue predictions;
- analyse the effect of changes in passenger numbers on revenue;
- assess the impact of the introduction and promotion of different fare and ticketing strategies, including integrated ticketing; and
- report on the likely benefits and dis-benefits of integration with other public transport modes and advise on likely short term and longer term revenue impacts of competition from other public transport modes.

5.10 System Development: Third Party Agreements

5.10.1 Network Rail

Due to cost constraints, **tie** was not able to commence preliminary discussion with Network Rail (NR) regarding their objections to the bills lodged in March 2004 until autumn of that year. Following intensive activity during March and April 2005, **tie** are close to agreeing a set of Protective Provisions ("PPs") with Network Rail ("NR"). In common with other light rail projects that have interface with NR, the PPs are a pre requisite to NR removing their technical objection on the basis of that they are satisfied that their assets are safeguarded. Since neither bill contains any provisions regarding NR protection, this has been negotiated as a separate agreement. In parallel with this, **tie** are establishing a schedule of technical answers to each of NR's objections, in case agreement cannot be reached on the PPs.

tie have a dedicated NR Interface Manager and legal team and are also drawing on the experience of Transdev and a number of external specialists with experience of brokering similar agreements with NR.

tie in conjunction with DLA Piper (legal advisors) have established the scope of the PPs, which will include:

1. Basic Services Agreement ("BSA") which permits the formal , commercial and technical engagement of NR on the project at **tie's** cost;

2. Basic Asset Protection Agreement ("BAPA") which sets the conditions under which **tie** may have access to NR operational railway property; and

3. Development Services Agreement ("DSA") which will engage NR in the process of reviewing and agreeing the tram scheme design in relation to interface with the railway network.

One of the early requirements on NR under these agreements is to allow the SDS Provider access to NR information, personnel, and surveys and to gain necessary method statement approvals. The timing of all of these activities is linked firstly to the removal of objections prior to NR being called by the Bill Committees and secondly the need to have the other agreements in place to assist the design work. It will be an important task of SDS to begin the process of securing track possessions from NR.

Downstream of this there will be a requirement for **tie**, with the support of SDS and TSS**,** to broker further necessary agreements between NR and the Infraco for main the infrastructure works. NR will, in all likelihood, require that CEC and/or **tie** are a party to any agreement entered into by Infraco with NR concerning accommodation works and one option will be to include specific delegated functions in the Infraco contract to perform any agreements reached between **tie**/CEC and NR prior to Infraco appointment.

The three most important issues which will require management in relation to NR are:

1. the time that it will take for any decision, negotiation and agreement with NR to be achieved if NR deviates even slightly its codified approach;

2. the effect of any NR policy change;

3. and the generally risk averse nature of NR to all projects which affect their operations.

Scottish Executive assistance and oversight on this matter will be important, given the new relationship between the Executive and NR.

5.10.2 BAA

tie has been discussing the tram alignment and related issues with BAA since early 2003. A series of meetings has also been held to discuss jointly ETL2, EARL and the Ingliston P&R to facilitate an integrated approach to planning and implementation of these schemes.

The BAA objection relates to a number of issues, including:

- impact of proposed stop location at airport;
- implications for traffic (passengers and services/operations) on the access to and around the airport both during construction and operation;
- land ownership;
- integration of ETL2 and EARL (planning and construction);
- EMI effects; and
- bird strike/landscaping.

tie are nearing agreement on most of these issues. However, considerable further discussion is probably required regarding the traffic impact on Eastfield Road (including the Newbridge spur crossing), land ownership, and the location of the stop at the terminal building.

5.11 System Procurement: Vehicle Supply Contract

tie is developing a nested set of contracts for Infraco and Vehicle Supply based on those used successfully on another project but tailored to Edinburgh's needs.

tie's key objective with regard to vehicle procurement is to select the vehicle and vehicle supplier which best suit its needs. This contrasts with other light rail procurements, where vehicle suppliers and infrastructure contractors have bid as consortia, and the public sector has been unable to separately select both the best vehicle and the best contractor.

tie believes that separate procurement of these two key elements of the system will increase competition for the Infraco Contract, because the relatively small number of vehicle providers would otherwise limit the number of integrated consortia that could bid. **tie**'s approach therefore allows it to select both its favoured rolling stock choice and its favoured infrastructure provider. In addition, **tie** believes that it will lead to more competition from rolling stock manufacturers, who are likely to prefer tie's approach to the more time consuming approach of having to get involved with a construction company in a consortium.

tie's preferred solution for the rolling stock will be one which is based on proven technology. Early analysis of options which are likely to be available indicate that **tie**'s preferred option is a vehicle with 70% low floor. These are more attractive than 100% low floor vehicles, because, generally, they are less complex in nature and have a greater history of being delivered in the UK. However, due to changes in the rolling stock market, restricting the competition to 70% low floor vehicles may result in there being very few participants in the competition. **tie** will therefore develop an output specification which allows for either of these types of vehicles, but evaluation criteria will focus on the degree to which technology is proven.

5.11.1 Nature of Vehicle Supply Contract

Bids to supply vehicles will be evaluated based on the estimated whole life cost of the vehicles as well as the vehicles' qualitative features. Therefore the cost of spare parts and specific maintenance programmes will be taken into account as well as the initial cost of the vehicles. The Tram Supply Contract will cover vehicle supply and components, not maintenance. It will also include option prices for additional rolling stock should the anticipated extensions to the system take place and to facilitate the proposed phased approach to the procurement (see section 8.5).

Maintenance of the vehicles will be the responsibility of the Infraco, for the same period as it is responsible for the maintenance of the infrastructure. Further detail on this is provided in section 5.12 below.

Attributes of tie's Approach to Vehicle Procurement

Benefits

tie will be able to select the vehicle that best suits its needs, without the constraint of having to select the vehicle supplier's choice of infrastructure partner.

This should increase Infraco competition and market appetite, because the relatively small number of vehicle providers would limit the number of consortia that could bid.

Risks

Incompatible Tram and Infraco Suppliers While **tie** will take all possible action to ensure that bidders state their positions regarding who they are willing to work with, problems could arise. How **tie** will deal with this is set out in detail in 5.4.5.

Lack of Information for Infraco to price from Infraco bidders may need more information from the tram suppliers than **tie** has asked for in order to be able to price whole life cost for the vehicles. This is an issue that **tie** will address in the market consultation exercise.

Comparison with Benchmark Option

Under the DLR approach, vehicles are procured directly by the public sector and maintained by the operator. Therefore, whole life cost risk for the vehicle remains with the public sector on that scheme. In addition, DLR is technically different because there is only a single supplier for their driverless vehicles. The approach proposed here transfers more risk to the private sector, but it is a risk (unlike revenue) that they should be able to manage.

5.11.2 Process of Appointment of Vehicle Suppliers

The tender process for the Vehicle Supply Contract will commence on the granting of Royal Assent. Prequalification will be carried out in advance of Royal Assent, but it will be made clear to applicants that the tender process will only commence once the Parliamentary process is complete.

The vehicle procurement process is expected to be significantly quicker than that for the infrastructure provider. The reason for this is that the vehicles will be primarily based on existing designs, with small amendments by the manufacturers for **tie**'s specific requirements. By contrast, infrastructure work is by its nature specific to its location.

Therefore, the preferred vehicle solution could be selected well in advance of the selection of the preferred infrastructure provider. This would allow further information regarding the chosen vehicle to be provided to the Infraco bidders in the latter stages of that competition. This will be especially important given that the Infraco will be providing maintenance services for the vehicles. However, **tie** may retain two Preferred Bidders for the Tram Supply Contract until commercial close of the Infraco procurement in order to retain competitive tension, and to mitigate against the risk of changes to the Tram Supply terms being required as a result of the Infraco Best and Final Offer ("BAFO") bids.

Designs could be undertaken by SDS for two alternative tram choices but the key aspects of the vehicles will have been specified by **tie** from the outset.

tie will issue to the potential vehicle suppliers the full terms and conditions upon which they will be expected to enter into contracts. **tie** will then agree terms with the vehicle suppliers but the chosen vehicle provider will enter into a contract with the Infraco at the time when the Infraco Contract is signed. As an alternative, **tie** might sign a contract with the vehicle