

Glasgow Crossrail – Progress Update

Committee Strategy and Programmes

Date of Meeting 25 January 2008

Date of report 15 January 2008

Report by Assistant Chief Executive (Transport & Strategy)

1. Object of report

To inform the Committee of the outcome of the Glasgow Crossrail Appraisal and Economic Case development.

2. Background

2.1 The Crossrail project seeks to provide direct rail connection between the lines north of the Clyde and those to the south and south west of Glasgow city centre, providing through rail services. The potential for new services and connections goes well beyond the SPT local rail network and would enable through journeys to be made across the wider Scottish network.

2.2 A Technical Feasibility Study was carried out during 2005-6 to establish that the various pieces of railway infrastructure required for Glasgow Crossrail could be built and operated in accordance with current standards. Following the positive conclusions of this study, SPT commissioned consultants Faber Maunsell to act as Principal Consultant to develop and produce an economic case, in accordance with the Scottish Transport Appraisal Guidance (STAG), for the Glasgow Crossrail scheme. This work is identified in the SPT Capital Programme as Crossrail Phase One and has now been completed.

2.3 A Steering Group was formed to give guidance and review progress of the study. The group consisted of representatives from SPT, Transport Scotland, Network Rail and First ScotRail.

2.4 The elements of infrastructure that form the basis of Crossrail proposals are:

- Upgrading of the City Union Line between High Street Junction and Shields Junction
- Construction of the Strathbungo Link to allow access from the East Kilbride and Kilmarnock lines to the City Union Line
- The High Street Curve, allowing trains to run directly from Queen Street Low Level to the City Union Line at Glasgow Cross
- A turnback facility at Kelvinhaugh, west of Charing Cross, for services from the Queen Street direction and
- Potential new stations at Glasgow Cross, Gorbals and West Street.

These are shown on the map in Appendix 1.

- 2.5 The STAG Appraisal on Glasgow Crossrail has taken place whilst several other rail and transport related reports have also been issued. These include the National Transport Strategy (NTS) and its supporting documents which includes Scotland's Railways, published by the Scottish Executive, Network Rail's Route Utilisation Strategy (RUS), SPT's own Regional Transport Strategy (RTS) and the Scottish High Level Output Specification (HLOS) which specifies the Scottish Ministers' requirements from the rail industry. The Scottish Executive is currently carrying out an examination of major transport schemes under its Strategic Transport Projects Review (STPR) which includes many of the schemes in the documents mentioned above.

Crossrail has yet to be included in any plans and programmes of Transport Scotland and Network Rail, although Network Rail includes the scheme in their Route Utilisation Strategy (RUS) document as a proposed third party scheme with SPT as the main promoter. It naturally features in SPT's RTS.

3. Appraisal

3.1 Strategic Case

Scotland's railways have experienced very significant growth in recent years and this is predicted to continue in future. This will drive a requirement to operate more and longer trains in the greater Glasgow area. However the capacity of the high level terminal stations at Glasgow Central and Glasgow Queen Street is severely constrained. Whilst Network Rail and Transport Scotland are considering options for expanding the capacity of these stations, the potential appears to be relatively limited. Crossrail provides an opportunity to create a significant increase in cross-Glasgow capacity, at the same time serving key regeneration areas on the east side of the city centre, at relatively modest cost.

3.2 Service Options

Option appraisal work has been demand led and has been derived from an analysis of overall travel demands across the study area. Corridors and routes that could be served by Glasgow Crossrail were assessed on the basis of passenger demand. Option development included both detailed demand modelling and rail operational modelling to confirm that services could be provided to meet the demand.

At an early stage of option development two key findings emerged:

1. Diversion of existing services from Glasgow Central (High Level) to Glasgow Queen Street (Low Level) is likely to lead to a loss of benefits, indicating that Crossrail services, if economic disbenefits are to be avoided, should be additional to existing services.
2. Capacity constraints on certain radial routes into Glasgow, such as between Stirling and Greenhill Junction for example, significantly restrict the number of additional services that can be operated.

Following an initial rail capacity assessment a phased assessment of initial options was undertaken in rail operational terms. The headline conclusions of these phases of work were that additional or diverted services could be operated to/from Springburn, Kelvinhaugh (up to 4 trains per hour), Airdrie, Edinburgh, and Barrhead. Other options include, subject to certain conditions, additional or diverted services to/from East Kilbride and Kilmarnock and diversion of services to/from Paisley Canal, Ayr or Gourock.

The only potential destination to have been ruled out at this stage is Stirling, due to severe capacity constraints as mentioned above.

Following detailed demand appraisal, a review of operational constraints and extensive stakeholder consultations, the Steering Group agreed that the study would concentrate primarily on those options for additional services that did not require additional major investment elsewhere on the network. To have done otherwise would have transformed the Crossrail appraisal into a full network study. Even so some of the options retained in the analysis would require some significant reworking of current timetables to accommodate the new services.

The initial long list of potential options was prioritised into the following four options for detailed assessment during the STAG Part 2 Appraisal. These are shown in Table 1. The long list is shown in Appendix 2.

Table 1 Prioritised Crossrail Service Options

Option	Train Services	Infrastructure required
A	Edinburgh – Ayr via Airdrie & Bathgate	City Union Line upgrade, possible new stations at Glasgow Cross, Gorbals and West Street
B	As A, plus Croy - Barrhead	As A plus Strathbungo Link and Croy turnback
C	As B plus Charing Cross – East Kilbride	As B plus High Street Curve and Kelvinhaugh turnback
D	As C plus diversion of Paisley Canal service to Charing Cross	No addition to A + B + C

Each option is based on two trains per hour in each direction as additional (new) services, with the exception of Option D, the diversion of the Paisley Canal service. The diversion of the Canal service was included to assess the scale of potential impacts caused by diversion of services. This then allowed consideration of replacing them by additional services on other routes with greater benefits, given adequate capacity on the radial routes.

3.3 Transport Economic Efficiency

The STAG appraisal process requires an assessment of the Transport Economic Efficiency of the project. The results for Crossrail are shown in Table 2.

Table 2 Transport Economic Efficiency Figures

	Option A	Option B	Option C	Option D
	Edinburgh to Ayr via Airdrie	A plus Croy to Barrhead	B plus Charing Cross to East Kilbride	C plus diversion of Paisley Canal
Present Value of Benefits (£m)	318.7	374.7	423.3	378.9
Present Value of Costs (£m)	(221.3)	(365.3)	(503.2)	(513.7)
Net Present Value (£m)	97.4	9.4	(79.9)	(134.9)
Benefit:Cost Ratio	1.44	1.03	0.84	0.74

Figures in brackets are negative values

All options generate substantial benefits over the 60-year appraisal period. The incremental benefits of options B and C are much less than those generated by the Edinburgh – Ayr service. There is a loss of benefits with Option D relative to Option C, largely because of the longer journey time.

The Present Value of Costs increases with Options B and C according to the additional infrastructure required, and the additional operating costs. The additional costs for Option D reflect the additional operating costs for the service diverted from Central to Queen Street and Charing Cross.

Overall the results show that a good economic case exists for Option A. Option B is marginally positive, although the additional costs exceed the additional benefits. The benefits of Options C and D are less than the costs. The economic case for option A is comparable to that of other major public transport schemes being implemented in Scotland. It has not proved possible to assess the benefits of releasing capacity at Glasgow Central or Glasgow Queen Street High Level stations.

4. Wider Economic Benefits

- 4.1 Areas through which Crossrail services will operate include Glasgow East End, Gorbals and Tradeston, each of which is the focus of major regeneration initiatives and an area for future economic development.
- 4.2 There are also other areas of regeneration and development initiatives on routes that may be served by Crossrail services. These include Collegelands, City Science Park, Strathclyde University redevelopment, Colleges merger, Custom House Quay, Gorbals, Laurieston Regeneration, Tradeston, Glasgow Airport, Irvine Bay, Barrhead and East Kilbride Town Centre.

The main wider economic benefits of Crossrail would be:

- Support for continuing employment growth through providing businesses with better access to potential staff, as well as direct employment during construction;
- Support to the success of educational, retail and leisure facilities through easier access for potential users; and
- Supporting tourism through the provision of better cross-Glasgow links from Glasgow and Prestwick Airports

It is estimated that Crossrail would create Gross Value Added of £1.06 billion over 60 years. It is not possible to assess accurately the marginal contribution from each incremental option, but it is clear that the benefits would be greater with a wider range of Crossrail services. A summary of the wider economic benefits is included in Appendix 3. This does not include any additional railway industry staff who may be employed as a consequence of new train operations and additional track and train maintenance.

4.3 Accessibility and Social Inclusion

In addition to improving the economic performance of employment, educational and leisure facilities through improving access to them, Crossrail will provide improved access to these facilities **from** some of the most deprived areas in Scotland. Three of the wards directly served by Crossrail are ranked as follows (out of 1,222 wards in total) in the Scottish Index of Multiple Deprivation:

Hutchesontown	5 th	(top 1%)
Calton	40 th	(top 5%)
Kingston	158 th	(top 15%)

4.4 Stations

The numbers of passengers predicted to use stations at Glasgow Cross, Gorbals and West Street by the year 2012 for each option are shown in the following table:

Table 3 Predicted Station Usage (Year 2012 Total Annual Passengers, millions)

	Option A	Option B	Option C	Option D
	Edinburgh to Ayr via Airdrie	A plus Croy to Barrhead	B plus Charing Cross to East Kilbride	C plus diversion of Paisley Canal
West Street	0.43	0.43	0.44	0.45
Gorbals	0.51	0.53	0.53	0.56
Glasgow Cross	3.08	3.18	3.29	3.39

4.5 Other Impacts

The STAG appraisal process covers a range of other impacts and the following points are also relevant.

The initial environmental assessment of the project suggested that it is likely to have both positive and negative impacts, but there do not appear to be any major negative impacts of a scale sufficient to preclude Crossrail's implementation. This would be confirmed from detailed studies during Phase 2.

Crossrail would make a modest positive contribution to transport safety through the transfer of trips from car to rail.

Crossrail would contribute to the objective of improved integration through the provision of better links between the rail networks north and south of the Clyde. It would also

contribute to the achievement of wider government objectives relating to economic development and regeneration.

5. Next Steps

The option assessment process undertaken during Phase One showed that other investment would be needed elsewhere on the network to remove bottlenecks that prevent additional trains reaching Glasgow. Accordingly, Crossrail needs to be seen as a key element of an overall strategy that both increases capacity on the radial routes into Glasgow and provides extra capacity to accommodate them in the central area. Both elements are required to allow continued growth in rail usage in west central Scotland in the medium term, and to unlock the economic, social and environmental benefits that this would provide.

A sound economic case for Option A has been demonstrated. The wider benefits that Options B and C would deliver in terms of economic regeneration, accessibility and strategic linkages make them worth further consideration. The appraisal work also highlighted the congested nature of the rail network when addressing the provision of additional services across the city. It is therefore evident that the Crossrail development work should continue beyond Phase One in conjunction with Network Rail and Transport Scotland and in relation to a wider strategy for the whole network in west central Scotland. This will help to assure that the overall strategy that emerges is optimal in providing the right combination of investment in Crossrail, central Glasgow terminal capacity and removing bottlenecks on radial routes into Glasgow.

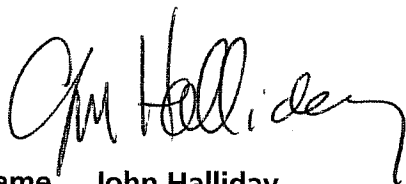
6. Committee action

The Committee is asked to note the findings of the Glasgow Crossrail STAG Appraisal.

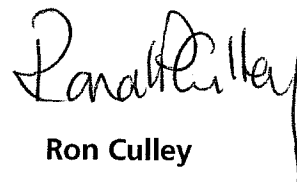
The Committee is also asked to remit SPT officers to submit the findings of the appraisal to Transport Scotland seeking inclusion of Glasgow Crossrail in the Strategic Transport Projects Review and the National Planning Framework.

7. Consequences

Policy Consequences	<i>None at this stage</i>
Legal consequences	<i>None at this stage</i>
Financial consequences	<i>None at this stage</i>
Personnel consequences	<i>None at this stage</i>
Social Inclusion consequences	<i>None at this stage</i>



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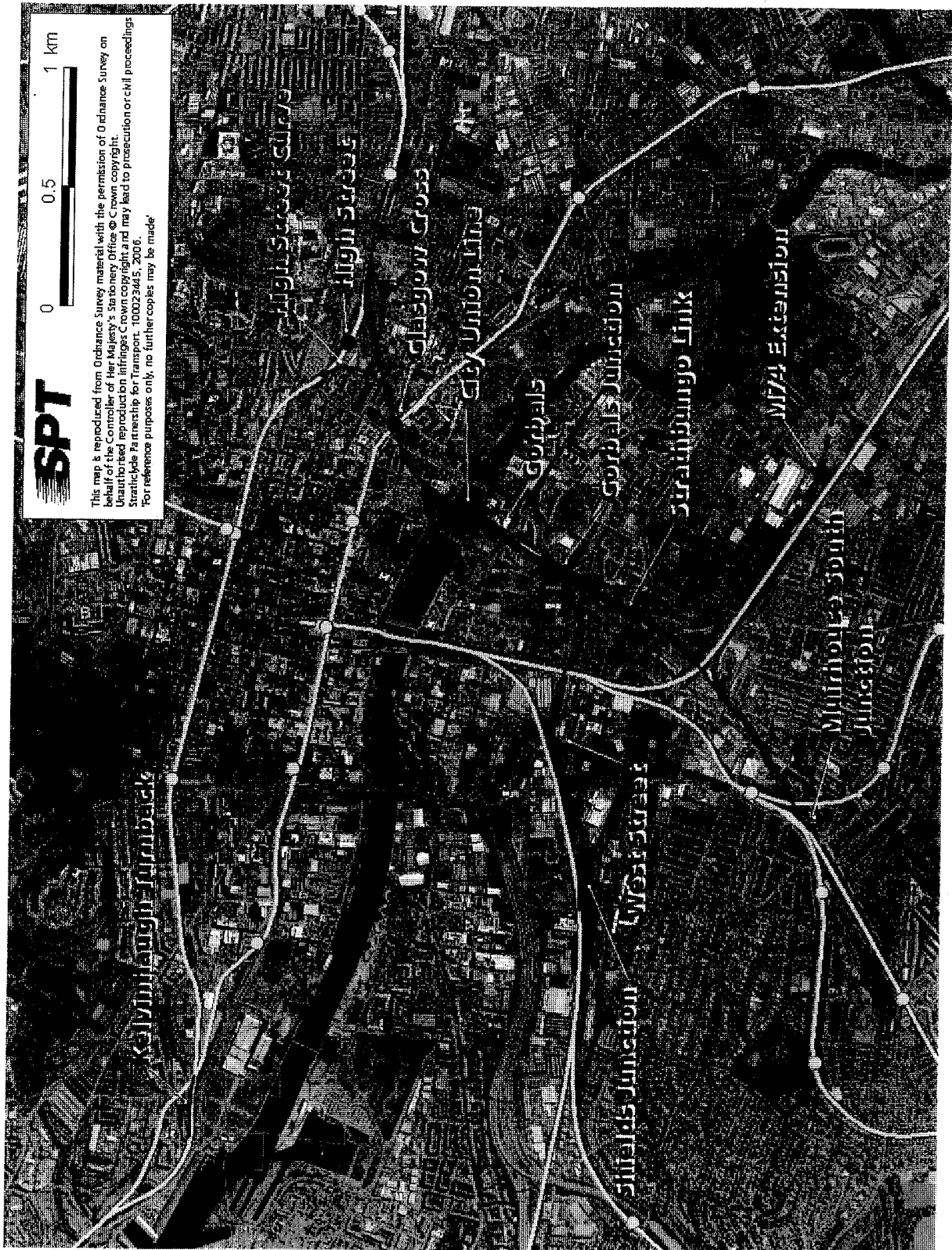
For further information, please contact John Halliday on 0141-333-3569 or Malcolm Pickering on 0141 333 3136

Initial list of potential Crossrail service options

- Charing Cross to Barrhead
- Charing Cross to Paisley Gilmour Street
- Charing Cross to Paisley Canal
- Charing Cross to East Kilbride
- Dalmuir to East Kilbride
- Milngavie to East Kilbride
- Milngavie to Paisley Canal
- Stirling to Barrhead
- Stirling to Paisley Gilmour Street
- Stirling to Paisley Canal
- Stirling to East Kilbride
- Stirling to Gourrock
- Stirling to Kilmarnock
- Edinburgh to East Kilbride (via Airdrie)
- Edinburgh to Ayr (via Airdrie)
- Edinburgh to Ayr (via Carstairs & Glasgow Central))
- Edinburgh to Ayr (via Glasgow City Centre Tunnel))
- Airdrie to Barrhead
- Airdrie to Paisley Gilmour Street
- Airdrie to Paisley Canal
- Airdrie to Kilmarnock

included to compare with
Crossrail alternative

Crossrail Infrastructure



Summary of Wider Economic Benefits	
Quantifiable Benefits	
Employment in West of Scotland	Support for continuing employment growth of at least 13 jobs per annum (equivalent to 130 jobs over a ten year period, 780 jobs over 60 years).
Employment in Construction sector	106 FTEs
Gross Value Added	Generating additional GVA of at least: <ul style="list-style-type: none"> • £0.579m per annum the West of Scotland after year 1 • £4.4m in the construction sector • £36.3m total over a 10 year period • £1.06bn total over a 60 year period
Non-Quantifiable Benefits	
Crossrail Area	The area in which the Crossrail project will be located is a deprived area. Residents therefore likely to benefit from improved access to jobs in the wider economy through enhanced connectivity between labour markets
Major physical developments	Crossrail has the potential to support regeneration through providing improved links between areas of employment and residential areas and by helping to encourage developments through improved accessibility
Leisure	Crossrail is expected to link to the GARL – Glasgow Airport Rail Link – and thus provide a more direct link for overseas leisure visitors to Glasgow, which would then make other parts of Scotland more accessible. Although Crossrail is unlikely to lead to an increase the number of visitors to Glasgow/Scotland, it has the potential to make their onward journey somewhat smoother, and may open up, or make more accessible, new/different destinations, such as coastal Ayrshire and Loch Lomond National Park.
Residential Impacts	Improved connections to the wider Metropolitan Region could make these areas more attractive places in which to live, particularly in those areas, that are further away from Glasgow and where regeneration projects include significant housing developments. Where areas of the wider Metropolitan Region already act as an attractive commuter belt for Glasgow, Crossrail was expected to have a more limited impact.
Distributional Impacts	
Crossrail would provide improved accessibility to some areas of deprivation in the West of Scotland. This would be beneficial in helping to encourage development in these areas by improving connectivity between these areas and employment opportunities.	