

EDINBURGH TRAM (LINE ONE) BILL COMMITTEE

Monday 19 September 2005

Session 2

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EDINBURGH TRAM (LINE ONE) BILL COMMITTEE 13th Meeting 2005, Session 2

CONVENER

*Jackie Baillie (Dumbarton) (Lab)

DEPUTY CONVENER

*Phil Gallie (South of Scotland) (Con)

COMMITTEE MEMBERS

*Helen Eadie (Dunfermline East) (Lab)

*Rob Gibson (Highlands and Islands) (SNP)

*attended

THE FOLLOWING ALSO ATTENDED:

Peter Allan
Alison Bourne
Mrs Odell Milne
Malcolm Thomson QC (Counsel for the Promoter)
Richard Vanhagen
Kristina Woolnough

THE FOLLOWING GAVE EVIDENCE:

Mark Bain (Transport Initiatives Edinburgh Ltd)
Les Buckman (Steer Davies Gleave)
Barry Cross (Transport Initiatives Edinburgh Ltd)
Neil Harper (Brian Hannaby & Associates)
Andrew Oldfield (Mott MacDonald)
Karen Raymond (Environmental Resources Management)
Claire Rooney
Stuart Turnbull (Jacobs Babbie)

CLERK TO THE COMMITTEE

Jane Sutherland

LOCATION

Committee Room 1

Scottish Parliament

Edinburgh Tram (Line One) Bill Committee

Monday 19 September 2005

[THE CONVENER *opened the meeting at 10:06*]

Edinburgh Tram (Line One) Bill: Consideration Stage

The Convener (Jackie Baillie): Good morning. I welcome everyone to the 13th meeting this year of the Edinburgh Tram (Line One) Bill Committee. Consideration stage is when the committee considers the detail of the bill. Our job is to consider the arguments of the promoter and the objectors and, ultimately, to decide between competing claims.

First, let me put on record the committee's thanks to the objectors, the promoter and all the witnesses for their written evidence, which will be invaluable today when we hear oral evidence. I also reiterate that written evidence is of equal value to any oral evidence that we hear. At today's meeting, the committee will hear evidence on eight groups of objectors. The groups were invited to a timetabling meeting in May at which the procedure for oral evidence taking was explained. In August, after consultation of groups 33 to 35, 43 and 45, the timetable and oral evidence approach were agreed.

Given the similarity of the evidence from each of the promoter's witnesses, it seems that it would be appropriate to allow each promoter witness to be cross-examined by each group in turn. The evidence of the eight groups will not be completed today.

We have the written evidence, witness statements and rebuttals before us, as well as copies of the background documents that are mentioned in them. The committee will not generally tolerate provision of written material at the meeting itself because that is discourteous to the opposing side and to the committee.

I remind all witnesses and representatives that there is absolutely no need to repeat points that have previously been made in written evidence unless that is required for direct answers to questions. I expect and require that oral evidence today will focus on the areas of disagreement that have been identified in the relevant rebuttal witness statements.

We have all the written evidence and it will all be taken into consideration when the committee

reaches its decision. I am sure, therefore, that we would all welcome clarity and brevity in questions and answers. The committee will be scrupulously fair to the promoter and the objectors and will expect all parties to act respectfully to one another and to the committee.

I ask everyone to ensure that all mobiles and pagers are switched off.

Before we begin, I should explain that as a result of rebuttal witness statements that have been provided, different types of cross-examination are available to the groups. Those are indicated on the detailed oral evidence timetable that is before us. I appreciate that for some groups the consequences of not providing rebuttal witness statements may be becoming clear only now. However, that has not arisen from any oversight in procedure or guidance and briefing from the clerks. Therefore, I am content to proceed.

I reassure all the groups that the committee may ask questions of any witness whenever it wishes. In addition, at its meeting on 13 September the committee agreed several decisions about its approach to evidence taking. I ask, therefore, that the objectors and the promoter be cognisant of those decisions when questioning witnesses today.

Finally, at our meeting of 13 September, we agreed to take evidence from Mr Leven—a witness for group 43—by videoconference on 27 September. To ensure that Mr Leven's evidence is given after the promoter's evidence on the issue, I seek members' agreement to take his evidence at our meeting on 3 October 2005. Are we agreed?

Members indicated agreement.

The Convener: Our first group of objections is group 47. We took evidence from the promoter's witness for group 47 on Tuesday 13 September but, due to lack of time, we were unable to hear evidence from the objectors' witnesses at that meeting. Therefore, we will begin by hearing evidence from the objectors' witnesses for group 47.

I advise members that Antony White is unable to attend today's meeting but has said that he is content for his written evidence to rest. If the promoter wishes to make any rebuttal remarks, I will allow Mr Thomson a few minutes to comment on each of Mr White's witness statements. However, before we commence oral evidence taking, Claire Rooney must take the oath or make a solemn affirmation.

CLAIRE ROONEY made a solemn affirmation.

The Convener: Does Mr Thomson wish to make any comments on Mr White's statement on noise, vibration and environmental issues?

Malcolm Thomson QC (Counsel for the Promoter): No.

The Convener: The only witness today for group 47 is Claire Rooney, who will address access to land and property. As Ms Rooney does not have a questioner from group 47, she may make a brief opening statement prior to being cross-examined by Mr Thomson. At the conclusion of questioning, Ms Rooney may make a brief closing statement.

Claire Rooney: I will be brief.

I am fortunate enough to have a garage next to my house. I used to drive my car forwards into the garage and reverse it out on to the quite busy road. However, after I bumped into one of my neighbours one day—fortunately, he was in a car at the time—I realised that it was quite dangerous to reverse out because visibility is not good. I now take the car forward a bit and then reverse around the parked cars. That is much safer, particularly now that a wheelie bin has been placed just outside on the right, which inhibits my view even further.

My concern is that the trams will prevent my access to the garage. When I stop my car to reverse it into the garage, the buses and cars that come round sometimes wait but they also sometimes overtake me in the rush to beat the red light. My concern is that the trams will not be able to overtake me, so I will be unable to use my garage safely.

The Convener: Does Mr Thomson wish to cross-examine the witness?

Malcolm Thomson: I will make no cross-examination, on the basis that the issue is dealt with in our statements.

The Convener: No member of the committee has any questions. Does Ms Rooney have anything further to add by way of closing remarks?

Claire Rooney: No.

The Convener: I thank you for your oral evidence, which will be considered by the committee along with the written evidence that we have received.

I invite Mr Thomson to comment on Mr White's remaining witness statements on loss of amenity, visual impact and an alternative route.

Malcolm Thomson: My only comment on this collection of topics is to observe that the route along Granton Road that is proposed by Mr White and other group 47 objectors was not mentioned in the original witness objections. Indeed, there is no obvious reason why the objectors should have departed from the route that they originally favoured to the one that they currently propose.

My closing submission is that the evidence has not shown any advantage to the Granton Road route. In addition to the technical objections, that route would involve patronage problems and greater capital and operating costs. The route would also make greater use of an urban wildlife corridor; to do that would be quite unnecessary given the existence of the better alternative that is proposed by the promoter. The objectors' proposed route would also provide a poorer service, if any, to the western harbour development.

The issues of vibration and noise have been dealt with in the promoter's evidence and are covered in the code of construction practice and the noise and vibration policy. As a result, no objection or amendment that flows from such issues should be allowed.

10:15

The Convener: Thank you, Mr Thomson. We will consider your comments along with the written evidence that is before us.

Group 47 has also raised concerns about use of the Roseburn corridor, and the final summary statements from the promoter and a representative of group 47 will be made at the end of the oral evidence on the Roseburn corridor. That is likely to take place on 27 September.

We now move to consideration of evidence in respect of groups 12, 33, 34, 35, 36, 43, 45 and 47. Before we commence oral evidence taking, I invite Andrew Oldfield, Les Buckman, Barry Cross and Stuart Turnbull to take the oath or make an affirmation.

ANDREW OLDFIELD, LES BUCKMAN, BARRY CROSS and STUART TURNBULL *took the oath*.

The Convener: The witnesses will address different aspects of route selection in the Roseburn corridor area. Andrew Oldfield will be questioned first by Malcolm Thomson, the representative of the promoter, and then cross-examined on his witness statements and rebuttals on this issue by Alison Bourne for group 33, Kristina Woolnough for group 34, Richard Vanhagen for group 35 and on his witness statement by Odell Milne for group 43 and Ms Woolnough for group 45. The witness will be cross-examined on his rebuttal by Alison Bourne for group 47. At the conclusion of that process, Mr Oldfield will be re-examined by Mr Thomson.

I do not propose to repeat that lengthy introduction for each witness; I refer all questioners to the helpful guide and timetable that was sent to them, which clearly indicates the groups that may cross-examine the witness and the types of cross-examination that they may

undertake. I ask any questioner who is questioning on behalf of two or more groups to identify clearly the group that each question relates to.

Malcolm Thomson: Good morning, Mr Oldfield. In the context of route selection, will you remind us of the difference between a sifting exercise and an appraising exercise?

Andrew Oldfield (Mott MacDonald): On this section of the route, one could consider a mathematically infinite number of options, which range from drawing a straight line through the area, demolishing everything along that straight line and building a tramway there, to meandering around every street and serving every conceivable property in the vicinity. There are infinite permutations and combinations in between those. Some test of reasonableness must be applied. Some potential options are discarded without further assessment. From there, a link sifting process is established for potential links that might, ultimately, form options. Options will then be appraised as a collection of links.

Malcolm Thomson: Was the Crewe Road South and Craigleith Road option appraised, or did it fall at the sifting process?

Andrew Oldfield: It fell at the sifting process.

Malcolm Thomson: Is there any Scottish Executive guidance on how to carry out the sifting process as opposed to the appraising process?

Andrew Oldfield: No, there is not.

Malcolm Thomson: Did the promoter ultimately carry out an appraisal of the Crewe Road South/Craigleith Road option?

Andrew Oldfield: Yes.

Malcolm Thomson: Despite the fact that that option had failed to make it through the sifting process.

Andrew Oldfield: Yes.

Malcolm Thomson: Why was that?

Andrew Oldfield: It did so because the consultees requested it of the promoter and the promoter instructed us to do that.

Malcolm Thomson: What was the result of that appraisal process?

Andrew Oldfield: It confirmed our view that that option should not have passed through the initial sifting process.

Malcolm Thomson: Was every possible criterion of the option appraised, or did it fall before it reached the end of the appraisal process?

Andrew Oldfield: One could continue to appraise options for ever. There are elements of

the Craigleith option that could still be appraised; for example, we have not yet established the feasibility of using the Crewe Toll junction. However, on the basis of the information that was presented to the City of Edinburgh Council in November 2003 for council resolution, a decision was made.

Malcolm Thomson: In the context of the appraisal that was carried out of the Crewe Road South/Craigleith Road option, were both segregated and non-segregated options considered?

Andrew Oldfield: The non-segregated option was considered first, in more detail. The segregated option was also considered, but in less detail.

Malcolm Thomson: Let us turn to the route to the rear of Wester Coates Terrace. What other options were considered there and at what level?

Andrew Oldfield: In the south-west area of the scheme, there is a fairly major natural barrier to the north-south movement that we are trying to achieve—the deep valley that contains the Water of Leith. Five potential crossings of the Water of Leith exist in that area and we looked at all of them. It is conceivable that a new crossing could be constructed if there was unlimited cash and if the impacts of such a scheme were not an issue, but the test of reasonableness came into play and a new crossing of the Water of Leith was never considered.

Malcolm Thomson: Paragraph 1.4 of the rebuttal statement from group 43 concerns the walking distance to the Western general hospital. Do you have any comments to make on that paragraph?

Andrew Oldfield: It is fair to say that on the proposed route there is a distance of three or four minutes' walk to the hospital. There is therefore concern about people with mobility impairments, so the solution that we propose is a feeder bus that would connect the tramway to the hospital campus. Barry Cross will say more about that.

Malcolm Thomson: You talk about such a provision for people with a mobility difficulty, but is the walking distance for able-bodied people reasonable?

Andrew Oldfield: Yes.

Malcolm Thomson: Is the route that is proposed by the promoter the best in all circumstances?

Andrew Oldfield: Yes—it is the professional opinion of all my team that it is the best option.

Malcolm Thomson: Briefly, why?

Andrew Oldfield: In essence, one does not seek to include large detours or dog-legs in light rail alignments, unless for very good reason. In the objectors' route, the reason appears to be to put a tram stop on the doorstep of the Western general hospital. It is self-evident that the Telford Road option—and, to a lesser extent, our proposed route—does that in perhaps half the distance of the objectors' route. That can be seen simply by looking at a map, without the need for a detailed assessment.

In broad terms, the objectors' route is more than twice as long as the promoter's, so the operating costs would increase. We are not talking about a little bit of additional power demand, but about additional trams, which would incur costs for crew, staffing and maintenance of the trams. The construction costs would also go up considerably. The traffic impacts would be more severe; I have already mentioned the impact on Crewe Toll roundabout, which Stuart Turnbull will talk more about. The construction impacts would also be greater.

All those points can be seen fairly readily by inspection. However, on analysis, we also see that the objectors' route would lead to a reduction of more than 400,000 passengers a year.

Malcolm Thomson: So in your mind there is no real issue.

Andrew Oldfield: The issue that concerns me most about the promoter's route is the environmental impact, but all aspects of that are to be mitigated.

Malcolm Thomson: Thank you.

The Convener: Ms Bourne will deal with groups 33 and 47.

Alison Bourne: I want to ask about something that Mr Oldfield just said. Mr Bain said in one of his statements that an unviable link—or a link that you deem to be unviable—should be documented in order to avoid later criticism. In section 3.14 of his rebuttal, in response to paragraphs 13, 93 and 176 of mine, he says that Craighleith Road was considered prior to option sifting. That is what you have said. Can you show us where it is stated in the north Edinburgh rapid transit study?

Andrew Oldfield: I cannot show you it in the "Feasibility Study for a North Edinburgh Rapid Transit Solution"—the NERTS study. It is practically impossible to document reasons why every unfeasible option was not assessed. Many options may be feasible or viable—to use Mr Bain's terms—but many options, although they can be engineered, would require a lot of money and would cause significant impact. Many different aspects have to be considered; it is not just a question of engineering viability.

Alison Bourne: Okay—but in this case we are talking about whether a main city hospital can have a direct tram stop. I would have thought that you would consider all the routes coming off Craighleith Road, Comely Bank, Orchard Brae and all along that stretch, and I would have expected to see those links documented somewhere.

Andrew Oldfield: As I said, all the links that would cross the Water of Leith were examined, and routes following through from those links were established. As I have suggested, you can identify by inspection that a tram stop can be located on the doorstep of the Western general hospital by use of the Telford Road option. That link is almost half the length of the objectors' proposed route and is segregated. As a result of inspection, the question would be asked why an option should be considered when there is clearly and self-evidently an alternative option that would perform better.

10:30

Alison Bourne: Many buses and people would use the Telford Road option if that were the hospital's main entrance, but the vast majority of people use the Crewe Road South entrance. NHS Lothian says that the Crewe Road South entrance is the hospital's main entrance—it is the entrance to which all the buses run, where the main density of people is and where people want the tram stop.

The Convener: Will you ask a question, Ms Bourne?

Alison Bourne: I am sorry.

Over the past couple of years, I have repeatedly raised whether the Craighleith Road alignment was missed and did so in my objection letter, and until now I have not been contradicted. Why was the issue not included in Mr Bain's July statement or your statement? Why has no other promoter's witness mentioned it over the past two years?

Andrew Oldfield: The option has been addressed. It was not previously assessed because, on inspection, it did not pass the test of reasonableness that I discussed earlier.

Alison Bourne: Paragraph 2.18 of the promoter's rebuttal statement mentions that I identified the option.

Andrew Oldfield: Consultees identified it.

Alison Bourne: So you missed the link in the first place.

Andrew Oldfield: It is not a case of missing the link.

Alison Bourne: Do you agree that the alternative alignment that groups 33 and 37 have proposed would result in no impact on the Roseburn urban wildlife corridor between Crewe Toll and Craighleith?

Andrew Oldfield: Yes, but the promoter's route would generate more patronage and, potentially, more modal shift from cars to trams, with the consequent highway benefits of freeing up highway space or enabling better use of the highway.

Alison Bourne: But the alignment that I suggest would result in no environmental impact on the Roseburn corridor.

Andrew Oldfield: That is correct.

Alison Bourne: Paragraph 3.1 of your July statement mentions what you believe are the potential benefits to residential areas in Craigleith and Roseburn. What evidence do you have that there will be potential benefits?

Andrew Oldfield: Did you say environmental benefits?

Alison Bourne: No. You mentioned benefits to residential areas.

Andrew Oldfield: As I have just said, a greater modal shift from cars would be provided, so the highway network's capacity would improve. The scheme provides for passengers who want to travel on the tram in areas in the Roseburn corridor, which would account for approximately 13 per cent of the scheme's patronage. There will certainly be benefits as a result of the provision of the scheme in that corridor.

Alison Bourne: Did you say 13 per cent of patronage?

Andrew Oldfield: Yes—approximately.

Alison Bourne: Where is your evidence for that? I have not seen it.

Andrew Oldfield: In the Scottish transport appraisal guidance document. Mr Buckman can speak about the matter later.

Alison Bourne: Right.

Transport Initiatives Edinburgh Ltd has previously admitted that the Craigleith area will probably suffer from increased on-street parking problems as a result of commuters parking in the area and then boarding the tram. Do you acknowledge that the area already suffers from commuters and staff at the Western general hospital parking in it?

Andrew Oldfield: That is not really an issue for the tram scheme. On balance, it should be possible for the tram scheme to attract people away from their cars. Evidence from other schemes indicates 20 per cent modal shifts from cars to trams. Consequently, the parking situation should improve.

Alison Bourne: Commuters from the north of the city come in along Queensferry Road.

Craigleith would be the first point at which they would hit the tramline. Is it, therefore, reasonable to assume that that could result in important traffic impacts on residential areas in Craigleith?

Andrew Oldfield: I am not sure what you are asking.

Alison Bourne: You say that people will get on the tram at Craigleith and that that stretch will account for quite a high percentage of the total patronage, even though the population density in the area around the Craigleith stop is very low. Where will the people who will get on the tram at that point come from?

Andrew Oldfield: You are getting into an area of detailed patronage modelling that Mr Buckman will address. However, it is my belief that a significant number of people will board the tram at the Craigleith stop during the morning peak to travel anticlockwise towards the city centre.

Alison Bourne: So Mr Macaulay was wrong when he said that we could expect fly parking on our streets.

Andrew Oldfield: I do not recall Mr Macaulay saying that.

Alison Bourne: He was minuted as saying that during one of your public consultation meetings at Blackhall.

Do you agree that an alignment that directly served the Western general on Crewe Road South would encourage Western general staff to leave their cars at home?

Andrew Oldfield: Yes, and I believe that the proposed route serves the Western general hospital.

Alison Bourne: In paragraph 3.4 of your witness statement, you state that the Telford Road option was recommended for consultation as it offered improved accessibility to the Western general compared with the Roseburn corridor option. I understand that you made that recommendation.

Andrew Oldfield: That is correct.

Alison Bourne: Was it accepted by TIE and the council?

Andrew Oldfield: TIE accepted that the option should be consulted on and I believe that the council was of the same mind.

Alison Bourne: The fact that the Telford Road option was put forward for consultation implies that the promoter considered that it was a viable option for forming part of the final route. Is that correct?

Andrew Oldfield: That is correct. As I have said, the engineering viability of a particular option does not necessarily mean that it is the best solution.

Alison Bourne: So the promoter was willing to consider an alignment that was longer and more expensive in order to better serve the Western general.

Andrew Oldfield: Yes.

Alison Bourne: Paragraph 3.7 of your witness statement states that the Crewe Road South option would provide improved access to the Western general hospital and other local businesses. Will you confirm that it is your opinion that running trams along Crewe Road South would provide better access to the Western than the Roseburn corridor option would provide?

Andrew Oldfield: In some ways, the Crewe Road South option would provide better access but, in other ways, it would not. It would provide better access if the length of the walk to the hospital from the nearest tram stop were the determining factor. The walk to the hospital for people who alighted at the tram stop on Crewe Road South would be shorter than the walk from the stop on the promoted route would be. However, the promoted route would provide a faster journey time, which means that people who were willing to walk the three minutes to the hospital from the relevant stop would get there faster.

Alison Bourne: It is fair to say that, from the point of view of serving the Western general, you are not quite decided which route is better. I am not talking about the operation of tramline 1; I am talking about what is best for the Western general.

Andrew Oldfield: The conclusion has been reached that the promoted route is the best option.

Alison Bourne: In your opinion, if the five STAG criteria, including accessibility—which covers social inclusion, catchment and integration—had been applied on the seven-point scoring system, would the Pennywell Road option have ranked higher than the preferred route along the south Granton access road?

Andrew Oldfield: No.

Alison Bourne: Why not?

Andrew Oldfield: I am afraid that I do not have all the details to hand.

Alison Bourne: Right. The use of the south Granton access road will not do an awful lot for social inclusion, will it?

Andrew Oldfield: My understanding is that numerous options were considered, the majority of which were £15 million to £20 million more expensive than the promoted route and would not yield a significant increase in patronage. The only justification for those routes was social inclusion, as you say. If all the other factors, including cost and loss of patronage, are taken into account, the

Pennywell Road option was not considered to be a preferred option and the promoted route was selected.

Alison Bourne: Did the Craighleith options report include a separate environmental assessment report?

Andrew Oldfield: The environmental impact of the options was considered by the member of my team who is responsible for environmental assessments. Karen Raymond will talk about that later.

Alison Bourne: Was a separate environmental assessment report produced?

Andrew Oldfield: No. It was part of the option assessment.

Alison Bourne: So you just had a quick look and moved on.

Andrew Oldfield: The examination was commensurate with the level of assessment of the option.

Alison Bourne: I have a bit of a problem with that. I remember the meeting with Councillor Burns at which the Craighleith Road alignment came up and Councillor Burns was absolutely horrified that the route had not been looked at. He instructed you quite clearly to undertake detailed modelling and assessment of it.

The Convener: I hesitate at this point, because Councillor Burns is not here and there is no rebuttal statement from him. There is nothing that introduces him other than your experience. If you could focus your questions on things that Mr Oldfield can comment on, that would be helpful to everybody.

Alison Bourne: Okay.

Mr Oldfield, in paragraph 5 of your statement, which is your conclusion, you state that under the Roseburn corridor option there would be a tram stop within 350m of the west gate of the Western general hospital and you also talk about people being able to get buses from Crewe Toll. Why is it acceptable for mobility-impaired passengers, the elderly and infirm, parents with young children or indeed the thousands of staff and visitors to the hospital to have to walk a significant distance to the hospital or suffer the inconvenience and extra time that are involved in getting on and off buses?

Andrew Oldfield: Extra time is not involved in comparison with the objectors' alternative, is it?

Alison Bourne: We will come to that later. I think that it might be.

Andrew Oldfield: On access for those with impaired mobility, the option provides level boarding from the tram to a dedicated feeder bus

that will penetrate the hospital boundary. Irrespective of how long it takes, the bus will take people closer to their destinations in the hospital. I have to say that the walk from the Crewe Road South stop to any destination within the hospital is quite a distance, so the provision of a feeder bus will be a benefit to those people. However, as I said, Mr Cross will talk about that.

Alison Bourne: Is the feeder bus a proposal or is it guaranteed?

Andrew Oldfield: That is something that Mr Cross will discuss in more detail. I am not aware—

Alison Bourne: If we take the feeder bus out of the equation and consider a tram stop or stops on the Roseburn corridor compared with a tram stop on Crewe Road South, which option is easier for people with mobility impairments, the elderly or people with young children?

Andrew Oldfield: It would be the one with less walking distance, but I do not understand why we should take the feeder bus out of the equation.

Alison Bourne: Can we take it out of the equation just now and consider the matter on the basis of the tram stops alone?

Andrew Oldfield: The easiest option would be the one with the shortest walking distance, which in the case of three out of the four main buildings at the hospital would be the Western general hospital stop on Crewe Road South. People would probably get to the neurology building faster from the Western general hospital stop on the proposed route because it is closer to Telford Road, but I would need to check.

Alison Bourne: I do not think that it is that much closer, Mr Oldfield.

As far as the bus proposals are concerned, do you agree that a journey by tram is easier, more convenient and more attractive to potential passengers than a journey by tram and bus?

Andrew Oldfield: Generally, but it is not really a case of one or the other, is it? We propose a combination.

Alison Bourne: Yes, but you say that you are not able to put a stop on Crewe Road South. A stop in that location would benefit most people who go to the Western general hospital because the most people-dense parts of the hospital face that road. You are going to put trams on the Roseburn corridor and provide buses, but would it not be more convenient to put the tram stop on Crewe Road South so that people do not have to get on and off buses and trams?

10:45

Andrew Oldfield: If we are talking about having to have direct access on the doorstep of the

Western general hospital, the solution would be the Telford Road option, which has already been considered.

Alison Bourne: Have you discussed with NHS Lothian the possibility of putting the tram through the Western general site from Crewe Road South?

Andrew Oldfield: I have not had discussions with the national health service about that, but Barry Cross might have.

Alison Bourne: In your statement, you mention the Dublin tram system. I know that we do not want to talk about other systems, but this question will be brief. Why did you not mention the fact that among the many key generators that it serves with direct stops are two main hospitals, Trinity College—with 20,000 people—and four park and rides? You talk about it using disused railway corridors, but you do not mention the key generators with direct tram stops outside.

Andrew Oldfield: The purpose of my saying that was to address whether the railway corridor could be used. The system was given purely as an example of where former railway corridors have been used. I did not describe every detail of the Dublin scheme.

Alison Bourne: You sort of implied in your statement that the use of the former railway corridor made the Dublin scheme more successful than other tram systems. Do you not think that part of the reason for its being more successful is the fact that it put direct tram stops at its key generators?

Andrew Oldfield: It is important to serve key generators and to have segregation as much as possible. We have seen other successful schemes use former railway corridors.

Alison Bourne: I refer to your rebuttal statement from August to Mr Penman, Dr Gorman, Mr Casey and Mr Nichol. In paragraph 3.3, you mention patronage forecasts and state that the Crewe Road South and Craigleith Road option has less patronage even in 2026. What are the definitive patronage figures for each of the three links?

Andrew Oldfield: Patronage is a modelling issue, which Mr Buckman will cover later. Broadly, the 2011 patronage is 9.44 million per annum for the railway corridor and 9.01 million for the Crewe Road South option. For 2026 it is 13.69 million for the railway corridor and 13.27 million for the Craigleith Road option.

Alison Bourne: Did you say 13.27 million?

Andrew Oldfield: Yes.

Alison Bourne: In paragraph 3.7 of the statement you provide a table setting out journey times from the west Granton access stop and the Ravelston Dykes stop.

Andrew Oldfield: Yes.

Alison Bourne: You have just given a single figure for time element; you have not given the breakdown of different components. Looking at the west Granton access stop and Ravelston Dykes to Crewe Road South what time element of the seven minutes 51 seconds and the nine minutes 45 seconds is junction delay, tram travel time and walking time?

Andrew Oldfield: This is on the objectors' route. Perhaps it would be useful for me to run through that route from one end to the other and explain where the different delays occur. It might be useful for you to have a map in front of you as I do that.

The Convener: We have one that we prepared earlier, Mr Oldfield.

Andrew Oldfield: Heading from south to north in the direction of Granton, we arrive at the turning into the Craighleith retail park from the promoter's route on to the objectors' route. That involves a 25m-radius curve and a speed restriction of 12kph. It also involves a three-second junction delay arising from the road crossing. The junction delays have been assessed by Stuart Turnbull, who will be able to talk about those later.

We then locate the stop in the car park area outside the Craighleith retail park. There is an option to locate it on the Roseburn corridor before we turn into the retail park. However, in either case we allow for a 25-second dwell time at that stop and allow deceleration and acceleration on either side of the stop, which slows things down because, if a tram decelerates from, say, 25mph or 30mph to zero, it takes about seven seconds to decelerate and seven seconds longer to accelerate after that. That adds another 14 or 15 seconds on top of the dwell time at the stop. Therefore, if there were a 25-second dwell time, you would add 14 or 15 seconds to take into account the deceleration and acceleration time.

Alison Bourne: Could you include that in the total tram travel time? It would make it easier to understand. How long would the tram be sitting while it took people on board?

Andrew Oldfield: It is expected that there would be a dwell time of 25 seconds.

Alison Bourne: What would the actual tram travel time be?

Andrew Oldfield: After leaving that stop, we arrive at the Craighleith junction from the retail park. At that point, there is a curve with a radius of 70m and a speed restriction of 20kph. We then get on to Craighleith Road and there is a 40kph restriction, largely arising from concerns about the number of driveways from which cars could back out into the path of—

Alison Bourne: Mr Oldfield, do you just have the travel time? I am getting rather confused with all these different speeds. I am just looking for the time that it will take to get from one stop to another.

Andrew Oldfield: I think that the total time will be 771 seconds. You then deduct 156 seconds for the four stops, with their accelerations and decelerations. You then deduct three lots of 20-second junction delays, plus the 14 seconds to accelerate and decelerate. You then deduct another 48 seconds for two junctions with a 10-second delay plus 14 seconds for acceleration and deceleration. Then you have another junction with a three-second delay, which, as I have described, will give rise to another delay of 17 seconds. In all, the delays arising from the stops and the junction delays are 448 seconds, not counting the delays arising from speed restrictions at times when the tram is operating in conjunction with traffic. I am advised by the operator that, for sections of the route, the drivers of trams would exercise more caution, partly because of major concerns about driveways opening on to the route, a large number of side roads and the fact that traffic will be slowing down, particularly on Crewe Road South as it approaches Crewe Toll—

Alison Bourne: Mr Oldfield, can I interrupt you? You say that there would be three junctions on the route. What would be the delay at those junctions?

The Convener: This is fascinating, but I would like to know what the point of this is. It would help the committee if we could arrive at the point of the journey.

Alison Bourne: The point is that the promoter has said that it will give priority to trams at junctions. However, suddenly, TIE has introduced these junction delays. I cannot understand why the tram will be able to whizz around the rest of the route but will get stuck in queues of traffic at Craighleith Road and Crewe Road South.

Andrew Oldfield: Again, that is something that Stuart Turnbull, who is concerned with traffic and junction analysis, will come on to later. However, the promoter is endeavouring to give the tram priority wherever it is practical or acceptable to do so. Clearly, at some junctions around the route it is not acceptable to give the tram absolute priority. Stuart Turnbull will talk about that, perhaps particularly in this case in the context of Crewe Toll junction.

Four different levels of priority have been afforded to junctions around the route, varying from the tram interrupting the existing cycle at a junction so that it can pass through to the tram having no priority at all at certain junctions. Something like 13 junctions around the route suffer significant delay because of the need to

maintain movement in the traffic network. It is true that the promoter is endeavouring to achieve priority for the tram at junctions, but that does not mean that the tram gets absolute priority at all junctions.

Alison Bourne: I will leave those questions for Mr Turnbull. Should I leave all my shuttle bus questions for Mr Cross?

Andrew Oldfield: I think so, yes.

Alison Bourne: Have you undertaken any surveys to establish whether people would be happy to use three modes of travel to get to the hospital?

Andrew Oldfield: It is a mode-choice question. We have examined our experience of other hospitals and identified that something like 10 per cent of the people travelling to hospital will use public transport.

Alison Bourne: Have you looked at Edinburgh and, specifically, the Western general? Have you undertaken a study to find out whether people will be prepared to take three modes of transport to get to the Western?

Andrew Oldfield: I know that they already travel by car and by bus. Clearly, tram is in many ways a more desirable form of transport, so I expect that they would be prepared to use it, but no survey has been undertaken.

Alison Bourne: Do you agree that it is more likely that people are happier to put up with a longer journey time if they do not have to change their mode of transport?

Andrew Oldfield: Again, that is a modelling and mode-choice question. When modelling this sort of arrangement, a penalty is usually applied to modal interchange to account for the need to transfer from one mode to another.

Alison Bourne: Does the modelling take account of the time that it takes a person to get to a tram stop?

Andrew Oldfield: The modelling identifies the likely number of people who will use the tram stop. Mr Buckman will talk about catchment around a tram stop.

Alison Bourne: In section 3 of your rebuttal to my statement for group 33, you state that patronage is not relevant to the alternative alignment. If people do not use the tram to get from the waterfront to Haymarket, how will they get there?

Andrew Oldfield: I think that I said that patronage is not relevant to the argument for the alternative alignment. However, patronage is clearly very important.

Alison Bourne: Yes, but if people are travelling from Haymarket to the waterfront and there is no tram, how will they get there, when there is no direct bus route and they have to change buses? That is obviously a much longer journey.

11:00

Andrew Oldfield: Yes.

Alison Bourne: So what will the tram be in competition with? It will not be in competition with a direct bus route. At the moment, someone travelling by bus from Haymarket to the waterfront would have to change buses at least once. That makes for a long journey time. The tram could therefore afford to have a slightly slower journey time because it is taking a direct route. Do you agree?

Andrew Oldfield: Not at all. The tram's journey time between the city centre and Granton—or wherever it is going—has to be attractive otherwise people will use their car, if it is quicker.

Alison Bourne: Why would that not be attractive to people who are going to the Western general hospital from Haymarket or from the waterfront? Fifteen thousand people go to the Western general hospital, or the Crewe Road South area, every day. What about their convenience and the shortest journey time for them?

Andrew Oldfield: Did you say that Crewe Road South has 15,000 people?

Alison Bourne: Yes.

Andrew Oldfield: Are they travelling to the city centre?

Alison Bourne: No. I meant that they travel to and from Crewe Road South.

Andrew Oldfield: We have a route that serves the people there. The trams cannot go everywhere; if they did, we could argue that they serve the entire population of Edinburgh, but we have to draw the line at some point.

Alison Bourne: I am not suggesting that the tram should go everywhere. We were promised a tram that would give priority and the highest level of convenience to the key traffic generators, which are the schools, hospitals, colleges and all the rest. However, on Crewe Road South, where there are many of those key traffic generators, people are going to have to walk a long distance to the tram stop. How have you reconciled that—

The Convener: Before you answer that, Mr Oldfield, let me try to be helpful. When objectors make their statements, they will have the opportunity to go into considerable detail on their arguments. The purpose of this meeting is not for

you to have a dialogue; it is for you to question the witness and elicit answers—good, bad or otherwise—and then move on. Please carry on.

Alison Bourne: If the model says that the shortest journey time results in the highest through patronage, why bother having any tram stops between Haymarket and the waterfront at all?

Andrew Oldfield: There has to be a balance. Mr Buckman will talk more about the balance between through patronage and local patronage.

Alison Bourne: Is it your position that in order for tramline 1 to bring the greatest economic benefit, it should primarily be a weekday, peak-period, commuter service?

Andrew Oldfield: No. There will be a great deal of inter-peak travel on the tram.

Alison Bourne: The promoter's aspirational objectives for the tram system state that the system option with the strongest net present value is not necessarily the most desirable and that a balanced view of other policy priorities, such as accessibility and integration, should be taken.

The Convener: Is this question about the Roseburn corridor? That is what we are talking about today, not the entire tram system.

Alison Bourne: I am talking about the social inclusion and accessibility benefits of our alternative line as opposed to the Roseburn corridor.

The Convener: You should focus on the Roseburn corridor.

Andrew Oldfield: What was the question?

Alison Bourne: Do you not think that group 33's alternative alignment addresses the issues of integration and accessibility better than the Roseburn corridor route?

Andrew Oldfield: The options have been assessed against STAG criteria, which include integration and accessibility. The promoter ought to talk about the scheme's objectives; Barry Cross could talk about those later.

Alison Bourne: There is a lot of new information in your options comparison table that I had not seen before. Why was it not included in the 2003 Craighleith options report, which was supposed to have been a full and detailed assessment?

Andrew Oldfield: Which options comparison table are you asking about?

Alison Bourne: The options comparison table in your rebuttal to my statement for group 33.

The Convener: How is this question relevant? The fact that the information is in the rebuttal is helpful, but unless the context serves a purpose—

Alison Bourne: I am curious to know why, if the promoter is interested in finding the best way to serve the hospital, it took so long to get round to considering the matter. The process has been going on for two years, but the first mention of feeder buses and all the new evidence about buses appeared only in the promoter's July statements and the rebuttal statements. Why has it taken all that time?

Andrew Oldfield: I do not think that it has taken that time. Discussions with the hospital on feeder buses took place in the middle of 2003.

Alison Bourne: In 2003?

Andrew Oldfield: That is my understanding.

Alison Bourne: The STAG report said that a need for feeder buses could not be identified at any location on tramline 1, but that report was produced later on in 2003, was it not?

The Convener: To be helpful, the committee is aware of the timing and will pay due regard to it when we consider the Roseburn corridor and its alternatives.

Alison Bourne: Okay.

Mr Oldfield, your comparison table suggests that the Craighleith Road alignment would result in 126 parking bays out of 240 being abolished. Do you have a detailed plan that shows those bays?

Andrew Oldfield: No.

Alison Bourne: You give the area of land that would be taken if trams ran, segregated, along Crewe Road South. Can you show me that on a detailed plan?

Andrew Oldfield: No. Mark Bain will deal with alignment issues on Craighleith Road and might be able to give more detail on where parking would be lost there. Broadly, the loss of land on Crewe Road South is associated with what could be a segregated option over part of the length of that road. The strip of land for the tramway would be approximately 8m wide and 1.2km long.

Alison Bourne: What would be the total area of land?

Andrew Oldfield: It would be about 9,600m². More land would be taken on Craighleith Road, where the alignment passes through planting and part of the car park at Craighleith retail park. More planting is likely to be lost along the side of Craighleith Road. As I say, Mark Bain might be able to clarify that matter a bit more. A combination of parking space and planting would be removed from the section, depending on the alignment. My understanding is that about 3,000m² would be lost, plus the 9,600m² on the east side of Crewe Road South.

Alison Bourne: On the equivalent section of the Roseburn corridor, what area of land would be affected by the tram scheme?

Andrew Oldfield: The plans have shifted slightly—about which Karen Raymond can talk in more detail—but my understanding is that an area of around 13,500m² is involved on that section.

Alison Bourne: Have you considered an alignment that takes the tramline through the Craighleith retail park parking area and therefore closer to the stores?

Andrew Oldfield: No. The idea may have been considered, but it was not developed in any detail because the preferred route is to go along the lines that we have described.

Alison Bourne: Do you agree that if the tramline went through the parking area, a stop could be put closer to the shops?

Andrew Oldfield: That would be possible, but the shopping centre would lose more of its car parking than it would lose with the proposed solution. At present, the walking distance from the tram stop at Craighleith to the retail park is approximately three minutes.

Alison Bourne: It is quite a big retail park, so the time would vary, depending on where a person was going in the retail park.

Andrew Oldfield: Across the road from where the stop is, at present, to be positioned in the railway corridor, a new element of the retail park is being developed, which is merely a road's width away from the stop.

Alison Bourne: So you have not had any discussions with Sainsbury's or the owners and managers of the retail park about where they would like the tram to run.

Andrew Oldfield: My role, and that of my team, on the project does not lie in managing consultation with stakeholders.

Alison Bourne: You refer in the options comparison table to 120 trees being lost. Can you show me that on a plan? Is there a detailed plan showing those trees?

Andrew Oldfield: No, but if you look at the site, you will see that a large number of trees would be lost on the east side of Crewe Road South.

Alison Bourne: The table also has figures for pedestrians and cyclists on the Roseburn corridor. For the Telford Road and Crewe Road South routes, you have put "Very little" and "A lot". Are those technical terms? Do you have any figures for that?

Andrew Oldfield: That is a qualitative assessment.

Alison Bourne: Have you undertaken any surveys to find out the number of pedestrians and cyclists using the Telford Road or Crewe Road South options?

Andrew Oldfield: No surveys; just observations.

Alison Bourne: For the Roseburn corridor option, you have a figure of "1000 per day". Where did that figure come from?

Andrew Oldfield: I think that was from one of the surveys that we did; however it is not inconsistent with a survey that was undertaken by the objector group.

Alison Bourne: Is Crewe Road South used by more than 1,000 cyclists and pedestrians a day?

Andrew Oldfield: The indication is that the figure is about 1,100. Sorry—where did you say?

Alison Bourne: Crewe Road South.

Andrew Oldfield: I do not know the answer for Crewe Road South. I should imagine that there is a very large number of pedestrians—a lot.

The Convener: For my own and the committee's clarity, am I right in assuming that "Very little" means fewer than 1,000 a day? Is "A lot" more than 1,000 a day? Can you give us a scale?

Andrew Oldfield: I would expect that that is right.

Alison Bourne: If a lot more than 1,000 people use Crewe Road South, would a tram stop on it not encourage them to use the tram?

Andrew Oldfield: I do not know why pedestrians use Crewe Road South. Perhaps they are going to the bus stops that currently serve the 24 buses per hour bus service.

Alison Bourne: Perhaps they are going to the various schools and to the hospital.

You mention the level of anticipated objections on the various routes. Are you suggesting that the Crewe Road South and Craighleith Road option should not be considered because it might generate objections from frontagers?

Andrew Oldfield: I think that there would be objections. Obviously, however, I do not know that for certain.

Alison Bourne: Would you expect the level of objections to be the same as or higher or lower, in comparison with the level of objections that has come with choosing the Roseburn corridor?

Andrew Oldfield: I do not know.

Alison Bourne: The comparison table states that local disruption on the Roseburn corridor

option will be “Low”, that it will be “Med/High” on the Telford Road option and that it will be “High” on the Crewe Road South and Craigleith Road option.

Andrew Oldfield: Yes.

Alison Bourne: At Princes Street, Haymarket, Picardy Place, Leith Walk, Constitution Street, Trinity Crescent, Starbank and the Roseburn corridor, the level of construction will be high. Why have you drawn that difference? If it is acceptable to have high construction disturbance on the rest of the route, why should that be any different when it comes to serving a hospital?

Andrew Oldfield: There is clearly an impact. It has been reported as an impact elsewhere, and it has been reported in the assessment as being an impact.

Alison Bourne: But that would not be different in the area that we are considering in comparison with the rest of the route.

Andrew Oldfield: In terms of route selection, we are saying that more people will be affected—whether they are affected to a greater or lesser extent is another matter. However, there will be considerable on-street disruption for those people who live on Crewe Road South in comparison with the disruption for people who live adjacent to the railway corridor.

Alison Bourne: You state later on in the rebuttal to my statement for group 33 that you heard through

“discussions with hospital officials that the main access to the site by staff is via Telford Road.”

Where did that information come from? That is certainly not what any of the group 33 NHS witnesses say.

Andrew Oldfield: It came from a telephone discussion between one of my staff and a member of the NHS. It means that the west access off Telford Road is used more by staff.

11:15

Alison Bourne: So, it is not that the majority of staff use the Telford Road entrance.

Andrew Oldfield: I think that it is more that the majority of people who use that entrance are staff, but we know that patients and patients’ visitors also use that entrance. We know that it is used by people who access the hospital.

Alison Bourne: Am I correct in saying that the majority of patients and visitors use the Crewe Road South entrance?

Andrew Oldfield: I think that that is correct.

Alison Bourne: The staff as well.

Andrew Oldfield: Yes. I cannot be definitive about that, of course.

Alison Bourne: Okay.

Looking at figure 1 in your statement, I note differences in run time and delays.

Is this area better left to Mr Turnbull?

The Convener: I suspect so. Is that the case, Mr Oldfield?

Andrew Oldfield: Junction delays are certainly better left to him, but I am happy to carry on with the description of all the delays on the run time. It involves quite a lot of detail.

Alison Bourne: It involves an awful lot of detail. If junction delays on the Crewe Road South/Craigleith Road option were reduced and the location of the tram stop moved from where you currently place it on Crewe Road South to slightly closer to the hospital’s main entrance, or even situated on the hospital site, would that not reduce journey time?

Andrew Oldfield: Yes, it would. However, I seriously doubt whether it is possible for the tram scheme to run through the hospital site, and we have not looked at that option.

Alison Bourne: Have you thought about providing a travelator from the tram stop on Crewe Road South to the entrance of the hospital?

Andrew Oldfield: That was raised by consultees. We have considered it and it is not likely to happen

Alison Bourne: Why?

Andrew Oldfield: It is not a cost-effective solution.

Alison Bourne: Have you asked NHS Lothian whether it is prepared to contribute to the cost?

Andrew Oldfield: The promoter can talk about that, but I have not gone into any of the details.

Alison Bourne: There is no technical reason why a travelator could not be provided from Crewe Road South to the main entrance of the hospital.

Andrew Oldfield: I have not considered that. At the very least, on half the journeys, people will require to cross Crewe Road South, and there could not be a travelator across the road.

Alison Bourne: No, but, likewise, pedestrians will be crossing the dual carriageway of Telford Road.

Andrew Oldfield: That is correct.

Alison Bourne: Turning to what the promoter calls the companion document to my statement for group 33, you state in paragraph 14 that

"providing access to the WGH is important from a social perspective."

However, you then say, in paragraph 95, that the level of importance is not quantifiable in engineering terms. If that is the case, how can your computer model make any allowance for serving such a key generator?

Andrew Oldfield: It is important to distinguish between two things. One is the number of people who go to the hospital—the sheer volume of the patronage—and the other is the importance of providing access to the hospital for those people. We can calculate the volume of people who will use the service to access the hospital—that is a number and we can deal with that as engineers—but we cannot judge the importance of providing that access.

Alison Bourne: Do you have a number for the people who would use that one tram stop on Crewe Road South?

Andrew Oldfield: Mr Buckman may—I am afraid that I do not.

Alison Bourne: Do you agree that, if you had included accessibility in the appraisal process for Crewe Road South, that would have provided a means of measuring social inclusion in relation to that route?

Andrew Oldfield: In the appraisal reports, we identified the issue of accessibility. We said that both the Telford Road option and the Crewe Road South option provided better accessibility to the Western general hospital in terms of reduced walking distance from the stop to the hospital.

Alison Bourne: So no account was taken of the schools and employers on Crewe Road South.

Andrew Oldfield: A patronage model has been developed for the objectors' option. The model demonstrates the number of people who would use the tram. Les Buckman will talk about that later.

Alison Bourne: I will be interested to see that model.

In response to paragraph 131 of my statement for group 47, you say that

"The experiences of Line 3 are not transferable",

because a former railway corridor was not an option. I am surprised that you have not explained at this stage why the promoter would have selected a route that is more than 1km longer if that extra distance would have resulted in lower patronage. On tramline 3, the promoter chose a link that was 1km longer than any of the other possible links, specifically because—

The Convener: Tramline 3 is nothing to do with us today. I need you to focus your comments. The

committee has received a substantial amount of written evidence. This is your opportunity to focus sharply on the areas of disagreement. If you can do that, it will be helpful to you.

Alison Bourne: Has the same modelling system been used throughout the scheme?

Andrew Oldfield: Yes. In the very early stages, we had a coarser model, but as the scheme has developed it has become more refined. We have taken a consistent approach to modelling.

Alison Bourne: In response to paragraph 236 of my statement for group 47, you say that the Craighleith stop is only a road width from the retail park. In fact, the tram stop is a considerably further distance than that from any of the shops, is it not?

Andrew Oldfield: As I said earlier, I can see clearly, as the hoardings go up, the extension of the retail park that is on the opposite side of the road from the stop.

Alison Bourne: The stop is not just a road width from the shops—it is quite a bit further away than that. The petrol station at Sainsbury's, but nothing else, is a road width from the stop.

The Convener: You have already asked that question in a slightly different way, and it is eliciting the same response. The committee has received sufficient information on route selection and appraisal for it to come to a view. We really want to focus on the impact of the Roseburn corridor route vis-à-vis that of the other proposals. If we can home in on that issue, you will do yourself more justice and capture the committee's entire attention.

Alison Bourne: Mr Oldfield, in your response to paragraph 285 of my statement for group 47, you say that you agree with my contention that

"the closer a tram stop is to high numbers of people, the more likely they are to use it."

Do you therefore agree that fewer people would use the Roseburn corridor stop to access all the key generators on Crewe Road South?

Andrew Oldfield: I would not characterise the density of the catchment area and the likely number of passengers on Crewe Road South as substantially different from that on the Roseburn corridor. It may be slightly higher. However, as Mr Buckman will explain, what we gain on Crewe Road South in local catchment is more than lost on through patronage because of the 1km detour to the east.

Alison Bourne: That is the crux of the matter. The link between Crewe Toll and Craighleith on the Roseburn corridor goes through an urban wildlife corridor. It is not a particularly densely populated area; neither is it a particularly low-car ownership

area. Nevertheless, the Crewe Road South/Craigleith Road area has all these people going through it every day. If the aim is to provide public transport for the greatest number of people, surely to goodness the Crewe Road South option would serve more people.

Andrew Oldfield: When you test both options using the same model in the same way, you get a great reduction in the number of people who will use the tram via the Crewe Road South option. In addition to serving the residential catchments of Craigleith and Drylaw, the preferred route would provide access to Craigleith retail park, the Western general hospital and BAE at the bottom of the corridor. Therefore, it is a shorter route that provides a service to all those facilities.

Alison Bourne: Has someone fed an assumption into the model that increased journey time results in decreased patronage, despite all the people who may live on a route? Has an assumption been put into the model that throws that out?

Andrew Oldfield: The way the model works is best described by a modeller, which I am not, I am afraid. However, it is clearly more attractive for people to travel to their destinations more quickly than it is for them to travel slowly.

Alison Bourne: Depending on where the destination is, of course.

Andrew Oldfield: Yes.

Alison Bourne: I assume that English tram systems use computer modelling systems to—

The Convener: Can I stop you there? You are straying into the general area of patronage, which we considered at preliminary stage; we also looked at modelling. You have broken my third rule: you have introduced another comparison from outwith the area.

Can you come to a conclusion now? You have had a reasonable opportunity, and many others—

Alison Bourne: I have one last question.

The Convener: Excellent, Ms Bourne—do ask it.

Alison Bourne: I was going to say that we are obviously not going to agree on patronage issues.

In a recent letter to *The Scotsman* about the Waverley line, Christine Grahame MSP wrote:

“Transport is not simply about burns on seats, it is about accessibility and choice. It is about inclusion. Let’s not lose sight of that in the fog of economic arguments.”

Do you disagree with that view?

Andrew Oldfield: Not at all.

Alison Bourne: I have no more questions.

The Convener: I call Kristina Woolnough for groups 34 and 45.

Kristina Woolnough: Thank you, convener. I will try to stay extremely focused. I hope that the committee will bear with me. We have had several rebuttals from several engineers, whom we see before us. It has been quite hard, as they often overlapped the areas that they were covering and we struggled to follow who was doing what.

The Convener: I understand.

Kristina Woolnough: I will try not to duplicate what Mrs Bourne has said and will focus my questions on our alternative alignment: Crewe Road South, Orchard Brae, along Queensferry Road, up into the city centre, with a small dog-leg to come out at the Haymarket. That will be the focus of the alternative that I intend to put forward. I will give the merits of our alignment and the demerits of Mr Oldfield’s alternative.

Do you accept that the Roseburn corridor alignment to Haymarket station is in fact a massive dog-leg compared with our route? The bill refers to Haymarket, not to Haymarket station.

11:30

Andrew Oldfield: First, the bill refers to Haymarket station—it is important that we serve that station. That was confirmed in several phases of development and modelling of patronage. The National Audit Office report also underlines that it is important to achieve modal interchange. A key point of the scheme is to achieve that.

Kristina Woolnough: I did not ask that question, Mr Oldfield. I asked whether the Roseburn corridor route was a massive dog-leg in comparison with our proposed route.

Andrew Oldfield: No.

Kristina Woolnough: In what way is it not? The bill mentions Haymarket, not Haymarket station. I do not dispute the importance of serving a modal/nodal transport area. We believe that our route would also serve Haymarket station. My question was whether the Roseburn corridor is a massive dog-leg in comparison with our more direct alignment.

If I may, I refer you to the link sifting tables for the Orchard Brae to Crewe Toll alignment, which include Crewe Road South and the Western general hospital. Mrs Bourne described them to some extent. I refer to page A4, on which the rankings are set out. The Roseburn corridor links, which are your preferred alignment, rank 23rd, 24th and 32nd, but the Orchard Brae to Crewe Toll alignment ranks 20th. Our proposal is ranked more highly than your proposal, which is why I suggest that your route is a massive dog-leg and that our route is more direct.

Andrew Oldfield: No. It is more direct to travel from Haymarket station along the Roseburn corridor towards Granton and—

Kristina Woolnough: Can you please give me evidence that is based on run time and on costings that would show that your proposed route is more advantageous than our route, which is shorter, more direct and would involve lower capital costs? You have submitted no evidence to suggest that your route is cheaper than our route.

Andrew Oldfield: We have to return to the transition from the link-sifting phase to the option-assessment phase. The links that you talk about were assessed at that time. We identified an option that connected the city centre via Crewe Road South but that did not serve Haymarket station.

Kristina Woolnough: It served Haymarket, though.

Andrew Oldfield: It served Haymarket.

Kristina Woolnough: The Haymarket geographic area is what is described in the bill.

The Convener: Let Mr Oldfield answer, Ms Woolnough.

Kristina Woolnough: I am sorry.

Andrew Oldfield: The conclusion that we reached was that there would be a significant drop in patronage by joining those links and missing a good close modal interchange at Haymarket. We have to be at Haymarket. The most direct link from Haymarket to Granton is via the railway corridor.

Kristina Woolnough: Are you talking about Haymarket station or the Haymarket area?

Andrew Oldfield: Haymarket station.

Kristina Woolnough: The bill is for Haymarket. Do you agree?

Andrew Oldfield: The bill is for the alignment that is shown in the drawings.

Kristina Woolnough: The bill describes Haymarket. Do you agree?

Andrew Oldfield: It might do, but it does not describe every detail of the alignment. The details are best described in the drawings.

Kristina Woolnough: I will not pursue the question further. I am sure that the committee and the rest of us can read the bill; it says "Haymarket".

Do you have the run times for our alternative alignment in comparison with your preferred alignment? Bearing in mind that our route is more direct and would use less track, I assume that it would be quicker. Do you have evidence to disprove or prove what I say?

Andrew Oldfield: I do not have the run times. As I said, the route was not appraised as an option other than through the loop option at work package 1 stage.

Kristina Woolnough: I refer to work package 1. Our proposed route is roughly similar to what was appraised as option 2, in which the Western general would be served and the route would run from Crewe Toll, along Orchard Brae and on up to the west end but not to Haymarket. Our alternative alignment goes to the Haymarket area.

The run times that you give for your option 2 are five minutes and 17 seconds and, to the most similar point that I can find on your preferred Roseburn corridor option, eight minutes and 24 seconds. You had done an element of the work as part of option 2 for run times. Why did you not submit actual run times in your rebuttal of my evidence?

Andrew Oldfield: Because I did not have them.

Kristina Woolnough: You had done almost all the work as part of your option 2 appraisal; you had done as far as Randolph Crescent. Was it beyond what we could hope for that you might make an assessment, or were you afraid that the run times would show that our journey time was much quicker than yours?

Andrew Oldfield: The compelling argument—the reason why we did not develop your option—is that that option was seen, at work package 1 stage, to perform substantially worse in terms of patronage, in particular. There are alignment issues, which Mr Bain will talk about. No doubt junction delays would be incorporated in such a run time, as well.

Kristina Woolnough: Do you agree that the run time for our proposal might well be shorter than those for your options 1 and 2 in the work package 1 report?

Andrew Oldfield: I cannot accept that. I do not know, but I think that it is unlikely.

Kristina Woolnough: Do you agree that a run time of five minutes and 17 seconds is shorter than a run time of eight minutes and 24 seconds?

Andrew Oldfield: I think that we would need to carry out a run-time assessment on a like-for-like basis. There has been considerable refinement of run-time assessments since the time of the work package 1 report. We have not undertaken such an assessment.

Kristina Woolnough: Our proposed alternative alignment was, however, there for you to rebut. Would it not have been possible for you to do that work and help us all to come to a view?

The Convener: That has been a helpful exchange, but I think the committee now has sufficient evidence. As the deputy convener has

just whispered, we have got the message and will attach whatever weight we accord to what has been said. You can move on now.

Kristina Woolnough: Please stop me earlier, if you wish. I will be delighted to stop, too—believe me. Okay, we have dealt with run times. I am so exhausted that I will have to breathe for a moment.

Let us look again at the work package 1 report. You used weightings as part of your appraisal process at that stage. In the ranking system that I have described, our preferred alignment came out 20th and the Roseburn corridor came out lower. The alignments that were ranked highest were those that most nearly described the waterfront—most nearly accessed and served the waterfront. In giving the highest ranked alignments a 1.5 weighting for technical difficulty and a 1.25 weighting for environmental factors, were you influenced by the fact that the purpose of the tram was to serve the waterfront and get people from the waterfront up to the Haymarket area? Was that utterly the purpose of the tramway from the beginning, and did that influence how you weighted and appraised options?

Andrew Oldfield: Certainly a route connecting the city centre, Haymarket and the waterfront was part of the brief. The work package 1 report sets out the process that was used to deliver that route. My colleague, Mr Buckman, will talk more about that process. That consideration was not, however, incorporated into the weightings of links; the links were assessed on individual merit.

Kristina Woolnough: How, in that case, does a link that would serve a waterfront destination get a ranking of 1 and a link that would serve the Western general hospital get a lesser ranking if the remit was not to get people quickly from the waterfront area up to the city centre?

Andrew Oldfield: During the phase of sifting links in order to deliver an option, we were not particularly conscious of what a link would be joined to. It was after that link-sifting phase, when we joined the links together and thought about where the route was going, that we came up with the options.

Kristina Woolnough: In terms of getting people from the Granton area up to the Haymarket area, has the route ever changed from your original preferred option?

Andrew Oldfield: Not substantially.

Kristina Woolnough: Has it changed at all?

Andrew Oldfield: There have been minor adjustments of alignment within the corridor, but it has remained within the same corridor.

Kristina Woolnough: Correct. So, after all the work that has been done—work package 1, the

Anderson report and the subsequent STAG appraisals—you have ended up with the same answer.

Andrew Oldfield: Yes.

Kristina Woolnough: I will move on to tram vehicle specifications. Part of your rebuttal of our alternative alignment is that it has several tight corners and so on. I understand that no tram vehicle has been chosen.

Andrew Oldfield: That is correct.

Kristina Woolnough: A generic vehicle was described.

Andrew Oldfield: We must do that at this stage.

Kristina Woolnough: I appreciate that. Can the generic speed, junction negotiation and other specifications be changed, so that junctions that you say are difficult to negotiate, or which are technically difficult, could become negotiable and usable? Could you review the generic tram vehicle specification? You have excluded several routes or said that they are difficult on the basis of a generic specification that is a fiction.

Andrew Oldfield: We must use a generic specification at this stage because the vehicle has yet to be procured. If that specification were refined, that would limit the ability to compete in the market for trams and it would limit the scope of available vehicles on the market. That would also bring in performance issues; a tighter radius might be gained, but other less desirable vehicle characteristics might be brought in, such as greater cost. The vehicle might be narrower, so it would accommodate fewer people. All such decisions are important. We do not want to narrow the envelope of vehicle specifications. In the context of what you talk about, the range of characteristics of vehicles is relatively narrow. Trams might be able to negotiate a 10 per cent or 8 per cent gradient; that envelope does not have much width. Mr Bain is best placed to answer questions about alignment and geometry.

Kristina Woolnough: You described the limits that you do not want to impose on yourself. Is it true that your generic specification limits your route selection opportunities? It certainly does in part of your rebuttal of our proposed route. You have limited your route options on the basis of a fictional specification. I respect the desirability of some aspects that you describe, but I understand that trams that can turn around bends and what not can be obtained and that trams can do anything.

Andrew Oldfield: It is certainly not the case that trams can do anything.

Kristina Woolnough: I think that one of your witnesses said that they can.

Andrew Oldfield: A tramway can be put in practically anywhere provided that cash is limitless and that people do not care too much about the impacts. That is what we are saying.

Kristina Woolnough: Do you suggest that we do not care about the cost or impacts of our proposed route? I have said that the Roseburn corridor is a massive dog-leg in comparison with our route. I asked you for costings of our route in comparison with the Roseburn corridor route. Do you have them?

Andrew Oldfield: You referred to elements of your route that we said were unfeasible on the basis of vehicle criteria. I do not know which locations those are and I expect that you may well find that, irrespective of the vehicle, they are still prohibitive.

Kristina Woolnough: We have been told that the proposals are technically feasible but less desirable. If you think that I should address the points to another witness, it would help if you could tell me whom. Would it be Mr Turnbull?

Andrew Oldfield: Mr Bain will deal with alignment issues.

Kristina Woolnough: So questions about vehicle specification are for him.

Andrew Oldfield: We may be talking about areas that have a very steep gradient. In such places, excavation into the existing roadway would be needed, which results in loss of the tie-ins to adjacent properties. Severe impacts would be associated with that.

Kristina Woolnough: I appreciate that you have said that. I was asking not about that, but about turning and tram specification. However, I have made the general point and I need not labour it.

Will you talk about cost? You kindly reminded me about the cost element. Have you calculated the capital cost of our alternative alignment as opposed to yours?

Andrew Oldfield: Not for the whole alignment. A qualitative assessment was made of the route links at the time and was incorporated into—

Kristina Woolnough: No—you have used cost and length as a justification for challenging Mrs Bourne's alignment. You did not use them to rebut our proposed alignment. I think that it would have been helpful had you done so. That takes me back to my argument that the Roseburn corridor is a massive dog-leg. Is it fair to say that it is possible that the cost of our alternative alignment, which is considerably shorter than your Roseburn corridor alignment, would be less than yours?

11:45

Andrew Oldfield: Such a calculation has not been done. I would doubt that the cost would be less. The route would be on-street; it is much more expensive to construct on-street. A calculation has not been done because, as I said, the option did not pass the work package 1 phase. We can clearly see that the interchange at Haymarket is vital, but your option would not achieve that interchange.

Kristina Woolnough: I will ask about weightings. Your colleague said that you personally devised the weightings for the sifting criteria that you used, which include technical difficulty at 1.5 and environmental factors at 1.25. Is that correct? Was it you who did that?

Andrew Oldfield: No, I did not do that. My colleague, Mr Buckman, identified the weightings.

Kristina Woolnough: Should I speak to Mr Buckman about the weightings?

Andrew Oldfield: Yes.

The Convener: Although this is all very helpful background, we already have that information. I wonder whether you could focus on the current impact.

Kristina Woolnough: The environmental impact of the Roseburn corridor was weighted at 1.25, as opposed to the technical difficulties.

The Convener: If you could pose questions, that would also be useful.

Kristina Woolnough: Okay—I had better calm down.

I refer you to your original statement. I have already asked briefly about the purpose and remit for tramline 1 and about the point at which serving the Western general was included or not. I shall leave that; I think that Mrs Bourne will handle that.

Mrs Bourne also raised the issue of evidence of local benefit. I would still like to know what the evidence of local benefit is and which documentation you could refer me to about that. I want specific evidence. I do not want talk about traffic and all the rest of it; I want a piece of paper, please.

Andrew Oldfield: I cannot give you a piece of paper at the moment.

Kristina Woolnough: The issue for us is that we are local people and we do not feel that there would be a local benefit. There is no quantification of local benefit on any piece of paper.

The Convener: Statements are for when you present evidence, not for when you question witnesses.

Kristina Woolnough: Okay.

Andrew Oldfield: The STAG report will certainly contain some of that.

Kristina Woolnough: You say in your statement that you were sifting what you describe as STAG-type criteria. I accept that there is no guidance on what criteria you should have used, but why did you not use actual STAG criteria? Would not it have been best practice to do so?

Andrew Oldfield: That is something—

The Convener: In a genuine attempt to be helpful, I must say that the committee already has sufficient evidence about the route selection and the appraisal to make an informed decision. We would find it helpful if you focused on the current impact of the Roseburn corridor as opposed to your alternative route.

Kristina Woolnough: A number of our questions about the Roseburn corridor will be directed to Karen Raymond, because it is not Andrew Oldfield's area of expertise.

The Convener: Super.

Kristina Woolnough: I just need time to sift through my papers—quickly, I hope—to make sure that I have covered everything.

The Convener: If you do not, we will.

Kristina Woolnough: Good. There is that.

Mr Oldfield, I am now looking at your rebuttal of my witness statement, on our alternative alignment.

The Convener: Before you go any further, I should say that I am being pleaded with to suspend the meeting for a short comfort break. That will allow you to focus your questioning in the next few minutes. There will now be a three-minute break. Will that do?

Kristina Woolnough: Lovely.

The Convener: Excellent.

11:49

Meeting suspended.

11:54

On resuming—

The Convener: I invite people to return to their seats. I thank you for that George Bush moment. Ms Woolnough, will you resume?

Kristina Woolnough: I did not use it; I used the break to think and focus. I will need another George Bush moment.

The Convener: Good.

Kristina Woolnough: Good about that; not so good about George Bush.

I should be very quick, as the clerks have kindly helped me along. I want to refer to a couple of points in Mr Oldfield's rebuttal of my witness statement. Mr Oldfield describes things as being "technically challenging". What does that mean?

Andrew Oldfield: To which part of the rebuttal are you referring?

Kristina Woolnough: The statement refers to "technical implementability". What does that mean? Is it an engineering term? Does reasonableness, which you described earlier, constitute part of technical implementability?

Andrew Oldfield: Technical implementability is one of the criteria in the work package 1 report to which Mr Buckman referred. Basically, technical implementability refers to the difficulty involved in designing and building the tramline. At that stage in the development of the scheme, technical implementability could refer to a wide range of things.

Kristina Woolnough: In part 3 of your rebuttal of my witness statement, you suggest that you "take safety very seriously". That is as things should be. Have risk assessments been done on the Roseburn corridor option?

Andrew Oldfield: We have done some early-stage design risk assessments and we have discussed the design with Her Majesty's railway inspectorate.

Kristina Woolnough: Have risk assessments been done on the interface in the Roseburn corridor route between the trams and pedestrians, dogs and cyclists?

Andrew Oldfield: Broadly, yes. However, we have not done the sort of risk assessments that will be available when we reach the stage of detailed design and operation. Those are still to come.

Kristina Woolnough: Do the run times for the Roseburn corridor include an assumption about segregation between the trams and pedestrians and cyclists?

Andrew Oldfield: The assumption is that the trams will travel at 70kph.

Kristina Woolnough: Is that both with and without segregation?

Andrew Oldfield: Yes.

Kristina Woolnough: So the assumption is that trams can travel at 70kph without segregation?

Andrew Oldfield: Yes.

Kristina Woolnough: On the basis of the risk assessment of the interface between trams and pedestrians and cyclists, could there be an impact on the desired speeds for fast journey times?

Andrew Oldfield: No. I may be in danger of breaking some rules here, but other schemes that have cycleways and walkways alongside the tramways have trams that operate at speeds higher than the 70kph that has been identified for the Roseburn corridor.

Kristina Woolnough: Do those operate in a similarly constrained space?

Andrew Oldfield: Yes.

Kristina Woolnough: Do those spaces have the same quantities of pedestrians, cyclists and so on?

Andrew Oldfield: I do not know the quantities of cyclists for those other schemes.

Kristina Woolnough: Do you know the quantities of pedestrians?

Andrew Oldfield: No. However, I have no reason to believe that the numbers will be any more or less than in those schemes.

Kristina Woolnough: Do you accept that the greater the number of pedestrian movements, the greater the risk of an impact on journey times?

Andrew Oldfield: I would not necessarily accept that. A risk assessment would need to be done.

Kristina Woolnough: Will you clarify whether the assumptions on journey time and speed are based on ideal scenarios?

Andrew Oldfield: No. In fact, ideally the trams would travel faster.

Kristina Woolnough: However, you have assumed no significant disruption from the interface between the tram and pedestrians and cyclists.

Andrew Oldfield: That is correct.

Kristina Woolnough: I would call that an ideal scenario, but you obviously do not.

The Convener: You must ask questions rather than make comments.

Kristina Woolnough: Sorry. I get a bit annoyed.

Let me move on to the following page—there seems to be no page number—of Mr Oldfield's rebuttal of my witness statement.

On our proposed alternative alignment, you say in your rebuttal that Haymarket station

"will not be served effectively by a stop in Shandwick Place or Palmerston Place".

What is your evidence for that statement?

12:00

Andrew Oldfield: Our evidence is that those two streets are quite some distance from

Haymarket station and that getting to the station would involve crossing at least one road—and possibly two, depending on how you do it. Those interchanges are certainly not convenient, and I suspect that many people would choose another form of transport rather than modal shift between the tram and the train.

Kristina Woolnough: Do you accept that our proposed alignment with a stop either at Shandwick Place or Palmerston Place—I accept that we did not specify which street, but then we are not experts—has a better interface with buses?

Andrew Oldfield: No.

Kristina Woolnough: Is your stop in Haymarket Yards, or is it further on up? We are unclear about that, because when we tried to check it in the plans in the library, we could not find the plan for the amended alignment.

Andrew Oldfield: The stop is off-street, adjacent to Haymarket station.

Kristina Woolnough: So it is not in the closest proximity to buses. Indeed, the stop on our proposed alignment, which is on-street, might be closer.

Andrew Oldfield: Our proposed stop will be in very close proximity to buses.

Kristina Woolnough: But perhaps not as close as our proposed stop.

Andrew Oldfield: It could be every bit as close. It could be only a platform-width away from the buses. That is all.

Kristina Woolnough: Can you describe what would be an acceptable distance from the railway station?

Andrew Oldfield: No.

Kristina Woolnough: Are you aware of the distance between your two stops in St Andrew Square and Waverley station?

Andrew Oldfield: Yes, roughly.

Kristina Woolnough: Will you share that with us?

Andrew Oldfield: The distance is probably about 700m.

Kristina Woolnough: Is that the distance from Waverley station to the stops that are expected to serve it?

Andrew Oldfield: I would need to check. I do not have the dimensions with me.

The Convener: I should point out that as the precise location of stops is not a matter for the bill, you might wish not to pursue this issue for too much longer.

Kristina Woolnough: I am attempting to demonstrate that, although Mr Oldfield has said that the stops in our proposed alignment are not close enough to Haymarket, he feels that the stops in St Andrew Square in his alignment are close enough to Waverley station.

Is the location of our proposed tram stop as close to Haymarket as the stops that you have proposed to serve Waverley are to Waverley? Indeed, are they closer?

Andrew Oldfield: I am not sure of the dimensions. The point is that at Haymarket interchange with heavy rail is achieved very well. The St Andrew Square stop is roughly halfway between the St Andrew Square bus station and Waverley station, and also provides interchange with buses and trains. However, it is recognised that Haymarket provides a better interchange.

Kristina Woolnough: According to the work package 1 report, it is desirable to serve Waverley and Haymarket stations. Have you changed your focus since then? Is Waverley less important now?

Andrew Oldfield: Both interchanges are with heavy rail, but the interchange at Haymarket is better.

Kristina Woolnough: But our proposed alignment is acceptable according to the criteria that you have used to locate the stops that serve Waverley station.

Andrew Oldfield: Your alternative alignment will not achieve the level of patronage or service that our interchange at Haymarket provides. It does not provide the same level of interchange by far.

Kristina Woolnough: Do you have any patronage figures on our proposed alignment?

Andrew Oldfield: I have no specific figures for your proposed alignment. The closest figures that we have are in the study for option 2 in the work package 1 report, which clearly shows a significant drop-off in patronage.

Kristina Woolnough: Your option 2 does not come back to the Haymarket area, unlike our proposed alignment. Do you agree that that would increase patronage?

Andrew Oldfield: You might want to direct that question to the patronage modeller, Mr Buckman.

Kristina Woolnough: That is helpful. I have no further questions.

The Convener: We now move on to Mr Vanhagen, who will question the witnesses on behalf of group 35. I should say to Mr Vanhagen and Mrs Milne that they are not at a disadvantage because they come later in the process; however, the committee will be most obliged if they do not rehearse arguments that we have already heard, unless they seek to introduce a new dimension.

Richard Vanhagen: Mr Oldfield, in your rebuttal to me you mention the large residential catchment of the Roseburn corridor. In your modelling, did you take into account the fact that you are running a tram system through a large residential catchment area? Does that have any significance at all as far as your proposal is concerned?

Andrew Oldfield: Again, that is a modelling question that Mr Buckman might answer. Residential catchments are important.

Richard Vanhagen: You obviously have an idea of the take-up by people in the corridor. In fact, you quoted a figure of 13 per cent, which we have never heard of. The tram is running through the area—it is really a fast route going from north to south. Given that there is no easy way to get to the tram stops, we do not believe that usage by Roseburn corridor residents will be high. We just do not see that.

The Convener: A question, Mr Vanhagen, rather than a comment.

Richard Vanhagen: How have you arrived at that figure?

Andrew Oldfield: I believe that the figures are taken from the details on boardings and alightings in the STAG report. The figures came out of the modelling exercise.

Richard Vanhagen: Our area is the south part of the corridor. You state:

“Haymarket is a key attractor in a passenger-focused solution”

and “a key interchange”, as you mentioned earlier. Have you commissioned a report from ScotRail on that?

Andrew Oldfield: Not from ScotRail. The assessment of the interchange at that point has been modelled in patronage terms. The model provides the necessary information to understand where people are going to and coming from and whether they are likely to use the tram, and it includes rail.

Richard Vanhagen: We see Haymarket station as a ghost station in many ways. As far as I know—unless you can prove me wrong—no trains originate or terminate there. What trains are going to take people there?

Andrew Oldfield: I may be wrong, but my understanding is that Haymarket is the third busiest station in Scotland, so a lot of people will be getting on and off trains.

Richard Vanhagen: They are commuters who presumably prefer to go to the west end rather than the east end of Princes Street.

Andrew Oldfield: There may be people going from the socially deprived areas in north

Edinburgh via Haymarket to the jobs that have emerged in west Edinburgh.

The Convener: Could you focus on the impact of the current proposal and your alternative?

Richard Vanhagen: We cannot see people going to Haymarket instead of Waverley, even from the west of Edinburgh. I know from local knowledge that most people go to Waverley to get a train. Haymarket station did not have a ticket office, so you have to—

The Convener: I apologise, Mr Vanhagen, but I will have to interrupt you again. Your comments need to be formed as a question, which needs to be brief. The committee recognises the point that you are making. You do not need to press it further.

Richard Vanhagen: Okay. There are three stops on the Roseburn corridor in addition to the stops at the beginning and the end—the extremities of the route. We are supposed to use those three in-between stops. That is simply because the tram route is so inaccessible, from the point of view of the residents. It is just where the roads cross from east to west. Those are the only places where stops can be located and—

The Convener: Mr Vanhagen, I am sorry to press you, but it needs to be a question.

Richard Vanhagen: Okay. My question on the Roseburn corridor is: where will the passengers come from?

Andrew Oldfield: They would come from the residential areas in Roseburn, Craighleith and Drylaw and from certain destinations such as St George's school, Craighleith retail park, the Western general hospital and BAE Systems at the Crewe Toll end.

Richard Vanhagen: The route does not go directly to BAE or the Western general hospital. We have a 38 bus that goes in—

The Convener: We need questions and not comments, Mr Vanhagen.

Richard Vanhagen: Okay. A lot of the questions have been asked. You say that the tram does not serve the art galleries in Belford Road, which is part of our alternative route suggestion, but Mr Buckman says that it does. I will ask him a question about that later on. This is an orbital route, is it not?

Andrew Oldfield: It is, in fact, a loop that is formed out of two radial routes. It derives a lot of its patronage from travel in the clockwise direction from Ocean Terminal through Leith Walk to the city centre in the am peak and the reverse in the pm peak and, similarly, from Granton to the city centre in the am peak and the reverse in the pm peak. That is the tidal flow on the two linked radial

routes. Again, as the question concerns patronage, Mr Buckman would address it.

Richard Vanhagen: Right. I have no further questions.

The Convener: Thank you, Mr Vanhagen. I call Mrs Milne for group 43.

Mrs Odell Milne: I am at a bit of an advantage. As you did not rebut my witness statement, Mr Oldfield, I assume that you agree with everything in it. I need only concern myself with your witness statement and anything that happened at committee today.

First, in response to Mr Thomson, you stated that you had looked—that was the word you used—at possible ways of crossing the city that would avoid an impact on Wester Coates Terrace. You agree with my witness statement in which I said that you had not given thorough consideration to any of the impacts. To what extent did you look at those possible routes?

Andrew Oldfield: In terms of my written evidence, my evidence rests on my witness statement. As I said at the outset, we investigated all the existing crossings of the Water of Leith in work package 1. The Water of Leith forms quite a deep valley that is difficult to negotiate other than by using the existing bridges. Mr Bain will talk a little bit more about those routes and the difficulties of achieving alignment along them. Basically, the majority of the links scored badly in the work package 1 exercise and were discarded as a result. For example, the A8 crossing scored 60th out of 60; Bell's Brae bridge scored 56th; and the Palmerston Place, Douglas Gardens and Belford Road crossing scored 54th. The proposed route via Coltbridge viaduct was 24th out of 60, so it scored considerably higher. The other issue is that three out of the five routes miss Haymarket.

12:15

Mrs Milne: We will not go into whether we consider—which we do—that going through Palmerston Place would get you to Haymarket; there is no point in revisiting all that.

Is it not the case that the Belford Road option was dropped at the sift stage on the basis that there were several poorly performing links? All this is in my witness statement and I did not mean to revisit it, but Mr Bain brought it all up again. The option was therefore dropped at an early stage and no thorough consideration was given to an alternative to the Wester Coates Terrace route being affected by the environmental impacts involved.

Andrew Oldfield: There is a compelling case for serving Haymarket station and there are also problems with the alignment along that route and

concerns about the construction of a tramway across Dean bridge. There are therefore several reasons why the Belford Road option was dropped.

Mrs Milne: Earlier today you said that if money was no object, you would have no problem; that everything is technically feasible.

Andrew Oldfield: Yes.

Mrs Milne: So the main reason for the alternative route being dropped was economic.

Andrew Oldfield: There are certainly economic aspects. There would be an impact if the alignment geometry gave rise to private land take or a need to change the alignment of the road in a way that damaged the tie-ins to properties. There would also be significant impacts on patronage, which Mr Buckman will talk about.

Mrs Milne: You have however provided no information about the effect of the trams on properties in that location, and you have given no patronage or run-time figures for that stretch of the route between the hotel at Craighleith and Roseburn.

Andrew Oldfield: That is correct. The proposal did not pass sifting.

Mrs Milne: So no thorough costing has been done for that stretch and no thorough consideration of it as a comparison.

Andrew Oldfield: No. It was dropped at the sifting stage.

Mrs Milne: On page 7 of your statement you say that the Roseburn corridor is £9 million cheaper, but the table on page 13 shows a figure of £7.9 million, which is the result of £15.9 million minus £8 million. Which is it?

Andrew Oldfield: It is £9 million.

Mrs Milne: Table 13 shows £15.9 million minus £8 million.

Andrew Oldfield: The table is a reproduction of the one that was in the earlier report and I think that the figure of £9 million is correct and up-to-date.

Mrs Milne: You think so?

Andrew Oldfield: I think so.

Mrs Milne: This is quite an important point because costs are very important now, especially as you have said that the only reason that we cannot use the alternative route is cost. You said that we cannot afford expensive trams that can turn corners and that it would be very expensive to amend the Dean bridge. Another aspect of cost for which I see no evidence is about the existing structures between the hotel at Craighleith and

Roseburn. Your colleague, Mr Harper, has admitted that cost allowances for the Roseburn corridor for existing structures are higher than those for Crewe Road South and Telford Road.

The Convener: Do you have a question?

Mrs Milne: It is coming.

There is nothing in Mr Harper's statement about costings for bridges between the hotel at Craighleith and Roseburn. Where are those costings? Is it not the case that they might increase the cost of the Roseburn corridor option still further?

Andrew Oldfield: I am afraid that I did not follow all that, but at no time have I said that cost was the sole criterion for assessing options.

Mrs Milne: You said to Mr Thomson earlier that, if money was no object, it would be easier to get across the Water of Leith.

Andrew Oldfield: That is correct.

Mrs Milne: My big problem is getting the line over the Water of Leith, but you have not given me costings for dealing with the bridges and existing structures—which include the viaduct and the Roseburn bridge, with listed parapets—on the section from the hotel at Craighleith to Roseburn. Those costings are not available. If they have not been done, how do we know by how much the Roseburn corridor costs will go up and whether the Belford Road option still works out as more expensive?

Andrew Oldfield: As I said, the option was dismissed at the link-sifting stage, and not solely on the basis of cost.

Mrs Milne: You have provided no other reason in any of the submissions for the dismissal of the option, except those that relate to parking spaces and traffic alignment, with which your colleague Mr Turnbull deals. You have provided no other evidence whatever about the reason for choosing an alternative link—

The Convener: Question.

Mrs Milne: What other reasons were there for rejecting the option at the sift stage?

Andrew Oldfield: As I have already mentioned, it would not provide the interchange at Haymarket, which has been demonstrated to be extremely valuable in patronage terms.

Mrs Milne: It is not worth going back over that, but it is perfectly possible to walk from Palmerston Place—

The Convener: Can we have questions, Mrs Milne, not comments?

Mrs Milne: Okay. Mr Oldfield, you state that you have concerns about the promoted route's

environmental impacts, but that you are confident that they can be mitigated. However, your colleagues have suggested that the environmental impacts on Wester Coates Terrace cannot be mitigated, particularly with regard to noise and loss of amenity and privacy. What do you have to say about that?

Andrew Oldfield: The two statements are not mutually exclusive—there can be mitigation, but residual impacts. I accept that.

Mrs Milne: Do you agree that the Belford Road option would not have those environmental impacts?

Andrew Oldfield: It would have different impacts. I was not responsible for assessing the environmental impacts of the various options—that work was undertaken by suitably qualified people in the team and fed into the process. There is a limit to how much I can tell you about the environmental impacts of that option. Perhaps my colleague Karen Raymond could say more, but, basically, the option would certainly have associated impacts.

Mrs Milne: You state that one reason for wishing to avoid the Murrayfield Road-Corstorphine-Ravelston option is low patronage arising from

“sparsely populated areas of high car ownership.”

Is that not inconsistent with your stated aim of encouraging car users to use the tram?

Andrew Oldfield: The point is that the route would derive low patronage. Again, Mr Buckman can discuss that more clearly than I can, but, as the quote that you just read out states, the area is sparsely populated.

Mrs Milne: It is exactly the same area from which the people will come who will use the Roseburn stop that will be adjacent to my house, so the patronage figures should not be very different.

Andrew Oldfield: From memory, the route that you mention would pass through golf course territory.

Mrs Milne: There is a golf course on one side, but we have a disused railway corridor on one side.

Andrew Oldfield: The railway corridor has residential catchments on both sides.

Mrs Milne: Not for its whole length.

Andrew Oldfield: No, it has a railway on one side at the top end and a playing field close to the bottom end.

Mrs Milne: It is also beside the Water of Leith and an area of allotment gardens near Roseburn.

Andrew Oldfield: Wherever we cross the Water of Leith, we will not find people living in it.

Mrs Milne: What about the allotment gardens at Roseburn?

The Convener: Mrs Milne, could we maybe focus?

Mrs Milne: Yes. Paragraph 4 of Mr Oldfield's statement states that the additional route length that would be required to serve Muirhouse would lengthen journey time and would not increase passenger numbers sufficiently for it to be worth while. Do you not agree that serving one of the most underprivileged areas of Edinburgh and enabling people there to access the city centre would justify lengthening the route, even if some wealthy car users in Granton were put off using the tram because of a longer journey time?

Andrew Oldfield: As I said at the outset, the key driver for examining that route was social inclusion, but the route has a range of disadvantages that relate to patronage, cost and operating cost. Taken together, those factors yielded the decision that the route should not pass the sifting phase.

Mrs Milne: Given that the Belford Road and Muirhouse options did not pass the sifting phase—the latter serves one of the most underprivileged areas of Edinburgh, and the former seems to be the only alternative to the considerable environmental impacts on Wester Coates Terrace—did you not consider that there was something wrong with your sifting criteria?

Andrew Oldfield: No.

Mrs Milne: Do you not consider that if the sifting criteria rejected certain routes early on, and then it was discovered that there were considerable environmental impacts—

The Convener: Mrs Milne, we have done enough on process. Having reflected on your rebuttal statement, I believe that you are raising issues that were not within it, so I will have to disallow that question. Do you have any concluding questions?

Mrs Milne: No.

The Convener: Thank you. To be helpful, I indicate to the objectors that if they comment in advance of a question or in response to an answer, none of that will be considered by the committee, because it is not said under oath; therefore, they are wasting their breath.

Phil Gallie (South of Scotland) (Con): I have a question on construction costs. Mr Oldfield, you suggest that the proposed alternative routes would cost considerably more, particularly with respect to the overlay of on-road tramlines. Is that the case?

Andrew Oldfield: Yes. On-street construction costs are considerably higher, partly because of the cost of reinstating streetscape and also because a considerable cost is associated with utilities diversion, which in most circumstances does not arise off-street.

Phil Gallie: Is there a general percentage difference?

Andrew Oldfield: I could offer an opinion, but it would be better coming from Mr Harper.

Phil Gallie: Okay, thank you.

Another element that you raised was disruption during the construction period. How much weight did you place on that in selecting the Roseburn corridor as opposed to other routes?

Andrew Oldfield: I do not think that construction disruption comes into the STAG criteria per se, so little weight was placed on it. However, I believe that it is identified as an issue in the report, although it is not in the appraisal table.

Phil Gallie: So disruption during construction, including in the Roseburn area, is not a factor in all the deliberations on tramline 1.

Andrew Oldfield: I think that it is. I think that it has been written about in the reports, but not in the STAG tables per se. It has not been quantified, if I can put it that way.

Phil Gallie: Mr Thomson referred to the importance of the retention of wildlife corridors, albeit perhaps in relation to an area other than Roseburn. How much weight do you place on the protection of wildlife corridors?

Andrew Oldfield: My opinion is that it is very important.

Phil Gallie: That is your opinion, but you are responsible for designing the route. Surely much of the design is dependent on your opinion.

Andrew Oldfield: We set out the technical case. We can identify the environmental impacts and, as we have been requested to do so, we can provide a recommendation on that basis. However, ultimately it is for the promoter to decide on the relative importance of all these things.

Phil Gallie: Finally, from visiting the route and examining the make-up of surrounding areas, I believe that there are questions about the patronage assumptions that have been made. Do you want me to take that issue up with Mr Buckman, or do you want to pick up on the point that 30 per cent more people live near to the Roseburn corridor than live near to the alternative route for the loop, and on the assumption that greater use of the tram will be made by people living near the Roseburn corridor, despite the location of the access points?

12:30

Andrew Oldfield: It would be better if Mr Buckman addressed that issue.

Helen Eadie (Dunfermline East) (Lab): In light of the objectives and sub-objectives that are outlined in the STAG documentation, can you explain why no consideration was given to modelling the alternative route that has been proposed by the objectors?

Andrew Oldfield: Sorry?

Helen Eadie: Why was no modelling report provided for the alternative route that the objectors have proposed?

Andrew Oldfield: Modelling was undertaken. The output from that modelling went into the option study reports. Mr Buckman will be able to provide further details.

Helen Eadie: The questioners today said that no modelling was made available. I do not recall having seen a modelling report for the alternative route. Is such a report available?

Andrew Oldfield: The modelling report explains how the modelling was done—

Helen Eadie: Is there a modelling report for the alternative route?

Andrew Oldfield: No, we do not have that.

Helen Eadie: Was such a report made available to TIE?

Andrew Oldfield: Basically, the approach to modelling—Mr Buckman will be able to explain this better—is outlined in the STAG documentation. However, only the output of the modelling of the options went into the report. We have no report per se on how the modelling for the options studies was done and on the assumptions that were made for those studies. However, the modelling was done on a consistent basis throughout the modelling exercise.

Helen Eadie: Let me check whether I have understood you properly. Are you saying that, after the process was agreed and taken forward, you provided the option modelling only for the promoter's proposed route and not for the alternative route that was proposed by the objectors?

Andrew Oldfield: We undertook modelling for the alternative route. The outputs from that modelling were incorporated in the options study reports. However, the explanation—which I think is what you are asking about—as to how the model works and the assumptions that were made in that modelling are not in the options study reports.

Rob Gibson (Highlands and Islands) (SNP): On the levels of uptake or patronage on the

Roseburn corridor route, what evidence is available that people who live in an area with high levels of car ownership will prefer to use a tram to access the city centre?

Andrew Oldfield: On the basis of experience elsewhere in the United Kingdom, a modal shift parameter for the attractiveness of tram travel has been incorporated into the model. Experience from elsewhere suggests that around 20 per cent of the people who currently use the car will transfer to the tram.

Rob Gibson: Are you suggesting that it is possible that people who live along the line of the proposed route could be among the people to whom that 20 per cent figure, or even a figure higher than 20 per cent, applies?

Andrew Oldfield: I am not sure whether that catchment should be characterised as having high levels of car ownership—Mr Buckman could probably advise on that—but certainly a proportion of it would be.

Phil Gallie: Convener, my question will be brief.

From the evidence today, can I take it that the original decision on the route did not take into account Haymarket station, which was added as a bit of an afterthought?

Andrew Oldfield: That is not correct. The project picked up from the NERTS study, which yielded options that all contained interchange at Haymarket.

Helen Eadie: Convener, I have another question.

The Convener: No, I am going to move on. We have spent long enough on this point. I am going to ask the final question. You do not have to answer it just now, but someone will have to come back and clarify it for the committee. Is the correct amount the £9 million that is referred to in the penultimate subparagraph of paragraph 3.4, or is it the £8 million that is referred to in the table? We need absolute clarity on that.

Andrew Oldfield: Yes.

Malcolm Thomson: Mr Oldfield, I take you back to on-street parking. With regard to the Western general hospital, you said that the incidence of on-street parking might reduce as a result of the provision of the tram as proposed by the promoter because of modal shift. Some people who drive to the hospital at the moment might be persuaded to use the tram, which would reduce the incidence of car use. On the other hand, some motorists might be attracted to park on-street in the vicinity of the Western general hospital to avail themselves of the tram link from there. That might therefore increase on-street parking.

Andrew Oldfield: There is no evidence of that in the work that has been done to date and in the

experience of other schemes. However, the promoter would address the issue, possibly through the implementation of controlled parking zones at those locations.

Malcolm Thomson: Whatever the outcome, would that factor apply to any of the proposed routes, whether it was the Roseburn corridor, Crewe Road South or Telford Road?

Andrew Oldfield: Yes.

Malcolm Thomson: You have been asked questions about the promoter's aspiration to achieve modal shift as a result of the provision of the tram, and you have mentioned a figure of 20 per cent. Would achieving such a modal shift be of benefit because it would free up road traffic space for new development?

Andrew Oldfield: The benefit would be for everyone who uses the road.

Malcolm Thomson: So either it will be easier for the existing people to use the traffic system if the saved 20 per cent is not replaced by any new traffic, or it will enable new development to create new traffic without increasing overall congestion.

On the question of the tram specification, you explained that you would not want to close off negotiation options in the procurement process by advertising in advance a precise specification because you do not know precisely what specification you will be seeking. Are there nonetheless certain rules of physics, especially when it comes to getting trams through junctions, that would apply whatever the width, height or other dimensions of the tram?

Andrew Oldfield: Yes.

Malcolm Thomson: So no matter how bendy the tram is, it still has to get through the junctions.

Andrew Oldfield: It does, and there are limits on how much a tram can bend.

Malcolm Thomson: I think that this is my final question. In answer to a question from Odell Milne, you referred to the Belford Road option. In the context of the question of crossing the Water of Leith, you referred to the Dean bridge as being a restricting factor. Did you mean the Dean bridge or did you mean the Belford bridge?

Andrew Oldfield: I meant the Belford bridge.

Malcolm Thomson: What is the problem with crossing the Belford bridge with a tram?

Andrew Oldfield: Once a tram has crossed the Belford bridge, there is a steep and tortuous alignment on the north side. Mr Bain would be better placed to respond to that.

Malcolm Thomson: Thank you.

The Convener: Okay, there being no further questions for Mr Oldfield, I thank him for his lengthy evidence today.

I intend to break for an hour just now. The committee will resume at 1.40 with Mr Buckman, who I am sure is looking forward to it already. I ask committee members to return five minutes earlier.

12:40

Meeting suspended.

13:45

On resuming—

The Convener: Thank you all for coming back. The next witness is Les Buckman, who will address option development and the selection process for the city centre to Granton section of line 1. As members will recall, at last week's meeting we agreed to accept the final version of Mr Buckman's rebuttal witness statement on route selection after the promoter realised that it had in error sent us a draft version. We also agreed that we would seek a brief explanation from Mr Buckman on why the figures in the final version changed compared with those in the draft.

I invite Mr Buckman, in response to Mr Thomson, to provide that information as part of his first oral evidence contribution today. I request that any subsequent questioning focuses on the final version of Mr Buckman's rebuttal witness statement.

Malcolm Thomson: Good afternoon, Mr Buckman. That sounds a very fair question: why are there differences between the figures in the draft and the final rebuttal statement?

Les Buckman (Steer Davies Gleave): As far as I am aware, the differences are simply between variations of the model run that was undertaken to test that particular option. Quite often, the first run of a model shows up various aspects that one wants to look at. One then changes some of the information within the model and reruns it. The final version is the most robust set of numbers that we have.

Malcolm Thomson: Can you confirm that patronage figures from the Western general hospital, the police headquarters at Fettes, Edinburgh's Telford College and generators of that nature were taken into account in the modelling?

Les Buckman: Yes, they were.

Malcolm Thomson: Could you talk us through table 4, on patronage impact figures, in your rebuttal to Alison Bourne's witness statement?

Les Buckman: Yes. Table 4 shows the change in patronage on line 1 that would result by going

via Craigleith Road and Crewe Road South rather than via the promoter's route. The table is split into two sets. The first set, which I have labelled "Boardings", is the local demand that the route picks up. In effect, for the promoter's route we are looking at the demand at the Western general stop, and on the Craigleith Road route the demand shown is the combined demand for the stop on Craigleith Road and the stop on Crewe Road South.

In broad terms, there would be an increase in the local demand that is picked up if line 1 went along Craigleith Road and up Crewe Road South of the order of 130,000 trips in 2011, increasing to 190,000 trips in 2026. However, the increase in local demand that is afforded by that route is more than offset by the reduction in through trips arising from the seven-minute increase in run times that the route engenders, which is of the order of more than half a million trips. So the net result for the line 1 demand in totality is a reduction of 400,000 trips per annum on the Craigleith Road route.

Malcolm Thomson: Is part of that accounted for by people deciding to use their cars rather than a slower tram route?

Les Buckman: In part, that will be reflected, yes.

Malcolm Thomson: When did providing an interchange facility between the tram and Haymarket station become a criterion for route selection?

Les Buckman: As far as I am concerned, such an interchange has always been an important objective. The NERTS report stated clearly that Haymarket station should be served. That was reinforced in the work package 1 report.

Malcolm Thomson: What does the modelling show about tram usage at Haymarket station?

Les Buckman: It shows that, during the peak, the stop at Haymarket will be the busiest stop on line 1.

Malcolm Thomson: Do you mean during both the am peak and the pm peak?

Les Buckman: Yes.

The Convener: Ms Bourne may cross-examine the witness on groups 33 and 47.

Alison Bourne: Has an assumption been fed into the model that the longer a tram journey takes, the less patronage the tram will attract?

Les Buckman: No.

Alison Bourne: Then why did you say that?

Les Buckman: The model works that out on its own. Given a journey for which options X, Y and Z are available, the model will consider the

respective times involved in those options and then take a view as to which bus or tram route might be used. The model takes into account the journey time of each route. Given a set of options, the model will generally discard routes involving longer journey times in favour of those with shorter journey times.

Alison Bourne: Does the model take account of the amount of time that is required for a person to get to a tram stop, or does it look solely at travel time on the given mode of transport?

Les Buckman: The model includes both the access time that is involved in reaching the tram or bus stop and the time involved in getting from the tram or bus stop at the other end of the journey. It also takes into account fare levels and any interchanges that might be involved.

Alison Bourne: I get the impression from reading the rebuttal statement that the patronage figures are based on the residential catchment within 800m of a tramline. Is that a realistic distance?

Les Buckman: The 800m catchment is a rule-of-thumb guide for the walk-in catchment of a tram stop, but interchange with bus and rail clearly has the effect of extending the catchment to wherever those other modes go. However, if someone is 400m from a tram stop but has a bus stop outside their house that offers a better alternative, the model takes that into account within the route choice set that it offers. The model does not assume that anyone within 800m of the tram will automatically use the tram.

Alison Bourne: Does the model assume patronage levels among different groups in society for specific modes of transport? For instance, can the model tell whether mobility-impaired people are more likely to use a tram that will stop at the front door of the Western or a tram that will stop on the Roseburn corridor? Does it assume that those people will just get a taxi, for example?

Les Buckman: The model takes existing public transport demand as a starting point, but it also takes into account land use changes and other socioeconomic drivers to understand how the market for public transport might change. Within the modelling process, the issue really boils down to a choice between public transport and the car.

Alison Bourne: The rebuttal statement contains an awful lot of new stuff about modelling, which I must confess I find a difficult area. The run times in your July statement differ from those that were given in Mr Oldfield's August statements. Can you confirm the run times for each of the Craighleith Road links?

Les Buckman: I do not have that information. I was not involved in working out run times.

Alison Bourne: Oh, right. The run times now include some four minutes of delay at junctions. Is that correct?

Les Buckman: As I said, I have no knowledge or understanding of how the run times are worked out. My element of the work is to take the run times that others have worked up and feed them into the model. They are then coded up within the model, so that it knows how long a tram would take to go around line 1.

Alison Bourne: Okay, so were the delays based on estimates from Mr Turnbull?

Les Buckman: If the question is about the interface with the road network, it is best addressed to Mr Turnbull.

Alison Bourne: So the delays arose not in the computer modelling but from the estimates that you received from Mr Turnbull.

Les Buckman: In part, yes. Mr Turnbull is best placed to answer that sort of question.

Alison Bourne: In paragraph 2.13 of your August rebuttal of my statement, you questioned the 400m distance that I gave, which is the distance from the Telford Road entrance to the main building entrance. You stated that that was somewhat excessive. However, in his July statement, Mr Cross stated that the distance is 385m. Given that, do you agree that 400m is about right?

Les Buckman: I am sorry; I am trying to find the text from which you were reading.

Alison Bourne: I said that the distance from Telford Road to the main building entrance was 400m. Mr Cross put the distance at 385m. You stated that you thought that my estimate was excessive. Do you agree that it is not?

Les Buckman: I am sorry; you are asking whether I think that 400m from the Crewe Road entrance—

Alison Bourne: I am asking you to accept that 400m is about right.

Les Buckman: I am getting confused—from where to where?

Alison Bourne: From the Telford Road entrance to the main building entrance. Mr Cross has said that the distance is 385m.

Les Buckman: Okay. From Telford Road to what?

Alison Bourne: To the main entrance where people go in.

Les Buckman: The distance may be of that order, but I do not know, to be honest.

Alison Bourne: Okay. So you are not the person to speak to about pedestrian access and so on.

Les Buckman: Probably not.

Alison Bourne: Would that be Mr Cross?

Les Buckman: It might be.

Alison Bourne: I am just trying to save time. You also mention a four-minute walking time.

Les Buckman: Yes, in paragraph 2.13.

Alison Bourne: Is that time based on an able-bodied person's walking speed or on that of an elderly person or someone with mobility problems?

Les Buckman: It is based on a typical person's walking speed.

Alison Bourne: So it is just an ordinary walking speed.

Les Buckman: Yes.

Alison Bourne: You confirmed to Mr Thomson that your modelling took account of the key generators.

Les Buckman: Yes.

Alison Bourne: In paragraphs 2.21 and 2.23, you state that the Telford Road option would add some three minutes to the run time. Is that correct?

Les Buckman: Yes.

Alison Bourne: Yet in your July statement you state the difference is two minutes 20 seconds. Why has that gone up?

Les Buckman: I think that it is just an updated estimate of the run time, based on more up-to-date information.

Alison Bourne: What information would have caused that?

Les Buckman: I imagine that it would have been an updated view on road traffic interface issues.

Alison Bourne: The patronage figures in table 1 in your final rebuttal statement are different from those that appeared in your draft statement. Why does the final version have higher figures for the Telford Road option?

14:00

Les Buckman: As I said earlier, the reason is simply that, when a model is run, it does not always produce the right answer the first time. Quite often, we need to go back and understand the reasoning behind the initial results, if those do not quite reflect issues such as access to the stop. We then run the model again until we reach a

point at which we are satisfied that we have a final run. The figures from the final run have been included in the final version of my statement. The draft statement contained the figures from an earlier run. The numbers for the Telford Road option are higher in the final version of my statement because I felt that the access to the stop was poorly reflected in the figures that were produced by the first run.

Alison Bourne: The modelling is very complicated.

The Convener: On that basis, let me make a helpful intervention. The committee is interested in hearing the advantages and disadvantages of the current proposed route as opposed to the alternative proposed route, but levels of detail are sometimes being elicited for purposes that are not entirely clear. If the questions could be more focused, that would assist the argument.

Alison Bourne: I am puzzled about table 4, which Mr Thomson mentioned. In the Craighleith report, patronage from the new catchment area was given as 790,000 trips per annum in 2011. Is that correct?

Les Buckman: Yes, I think so.

Alison Bourne: However, table 4 reduces that figure to 360,000.

Les Buckman: The numbers that are quoted in the Craighleith options report stem from a review of model data. Those numbers reflect the totality of demand in the area that is generated by the use of that option. Table 4 simply reflects the fact that, as not all those people will want to go where line 1 goes, a substantial proportion of that demand will be lost.

Alison Bourne: If that is true for that location, will it be true for other locations on tramline 1?

Les Buckman: No.

Alison Bourne: Why not?

Les Buckman: The issue is simply a reflection of the way in which the numbers were worked up. The numbers in the Craighleith options report are the totality of demand that will come from the demand generators along that route. However, when we go to the full modelling stage, the model takes into account where those trips are coming from and where they are going to. The model asks whether the tram will be a good option for those particular journeys. Clearly, a substantial proportion of those trips will be lost because they will not be served by line 1 to the degree that the person would use line 1. Therefore, some of that demand will be lost.

Alison Bourne: I struggle with that, given that so many people go to and from that street every day. I do not see how the numbers of such people

have decreased, so I cannot quite understand why your figures have decreased. Have you ever produced a figure for the number of people who would get on the tram at Crewe Road South every day?

Les Buckman: In effect, that figure is incorporated into table 4.

Alison Bourne: Table 4 seems to provide the combined figures for two or three tram stops. How many people would get on the tram at the hospital tram stop every day?

Les Buckman: The 0.36 million people that table 4 gives for Craighleith Road is a combination of the Craighleith Road stop and the Western general stop on Crewe Road South.

Alison Bourne: I struggle to understand why, according to table 4, the number of people boarding the tram is 0.23 million for your proposed route but only 0.13 million higher than that for Crewe Road South, which 15,000 people travel to and from every day. I just do not understand how that can be correct.

Les Buckman: As I said earlier, part of the explanation is that, although there is a lot of demand for transport to and from that area, not all that demand will be along the corridor that is to be served by line 1.

The Convener: Let me make another helpful suggestion. We already have many, if not all, of these details in written evidence. It would be helpful to use only those figures that highlight the advantages or disadvantages in support of your case.

Alison Bourne: The obvious thing to say is that a stop on Craighleith Road or Crewe Road South would attract higher numbers of people.

Paragraph 2.38 of your rebuttal statement states:

"The stops along the Roseburn corridor directly serve the housing catchment area along this corridor".

However, it is clear that people will need to walk from their houses to the tram stop. Is the term "directly" appropriate in that paragraph?

Les Buckman: Sorry?

Alison Bourne: People will need to walk from their houses to the Roseburn corridor tram stop, which could be quite a distance away. Therefore, is the term "directly" appropriate in that paragraph?

Les Buckman: It is appropriate in the sense that anyone who wants to use public transport needs to walk to it. Unless the stop is in front of the person's house as they open their door, they will need to walk some metres—whether 20m or 200m—to access it. In that sense, the word is correctly used.

Alison Bourne: In his rebuttal, Mr Bain states that, although a tram stop might be provided on Crewe Road South, such a stop could not be considered to be serving the Western directly. However, that stop would be much closer to the Western than most of the houses in Drylaw will be to the Roseburn tram stop.

Les Buckman: I am not aware of the context of Mr Bain's statement, so I cannot comment on that.

The Convener: Ms Bourne might want to put that point to Mr Bain later.

Alison Bourne: Mr Buckman, do you have a plan—again, you might be the wrong person to ask—that shows the pedestrian link from the stop at Craighleith to the Craighleith retail park?

Les Buckman: No. I do not have a plan that shows that explicitly.

Alison Bourne: Is there a plan?

Les Buckman: As far as I am aware, the bills show the land that is to be taken to provide for access.

Alison Bourne: I have looked at the STAG 2 plans, but I cannot see a pedestrian link that runs from that tram stop towards the retail park, so I wonder how people will get through. I think that that bit of land is to be given to TIE, so development will probably take place on it. How will people gain access to the Craighleith tram stop?

Les Buckman: As I understand it, the access to the stop will be from the roads on either side: Maidencraig Crescent on the west side and South Groathill Avenue on the east side.

Alison Bourne: Do you agree that a tram stop within the retail park would be more attractive to more users than one on the Roseburn corridor that is hidden behind blocks of flats?

Les Buckman: We are building the trams to serve not solely Craighleith retail park but the city of Edinburgh. The proposed location of the tram stop will better serve the residential area to the west of it. The stop will be within perfectly adequate walking distance to the shops.

Alison Bourne: I have looked at the system aspirational objectives, but I cannot find where it says that it is more important to put tram stops in residential areas. However, one of the objectives is to provide tram stops with easy direct access to key generators.

Les Buckman: We need to serve both. Clearly, most people do not live in hospital or at the office, but they need to go from their home to the office or from their home to the hospital. We need to serve both types of locations; one is not more important than the other. We need to strike a balance

between the two. The stop at Craigleith will serve both the retail park and the surrounding residential area.

Alison Bourne: Do you agree that there are more people going to the retail park every day than to the surrounding residential area, within a 400m radius? Would a stop in the retail park not attract more people than a stop on the Roseburn corridor would?

Les Buckman: I do not really see that it would. It is very much at the margins whether one would attract materially more demand were the tram stop located a few tens of metres closer to the retail park, which is all that one would achieve.

The Convener: I think, Ms Bourne, that you have made your point and can safely move on. The committee has got it.

Alison Bourne: In paragraph 2.47 of your statement, you state that the city centre and the area of Granton and Pilton are the two strongest trip attractors. The tram stop on the south Granton access is the main stop that serves the north Edinburgh social inclusion partnership area, including Pilton and east Pilton. Do you agree?

Les Buckman: Is that part of my statement, or is that what you are saying?

Alison Bourne: I think that it is part of your statement, at paragraph 2.47—no, I do not know where it has come from. I shall address that point to somebody else.

A few paragraphs in the promoter's combined rebuttal of my statement have been allocated to you. In response to paragraph 281, you discuss tram stop spacings and you state that the typical range for UK schemes is between 600m and 800m. Tramline 1 has an average of 700m, but you say that the 700m is towards the lower end of the UK range. Do you agree that 700m is not towards the lower end of the 600m to 800m range?

Les Buckman: It might be midway in the range.

Alison Bourne: We agree. Mr McIntosh has provided figures in response to paragraph 289 and he gives a figure of 761m in Edinburgh, as opposed to your 700m. Can you explain why the two figures are different?

The Convener: It would be helpful to know the purpose of that question, Ms Bourne.

Alison Bourne: I want to find out how far people have to walk to get to tram stops.

The Convener: I suggest that you put that question to Mr Buckman.

Alison Bourne: It seems that in Edinburgh there will be a greater distance between tram

stops than in any other UK system. Is that correct?

Les Buckman: No. The statement says that the average range—

Alison Bourne: I am sorry, but Mr McIntosh's statement includes a table that shows that the top distance in the UK is 760m, so we beat that by one metre. I am concerned about how people are going to access tram stops.

Les Buckman: I am not au fait with the table that my colleague put in his statement. You might be better directing those questions to him.

Alison Bourne: In response to paragraph 324, you replied that every minute counts.

Les Buckman: I imply what?

Alison Bourne: In response to paragraph 324, you state that for every extra minute some 150,000 through passengers a year would be lost. I assume that that is what your computer model reveals.

Les Buckman: Yes.

Alison Bourne: So if, for example, the route of tramline 1 were altered so that, instead of running from outside the Scottish Gas office directly up the south Granton access, it diverted to the front door of the new site for Edinburgh's Telford College, would that result in a decrease in patronage?

Les Buckman: If that extended run times, yes, it would decrease patronage for through trips.

Alison Bourne: The difference between those two stops would have been quite short. Would I be right in thinking that it would be a matter of just a few seconds?

Les Buckman: I am not entirely sure what your point is.

14:15

Alison Bourne: Scottish Gas has 1,400 people and Telford College has 21,000 people, but you are still saying that those few extra seconds that a stop at the front door of the college would involve would result in a decrease in patronage.

Les Buckman: No, I am saying that the number of people on through trips who would not have got on or off at that stop would have gone down. I am not saying that the total line 1 demand would have gone down.

Alison Bourne: I have no more questions.

Kristina Woolnough: I would like to ask for clarification. I know that I am down for group 45 and group 34. However, I was not able to ask questions of Andrew Oldfield for group 45. That is not a problem. Will I come after everybody else?

The Convener: No, you are asking questions for both, and you were doing so—

Kristina Woolnough: At the same time?

The Convener: At the same time; and you were doing so in the first session as well.

Kristina Woolnough: I did not realise that.

The Convener: You do not get two bites at the cherry.

Kristina Woolnough: I did not realise that. That is okay. It was just that the two groups are promoting different alternative alignments, so in my own brain it is fairly hard to unscramble one from the other.

The Convener: I am sure that you will cope adequately.

Kristina Woolnough: That is okay. In that case I may take a little longer, although I will try to be brief.

Mr Buckman, do you have patronage figures for group 34's alternative alignment, which is the more direct route along Crewe Road South and Orchard Brae into the city centre with a small dog-leg to the Haymarket area?

Les Buckman: No.

Kristina Woolnough: Do you have a journey time for our alternative?

Les Buckman: I do not.

Kristina Woolnough: Do you have a distance figure for our alternative?

Les Buckman: No.

Kristina Woolnough: Thank you. I would like to deal briefly with Haymarket. You spoke earlier about the demand for getting from Granton to Haymarket, specifically the station there. What is your evidence that demonstrates existing demand for public transport between Haymarket, Granton and the waterfront area via the Roseburn area?

Les Buckman: You say "via Roseburn"—

Kristina Woolnough: The Roseburn area. Your large dog-leg that goes via Roseburn along the Roseburn corridor suggests that there is patronage to be picked up. That suggests a public transport need for joining those points together. Is there such a need?

Les Buckman: Yes.

Kristina Woolnough: Where is your evidence for that existing transport need?

Les Buckman: As in right now?

Kristina Woolnough: As in right now, before developments in the waterfront and any patronage there have been factored in.

Les Buckman: I do not have any evidence right now. However, the point of line 1 is to support the economic redevelopment of Granton and Leith. The council and the promoter are pursuing a policy of land use transport integration.

Kristina Woolnough: I find that clarification extremely helpful because you suggest that that route will satisfy potential demand and need in other areas and that it will benefit them. However, we have no evidence for such a need, and you have been kind enough to agree that you have no evidence to support such a transport need.

You have provided a great deal of evidence about weightings. One of your rebuttals talks about removing the weightings on the Crewe Road South and Craigleith Road option. Have you carried out that task for our proposals for alignments? Have you removed the weightings for group 34's direct alignment? If you have, how does it compare with your preferred alignment?

Les Buckman: We removed the weightings on all 61 links. Some links moved around the rankings a bit, but, broadly speaking, the top 30 links remained more or less unchanged. We would have arrived at the identical loop options, which are what we are really talking about here, that were identified in the work package 1 report.

Kristina Woolnough: Did those links include group 34's proposed link over the Dean bridge via Drumsheugh Gardens and along into Palmerston Place?

Les Buckman: If I understand your proposed route correctly, those links were not included in the first place.

Kristina Woolnough: That is correct. Have you gone back and reviewed links that were discounted earlier, in the light of our evidence on proposed alternative alignments? As you know, we are trying to avoid the Roseburn corridor and to serve the front entrance to the Western general.

Les Buckman: No, we have not gone back, because the original set of links is the most sensible set of links to start with. As Mr Oldfield said, you cannot put in every road and every potential link and come up with a multitude of options.

Kristina Woolnough: I understand that, but only a few objectors have survived this long to put alternatives to you. It would have been helpful to us to examine closely the merits of our own case with the help of experts such as yourself. I will move on; I have made my point.

Table 1 in your witness statement has the former rail corridor appraisal summary results. The last point is about integration.

Les Buckman: Is that in my statement?

Kristina Woolnough: It is in your statement to group 34. I will quote what you say to save a bit of time. You state that for the “Land use transport integration” objective the former rail corridor is

“Closely consistent with land use and planning policy.”

It is “Closely consistent” but that is not the same as exactly complying with land use and planning policy.

Les Buckman: I suppose the point is the degree to which we satisfy land use and planning policies.

Kristina Woolnough: You either do or do not.

Les Buckman: In that case, we do.

Kristina Woolnough: So you are saying that you satisfy land use and planning policy with your proposed alignment.

Les Buckman: Yes.

Kristina Woolnough: Thank you, that is clear. That is contradicted by your other witnesses, but we will come to that shortly.

The Convener: Questions rather than statements.

Kristina Woolnough: Sorry, I was thinking aloud.

The Convener: That is not allowed either.

Kristina Woolnough: I am a woman—oh, but you are. [*Laughter.*]

Anyway—I am looking at your group 34 rebuttal. I asked your colleague why the weightings were weighted as they are and whether the waterfront developments were factored into them. You kindly said that that was the *raison d'être* for tramline 1, so I do not need to go back over that.

Figure 1 in your rebuttal, after paragraph 2.5, is a helpful and clear chart. In the centre it asks “Project Meets Objectives?” What were the objectives?

Les Buckman: The primary objective of line 1 is to improve accessibility to Granton and Leith to support their economic regeneration and redevelopment. That is to be done within the framework of the objectives of the local transport strategy.

Kristina Woolnough: Under “Alternative alignments”, in paragraph 2.9 you state that our proposed alternative alignment

“will not have competitive journey times.”

You have agreed that you have no patronage figures or run times, and you do not have a measure of the distance. What is your evidence that the route that is proposed by group 34 would not have competitive journey times?

Les Buckman: A simple inspection of the map demonstrates that the alternative route, particularly on its southern section, is not particularly direct. As I understand it, the highway alignments and topography in that area are very constraining on tram operation, therefore it is likely that run times would be on the slow side. It is simply an opinion.

Kristina Woolnough: It is a professional assessment.

Les Buckman: Yes.

Kristina Woolnough: It does not have evidence to support it.

Will you confirm that, just from looking at a map, one can see that our proposed alignment is considerably shorter than the Roseburn corridor alignment?

Les Buckman: It might be shorter, but without actually getting out my scale rule, I cannot confirm that one way or the other. From visual inspection, it appears to be shorter, but the point is that journey times drive the demand forecasting, which drives the case for the scheme. Whether or not the route is shorter is to a degree less important than the journey times that a route can achieve.

Kristina Woolnough: I respect that, but you have no evidence that journey times would be longer as a result of our alignment. Furthermore, you have not considered our route factoring in that it would avoid the Roseburn corridor and serve the Western general hospital.

Les Buckman: No. That is simply because when we appraised the options, we developed them to a degree that was commensurate with making robust decisions at that time.

Kristina Woolnough: In paragraph 2.12 of your rebuttal, you state that serving certain demand generators might make

“the whole line unviable through an overlong, windy and slow route.”

Given what you have just said, do you agree that our route is not overlong or windy and that there is no evidence that it would be slow?

Les Buckman: I would say that it is windy and that it is therefore likely to be slow. It may pick up some of the demand generators, but the people from those points are unlikely to choose the tram if it is considerably slower than the alternatives.

Kristina Woolnough: We have no evidence to support that.

In my statement, I mentioned that the Scottish Civic Trust advocated a multi-transport linkage assessment. You describe other assessments that were carried out, but was that particular type of assessment ever carried out?

Les Buckman: That exact phrase was not one that I had personally come across. I took it to mean a review of possible stop locations, taking into account the points that I listed in paragraph 2.14 of my rebuttal, which I will not go through now.

Kristina Woolnough: Have you carried out a similar exercise for our proposed alternative alignment to demonstrate whether it would be worse or better than your proposed alignment?

Les Buckman: No—we have not considered your alignment in the depth to which we have considered the one in the bill.

Kristina Woolnough: What we are getting at is that, in the light of public pressure or objectors' interests in avoiding the Roseburn corridor and serving the Western general, you have done no further work at all—

The Convener: Is there a question?

Kristina Woolnough: Have you done any further work at all on our route?

Les Buckman: We have done further work on the Craigleith Road and Crewe Road South option and on the Telford Road option.

Kristina Woolnough: So you have not done more work on any of the other objectors' alignments.

Les Buckman: No. Those alignments were dismissed at the work package 1 stage.

Kristina Woolnough: In the light of the new information that there is a public view that those other routes could be accommodated, you have done no further work on them.

The Convener: I think that we got the point some time ago.

Kristina Woolnough: Sorry.

In paragraph 2.16 of your rebuttal statement, you discuss serving Haymarket rail station or the Haymarket area generally. Will you confirm that section 3.1 of the work package 1 report begins by mentioning the Haymarket area and then goes on to discuss links with rail stations?

Les Buckman: Are you talking about section 3.1 of the work package 1 report?

Kristina Woolnough: Yes. It describes the city centre as

“ranging from east of the St. James centre to Haymarket in the West”

and points out that Haymarket is “a major employment centre.” The final paragraph of section 3.1 discusses rail network links at Waverley and Haymarket stations. Will you confirm that?

Les Buckman: I confirm that the work package 1 report says that it is desirable both to serve the Haymarket area because it is a key employment area, and to have good interchange with the rail network at Haymarket.

Kristina Woolnough: In paragraph 2.16 of your rebuttal you say that group 34's proposed alignment

“would necessitate a walk in excess of 300m across what is a very busy gyratory system.”

Have you measured that?

14:30

Les Buckman: I scaled it from an Ordnance Survey map.

Kristina Woolnough: I ask you to agree that our actual measurement of that distance is nearer 250m.

Les Buckman: I do not know where you measured the distance to, so I cannot confirm or deny that.

Kristina Woolnough: We measured to Haymarket station entrance. However, you used a map to scale measurements.

Les Buckman: Yes.

Kristina Woolnough: You go on in that paragraph to describe how our alignment with a possible Palmerston Place stop, although we were not specific about that,

“would dilute the benefit of the Shandwick Place stop”.

Given that the stop is not a matter for the bill, I presume that in principle the Shandwick Place stop could be moved and another stop could be created in Princes Street.

Les Buckman: In principle, yes, but locating a stop near the junction with Lothian Road, particularly at the eastern end of Shandwick Place, would be quite problematic.

Kristina Woolnough: But it might be possible to have a stop in Princes Street.

Les Buckman: We have already lost a stop on Princes Street because of engineering constraints and we have already covered the proposal to try to put one back.

Kristina Woolnough: So there will be only one stop in Princes Street now.

Les Buckman: That is the current proposal.

Kristina Woolnough: You said that integration with buses would also suffer comparatively. I talked with your colleague earlier about accessing bus stops. Your proposed Haymarket Yards stop is off the main road whereas a potential stop on our proposed route would be on-road where the buses go.

Les Buckman: The promoted stop at Haymarket is off, but adjacent to, the street. One will be able to step off a tram and be at the roadside.

Kristina Woolnough: Do you have evidence that integration with buses would suffer as a result of our alignment and will you share that evidence, please?

Les Buckman: The evidence is simply the fact that our proposed stop is within a short walking distance of all the key stops. If there were a stop on Palmerston Place, it would have to be away from the junction because of engineering constraints—it could not be right on top of the junction—and one would have to walk back along Palmerston Place to get on to the main road. Therefore, access to bus stops in that area would suffer.

Kristina Woolnough: You assume that the stop would be on Palmerston Place.

Les Buckman: I think that that is what I recollect from the rebuttal statement.

Kristina Woolnough: We did not specify stops because yours are only indicative.

The Convener: A question, please.

Kristina Woolnough: Sorry. The same points that I just made also apply to group 45's alignment with regard to some of your statements, if that speeds matters up.

There is talk about Haymarket station as opposed to the Haymarket area being identified prior to the route development and sifting stage in paragraph 2.17 of your group 45 rebuttal. Where is the evidence for that? We have before us the NERTS document and the work package 1 report. Did Haymarket station appear in an earlier document or are you referring to the documents that are before us now?

Les Buckman: I am sorry. Are you asking where I got Haymarket from?

Kristina Woolnough: In paragraph 2.17 you say:

"In fact, Haymarket was identified prior to the route development and sifting stage".

Les Buckman: I am sorry. In which document is the paragraph 2.17 that you are referring to?

Kristina Woolnough: I think that it is in both your rebuttals to me. No—it is in your rebuttal statement to group 45.

Les Buckman: That must be why I am getting a bit confused.

Kristina Woolnough: I know. I am trying to move rapidly through the questions. This is my last one.

Les Buckman: I am sorry—what was your question again?

Kristina Woolnough: In paragraph 2.17 of your rebuttal statement to the group 45 objectors, you say:

"Haymarket was identified prior to the route development and sifting stage".

In what documentation do you set out the evidence for identifying Haymarket?

Les Buckman: The evidence is in the two reports to which I have referred: work package 1 and NERTS.

Kristina Woolnough: So that was the first time Haymarket was identified. As we have discussed, it was identified in the work package 1 report as an area before it was identified as a rail link.

Les Buckman: I do not agree with that last point.

Kristina Woolnough: But do you agree with the sequence that I have set out? It is written in black and white.

Les Buckman: I agree with the sequence, but the work package 1 report is quite clear about the advantages of serving Haymarket station.

Kristina Woolnough: But the—

The Convener: I think that we understand the difference between the Haymarket area and Haymarket station. That was helpful.

I invite Mr Vanhagen to question the witness for group 35.

Richard Vanhagen: As I have the same rebuttal statement as Tina Woolnough, I have very few questions to ask as Tina has raised many of the points that I was going to ask about.

In paragraph 2.6 of your rebuttal statement, you say:

"There will always be many potential demand generators that it would be desirable to serve, but it has to be recognised that this is often not possible without making the whole line unviable through an overlong, windy and slow route."

Tina Woolnough has already discussed that point. However, will you confirm whether, in your opinion, your Roseburn corridor proposal strikes a more correct balance between run time and demand generators than, for instance, our alternative alignment, which would go past the Western general hospital and, for closeness to Haymarket, up into Palmerston Place?

Les Buckman: The short answer is yes; I believe that we have struck the correct balance.

Richard Vanhagen: Do you agree that, if you get the balance wrong, you will have a fast route

but you will also have fewer passengers than you envisage?

Les Buckman: Hypothetically, that might happen.

Richard Vanhagen: How do you think the people in the Roseburn corridor will feel if they find that the tram system that has been built very close to their homes is not as busy as we were led to believe it would be?

The Convener: Is that question entirely relevant, Mr Vanhagen?

Richard Vanhagen: It is, if you live close to the line.

The Convener: I am sure that it is, but I am not sure that it is relevant to the attractiveness or otherwise of the particular alignment.

Richard Vanhagen: Okay, then. I will move on.

In paragraph 2.8 of your rebuttal statement, you say:

"A stop in Palmerston Place would be a very poor substitute for serving Haymarket directly. Interchange with rail services would necessitate a walk in excess of 300m across what is a very busy gyratory system."

We have already agreed that the distance is less than that. You go on to say:

"The Proposed stop is barely 50m from the entrance to Haymarket station"—

The Convener: Question, Mr Vanhagen.

Richard Vanhagen: Do you rate the proximity of the stop for Haymarket station as being more important than the stop for the Western general hospital? Would such a stop 50m from the station be a bigger demand generator than a stop at the Western general?

Les Buckman: We feel that the promoted route will serve both objectives. It will serve Haymarket and the stop at the Western general will serve the hospital. We do not think that the two elements are mutually exclusive.

Richard Vanhagen: But that means that you believe that the half mile from the Ravelston Dykes stop to the Scottish National Gallery of Modern Art and the Dean Gallery is a suitable distance to walk. People will also have to walk large distances to get to the Western general hospital. Despite that, you maintain that you must have the distinct advantage of having the tram stop for Haymarket 50m from the station. Obviously, you feel that that stop is a more important generator of traffic than any of the generators that we have set out in our alternative route proposals.

Les Buckman: Our proposed stop for serving the Western general hospital is 200m from the

hospital grounds. There is an issue with interchange. When someone gets off a tram to go to the Western general hospital, they will be making the final part of their journey; they will have got off the tram and be walking to their destination. Typically, with interchange, there is a greater need for stops to be in much greater proximity to each other to facilitate interchange.

Richard Vanhagen: If the Haymarket junction is a very busy gyratory system, would not a stop at Palmerston Place be better placed for Haymarket? Surely it would not delay through traffic in the Haymarket junction. We are told how important time is and you have admitted that the junction is a busy one. We have proposed a stop at Palmerston Place, which would allow the tram to turn left into Shandwick Place, thereby avoiding Haymarket. That stop would be 250m from Haymarket station, which is not only a very short walk but a route that has green men at the crossings of the roads concerned. Is not the Palmerston Place stop a valid alternative?

Les Buckman: In terms of the impact on the road network, the question would be better put to my colleague Mr Turnbull, who dealt with all the traffic interface issues for the line.

Richard Vanhagen: Thank you.

The Convener: Thank you, Mr Vanhagen. I call Mrs Milne.

Mrs Milne: Do you agree that the information that you provided in your witness statement for the Wester Coates Terrace action group is almost entirely about the Telford Road and Craigleith Road option and that it has nothing to do with an alternative route for the Wester Coates Terrace section of the route?

Les Buckman: Let me just refresh my memory. I am sorry—what group is that?

The Convener: Group 43.

Les Buckman: My original witness statement looked in broader terms at the route selection process.

Mrs Milne: So you provided no patronage figures, no run times, no comparative route distances and nothing whatever for an alternative route to Wester Coates Terrace in your witness statement. Is that correct?

Les Buckman: I am a little confused as to what—

Mrs Milne: That is the area I am concerned about.

Les Buckman: I appreciate that. What is your alternative?

Mrs Milne: Belford Road.

Les Buckman: Right. So, the answer is no.

Mrs Milne: Okay. You say in your witness statement that there will be noise from construction and tram operations, particularly at night. You also said that there might be reduced traffic noise from modal shift. What modal shift will affect Wester Coates Terrace?

Les Buckman: Did I say that in my witness statement?

Mrs Milne: I think so, but I did not quote the paragraph section. Did you not mention traffic noise and modal shift?

Les Buckman: I certainly would not have mentioned traffic noise because that is not my area.

Mrs Milne: I apologise if I have got the wrong person. I must have picked the information up from somebody else; please ignore it.

In your rebuttal you state that the critical factor in choosing stop locations is where roads cross alignments. Why did you select the location on Wester Coates Terrace and not one on the south side of the A8, which would have been closer to the road?

Les Buckman: In terms of that level of detail, I understand that the issue about the stop to the south of the A8 was the severe visual intrusion to the flats adjacent to the corridor. I understand that that was the primary reason why it was not selected.

Mrs Milne: There will be severe noise impact, visual intrusion, loss of amenity and vibration impact on the houses in Wester Coates Terrace. That was a statement. I apologise.

You state that the promoter has—*[Interruption.]*

The Convener: Could you move your papers away from the microphone please, Mrs Milne; you are causing interference.

Mrs Milne: I am sorry.

You state that the promoter

“sought to retain the walkway and cycle path”

and that the cycle path and walkway will be unaffected by putting trams along the route. I am not sure whether you have walked or cycled along there, Mr Buckman. If you had done so, you would be aware that children can cycle and play safely and unconstrained along the route at the moment. Will children be able to cycle and walk freely there if a tram is travelling alongside them at 50mph?

Les Buckman: That is not my area of competency, I am afraid.

Mrs Milne: You said that the cycle path and walkway will be unaffected. So, that was incorrect then.

Les Buckman: No, the ability to use it to walk or cycle to work or to visit a friend—

Mrs Milne: Children walk and cycle along the road themselves. Their ability to enjoy the use of the road as a transport mode will be affected.

The Convener: I suggest that you might want to put questions on tram speed and safety to another witness, whom we will identify in due course.

14:45

Mrs Milne: So I should ignore your statement that use of the cycleway will be as currently exists, Mr Buckman. I have quite a lot of questions about that; we will ask someone else all those questions.

You state at paragraph 2.13 that a robust appraisal has been undertaken that considered all reasonable alternatives. If that is so, where is the evidence of consideration of the Belford Road option?

Les Buckman: In the work package 1 report, where it was ruled out at the link sifting stage.

Mrs Milne: So there was no detailed consideration of it.

Les Buckman: As I said earlier, in any development process, we appraise and develop options to a degree commensurate with making a robust decision as to what we carry forward. We simply do not appraise every alternative route that we can come up with to the same level as the promoter's route.

Mrs Milne: No, but I am asking you to consider only one alternative route to Wester Coates Terrace. You have not considered any alternative route for that stretch or, if you have, you have given no information about it.

Les Buckman: We considered the Belford Road route, which was in work package 1.

Mrs Milne: Yes, and you dropped it without full consideration. You dropped it at the sifting stage; your colleague said so.

Les Buckman: We dropped it at the link sifting stage because, given the professional judgment of all those involved, it was considered an unviable option.

Mrs Milne: At paragraph 2.23, you say that you did not have adequate information at the time that sifting was undertaken. If that is the case, how could you drop the option?

Les Buckman: We had a level of information sufficient to make a judgment at that stage. If there was any doubt as to the viability of a particular option because of lack of information, that option would have been retained.

The Convener: I say to Mrs Milne that I think we have had enough on route selection and appraisal for the committee to arrive at a conclusion.

Mrs Milne: I have no further questions.

The Convener: Thank you. Do committee members have questions on behalf of groups 12 and 36?

Phil Gallie: I have a brief question. Mr Buckman, in response to Mrs Woolnough, you suggested that the reason for not assessing in any detail the objectors' proposed route was that you were convinced that the best options were those through Roseburn. Are you saying that there is no alternative to the Roseburn route and that, if that does not go ahead, the whole of tramline 1 will be jeopardised?

Les Buckman: Of the options that were considered and developed, Roseburn is the best. If, for whatever reason, that option was discounted and it was ruled that we would not go down Roseburn, there is the potential to go back and consider some of the other options. Roseburn is the best option for line 1.

Phil Gallie: It might have helped if you had considered in detail the evidence on the objectors' proposals and had not rejected them at the sifting stage.

The Convener: You are not required to respond to that; it is something for the committee to consider.

Helen Eadie: Is it appropriate to ask about group 43 at this point?

The Convener: Yes.

Helen Eadie: We have a list in the statement provided by Odell Milne that states that there are a variety of places to which people would want to go, such as the Western general hospital, housing developments at Fettes, the north and south campuses of Edinburgh's Telford College, Fettes police station, Fettes College, Broughton High School, Flora Stevenson Primary School, the Scottish National Gallery of Modern Art and the Dean Gallery. In appraising the route options, did you take into account where people actually want to go as opposed to the most economically and technically feasible route?

Les Buckman: The patronage forecasting process knows all the trips that are being made. For example, it will include the trip of someone who wants to go from Roseburn to the Western general; it will work out the best route, with or without the tram.

Helen Eadie: Does that take account of the use of the transport system by people on low incomes or with mobility impairments, especially by public transport, as pedestrians or by bicycle? Is the idea

of making it easier to live without a car or of using the car less included?

Les Buckman: Yes.

The Convener: Thank you. Are there any other questions from committee members?

Rob Gibson: Does this include group 36?

The Convener: Yes.

Rob Gibson: I was interested in one aspect of the Crewe Road corridor. In what way will that corridor

"reduce access to businesses by car"?

Les Buckman: Where is that suggested?

Rob Gibson: The quote is—

The Convener: I think that it will be in the group 36 rebuttal statement, but we are just checking.

Les Buckman: I do not think that group 36 made any rebuttals.

The Convener: It is in their witness statement, then. One of the statements said it.

Here it is. Under the sub-heading "Economy" in "Table 1—Former Rail Corridor Appraisal Summary Results", it says:

"Route penetrates key business centres of City Centre, West End and Leith, but could reduce access to businesses by car."

I think, therefore, that you said it, Mr Buckman.

Les Buckman: That is what I was thinking.

The Convener: There you go. Rob Gibson and I are on the same wavelength.

Les Buckman: Sorry, it is in my statement.

The Convener: Yes. The same words appear in table 2 as well. It is from you, Mr Buckman.

Les Buckman: Indeed.

The Convener: Pages 5 and 6 in our documentation.

Les Buckman: So this is my statement to the Roseburn group.

The Convener: The clerk will give you a copy.

Les Buckman: Okay, fine. What was the question? *[Laughter.]*

Rob Gibson: In what way will the Crewe Road corridor

"reduce access to businesses by car"?

If you do not know just now, please get back to us in writing, if that is possible.

Les Buckman: I do not know. We can sort something out.

The Convener: Thank you. We will take that piece of information in writing. Do you have any follow-up questions, Mr Thomson?

Malcolm Thomson: One or two, if I may. You describe the modelling process, Mr Buckman. Am I right in understanding that you were trying to consider the impact of the proposed tramline 1 in 2011 and 2026?

Les Buckman: Correct.

Malcolm Thomson: At the same time, were you comparing different route options at those two dates?

Les Buckman: Yes

Malcolm Thomson: Am I also right in thinking that you did not simply assume that there would be no further development from today onwards?

Les Buckman: That is correct.

Malcolm Thomson: What assumptions did you make about development taking place in future? Did you take account of planning permissions that had been granted but not yet implemented, for example?

Les Buckman: Yes, the modelling included that.

Malcolm Thomson: Did you take account in the modelling of any further aspirational development? For example, did you have regard to the local plan and the structure plan?

Les Buckman: Yes, they were reflected in the modelling process.

Malcolm Thomson: Did you have regard to the core development areas?

Les Buckman: Yes, that was reflected in the modelling process, too.

Malcolm Thomson: In your experience, do people travelling by train sometimes have luggage?

Les Buckman: Yes.

Malcolm Thomson: Is that factor taken into account when considering the proximity of a tram stop or bus stop in relation to intermodal connection?

Les Buckman: It is a factor that would lead us to ensure that interchanges are in close proximity to one another.

Malcolm Thomson: You accepted that no modelling work had been done on the Belford Road option. Was that because it had failed to make the first sift and was regarded as an unviable option at an early stage?

Les Buckman: Yes.

The Convener: I thank Mr Buckman for his evidence and invite Barry Cross to come to the

table to address development and consultation in relation to line 1 at the Roseburn corridor. Mr Cross has provided a rebuttal statement that also addresses loss or integration of bus services. The committee agreed on 13 September that, as it had already considered and reported on that issue during the preliminary stage, it did not wish to revisit the matter at this time. I therefore advise all parties to resist revisiting the topic in their questioning, because I will stop them if they do.

Malcolm Thomson: Mr Cross, am I right in thinking that you used to be an employee of the City of Edinburgh Council but that, around March this year, you left the employment of the council and joined TIE?

Barry Cross (Transport Initiatives Edinburgh Ltd): Yes.

Malcolm Thomson: Am I also right in understanding that you are going to be giving evidence—and have already given written evidence—in both those capacities?

Barry Cross: Yes.

Malcolm Thomson: Are you happy to be cross-examined in both capacities?

Barry Cross: “Happy” is a relative term.

Malcolm Thomson: Can you give the committee an update on your continuing discussions with the Western general hospital since the date of your rebuttal statement?

Barry Cross: Discussions have continued with the representatives of the hospital and Lothian NHS Board. In order to clarify their on-going concerns and in an attempt to deal with those in the best way possible, we have, effectively, treated the representatives as if they were objectors in their own right rather than as members of an objector group. We have been trying to find ways in which their concerns can be mitigated and have been exploring what undertakings the promoter can give in order to allay their fears.

Malcolm Thomson: With both your professional hats on, are you satisfied that the tram proposal has been adequately and properly assessed and the benefits and advantages of the various options properly weighed up and assessed?

Barry Cross: Yes.

Malcolm Thomson: Are you also satisfied that the solution that is to be found in the bill is appropriate in all the circumstances?

Barry Cross: Yes.

The Convener: Ms Bourne, you may question the witness.

15:00

Alison Bourne: Mr Cross, do you agree that, when people were asked to vote on option A or option B at Craighleith during the consultation, they clearly indicated that they would like the tram to serve the Western general directly?

Barry Cross: I agree that the number of people preferring the Telford Road option, compared with the railway corridor option, resulted in a majority in favour of the Telford Road corridor.

Alison Bourne: What percentage would have had to vote for the Telford Road option for you to have been swayed by that?

The Convener: I shall allow Mr Cross to answer that question, but at our meeting on 13 September the committee decided clearly that we do not want questions on consultation, because that was dealt with at the preliminary stage, or to any great degree on local plans or structure plans. I shall allow a couple of questions by way of context, but then I shall move people on.

Barry Cross: There is no percentage that would have to have been met. The public consultation results are one of a number of factors—we have heard today about a number of the other factors, including journey times, patronage and so on. The consultation result was taken account of. At no stage was an indication given that that particular factor would be pre-eminent and would effectively hold the power of veto over all the other factors. As we have heard, it was very much a matter of balancing the results of that public consultation and all the other factors that the council, as promoter, had to take into account in coming to a decision.

Alison Bourne: Mr Oldfield said this morning that, in putting the Telford Road option forward, you were accepting that it could be worth while for the line to have a slightly longer length and a slightly slower journey time in order to serve the Western general hospital better. Do you agree with Mr Oldfield?

Barry Cross: The Telford Road option was included at the consultation stage because the council, as promoter, thought—as we heard from Andrew Oldfield, the consultancy team was of a similar view—that the Western general was of sufficient importance for the line to be carried forward beyond the point that we had reached. It was important to test the public view. You will be aware that more detailed work was undertaken in parallel with that and the outputs of all that work were considered by the council in coming to its decision.

I do not regret that view. The work was illustrative. Looking at the results of that consultation, and considering the importance of

the hospital and its place in the community, one might reasonably have expected to receive an overwhelming vote in favour of the line going there. The surprise was that many people took the view that the diversion, and the delay in running round that diversion in Telford Road, was not something to which they wanted to sign up.

Those things were taken into account in the total mix. The choice was not simply a yes-no one, with the majority in favour carrying one option or the other. There were a number of issues. I simply reiterate that the diversion was an important issue, but not one that held the power of veto.

Alison Bourne: Do you agree that the fact that 54 per cent of people voted for the line to go up Telford Road—and you said that you had expected more—indicates that people did not feel that Telford Road adequately addressed the needs of the hospital?

Barry Cross: I am not able to discern that from the results of the consultation exercise; I have no way of judging that.

Alison Bourne: I have a few questions arising from your July statement. In paragraph 6.3, you state that the location of the tram stop on Crewe Road South is

“as close to the main entrance as is practically possible”.

For what technical reasons could the tram stop not be located between the inner loop accesses, thereby reducing the walking distance to the main hospital buildings?

Barry Cross: The tram stop, according to what is very much an indicative design—quite a bit of work has gone into it, but it is still indicative at this stage—effectively copes with the constraints on location there, which include gradient, the two entrances into the hospital and an access opposite, by splitting the two platforms. If we did not do that, the location would need to be quite a long way from the hospital entrance. We have tried very hard to get the tram stop as close as we can. The consequences of that in terms of walk times are shown on the back of that paper. I am not complaining or observing that the situation is bad; I think that Mott MacDonald has done quite a good job in using innovative layout techniques to get the stop as close as possible.

Alison Bourne: So you are saying that the stop cannot be taken any closer.

Barry Cross: That is what I am saying, yes.

Alison Bourne: Have you had any discussion with NHS Lothian about the possibility of trams going directly into the Western general site from Crewe Road South?

Barry Cross: Only in the most general terms, and that was several years ago. The bulk of our

discussions have focused on how to serve the hospital with the tram largely as it is.

Alison Bourne: Can you remember when those discussions would have taken place?

Barry Cross: It was during a discussion that I had with Alan Penman, which was not even minuted; it was a discussion about the future of the Western general and the development aspirations for it. That was a significant time ago—two or three years, I think—and predated the NHS Lothian consultation on acute services. The issue took up probably no more than a couple of sentences nested within Alan Penman's view of where the Western general was going in the medium term.

Alison Bourne: Did you have any discussion about the possibility of providing a travolator from Crewe Road South?

Barry Cross: No.

Alison Bourne: I see from your statement that the promoter is considering providing new pedestrian access from the Telford Road entrance to the Roseburn corridor stop.

Barry Cross: Which paragraph is that?

Alison Bourne: The Roseburn corridor tram stop—

Barry Cross: Sorry—I was asking which paragraph you are on.

Alison Bourne: Sorry. I am on paragraph 5.2. The issue arises from the paragraph on walking distances, I think.

Barry Cross: That paragraph is based on the situation as you find it at the moment.

Alison Bourne: My question was about the new pedestrian access that you are talking about putting in at that location. I take it that the cost of that would be covered by the tram scheme, not by NHS Lothian.

Barry Cross: The paper before you and its figures are based on the situation as we find it at the moment. With NHS Lothian, we have embarked on discussions about delivering additional benefits, which relate to a new pedestrian gate and access, bus access around the site and so on. Our current position is that we appear to have an agreement in principle with NHS Lothian that there would be some merit in those changes; we appear to have an understanding that it is worth taking those options forward. Exactly where that access might be, how that relates to that corner of the site and the funding items are things that we have not yet had agreement on or discussed in detail.

Alison Bourne: Has NHS Lothian told you whether it prefers pedestrian access and shuttle buses or a tram stop on Crewe Road South?

Barry Cross: A wee while ago, we wrote to NHS Lothian setting out the situation as we found it. You must remember that NHS Lothian, in relation to the Western, is not an objector to tramline 1. We have met and written to the health board to allay its outstanding concerns about residual bus services and linkages from the site to the tram.

The Convener: Mr Cross, the committee would very much appreciate verity in answers.

Barry Cross: I apologise.

Alison Bourne: Who will pay for the pedestrian access? Has city development approved the extra expense of providing it?

Barry Cross: I have nothing more to add to what I have already said.

Alison Bourne: I was asking about city development. Have you discussed the pedestrian access with—

Barry Cross: Given that we do not have an agreement with NHS Lothian, it is not yet a matter for city development.

Alison Bourne: So, at the moment, the pedestrian access is only a proposal. You have not guaranteed to provide it.

Barry Cross: That is what the statement says.

Alison Bourne: In the same statement, you appear to suggest that it is somehow acceptable for people to walk for an extra five minutes from the Roseburn corridor stop to the Western general hospital in all weathers, both in daylight and at night. Why is that acceptable? Why do you therefore consider it unacceptable for people who are travelling to and from the waterfront to sit in comfort on the tram for the same length of time if the route runs along Crewe Road South?

Barry Cross: I am not sure how you have translated what is in the witness statement into what you have just asked me. People would access the Western general hospital first and foremost via the Crewe Toll stop and the linked feeder bus. For people who choose to walk from the tram instead of catching the feeder bus—we suspect that they will probably be staff—the walking distance that we are talking about seems to be entirely appropriate. Indeed, that walking distance also fits in with national planning policy guidelines. I see no conflict between allowing those who are able to walk 200m from the tram stop into the hospital if the weather is fine and providing the feeder bus from the Crewe Toll tram stop into the site.

Alison Bourne: What about the isolation of the Drylaw tram stop? The Royal College of Nursing has said that its members are not very happy about using a stop that is so isolated from the main road network. Will people, including staff, not be less inclined to use a tram stop on the Roseburn corridor than one on Crewe Road South?

Barry Cross: That is precisely why the feeder bus and its interchange would form the pre-eminent mode of travel during the night, in the rain or for people concerned about security. For those who are less worried, the walk will be entirely appropriate. After all, the stop will be lit and covered by closed-circuit television. In any case, there is a choice.

Alison Bourne: The new proposals about shuttle buses have not yet been ruled out, have they?

The Convener: I was about to ask a helpful question in that respect, but on you go.

Alison Bourne: Do you not agree that, if there is a need to provide a shuttle bus to the Western general hospital, it is clear that the tram does not serve the hospital?

Barry Cross: I do not agree with that at all. The use of feeder buses is simply a reflection of the fact that, in a hospital, we might reasonably expect the category of user to include a higher than normal percentage of people with mobility difficulties, elderly visiting friends and so on. As a result, the feeder bus provides a useful link from the tram to the hospital.

15:15

Alison Bourne: Do you have any details about what sort of buses they will be?

Barry Cross: Low floor, probably single deck.

Alison Bourne: What capacity will they have?

Barry Cross: They will be the type of bus that one sees around Edinburgh at the moment—not the ones in use on the 22 service, which are rather larger, but the standard single-deck Lothian bus.

Alison Bourne: Do you think that a single-deck Lothian bus could get round the hospital site?

Barry Cross: If you read the witness statement, you will find a commitment to access that is better than most buses at the moment: access will be down Crewe Road South and round the hospital access loop to get passengers to the stop close to the front entrance of the Anne Ferguson Building. There have been discussions with NHS Lothian over rejigging the site to facilitate the feeder bus penetrating the site to provide additional stops, but those discussions have yet to be bottomed out. However, that is not part of the commitment.

Alison Bourne: I am sorry, would you repeat that? You are saying that the shuttle bus is not part of this commitment.

Barry Cross: No. If you look at the text at paragraph 7.0 of the statement and at diagram 3, which is probably the easiest to follow, you will see that the feeder link will go from the interchange with the tramway at Crewe Toll along Ferry Road to Crewe Toll, down Crewe Road South and round the existing access loop at the Western general.

Alison Bourne: There seems to be some confusion about what a feeder bus is and what a shuttle bus is. The single deckers that you are talking about would be numbered Lothian buses, as opposed to buses that go into the hospital site.

Barry Cross: I am not sure that that would be important for the user. The important thing is that when the users get off a tram there is an integrated ticket-operable bus waiting for them and that there is a linked timetable to give the same frequency on the feeder as there is on the tram. People will get off the tram and on to the feeder bus and into the hospital.

Alison Bourne: And that will be done with the numbered buses that currently operate.

Barry Cross: I am not sure whether they will be numbered or not; that is a detail that will hardly be important for the users.

Alison Bourne: How will you be able to guarantee that a person leaving the Western general will have a bus waiting for them and that they will not have to stand at the bus stop for five or 10 minutes to get on the bus to go through what Mr Buckman thinks will be all these junction delays at Crewe Toll to get on to Ferry Road and then hike up the ramp to the tram stop? How can you guarantee that a bus will be there and waiting?

Barry Cross: The frequency of the bus will be exactly the same as that of the tram. Therefore the probability of arriving at the bus stop and catching a bus straight away will be exactly the same as the probability of walking to the tram stop and having to wait, or otherwise, for a tram.

Alison Bourne: So, in peak periods, there will be two buses leaving the hospital within a seven-and-a-half-minute period in order to meet trams.

Barry Cross: We have a long way to go on the timetable. The commitment from Lothian Buses is precisely what I have set out, no more and no less.

Alison Bourne: Is that commitment for the foreseeable future?

Barry Cross: Yes.

Alison Bourne: What is the foreseeable future?

Barry Cross: Bill Campbell, who is the operations director at Lothian Buses, says:

"I can confirm Lothian Buses' commitment to provide feeder buses linking Crewe Toll Interchange and the Western General Hospital at a frequency matching that of the tram service."

In his letter, he goes on to say, quite reasonably, and this deals with a point that you raised earlier, that

"detailed matters such as road infrastructure modifications"

will require further discussions to be held on such details as the

"precise form of the feeder"—

that is whether it has a low floor and how big it will be—over the period between now and the tram operating.

Alison Bourne: Between now and the tram operating?

Barry Cross: Yes. We do not need to operate it until the tram starts operating.

Alison Bourne: Absolutely. What about after 2009 when the trams are running? For how long will the frequency be guaranteed?

Barry Cross: We need to have discussions to ensure that that guarantee has longevity.

Alison Bourne: It seems to me that it would be an awful lot simpler just to put a tram stop on Crewe Road South, which would take one directly to Crewe Toll.

Barry Cross: Yes, but unfortunately we need a tramline to go with a tram stop and we have heard a lot of evidence to suggest that we simply cannot recommend the diversion of the tramline around the large dog-leg along Craigleith Road and Crewe Road South because of its impact on patronage, costs and, ultimately, the viability of the project as a whole.

Alison Bourne: You are the man to whom I should speak about what I would call the shuttle bus service, which to me is different from the feeder bus service. From the statements that I have been given, I got the impression that you are planning to run small shuttle buses that would stop at various locations on the Western general site. Is that right or are you just talking about the numbered services on Crewe Road South?

Barry Cross: I do not know whether they are numbered. The feeder bus, which is illustrated in my witness statement and which is backed by a Lothian Buses commitment, is the bus service with which we are proposing to link the tram to the hospital.

Alison Bourne: There are no smaller shuttle buses.

Barry Cross: The current commitment is that if between now and tram operating we can make that service even better for the Western general hospital—it is significantly better than what we have at the moment—that is what we will do. That requires a significant movement in terms of NHS Lothian rejigging the site and modifying parking, probably with internal road reconstruction. If we can do that, it will give us something that is better not just than what I have put down on paper but than what people are offered at the moment when they are travelling to the Western general. At the moment, a few of the buses go up into the bus loop. Those who are on the more frequent services, such as the 37, do not get that; their stop is out on the main road.

The Convener: I think that we have had sufficient evidence on the difference between feeder and shuttle buses; by the sound of things there is no difference at all. Would you like to move on?

Alison Bourne: Will the shuttle bus be free of charge to users?

The Convener: Technically, that is not relevant, but Mr Cross can respond if he wants to.

Barry Cross: There will be an integrated ticket. If someone gets off the tram, they will not be asked for any more money on the bus. If, however, someone chooses to get on, having walked to Crewe Toll interchange, it seems only fair that they should pay for the journey.

The Convener: Do not look at me and giggle, Ms Bourne, because that will make me say instantly that you cannot ask your question.

Alison Bourne: I have a question about diagram 2 and whether the new interchange is within the limits of deviation or whether some land from the south needs to be taken. I do not know whether I am allowed to ask that.

The Convener: Go for your question, but we do not need the minutiae, just the key point.

Alison Bourne: This is not clear from diagram 2. Is the new interchange within the current limits of deviation or do you need to take land from the south?

Barry Cross: The road works are within the existing highway boundary and within the powers of the local roads authority to construct.

Alison Bourne: I have another statement from you that there will be general bus cuts in parallel with tramline 1.

The Convener: I ruled out any discussion of loss or integration of bus services because we explored all that at the preliminary stage.

Alison Bourne: Mr Cross, you made a few comments in your rebuttal statement. In paragraphs 69 and 71, you refer to a document that I submitted in which TIE recommended option B. You said that the document was taken out of context and related to pre-public consultation. In the document, TIE seemed to recommend the Telford Road alignment. I found the covering letter, dated 10 December 2003, which described the document as an "internal document". It was written well after the public consultation.

Barry Cross: I did not have the benefit of seeing that additional letter. Our communications consultant has spent many hours trying to track down that particular document. The covering letter might have been useful.

One of the slight downsides of freedom of information is that one does not get the context. It is my understanding that the document that you have is a draft that was produced by the communications team, although we have no absolute way of verifying that. As so often happens, the team produced a paper for each eventuality. The report that I have from Weber Shandwick indicates that the document is most probably a draft and that it is most probably one of a pair of documents that were prepared in advance of their being needed. Apart from that—

The Convener: What is the relevance of this, Ms Bourne?

Alison Bourne: I would like to find out why TIE would have produced such a document.

Barry Cross: Perhaps I can clarify that it was not actually produced by TIE; it was produced by our consultants at Weber Shandwick. They tell us that they think that the document was a draft and was produced as one of a pair to cover each eventuality—a yes and a no, in effect, or an A and a B.

Alison Bourne: I still do not follow why they would produce the document on 10 December 2003, but there we are.

Barry Cross: I cannot understand why they produced it at all, given the brief.

The Convener: This is not a discussion; it is questions and answers.

Alison Bourne: Mr Howell works for TIE, does he not?

Barry Cross: He is the chief executive of TIE.

Alison Bourne: Mr Howell stated at a public meeting that trams should run down main roads so that they served more people adequately. Do you disagree with your chief executive?

The Convener: Before Mr Cross answers, I inform Ms Bourne that what she says is not in any

of the rebuttal statements and is not appropriate. In the same way that I ruled out comments by Councillor Burns, I rule out those comments now and the witness is not required to respond.

Alison Bourne: My questions are finished.

The Convener: Thank you. Before I bring in Ms Woolnough, I ask for the purpose of clarity—although this might dispense with some of the questions to come—whether the promoter is giving an undertaking that it will provide a feeder bus service from Crewe Toll into the Western general hospital.

Barry Cross: Definitely. Lothian Buses would be the agent through which that would occur, but the commitment comes from the promoter.

15:30

Kristina Woolnough: I refer to your witness statement. There is no rebuttal from you, apart from something on buses. I am keen to explore the tensions between the choices that are made between the Western general, the Roseburn corridor and the needs of waterfront developments. Other witnesses talked about balance, and I would be grateful for the benefit of your expertise on a number of questions relating to that. Paragraph 3.5 in your witness statement mentions the consultancy team and a number of specialist sub-consultants. Could you tell me whether there were environmental sub-consultants in the team at that time?

Barry Cross: I am almost certain that there were but, if you ask a supplementary question about who they were, I will have to say that I cannot remember. I am pretty certain that there was an environmental consultancy and a communications consultancy, but I do not want to mention a name if—

Kristina Woolnough: I rather helpfully put my cross-examination questions in my rebuttal to your statement, and I did indeed ask you whether environmental consultants were involved and what were the degree and status of their involvement. Bearing in mind that you have had six weeks to look at my rebuttal of your statement, do you have that information today?

No, you do not have any answer.

Barry Cross: I do not have any answer to the second question.

Kristina Woolnough: So you do not know whether environmental consultants were involved or who they were.

Barry Cross: I am pretty certain that they were involved, but I am not going to say until I check.

Kristina Woolnough: Could we have that information before us? It is important for the checks and balances on whether the Roseburn corridor should be used or whether another alignment should be used.

The Convener: The committee will certainly pursue that. I take it that Mr Cross will write to us with that information.

Kristina Woolnough: Thank you.

Mr Cross, I am now looking at your history of the process, at paragraph 3.9. Again, I put a question to you in my rebuttal. Is it correct that there is no requirement on TIE to act in the public interest but that its remit is to develop transport projects?

Barry Cross: The remit is not to develop transport projects. TIE's remit is to implement transport projects that are given to it by the promoter. That in turn requires development work, but not in the vacuum that one might have thought when interpreting your question.

Kristina Woolnough: My question was about there being no requirement on TIE—

The Convener: Ms Woolnough, how is this relevant to the Roseburn corridor and the alternative route? Let us get to the point.

Kristina Woolnough: The relevance is to serving the Western general and to the balance between the needs of the waterfront development and serving the Western general. We have heard witnesses speak about the balance, but we still question whether the balance is right.

In paragraph 4.2 of your statement, you describe route options at the Western general hospital. You describe the railway corridor option as direct, but do you agree that the Roseburn corridor is not the most direct method of serving the Western general hospital and getting up to the city centre and to the Haymarket area, not Haymarket station, in terms of distance?

Barry Cross: Sorry?

Kristina Woolnough: Your preferred alignment along the Roseburn corridor is not the most direct alignment in terms of serving the Western general and getting up to the city centre and the Haymarket area, in terms of distance.

Barry Cross: We could have an argument about it but, given its railway background, the alignment is a pretty direct alignment to Haymarket.

Kristina Woolnough: But it is not the most direct alignment, is it?

Barry Cross: Well, apart from having a line as the crow would fly—

Kristina Woolnough: I am promoting group 34's alternative alignment, which goes up Orchard Brae and along Queensferry Road into the city centre, with a small diversion into Palmerston Place. Is that alignment not more direct in terms of distance?

Barry Cross: I would think that the railway alignment would be more direct.

Kristina Woolnough: In terms of distance?

Barry Cross: In terms of being direct.

Kristina Woolnough: Will you qualify that term "direct" for us?

Barry Cross: With your proposed route, the tram would turn through a number of 90° bends. I tend to think that having 90° bends on the route would suggest that it was something less than direct.

Kristina Woolnough: I give up.

Barry Cross: I am not sure that the point is crucial.

Kristina Woolnough: I give up, Mr Cross.

In paragraph 4.2 of your witness statement, you say that the Roseburn corridor

"would not be subject to congestion."

However, you then state:

"Tram drivers would ... have to take account of pedestrians and cyclists".

You recognise that pedestrians and cyclists will be present. Do they represent a form of congestion that would restrict the speed of trams far more than an on-road segregated alignment with signalling priority?

Barry Cross: That was a long question. On the first part, I do not think that pedestrians and cyclists will somehow impose congestion on trams in the corridor.

Kristina Woolnough: You do not think that they will have any effect or impact on the tram's speed or journey time along the Roseburn corridor.

Barry Cross: That is a long way beyond what I have just said.

Kristina Woolnough: Okay. I am asking that question, then.

Barry Cross: I do not think that they will impose congestion on trams. It is fairly clear that when pedestrians and cyclists are present tram drivers will drive accordingly.

Kristina Woolnough: And will that affect their speed?

Barry Cross: Yes, in certain circumstances, because they drive on sight.

Kristina Woolnough: And will that affect the journey time?

Barry Cross: Yes, it will have implications for journey times.

Kristina Woolnough: So that might have implications for the directness of your route in comparison with our proposed alternative.

Barry Cross: I do not think that it has any implications for the directness of the route. If you are asking whether it would have an impact on the balance between the two routes, I would have to say that of course it does. We have factored that into the process.

Kristina Woolnough: So delays that are caused by pedestrians and cyclists on the Roseburn corridor have been factored into the journey times that are before us.

Barry Cross: You have heard evidence—even today—that the line speed on the Roseburn corridor will be less than the theoretical maximum that we might have gone for.

Kristina Woolnough: So you are saying that pedestrians and cyclists were factored into the run times, journey times and so on.

Barry Cross: The fact that they are present is reflected in the analysis.

Convener, at this point, I want to confirm that there were environmental consultants on the team and that they were indeed from Environmental Resources Management.

The Convener: At the time, they were sitting behind you, nodding away.

Barry Cross: I would not like to have—

The Convener: Indeed. I am sure that they will take the matter up with you after the meeting.

Kristina Woolnough: You say in paragraph 4.3 of your witness statement:

“The introduction of the tram would ... involve almost no increase in community severance.”

Do you accept then that there will be some increase in community severance?

Barry Cross: No. I am not entirely certain about the issues at the margin, but by using a corridor that has existed for a long time and around which development has happened, the road pattern, including cul-de-sacs, has been constructed and people have patterned their lives, we feel that the issue of community severance is very much less than it would be if we introduced the tram elsewhere in the built environment.

Kristina Woolnough: What is your evidence for that?

Barry Cross: My evidence is the observations that I have made while walking along the line.

Kristina Woolnough: Did you walk along our alternative alignment to assess the community severance possibilities?

Barry Cross: Some main roads, particularly busy ones, offer community severance even before a tram is put on them.

Kristina Woolnough: That suggests to me that “almost no increase in community severance”

caused by your route means more of the community severance that is already caused by on-road alignments.

Barry Cross: I am sorry—could you say that again?

Kristina Woolnough: When you say “almost no increase in community severance”,

you mean that there will be an increase in community severance.

Barry Cross: I have just denied that.

Kristina Woolnough: You are saying that there will be no increase in community severance.

Barry Cross: I am saying that any community severance happened when the urban form occurred around the existing railway line.

The Convener: Given that this is not in your rebuttal statement, Ms Woolnough, I have allowed sufficient leeway. We have explored that point.

Kristina Woolnough: I have made all these points in my rebuttal statement to you, Mr Cross, and you have had ample time to find answers to the questions.

Paragraph 4.4 says:

“the disused railway corridor has been continuously safeguarded for a new road or, more recently, for light rail use.”

Where is your evidence that it has been safeguarded for light rail use? I am talking about the section of the Roseburn corridor that is covered by the central Edinburgh local plan, not the Granton end of the corridor.

The Convener: I caution you about the committee’s evidence on local plans. We believe that we already have sufficient information to enable us to arrive at a conclusion. If you want to answer the question, Mr Cross, please be brief and we will move on.

Barry Cross: No, I do not wish to answer.

Kristina Woolnough: In paragraph 4.5 you say:

“although the footpath/cycleway is lit at night, there is a perceived risk”.

Where is your evidence of that?

Barry Cross: It is used very little during the hours of darkness.

Kristina Woolnough: Where is your evidence of that, Mr Cross?

Barry Cross: On the two occasions when I have wandered along there after dark, I met no one.

Kristina Woolnough: The two occasions that you wandered along give more substantial evidence than our user survey and local experience.

Barry Cross: Absolutely not.

Kristina Woolnough: I appreciate that your witness statement gives a bit of consideration to Orchard Brae and Crewe Road South, but you say:

"This option passes the Western General Hospital site but does not pass Haymarket".

Do you accept that our alternative alignment does pass the Haymarket area and that it lies 250m away from Haymarket station?

Barry Cross: I am perfectly ready to accept that your route goes along Palmerston Place via one edge of the Haymarket area, but it goes nowhere near Haymarket station.

Kristina Woolnough: You say that 250m away is nowhere near, but your Waverley railway station stop is in St Andrew Square, which is considerably further away from Waverley station than that.

Barry Cross: I think that you miss the point. The point of having a high-quality Haymarket interchange is to provide a level of interchange that is simply not achievable at Waverley, not least because of the significant difference in levels and the nature, size and scale of Waverley. It is the very fact that we have Waverley that leads us to consider Haymarket to be so important as a high-quality interchange.

Kristina Woolnough: Have you assumed that passengers travelling from the waterfront will go to Haymarket and change to tramline 2? Is that part of your patronage assumption on journey destinations?

Barry Cross: Some of that is modelling, as I am sure you are aware. People will make different choices about the location where they will change from one line to another and that will depend on circumstances. The highest-quality interchange across the board—not just between tramlines 1 and 2—will be at Haymarket, but people might choose to interchange elsewhere, for example on Princes Street.

Kristina Woolnough: Do you accept that if passengers on the Roseburn corridor alignment change at Haymarket, they will have to double back on themselves because they will have to go back out from Haymarket through Roseburn?

Barry Cross: They will spend a couple of minutes on a nice, warm, smooth tram.

Kristina Woolnough: If the tram was going to the Western general hospital, would they not also spend a few more minutes in your nice, warm, comfortable tram on the Crewe Road South option that we are promoting?

Barry Cross: That is an entirely different situation, not least because of patronage and the viability of the network. A good parallel can be made for the effect of a dog-leg via Craighleith and Crewe Road South. If we ask the bus operators on service number 37 and other busy services why they do not even make the slight diversion up the hospital access road to the hospital to serve the stop there, we learn that it is because, when through passengers go along a diversion that they do not want, they simply vote with their feet, complain and use alternative modes.

15:45

Kristina Woolnough: Under paragraph 6.7, you make a point about costs. I accept that you are primarily considering the Craighleith Road option there, although the paragraph covers some elements that are the same as elsewhere. As no detailed engineering plans of the Roseburn corridor have been made available yet, the 11 bridges and tunnels on the Roseburn corridor cannot be assessed.

The Convener: I am sorry to interrupt. I am clear that you were talking about consultation issues. I have allowed you a lot of leeway. However, I fail to see how costs fall under consultation.

Kristina Woolnough: Mr Cross's statement covers so many different issues. There is a little bit of everything there.

The Convener: Indeed, but you were to cover consultation issues.

Kristina Woolnough: I thought consultation was banned; I have missed all my consultation questions. I understood that consultation and patronage were out the window. Sorry—I am confused. I had avoided consultation issues.

The Convener: This is in relation to route selection, rather than to the generic topic of consultation.

Kristina Woolnough: I had misunderstood that, so I have not prepared questions on consultation.

The Convener: I have allowed you quite a bit of leeway in relation to route selection, and we have ascribed that to consultation.

Kristina Woolnough: I have finished anyway.

The Convener: That is very helpful, Ms Woolnough, as I have just been passed another note asking for a comfort break, after which we will resume with Mr Allan.

15:47

Meeting suspended.

15:52

On resuming—

The Convener: Mr Allan, you will question on planning issues only for groups 34 and 45. Given my previous injunctions, I would urge caution in your questioning, otherwise I will be forced to tell you to be quiet.

Peter Allan: I will certainly attempt to be brief and to the point, because other witnesses will deal with the subject later on.

Mr Cross, we have heard before about the question of balance in deciding whether one route is better than another. With your CEC hat on, will you tell us whether, after work package 1 was completed at the end of 2002 and the promoter decided to introduce the bill, there was a further process of assessment, as Mr Oldfield indicated in answer to a question earlier today?

Barry Cross: Not as far as I can recall, in any formal sense.

Peter Allan: What Mr Oldfield said in answer to the question was that he thought that the promoter would want to take the technical issues that were presented in work package 1 and consider whether there were other factors that had to be taken into account. You will remember, for instance, that a report was put to the planning committee by Aileen Grant in the middle of 2003, prior to the bill being introduced. Do you think that that is the sort of thing that Mr Oldfield had in mind?

Barry Cross: I presume so. That is the way in which the council as a whole, when it decided to go with the proposals, took on board the views of the planning authority.

Peter Allan: I believe that the environmental appraisal was commissioned shortly after the completion of work package 1. Is that correct?

Barry Cross: I do not know.

Peter Allan: It takes a long time to prepare that sort of document. Given that the appraisal was lodged at the end of 2003, one would imagine that the process of preparing it must have started early in 2003. As a matter of statute, the appraisal must deal with planning issues, and it does so.

Barry Cross: Correct.

Peter Allan: As Kristina Woolnough has just put to you, in paragraph 4.4 of your witness statement, you say that, for 30 years, the Roseburn corridor was continuously safeguarded for a road or a tram. On reflection, is that not a bit of an exaggeration? In fact, is it not inaccurate?

Barry Cross: If it is, I apologise. It is my understanding, which is based on the material that the promoter provided to the committee pre-recess in which the consultations that were associated with each of the stages of safeguarding were set out. If there are detailed questions or areas that you think are in error, the expert is Aileen Grant, who will appear after me.

Peter Allan: Thank you. In the same paragraph, you refer to the Roseburn wildlife corridor as a disused railway corridor. Is that accurate?

Barry Cross: Most definitely.

Peter Allan: Would it not be more accurate to refer to it as the Roseburn wildlife corridor or the Roseburn corridor, which is the reference that has been used continuously at the committee meetings that I have attended?

Barry Cross: It is what it is. One could call it several things. I am not sure that the point is material.

Peter Allan: The reason for asking the question relates to an answer that you gave last Tuesday, 13 September, to a question from your legal counsel about whether the walkway and cycleway were safeguarded for light rail transit. I noted down the answer that I heard you give—I was watching the proceedings on holyrood.tv. I ask you please to say if you think that my note of what you said is inaccurate in any way. You said that one needs to be very careful with these policy documents because some say LRT and some do not and some say rail and even roads. You said that all of the railway corridors were originally purchased for transport use and that some have found their purpose. I think you gave the example of the Innocent railway line. Do you remember that?

Barry Cross: If you are going to go much further, I would prefer to have a copy of the *Official Report* in front of me instead of a recollection of what I said, but I am happy to recall that.

Peter Allan: It is only a couple of—

The Convener: Would you like a copy of the *Official Report* in front of you, Mr Cross?

Barry Cross: Not if we are not going terribly much further, convener.

Peter Allan: You also said that the local plan overlay showed that some but not all of those routes were designated for a tram or LRT. You went on to say that the time taken to produce and modify plans was somewhat less than clear and

not entirely consistent. Is that an accurate understanding of what you said last Tuesday?

Barry Cross: I think so.

Peter Allan: That is very fair. Thank you.

Mr Gallie asked a supplementary question. As I heard it—again, please tell me whether this is accurate—you said that a walkway and cycleway was a transport use. Is that correct?

Barry Cross: Yes.

The Convener: I hesitate to interrupt your flow, Mr Allan, but my understanding is that the bill will override any current planning designation of the Roseburn corridor. I am keen that you arrive at the point of this line of questioning.

Peter Allan: I am trying to establish whether Mr Cross believes that the Roseburn corridor has found its transport use in the sense of its being a walkway and cycleway. That seems to be the gist of what you said last week, for example about the Innocent railway line. The point is a simple one. Has the Roseburn corridor found its transport use in what is seen on the ground today?

Barry Cross: No.

Peter Allan: Do you accept that, whether or not it is in a local plan, the function of the Roseburn corridor is to be a wildlife corridor?

Barry Cross: I am not sure whether that is a function or a fact. It is a wildlife corridor. I do not intend to play with words. A function suggests purpose. It became a wildlife corridor because of what it was. I have no argument that it is a wildlife corridor.

16:00

Peter Allan: Presumably the animals that use it use it as a wildlife corridor. Do you happen to know whether it connects to other wildlife corridors?

The Convener: I am genuinely sorry, but the intention was that you would focus on planning issues. In effect, I am giving the group two bites at the cherry if I allow this to proceed much further. I would be pleased to hear any questions on planning within the strictures set down by the committee, but I will have to curtail anything else.

Peter Allan: I am in some difficulty, but I will be guided by you and told what to do. The list that I am trying to read out—the first item being the use of the Roseburn corridor as a wildlife corridor—is a list of functions that are referred to in the current statutory local plan. The question is, if I read them out, does the witness agree or disagree?

Barry Cross: If they are contained in the statutory local plan, that is your answer. My opinion of them is neither here nor there.

Peter Allan: I am not asking you for your opinion; I am just asking you whether I am correct in the list that I will give you.

Barry Cross: I do not have the local plan in front of me. If you are going to read from the local plan I will presume that you are reading correctly.

Peter Allan: Let me put it another way. The Roseburn corridor is put to a number of uses, some of which are self-evident. You have not agreed that it has found its transport function as a walkway and cycleway, but you agree that it is used as a walkway and cycleway.

Barry Cross: Yes.

Peter Allan: And you have agreed that it is used as a wildlife corridor.

Barry Cross: I agree that it is a wildlife corridor.

Peter Allan: And it also functions as open space.

Barry Cross: That is a question for Aileen Grant, who will have a view.

The Convener: Mr Allan, I am struggling to be flexible. I do not see these matters in the rebuttal witness statement in the terms posed, so I am keen that you come to a point.

Peter Allan: Do you accept, when you refer to the Roseburn corridor being safeguarded for 30 years, that that is against some contingency?

Barry Cross: It has been safeguarded for a purpose, not against a contingency.

Peter Allan: I see, but surely, in the way that you and your colleagues do business, if a planning application for an office block, for example, would sever the safeguarded route, the safeguard would be defeated.

Barry Cross: My planning colleagues would not take a recommendation to the planning committee if I asked them to safeguard something on the basis of a contingency.

Peter Allan: But would you agree that safeguarding does not justify selection? It is a matter of English language.

Barry Cross: I am not sure that I understand the question.

Peter Allan: When somebody decides to select something, they make a positive decision. If they safeguard something, the level of decision taking is lower. No doubt somebody has something in mind, but would you not agree that safeguarding is a lower-order decision than selecting?

Barry Cross: I have never noticed that differentiation within the planning legislation.

Peter Allan: Finally, do you agree that whatever else the bill suggests, the current policies that we have looked at and referred to are not for a tram system leading to Granton?

Barry Cross: I do not accept that.

Peter Allan: Thank you very much.

The Convener: Thank you, Mr Allan.

I call Mr Vanhagen for group 35.

Richard Vanhagen: Mr Cross, I have a question on the shuttle buses.

The Convener: I will stop you there. That was not in your rebuttal witness statement, so I cannot allow questioning on it.

Richard Vanhagen: On the Western general?

The Convener: There is nothing in your statement.

Richard Vanhagen: Okay.

Mr Cross, I will ask a question that I have asked you before but to which I have not had an answer. Given your planning background, will you tell us whether the public were made aware of the 1978 decision, which you mention in your statement, regarding the reservation of a transport corridor at Roseburn?

Barry Cross: First, for the avoidance of doubt, I do not have a planning background. I would not like to go away having misinformed the committee, particularly under oath. Secondly, my understanding, which is included in the paper that has been provided on consultation, is that the decision was well publicised.

Richard Vanhagen: Was a letter sent to all the residents involved?

The Convener: I wonder about the relevancy of that, Mr Vanhagen. Will you come to the point?

Richard Vanhagen: The promoter's paper leads us to believe that we should have skeddaddled long before now if we were really serious about the 1978 issue. That is the inference in the paper.

The Convener: If you have a question to put to Mr Cross, please do so; then we can move on.

Richard Vanhagen: I am asking whether residents were notified of the decision individually.

Barry Cross: I point you in the direction of the paper on that issue that we provided to the committee. My recollection is that the local community and individuals were advised of proposals on the corridor on a large number of occasions, both directly and through local planning processes.

Richard Vanhagen: So it was not in a newspaper.

Barry Cross: I think that local plans are advertised in newspapers, but Ms Grant will give you a much clearer view on that.

Richard Vanhagen: So, for instance, the article in *The Scotsman* on 15 June about the change in the plans, with the trams running only from Haymarket to Ocean Terminal—

The Convener: I do not think that that is in your rebuttal statement either, Mr Vanhagen.

Richard Vanhagen: It is.

The Convener: Where?

Richard Vanhagen: In a question, I ask for an answer and for clarification. I was looking for TIE's stakeholder resource manager to write to all the individual objectors to give us some information and to either rebut the statement or let it stand.

The Convener: It is not in your rebuttal witness statement. We have reviewed all the paragraphs.

Richard Vanhagen: Is it not? I am pretty certain that it is in my copy.

The Convener: Perhaps the committee has a draft version rather than the final version. Could that be the case?

Richard Vanhagen: No.

Barry Cross: It is in paragraph 3.

Richard Vanhagen: Yes. In paragraph 3, I mention *The Scotsman* of 15 June. I am doing a lot of door knocking and people are telling me that the Roseburn corridor is no longer involved.

The Convener: I have to say that I think that that is irrelevant, but—

Richard Vanhagen: I am sorry, but it is not irrelevant to all the people along the line who will be adversely affected.

The Convener: In terms of what we are considering today—that is, in terms of the current route in the bill as opposed to the alternative routes that have been suggested—I regard the point as irrelevant. I will be flexible enough to allow you one brief question, but that is it. My patience is being tested, Mr Vanhagen.

Richard Vanhagen: Okay. Thank you.

Mr Cross, what human impacts were taken into account in the studies that are mentioned in your paper, given the highly residential nature of the catchment area of the Roseburn corridor? Was the fact that human beings are involved taken into account, or the fact that it is a conservation area? Your paper does not mention those aspects being given any consideration.

Barry Cross: The environmental impacts, the impacts on the local community and the conservation area issues were dealt with. Those

issues will be best answered by our environmental consultant when she answers questions.

The Convener: Mrs Milne may cross-examine the witness for group 43.

Mrs Milne: If an area is designated as a transport corridor or as anything else, the use of it for such should still be subjected to a thorough appraisal. Is that not the case?

Barry Cross: Yes.

Mrs Milne: Although the conclusion of your witness statement on the Wester Coates Terrace action group's objection states that

"the Railway Corridor Option is the best route for the line as a whole",

is it not the case that all the evidence provided in that statement is about the Crewe Toll option and that none of it deals with the stretch of the route south of the hotel at Craigleith?

Barry Cross: My statement applies to the Roseburn corridor as a whole, but you are right to point out that most of the issues relate to the Western general.

Mrs Milne: Do you agree that that witness statement gives no evidence about the section of the route between the hotel at Craigleith and Roseburn?

Barry Cross: Yes, apart from the concluding section that you just read out, which relates to the whole of the corridor.

Mrs Milne: Your rebuttal statement claims that, at a city level, line 1 will serve places to which people want to go. You consider that the Roseburn corridor will serve places to which people want to go. To what extent do you consider that people in Granton want to go to Roseburn and vice versa? Would it not be better to send people from Granton directly to Haymarket, Princes Street or the Western general rather than in a great loop via Roseburn?

Barry Cross: Yes.

Mrs Milne: The Crewe Road South option and the Belford Road option would take people directly to those places. Would that not be better?

Barry Cross: You framed the question in terms of getting to specific places—

Mrs Milne: It would be better to get to those places in a straight line rather than to go round by Roseburn.

Barry Cross: That would be the case if we considered that to be the objective of the project.

Mrs Milne: That was all that my question was referring to.

Do you agree that using the Crewe Road South option and the Belford Road option would achieve

the aims of the local transport strategy equally well, if not better?

Barry Cross: No.

Mrs Milne: Do you agree that using the Belford Road option and the Crewe Toll option would allow the Roseburn railway corridor to continue in its transport function as a cycleway?

Barry Cross: Clearly, if the corridor had no tramway on it, what you say would, by definition, be true.

Mrs Milne: Do you agree that it would also allow the RRC to continue in its function as a public park and an urban wildlife area?

Barry Cross: I am not sure that the corridor is a public park, but Aileen Grant will deal with that.

Mrs Milne: For the sake of argument, people would be able to continue to cycle and walk there. People would be able to play there.

Barry Cross: Sorry, I did not spot any question there.

Mrs Milne: Would people be able to continue to play in the Roseburn corridor if it had no tramway?

Barry Cross: I see no reason for people to modify their behaviour whether or not the tramway is situated there.

Mrs Milne: The children from our area use that space for playing ball. Could they continue to play ball there once the tram is introduced?

Barry Cross: No. That would be slightly foolish.

Mrs Milne: So the area would lose its use as a public park if it is used for a tramway.

Barry Cross: It would if it were a public park in the first place.

Mrs Milne: I have no further questions.

The Convener: Do committee members have any questions?

Helen Eadie: Will Mr Cross comment on the fact that the evidence in his witness statement and rebuttal statement appears to be directly at odds with that of his colleague Mr Buckman, who appeared earlier this afternoon?

On the issue of safety, Mr Cross states that safety and accessibility need to be considered as well as technical and financial issues. However, Mr Buckman's route comparison of all the different proposed routes suggests that the railway corridor option—that is, the environmental route—is much less favourable in terms of safety and accessibility than all the other options. For example, his table suggests "Better visibility" for the Craigleith Road corridor and for the Telford Road corridor. In respect of the railway corridor, the table states:

"Isolated stop location could lead to vandalism and crime".

Will Mr Cross comment on why Mr Buckman's evidence appears to be in direct opposition to his own?

Barry Cross: I am not certain that we are comparing like with like. I would need sight of the document.

Helen Eadie: I am referring to tables 3 and 4.

Barry Cross: I do not have a copy of Mr Buckman's statement.

Helen Eadie: The tables have the heading "Summary of Key Issues for Route Comparison". You argue in paragraph 4.5 of your witness statement that the Roseburn corridor will be safe, whereas Mr Buckman says that it will be less safe.

16:15

Barry Cross: I would need to check Mr Buckman's statement. I am talking about safety in absolute terms, but I think he is comparing options. *[Interruption.]* Yes, Les Buckman has used the STAG analysis for the purpose for which it is intended, which is to compare two options. The two columns to which you referred compare one option with the other. However, my statement in paragraph 4.5 is about safety on the railway corridor. The particular fear that was expressed to us was about people being at tram stops on the corridor that were not overlooked by residential properties, which could cause people to feel unsafe and perhaps make them unsafe. In paragraph 4.5, I dealt with the measures that the promoter would take to address any fears and the reality behind them.

The Convener: Members have no further questions for Mr Cross, so I invite Mr Thomson to question him.

Malcolm Thomson: I want to take you back, Mr Cross, to the issue of the Western general hospital bus. Am I right in understanding that the undertaking that you gave today on behalf of the promoter relates to the provision of a bus service from the proposed tram stop at Crewe Toll to the Western general hospital site, where it would follow the existing circulatory road system within the hospital grounds?

Barry Cross: That is correct.

Malcolm Thomson: And that commitment is firm and unwavering.

Barry Cross: Correct.

Malcolm Thomson: However, there is a possibility that the hospital authority might see fit in the future to reconfigure some of its car parking and internal roadways so as better to serve the buildings in the hospital grounds. If that happened,

the bus service that you were talking about would take advantage of that and thus serve the buildings better.

Barry Cross: Yes.

Malcolm Thomson: That is the difference between what you can undertake to do with some certainty and what is contingent on what the hospital authorities may do in the future.

Barry Cross: Yes.

The Convener: There being no further questions, I thank Mr Cross for his evidence.

The next witness, who has waited patiently, is Stuart Turnbull. He, too, will address the highway and traffic impacts of options on the Roseburn corridor. In relation to group 34, no rebuttal witness statement was provided to Stuart Turnbull's witness statement, therefore all the questioning must be constrained to Mr Turnbull's statement.

Malcolm Thomson: First, can you remind us precisely what your role in the project is?

Stuart Turnbull (Jacobs Babbie): My role was to lead the team that considered the traffic interface issues associated with line 1. Among other things, we considered the appropriateness of the junction layouts that were developed for the length of the route.

Malcolm Thomson: Some objectors have suggested that the promoter has taken an inconsistent approach with regard to traffic, in that on-street routes are being promoted in some areas—for example, at Starbank—whereas an off-street, segregated route is being proposed in other locations, but mainly the Roseburn corridor. Do you have any comment on that criticism?

Stuart Turnbull: Traffic is only one of the items to be considered. I personally feel that my approach has been entirely consistent, because I identified throughout the length of the scheme where there were any issues associated with on-street running of the trams. Indeed, in my evidence to the committee last week, I explained that, on the ground of traffic alone, my preference would be to run a segregated route in the Starbank area.

Malcolm Thomson: The question whether absolute priority can be given to the tram when it is running on ordinary roads was touched on this morning. Will you explain whether it is possible to give absolute priority to the tram and the gradations below absolute priority?

Stuart Turnbull: The promoter's aspiration is to provide the tram with a great deal of priority, but it is appropriate to consider all the users of elements of the route—particular stretches and junctions—and to identify whether affording the tram absolute

priority can be achieved without there being an adverse impact on other road users.

Throughout our work, we have identified four levels of priority, which I have explained in my witness statements. With full priority, a detector in the road will recognise a tram that is approaching a junction and will therefore switch the traffic signals to green to allow the tram to proceed without any delay. The worst case, if you like, is the tram operating in the same way that other road users operate and therefore being subject to the same sequence of traffic signals as any other road user would be. The tram would therefore incur the same delays as others. There are two intermediate levels of priority that involve identifying the point at which the signal controller will give the tram a green light.

Malcolm Thomson: One objector—Ms Bourne—suggested that it would be possible to provide priority for the tram at Crewe Toll and that an at-grade crossing would make that possible. Would it be possible for the tram to go through the Crewe Toll junction? Could it do so at grade?

Stuart Turnbull: I will put the matter in context. I appreciate that we are not discussing other tram routes, but Ms Bourne gave the example of what she considered to be a similar situation. She mentioned a roundabout on line 3 at which the design was such that the tram would run through the junction and said that if that could be done on line 3, it could be done at Crewe Toll.

In the context of that comparison, three of the arms at the junction that was referred to serve retail parks in the south-east of the city and the traffic flows at that junction are considerably less than those at Crewe Toll. Comparing the two junctions is therefore inappropriate.

There are two things to say about whether an at-grade solution can be achieved. We identified and prepared preliminary designs that show a possible reconfiguration of the junction to accommodate the tram and which estimate that there would be a delay with the tram approaching it, as the tram would share the junction with traffic. I will deal with that matter later.

Ms Bourne repeatedly raised the issue of affording the tram absolute priority at the junction, which we picked up in the rebuttal statement. We further analysed the potential effects of giving the tram absolute priority at Crewe Toll, and that work indicated that the queues on Ferry Road heading west would increase from approximately 100m to 500m and that the queues on Telford Road approaching the junction would increase from approximately 100m to 1.5km. The reason is that those two arms—Telford Road and Ferry Road east—are where the major elements of traffic are. To give the tram priority on the approach from

Crewe Road South would have an impact on those major arms.

Let us say for argument's sake that the model suggested that queues would extend to more than a kilometre. In reality, traffic would not sit in a queue for that long but would divert to residential streets in the locality. Therefore, I do not believe that it would be possible to give the tram absolute priority through Crewe Toll. If the tram went through the junction, it would be subject to some delay.

Malcolm Thomson: Do you accept that traffic is only one consideration that must be borne in mind in selecting a route?

Stuart Turnbull: Yes—absolutely.

Malcolm Thomson: Group 43 suggested that no alternatives were considered to the south of the hotel at Craighleith. Do you have any comments on that?

Stuart Turnbull: In my witness statement, I summarised my concerns about traffic associated with the various links that were discussed earlier today in the area south of Craighleith.

Malcolm Thomson: Bearing in mind your acceptance that traffic is not the deciding factor, do you regard the route that the promoter proposes to be the best in traffic terms, when considered against the options that the objectors propose?

Stuart Turnbull: I have absolutely no doubt that the promoter's route is the best route in traffic terms.

Alison Bourne: Did you say that queues could be up to 1.5km long?

Stuart Turnbull: That is the prediction of the most recent modelling.

Alison Bourne: I do not seem to have that information.

Stuart Turnbull: No. I said in my witness and rebuttal statements that I believed that it would be impractical to afford the tram absolute priority. I noted that you raised the issue again in your rebuttal, so I felt that it was appropriate to undertake some work—I fully accept that it is preliminary—to indicate the potential impacts of affording the tram full priority through Crewe Toll.

Alison Bourne: I take it that the tram is to have full priority at other locations on tramline 1, such as Haymarket and Picardy Place?

Stuart Turnbull: Throughout the route, as I explained, four levels of priority will exist. In some instances, the tram could be afforded full priority. In others—particularly in the city centre—it would be inappropriate to afford the tram full priority. The run-time calculations take full cognisance of the fact that the tram will be delayed at specific junctions throughout the route.

Alison Bourne: In this case, am I correct to say that the decision would be for the roads authority?

Stuart Turnbull: Yes.

Alison Bourne: The council's city development department and its planning section have said that serving the Western general is a high priority for them. What makes you think that they would not be prepared to give the tram maximum priority at the junctions on Craigleith Road and Crewe Road South?

Stuart Turnbull: Many people who access the Western general would not travel by tram, even if the Crewe Toll option were to be developed. I do not believe that the city development department would impose serious delays on the other road users just to afford priority to the tram.

Alison Bourne: I take it that you have not discussed the matter with that department.

Stuart Turnbull: Throughout the development process of line 1, a traffic interface working group was convened and met regularly to deal with traffic interface. At one point, the group met fortnightly. That group consisted of officials who were involved in city development, planning and accessible transport in the city council. They were fully involved in discussions about not only the location that we are discussing, but the whole route.

Alison Bourne: The information about delays at junctions has materialised only in the past two or three months. Has the city development department said that it would not be prepared to give the tram maximum priority at the junctions on our alignment?

Stuart Turnbull: I understand that the city development department's aspiration is to afford the tram greater priority, but it accepts that that will occasionally not be possible.

Alison Bourne: But the city development department has not said that that would not be possible for our alignment.

Stuart Turnbull: I cannot comment on any of the department's discussions. However, I understand that the department recognises that Crewe Toll is one of the most congested junctions in the city, so I would be surprised if it were to be prepared to impose a delay on other road users there.

16:30

Alison Bourne: There is no technical reason why a ruthless measure at Crewe Toll could not be implemented, is there?

Stuart Turnbull: Mr Bain's evidence is that it would be physically possible to route the tram through the junction.

Alison Bourne: So this is a matter of will.

Stuart Turnbull: It is a matter of weighing up all the considerations—for example, the physical issues and the integration with other road users—and coming to the best solution.

Alison Bourne: My impression is that you are trying to encourage people out of their cars. If people had to sit in a queue of what you now tell me could be 1.5km, would they not be more likely to get on the tram?

Stuart Turnbull: That is exactly why I prefer the railway corridor—it would not impose that level of delay on other road users. There are many people in the city who will wish to travel to areas in which the tram is not an option. We cannot impose a delay on them just to serve the people who live along the tram route.

Alison Bourne: We are talking about a main city hospital and I would have been interested to know whether the city development department had said yes or no to our alignment.

Your statement refers to the need for shared running on Crewe Road South. Do you agree with Mr Bain that it would be technically possible to provide a significant length of segregation on the east side of Crewe Road South?

Stuart Turnbull: Yes, it would be physically possible. There would be impacts, as Mr Oldfield said, but it would be physically possible.

Alison Bourne: The last point in section 3.3 of your statement refers to "right turning manoeuvres". I take it that you were referring to general traffic impacting on trams.

Stuart Turnbull: No, I meant trams impacting on traffic. Throughout the route, there are elements of shared running. Wherever possible, it is desirable to have the tram running straight through any particular junction, because that is the most effective way of integrating the tram in the junction. I have indicated on some sketches trams running with 90° bends. A tram cannot turn within the same radius as other vehicles, so a tram that is turning at a junction has a much greater impact than a car or a heavy goods vehicle would have turning at the junction.

Alison Bourne: So you were referring to trams turning right, not to cars turning right.

Stuart Turnbull: Yes.

Alison Bourne: In section 4.4, you estimate the junction delay from the Craigleith Road option to be approximately one minute. Does that one minute relate to the total delay at junctions or to the delay at each individual junction?

Stuart Turnbull: It is the summation of the delays at each individual junction.

Alison Bourne: How many junctions do you calculate there to be on this stretch?

Stuart Turnbull: Mr Oldfield started to give evidence on that this morning. When we do the sums, the delay works out at one minute and 20 seconds. There are three junctions at which there would be a 20-second delay and two junctions at which there would be a 10-second delay.

Alison Bourne: Are those the delays during peak periods?

Stuart Turnbull: The delays are associated more with the arrangements of the signalised junction. It is accepted that we can introduce a level of priority so that, as a tram approaches, the signal will change to green. The delays are a function of the overall cycle times of the junctions. Broadly speaking, the delays will not vary all that much throughout the day; they are not so much a function of traffic as a function of the operation of the junctions.

Alison Bourne: In section 4.5, you refer to the assessment of traffic signals at Crewe Toll as part of a bus priority scheme. Am I right in thinking that the problem with the scheme was that the sequencing could not be made to work? It was not a question of changing the traffic lights to red so that a bus could go through.

Stuart Turnbull: No. The evidence that I am about to give relates to a parallel piece of work in which I was involved, but which was not directly associated with the tram project. However, it helps to answer the question.

The City of Edinburgh Council received funding to investigate how bus priority measures and access to growth areas throughout the city could be improved. The signalisation of Crewe Toll roundabout was one of the schemes that it considered. Signalising the roundabout would mean that, as the road network became congested, the roads authority would have greater control and could provide green time to particular arms, for example. If a roundabout is not signalised, the situation is not quite a free-for-all, but the traffic decides the flow.

The council commissioned the consultant Jacobs Babbie to investigate what improvements the creation of a wholly signalised junction at Crewe Toll would offer and whether, as part of that, bus priority measures could be facilitated. The work that we did concluded that it was not possible to signalise the junction in such a way that it would reduce the delays that occur with the existing roundabout and that there was therefore no value in making that change because it would not improve the situation.

Alison Bourne: In section 4.7, you refer to the Telford Road option:

"I would estimate that on average the additional delays caused to the tram vehicle as it travels through these junctions would be approximately 30 seconds."

Which junctions were you referring to? Would there be a delay of 30 seconds per junction or is that the total?

Stuart Turnbull: That is the total. I was referring to the junction on Telford Road with Groathill Avenue and to Crewe Toll. I appreciate that my witness statement says that the Telford Road option would avoid Crewe Toll, but you might be aware that that alignment would run through an area that in the past few months has become subject to development. I understand that that means that if the Telford Road option were to be pursued, it would be necessary to route trams through Crewe Toll. That is why I included the Crewe Toll junction.

Alison Bourne: In paragraph 3.5 of your rebuttal of my statement, you state that South Groathill Avenue would require traffic signals. How long would it take for a tram to cross South Groathill Avenue?

Stuart Turnbull: I cannot give a precise number of seconds because that would depend on the design of the signals. I do not expect that the tram would be subject to any significant delay at that point.

Alison Bourne: Can you give a rough estimate of the delay?

Stuart Turnbull: In that situation, I expect that the tram would be able to trigger the advanced stop and that the delay might be a few seconds.

Alison Bourne: You state that queues could back up to the Queensferry Road junction. Have you undertaken computer modelling that produces such results?

Stuart Turnbull: Not for that location.

Alison Bourne: You state that adoption of the Craigleith Road and Crewe Road South route would mean that Orchard Road would have to be stopped up. Why is that?

Stuart Turnbull: That might have to happen. We did some preliminary work on the potential layout. If the tram were to route through Craigleith Road on to Crewe Road South, the preference would be to signalise the junction. Our initial work suggested that it might be difficult to signalise the junction and to enable access from Orchard Road.

Alison Bourne: Have you done any detailed assessment work?

Stuart Turnbull: We have done some initial junction modelling, but have not done any detailed design work.

Alison Bourne: The promoter's witnesses have stated that modelling forecasts a journey time for

the route of 40.5 minutes. How many signal-controlled junctions are there on the route?

Stuart Turnbull: I imagine that there must be approximately 30 such junctions on the route.

Alison Bourne: I counted them. I wanted to confirm the number with you because I am not an expert, but I counted 55. Would you say that—

Stuart Turnbull: I cannot comment. I do not doubt your ability to count the number of junctions.

Alison Bourne: I also counted 18 junctions that seem to be non-signalled. Does that sound about right?

Stuart Turnbull: It is entirely possible, yes.

Alison Bourne: Are all right-turn movements for general traffic to be banned on the on-street sections of tramline 1?

Stuart Turnbull: There are no powers in the bill to ban right-turn movements.

The Convener: Are we just about there, Ms Bourne?

Alison Bourne: I am getting there. I have covered a lot of things with other people, so I am just about there, I think.

Mr Turnbull, if you add up the potential delays at the signalised junctions and the junctions about which you have not decided but which may involve right-hand turns, what is the potential maximum delay on tramline 1?

Stuart Turnbull: As I said earlier, the run times incorporate the junction delay that has come out of the work that has been done to date. An element of delay is already built into the run-time analysis.

Alison Bourne: What is the current estimated run time for the whole loop?

Stuart Turnbull: It is approximately 41 minutes, to my recollection.

Alison Bourne: I am finished.

The Convener: Ms Woolnough?

Kristina Woolnough: Convener, will you kindly clarify something? You referred to group 34 not being able to do one thing but being able to do something else. I have my rebuttal of Stuart Turnbull and his rebuttal to us. Are they the documents—

The Convener: You are confined to the rebuttal witness statement for group 34 by Stuart Turnbull.

Kristina Woolnough: What about my rebuttal of his statement?

The Convener: We do not have that.

Kristina Woolnough: I am down as a D and I have produced a rebuttal.

The Convener: Is that for group 45 or for group 34?

Kristina Woolnough: It is for group 34. I am down as a D for group 34 and an E for group 45.

The Convener: We will check that, because my script says that you are not.

Kristina Woolnough: Your word is law. There is no doubt about that. I have prepared some questions—although not many—because I was down as a D, as far as I could see.

The Convener: We are checking that.

Kristina Woolnough: In the meantime, shall I start with Mr Turnbull's rebuttal?

The Convener: Yes, that would be useful.

Kristina Woolnough: Rather fortunately, Mr Turnbull, you refer to your own statement in your rebuttal so I can work through some of that. You talk about priorities at junctions and so on; Mrs Bourne has asked you about that. You say that it is unlikely that the tram will achieve full priority through the junctions—what is your evidence for that?

Stuart Turnbull: Eighteen years' experience as a traffic engineer.

Kristina Woolnough: Okay.

Have you calculated run times for group 34's proposed alignment, which is the more direct one?

Stuart Turnbull: We reported the run times for a similar option in the work package 1 report.

Kristina Woolnough: Have you calculated run times for the option that we propose?

Stuart Turnbull: No.

Kristina Woolnough: Have you done any work on traffic modelling for our route at Haymarket? Our route comes up Palmerston Place and turns left, back towards the city centre. That might interfere less with the Haymarket junction, which might be a traffic advantage, might it not?

Stuart Turnbull: It would have the advantage of avoiding the Haymarket junction, but it would have the disadvantage of going through the junctions of West Maitland Street and Palmerston Place, Palmerston Place and Chester Street, Drumsheugh Gardens and Queensferry Street, Queensferry Road and Orchard Brae, Craigleith Road and Comely Bank, and Crewe Toll.

Kristina Woolnough: Have you done work on the traffic impact of our route at Haymarket compared with your route?

Stuart Turnbull: I have not quantified—

Kristina Woolnough: I was asking about the Haymarket junction and the traffic interface, not

about the other junctions that you just mentioned. Your QC can ask me about that. The Haymarket junction is a busy traffic interchange, as witnesses said earlier. Have you done any modelling to see whether our alignment would be better than your alignment in terms of traffic impact?

Stuart Turnbull: No.

Kristina Woolnough: Is it possible that our alignment might be better?

Stuart Turnbull: It is possible at that particular location, but that has to be weighed up. You cannot—

Kristina Woolnough: I am asking only about that particular location.

Stuart Turnbull: But you cannot make a judgment on the route that is based on consideration of only one location. The pros and cons of the alternative must also be considered.

16:45

Kristina Woolnough: That is correct. The rebuttals to our witness statements that promoted the alternative alignment said that it would interfere with the Haymarket junction because it does not get close enough. Therefore, I am asking whether our proposal would be better from a traffic point of view.

Stuart Turnbull: Purely in terms of that junction, it would be, but I do not see the relevance—

Kristina Woolnough: Purely in terms of traffic impact at that junction, might our alternative be better?

The Convener: Let him answer.

Stuart Turnbull: We are here to consider an alternative. Your alternative route avoids Haymarket, so it would have less impact on that junction. However, your route runs through the seven or eight junctions to which I referred, so I do not see how you can take the benefits from not going through Haymarket while forgetting about the disbenefits from running through the other seven or eight junctions.

Kristina Woolnough: And you have not calculated the traffic impact of our entire alternative alignment proposal to compare it with your proposal.

Stuart Turnbull: I have not quantified the disbenefits.

Kristina Woolnough: You talked about the Roseburn corridor. In traffic terms, do you regard that as a segregated route, compared with an on-road route?

Stuart Turnbull: Yes.

Kristina Woolnough: Do you accept that it will not, as far as we know, be segregated from cyclists and pedestrians?

Stuart Turnbull: As far as I know, yes.

Kristina Woolnough: Do you accept then that it is an unsegregated route in terms of cyclists and pedestrians interfacing with the trams?

Stuart Turnbull: Yes.

Kristina Woolnough: So when you carry out traffic modelling, you talk entirely about vehicular traffic interfaces. Do you assess human traffic interface with the trams?

Stuart Turnbull: My remit on this project was, as I mentioned, to discuss the traffic interface. Others have dealt with, or are dealing with, the impact of humans in the Roseburn corridor. My remit is to cover traffic.

Kristina Woolnough: So, from your traffic point of view, you prefer the Roseburn corridor alignment because there is no other traffic on it, though there is human movement on it.

Stuart Turnbull: Yes.

Kristina Woolnough: From a tram operational point of view, do you prefer a tram-and-traffic interface to a traffic-and-pedestrian interface? You said that you do not factor in human traffic when it is on legs or bikes.

Stuart Turnbull: Where the tram is running on street and mixing with vehicular traffic, pedestrians and cyclists, we must consider the most appropriate form for the junction applications, which takes into account the needs of pedestrians and cyclists at that location.

Kristina Woolnough: So human traffic has an impact on the desirability of a particular route. Pedestrians and cyclists crossing and criss-crossing on the Roseburn corridor is a traffic impact that you would take into account.

Stuart Turnbull: Criss-crossing what?

Kristina Woolnough: Access points on the Roseburn corridor. I am saying that where people cross the Roseburn corridor, you take that traffic impact into account.

Stuart Turnbull: No, my work takes into account the traffic interface where the tram is running on street or mixing with vehicular traffic.

Kristina Woolnough: That is right. That is what you concentrate on.

The Convener: Can I update you, Ms Woolnough? We definitely have not received your rebuttal statement to Mr Turnbull in relation to group 34. We have checked with the promoters as well in case we have lost it, but nobody appears to

have received it. I recognise that what we have before us is a huge volume of paper, but I must now constrain you entirely to the rebuttal witness statement from Mr Turnbull, having allowed you considerable leeway up to this point.

Kristina Woolnough: That is okay. As I said, it is fortunate that Mr Turnbull quotes extensively from his own witness statement in his rebuttal. That allows me room for manoeuvre.

The Convener: Mmm—a modicum.

Kristina Woolnough: Right. With reference to segregated and non-segregated routes, your view is that the Roseburn corridor is a segregated alignment. That comes from your rebuttal, so I think it is okay to deal with it. At paragraph 3.18 of your rebuttal, you say that Mr Oldfield covered those routes. Did you not have an input? Was Mr Oldfield the only one who considered the route selection process?

Stuart Turnbull: The key word there is “process”. Mr Oldfield gave evidence on the process, but within that process all the advisers had an input, when appropriate.

Kristina Woolnough: And you have already confirmed that you have not appraised our alignment for its impact on traffic.

Stuart Turnbull: I have commented on the sifting, and I have commented on the three loop options that were considered in work package 1, one of which is broadly similar to yours.

Kristina Woolnough: We revert to objectives. Is the objective to get people from the waterfront up to Haymarket as quickly as possible, or is it to serve key traffic generators and therefore reduce traffic in those areas? It comes down to the weighting that we give to traffic impacts and on-road impacts.

Stuart Turnbull: Yes.

Kristina Woolnough: It is possible to resolve the Crewe Toll junction from a traffic engineering point of view.

Stuart Turnbull: I would imagine that it would be possible to reconstruct the junction to allow the tram to run through it. However, there would be two possible consequences: either the tram would be subject to a quite considerable delay, or the tram would be afforded priority and there would be serious delay to other road users.

Kristina Woolnough: We have heard that Crewe Toll already has problems; this might be an opportunity to resolve some of those problems.

Stuart Turnbull: As I have said, the parallel work stream that we carried out for the city development department concluded that signalling the junction would not achieve a layout that was more effective than the existing one.

Kristina Woolnough: Option 2 in work package 1 is similar to our alignment, but not quite the same. The run time given for option 2 is quicker than the one given for your proposal. That suggests to me that the traffic interface of our alignment might have less of an impact than you seem to believe.

Stuart Turnbull: The run time for the route from the west end of Princes Street to Crewe Toll is approximately one and a half minutes quicker than the run time for the promoter's route. However, as you will see from the text, that assumes absolutely no junction delay travelling down Queensferry Street, over the Dean bridge and turning right into Orchard Brae, and therefore—

Kristina Woolnough: Have you also assumed no junction delays at any other junction?

Stuart Turnbull: For the promoter's route, the comparator assumes a junction delay at Haymarket junction. West of Haymarket there are no junctions so there will be no junction delays.

Kristina Woolnough: And for our alignment?

Stuart Turnbull: If there is a one-and-a-half-minute time saving for the option that was assessed—which assumes no junction delay—we must then consider that your alignment introduces a right turn from West Maitland Street into Palmerston Place, a right turn from Palmerston Place into Chester Street, and then a left turn from Drumsheugh Gardens into Queensferry Street. All those turns would be subject to delay.

Kristina Woolnough: But there may be a time saving at the Haymarket end, if we consider traffic impacts. Your proposed route goes from Haymarket Yards across the vehicular traffic, so our alignment may offer a time saving there.

Stuart Turnbull: From my understanding of the work package 1 report, there is a one-and-a-half-minute time saving if you compare the route from the west end to Crewe Toll with the promoter's route.

Kristina Woolnough: The run time for option 1—your option—is 8.24 minutes. The run time for option 2—which is as near as we can get because we do not have the calculations for our alignment—is 5.17 minutes. I do not make the difference one and a half minutes. I make it more than three minutes.

Stuart Turnbull: My arithmetic is obviously not as good as yours.

Kristina Woolnough: They are your figures.

Stuart Turnbull: From looking at the work package 1 report, my understanding was that the difference was approximately one and a half minutes. Nevertheless, even if you are correct in saying that it is three minutes, your alignment

would still lead to an increased run time. Option 2 turns right at the west end to go down Queensferry Street, whereas you are running on to Shandwick Place, West Maitland Street, Palmerston Place and Chester Street to get back to the same point. You have introduced two right-turn manoeuvres and a left-turn manoeuvre, all of which will be subject to delay.

Kristina Woolnough: But you have not done the calculations for the time saving that our alignment might have at Haymarket junction.

I think I will stop this line of questioning. I think I have finished.

The Convener: Thank you, Ms Woolnough. May I remind people that we do not want statements, we want questions. That will help us to get to the end of this evening.

Mr Vanhagen will ask questions for group 35.

Richard Vanhagen: Obviously, there is a composite rebuttal for all the alternative routes—my colleagues have therefore asked most of my questions. However, I would like you to clarify something for me. Paragraph 3.3 of the promoter's witness statement states:

"In traffic terms the routing of the tram along on-street sections is clearly less desirable than the option of segregated running."

I understand that there are 7 miles of on-street running, and there seems to be tremendous inflexibility in being able to run the tram on the alternative routes that we are suggesting over our part of the route. Does that raise questions about the suitability of trams as a mode of transport for the Edinburgh streetscape?

Stuart Turnbull: I am not sure that I entirely follow the question.

Richard Vanhagen: I realise that it was rather long.

Stuart Turnbull: There are elements of segregated running and elements of shared running on the loop, which are taken into account in developing the run-time analysis and therefore the business case. We take full cognisance of the fact that there is not segregated running on all the route.

Richard Vanhagen: I was trying to get to problems relating to junctions and turning the tram. We are talking about Palmerston Place in the new town, for example, and turning left into Shandwick Place—we are not turning on to West Maitland Street. I understand that our recommendation is that the tram should turn left, but that seems to cause great technical problems for you. That is not an engineering impossibility, but it is technically difficult, and these are not narrow streets. Does that raise the question whether trams are suitable for Edinburgh?

Stuart Turnbull: I appreciate—

The Convener: Mr Vanhagen, that is a huge question, as you will appreciate. Your witness statement has been double-checked and the question is not in there. Your rebuttal witness statement does not refer to the matter and I am keen that we should move on.

Richard Vanhagen: Right. Perhaps Mr Turnbull could tell me about the impact on parking as a result of the tram running on Belford Road, which is classed as a "particular concern". Why is parking on Belford Road a "particular concern" to you?

Stuart Turnbull: Paragraph 3.20 of my rebuttal statement comments on traffic-related issues that are related to the various routes to the south of Craighleith. I commented on the potential impacts on parking on Belford Road. One suggested route is on Belford Road, where there is currently on-street parking, and that must be considered. It may or may not be possible to develop a solution that accommodates parking; however, I simply identified a potential problem.

Richard Vanhagen: I am not conscious of a lot of parking on Belford Road, as that is where the galleries are and there is a yellow line. I am not sure what you are talking about.

The Convener: You should ask a question, Mr Vanhagen.

Richard Vanhagen: I asked the question that I did because I am not conscious of a lot of parking on that road.

Stuart Turnbull: I understand that there is parking there.

Richard Vanhagen: That is news to me. Thank you very much.

The Convener: Thank you, Mr Vanhagen. Mrs Milne.

Mrs Milne: I advise the committee that I regularly deal with Jacobs Babbie in a work capacity. That work will not affect my cross-questioning, but members should know about it.

The Convener: I am sure that it will not affect your cross-questioning, but thank you anyway. Go for it.

Mrs Milne: Mr Turnbull, you were almost the only person who considered the stretch of route from the hotel at Craighleith southwards, but it seems to me that your only possible problems with the route involved car parking, as Mr Vanhagen said, and unidentified and unexplained junction problems. You have provided no information about queue lengths or anything else. All that I have at paragraph 3.3 of your statement is references to the impact on parking and various route

selections. Do you have so little confidence in achieving the promoter's objective of reducing car use that you expect not to be able to deal with a few car parking spaces and congestion at a few signal locations?

17:00

Stuart Turnbull: I compare the options that are in front of me. One option is to run west towards Haymarket station and on segregated track to Crewe Toll, which would have no interface with traffic. Against that are several alternatives that would to varying degrees impact on traffic and other road users.

I have identified the concerns that are associated with the junction of West Maitland Street and Palmerston Place, the junction of Queensferry Terrace and Queensferry Road and the junction of Queensferry Road and Orchard Brae, to which I think I referred in my rebuttal.

Mrs Milne: You have listed the areas but provided no details. As Ms Woolnough said, no details on the effects on run times have been provided for those locations. Could modern traffic management schemes deal with the problems at such junctions if the will was there?

Stuart Turnbull: There are some sophisticated means of dealing with traffic. My biggest concern with the proposed alternatives is the need for the tram to make left or right-turn movements at those junctions. The proposed route has other elements of on-street running, but they generally involve the tram running straight through a junction.

A tram making a left or right-turn manoeuvre at a junction would have two major impacts. It would impact on the junction's operation, because junctions in the city tend to work whereby east-west movements have a green light then north-south movements have a green light. As the tram would make a right or left-turn manoeuvre, it would have an impact on that system. It would also have an impact on the available green time for other road users, because the right or left-turn manoeuvres for the tram would be more complex. Additional physical impacts would occur. Mr Bain can give further evidence on the radius that is required at particular junctions.

My concern is not that trams would run on street per se, although I would obviously prefer a segregated route, but that the options that have been suggested via the Dean bridge or Belford Road would require several right or left-turn manoeuvres for the tram.

Mrs Milne: Those are all my questions.

The Convener: Committee members have no questions. Does Mr Thomson have further questions for Mr Turnbull?

Malcolm Thomson: I will ask about the difference between taking a tram through a junction when the tram continues in a straight line and when the tram makes a 90° turn to the left or right. Will you give an idea of the order of magnitude of how much longer it takes to get a tram through when making a 90° turn as opposed to a straight-through manoeuvre, assuming that one tries to give the tram some priority?

Stuart Turnbull: I wish that the situation were that simple. Several factors have an impact, notably the form of a junction and the movement of other vehicles. If junctions in the city are generally configured to allow east-west running then north-south running and we introduce an east-south manoeuvre, for example, that will have an impact. The issue is not just the additional time that the tram would take to go through the junction, but the consequential impact on other road users, which is a major consideration.

Malcolm Thomson: I will return to the Crewe Toll junction. You mentioned two main routes that pass through the junction. For those who may not be as familiar with the junction as you are, what are those two routes? What is their strategic significance to the network? Roughly, how busy are they?

Stuart Turnbull: Crewe Toll junction handles approximately 4,000 vehicles in the peak hour. The two major routes that lead into it are Telford Road, which comes from the A8 corridor and serves the north sector of the city, and Ferry Road, which is one of the main east-west routes to serve the north. Those two roads join at Crewe Toll junction.

Malcolm Thomson: Finally, I will ask about Ms Woolnough's option and the time comparison exercise that you told us about. Whatever the time difference is, am I right in understanding that two factors differ between the two options? The promoter's proposal involves negotiating the Haymarket junction but little else, whereas Ms Woolnough's option avoids Haymarket junction but has several other junctions to contend with.

Stuart Turnbull: That is correct. That option would impact on the run time and the system's reliability.

Malcolm Thomson: Am I right to understand that the comparison exercise that you undertook takes account of the fact that the promoter's proposal must deal with the Haymarket junction?

Stuart Turnbull: That is correct.

Malcolm Thomson: But it made no assumption about the difficulties that Ms Woolnough's option would encounter with the other junctions.

Stuart Turnbull: Not in detail; we have just the qualitative statements that I gave the committee.

Malcolm Thomson: Her route would incur a time penalty.

Stuart Turnbull: Yes.

Malcolm Thomson: Thank you.

The Convener: I propose to have a short break, for which tea and coffee are available for everybody, including those who are in the public gallery. However, to instil some sense of order, as the break will be short, I invite people to give priority—something that we have discussed—to the witnesses whom I will call, the objectors and the promoter, because I want to resume as quickly as possible. I ask everybody else to bring their cups in quietly. I intend to call next Mark Bain, Neil Harper, Karen Raymond and Aileen Grant. Do not all rush to the tea.

17:07

Meeting suspended.

17:17

On resuming—

The Convener: Before we commence oral evidence taking, I invite Mark Bain, Neil Harper, Karen Raymond and Aileen Grant either to take the oath or to make a solemn affirmation.

NEIL HARPER *took the oath.*

MARK BAIN, KAREN RAYMOND *and* AILEEN GRANT *made a solemn affirmation.*

The Convener: The first witness is Mark Bain, who will address alignment considerations in route selection.

Malcolm Thomson: Mr Bain, can you first briefly explain your role in the project?

Mark Bain (Transport Initiatives Edinburgh Ltd): My role was to consider the technical feasibility of the alignment geometry, which is the vertical and horizontal fit of the track within the environment in which it would find itself.

Malcolm Thomson: Engineers have a habit of saying that almost anything can be done if enough money is spent on it. To what extent have you considered how realistic the options that Ms Bourne and Ms Woolnough have proposed are, given the practicalities of life? To what extent is what they propose possible?

Mark Bain: As you say, most alignments can be engineered, but they will have repercussions. I am not an expert on some repercussions—you have heard evidence already on them—but obviously journey time, patronage, service route reliability, operating and capital costs and traffic impacts are repercussions associated with particular alignments.

Malcolm Thomson: Will you summarise some of the alignment difficulties that are associated with Ms Woolnough's proposed alignment?

Mark Bain: Yes. Is that in respect of group 34 or group 43? There are a number of alternatives.

Malcolm Thomson: Will you start with group 34, please?

Mark Bain: As I read it, group 34's alignment goes from Orchard Brae to Queensferry Road, then across Dean bridge to Randolph cliff before turning into Drumsheugh Gardens. After that, it goes into Chester Street, Palmerston Place and West Maitland Street. As we have already heard today, there are a number of 90° bends associated with that option. It would take some time to negotiate those bends within the vehicle characteristics that have been assumed for the tram, namely a 25m-radius horizontal bend. In addition, the option has potential impacts on land at the junction of Chester Street and Palmerston Place and property impacts at the junction of Palmerston Place and West Maitland Street.

As has been mentioned today, there are only a certain number of crossing points over the Water of Leith. We considered all five of the crossing points that are currently available. Rightly or wrongly, we did not consider a new crossing. Group 34's alignment crosses the Dean bridge, which is class A listed. Admittedly, the Coltbridge viaduct is class B listed, but the Dean bridge is listed not only because it is in a conservation area, but because of its engineering significance. We believe that it is one of only two bridges in the UK of its construction type, which is a voided arch. Those are the main points about that route.

Malcolm Thomson: What about group 45's option? I think that that involves the Belford bridge.

Mark Bain: Yes. That route turns right at Orchard Brae to run along Queensferry Road before turning up Queensferry Terrace to Belford Road and eventually to Douglas Gardens to reunite with the promoter's route at West Maitland Street. The principal difficulty with that route is the gradient between Belford Road and Palmerston Place. From the spot levels, we can see that Douglas Gardens has an average gradient of 8.9 per cent, which is in excess of the maximum level gradient for the tram, which is 8 per cent. There are also some potential land impacts at the junction of Orchard Brae and Queensferry Road and the junction of Queensferry Road and Queensferry Terrace.

Malcolm Thomson: What are the principal alignment difficulties with the Crewe Road South and Craigleith Road option?

Mark Bain: We have already heard about the Crewe Toll junction, but that was mainly from the

point of view of traffic impacts. Obviously, an at-grade solution could be developed through the junction if no other factors were considered. There might be some land impacts at the north-west corner of the junction of Crewe Road South and Craigleith Road, where there are landscaped gardens of a residential flatted development. There is also a series of horizontal bends to negotiate between Craigleith Road and the stop, which is currently positioned on the Craigleith retail park side, before the turn into the railway corridor across South Groathill Avenue. There is a succession of reverse curves, one of which is 35m, one of which is 50m and one of which is 60m. That will tend to slow the vehicle down. However, the route is technically feasible.

Malcolm Thomson: Is the promoter's proposed route preferable to all three of the other options that you have been considering?

Mark Bain: Yes. The alignment geometry at various sections of all the other options is inferior to that of the promoter's route. The promoter's route is predominantly level, other than at the two extreme ends. The worst horizontal curve radius in the corridor is about 200m, which is across the Coltbridge viaduct. Every other horizontal curve is in excess of 300m. Obviously, the route does not have a straight alignment, but it does not have as tight a curvature as is prevalent in all the variants that have been suggested.

Malcolm Thomson: Is your preference a matter of fine professional judgment, or is the route clearly preferable?

Mark Bain: Both. It is clearly preferable, but that opinion is based on professional judgment.

Malcolm Thomson: In your witness statement, you talk about the "dynamic kinematic envelope". Perhaps you would remind us briefly what that is.

Mark Bain: The dynamic kinematic envelope is quite difficult to break down into its various components. Obviously, we have a static envelope, which is the physical width of the tram. In this case, we have assumed that to be 2.65m—the majority of UK trams are exactly that width. Then we have to take account of the movement of the vehicle. As a tram manoeuvres, it rocks back and forward, just as a train does. There is therefore a kinematic envelope that we have to make allowance for. We make allowance for tolerances in the track work and for the loads that are applied to the vehicle when it is in service, as well as any loads from wind and weather. Over and above that, we have to consider the curvature of the alignment. That widens the overall area that is described by the tram vehicle—the tighter the curvature, the wider the DKE.

Malcolm Thomson: I suppose that the precise dimensions of the dynamic kinematic envelope

depend on the particular tram that is used.

Mark Bain: Not only on the particular tram, but on the particular track work at any given chainage or point on the route.

Malcolm Thomson: In your comparison of the various options, what assumptions did you make about the size of the dynamic kinematic envelope?

Mark Bain: As I have said, the predominant factor in the width of the dynamic kinematic envelope is the physical width of the vehicle, which is 2.65m. Over and above that, we made an allowance of 100mm on either side for the kinematic envelope. That creates an envelope of 2.85m. However, the envelope then depends on the particular section of track, so I would have to answer the question for particular curvatures and speeds.

Malcolm Thomson: I will put a criticism to you: because the precise measurements of the dynamic kinematic envelope are not yet known, the land that may be available in the Roseburn corridor for the cycleway and walkway, and for wildlife and landscape planting, may have been overestimated.

17:30

Mark Bain: That assertion could be considered correct. The area could also have been underestimated. That depends on the tram vehicle that is procured. However, because the curves are of a relatively large radius throughout the Roseburn corridor, the consequences of the vehicle choice will be relatively minor.

The vehicle choice will be based on the parameters that we have specified in my witness statement, the STAG report and preceding reports that date back to the inception report in August 2002. It is not possible to define the magnitude, but I imagine that it is of the order of minus 50mm to plus 150mm. As I said, that could go either way. We do not expect that to have a marked effect on the ability to take the proposed mitigation measures.

Malcolm Thomson: Similarly, because the dynamic kinematic envelope has not been finally determined, the criticism has been made that the safety implications of operating in the Roseburn corridor have not been considered adequately.

Mark Bain: That is not the case. Before the bill was introduced, the promoter received a letter of no objection to the principle of the bill in January 2004. That is as much as Her Majesty's railway inspectorate can give any promoter of a tram scheme before construction. That letter considered safety implications within the corridor and covered the safety requirements.

Malcolm Thomson: Thank you.

Alison Bourne: I have just listened to your opinion on the technical aspects of the Craighleith Road and other alignments. Your statement says that the Craighleith Road and Crewe Road South alignment is technically feasible, does it not?

Mark Bain: Yes. I confirmed that in my opening statement.

Alison Bourne: Paragraph 4.2 of your statement says that none of the alignments that have been considered as alternatives to the Roseburn corridor has been

“subject to detailed geometric design.”

Does that include the Craighleith Road option?

Mark Bain: Given the timing of work package 1, the Roseburn corridor is also included.

Alison Bourne: In paragraph 2.1 of your rebuttal of 12 August to Mr Casey of NHS Lothian, you say that the Telford Road access to the Western general may be underutilised. Have you surveyed the use of all the existing access points to the hospital?

Mark Bain: We have not. That question was asked of another witness earlier and the answer is the same.

Alison Bourne: I was just checking.

Do you accept that the Crewe Road South entrance is and will continue to be the main entrance to the Western general hospital?

Mark Bain: I agree that it is the main entrance to the hospital. It is the most convenient entrance for three or four buildings. However, the entrance from Telford Road is closer to the neurology building, which has been mentioned. The Crewe Road South entrance will probably remain the main access, but the NHS has considered remodelling the access roads to allow a feeder bus, to which the promoter has alluded.

Alison Bourne: Has the NHS suggested to you that it may turn round the most people-dense parts of the hospital closer to the Telford Road access?

Mark Bain: No.

Alison Bourne: So the most people-dense part of the hospital will remain on the Crewe Road South side of the site.

Mark Bain: That is correct.

Alison Bourne: So it is reasonable to assume that that entrance will continue to be the main access to the Western general.

Mark Bain: I expect so, but I cannot speak for the NHS or what it chooses to do with its site.

Alison Bourne: The Crewe Road South tram stop is about 200m to 300m from the main

buildings. Do you agree that that distance is significantly shorter than that from the Drylaw or Crewe Toll tram stop?

Mark Bain: I would agree that it is shorter. Nonetheless, it is still a walk for people who are mobility impaired, whereas a feeder bus would take people closer to the main points of entry to most of the buildings.

Alison Bourne: In paragraph 3.2, you state that the following paragraphs assume that trams are “not segregated” on Crewe Road South. In paragraph 3.15, you state that segregation was not considered because of the environmental impact. Can you therefore confirm that you have not assessed in any great detail a segregated route along Crewe Road South?

Mark Bain: That would be fair to say. However, over and above the environmental impacts, there would be a significant land take of some 9,600m².

Alison Bourne: In paragraph 3.20, you say that parking bays should be a minimum of 2.5m wide. I have been out with my tape measure and on Comely Bank Road I notice that the width of the bays has been reduced to about 2m. How narrow can a parking lane or parking bay be?

Mark Bain: The 2.5m comes from the publication by the roads authority—the City of Edinburgh Council—called “Movement and Development”, which is guidance on the development of roads.

Alison Bourne: But bays can obviously be narrower than that.

Mark Bain: You have measured bays in a particular place and there will be places in Edinburgh where the road width is such that—

Alison Bourne: So there is no minimum width for a parking bay.

Mark Bain: There is a guidance standard, which gives a minimum of 2.5m.

Alison Bourne: You give a list of nine scenarios in paragraph 3.21. Can you confirm that eight of them show that trams would fit on Craighleith Road if the council was minded to accept some road layout changes?

Mark Bain: Given the width of the road, probably only one of the options would be considered—the segregated option, where the rebuttal statement says “existing – 5no. traffic lanes”. Craighleith Road does not have five lanes, but there are parking bays that are 4m wide, so the width is the equivalent of a five-lane road. The width is 21.5m in total, but if we take away the footpaths, the width between the kerbs is approximately 17.5m. That concurs with the seventh and eighth options in the list. If we consider traffic movement, tram operation and tram reliability, we would opt for segregated

operations with two traffic lanes and with parking retained on one kerb as opposed to two.

Alison Bourne: I turn now to the document that combines my statement and your response. In paragraph 123, you say that segregation along Crewe Road South would have more significant impacts. Do you have detailed 1:1,250 plans, similar to those for your preferred route, which show such a segregated route? Has an environmental statement been prepared that compares a segregated route along Crewe Road South with the route along the Roseburn corridor?

Mark Bain: I think that that question has already been answered.

Alison Bourne: Yes, but do you have the plans?

Mark Bain: An answer relating to the environmental statement has already been given, and the comparison that you mention has not been made. However, as far as I am aware, there were some environmental comments in the Craighleith report. There are no plans at 1:1,250 scale, but we can look electronically at the route in any scale whatever.

Alison Bourne: For our purposes, a map makes it much easier to see where you say you will lose parking bays, trees and so on.

Mark Bain: In the given timescale, we have concentrated on the areas where the alignment is difficult, which is at the junctions. The alignment would be relatively simple on a segregated route along Craighleith Road.

Alison Bourne: Good heavens—I believe that I have asked all my questions.

The Convener: Thank you very much; that was good of you.

Kristina Woolnough: My questions are largely limited to the tram specification. You have described the generic tram model specification and the assumptions that have been based on that. You mention elements of land take that might or might not be required for our alternative alignment proposals. If the specification were changed so that trams could manage a tighter curvature on some of the bends where land take might otherwise be required, would that mean that land take would not be required? I understand that the Sydney tram, for example, has a much tighter turning curvature than the generic model on which your assumptions are based.

Mark Bain: The present parameters were developed by considering a range of trams that have been implemented in the UK.

Kristina Woolnough: Yes—you looked at trams in the UK.

Mark Bain: The specification is generic.

Kristina Woolnough: But it would be possible to change the specification such that land take would not be required.

Mark Bain: As has already been mentioned, if we were to change the specification, we would tie our hands significantly as regards the manufacturer that we could choose and the tram configuration that we could procure. That would result in increased costs, not only for the line 1 fleet, but for the line 2 fleet, because the requirements of interoperability on the network would mean that every tram would be impacted by the increase in capital cost that would result from the procurement of a non-standard vehicle.

Kristina Woolnough: In the procurement process, you would not have to specify the requirement that the tram could manage tighter curves.

Mark Bain: All that I am saying is that what you propose would have repercussions.

Kristina Woolnough: I am suggesting that if the generic specification were broadened, that would enable trams to manage tight curves, which would mean that land take was not necessary. That might be beneficial in cost terms.

Mark Bain: You talk about broadening the tram specification but, in fact, you would be narrowing the choice of vehicles.

Kristina Woolnough: My suggestion might not narrow the procurement choice. If the curvature turn that the tram could manage were left open so that a range of trams, from trams that could manage tighter turns to trams that could manage wider turns, could be chosen, you would be broadening your options. It would be possible to include trams that could manage a narrower curve, which you have now excluded from the procurement process.

Mark Bain: I do not agree with that. I think that what you suggest would narrow the choice of vehicles.

Kristina Woolnough: Okay. Although a tram that had a tighter curvature capacity would not meet the cost requirements, it would meet the requirements of serving the Western general and managing the alternative alignments that we propose.

Mark Bain: I imagine that if the parameters were respecified in that way, it might be possible to develop a suitable alignment in certain—although not necessarily all—areas. That might require slewing of the alignment across more of the traffic lanes, which in turn would have an impact on the time that it would take for the tram to pass through junctions. Stop lines would have to

be set back and the time that the tram would take to negotiate junctions would increase. With a narrower tram and a tighter horizontal radius, that would be technically possible.

Kristina Woolnough: That would impact on what you said in your rebuttal about the land take that would be required.

Mark Bain: I would have to review the situation. That would not necessarily be true in all cases.

Kristina Woolnough: You described the Roseburn corridor, which is your preferred alignment, as being level but, in fact, its gradient rises more gradually than that of Orchard Brae. Orchard Brae has a steeper, more obvious gradient, but the Roseburn corridor is not level.

Mark Bain: It is near level.

Kristina Woolnough: As someone who cycles up it every day, I can tell you that it is not level.

Mark Bain: It is pretty much level in comparison with Orchard Brae, as you rightly mentioned.

Kristina Woolnough: You said that detailed engineering design work has not been carried out on the Roseburn corridor alignment or on various other options. Is that correct?

Mark Bain: I think that I said that no detailed alignment design had been undertaken at work package 1 stage.

Kristina Woolnough: Has detailed engineering design now been undertaken for the Roseburn corridor?

Mark Bain: There has been a certain amount of alignment design, commensurate with specifying limits of deviation for our parliamentary bill, but not with procuring a construction contract.

Kristina Woolnough: Has detailed design work been done on the structural capabilities of bridges and tunnels in the Roseburn corridor? Are they sound?

Mark Bain: Yes, that work has been done.

17:45

Kristina Woolnough: Can you share it with us? This is the first time that I have heard about it. You have been fair and have accepted that our alternative alignment is viable, but have said that we do not know things about the Dean bridge. Is it known whether the 11 tunnels and bridges in the Roseburn corridor are completely sound and that the route is completely viable?

Mark Bain: Yes.

Kristina Woolnough: Have they all been subject to engineering tests to check that they are structurally sound?

Mark Bain: Did you say “structurally sound”?

Kristina Woolnough: I am talking about the structure. You have said that the structure of the Dean bridge may not be sound enough to take trams. Are you saying that the bridges along the Roseburn corridor are structurally sound? Have they been tested for structural soundness?

Mark Bain: No, they have not been.

Kristina Woolnough: So it is possible that difficulties that you envisage with the Dean bridge might be—

Mark Bain: I am not a structural expert. However, I do not expect there to be any problems.

Kristina Woolnough: But if there are problems with the Dean bridge, there may be similar problems along the Roseburn corridor.

Mark Bain: I do not think that I have been as categoric as to say that there are specific problems with the Dean bridge.

Kristina Woolnough: You have said that the problems are unknown.

Mark Bain: That is correct.

Kristina Woolnough: Problems in the Roseburn corridor are also unknown.

Mark Bain: I suppose that that is a fair comment.

Kristina Woolnough: Thank you.

You cover safety and other issues, which will be covered elsewhere, but I think that this is our only opportunity to cross-examine you on them. I will try to rattle through my questions.

I want to deal specifically with your rebuttal to group 34. We have discussed horizontal curvature and your changing the tram specification, which may not be issues for negotiation. Do you accept that the photograph at paragraph 3.7 of your rebuttal statement is out of date?

Mark Bain: Which photograph?

Kristina Woolnough: The photograph from the Dean bridge to Randolph cliff, where there have been road closures and remodelling has taken place. I beg your pardon—that information has been included.

Mark Bain: It is a recent photograph and covers the road closure.

Kristina Woolnough: I apologise.

On paragraph 3.16, Mr Buckman has said that the Haymarket Yards stop on your alignment is 50m from Haymarket station, but you say that it is 20m from the station. Will you clarify matters for me?

Mark Bain: If you have a closer look at the rebuttal, you will see that it says that Haymarket Yards are

“within 20m of the western ends of the tram stop platforms.”

I suppose that Mr Buckman is talking about the centre of the platforms, which would be a distance of 40m.

Kristina Woolnough: On your rebuttal to group 45, if the tram specification changes, other curvatures will become possible that are less attractive, according to your generic specification. I do not have anything to add to that. Thank you.

The Convener: Does Mr Vanhagen want to ask any questions?

Richard Vanhagen: All my questions have been asked.

The Convener: Do you want to ask any questions, Mrs Milne?

Mrs Milne: I have little to ask about, as Mr Bain kindly agreed with our witness statement. I want to ask only about his witness statement for the promoter on group 45 and about the DKE, which Mr Thomson mentioned. Does the DKE depend on speed, cant and other factors?

Mark Bain: It does.

Mrs Milne: So the variation could be more than 150mm.

Mark Bain: Cant is directly related to curvature and speed. As I have said, the curves in the Roseburn corridor are relatively slack. In fact, we might consider the stop issue—

Mrs Milne: We are not discussing the stop issue at the moment.

Mark Bain: Fine. In that case, I will stop my answer there.

Mrs Milne: We are talking about the extent to which the tram's DKE might have been underestimated, with the result that there might be less room for planting and so on.

Mark Bain: The limits that I mentioned earlier—

Mrs Milne: Do they take account of all the characteristics that you have listed in paragraph 3.13 of your witness statement?

Mark Bain: Yes.

Mrs Milne: Those are all my questions.

The Convener: Do committee members have any questions?

Rob Gibson: Why does the generic tram specification contain these particular dimensions?

Mark Bain: A team of people examined this particular aspect at the outset of the project. I was

involved, but I must say that I do not purport to be an expert on rolling stock specification and procurement. I can tell the committee that the specification was an amalgam of typical tram vehicles that operate in the likes of Manchester, Nottingham, Croydon, Sheffield and other parts of the UK.

Rob Gibson: So a tram with such a specification could easily be procured, because similar ones have already been built.

Mark Bain: That is correct.

The Convener: Mr Thomson, do you have any follow-up questions for Mr Bain?

Malcolm Thomson: No.

The Convener: In that case, I thank Mr Bain for giving evidence this afternoon.

The next witness is Neil Harper, who will address the issue of capital costs of route selection. Mr Harper, I understand that you have delayed catching a flight to give evidence. The committee and I are grateful for that. I hope only that you were not going anywhere sunny.

Malcolm Thomson: Mr Harper, I begin with my usual opening question. Will you indicate briefly your role in the project?

Neil Harper (Brian Hannaby & Associates): Predominantly, my role was to prepare estimates and advise on capital costs, particularly on the promoted route and on some considered options leading up to the STAG 2 submission.

Malcolm Thomson: At what stage in the route option assessment were you asked to contribute to the process?

Neil Harper: In the context of today's evidence session, I provided the capital cost estimates of the alternative routes for the Craighleith options report in 2003.

Malcolm Thomson: Will you outline the section of the route that you were comparing in the comparison of capital costs in your statement?

Neil Harper: For the three options in the Craighleith options report, I was comparing costs for a section between a point to the north of Ferry Road and the north of Queensferry Road.

Malcolm Thomson: How was that section chosen?

Neil Harper: The north and south points are the points at which the Telford Road and Craighleith Road options join the railway corridor route. As a result, for the three options, we were comparing like with like and making a consistent appraisal.

Malcolm Thomson: Did the promoter ask you to carry out the same comparative exercise for the

alternative proposed alignment that would have used the former railway corridor at Starbank?

Neil Harper: Yes.

Malcolm Thomson: What was the outcome of that assessment?

Neil Harper: We found that the construction cost was likely to be lower if the former railway corridor was used, despite the fact that it is a longer route.

Malcolm Thomson: Again, you would have expected that from your work on the Roseburn corridor.

Neil Harper: Yes. That is a typical outcome.

Malcolm Thomson: Do you know why the promoter did not prefer the railway corridor route at Starbank?

Neil Harper: I understand that it was not preferred on patronage and run time grounds.

Malcolm Thomson: In your capital cost estimating exercise, have you included an allowance for mitigation measures?

Neil Harper: For the Roseburn corridor, yes. Cost allowances are included for habitats, noise and visual mitigation works, which include planting and fencing works.

Malcolm Thomson: Could you explain what is meant by the phrase "third-party accommodation works"?

Neil Harper: It refers to any works to third-party properties, such as boundary adjustments or access and parking modifications that would be necessary to accommodate the introduction of the tram infrastructure.

Malcolm Thomson: Similarly, could you explain what you mean by

"increased scope of associated highway and accommodation works"?

Neil Harper: For the Telford Road and Craigleith Road options, in comparison with the Roseburn corridor, that relates to necessary modifications to the highway, carriageway, footways, utilities works, street lighting, traffic signalling and the usual on-street elements.

Malcolm Thomson: On a minor point of detail, why are your costs stated as at the second quarter of 2003?

Neil Harper: Because the capital cost estimates relate to the STAG 2 submission of 2003, the base point has been adhered to for consistency.

Malcolm Thomson: Have you been asked to review those costs at current rates?

Neil Harper: No.

Malcolm Thomson: Thank you.

The Convener: I turn now to Ms Bourne.

Alison Bourne: Can I confirm that the option C that you assessed—the Crewe Road South/Craigleith Road option—was a predominantly on-street option? Were you asked to assess one option for capital costs based on segregated running?

Neil Harper: No; only the street-running option.

Alison Bourne: Do you accept that, for major schemes, it is not always a simple case of accepting that the cheapest is the best?

Neil Harper: Yes, as a general statement.

Alison Bourne: Do you agree that, in offering the Telford Road option as a possible alternative, the promoter must, at that time, have deemed it acceptable from a cost point of view, in order to deliver greater benefit?

Neil Harper: I cannot really comment. I have not been consulted on that. My role in preparing capital cost estimates is largely one of reacting to information provided by other project team members.

Alison Bourne: In the promoter's combined rebuttal of my statement for group 33, round about page 41, you refer to considerably lower patronage based on new information submitted by the promoter in the August rebuttal statements. Can you confirm that that is the case?

Neil Harper: To do with patronage?

Alison Bourne: Yes.

Neil Harper: No, I cannot. My role does not cover patronage at all. It is purely related to capital costs.

Alison Bourne: Those are all the questions that I have for you.

The Convener: Does Ms Woolnough have any questions?

Kristina Woolnough: I refer to a point that was raised by Mr Thomson, on costs to cover mitigation. Do the mitigation costs for the Roseburn corridor specifically cover the proposals that are included in the landscape and habitat management plan? Have they been costed out?

18:00

Neil Harper: Not in detail. In 2003, when the capital costs were prepared, we were asked to include provisional allowances for potential works, but they were not based on a great deal of detail.

Kristina Woolnough: So you are not aware of any costs attached to the issues covered in the new documents that have been worked up and submitted to the Parliament and ourselves.

Neil Harper: Not specifically, but within the capital costs we have included provisional cost allowances for those issues.

Kristina Woolnough: But we do not know whether the provisional cost matches the actual cost of the proposals that are in front of us.

Neil Harper: I cannot say so.

Kristina Woolnough: We also touched briefly on the lack of structural assessment of the 11 bridges and tunnels on the Roseburn corridor. Was a cost factored in for that? Again, was it a generic cost that has not been tested in detail?

Neil Harper: Costs are associated with the existing structures, based on information that was produced in some preliminary survey works by Mott MacDonald's structural engineers.

Kristina Woolnough: So, again, we might discover that the cost of the actual structural repairs or alterations to the bridges will exceed the amount that was included at that time.

Neil Harper: The allowances are provisional and were based on the information that was available at the time. As detailed design and scheme development progresses, those costs could change. They could rise or fall.

Kristina Woolnough: I am sorry, but I missed what Mr Thomson said about your involvement in work package 1. Was cost involved in work package 1 as part of the technical feasibility?

Neil Harper: No. We prepared some preliminary feasibility costs but not in a great deal of detail. The more detailed costs were prepared during the submission of the STAG 2 documentation.

Kristina Woolnough: So no costs have been done for our alternative alignment.

Neil Harper: Which alternative alignment?

Kristina Woolnough: Group 34's alignment, which goes from Orchard Brae, via Queensferry Road, over the Dean bridge and up to Haymarket.

Neil Harper: No.

Kristina Woolnough: So we cannot determine whether our route might be cheaper than the proposed route because we do not know the costs of possible mitigation, the costs of structural alterations on the Roseburn corridor or the costs of our alignment.

Neil Harper: No, we cannot do that without going into a reasonable amount of detail. However, generally speaking, the railway corridor option is likely to be cheaper than an on-street section. That was discovered in relation to Starbank and the comparison of Roseburn with Telford Road and Craighleith Road.

Kristina Woolnough: But our option is shorter in distance, so presumably the capital costs involved in laying track and suchlike would be less.

Neil Harper: As we said at the start, it depends how much shorter that option is. At Starbank, the railway corridor proves to be cheaper than the on-street option, even though it is a longer route.

Kristina Woolnough: At Starbank?

Neil Harper: Yes. More often than not, when we compare former railway corridor routes and on-street options, the cost of the on-street option is greater—in some cases, significantly so.

Kristina Woolnough: But we have not done the sums and we do not know the distances involved.

Neil Harper: No, but generally speaking the track work is more expensive because the design for on-street and shared running is more substantial. There are also associated highway and utilities works.

Kristina Woolnough: Along the Roseburn corridor mitigation work, such as barriers between pedestrians and the tramway, might be required. We do not know whether they have been costed in, because—

Neil Harper: As I said before, there are some allowances.

Kristina Woolnough: This is part of the whole landscape mitigation plan. We have agreed that the costs involved in that have not been measured against the original costs; in fact, it has not been costed at all. An element was put in but we do not think that it matches.

Neil Harper: It has not been costed in detail, but there are some allowances within the capital cost for such issues.

The Convener: We move to group 43.

Mrs Milne: Did the promoter ever ask you to carry out a comparative costing of the route from the hotel at Craighleith south to Roseburn, as against the Belford Road option, as you were asked to do it for Starbank?

Neil Harper: No.

Mrs Milne: You state that the estimated capital costs are for the existing structures in the options to which you refer in your original statement which, as you explained to Mr Thomson, was northwards from the hotel at Craighleith. Is it the case that—as you state in your statement—the estimated capital costs that you have included are for the bridges for the stretch of the route northwards from the hotel?

Neil Harper: Yes, for the Craighleith options comparison. As I explained previously, there are costs allowed for the promoted route for all the structures on the Roseburn corridor.

Mrs Milne: So although you state in paragraph 2.2 that the estimated capital cost for the routes include allowance for existing structures in options A, B and C, that is not strictly true. You meant all the way to Roseburn from Ferry Road.

Neil Harper: No. For the Craigleith options assessment, which compared Roseburn, Telford and Craigleith Road, I meant purely the section between Ferry Road and Queensferry Road.

Mrs Milne: Is it the case that you carried out no detailed costing for the Coltbridge viaduct or for the bridge at Roseburn?

Neil Harper: There are cost allowances in the—

Mrs Milne: There are cost allowances from when Mott MacDonald glanced at the options and gave a vague idea, but there are no detailed costings.

Neil Harper: I cannot comment on the detail.

Mrs Milne: You have not been asked to provide a detailed cost for either of those bridges, or any of the other bridges between the hotel at Craigleith and Roseburn.

Neil Harper: From the preliminary survey information that was produced by Mott MacDonald's structural engineers, we have prepared costs for inclusion in the overall capital cost estimate.

Mrs Milne: Do you mean for inclusion in the estimate that Mr Oldfield does not know whether it is £7.9 million cheaper or £9 million cheaper?

Neil Harper: I can clarify that. The reference to £9 million is inclusive of some land acquisition costs, whereas the figure in my witness statement—a difference of £7.9 million—is, as I state in the evidence, exclusive of land and property.

Mrs Milne: So the £7.9 million includes the cost of work on the Coltbridge viaduct and the bridge at Roseburn.

Neil Harper: No. Those three options relate solely to the section of the route between Ferry Road and Queensferry Road.

Mrs Milne: I am completely confused. What costing has been included in the £7.9 million for bridges between Roseburn and the hotel at Craigleith?

Neil Harper: Essentially there are two main structures. There is the Craigleith Drive bridge—

Mrs Milne: Sorry. I mean south from the hotel to Roseburn.

Neil Harper: Sorry—Groathill Road South bridge and Telford Road bridge.

Mrs Milne: What about the viaduct and Roseburn bridge? Are they not included?

Neil Harper: We are at cross-purposes here; those structures are beyond the section of the comparison of the Telford Road and Craigleith Road options.

Mrs Milne: We are at cross-purposes. Are you saying that there are no costings for bridges south of the hotel? Are you saying that they are not included in the £7.9 million?

Neil Harper: They are not included in the comparison of the three options.

Mrs Milne: So the £7.9 million figure would be considerably more if we added in the cost of the bridges south of the hotel.

Neil Harper: That would not be a consistent comparison because those bridges are beyond the section that we are comparing.

Mrs Milne: Is the route that Mr Oldfield said was £7.9 million cheaper only the section of the road from Craigleith northwards?

Neil Harper: Yes. As I stated, it is from the north of Queensferry Road up to—

Mrs Milne: So, do we not have a figure for the comparative cost of the Roseburn corridor option from the hotel at Craigleith to Roseburn? Do we have a costing for that at all?

Neil Harper: Those costs are included in the capital costs estimate for the whole route.

Mrs Milne: But we do not have a specific breakdown of that costing that we can compare with the Roseburn corridor option or any other option.

Neil Harper: We have not provided a breakdown in any of the documentation, although we used such a breakdown in the preparation of the costings.

Mrs Milne: How can you say that using the Roseburn corridor between the hotel and Roseburn will be cheaper than the Belford Road option?

Neil Harper: As I explained earlier, I cannot say that for certain. It is likely that an on-street running section will be more expensive than a former rail corridor in construction-cost terms.

Mrs Milne: But you have not done any of the costings.

Neil Harper: No, because we have not costed your alternative route.

Mrs Milne: But you have not costed the Roseburn—

The Convener: We have gathered sufficient evidence on this matter. You do not have to labour the point—the committee gets it.

Mrs Milne: I think that we have covered all my points, in that case.

The Convener: Excellent.

Phil Gallie: I would like to clarify Mr Harper's role. Have you costed the Roseburn and alternative schemes or have you costed the whole scheme so that comparisons can be made all the way around?

Neil Harper: We prepared the capital cost estimates for the whole scheme for the STAG 2 submission. In addition to that, we have costed some alternative route options, such as Telford Road and Craigleith Road.

Phil Gallie: You have said that no reassessment of those costs has been made since 2003.

Neil Harper: That is correct.

Phil Gallie: In your expert opinion, what would be the likely increase in cost over the two-year period, given factors such as the rise in land values and property values? Will there have been a significant increase in the costs that were identified in 2003?

Neil Harper: My role does not extend to land and property; I deal purely with infrastructure construction. However, there will have been an increase in the costs over that two-year period. From construction-cost indices that I am aware of, I imagine that the increase might be in the region of 12 per cent to 14 per cent. However, that would apply to any route alternatives.

Phil Gallie: I presume that capital costs do not take account of factors such as the cost of road closures and additional requirements during construction. Obviously, there will be a difference in that regard between the route that uses the Roseburn corridor and the one that involves on-street running.

Neil Harper: The capital-costs figure includes the cost of temporary works, temporary traffic management and any other works that the construction contractor would be required to undertake.

Malcolm Thomson: Mr Harper, I want to go back to a section of the proposed route that you compared. You told me earlier that you compared a section of the Roseburn corridor with the Telford Road and Craigleith Road options.

18:15

Neil Harper: Correct.

Malcolm Thomson: Am I right in thinking that you looked only at the stretch where those three options were different from one another?

Neil Harper: That is right.

Malcolm Thomson: You did not look at the section south of the hotel because that section was common to all three proposed routes.

Neil Harper: That is right.

Malcolm Thomson: So for your purposes you did not need to look at that section in the same detail.

Neil Harper: Correct.

The Convener: There are no further questions for Mr Harper, so I thank him for giving evidence. If it is helpful to you, you can leave now.

Neil Harper: It is not helpful now—I have already missed the plane.

The Convener: The next witness is Karen Raymond, who will address environmental inputs to route appraisal, which comprises the first part of Ms Raymond's witness statement. The remainder of the statement, on visual and amenity impacts and loss of vegetation, will be addressed later.

Malcolm Thomson: I will ask you my usual first question, Ms Raymond. Can you summarise for us your role in the project?

Karen Raymond (Environmental Resources Management): Yes. I led the team of environmental advisers who were appointed in June 2002 as part of the overall team that was led by Mott MacDonald. Our role initially was to assist in the process of route selection through the various stages, from work package 1 onward. We then carried out a full environmental impact assessment of the proposed scheme.

Malcolm Thomson: You have already given evidence to the committee on the anticipated loss of habitat within the Roseburn corridor. Can you update us on that?

Karen Raymond: I can. I must also give you an apology because I made a not insignificant error in the figures that I quoted previously in written and oral evidence. The figures relate to areas of unmade ground—what we might call the semi-natural habitat—in the Roseburn corridor today and following construction of the tramline. We previously quoted figures for the section of the corridor between the A8 at Roseburn and Telford Road. We said that there were currently about 4.2 hectares of habitat and that that figure would be reduced after construction by about 0.9 hectares to about 3.3 hectares, which is a reduction of 21 per cent in the area of habitat. I apologise for reading out this evidence from my papers, but I must do so otherwise I will get in a terrible tangle with the numbers.

Unfortunately, those previous figures were not correct. The main numbers were for only part of

the section between the A8 and Telford Road and the loss of 0.9 hectares related to an even smaller section that two badger social groups in the corridor use as a foraging area. The correct figures for the area between the A8 and Telford Road before and after construction should be 4.65 hectares before and 3.08 hectares afterwards, which would be a loss of 1.57 hectares, or 34 per cent of the total area.

Again, I tender my apologies for the confusion and the error that arose.

Malcolm Thomson: On the question of replacement planting in the Roseburn corridor, what mitigation measures are envisaged where space is tight and there may not be room for replacement planting?

Karen Raymond: As I just said, there would be a net loss in the planned area of planting within the corridor, but there is sufficient space within the corridor after construction of the tramline to provide substantially more than one-for-one replacement of the significant trees that will be lost, which are those that are more than 10cm in diameter, according to the British standard.

Over and above that, a considerable area of new woodland and scrub planting can be placed in the areas of the corridor that are poorly vegetated at present. They are either bare ground or what I would call in lay terms weeds and brambles. There is plenty of space in those areas to provide a substantial area of new planting such that we could be talking about planting several thousand trees.

Malcolm Thomson: Will you explain the nature of the environmental assessments that were carried out in relation to the promoted route and the other route options that the committee is considering today?

Karen Raymond: Yes. As earlier witnesses have said today, the nature of the route options in the route development process is such that one starts at a relatively high level and progresses through levels of detail until one arrives at a preferred scheme. In the world of environmental management, we refer to the earlier stages as the environmental appraisal and to the full assessment that is carried out on the promoted scheme as the environmental impact assessment, which is the statutory terminology for that stage in the process.

As I said, we provided inputs to work package 1 and to the subsequent options appraisals that were done during 2003 at progressively greater levels of detail. Basically, we started out with a desk-based assessment, in which we looked at the maps, plans and documents that were available to us from existing sources. We progressed through that to undertake

progressively more detailed survey and analysis as we approached the final scheme.

As I said, that is the normal way in which such things are done, which is in accordance with guidance from the Government on the approach to route development. At each stage, the aim is to carry out sufficient investigation to enable one or more preferred options to be identified. That was what was undertaken in this case.

Malcolm Thomson: In your experience, is it often or sometimes the case that the best environmental option is not the preferred option that is ultimately taken forward?

Karen Raymond: Yes—very often. In every case, one has to weigh up the environmental, economic and social costs and benefits of the available options and make a balanced judgment on them.

Malcolm Thomson: Can you think of any examples in your experience of where that has happened?

Karen Raymond: In nigh on all the projects that I have worked on there has been a balance to be struck. For example, in the work that we did on routing the high-speed rail link to the channel tunnel, we looked at many hundreds of options, a significant proportion of which were not the best environmental options.

Malcolm Thomson: Do you agree that the ecological impacts can be traded off against cost and technical issues?

Karen Raymond: They must be if one is to strike a balance between the environment, economy and society.

Malcolm Thomson: Do you agree with the suggestion that the adverse ecological impacts are likely to be underestimated because of unwarranted assumptions about the feasibility of mitigation?

Karen Raymond: No.

Malcolm Thomson: Thank you. That is all at this stage.

The Convener: Thank you, Mr Thomson. Before I let you launch in, Ms Bourne, I am conscious that we have about 30 minutes left before I must draw today's proceedings to a close. I want to ensure that you feel that that is sufficient time in which to complete your cross-examination. If not, I am happy to defer your cross-examination until our next meeting.

Alison Bourne: Thirty minutes will be plenty.

The Convener: Excellent. We might even get one or two of you in—you never know. Carry on, Ms Bourne.

Alison Bourne: What you said just now about quantifying social issues in terms of the trade-off between social and environmental issues is really interesting. Who in the promoter's team stands up for the social issues?

Karen Raymond: Basically, it is the people in the team who are concerned with issues of accessibility.

Alison Bourne: Who are they?

Karen Raymond: I am afraid that I cannot answer that question. They are not in my part of the team.

Alison Bourne: Are they engineers by trade?

Karen Raymond: No, they tend to be transportation specialists—transport planners.

Alison Bourne: They are not really specialists in the needs of places such as the Western general hospital, Broughton High School, the social inclusion partnership area or anything like that.

Karen Raymond: They absolutely are. The transport planner's job is to consider the access needs of the population that is served by a transport project.

Alison Bourne: Would not that make the exercise very subjective?

Karen Raymond: You will have to ask Mr Buckman about that. He is the person responsible for considering patronage.

Alison Bourne: In line 20 of your statement you state:

"no preference between the four loop options was identified on environmental grounds".

Given the new figures that you supplied today, what is your opinion now?

Karen Raymond: Those figures make no difference to the conclusion that we reached at that stage in the options appraisal process.

Alison Bourne: Am I right that many tram schemes are considered to visually enhance streets where they run on-street, especially when they include streetscape improvements?

Karen Raymond: I do not know the answer to that.

Alison Bourne: Will you confirm that the first time you were asked to look at the Craigleith Road and Crewe Road South alignment was in November 2003?

Karen Raymond: No, I think that we first looked at it in June 2003. No, I apologise—it was the Telford Road options that we looked at in June. The Craigleith option was later.

Alison Bourne: Was your assessment based on detailed plans showing the tram alignment running along that route?

Karen Raymond: It was not based on detailed plans.

Alison Bourne: But the alignment plans mainly ran on street.

Karen Raymond: Yes. We assessed an option that involved integrated on-street running on Craigleith Road and segregated on-street running on Crewe Road South.

Alison Bourne: You stated that the work package 1 report recommended that alternatives to better serve the Western general hospital be considered. You also stated that the Telford Road report recommended taking the Telford Road option forward for consultation because it would provide better access to the Western general. Given that Crewe Road South provides the best access by tram to the Western general, will you explain why section 2 of the Craigleith options report makes no reference to the different impacts that the three options would have on serving the Western general?

Karen Raymond: I am afraid that I cannot comment on that; it was not an aspect for which I was responsible.

Alison Bourne: Did you not prepare an environmental statement for all three options at Craigleith?

Karen Raymond: We did not prepare a full environmental statement for all three. As I said, one only carries out an environmental impact assessment—which generates an environmental statement—for the promoted scheme, but we undertook environmental appraisals for all three options.

Alison Bourne: At this stage, do you have details of what vegetation would be affected by each of the three options?

Karen Raymond: In broad terms, that will have been taken into account in the environmental appraisal that was carried out.

Alison Bourne: But now that you have done recent work, are there any more details?

Karen Raymond: No, we have not gone back.

Alison Bourne: What was the date of the most recent work that you did on the Craigleith options?

Karen Raymond: It was in November 2003.

Alison Bourne: It is a stated objective of the tram scheme to encourage people out of their cars and on to the tram. Do you agree that the Western general hospital and the other key generators on

Crewe Road South and Craigleith Road are major traffic generators?

Karen Raymond: Again, that is not my area of expertise. I cannot comment on their relative position in the hierarchy of traffic generators.

18:30

Alison Bourne: My next question would have been whether you agreed that there would be a significant environmental benefit in the tram serving those generators as closely as possible, thereby alleviating traffic congestion. Are you not in a position to answer that?

Karen Raymond: I am not quite sure what specific environmental benefit would derive from serving one set of passengers as opposed to another. The high-level environmental benefit is the number of people we get on to the tram; the more people we get on, the more environmental benefit we get.

Alison Bourne: Do you agree that many people drive to the Western general and the businesses around Crewe Toll?

Karen Raymond: I do not know how many people drive to the Western general.

Alison Bourne: Those are all the questions that I have.

The Convener: Thank you. We have 25 minutes left. Ms Woolnough, do you feel that that is sufficient time for you to complete your cross-examination? If not, we are happy to defer it.

Kristina Woolnough: I need clarification. Is Peter Allan down to ask questions too?

The Convener: He is down to cover planning issues only for group 34.

Kristina Woolnough: If we run out of time, can he cover planning issues and then we stop there, or do you need to hear from us both?

The Convener: My understanding is that we need to hear from you both. It is okay if you want to stop now if you do not feel that you can complete your cross-examination in 25 minutes. It is not a big deal for the committee. If it is any help, I think that Ms Raymond's responses are very tight. That is a compliment.

Kristina Woolnough: Okay. We will just go for it.

The Convener: Are you sure?

Kristina Woolnough: How can one ever be sure? I think that I need a Bush break as well. Is it me first?

The Convener: Yes.

Kristina Woolnough: Ms Raymond, on 13 September, we heard you say that, given that the

Trinity railway corridor is an urban wildlife site and is used for recreation, if another viable route emerged, that would be the preferred option. Is that the case for the Roseburn corridor?

Karen Raymond: No.

Kristina Woolnough: So even if another viable route emerged, you would still recommend the Roseburn corridor.

Karen Raymond: If another route emerged that could deliver the same advantages that the Roseburn corridor offers in terms of patronage and run time without the impact that the current route has on the corridor, it would be preferred.

Kristina Woolnough: Our contention is that our proposed alignment would achieve those benefits without impacting on the Roseburn corridor. If we were found to be correct—if we had the evidence on run times and costings before us—would our alternative alignment be preferable, if it avoided the Roseburn corridor?

Karen Raymond: There would be a finer choice, or balance, in the southern section of the route than there is between the Craigleith and Roseburn options in the northern section of the Roseburn corridor because of the impact of the southern section of the route I understand you are proposing on the urban fabric of the west end of Princes Street and beyond. It is a conservation area on the edge of the world heritage site. As Mr Bain said, the Dean bridge is a grade A listed structure.

Kristina Woolnough: I will pick that up in a minute if I may. If our route was found to be preferable on the other bases, the Roseburn corridor could be avoided, which would be desirable.

Karen Raymond: I cannot comment in detail on the environmental merits of your route as opposed to the Roseburn corridor, because we have not done a full assessment of it.

Kristina Woolnough: You have been involved in the project since 2001. Were you involved with the Andersen report—the NERTS study?

Karen Raymond: My company was.

Kristina Woolnough: But you were not involved personally. Did you agree to the weightings that were given to the different criteria that were part of the work package 1 report—the environment was given a weighting of 1.25 as opposed to technical difficulty, which was given a rating of 1.5?

Karen Raymond: I do not believe that I was ever asked to agree or disagree, but I was content with the conclusions that emerged from the process.

Kristina Woolnough: Had you been asked, you would have agreed to those weightings. You

would have agreed that the environment should get a lesser weighting than technical difficulty.

Karen Raymond: I cannot comment at this stage.

Kristina Woolnough: You helpfully said that, environmentally, the heavy rail intersection at Haymarket was not identified early on. Why was that?

Karen Raymond: I cannot comment on why the options that were put forward were identified, but the advantages of Haymarket come out clearly in the patronage estimates and in the benefits that it would bring in getting passengers on to the tram.

Kristina Woolnough: But you said in your statement that environmentally it was not identified.

Karen Raymond: It does not feature in the environmental criteria in the STAG approach.

Kristina Woolnough: You talked last week about impacts on landscape and townscape when it came to sifting the route options. I will try to save time by not repeating the discussion. Your concern with our proposed alternative alignment was the impact on the townscape at the west end of the city. Is that right?

Karen Raymond: Yes. I recollect that the STAG criteria are landscape, townscape, visual amenity and cultural heritage. I would be concerned on landscape and cultural heritage grounds.

Kristina Woolnough: Do you agree that the townscape impact of tramline 1 on the world heritage site as a whole will be enormous and that the proportion of the world heritage site that is affected by our proposal is minuscule?

Karen Raymond: I do not believe that the absolute level of impact on the world heritage site is relevant to a comparison between two options, one of which runs through the world heritage site and one of which does not.

Kristina Woolnough: Do you think that, environmentally, the impact of one stretch—I do not know how many metres long it is—on the townscape of the world heritage site is a more important factor than the impact on 3.3km of a designated urban wildlife site?

Karen Raymond: As I said, I have not undertaken an appraisal of the alternative that you put forward so I am afraid that I cannot give you an answer.

Kristina Woolnough: Yet the alternative route was part of option 2 in the work package 1 appraisal.

Karen Raymond: Yes. At the loop options appraisal stage we concluded that, on balance, there was no environmental preference between

the four loop options that were being put forward in the work package 1 report.

Kristina Woolnough: At that time, had you carried out wildlife surveys?

Karen Raymond: No. We had not undertaken any survey work.

Kristina Woolnough: So at that time, when the four loop options were being appraised, you had not done wildlife surveys of the Roseburn corridor and were therefore unable to factor those considerations into your assessment that the loop options were all on a level playing field in respect of the environment.

Karen Raymond: No. We had a considerable amount of information about the Roseburn corridor from existing sources. We had the habitat survey that the City of Edinburgh Council had completed, the north Edinburgh railway paths wildlife management plan and observations of the corridor that were gathered from members of the team who visited it and other parts of the route in the course of our work.

Kristina Woolnough: You state that function will be maintained in respect of the cycleway and walkway. Do you accept that amenity will not be maintained?

Karen Raymond: I consider that the cycleway and walkway will still provide an amenity to those who use it. As I said in my previous evidence, I am happy to concede that there will be a significant change in its character.

Kristina Woolnough: Do you accept that the significant change in character, with trams running at speeds of 70kph every three and a half minutes, will cause the amenity to suffer? There will be a significant amenity loss compared to the situation now when the corridor is traffic free.

Karen Raymond: Yes, I accept that there will be an adverse impact on the corridor.

Kristina Woolnough: And it will be a significant one.

Karen Raymond: Yes.

Kristina Woolnough: I turn now to your rebuttal to my witness statement for group 35, on an alternative route. As you know, we undertook user surveys of the Roseburn corridor at the time of the loop appraisal options for work package 1. You have already agreed that you did not undertake wildlife surveys. Did you undertake any surveys of the human users of the corridor?

Karen Raymond: No.

Kristina Woolnough: Paragraph 2.3 of your rebuttal statement consists of this statement:

"I and other members of our team were residents of the immediate area and users of the path and we were therefore fully aware of its role as a footpath and cycleway".

Do you accept that that is a subjective view and that you had no actual evidence on the importance of the corridor to human users?

Karen Raymond: We had only my own and other team members' observations about the frequency with which people could be seen using the corridor.

Kristina Woolnough: Do you think that that is good enough?

Karen Raymond: At that stage in the appraisal process, yes.

Kristina Woolnough: As you know, we undertook a survey of users to measure the exact usage of the corridor and its value to those users. Why did you not undertake any survey subsequently?

Karen Raymond: One would normally undertake that sort of survey only if one sought to provide an alternative route for those cyclists and walkers. As those users will be able to continue to use their existing route, we did not consider it necessary to undertake such a survey.

Kristina Woolnough: Therefore, you did not measure the amenity value of the corridor to those users. Our survey indicated that the vast majority of users would find that their usage had been affected. What do you say to that?

Karen Raymond: As I have commented, I agree that the quality and character of the corridor will change with the introduction of the tram.

Kristina Woolnough: Your statement also mentions various mitigations, which you describe in paragraph 3.4 as improvements—

Karen Raymond: In which document is that paragraph 3.4?

Kristina Woolnough: I refer to paragraph 3.4 of your rebuttal to me.

Karen Raymond: My version goes only to paragraph 2.4.

Kristina Woolnough: I am looking at the section dealing with loss of amenity and human amenity.

The Convener: As I mentioned earlier, Ms Raymond will address visual and amenity impacts and loss of vegetation at a later stage. At the moment, we are trying to focus on environmental inputs to route appraisal. Loss of amenity is still to come.

Kristina Woolnough: Is Ms Raymond's correction on the loss of vegetation relevant to this stage?

The Convener: Loss of vegetation is still to come.

Kristina Woolnough: Okay. I am probably done with my questions.

The Convener: Does Mr Allan have any questions for the witness?

Peter Allan: Convener, I too seek clarification as to whether impact on pedestrians and cyclists is appropriate to this stage.

The Convener: My understanding is that impact on pedestrian and cyclist users of the current route should be regarded as a loss of amenity. Therefore, that issue can wait until a later stage. At this point, you can put questions on the environmental inputs to route appraisal.

Peter Allan: In that case, most of my questions belong to another stage. I have only one question, as planning issues are obviously not on—

The Convener: That is more or less the case.

Peter Allan: My question for Ms Raymond is the same one that she will have heard me put to Mr Cross earlier. Both Mr Cross and Mr Oldfield have explained that, following the completion of the work package 1 report, a process took place whereby the promoter, in its capacity as promoter rather than as anything else, made some assessment of the information that had been provided. The implication was—you may not agree with this—that the promoter might have taken into account other factors, such as a more general view of the city and so on, in addition to those factors covered in the work package 1 report. Are you aware whether the promoter carried out any such further assessment after the completion of the work package 1 report at the end of 2002? Obviously, I refer to any process with which you were involved.

Karen Raymond: I was not involved in any such process.

Peter Allan: Are you aware whether any such process took place?

Karen Raymond: I know that the council considered the report that was presented to it. On whether that constitutes a further assessment, I am unable to comment.

18:45

Peter Allan: Mr Oldfield explained that his overview of work package 1 was technical. In the sense that the environment was part of that, it was a technical matter as well. The implication in the question was that the city council has a broader perspective on the city than just the technical assessments of an albeit very large project. Do you agree that the council has other things to consider, such as the public realm in the widest sense?

Karen Raymond: The public realm was considered in our option appraisal.

Peter Allan: Yes, but the council has to allocate resources, for example. It might conclude that a scheme was going to be disproportionately expensive for the public purse. I do not know. I am asking you only whether there are issues on which the council would take into account that wider perspective and not just a technical assessment—albeit that that is important for a project such as the tram. If the answer is that you simply do not know whether it did or not, that is that.

Karen Raymond: The answer is that I do not know.

Peter Allan: Is there going to be another witness who can speak to these matters?

The Convener: I do not think that Ms Raymond can answer that, but I am sure that as we make progress the promoter will identify somebody who can respond.

Peter Allan: That is helpful. I have no more questions.

The Convener: As the committee can see, we are some way from completing evidence taking from all the scheduled witnesses for today. Mr Vanhagen, you can relax, because it is my intention to take all the remaining witnesses from today at our next meeting on 27 September. In turn, some of the witnesses for that meeting may be taken on 3 October. I appreciate the impact of that scheduling change, but I am sure that all parties agree that it is important that we maintain the momentum and flow of evidence. Phil Gallie has a comment.

Phil Gallie: On maintaining the flow, can you confirm that at any time committee members may interject? I would like to raise with Ms Raymond a point that was made by Mr Thomson.

The Convener: Ms Raymond will be back before us. Mr Vanhagen and Mrs Milne have not questioned her. Once they have done so, there will be an opportunity for you and other committee members to raise questions, so Ms Raymond has the delight of anticipating your question on 27 September. I hope that on that basis the committee is content with the proposed rescheduling.

Phil Gallie: I am not happy. [*Laughter.*]

The Convener: Is that agreed, Mr Gallie?

Phil Gallie: Reluctantly.

The Convener: I do not care whether it is reluctant or otherwise; you have agreed.

The clerks will confirm the rescheduling with lead objectors over the next few days. I am not in

a position to comment on the impact of the rescheduling on evidence taking on 25 October and in November, but I hope that it will become clearer after next week's meeting.

I thank the promoter's witnesses and the objectors. I realise that it has been an incredibly long day, but we have made progress.

The committee will move into private session, as previously agreed, to consider the evidence that we have heard today.

18:48

Meeting continued in private until 18:57.

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