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Official Report

FORTH CROSSING BILL COMMITTEE

Wednesday 10 March 2010

Session 3

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FORTH CROSSING BILL COMMITTEE
4th Meeting 2010, Session 3

CONVENER

*Jackson Carlaw (West of Scotland) (Con)

DEPUTY CONVENER

*Hugh O'Donnell (Central Scotland) (LD)

COMMITTEE MEMBERS

*Joe FitzPatrick (Dundee West) (SNP)
*David Stewart (Highlands and Islands) (Lab)

*attended

THE FOLLOWING GAVE EVIDENCE:

Niall Corbet (Scottish Natural Heritage)
Colin Flint (CLOB)
Mike Glover (Transport Scotland)
Frazer Henderson (Transport Scotland)
Shirley Henderson (Transport Scotland)
John Howison (Transport Scotland)
Erica Knott (Scottish Natural Heritage)
Dr Alastair Lyndon (Heriot-Watt University)
Duncan McLaren (Friends of the Earth Scotland)
Aedán Smith (RSPB Scotland)

CLERK TO THE COMMITTEE

Sarah Robertson

LOCATION

Committee Room 3

Scottish Parliament

Forth Crossing Bill Committee

Wednesday 10 March 2010

[The Convener *opened the meeting at 10:30*]

Forth Crossing Bill: Stage 1

The Convener (Jackson Carlaw): Good morning and welcome to the fourth meeting of the Forth Crossing Bill Committee. As usual, to avoid anyone getting serious feedback in their ears, I ask everyone to ensure that mobiles and BlackBerrys are switched off.

For people who are following our proceedings elsewhere, the format is the same as for our previous meetings: we will take evidence from a number of witnesses, who have been grouped into panels. This morning, we will look in particular at the impact of the construction and operation of the bridge on designated sites and wildlife, air quality, the marine and terrestrial environment and the environment that is enjoyed by local residents and businesses. We will also consider the consultation that took place during the development of the proposals.

I welcome our first panel. Duncan McLaren is chief executive of Friends of the Earth Scotland and Aedán Smith is head of planning and development at RSPB Scotland. Niall Corbet is Forth and Borders operations manager with Scottish Natural Heritage, and he is accompanied by Erica Knott, policy and advice manager at the same organisation. We have received your submissions, so we will move straight to questions. The initial set of questions will be led by the committee's deputy convener, Hugh O'Donnell.

Hugh O'Donnell (Central Scotland) (LD): Transport Scotland has done many carbon footprint calculations in relation to the Forth crossing and has suggested that the embedded carbon figure will be in the region of 121,000 tonnes of carbon dioxide. Have you had an opportunity to look at that figure and how it was calculated? Do you have a view on the robustness of the process that was used? Do you have any comments on Transport Scotland's figures? I have no particular preference for who answers first, but I can point to Mr McLaren if that would help.

Duncan McLaren (Friends of the Earth Scotland): Unfortunately, I have not looked at the embedded carbon figures in any detail because, in our view, they are likely to be relatively small in comparison with the emissions that will arise from use of the crossing. However, I have some fairly grave concerns about the methodology that has been applied to estimate the emissions from use. Would you like me to share those now?

Hugh O'Donnell: By all means.

Duncan McLaren: The modelling does a standard comparison: it compares doing the minimum, which is keeping open the existing crossing, and doing something, which is building what is described as a replacement crossing and allowing a small number of public transport vehicles to continue to operate on the existing bridge. In that scenario, it is probably not unreasonable for the modelling to suggest a small increment in CO_2 emissions of around 20,000 tonnes a year by 2032. I must note that that predicted increase will take place over a period in which Scottish CO_2 emissions are expected to reduce by more than 50 per cent, which means that it will present great challenges to other sectors.

However, there are two fundamental problems with that methodology. The first relates to the choice of scenario. In our view, it is extremely likely that if traffic grows as Transport Scotland forecasts, Transport Scotland will be unable to restrict use of the existing bridge to public transport. Nowhere in its documents does Transport Scotland offer an analysis of the impacts of two bridges being fully used by traffic.

I am not an expert transport modeller, so I cannot give the committee precise figures, but I think that Transport Scotland's figures are falsely precise, because there is a massive potential error, should a political decision be taken to allow greater use of the existing crossing. That error could be on the scale of a factor of six. In other words, if the existing crossing were to remain in full use, there would be around 120,000 tonnes of additional CO_2 emissions annually from traffic. One year's worth of those additional emissions would match the emissions that are embedded in the bridge.

The second issue that I want to raise is attribution. In the modelling, an assumption is made about the rate of traffic growth that will happen anyway. As far as I can see, the assumed rate of growth is about 1 per cent a year up to 2022, and about 1.5 per cent thereafter. Both those figures may be questionable, but I will park for a moment the issue of whether they will arise. The key question is whether they would arise in the absence of increases in network capacity. If the growth in traffic arises because of the new bridge—which will increase capacity across the Forth by 20 per cent—all the CO_2 resulting from that growth in traffic should be attributed to the new bridge, not just the marginal increase in comparison with the amount of traffic that used the old bridge.

That approach has not been taken, even though the Standing Advisory Committee on Trunk Road Assessment notes that there are two circumstances in which additional capacity in the network is extremely likely to generate new and additional traffic—on congested urban networks and on estuarine crossings. The United Kingdom Government's advisory body has therefore warned of the need to be highly alert to traffic generation effects, yet Transport Scotland's figures make no suggestion that the bridge might be responsible for generating some of the new traffic or for generating traffic above the level at which it is forecast to grow as a result of economic growth.

The key message that I would like to leave the committee with is that a great deal of uncertainty surrounds the CO_2 forecasts. If one attributed to the bridge the CO_2 increment from just the growth in traffic of between 1 and 1.5 per cent a year, that would mean that the bridges' emissions should be about 30 times greater than those that are suggested in the report. Transport Scotland gives a figure that purports to be accurate to the nearest tonne of CO_2—20,317 tonnes is the figure that it provides for the annual increase in emissions—but that is spurious accuracy, because the error bars around that are manifold. It is not responsible to take a view on the environmental impact of the bridge based only on those figures.

Hugh O'Donnell: Thank you very much for that comprehensive answer. Without going back over the technical points that you made, I suggest that what you said calls into question the robustness of the methodology and therefore the conclusions that were drawn in Transport Scotland's modelling. Does that sum up your position nicely?

Duncan McLaren: That is a fair summary.

Hugh O'Donnell: Would anyone else like to comment on that issue—as tightly and with as little techie language as possible?

Aedán Smith (RSPB Scotland): I head up the planning team for RSPB Scotland, but today I am also representing Scottish Environment LINK, which is an umbrella group for 30 or so voluntary environment organisations, including RSPB Scotland and Friends of the Earth. Duncan McLaren is better placed than I am to talk about climate change in detail, but it is worth making the point that in Scottish Environment LINK a range of views exist on the climate change impacts of the crossing. In particular, quite a few organisations are concerned about the additional greenhouse gas emissions that are likely to arise from the bridge.

I do not think that there is any point in going into any more detail, as Duncan McLaren is much more capable of doing so than I am.

Joe FitzPatrick (Dundee West) (SNP): Duncan McLaren suggests that the increase in CO_2 emissions caused by simply having the crossing is relatively small compared with the emissions that will arise as a result of economic development. If the bridge is not built, the traffic movements from Fife to Edinburgh and the Lothians and vice versa that will be associated with that economic development will have to go via Stirling, which is a huge detour. Surely that extra journey time would have a much greater CO_2 impact than the 1 per cent rise that is anticipated to result from the construction of the crossing.

Duncan McLaren: That is a fair point, but it would be inappropriate to draw that conclusion at this stage, as Transport Scotland has not given us a model based on where development is going to occur. We have been given a model that is based only on an assumption of a rate of growth. If I know anything about traffic modelling, it is that it is critical to understand how new capacity redistributes activity around a network. It is not true to say that that growth will necessarily take place in Edinburgh or Fife in the absence of a bridge and that, therefore, additional journeys of some other nature will be required.

In that regard, any additional journeys would still be able to use the existing crossing, as I have no reason to doubt that it can remain open. The question that hangs over this inquiry is whether there is a need for an additional crossing, given the state of the existing crossing. However, I understand that that is not today's topic.

Joe FitzPatrick: Absolutely. It is a completely different line of argument.

Transport Scotland bases its figures on an assumption that we get a large number of new public transport movements. Some people are saying that that goal is too ambitious and some are saying that it is not ambitious enough. Can we go further than has been suggested? If so, what do we need to do to ensure that the bulk of the new movements use public transport?

Duncan McLaren: There are opportunities for ambitious public transport targets to be met. In particular, I am aware that public transport by train from Fife is constrained at the moment by short platform lengths, and that simply increasing the length of platforms so that they can take longer trains could increase capacity, as could better signalling on the rail bridge. Capacity can be increased relatively simply.

However, we face a key challenge in that a significant amount of demand on the crossing arises not from economic activity in Fife but from the separation of economic activity in Edinburgh and the Lothians from residential development in Fife—in other words, there is a lot of commuter

traffic. In the timescale that is under study for the new crossing, we could take a policy approach to match economic development and residential development more closely, so that there would be less demand for car-borne commuter traffic. The issue is not simply about public transport.

The Convener: That might, in part, alleviate a slight confusion that I experienced as a result of the hypothesis that you conjured up in your introduction. I think that I heard you say that a political decision could be taken to allow the existing bridge to operate at maximum capacity for regular traffic in addition to the new crossing operating on that basis. I tried to envisage the circumstances in which there would be sufficient traffic for both of the bridges to be populated at maximum capacity. Do you have a concern about residential developments cropping up on the other side? You would have to conjure up a fairly extraordinary picture—perhaps large numbers of people deciding that they want to cross back and forth over the bridge because it is a nice thing to do—to bring about that situation.

Duncan McLaren: There is suppressed demand around such links in the network—

The Convener: Suppressed by what?

Duncan McLaren: Suppressed by congestion. The congestion on the existing crossing suggests that there could be greater demand now. I do not believe that that demand represents an additional 46,000 vehicles a day, but the evidence suggests that if we free up capacity and increase road speeds and road space, development will follow. You only have to look at, for instance, the great level of planning demand for space around ring roads and highly accessible locations such as the M25 to see that planning applications follow road construction.

10:45

The Convener: The situation that you are talking about involves the building of another bridge for cars. Are you saying that the same is not true of providing a dedicated public transport corridor?

Duncan McLaren: It is, unfortunately, less true, because of the poor quality of the public transport network, which does not provide the point-to-point links that people get when they use cars or lorries.

The Convener: Is not the onus, therefore, on the various parties to ensure that the opportunities that are afforded by that public transport corridor are maximised?

Duncan McLaren: That would be a useful conclusion to draw from this session.

I want to share with you a rough assessment that I have done of the additional number of households that the figures suggest might relocate to Fife. It is suggested that the increase in traffic across the Forth as a result of the new bridge will be 9,000 vehicles a day in each direction, which—using a really crude assumption—we can take to represent 9,000 households. It does not seem unreasonable that, given the high cost of living in Edinburgh, 9,000 people might think that, because it is easier to get across the Forth, they will consider living in Fife. However, those 9,000 households would use 450 to 750 hectares of development land, which has an environmental impact.

In the extreme scenario that I painted for you, with both bridges operating at full capacity—I appreciate that it is extreme—we would be adding 56,000 vehicles in each direction, which represents 56,000 households, using the same crude assumption as before. That is a lot. I would be surprised if we got all of that development by 2032, but the trends are for still greater household creation, smaller household size and greater demand for housing. If we have a corridor across the Forth that is simple, free-flowing and cheap, because there are no tolls, the likelihood of that demand arising in Fife, where the land is relatively cheap, rather than in the Edinburgh waterfront or wherever, will increase. That is the economics of putting the capacity into the network. Those 56,000 households would require 2,800 to 4,700 hectares of land, at typical suburban building densities. That environmental impact has not been taken into account.

The Convener: Thank you. We return to Hugh O'Donnell.

Hugh O'Donnell: We need to be careful, in that demand for land on the north side of the bridge would be likely to increase land values there, which might have a depressing effect on the demand for that land. With that caveat, I will move on.

I wonder whether Niall Corbet or Erica Knott have something to say about my original question on the CO_2 modelling. However, first, what are your observations on Transport Scotland's modelling of the predicted impacts on noise and air quality?

Niall Corbet (Scottish Natural Heritage): Perhaps I should clarify the remit of Scottish Natural Heritage. Our remit does not include transport modelling or air pollution—the Scottish Environment Protection Agency, our sister body, deals with air quality—so we did not comment on those issues in our response.

Erica Knott (Scottish Natural Heritage): We would have some remit for air quality if there was

a direct impact on designated sites, but we had a quick look at the modelling and decided that the broader issue of emissions was for SEPA to consider.

Hugh O'Donnell: Do those observations apply equally to noise?

Erica Knott: No.

Hugh O'Donnell: So you have some comments on that. I would be grateful to hear them.

Erica Knott: We are aware that a number of the construction activities would involve large impact noise as a result of piling or the blasting of Beamer rock. We have considered the possible impact of that on estuarine species such as fish that are of particular conservation concern. We have concluded that the proposed work would largely not have an adverse effect, but we have asked for some clarity on one aspect of the blasting work.

Our concern relates to the River Teith special area of conservation, which is quite a way upstream but contains migratory species. We are concerned about how some of those species' movements might be affected. The operations are not described in sufficient detail in the environmental statement or reports to inform the appropriate assessment, so we have asked for clarity, which we have not yet received.

Hugh O'Donnell: Can you indicate the timeframe in relation to your request for clarity?

Erica Knott: We have a meeting tomorrow, in which I hope that we will go over the issues that we have raised and be told when we might receive responses on some of them.

Hugh O'Donnell: Would that result in SNH submitting further evidence?

Erica Knott: Certainly, with regard to our advice on the appropriate assessment work.

Hugh O'Donnell: Have you had an opportunity to look at the proposed code of construction practice? Do you have a view on its robustness? What impact will it have on the natural environment, whether that relates to species or any of the other aspects under your remit?

Erica Knott: We originally saw the draft code of construction practice in August last year, and we provided some comments on it. Again, we agreed with the general principles, but we are seeking clarity on some of the detail. We have not yet seen a revised draft. As codes of construction practice operate, they tend to evolve through various iterations as more details emerge from the construction tendering process. We expect to see more drafts of the code and to provide further comments.

Hugh O'Donnell: Do you have any concerns about the fact that some statutory protections for species and humans have effectively been incorporated into the code of practice? That has the effect of laying aside the current statutory framework with regard to local authorities' responsibilities to oversee the relevant bits and pieces on, for example, air pollution and vibration noise. What is your reaction to how that has been done?

Erica Knott: In our response to the consultation, we indicated that the bill as drafted would not allow enforcement to ensure that there was complete compliance with all the legislation. We suggest that the bill needs to be amended.

Hugh O'Donnell: Would Aedán Smith or Duncan McLaren like to comment on the questions that I have asked?

Aedán Smith: RSPB Scotland has some concerns about enforcement, particularly in relation to the internationally designated sites that might be impacted on. There is a legal requirement to have pretty much absolute certainty that there will be no adverse effects on those sites. If that certainty is not secured before consent is granted, there will effectively be no guarantee that there will be no adverse effects. We have raised that as a concern. The situation is not necessarily unresolvable, but it needs to be resolved before the point of final authorisation is passed.

Should the new bridge progress, there might be opportunities in a range of areas to deliver environmental enhancement measures. We have suggested some of them in our written submission. Some fairly simple things could be done. For example, roseate terns are one of the species for which the internationally designated site has been identified, and there are opportunities to create roosting sites for them on the bridge, which would be useful and would produce some environmental positives from the bridge. There are further opportunities around the St Margaret's marsh site of special scientific interest, to the north, part of which will be lost due to the construction of one of the distributor roads. We have significant concerns about that, as it would mean losing part of a nationally important designated site. However, there are opportunities to deliver habitat enhancement on that site and possibly to create some replacement habitat elsewhere. We would like that work to be taken forward.

Hugh O'Donnell: Thank you. We will return to a couple of the points that you have raised. You have not commented on the code of construction practice. Have you a view on it? In the light of the questions that I have asked, do you believe that it

is appropriate or the best that it can be? What is your perspective on that?

Aedán Smith: We are generally happy with what is proposed. Nevertheless, I go back to my first comment that, before authorisation happens, there needs to be certainty that there will be no adverse effects on the internationally important site. It will not be possible to rely on something happening after the authorisation to ensure that there are no adverse effects on the site. That is our key concern.

Duncan McLaren: I have nothing to add on the code of conduct, but I will say something briefly about air quality in relation to other pollutants. Transport Scotland's modelling has the same weakness in respect of potential scenarios as that which I set out for carbon dioxide. If significant traffic growth is attributed to the new bridge over and above what is set out by Transport Scotland, the impacts on air quality could be more widespread. Although the methodology that Transport Scotland has used suggests that it has to look at certain parts of the network, the maps that it has produced suggest that there will be no significant traffic growth in Dunfermline or Dalgety Bay as a result of the new crossing. That implies that the air quality effects will be negligible. However, if there are greater vehicle movements because the two bridges take traffic above the level that Transport Scotland has forecast, the forecasts for traffic levels in the settlements of Fife—and, indeed, in central Edinburgh—will become questionable.

The issue is particularly significant in Edinburgh, because the city is already facing the legal limit for air pollutants such as nitrogen dioxide and particles up to 10 microns in diameter. The council in Edinburgh will refuse you permission if you apply to install a biomass boiler, because that would add unacceptably to air pollution. If thousands more vehicles seek to enter Edinburgh every day, will that not also add unacceptably to air pollution? I suspect that it will, therefore we must be cautious. Vehicles are improving and air pollution levels and their effects on health can be expected to decline. Nevertheless, there are real impacts on health at the moment, and they are generally greater than was foreseen by Transport Scotland, which does not use world-leading assessment standards—it uses narrow corridors rather than wide corridors for its assessment of affected populations.

The legal standards for air quality are tightening rapidly in response to Government agreement at European Union level that we need to protect health better. Although the figures suggest that there is a negligible effect on the other air pollutants, there is a very big caveat relating to the point about the spurious certainty of the figures that have been presented.

11:00

Hugh O'Donnell: Thank you. Do you know of anyone who has applied to the City of Edinburgh Council for a biomass boiler and had that application rejected?

Duncan McLaren: I do not. I am aware of the planning policy and the City of Edinburgh Council has consulted me on it.

Hugh O'Donnell: So we have no example of that actually happening.

Duncan McLaren: I am not aware of one, but the policy is that the council will not allow biomass boilers because of the air pollution effects.

Hugh O'Donnell: That sounds like a no.

The environmental statement says:

"There will be a loss of benthic habitats (habitats on the bottom of the Firth of Forth) but it is anticipated that fauna and flora will rapidly recolonise and populations of fish and estuarine birds are expected to return to the area once the construction activities cease."

How confident are you that that will happen?

Niall Corbet: We have discussed that with Marine Scotland and SEPA. It is not something on which we claim to have any great expertise. Given the dynamic nature of the Forth and the limited temporal nature of the construction activities, in the grand scheme of things, that statement is probably reasonable. There are a lot of activities going on in the Forth, such as large-scale dredging activities, maintenance dredging of harbours and disposal of dredgings. There is a lot of disturbance of the sea bed already. We are unclear about some of the effects, but the scale and nature of the impacts associated with construction activity are relatively minor. The Forth is a very silt-laden and dynamic system. There is deposition of silt all the time, and there is movement of the sea bed and the sweeping back and forth of the currents and the tides. Within those parameters, there will be effects, but they will be localised and temporary.

Hugh O'Donnell: I invite Mr Smith and Mr McLaren to comment. I am watching the clock, so I would be grateful if they could keep their comments as concise as possible.

Aedán Smith: RSPB Scotland agrees with that, as far as the intertidal habitats go, which is where the benthic substrates are. In our experience, those habitats can usually recover fairly quickly, so effects are likely to be temporary. That is a bit different to the likely impacts on the St Margaret's marsh SSSI—there would be direct and permanent loss of that SSSI. I said earlier that

there might be scope to do more to replace the area that will be lost.

Duncan McLaren: I have nothing to add to that.

Hugh O'Donnell: Thank you very much.

Joe FitzPatrick: I have a couple of questions for SNH. Will you explain what is meant by "appropriate assessment" and outline the role that SNH plays in that process?

Erica Knott: Appropriate assessment comes about through the EU legislation that has been transposed into UK legislation, which is to do with European designated sites. The process is akin to environmental impact assessment, but it comes about through the habitats regulations. It is a three-step process—it can involve more steps, but it generally boils down to three—that ascertains whether a plan or a project is connected to nature conservation management of a site, which a road bridge clearly is not, then ascertains whether it is likely that there will be a significant effect on the designated sites and then, if so, the last test is whether it can, beyond reasonable scientific doubt, be demonstrated that there will be no adverse effect on integrity.

In the process that Transport Scotland is going through, the accompanying documents included the environmental statement and three reports to inform an appropriate assessment. The three reports considered the potential impacts of the bridge on four designated sites. We appraised those reports and we have now formally provided our advice. The competent authority, which will be the Scottish ministers, will need to take that into account. They will then undertake what is known as the appropriate assessment and determine whether there will be an adverse effect on integrity.

The Convener: Can I ask you to indulge me slightly? I have woolly ears this morning because I have a head cold. Could you sit a little bit nearer to the microphone when you speak so that I am sure to pick up everything that you say?

Erica Knott: Yes. I think I have a frog in my throat.

Joe FitzPatrick: Thank you for your useful explanation of the appropriate assessment. I understand that the work around it was based on the assumption that the Forth road bridge would close by 2019. Can you confirm that?

Erica Knott: The environmental statement and the three reports to inform the appropriate assessment proceeded on a worst-case scenario. They assume that the bridge will be built as per the contents of the bill and the environmental statement, and my understanding is that they are based on the current bridge being closed to vehicles other than public transport.

Joe FitzPatrick: Is what is in the bill appropriate?

Erica Knott: Yes.

Joe FitzPatrick: That is fine. Thank you. I think that my final question has already been answered, but will you confirm that you are having discussions on the RSPB's concerns about the realignment of the B981 at St Margaret's marsh?

Erica Knott: There have been discussions about St Margaret's marsh. It is an SSSI, and loss of any such habitat concerns us. The slight problem is that the features within that SSSI are quite limited and there is not much scope to enhance habitats within the designated boundary of the site. We advised Transport Scotland to consider having dialogue with the RSPB and other external organisations about opportunities for enhancement elsewhere in the Firth of Forth.

Joe FitzPatrick: Will the RSPB confirm whether that dialogue has been taking place? The RSPB's report contains a constructive proposal. It seems to accept that some of the SSSI might be lost and proposes the replacement of that habitat elsewhere.

Aedán Smith: Sure. So far, we have not had any direct dialogue on the matter with Transport Scotland, which is disappointing, but we hope that the matter will be picked up in discussions. We have had wider discussions with the Scottish Government, SEPA, SNH and local authorities around the Firth of Forth about other habitat creation opportunities, because habitat loss in the Firth of Forth is a general concern for us. There is a history of development in the area and habitat has often been lost in the process. Habitat loss on individual developments might be relatively small, but collectively it adds up to a significant amount. Historically, there has been substantial habitat loss. We are looking to identify opportunities to recreate and replace some of that lost habitat. Transport Scotland could be a useful partner in that.

Joe FitzPatrick: No doubt Transport Scotland will read the *Official Report* of today's meeting: I hope that that will flag up to the agency that it has some calls to make.

Niall Corbet: To clarify, SNH has been in discussions with Transport Scotland about the St Margaret's marsh site for a considerable time. We have agreed that there are no opportunities for significant expansion of the habitat on site, but Transport Scotland is aware that we want to consider improving management of the existing habitats. It is amenable to that, and we have suggested that it write a detailed management plan for the site. We have also suggested that the RSPB might be interested in being involved in the longer-term management of the site and the

bigger picture of wetland creation and management in the wider Forth environment.

Joe FitzPatrick: My understanding is that the marsh is not a natural one but has been constructed. Does anyone know anything about its history?

Niall Corbet: St Margaret's marsh used to be an intertidal bay area that was filled in during the early half of the 20th century as Rosyth docks expanded. A sea wall was built and the place was basically used as a dumping ground. After the second world war, it was used as a municipal tip by the Dunfermline local authority of the time. That ceased around about the 1960s, after which the natural habitats took over and the reed beds and salt marshes developed. It is a very strange and constantly evolving site with very unusual hydrology, so in the management that we are planning we must take that into account in maintaining habitats. Of course, there are other interesting issues such as ground contamination from all the stuff that was dumped, but the marsh is constrained by the fact that it grew only on what used to be the intertidal area and cannot really be expanded on to what used to be dry land.

Aedán Smith: The site itself has been highly altered. Initially, it was of very high biodiversity value, but that has changed as a result of various developments. It is not the case that it is an artificially created site of high biodiversity value.

David Stewart (Highlands and Islands) (Lab): My questions are for the RSPB and Friends of the Earth Scotland in particular, although the SNH witnesses can contribute if they so wish.

First, is the environmental impact assessment comprehensive enough? For example, does it take full account of impacts away from the Forth crossing site, such as increased air pollution in west Edinburgh as a result of increased traffic congestion, particularly at peak periods?

Aedán Smith: That is a general concern of ours, but I will pass on commenting on it in detail. Duncan McLaren is better qualified in that respect.

Duncan McLaren: At the risk of repeating what I have already said, I think that within the constraints of its own assumptions Transport Scotland has made a reasonable effort to look at impacts outside the direct study area. However, we have two basic concerns. First, the corridors around roads are too narrow. Evidence and best practice from the United States suggest that wider corridors of at least 500 metres in each direction should be assessed for air quality impacts. Secondly, if—as I suggested earlier—there is additional traffic growth that has not been identified in these models, locations that Transport Scotland has not identified as being subject to increases in air pollution might well be. In that respect, the statement might not be comprehensive enough.

David Stewart: Your argument is that, although Transport Scotland might have followed the rules, international best practice suggests that there is a better way.

Duncan McLaren: In summary—yes.

David Stewart: What is your view of Transport Scotland's assertion that the use of an intelligent transport system on approaches to the bridge will result in what I believe it describes as smoothly flowing traffic? I think that the logic is that because, even at peak times, there will be fewer idling vehicles—which, as you know, are more air polluting—there will be less air pollution.

Aedán Smith: I will pass over to Duncan McLaren for more detailed comment, but I should say that a number of other Scottish Environment LINK members have raised with me concerns about the general potential increase in capacity. After all, if bridge traffic is more free-flowing and if the bridge itself seems to be easier to use, people will find the bridge more attractive, which will lead to an increase in traffic levels. If the new bridge starts to become congested and the existing bridge is used only for public transport but does not appear to be used to its full capacity, there might be significant pressure to free up the existing bridge for more general use, which would further increase capacity, usage and movements across the Forth. That would result in increased greenhouse gas emissions, which would be of concern to quite a few Scottish Environment LINK members. I pass on that general point, but I am sure that Duncan McLaren has more.

11:15

David Stewart: Thanks. That is helpful.

Duncan McLaren: I endorse the point about traffic growth being caused by reducing congestion: there is plenty of evidence for that. Although the emissions from the vehicles while they cross the Forth in uncongested flow would be lower per kilometre, what typically happens when congestion is reduced on one part of the network is that it shifts to another part of the network—typically, to a part of the network outside the study area. In this case, Transport Scotland would say, "Oh, it's all flowing fine there," but, as the committee might realise, the extra vehicles would each arrive a few moments earlier in west Edinburgh or Dunfermline and pile up in a queue there. There would be a serious concern about the population who would be exposed. That is not to say that the population close to the bridge is insignificant but, if we shift congestion into an urban area such as west Edinburgh, the

population who would be exposed would be significantly higher.

The Convener: I hope that you do not find this comment in any sense irreverent. When I was young, I used to watch "Star Trek" on television; there is a famous episode called "The Trouble With Tribbles", in which the creatures just keep multiplying. You have a vision of cars manifesting themselves all over Edinburgh and everywhere else. I would have to keep pace with where they were all coming from.

Duncan McLaren: "The Trouble With Tribbles" is perhaps a good analogy for the conclusions of the Standing Advisory Committee on Trunk Road Assessment about traffic road capacity and traffic generation. There is a clear and proven correlation between the provision of new road space and people choosing to use their cars more, to obtain cars or to drive greater distances. There is a relationship of that ilk.

The Convener: There we are. Between us, we have coined a new protocol in the Scottish Parliament: the "Star Trek" tribbles principle. It may be lost on others.

Hugh O'Donnell: Quite. I will try to return to air quality. Duncan McLaren referred to west Edinburgh. Some of the evidence that we heard from Transport Scotland last week related to the impact in West Lothian in relation to what are commonly referred to as rat runs through Newton to get to junction 2 of the M9. Are you aware whether the air pollution and air quality modelling that Transport Scotland has carried out takes account of any changes in vehicular traffic on that road? Based on what you said a few minutes ago, do you have any thoughts on what the implication might be for that community?

Duncan McLaren: I have not examined the model at the level of detail that would enable me to comment on whether Transport Scotland has appropriately considered such roads. My understanding of the principles that it has applied is that, within its assumptions, it has considered traffic impacts on feeder roads, rat runs or alternative routes. Within reason, the agency is probably right to suggest that freer-flowing traffic in other parts of the local network might reduce traffic on such rat runs, so that could be a benefit of freer-flowing traffic in the locality of the Forth corridor itself. That does not mean that traffic would flow more freely further out in the network where the transport management system comes to an end.

David Stewart: The Scottish Government asserts, as you will be aware, that the Forth crossing will result in additional greenhouse gases but that the increase will be more than offset elsewhere. What is your view on that?

The second issue is slightly technical. As you know, there is a basket of six greenhouse gases. We tend to talk only about CO_2, but one gas is 21 times more damaging than it. Other emissions include methane, nitrous oxide and particulates. Should we be aware of issues that you have picked up in technical studies that suggest that emissions of some of the other greenhouse gases could be particularly damaging on the Forth road bridge?

Duncan McLaren: I am not aware of any reason for the committee to worry specifically about other greenhouse gases; the key greenhouse gas in this context is CO_2 from transport-related activity.

It is legitimately a matter for the Government to say how it will meet its climate change targets and to suggest that it will do so through action elsewhere. However, a recent report by the United Kingdom Committee on Climate Change expressed serious reservations about whether the existing package of policies and the policies that are available to the Government to reduce greenhouse gas emissions will allow it to meet its 2020 objective, which is a 42 per cent reduction. In that context, it seems to us that it would be inappropriate for the Government to say simply that it will reduce emissions elsewhere, instead of finding a means to avoid additional emissions from a project of this nature, especially given the uncertainty that I expressed about whether the emissions increment is as small as Transport Scotland suggests.

David Stewart: So, in the jargon of the street, the bridge should consume its own smoke, or we should prevent the emissions from occurring in the first place.

Duncan McLaren: I would look at some of the means of improving existing public transport links across the Forth that I have identified, such as improving utilisation of the rail bridge, as a means of enhancing economic links between Edinburgh or the Lothians and Fife in ways that are more compatible with the climate targets.

David Stewart: In response to a question from Mr FitzPatrick, you mentioned that the problem with rail is that there are Network Rail capacity issues, the first of which is signalling constraints on the Forth rail bridge and the second of which is short platform lengths, especially in Fife. There are other rail constraints that would stop modal shift.

Duncan McLaren: Indeed. Such constraints could be relieved relatively easily within the timescales that we are discussing, as an alternative to construction of new road capacity.

Aedán Smith: I will make a simple point from my less technically knowledgeable position. Although a relatively small amount of additional

emissions are predicted to arise from the bridge, according to Transport Scotland's modelling predictions, it is important to remember that that will happen in the context of our having seriously to reduce emissions overall. The small increase becomes particularly significant in the context of the urgent need to make really radical reductions in the near future.

Another Scottish Environment LINK member made the point that much work could be done around the bridge to improve provision for non-polluting transport, such as pedestrian and cycling provision. The current proposals for the new bridge make no provision for cycling or walking on the bridge. That is not a big problem if the existing bridge continues to be available, but if it becomes unavailable—the worst-case scenario—there will be no provision for cycling or walking across the Forth. That is a concern to some Scottish Environment LINK members.

David Stewart: You make a fair point. We have raised such issues with Transport Scotland and have pursued it on particular points.

I was going to ask Mr Smith whether other member organisations of Scottish Environment LINK have raised issues that we have not raised, but he has already touched on that point. Are there are additional points that we have not yet discussed of which Scottish Environment LINK would like the committee to be aware?

Aedán Smith: No.

Duncan McLaren: We have covered everything, but I will restate the point that I made about need. It becomes difficult to assess whether it is appropriate to try to deal with a small increment of CO_2 in the many other ways that have been suggested if there is not a fundamental need to go down that path. The committee will want to consider that point.

The Convener: We have sleepless nights wrestling with the matter. Thank you for your time, for the way in which you have contributed to our discussion and for your written submissions. We have not touched on every issue that was raised in the submissions, but we have read and digested them. Some of the points that you made have informed questions that we have put to other witnesses who have appeared before us.

11:25

Meeting suspended.

11:26

On resuming—

The Convener: I am happy to welcome our second panel of witnesses. Mr Colin Flint makes his living from fishing in the Forth and Dr Alastair Lyndon is a marine biologist at Heriot-Watt University. We have received their submissions and will move straight to questions.

Hugh O'Donnell: Good morning, gentlemen, and thank you for coming here this morning. Dr Lyndon, what is your previous involvement in dealing with environmental issues arising from bridge construction projects, especially in relation to the marine environment? Based on that experience, what do you regard as the most significant issues for the marine environment in such construction environments?

Dr Alastair Lyndon (Heriot-Watt University): My previous involvement related to the second crossing at Kincardine, which was completed about a year and a half ago. Between 2000 and 2003, we were involved with the environmental impact assessment of the bridge, both intertidally and subtidally. The largest potential impacts tend to relate to disturbance of sediment into the water and the acoustic effects of activities such as pile-driving, excavation, blasting and drilling that may impede movements of animals in the river channel. That was a particular concern in relation to the second Kincardine crossing, which is in the upper reaches of the estuary, because the channel at that point is relatively narrow.

Hugh O'Donnell: Have you had any input into the EA for the bill?

Dr Lyndon: None at all.

The Convener: Mr Flint, your business has been around since 2005.

Colin Flint (CLOB): That is correct.

The Convener: Are other people involved in it?

Colin Flint: I am a sole trader and work by myself; it is my own business.

The Convener: I live on the coast now, but I have no idea how creel fishing works. It would be useful if you could start by outlining that, before saying what impact you think the construction of the new Forth crossing will have on fishing all around the construction site.

Colin Flint: Lobster pots or creels are set down to catch specific species in the Forth estuary. The pots are placed in different areas. If you are after lobsters, generally they are to be sought on a rocky, shingly bottom.

The Convener: What size are the lobster pots?

Colin Flint: Roughly 3ft by 2ft.

The Convener: I see. How many of them would there typically be around and about?

11:30

Colin Flint: I own about 300 lobster pots, so there is a cost implication. The pots that I use cost £54 each, so a high level of investment is needed in the business that I have set up.

The Forth was pile-driven last year—I assume to test how hard the bottom is for putting the new bridge on—and that is being done again at the Beamer rock, which is one of the areas that I fish. For obvious reasons, I could not fish there while that work was going on and, when the work was finished, I did not catch a single marine animal for the first three months. It took seven or eight months for the lobsters to reappear. I do not know where they went—whether they were just in hiding or whether they moved away from the area—but I assume that it was due to the vibration that was caused by the drilling. My concern is also that, once the drilling is complete and the bridge is being erected, I will not be able to access the areas where I work due to the construction of the bridge. Health and safety rules would not allow my vessel to enter that area.

The Convener: How wide is the area that you fish?

Colin Flint: I fish quite a big area now because my business is growing, as I say in my written objection. I fish from Port Edgar marina and generally go straight to the Beamer rock. I fish round Society bank and the north side, sometimes down to Kirkcaldy and sometimes down to Port Seton. My main lobster fishery is in the South Queensferry area, around the bridges.

The Convener: I am trying to get a map, so that I can have a good look at that. In your written objection to the bill, you say:

> "Transport Scotland's assessment that 'The main creel fishery areas are located around Beamer Rock and to a lesser extent the Forth Rail Bridge' ... is not entirely accurate."

Is that what you are discussing just now in terms of your broader area of fishing? What should Transport Scotland have said in relation to the area that you fish?

Colin Flint: The area between and around the bridges is heavily commercially fished, as is the Beamer rock and the south shore, where I fish quite a lot. A small amount of fishing takes place on the north shore, as well. It is a vast area. There is commercial fishing the whole length of the Forth.

The Convener: Have you had any conversations with any of those who are involved in the project about the effect of the initial noise and vibration?

Colin Flint: I have not. In hindsight, that was an error—I should have spoken to them about it, as it affected my fishing for six or seven months. The drilling started again last week and I am going to have to speak to somebody about it, as it is an issue. I know that the Beamer rock is going to be drilled, and drilling is taking place at Society bank, on the south shore, although I cannot fish there anyway because their jack-ups are there and the species that live there will no longer be in the area.

The Convener: If the work had the adverse impact that you were unable to catch for a significant period, what impact did that have on your business? What percentage of the fish that you catch come from those areas? What did you do to carry on trading in the circumstances?

Colin Flint: That is a difficult question to answer because every season is different. I removed from the sea all the gear that I had in that area. Fishing in Fife is becoming heavily commercialised and the areas where it is viable to fish commercially are being reduced all the time due to the volume of vessels that are now fishing there. I could not fish in those areas, so I put the gear that I had bought ashore. The gear was no longer in the sea; I removed it from the water.

The Convener: Were you still fishing elsewhere?

Colin Flint: I was still fishing elsewhere, yes.

The Convener: What percentage of the business that you expected did you lose as a result, or is that too difficult a question?

Colin Flint: It is not. I am sure that I could work it out if I had more time.

The Convener: Was it a significant amount?

Colin Flint: Yes. It was a significant amount of money.

The Convener: Your immediate concern is that the additional noise of the project will mean that it will be practically impossible for you to fish that ground during the whole construction period.

Colin Flint: It will not be worth doing, as there will be nothing in that area. I believe that it is an issue only when there is drilling. Once the drilling stops, although it can take months, the fishery returns to what it used to be. However, once the construction of the bridge begins, I will not be able to go near that area because it will be a construction site.

The Convener: Will the construction work put the viability of your business at risk?

Colin Flint: Yes, I believe that it will.

The Convener: You said that you had not contacted anyone about the drilling. Have you made any direct representations more recently to

initiate conversations with those who are involved in the project?

Colin Flint: No, not recently. I have been a member of the Fishermen's Mutual Association (Pittenweem) for the past five years—Mr Bill Hughes, the manager, was going to come to the meeting today but, unfortunately, he has been called to another meeting. We are starting the ball rolling now.

The Convener: You may be aware that there is a code of construction practice.

Colin Flint: I have had a look at it.

The Convener: Does the code include any provisions in relation to the protection of the marine environment? Is there anything further that you could usefully contribute to the evolution of that document?

Colin Flint: To be honest, I have not read it in enough depth to comment. I need to go back and read it again.

The Convener: Okay.

David Stewart: My question is for both witnesses. Colin Flint has already answered the part of my question on how long—given his specialist knowledge—he thinks that it will take for the fisheries to return to normal. That is a hard question to answer. Mr Flint, you mentioned earlier that, when the drilling took place, it was three or four months before—

Colin Flint: Before anything came back to the area. You put bait in the lobster pots to attract lobsters or crabs, but you also get hermit crabs, starfish and so on. There was nothing around the Beamer rock at that time—the creels were coming up completely empty, which is very unusual in an estuary that is so rich in life. It was six or seven months before the lobsters came back.

David Stewart: Have you experienced any similar situations during the time that you have worked as a creel fisherman, in which exploratory drilling work has been carried out and there has been no fishing for a number of months?

Colin Flint: No, not at all.

David Stewart: You have had one experience, which is very relevant.

Colin Flint: It happened last year. In hindsight, I should have done something about it at the time.

David Stewart: The work that will be carried out over a five-year period will be much bigger, so we may speculate that it will have a much bigger effect on your business.

Colin Flint: That is one of my concerns. The holes that are currently being drilled are quite small but, when the piling begins, I do not know how big an area it will affect. I fish at the road bridge as well, and that area was affected by the piling at the Beamer rock. I fish to the east, all the way down the river—I cannot tell you how big the area will be in which marine animals are scared away.

David Stewart: My other question relates to that. Are there restrictions on how far you can fish in that area? You mentioned that the fishing is already quite competitive in other parts of the patch.

Colin Flint: No, there are no restrictions; the licence that I own allows me to fish anywhere I want to. The problem is that there is massive overfishing in the Firth of Forth as it is. I try to keep my gear to a minimum, as I am quite conservation minded about what I do. If I went further down the river, there would be a whole host of problems, and the ground where the animals live has been fished very hard, so it is not as productive as the area in which I currently fish.

David Stewart: You cannot take a simplistic commonsense view that, if there is a problem for five years, you will go elsewhere or expand what you are doing.

Colin Flint: If only.

David Stewart: As in other fishing areas in Scotland, it is highly competitive, so there are no opportunities for you to go elsewhere.

Colin Flint: Given the nature of the sea bed in the Forth estuary, there is not much hard ground, which is what crabs and lobsters require; a lot of it is mud and silt. I can fish only on small patches, which I have generally got covered anyway, so I cannot really go any further. Given the nature of my vessel and the speed at which she goes, I am probably operating at my boundaries as it is.

David Stewart: There is a natural boundary because of various constraints.

Colin Flint: I cannot go west because, west of the bridge, it is just pure mud and silt. There are not many commercially viable species living in that area.

David Stewart: That is helpful. Dr Lyndon, do you want to add anything?

Dr Lyndon: I do not think so; it sounds like you have covered everything.

I reiterate Colin Flint's comments on the habitat boundaries. To the west of the Beamer rock, the ground basically consists of sediment and muddy areas where we would not expect to find commercial crustaceans. The rocky areas are patchy until we get much further down the Forth.

David Stewart: I will go back to Mr Flint. What discussions have you had on the wider fishing

issue—not just on creel fishing, but on general fishing in the area? You mentioned the FMA. What discussions have you had with the association about the general impact of the bridge construction on fishing?

Colin Flint: There has not been much comment about the construction of the new bridge at all. I am the only member who is involved, as most of the other members operate around Pittenween.

David Stewart: It is unlikely that the bridge construction will affect many other members of the association—it is primarily you who will be affected.

Colin Flint: It will not affect anybody else in the association, because they all operate much further down the river.

David Stewart: It may be premature to mention this subject, but have you discussed with the association any issues around compensation for loss of business? It seems fair.

Colin Flint: Not yet, but I think that it is coming.

David Stewart: I thank both the witnesses for their comments.

The Convener: Thank you very much—your evidence has been helpful.

11:40

Meeting suspended.

11:43

On resuming—

The Convener: Good morning. I see some well-kent faces on the panel. I welcome again John Howison, interim project director, Mike Glover, commission project manager, and Frazer Henderson, bill manager, all of whom we have seen before. I also welcome Shirley Henderson, team leader for environment, and Anne-Marie Martin, policy and communications manager. The witnesses are all from Transport Scotland.

We move straight to questions. As I explained earlier, I have a slight head cold this morning, so I defer to some of my colleagues. Hugh O'Donnell will kick off the questioning.

Hugh O'Donnell: Good morning all—I welcome some of you again, and I am pleased to see those of you who are here for the first time. We are tight for time, so I ask you to keep the preamble as tight as you possibly can in giving a context to your answer—you should cut to the chase.

I direct my first question to Shirley Henderson—it is perhaps a baptism of fire for her. What effect and impact has the Climate Change (Scotland) Act 2009 had on the environmental statement and the environmental impact assessment for the project? What additional measures have been included to meet the targets that have been set by the 2009 act?

11:45

Shirley Henderson (Transport Scotland): There are two aspects to the carbon emissions from the new crossing. One is the embedded carbon, which I believe has been discussed at the committee today, and the second is the operational carbon from the traffic.

We have a sustainability strategy, which is looking at ways of decreasing the amount of embedded carbon in the structure and at opportunities for the contractor to minimise that carbon. As far as operational carbon goes, we did an assessment of the carbon emissions from traffic and we reported that in full in the environmental statement. Mitigating the carbon emissions is for traffic management and the design features, which someone else on the team will be able to help you with.

John Howison (Transport Scotland): Perhaps I can step in here.

First, one feature of how the bridge will operate is the managed motorway approach to try to smooth out traffic flow and prevent stop-start driving—I think that the committee discussed that earlier. We have modelled that using the advanced microsimulation technique. Rather than just assign formulas to various roads in a network and work out the amount of traffic and how it acts, the microsimulation works out the precise decisions that individual drivers who use the network will make. It can represent real driving characteristics and is therefore much more accurate.

That modelling has demonstrated a move from the operational carbon figure that was quoted earlier of 20,000 tonnes a year by 2032 to the assessment that, in aggregate, the bridge will be carbon neutral in operational terms at least until 2025. That is because of the more efficient running, particularly during the am peak periods, and the avoidance of the stop-go driving, congestion and the extra distance that would be forced by recabling the existing bridge.

Secondly, the construction contract will be judged on a number of aspects. One will, of course, be the price, but there will be a number of quality aspects, one of which will be the amount of embedded carbon in the construction process. There is a carbon calculator in the tendering process, and credit will be given to the contractor that comes up with the approach to construction that generates the least carbon.

Hugh O'Donnell: Is the modelling that you referred to the international standard that is used?

John Howison: The "Design Manual for Roads and Bridges" is the incorporation of best practice by all the UK highway authorities—the Highways Agency, Transport Scotland, the Welsh Assembly Government and the Northern Ireland Office. That comes up with a traditional traffic assessment. We have gone a lot further than that and done state-of-the-art Paramics modelling, which is more precise than normal best practice standards, in an attempt to understand what will happen.

Hugh O'Donnell: Has the environmental statement been independently audited? If so and if any comments were received, how were they incorporated into the statement?

John Howison: Yes, it has been audited. Shirley Henderson can explain how that works.

Shirley Henderson: The environmental statement was sent out as a finalised draft to Transport Scotland's independent auditors in July or August last year. The comments that we received have been tabulated with a note to point out how we have addressed them. All comments were addressed as appropriate in the final version of the environmental statement.

Hugh O'Donnell: You referred to Transport Scotland's independent auditor. Can you tell me what that organisation is and what its relationship is to Transport Scotland?

Shirley Henderson: John Howison may want to comment. They are term consultants, so they are independent consultants to Transport Scotland who will look at a number of environmental issues, including the auditing of environmental reports. In this case, I believe that the work went out to Ironside Farrar environmental consultants and the WSP Group. Those two companies did a detailed technical audit of the environmental statement.

Hugh O'Donnell: I guess that they are retained on a fee basis by Transport Scotland.

Shirley Henderson: That is correct.

Hugh O'Donnell: What independent organisations that are not retained on a fee basis by Transport Scotland were given an opportunity to look at the environmental statement?

John Howison: That scrutiny comes from the statutory bodies, such as SNH and SEPA.

Producing an environmental statement is a fairly expensive exercise, as is auditing it, which is why, although we regard the companies as professionally and technically independent, they are supported by funds from Transport Scotland in undertaking those duties.

To answer your question, the people who are not paid directly by us come under the heading of statutory consultees.

Hugh O'Donnell: I see. So there was no engagement with, for example, the RSPB, Friends of the Earth or Scottish Environment LINK, who might have had a view.

John Howison: Yes, there was. Shirley Henderson will talk about that.

Shirley Henderson: We have had an on-going consultation with a lot of external bodies, including the RSPB and, in particular, SNH. That has not specifically included sending out the entire environmental statement to them to audit. As far as the RSPB goes, at the outset of the project it was invited to an initial briefing—I think that it was in March 2008—along with a number of other bodies. We issued information on the proposals and some baseline information to about 160 different interested environmental groups in 2008. We received a response from the RSPB in the form of data on birds. It was invited, as part of Scottish environment LINK, to a meeting in July 2009, at which a lot of detailed information about the assessment to date, some early findings and so on were discussed. We had a fairly good discussion on possible additional mitigation that we could implement. The RSPB advised that it would let us know of some of its more detailed proposals for mitigation. Unfortunately, I assume that it did not have time to come back to us as we have not received anything to date on its additional suggestions, which we were hoping to be able to put into place.

Hugh O'Donnell: Is the environmental statement set in tablets of stone? If changes are suggested by an appropriate body, what is the process for ensuring that they are included in a revised environmental statement?

Shirley Henderson: It would depend on the nature of the proposal. If it was, for example, a piece of additional mitigation that could be conceived to be a design change, it would have to be considered in the light of whether it could cause another type of impact.

Hugh O'Donnell: A knock-on effect.

Shirley Henderson: That would have to be considered. If there were no such constraints, I do not see why it could not form an additional requirement on the contractor. That goes over to the contractor side of things.

John Howison: The environmental statement is the statement that we have produced, but there is an undertaking that, if changes are made, they will be assessed to ensure that they are no worse than the emerging impacts from the proposals in the environmental statement.

Hugh O'Donnell: Who would carry out that assessment?

John Howison: There is a process. For example, if the contractor wishes to propose measures, an assessment would be undertaken by its environmental consultant and checked by us. If there was going to be an impact on something that the statutory consultees should consider, the proposal would go to them.

Hugh O'Donnell: Okay. Could someone briefly tell me what the scheme's main impacts on wildlife in the designated sites will be?

Shirley Henderson: On the European designated sites on the Forth—those are the Forth islands special protection area, the Firth of Forth SPA, the Leith docks SPA and the River Teith special area of conservation or SAC—

Hugh O'Donnell: You are better with those letters than I am.

Shirley Henderson: We have prepared reports to inform appropriate assessment, which is a particular type of assessment that European legislation requires to be done. Our findings were that there would be no adverse effects on the integrity of those sites. Those documents are currently with the competent authority for assessment. I know that SNH has advised on them. In Transport Scotland's opinion, the assessment to date shows that there would be no adverse effects on those international sites.

Obviously, there are other sites. There are national designations, such as the SSSI at St Margaret's marsh and Ferry Hills SSSI, which is a geological and biological SSSI. We say that there would be no significant adverse impacts on those sites, and mitigation has been included in the environmental statement to reduce the risk of impacts on them. Do you want me to go into detail about that?

Hugh O'Donnell: I think that we have written evidence on that, so that will not be necessary.

Given the history of life on the Forth estuary, have you had any input on archaeology from Historic Scotland?

Shirley Henderson: Yes. Historic Scotland is one of the bodies that we have liaised closely with throughout the life of the project. It has regularly been represented at our environmental reference group meetings, and we have discussed many issues with it, including listed buildings, as well as general archaeological finds. We agreed an assessment process with it and a scheme of on-going investigations, including trial trenching to look for unexpected archaeological finds in advance of construction. We have liaised with it every step of the way.

Hugh O'Donnell: Thank you. I have two final questions. Perhaps you will be relieved to know that I am returning to transport modelling.

The City of Edinburgh Council has advised the committee that the transport modelling was carried out in 2005, before the M9 spur was opened and the tolls were removed. Does that affect the environmental statement?

John Howison: The transport modelling has been undertaken over a significant period. Additional surveys were undertaken in 2008 to fill in the gaps in relation to roads that did not exist before. The final transport analysis was undertaken shortly before the environmental statement was put together, once the details of the design of the road were known. That was in spring last year. Basically, the process is iterative. The missing roads and the tolls that are not collected any more have been taken into account in the latest modelling, which has been fed into the environmental statement.

Hugh O'Donnell: That is helpful. Finally, it has been suggested that the environmental impact assessment does not take full account of impacts away from the crossing site—for example, the air pollution in west Edinburgh due to the greater congestion at peak times. Can you rebut that suggestion?

12:00

John Howison: There are two aspects to that point. First, the model that is used for the transport analysis is a whole-of-Scotland model, so to say that it does not include Edinburgh is simply incorrect—it includes the whole of Scotland.

Secondly, and we have pointed this out to you before, it is all very well talking about free-flow conditions across the estuary, but we must recognise that the estuary sits in a constrained wider network. There are constraints at Newbridge and Barnton, for example. It does not matter how free flowing we make the crossing over the firth, the traffic will be metered into the areas where Edinburgh is concerned about pollutant levels simply as a result of the congestion at the junctions that the city council controls. I say that speaking as a resident of west Edinburgh.

The Convener: I wonder whether you heard the evidence from Mr Flint, our creel fisherman, who gave evidence to the committee a short while ago. There he is, with his 300 creels, I think. I do not know whether the official reporters were able to write down what size he said they are, as I think that he said "this size" and gesticulated into the wind. Was it 3m?

David Stewart: It was 3ft.

The Convener: It was 3ft—his creels are 3ft square, each costing about £50. He felt that even the test drilling that has been carried out to date has had a significant impact. Further work will obviously have a major impact on his business. Do you wish to challenge his assessment of the effect that it will have on his business? In the event that you do not particularly challenge it, how do you think his concerns for the viability and future of his business ought to be addressed?

John Howison: We have to take his evidence at face value—it is what he has experienced. On the understanding that Mr Flint operates under a licence, he will have some form of compensable interest, and the matter will be pursued in the normal course of events. Judging from his evidence—as well as from the site investigations that have and are taking place—there will clearly be disruption to his activities. There are compensation provisions in place under the Roads (Scotland) Act 1984, and compensation provisions are contained in the bill for the works that we will be undertaking.

The Convener: Essentially, you feel that it is regrettable, but inevitable.

John Howison: Yes.

The Convener: David Stewart will now develop some marine biology points.

David Stewart: I take the panel back to the code of construction practice, which we have covered a couple of times in previous weeks. I will focus on section 9, which, as Mr Howison will know, covers the marine environment. We have been advised that there is no real provision for consultation with fishermen, sailors or marine recreational users. Is that advice correct, or do you have some other version of chapter 9 of the code of construction practice?

Frazer Henderson (Transport Scotland): I will put my copy of the code down, rather than taking up time looking though it and checking it. We need continuing liaison with local communities and businesses with regard to the code as we proceed with the contractor. If we have not made specific mention of this in the code of construction practice—I think that there is a mention referring to harbour authorities and marine interests—we should make reference to fishing interests. We can give a guarantee that we will modify the code of construction practice so that it is absolutely clear that we are covering all the marine interests in terms of the consultation.

David Stewart: Thank you—that is very helpful. If there was a gap before, there will not be one now.

Frazer Henderson: I hope that there will not be.

David Stewart: That will cover fishermen, sailors and the general marine recreational interest—to use the jargon covering anybody else who uses the firth recreationally.

This is a difficult point to identify, but over what period do you assess that there will be a detrimental impact on the marine environment as a consequence of the bill? You heard the evidence from our fisherman earlier.

John Howison: Mike Glover will wish to say something about the construction process and how long it will take. Shirley Henderson might then wish to add to that.

Mike Glover (Transport Scotland): The key activity is the foundation works. Mr Flint explained the vibration effects from Beamer rock vividly. Beamer rock will be a site of controlled blasting, so there will be vibration. We have had consultation with SEPA about the effects, and they have also been covered in earlier evidence from SNH. Those vibration effects will last for a period of months. Then, there will be quite localised piling operations, where the piers occur. They will be non-percussive. That is not to say that there will not be some vibration, but it is not a matter of thumping things into the ground—it is an operation of boring through the ground. The technique is the same as the one that was used at Kincardine.

The foundation works will cause the vibration effects that have been discussed. Those works will begin, say, six months after the start of the contract—around the middle of 2011—and they will take a spell of about 12 months from that time. The works are not all at the same location. The jack-up rigs will move from one location to another, but the general area will have works for about a year's duration. Following that, there will be marine operations—the moving across of barges, tenders and small vessels. That will go on for about two and a half years.

That gives you a feel for the activity. Early on, there will be vibrations from the foundation works. That will be followed by marine movements.

David Stewart: Thank you for that. It is probably reasonable to mention the new Kincardine bridge but, as one of my colleagues has pointed out, commercial fishing is not heavy in that area.

Mike Glover: No—I was not trying to draw emphasis to that. I was mentioning the technique that has been used at Kincardine. Interestingly, that work is helping us on some of our noise and vibration work, as we have some references.

David Stewart: Putting aside Mr Flint's case for a second, will there be any other detrimental impacts on the marine environment as a consequence of the bill?

Mike Glover: We will be carrying out some dredging works on the southern mud banks. That is fully described in the environmental statement, and its impacts have been studied and considered.

David Stewart: Do other panel members wish to add anything to Mr Glover's points?

Shirley Henderson: I do not have anything in particular to add, other than to mention that we have done an assessment. In the marine environment, the risk of impacts comes during the construction phase. They are localised and temporary, and they do not affect the integrity of the international sites. However, there might be temporary disruption during some of the works that Mike Glover has described.

David Stewart: I return to the specific case of Mr Flint. The committee is concerned that the works could be terminal to his business, judging from his description. I am glad to hear that there is some scope for compensation. It is clearly a matter for Mr Flint to pursue, but it is worrying that he could end up going out of business because of the project.

On the other side of the coin, do you see any benefits to the environment as a result of the bill?

John Howison: To the extent that the works will be bypassing South Queensferry and taking away a large chunk of traffic that currently goes through the centre of the town, there will be a substantial benefit to people and communities there. It is difficult to say that there will necessarily be a benefit where we are disturbing ground during construction work, but one of the land acquisition provisions is a proposal to receive compulsory purchase powers to purchase St Margaret's marsh. That will allow us to introduce a planned management regime to the marsh so as to bring out its best potential.

Shirley Henderson: Environmental benefits are definitely likely to accrue from the fact that we are creating a dedicated public transport corridor across the Forth.

Joe FitzPatrick: Roughly how many residents will be impacted detrimentally by the construction work and by the bridge after completion? What are the main environmental impacts that they will suffer?

Shirley Henderson: I do not know whether we have a handle on those numbers.

Joe FitzPatrick: I do not want specific numbers, just general.

John Howison: We do not have a handle on the numbers. Obviously, the people who will be affected by the scheme are residents adjacent to the M90 at the Admiralty interchange, residents on the outskirts of South Queensferry and, to a lesser extent, residents on the outskirts of Kirkliston. Incidentally, because of the redistribution of traffic, residents in Newton will also be affected.

Joe FitzPatrick: Should we do anything more to lessen the environmental impact on those communities?

John Howison: Where we consider the impacts to be significant and major, there are proposals for mitigating measures such as earth bunds and noise fences for noise. Having said that, we do not envisage people being affected by noise levels that will trigger statutory provisions for noise insulation. For example, for people who live on the outskirts of South Queensferry in a relatively quiet environment at the moment, it will be noisier; for the people who live in the central community of South Queensferry, it will be quieter. The general effect will be to create a more even noise regime across the whole of the settlement.

Joe FitzPatrick: When we heard from the local authorities at last week's meeting, there was a bit of concern about how the independent planning officers would interact with the contractor and about the loss of local authority involvement in that process. Why did you decide to go down the route that you have rather than include local authority officials?

John Howison: Again, I will take noise as the significant issue here. What we tried to do with the code of construction practice was to put in place the best noise control measures that we could. The process is centred around being able to plan and monitor at site level within a certain framework. If the contractor wishes to step outwith that framework, he must go to the local authorities, and their powers continue as usual. We took the approach that we did with the best will in mind, having regard to the fact that we will have resources on site that the local authorities might not have. The regime is also backed up by a monitoring and liaison process. Having said that, we are due to meet the local authorities on 25 March to discuss with them whether they think there should be a better approach. We will take their views into account.

Joe FitzPatrick: That was a helpful last point, which has pre-empted my next question. It is useful that those discussions are on-going. On the issue of welcome communications, there has been criticism of Transport Scotland's engagement with local people up to date. How can you improve not just communications but local people's perception of what is happening? You say that you have communicated, but they feel that it has not happened. We need both parties to believe that there has been genuine, constructive dialogue, particularly as the construction goes ahead.

John Howison: Inevitably, with community liaison, the community's views about how effective the consultation has been is coloured by whether they think the end result will be favourable for them or not. I think that the criticisms that we receive are from communities who perceive that they will be in a worse position. On how we move forward in that regard, once a contractor is appointed and once we know his method of constructing the project, we will need to engage in another intensive round of consultation with those people who will be affected by that, laying out the proposals for the programme and the steps that will be taken to monitor things such as dust, air pollution and noise. Mike Glover may want to say more about that.

12:15

Mike Glover: I listened carefully to some of the evidence that was given. I saw from the statements that people made that they feel passionately about those matters. All I can draw to your attention is the results of the consultation. When you look at the scheme as it appears in the bill, you see that we have accommodated lots of things and taken concerns into account. I do not want to make a long statement here, but I cite the example of the alignment of the B981 and Castlandhill Road, which we consciously took away from the construction site so that the impact of the construction on people in North Queensferry would be minimised. Before that, the route went into the centre of Ferrytoll. We made that major change as a result of consultation.

The movement of the junction at South Queensferry—which you hear people talk about emotionally—from one location to another was one of those judgments of Solomon. It will benefit the environment and local people in different areas in different ways, but it definitely produced a much more efficient solution in relation to traffic volumes. We heard a lot about the problems of Newton, but what gets lost in that debate is the massive reduction in the traffic that will go through South Queensferry—I think that it will be reduced to 5,000 vehicles from something like 15,000. There was not necessarily a balanced view of what we have done. In a way, I am pleased that the issue of Newton has come to a head, because the problem has been there for a long time. All that the Forth project has done is draw attention to it. We are working closely with West Lothian Council to find a solution to that problem, but it is not a problem that we have created—it was always there.

That answer was longer than I wanted it to be, but I just wanted to explain that we have taken on board responses to the consultation.

Joe FitzPatrick: I have another brief question on a different issue. The first panel expressed some concern about the precision of the CO_2 emission figures that the modelling produced. It was suggested that there should be quite wide margins for error. I just wanted to give you the opportunity to comment on that.

John Howison: We admit to having listened in to that evidence session. The problem is that the witness misinterpreted how the process worked: the way that it worked is diametrically opposed to the way he thought it worked. The starting point is the planning assumptions about housing and business location and knowing where the population will live and work. The assessment of demand for travel in the area is then made. The numbers that emerge at the end of that are constrained by the potential that is created—who is going to live in a particular area at a particular time—in relation the local plans that are set by the councils. There is an overarching view to ensure that we do not add up each council's overoptimistic aspirations and normalise them back to a whole-of-Scotland level. We have produced the best assessment of traffic flows, having regard to the best assessment of how many people will live, work and move about in the area.

That said, of course everything is based on the traffic assessments. Those figures feed into the noise model and the environmental model. There will be an impact in that regard. The figures that we have are the best figures that can be produced and are consistent with general public aspirations.

Joe FitzPatrick: Do you have any indication of what the margins for error in those figures would be?

John Howison: There are margins for error in relation to what will happen, which might be regarded as more an issue of timing than of volume—something will happen, but not necessarily when it is expected.

There will be errors that arise from the model's ability to reflect the network, because the transport model for Scotland does not necessarily have the sophistication to deal with traffic constraint. In many cases, the model allows traffic to move in from side roads that do not have the capacity to feed in that traffic. There are other, second-order problems as well. That is why we have not just rested on the transport model for Scotland but have also looked at the Paramics modelling, which works out how much traffic will get into the network and move around it.

Hugh O'Donnell: Notwithstanding Mike Glover's point about communities' approaches to the matter, having read through a number of the objections in some detail, I can well understand

why communities such as South Queensferry and Newton are concerned about what happened in the consultation process. They feel that they were given information rather than being consulted. That feeling might be coloured by the impact of the proposal on their particular communities, but notwithstanding that, it might be helpful for Transport Scotland to revisit its engagement with communities and ensure that it is consultative rather than informative. Otherwise, people feel that things are being visited upon them rather than that they have been consulted on things that are going on in their environment. I just wanted to put that on the record.

Mr Howison mentioned the noise levels, the need for noise insulation in communities and the fact that there will be a balance, because some places will be quieter. Do you have a scheme to assess the noise levels post construction in communities such as Newton and parts of Kirkliston, where the noise levels will increase dramatically? Within what timeframe will you accept representations from people who live in those communities that there has been a noticeable and significant change in the noise level that they have to accommodate? I am not suggesting for a minute that you take the noise insulation away from the people in South Queensferry in order to achieve that balance.

John Howison: On your first point, we provided an awful lot of information in the consultation. We do not apologise for that because we believe it is important that, in consulting people, we give them information on which they can make judgments. The consultation was a two-way affair, and the number of changes that we made as a result of it demonstrate that.

Turning to your question, the assessments of noise are based on the traffic levels, as I said earlier. We have a scheme whereby the traffic volumes on the new roads will be assessed in the first year after opening, in the fifth year, in the 10th year and in the 15th year. An assessment will be undertaken and maps will be produced in each of those periods showing the properties that are eligible for enhanced noise mitigation.

It is worth noting that there is a sort of limited sensitivity of noise to traffic. If we double the amount of traffic on a road, we increase the noise level by 3dB. That is to say that, in doubling the amount of traffic, we have doubled the amount of noise energy, which, on the decibel scale that is used for noise, represents 3dB. To double the perception of noise, which is a physiological thing rather than an energy thing, the required increase would be much more than that—it would be up to 10dB. In debates about that, levels of between 6.5dB and 10dB are quoted. We would have to double the amount of traffic three times before somebody could say, "Gosh, this is twice as loud as before." In Newton, where we predict that the bridge will result in an increase in traffic of about 3,000 vehicles a day against a backdrop of 15,000, the increase in noise will therefore be less than 1dB.

Hugh O'Donnell: Is that the actuality rather than the perception?

John Howison: Well, it will be the actuality when it happens.

Hugh O'Donnell: Rather than the perception?

John Howison: That will be the noise energy.

Hugh O'Donnell: But people's perception will not necessarily equate to that. If people have been living somewhere exceptionally quiet, their perception of the 3dB increase that you mentioned will be that the noise is actually much louder because the residents are starting from a lower base. Is it naive of me to suggest that?

John Howison: That is not so, because the scale is progressive. To somebody who lives in a quiet area, 3dB will represent a doubling of the noise energy there, but it will be a lot less extra energy than the 3dB would create in a noisier location.

Hugh O'Donnell: Okay. Thank you for that.

The Convener: With the decibels ringing in our ears, we come to the end of our questions for this morning. Thank you all very much.

12:26

Meeting continued in private until 12:45.

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