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THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS MET AT BURNIE CIVIC CENTRE, BURNIE ON FRIDAY 9 NOVEMBER 2012.

TARKINE FOREST DRIVE

Mr ANDREW FOWLER, SENIOR PROJECT MANAGER, DEPARTMENT OF INFRASTRUCTURE, ENERGY AND RESOURCES, AND **Mr DION LESTER**, CONSULTANT, PITT AND SHERRY, WERE CALLED, MADE THE STATUTORY DECLARATION AND WERE EXAMINED.

DEPUTY CHAIR (Mr Hall) - Welcome, gentlemen. Mr Brooks and Mr Booth had a look at the site yesterday and I had a look with Mr Harriss approximately three years ago.

Mr FOWLER - I would like to thank the committee for the opportunity to present the project today and also for the opportunity to take you around the project yesterday. Now that everyone has visited the site, you are well informed as to what the project involves.

The Tarkine forest drive project is to support tourism in the north-west of the state. As mentioned, the budget is \$23.1 million. Around \$5 million has been spent in historic costs developing the project to this stage through its time in Forestry Tasmania and then DIER, and the development at the time of the earlier, larger project through to the development of the project as we now see it presented in the report.

Mr BOOTH - Did you say it was a \$28 million total project?

Mr FOWLER - No; it is a \$23.1 million project budget. Earlier development costs - that is, the cost that has been spent on the project in the last four years, or even longer - the area was first recognised by Forestry Tasmania for its tourism values. There are a number of sites, as you have seen, that have high potential and are well worth visiting and expose people to the beauty of the area. For some years they have had a project in mind to provide improved access to the area.

Mr BOOTH - Could you give us a breakdown on the \$5 million pre-development costs?

Mr FOWLER - Some of the breakdown is in the report. It indicates previous costs to date, as well as more recent costs in the last couple of years. I do not have all the information on the previous costs. The budget has evolved over time. There is mention in the report of a sum of money that was within the project being put into other north-west regional projects and when the project was scaled back to what we see now the budget was increased to an equivalent amount that we had before.

Mr BOOTH - Is any of that \$5 million on other north-west projects not related to this particular project?

Mr FOWLER - Nothing I am aware of. This project being very complex and having a raft of environmental processes to go through, and needing very thorough advance work that you've heard about in relation in particular to the roadkill, there has been a significant

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amount of money spent on collecting a year of research and working out the project in its various forms.

Mr BOOTH - So that \$5 million, what would the start date be for that? Does it go back 12 months or two years?

Mr FOWLER - No, it goes back several years. My understanding is that it goes back four or even five years.

Mr BOOTH - So that is \$5 million out of a total of \$23 million? That is within the \$23 million?

Mr FOWLER - Yes, within the \$23 million.

Mr BOOTH - Is there a consolidated list of those costs you could refer us to, or provide?

Mr FOWLER - Within the report there is a table on page 32 which provides some information. It indicates historic costs prior to the 2010-11 financial year of just under \$3 million. The project in its more recent guise, which is since 2010-11, would represent the balance of that cost.

Mr BOOTH - Was any of that money expended prior to the project being applied for? I am interested in whether some of it was normal planning work, or work that Forestry Tasmania might have done in-house that has now been sheeted into this project?

Mr FOWLER - I could not tell you. I have only had involvement with the project in this current calendar year, so I am not across all the background. I am across various aspects of the background that are particularly relevant to the project in its current form, but so far as some of those historic early costs and costs outside DIER, I am not aware of how that worked.

Mr BOOTH - Deputy Chair, could we ask for a breakdown to be provided to us - an historical breakdown of the expenditure - and what that \$5 million was for?

DEPUTY CHAIR - We can.

Mr BOOTH - Andrew, I will take the opportunity to thank you and Dion for the day yesterday.

Mr FOWLER - The project in its larger form, which included 30 kilometres of additional road upgrades and around 5 kilometres of new road, was presented to the committee two or more years ago. At the time the construction of new road was quite controversial. An approvals process had been commenced but was terminated at that stage. The project has been re-scoped to provide three access points and two different loop options for tourists. It is still a highly viable project from that point of view.

The scale of the project means a number of key stakeholders. Fortunately, the Tarkine discussion group, which has been involved in the project for a very long time and is represented here by one of the members of the audience, is the key group. It has representation across Cradle Coast Authority, councils, tourism, Parks and the Tarkine

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National Coalition. That has provided very useful input to the project and very balanced representation in the development of the project.

DEPUTY CHAIR - There was consensus across all groups with regard to this proposal, I take it? That is probably something Mr Jaensch could answer, but I assume there has been quite a lot of consultation?

Mr FOWLER - There certainly has been over the years. If anything, the Tarkine National Coalition would be a group that would be scrutinising the project with a great level of detail with regard to environmental aspects. We have met with them quite recently and although they would offer qualified support, perhaps, they seem very satisfied with the way the project is proceeding and what measures are proposed to protect the environment and in particular threatened fauna on the project. They do seem quite satisfied perhaps, evidenced by lack of attendance today as well; they feel things are on track, which is very useful.

Mr BOOTH - Could you articulate some of the issues that they gave you conditional support on? There were some issues to do with some baseline studies.

Mr FOWLER - The objective of the project is to provide a sealed tourist loop road - at the moment it is predominantly gravel, with some sealed areas - a safer road and a wider road. In some areas the road is quite narrow; it is only trafficked in the centre of the road so it can be potentially hazardous for passing vehicles, particularly for those drivers who are not familiar with gravel for vehicles, including visiting tourists. It is important for the road to be more accessible and the sites to be more accessible. At the moment, people with disabilities would find it hard to visit some of the areas. There are particular vehicles that cannot safely visit the area, even down to cycles and motorbikes, that would find it difficult and perhaps hazardous on that road.

Mr BOOTH - Plus prohibition from hire cars to go on dirt roads.

Mr FOWLER - That is right. Some companies offer it and some people might choose to take a risk with a hire car when they are not allowed to go on the road. The road is generally in some areas, and particularly the eastern section, not two-wheel-drive, small-car friendly or even motorbike or cycle friendly.

Mr BOOTH - Have you had a counter on that road? Do you know how many vehicle movements there are per day now?

Mr FOWLER - We have had counters and Dion would have that information from the roadkill monitoring that was done. As part of that we were monitoring traffic so we could relate traffic counts to roadkill counts with the road as it is at the moment with existing visitation.

Mr LESTER - It is highly variable depending on what aspect of the road you are talking about. If it is east of Kanunnah Bridge there is very, very little traffic. It may have increased recently with the rebuilding of Tayatea Bridge. There have been traffic counters on at least nine different locations of the route over three periods of three weeks during three different seasons, as well as at least one other period.

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The area that has seen the greatest amount of traffic is two kilometres north of the Arthur River Bridge so it actually sits outside of the route before you cross Arthur River Bridge. I don't have the total numbers here but the peak hourly numbers that you are seeing in that section of road during summer is only in the order 10 to 14 vehicles per hour during the middle of the day.

Mr BOOTH - Is that averaged or is that the maximum?

Mr LESTER - That is averaged.

Mr BOOTH - Over a 24-hour period or 18 or 12?

Mr LESTER - It is 24. That is the peak hourly average. Really what you are seeing outside effectively from 6 a.m. to 7 p.m. is between none and one vehicle per hour, typically one, across the nine areas that we looked at all west of Kanunnah Bridge. For example, down Blackwater Road, that section that is sealed that has the rumble strips at the moment, one of the trial sites, the average peak is still well less than 10 vehicles per hour. The numbers are very, very low currently on that road.

Mr FOWLER - You would have noticed yesterday on the tour we saw a number of vehicles driving and people stopped, but the volumes are low. At the moment there is not continuity through the road, with the Rapid River bridge being out and it is potentially not a peak period yet either. When the road is complete and there can be improved marketing for the area you would expect numbers to grow reasonably quickly.

Mr BOOTH - Do you have an idea of the current maintenance budget to maintain that road in a trafficable condition, a reasonable standard? You would sweep it with a grader and do a bit of potholing and gravelling and stuff. Is there some estimation -

Mr FOWLER - The economic analysis for the project, which is included in the report, does look at the maintenance costs for the current road and compares that with the reduced maintenance costs for a sealed road. So we do have an idea of those costs. The economic analysis indicates that routine maintenance of the existing gravel road would be \$424 000.

Mr BOOTH - Annually?

Mr FOWLER - That is a rolled-up figure for the few years until 2014, by the look of it.

Mr BOOTH - Do you have an annual average?

Mr BROOKS - On page 10 it has 'future construction maintenance costs to 2041-42'.

Mr BOOTH - I am talking about the current maintenance cost, the cost of grading and maintenance of the current road network per year.

Mr FOWLER - The road has until recently, before April, been owned and maintained by Forestry Tasmania. So it is only since April that DIER has assumed maintenance of the road. Part of the road is closed at the moment with the Rapid River bridge out. The maintenance cost by DIER so far would be very low but we haven't had the chance to

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experience what the true costs are. There would be a projection, and there is an allowance in the economic analysis to look at what the overall savings are over the duration or life of the project in having a sealed road rather than a high-maintenance gravel road. I can't point to any historic costs and Forestry would maintain that road in a different way to how DIER would maintain it. So I am not able to provide any firm actual costs of maintenance.

Mr BOOTH - But the modelling shows that, by sheeting it with tar, in the long run it is cheaper than maintaining it currently?

Mr FOWLER - Certainly cheaper, yes. The road as it stands at the moment would require significant maintenance to keep it up to DIER's typical standard, be that vegetation maintenance with vegetation growing on the pavement, and reshaping the road from time to time. Grading - with some areas potentially recompacting.

Mr BOOTH - Is that a typical analysis of the value of a tar-sheeted road as opposed to a gravel road, in terms of long-term maintenance costs? Is that accounting for the additional costs, such as the interest costs, opportunity costs and so forth, in the expenditure of putting tar down?

Mr FOWLER - That is provided for in the economic analysis by bringing everything back to current values to equate that reduction in costs. DIER has roads that were gravel and have been sealed, so there would be historic figures available for what we typically spend on a road in that sort of area and constructed of those materials. That would be the sort of figures that have gone into the projected maintenance costs that are presented in the economic analysis. Certainly the maintenance costs of a sealed road would be significantly less than a gravel road. So as well as the safety benefit you get from a sealed road, there are certainly reduced maintenance costs.

Mr BOOTH - I am interested in your saying that the long-term maintenance costs on a tarred road are less than on a gravel road when you take into account the capital cost in the first place. Anyway, I take it on face value; I am not arguing about it, just surprised.

Mr FOWLER - The cost to seal a road would be incurred within one short period and all those future costs for maintaining, or the savings in maintenance, can obviously be brought forward to be equated to that cost of sealing the road. Typically a decision would be made to seal a road on the basis of reduced maintenance costs as well as improved safety.

Mr BOOTH - So we would not see an argument coming from DIER if people wanted a gravel road sealed? We would not see an economic argument against that coming from DIER in the future?

Mr FOWLER - Given the safety benefits, if there was a particular argument to keep a road as gravel rather than sealed, that would normally not be a preferred treatment but it depends on a number of factors.

Mr BOOTH - I think you have misunderstood. If DIER has a gravel road - and you have gravel road networks all over the place, and my understanding is they are rarely sealed -

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is there an overall plan to seal every road to save money, on the same basis you are saying this will save money by tarring it?

Mr FOWLER - I am not qualified to speak for DIER's asset management strategies, but I can in regard to this project. In this case, safe access by tourists is of particular importance rather than perhaps some other roads that might have a different traffic mix.

Mr BOOTH - Is that factored in the economic analysis, some value on the safety? I think you were saying that the long-term costs of a tarred road network through here is cheaper to maintain than a gravel network, taking into account the capital cost depreciated over that period of time. Obviously it is not going to last forever.

Mr FOWLER - It depends on a number of factors. Each road would be considered on a case-by-case basis depending on a variety of factors, including the amount of traffic, maintenance costs, traffic mix et cetera.

DEPUTY CHAIR - I think Mr Booth's points are valid. He and I both come from a local government background at a similar time and it was always councils' view at that time that it was cheaper to maintain a gravel road than to put the capital cost into a sealed road and the maintenance thereafter. That was the thread of his question. I appreciate what you are saying here, that it is horses for courses and you are trying to create another experience. What would be the speed limit? Is that included in the report?

Mr FOWLER - We will address that when we are discussing the roadkill mitigation measures. The speed limit at the moment is open, 100 kph, but reducing the speed down to 80 kph typically results in a 50 per cent reduction in roadkill, to make the regulated speed limit 80 kph our on this road.

DEPUTY CHAIR - While we are talking about the roadkill, is it an issue during daylight hours in that area? As we know, most of the roadkill occurs from dusk until dawn. During daylight hours, when most people are going to be travelling on that road, is the roadkill a significant issue?

Mr LESTER - It depends on the species but if we are talking about devils, quolls, wallabies and typical food sources for devils and quolls, for the scavengers, then roadkill during the daylight is a very low risk. It is not no-risk, but it is low risk because these animals are known to be active during the dusk to dawn period. It is night time speed that is more of an issue, although roadkill during the evening can attract other species to the road such as wedge-tailed eagles et cetera. So the daytime speed is still an important element in the context of other animals, fauna in particular, that scavenge from roads during the day.

DEPUTY CHAIR - Being a fairly remote area, one would expect there is not going to be a lot of vehicular traffic of a night time anyway. Is that your take on that?

Mr LESTER - It is what the data suggests. It tells us that there is very little traffic between 7 p.m. and 6 a.m.

DEPUTY CHAIR - This is even the projected view if this project is approved?

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Mr LESTER - We can project tourism numbers and therefore vehicle numbers on this road, and that has been done. There is 30 000 to 74 000, an increase of 44 000-odd projected by 2025, which corresponds to a certain number of vehicles. We can't predict when they would travel with any robust data analysis but what we suggest is that that increase will be tourist traffic. The tourists are going to be leaving Smithton or somewhere else in the morning and returning to sleep somewhere else by dinner time. There is nowhere to eat on this route at the moment. We would expect the vast majority of traffic growth from the tourism sector to be during daylight hours, and therefore that significantly minimises the risk associated with roadkill.

However, what sealing the road does do is increase the speed at which all other vehicles can travel on the road. That is where we have aimed our mitigation efforts, around the others, in fact, the current road users and those road users that we cannot anticipate in 10 years time, because we cannot predict what will happen. We can predict normal traffic growth on this route but if certain developments - mining developments, for example - pop up then that will have an impact on the traffic numbers. So we have built the mitigation strategy on the highest risk. If we were going to be mitigating this road for tourists, you would not do anything because it is very unlikely there would be a great deal of roadkill associated with tourist traffic.

DEPUTY CHAIR - What percentage of contingency is involved in the costs you have there? I note it says that 'the cost estimate for works has been based on first-principle calculations by an experienced construction contractor'. Normally when we get a project there is a more detailed breakdown of costs but here we seem to have this holistic figure. Is that what you are saying, that it is taken from an experienced contractor at this stage and you have extrapolated that out per kilometre?

Mr FOWLER - There is quite a lot of detail behind that. There is an extensive multi-sheet estimate. The project, as you have seen on project maps and in the tables, is broken down into a number of sections. So that contractor has looked at each section, the condition and width of the road, how much material needs to be brought in to improve what is already there, how far it has be hauled, how much labour needs to be spent, what sort of equipment needs to be used. It has been priced up in the same way that a contractor would prepare a tender for a project. It has been worked from the ground up but using typical rates at the time. As time moves on those rates in the industry seem to be getting more competitive at the moment with not as much work around as could be.

When you mention contingency, the P50 and P90 cost estimates are included in the document. The P50, or what we expect the project would cost based on the construction contractor's estimate, is \$24.8 million. The P90 estimate, implying 10 per cent risk that the project could actually cost more than that sum, is \$26.4 million. They are based on costs at the time, without the advantages of going through the process we are going to go through, which is an early contractor involvement process, to allow us to look at these areas and look into construction methods and to find ways of doing it cheaper and reducing the risks a contractor would typically price into constructing a project like this.

At the moment there is strictly no contingency within the project but a high opportunity to reduce to cost of the project by working in collaboration with a contractor in the early contractor involvement process.

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DEPUTY CHAIR - Do we have a detailed breakdown of the segments in this submission?

Mr FOWLER - No, because it is structured in a very complex way. There is a summary estimate towards the back of the document, which shows the project broken down into several stages - before the early contractor involvement design process, that process itself and then the construction costs and also the additional costs, be they DIER costs or other costs to the project.

DEPUTY CHAIR - It is a fairly remote area and anecdotally I have heard there are several construction firms that are not particularly interested because it is a remote area and removed from where they are. What level of interest do you expect and how competitive do you think the tendering process will be?

Mr FOWLER - I think it will still be quite competitive. There are a number of contractors who are well suited to do this work. From a technical point of view, it is not a particularly challenging project. From a planning and approvals point of view, it obviously is. The re-sheeting and minor earthworks and pavement works associated with this project are not complex so they are within the capacity of a good number of contractors, including perhaps smaller subcontractors who may be employed by a larger contractor. There is a good level of interest and from time to time I receive telephone calls from contractors asking about the project.

DEPUTY CHAIR - You made the comment there is not a particularly huge amount of work around at the moment so there ought to be people in the marketplace who may like to have a chip at this, but it is a remote area. In your view, you still have the expectation that the tendering will be competitive and you are going to fall within budget?

Mr FOWLER - We remain positive, but importantly the ECI process - early contractor involvement process - allows that intermediate stage when you can negotiate a price and not agree on an actual construction contract until you can get to the construction methods, rates and overall costs within budget. We are positive we will get very competitive tenders.

Mr BOOTH - Andrew, I would like to go back to the cost-benefit analysis of the tar-sheet road as opposed to maintaining a gravel one. I am concerned that the committee gets very accurate information about this so it does not set potentially a precedent for the consideration of other projects as well. I understand there are factors here: safety, tourism, potential to drive some tourism with this project. Do you have a breakdown of cost against cost, gravel against tar, in terms of long-term maintenance costs over 25 years, the expected lifetime of the tar sheeting, so we can accurately look at that? It just does not seem to stack up, from my past knowledge in that area, that it would be cheaper to do the additional construction, as opposed to just running a grader over the road on a regular basis.

Mr FOWLER - I understand the question. It is a primary objective of the project to provide that sealed road for other reasons. There is a more detailed breakdown in the environmental analysis, which indicates significant costs in the early years up to 2013-14 for maintaining the gravel road. Those costs are not projected further out beyond that time. The analysis also indicates typical maintenance costs of the sealed road of

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\$143 000 per year in today's dollars. If there is more information you need, we would need to provide that outside of this hearing.

Mr BOOTH - Could you provide us with a cost-benefit analysis that compares the long-term maintenance costs of tar as opposed to gravel on this road, taking into account the capital cost that is required for the project? I understand there are other reasons you may build it, but I am interested in that raw data and then we can look at the value for tourism et cetera.

Mr FOWLER - Okay, we can provide that separately.

Mr BOOTH - Thank you.

Mr FOWLER - To continue the summary information I was going to provide. The scope of the project from a construction point of view is not that complex and based on the extensive investigations into heritage and flora that have been conducted, those aspects are not difficult either. There is a very small impact on native flora and no identified impact on heritage sites so the fundamental issue is the project's potential to impact native fauna which is where a lot of the planning effort has been concentrated in preparing this submission, and also our public environment report under the EPBC Act. This has been addressed through a range of meetings, which Dion will go into in more detail shortly, focused on mitigation. He will also advise on the research that has been conducted in the lead up to the design, and the incorporation of those mitigation measures.

The three main approvals we are going through are, first, under the Threatened Species Protection Act in Tasmania with regard to fauna in particular; reserve activity assessment for construction within the Arthur-Pieman area through Parks; and the approval under the federal EPBC Act. We are also going through a land transfer process to transfer land that is needed locally in some areas for widening the road to the preferred cross sections. DIER in April completed a process to have the road within the Forestry Tasmania areas transferred to DIER for the project. Where there is a need to slightly improve drainage or slightly widen the cross section of the road there is another process that is being conducted at the moment to have those areas again transferred to DIER so DIER can legally complete those works in areas that were formerly under the control of Forestry Tasmania.

I have already discussed the ECI process in a little bit of detail but it is important to note that this project lends itself to that sort of procurement. There are a number of risks associated with the project that need to be discussed with the contractor so they fully understand them and allocate those risks accordingly, as to whether they remain with DIER or with the contractor, to ensure that they are not overweighted through a contractor potentially not understanding those risks. There are different ways to construct this project and DIER and its consultants have some very good ideas as to how to construct the project in an economical way to meet all of our typical road requirements. We would like to have input into that with the contractor and developing how they actually construct this project.

Mr BOOTH - You just mentioned there that the road network currently is maintained by Forestry - is that the entire road network?

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Mr FOWLER - The road has historically been maintained by Forestry until April of this year when it was transferred to DIER. So DIER has now assumed maintenance of the road but part of the road is maintained by council and travels through the Arthur-Pieman conservation area down the west coast, so that is not maintained by DIER.

Mr BOOTH - Is it anticipated there will still be forestry activity on the road?

Mr FOWLER - It depends on a number of current factors. We have provided for there still being forestry activity on the road in our expected traffic mix. It could continue at historic levels. As you would be well aware, it could be much reduced or it could potentially even be increased depending on how the current agreement process ends up.

Mr BOOTH - There will be an FSO with regard to this then?

Mr FOWLER - What is an FSO?

Mr BOOTH - Forestry service obligation. Will Forestry have to pay to use the road in the same way that they want a community service obligation for the maintenance that they do on roads in forest areas?

Mr FOWLER - I am not aware of there being any discussion about whether there would be such an agreement, or royalties in effect, for cartage on the DIER road. It is not an aspect I have been involved in. I am not aware of it being in the environmental, or the economic analysis either. Are you aware, Dion?

Mr LESTER - No.

Mr FOWLER - It is not provided for, and in the economic analysis, from an overall community point of view, you would have one party pay a sum of money to another party so it possibly cancels itself out, which might be the reason it is not included.

Mr BOOTH - I am just intrigued because that is the way other payments are made to Forestry. When a tourist drives on a forestry road they claim a community service obligation. I was just wondering whether it was coming back the other way, but it is outside of your ambit obviously.

Mr FOWLER - It is outside. My expectation is that Forestry vehicles or log trucks use DIER's network and cost recovery is through other methods. I am not aware of any proposal to do that.

The final aspect I wanted to cover is the anticipated timing of the project. The environmental approvals process is well advanced at the moment. The public environment report is out for public comment and those public submissions will close on 16 November. The timing of the federal minister's final decision in regard to the application is unknown, but could occur around February or March. We do not know. There is potential it could even be earlier, but we have little or no power to influence that process.

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Mr BOOTH - You are confident you have dealt with the matters that would be considered federally?

Mr FOWLER - We are very confident. The information we have is rigorous and the measures we will put in place are also going to be effective and we have them well covered. I believe what we have done is setting a precedent that has been extremely thorough.

The preliminary design we need in order to tender the project, and the documentation including the contract documents, are almost complete. If we get the opportunity to tender the project soon, given the project is quite long and is relatively remote and will take a while to assess and calculate a likely construction cost, tenders will potentially close in January. An ECI design type process - a design and negotiation process - would continue from January until March, which would then line up with the possible timing for the environmental approval. We would anticipate awarding the contract for construction as a design-and-construct contract as soon as we could, so potentially March would be the preferred timing.

Initially, we had hoped to complete construction around April 2014. The construction season in the area is relatively short due to rainfall and other factors. The final aspect of such a job would be sealing the road, which can only occur in favourable weather. There is potential the project may push out until December 2014 or thereabouts, but that is the sort of thing we would discuss and negotiate with the contractor. We would look at what could be done to accelerate the works and the cost of doing that compared to the cost of prolonging the project. Fortunately the ECI process allows us to do that.

That concludes the summary information I was going to provide. I am happy to take questions on that, but otherwise we will give a presentation on the roadkill aspect.

DEPUTY CHAIR - Are there areas where you would be putting in Armco barriers?

Mr FOWLER - There are some. Our traffic safety people have inspected the road and identified some areas, taking into consideration the curves and the embankment heights and such things. They have nominated a small number of areas that would require guardrail under the guardrail warrants. It is not extensive.

DEPUTY CHAIR - In regard to line markings, you will have tourists in hire cars who are not used to some of the sudden bends and crests we have in roads. Are you going to have a continuous white line in some of those areas? Is there going to be a centre line marked on the road?

Mr FOWLER - There won't be a centre line marked on the entire road so as to provide a small road feel. It is in context with the lower speed of the road. In areas where there is reduced sight distance and you cannot see a vehicle coming, where sight distance does not meet the normal requirements, we would apply a centre line - a continuous barrier line.

DEPUTY CHAIR - Just a single line?

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Mr FOWLER - Yes, a single line to make it clear and encourage people to stay on their side of the road.

DEPUTY CHAIR - As you are aware, some of the local authorities are doing that now, particularly Northern Midlands. On crests and bends it gives a good message.

Mr FOWLER - There are a lot of crests and bends on this road. On quite a few council roads they are too narrow to effectively apply a centre line because vehicles would quite often have to stray across that centre line. Even over crests, they may not be line marked but in this case a cross section is wide enough - we are providing enough width to get vehicles safely past one another, including the design vehicles - the design semitrailer or bus for the respective areas - so we can apply that centre line around those curves and over crests.

DEPUTY CHAIR - Being a cyclist it strikes me that it would be an interesting ride on a bike through there. Are you going to put some signage there to indicate that there are cyclists on that road? As you said, there are a lot of bends and crests and it is a reasonably narrow seal. Are you going to do anything to have some mitigation there for the safety of cyclists?

Mr FOWLER - We have not included such signs at the moment. The road now is not particularly safe for cyclists; there is a lot of loose gravel on the road and if the cyclist moves to the edge then they would be in loose gravel and it would be quite hazardous, but once the road is sealed it will be much safer for cyclists. If the road becomes a route of choice for touring cyclists I expect we would do that. There are certainly some good rides to take on the spur roads as well so there is a good opportunity for cyclists, and for us to include warning signs like you see on other roads would be very easy to do and at very low cost. It is a good idea, I would suggest. I would be happy to incorporate that.

Mr BOOTH - The point that you make, Deputy Chair, is quite interesting, that not many people go on it now on a bike because it is relatively dangerous to do so and difficult, but it will induce cyclists and so forth onto that road. It is very narrow so that then raises the issue where, if there is no safe shoulder on the road for bikes to get off, it is a potentially dangerous situation that you create by tarring that road. I would imagine that you might want to put this on the record that the shoulders won't be treated in a way that makes it possible for a bike to go off onto the shoulder, particularly because it will be the same sort of sub-base that we currently see on the road network at the moment.

Mr FOWLER - Typically, and the shoulders will be narrow but the traffic volumes are very low and it is in an environment that is very quiet so I would expect cyclists to hear oncoming vehicles as well. Signs to remind tourists at places such as at the entry points, where we are proposing to have interpretative signs and signs explaining the area to the people and what to watch out for in the way of roadkill, could also incorporate signage advising that the road is used by touring cyclists or even training cyclists and to watch out for bikes.

Mr BOOTH - They often have those warning signs for motorbikes, don't they? They will have a picture of a motorbike crossing the line or something with a caution in some jurisdictions. I have seen them in New South Wales but I am not sure if we have them here; there might have [??10.12.58]

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Mr FOWLER - Not that I am aware of, I am not sure. There are areas within the project, particularly in the eastern section where the route is particularly windy where there will be advisory sign treatments - the typical warning sign, the diamond yellow sign - warning people of lower speed areas and those could also incorporate cyclist warning signage perhaps.

Mr BROOKS - It is interesting that cyclists want to take over everything and they have enough cycleways around the place anyway.

My question is about the increased use of side roads. As we discussed yesterday, I would also like to thank you very much for the tour and it was wonderful to be enlightened by Professor Booth and his wisdom on everything was wonderful.

Mr BOOTH - It was not difficult actually.

Laughter.

Mr BROOKS - One thing that we discussed that I would like to put on the public record is: with the projected increase in traffic flow through that region and the sealing of roads you will get more tourists driving along there, and you will more than likely have increased use on the spur roads and some of the four-wheel drive access roads that may want to go down little tracks and things like that. Are there any thoughts around that or has there been any planning on improved signage on what can and cannot go where as well as any strategies put in place for the increased likelihood that there will be more vehicles on those spur roads as well, given the natural tendency of some to test out their hire cars on these dirt roads and the like?

Mr FOWLER - There is no strategy as such. There are various things that have been considered. A small number of those spur roads would have boom gates but, depending on where the current IGA process ends up, there could be some areas that are not going to be used by forestry. To put large rocks or at least gravel berms that may be accessible by forestry vehicles but not by your typical tourist who has hired a Subaru or something could be an option, as well as signage. There is no strategy at the moment but consideration of what might happen. With increasing tourist visitation the road is proposed to be sealed to allow normal vehicles to get in. To put in a measure that would stop a car yet still allow legitimate access is fairly straightforward. The sort of element that might go exploring and be that adventurous are probably people who would go in with or without this project anyway and access areas that may or may not be available for access legitimately already.

As you know, it can be difficult to put measures in that are completely bulletproof yet still allow legitimate access for, say, forestry into their areas. To put rocks that could be removed if there were forestry activities in the future or a pile of gravel that could be removed as there might be the need for forestry access in the future, is achievable.

Mr BROOKS - It is not really looking at restricting the access. One particular area would be the roads closer to the coast where they are driving along the so-called Tarkine loop road and they see a track that leads them to the beach or the coastline. Given the increased traffic flow on that road that would increase the likelihood of some wanting to go down

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that track or that unsealed dirt road. Is there anything you have looked at where you may need to maintain or grade slightly more often than usual and the cost of that, or will you see what happens and if you find there are more people on the road you'll worry about it then?

Mr FOWLER - Those sorts of side roads would not be maintained by DIER, so DIER will maintain and own most of the main east-west road.

Mr BROOKS - So it would be the council's responsibility?

Mr FOWLER - It would typically be the council on the Temma Road up the west coast. The long-term visitation and what issues might arise are a bit difficult to predict. You might find that the additional tourists who use the road are extremely responsible; they have a full day to get around. As you saw yesterday, it took us the better part of a day and we did not do all the walks we could have, see all the areas, or spend as much time as we could have done in places. People find they usually fill the day without exploring too far and those who might be locals or Tasmanians who have the right vehicle and like going exploring will find ways to go exploring anyway. I think it will just have to be a reactive approach. If an issue opens up, it will need to be dealt with by the relevant authority at the time.

Mr BROOKS - Following on from that, we saw the most confusing road sign that exists in the state.

Mr BOOTH - That was a mirror.

Laughter.

Mr BROOKS - Mr Booth was confused by it. Is there enough funding in the proposal and the budget to make things like that clearer, and also to look at that intersection on the Kanunnah bridge? That was a bit odd, to say the least.

Mr FOWLER - It is an unusual treatment. We have allowed for signage throughout the project. There will be hundreds of signs along the project. We are not wanting to detract too much from the wilderness experience but we want to make it is safe and users know what is an advisory speed for an area, for example, and how to get from place to place. There will be a full, typical highway directional sign treatment. There is a draft signage scheme that is already developed and has been discussed with the Cradle Coast Authority. I believe some signs have already been changed. There were some other signs that were a little confusing and now that the Tayatea bridge is open again those signs have been changed to indicate you can get through to that area.

Mr BROOKS - It is a fine bridge now. The apparent issue at that intersection is that it is too hard for trucks to turn right when they come across the bridge. So we either change that slightly and move the guarding back and possibly the access to a clearer area so that they can turn right, or we keep that, or that roundabout - if we could call it that - stage but make it clearer for signage. If we are doing work around that area anyway, wouldn't it be possible to make it a bit easier in the intersection so it is avoided?

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Mr FOWLER - That could be done but what is there is a legitimate treatment and it is safe. On that junction, and other junctions, the priorities are not necessarily clear or they are not aligning with the main through traffic direction, so junctions along the route will be formalised. Where there is a large, perhaps 30 metre-wide, gravel area that will be trained into a typical junction treatment so vehicles are clear about what the priority is and there will be give-way signage and improved site to vehicles by lining vehicles up in the right direction. What is there at Kanunnah Bridge, with the right give-way signage and line marking, will be formalised. They are all legitimate roads and I believe it is safe but it just needs to be clearer as to -

Mr BROOKS - Is it easier to fix the signage or can you remove the risk altogether? I am not saying it is not unsafe but it would be more efficient if trucks could turn right and go on their way. The other question around it is we discussed the creation of a more formalised car park at that area and barbecue facilities, and possibly a viewing platform or more access to the river. Is that planned within this construction or is that going to be a further funding requirement?

Mr FOWLER - It is a very low-speed environment which lends itself to having somewhat unusual treatment as long as it is clear and done according to typical standards and quite easy to understand. As to what is proposed in that area, it is limited to formalising parking so it would be delineating parking from the roundabout type section, if you want to call it that. That will make it much clearer in that low speed area and also the construction of a barbecue because it is a nice place to stop rather than encouraging people to go a bit faster to get to a particular area for lunch and to provide more opportunities for people to stop there.

The viewing platform at the moment is not included in the project. The original desire was to construct a completely separate access onto the bridge, so significant cost with, in effect, constructing a small pedestrian bridge next to the current bridge and then platforms on the current road bridge. There is potential for that to be done in some smaller way. The sealing provides improved safety for those wanting to grab a photo opportunity up and down the river in a way that does not require any environmental approvals. It could yet happen but at the moment it is not within the scope of the project.

Mr BROOKS - It appeared to be a suitable place to drop off or pick up potential kayakers and people wanting to access that point from a recreational point of view. Access to the river is not included as part of this project but if on a future date it will be, then I think we need to look at environmentally friendly ways of getting to and from the river rather than people cutting their own tracks.

If that were to happen, would the new work on that area still be sufficient to manage that, or would we have to do more work to the roads? I know it is a little hypothetical but the main thing that I am getting at is that we sometimes do not look at what we are going to do in the future because of the short-term political cycle and this committee, since it was formed, has taken more of a longer-term view of the needs of regions and the areas and tried to make sure that was in place. The Devonport police station would be an example where we did that. Given the opportunity of tourism benefits in that region, are we putting in place adequate facilities, and are they going to be adequate for the future?

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Mr FOWLER - The Tarkine forest drive project is providing access to those areas. We are doing some work on existing sites as part of the project to provide immediate benefit, but those sorts of operations, such as kayaking or rafting in the river, which may need access to the river are not happening at the moment. As people become more familiar with the area, there will be an increasing demand for such things. We have not looked at providing any access to the river and I do not believe it is something we can do as part of this project. There would likely be a flora impact and certain risks you would need to address in getting people safely down a steep slope. It would be a significant amount of work to do that safely, particularly if people are carrying kayaks and would be problematic.

What we are doing is not precluding anything. We are not formalising the road to such an extent it will be hard to provide additional parking. There are various parking opportunities, including where we parked yesterday to the west of the bridge. We are planning to provide improved parking on the eastern side of the bridge and that could be extended in the future, too.

Mr BOOTH - I am not listening to your answer; I am looking for the photo of the bridge.

Mr FOWLER - We are not providing for things that may or may not occur in the future, but we are not ruling them out.

Mr BROOKS - Is there existing access to that area of the river? It appears there was not.

Mr FOWLER - It is too steep at the moment.

Mr LESTER - People do a trip now and there has been kayaking and rafting done between Tayatea and Kanunnah and elsewhere on that river.

Mr BROOKS - I am sure there was a sign that said that is where you should kayak. If that is what we are promoting and supporting, there appears to be no access. If that increases, will the area that has been set aside for car parks be suitable?

Mr FOWLER - It may potentially need upgrading if that occurs. There is a good access point to the river at Tayatea bridge and there is also good access in the Arthur River township where the other Arthur River bridge is. It is a longer route than Kanunnah to Arthur River township or from Tayatea to Kanunnah.

Mr BROOKS - I also think there is really good access at the old bridge we fixed at Rapid River.

Mr FOWLER - Yes, there is. There are some good access points but I believe it is beyond the scope of this project and not included in our environmental considerations to put any access down there. It is not DIER's core business to provide those sorts of things. It is new and has an impact and the expected use of it would be hard to determine. I could see it could be useful but I think overall it is a bit problematic at the moment to do that.

Mr BROOKS - Barring the access - and I fully accept it is not part of this project or the responsibility of DIER - the roadwork improvements and the parking improvements that

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are planned as part of this project will be sufficient for what would normally be envisaged in the future use of that area?

Mr FOWLER - I believe so. I do not think it is going to preclude cars parking with kayaks on the top and that sort of thing.

Mr BROOKS - I understand they are going to have a vent there, but reasonably conclude from potential future use.

Mr FOWLER - I would say so. One thing we have not worked up at the moment is at that area where we have roads joining. We would normally have to have speed signage to remind people of the maximum speed limit, so it could feasibly be made a lower speed area, where you have vehicles and people mixing and people walking around. That is something we could do to increase the safety of that area. I am confident that what we are doing would be useful for small numbers of people who happen to use the area for launching kayaks, but I cannot see how you would feasibly and safely do that at the moment.

Mr BROOKS - No problem. I do not want to get too bogged down.

Mr FOWLER - You cannot wait to get out there in your kayak.

Mr BROOKS - I have to do something. I have to get a bloody big kayak.

DEPUTY CHAIR - There is no need to record that.

Mr BROOKS - No, it has to be recorded. Where we pulled over to look at those protected orchids - I nearly called them weeds - given that is a fairly long straight that people may be more likely to stop on, would it be suitable to place an unsealed parking bay or pull-off area for people who want to stop there? Given the close proximity of the road to that rare orchid, have you considered looking at that, because you did not want to sign it and you did not want to barricade it off? If people see a parking bay 100 metres up the road most people would stop and park there. It is a long straight.

Mr LESTER - No signage is proposed but we have proposed some barriers to ensure that vehicles do not park on top of them. Signage creates problems in itself. People could choose to damage the area and those people who would choose to look in that area for orchids will know that it is a well known hot spot - the tidal flats area. As part of the operational mitigation measures, some barriers are proposed to prevent parking specifically in that location that we looked at.

Mr BROOKS - If it is a fairly well known hot spot by people who are interested in those sorts of things, would it be better to put an allocated, unsealed - which would make it relatively cheap - parking area near there? There is plenty of room there and it is flat.

Mr FOWLER - We could do. Those who come looking legitimately looking for the orchids would know where they are and would park off the road and on the right side. I would not like to encourage access by others who just see a parking area and stop and have a walk around and kick the ground and maybe cause trouble. I propose not to do it. We would not have just a short section of fence protecting that area because that will stand

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out. We would need to do something that does not look out of place and does not attract too much attention, I would say. I can understand what you are saying, but I am not aware of any flora issues on the other side of the road, for example, but I am sure given the road alignment there, people can safely park and look at the plants if they want to without -

Mr BROOKS - The reason I thought I would bring it up was because the human tendency, on a longer stretch of road, is to pull over to relieve the natural requirements of the human body functions -

Mr FOWLER - There is not much tree cover.

Mr BROOKS - and also let the kids out and stuff like that. Given the proximity of the stalls, younger people may want to look at it, because at least it is something to do. If you could pick a spot where a lot of people would park, we could subtly encourage them to go on that side by giving them at least a sealed area to park. That might keep them away from the area we want to protect.

Mr FOWLER - We could consider the benefits and risks associated with that but I think the primary thing that needs to be done is to come up with some way of protecting the plants and maybe a typical lightweight post and wire fence would be suitable - something that is not hazardous to road users. If a car happened to come off the road you do not want to have a big straining post next to the road but some sort of lightweight fencing would suit. A big Armco barrier would look out of place there. It needs something that would go unnoticed and protect the plants and keep vehicles off the area and keep people out of the area - not a fenced yard saying 'No entry, threatened orchids'. That is not the best thing to do.

Mr BROOKS - I may have it wrong, or I may have misheard, but I thought there was not going to be anything there at all, because of the offset of the road and the slight adjustment of the road.

Mr FOWLER - There won't be any road construction there but there is a risk, as you say, that people could park there. Also during construction - if it is not clearly marked then a contractor might have some effect on the area. So, it is as much for construction as for when the road is in operation that you need to do something. What is done during construction might be more visible.

Mr BROOKS - Without getting too far off track, I looked at that because it would be a natural place where contractors would leave their road base, and things like that, set up on the opposite side. If there is a truckload of road base there, you may turn it into a 5-minute or 10-minute carpark anyway. That would be one of the nice long straights where there is ease of access and movement, and they would probably look at it for one of their site locations during construction.

Mr FOWLER - I understand your point that the stockyards might attract attention. People may want to get out and see what that is about, so it could be considered. You mentioned as well the storage of road base. We are designating particular areas where a contractor can store road base, due to the impact of doing that. Preferably you would not

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store road base, you would put it straight onto the road. You do not want to double-handle it, but sealing aggregates, in particular, need to be stored.

Mr BROOKS - I will rephrase it - road building material.

Mr FOWLER - But there wouldn't be any stored there. There is only a certain number of existing disturbed hard-stand areas, gravel areas, where the contractor would be allowed to store the sealing aggregates. We do not anticipate any storage of pavement materials; it is inefficient, and they would normally go straight on the road.

Mr BROOKS - Including the leaving of plant and equipment?

Mr FOWLER - That is right. There are designated areas where they can do that as well.

Mr BROOKS - Because you are obviously not going to drive a grader back to Smithton every day, you are going to leave it somewhere.

Mr FOWLER - That's right.

Mr LESTER - But we are telling them where they can do it, and it is not there.

Mr FOWLER - We do not want the project to have any more environmental impact than it has to. There is very minor impact on a few plants, and they have been identified. We do not want to have any impact on fauna. We have a roadkill mitigation process that they are going to launch into now, to ensure we do not have any effect. Even the effect of digging up an area where you did not have to park a grader or materials, we will control that too.

Mr BOOTH - For the record - and perhaps Dion will answer this in the other part of this inquiry - can you put something on the record about limitation of phytophthora spread in regard to gravel, machinery and so forth?

Mr LESTER - Yes, it is a pretty key management recommendation. This route is, for 90 kilometres of road, relatively benign from a flora perspective, the exception being where we inspected at the Tiger Flat area. The other exception is a stronghold of the Tasmanian threatened plant, the northwest heath, which is susceptible to PC. There is PC throughout this area. There are a number of old historical quarries that could have been used for material on this job, or for storage of plant and materials, that have been ruled out because they are known to be infected with PC. It is a case of making sure that what is coming in is clean, and knowing the boundaries between PC-free and PC infected areas, and ensuring that appropriate wash-down hygiene measures are implemented. They are outlined in some detail in the environmental documentation, which will then flow through to the tender documentation, which will flow through to the environmental management plans prepared subsequently.

Weeds and PC are probably the key risk factors associated with the flora of this area. Beyond that, as Andrew has mentioned, the impact for 90 kilometres of road is far less than what you would see on a road of a much shorter length, and the main issue concerns the fauna, which I will get on to.

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Mr BOOTH - I cannot recall the name, but we looked at the field of heath - we climbed up the stairs -

Mr LESTER -Dempster Plains.

Mr BOOTH - They had the brushes at the bottom of the stairway. I do not know if they had formalin with them, but there are strategies there. Are you going to do that for other places where people stop and walk off the track, to try to encourage people to sterilise their feet using that method?

Mr LESTER- Where it is necessary, yes. Some of the areas you visited are not areas that have vegetation or characteristics that are susceptible to PC, because there are certain rainfall, altitude and vegetation triggers. Those measures are necessary in some places and not necessary in others.

Mr BOOTH - So, you are comfortable that you have covered off in those areas properly?

Mr LESTER - Yes.

DEPUTY CHAIR - Andrew, we have created a 90 kilometre stretch of new road and unfortunately, and inevitably, somewhere down the track there may be a major accident, or whatever. With regard to access for emergency vehicles or notification, could you remind me what the mobile phone access is like down there? It is fairly ordinary, as I recall.

Mr FOWLER - It is fairly ordinary; it is quite patchy. You drift in and out and tend to get service in unlikely locations. You find your phone suddenly beeps at you when you have tree cover all around, for example. On a previous visit up here I tried to map out where there was phone coverage and compare that with the coverage maps that are available from providers. It depends on which service you are with as to what sort of coverage you get. One thing we have considered is whether we identify key areas where there is good coverage so that people could choose to stop there and contact someone, or if there is an incident they know where to go to where there is coverage. It is going back to the old days when there were phone boxes and you knew where the last phone box was and you would drive back there to make a call.

It would be useful during construction as well. At the moment a construction contractor needing to communicate could only do that by satellite phone reliably, or by radio if they are within the right sort of distance. If they know where the phone reception points are, that would be useful. That was done on the recent Tayatea bridge construction earlier in the year. They identified which areas they had to drive to, to make calls, to get out of the site because the bridge site was in a shadow area.

DEPUTY CHAIR - It concerned me if there was a major accident along there and getting emergency services in there; as we all know, time is vital in that respect. Looking quickly at the map, and knowing the area reasonably well, I can identify that between Smithton and Marrawah there are quite a few dead spots. Do you know of any plans of Telstra to increase services in those areas?

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Mr FOWLER - I don't know. I expect there would need to be a lot more people using the area before they anticipated doing something. They would need power supplies et cetera, which is problematic.

DEPUTY CHAIR - It is an issue I raise and I know you have taken note of it. It may well be there is a sign that says, 'Mobile reception area' along the way. Is that what you were saying?

Mr FOWLER - That is right. I have not looked at all the different providers but Optus seems to provide reasonable coverage - not as good as Telstra up there, though - and people could be on other services that provide no coverage through there, feasibly. From different points of view, whether it is reporting an accident or just for construction, to have those areas identified is something we have thought about. It is something that came up yesterday - it was a suggestion from Mr Booth that that could be useful.

DEPUTY CHAIR - Even if I compare it with the Lakes secondary road, you can get coverage virtually the whole way down. That is quite reasonably remote, but up through Miena and the Central Highlands you can get good coverage, whereas this one is pretty much a black spot.

Mr FOWLER - You do get coverage at some spots. For example, at one of the tourist sites at Lake Chisholm, you get coverage in the car park there. You would not expect to have it there, but you do.

Mr BOOTH - Andrew was talking about having signage to identify there is phone coverage. Along that road it is not good but if you did identify the areas where you could get reception it would be helpful and probably adequate.

Mr LESTER - Andrew mentioned we have undertaken the normal suite of background surveys, in fact quite an extensive and extended suite of studies over a number of years. What was evident up front, and what has emerged through those studies, is the key potential environmental impact associated with this job is roadkill. When you seal a road three things occur: vehicles can travel faster; the road environment is quieter, so animals on the road can obviously not perceive a vehicle as early; and also most native animal species, and certainly the more threatened ones - the Tasmanian devil is a perfect example - are dark and the pavement colour of sealed roads is also dark, so there is a lack of contrast. The vehicle is travelling faster, does not see the animal as soon, and the animal does not hear the vehicle as soon as on a gravel road, and the three of those are important.

Often people think it is purely about speed with sealing a road when in fact it is not. Sealing a road does have a couple of benefits. Obviously the vehicles can avoid more safely and easily and also stop more rapidly if they so choose to when seeing an animal but not withstanding that, the majority of this road is gravel and it will become sealed as a result of this work.

There have been a lot of roadkill investigations undertaken both in Tasmania and overseas. One of the key mistakes they tend to make is that they undertake the works and a problem emerges and then they try to fix it. That is fine but what they do not have in these instances is any baseline data. They do not know what was happening before the

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intervention or the works. They do not know where the problems were before and therefore it is very hard to see what is effective and what is not in relation to roadkill.

With this job one of the advantages of the time period, if you like, and lag between when it was first envisaged through to now of some three or four years, is that it has allowed us to go through a very rigorous scientific process on this issue of roadkill.

I won't go through it chapter and verse but what we have done is undertaken a 12-month baseline study of roadkill. That did not involve 12 months worth of data, it was sampling. We undertook three periods of three weeks over three of the seasons - punctuated during summer, autumn and winter - where daily road kill monitoring occurred on the western half of this route - from Arthur River through to Kanunnah bridge and beyond up Roger River Road. During those three lots of three-week periods - 63 survey days - there were also daily headlight surveys. During that the route was driven at a slow speed and the animal species that were lingering on the roadside were noted.

In addition to that, for the remainder of the 12-month period there were weekly roadkill surveys so every week someone drove the route and collected the roadkill. That was useful because it gave us a very, very strong understanding of what the animal abundance was from a headlight survey perspective - where the animals were on this route, and also where the roadkill is currently occurring on this route and on Roger River Road. What is evident with this road, like most roads in the state and most roads elsewhere, is that roadkill occurs in hotspots.

There are only a few spots on this section B in particular, section D and parts of E and Roger River Road. There are two spots on Roger River Road where there are elevated both animal activity and also roadkill. We know where the roadkill is occurring at the moment on this road and it corresponds very, very strongly: where there are animals there is more roadkill, which is not a surprise obviously.

That was useful and that data has been collected. It has been analysed. It gives some indication of the current situation and where the problem areas currently are. Throughout this process we are also engaging with various stakeholders, in particular Scott Jordan of the TNC, and we are talking about various mitigation options as we progress through this. One of the things that Scott was quite keen on, while there has been a lot of research on what roadkill mitigation measures are available, he was very keen to see some measures tested on this route so that we could see and compare if we did something on this road and aspects of this road, what impact that would have.

Responding to that request, we implemented three trial sites, one located on the route on Blackwater Road, and two located on Roger River Road. The Roger River Road sites were chosen because there are very high - in comparison with the rest of this route - roadkill levels so there are two hot spots on Roger River and there is a lot of animal activity on Roger River Road. Importantly, for those we had data of the roadkill before. We then implemented the trial sites and collected data for a two-month period about the impact, the effect, if you like, of those trial sites. In addition to that we had three control sites so that way we were able to accommodate for any seasonal changes during the trial period.

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The measures that were put in we inspected yesterday and they were basically audible rumble strips designed to a specific spacing but also height. In summary, that trial period resulted in a halving of roadkill on what we saw in a two-month period prior to that versus what we saw during the implementation of those trials. At the control sites, which is where we did nothing but just monitored them, there was no change in roadkill before and after.

In statistical terms, it was an extremely effective study. There was a 50 per cent reduction in roadkill at a 99 per cent confidence level. What that effectively means is you would expect that sort of change to occur by chance 1 per cent of the time.

Mr BOOTH - Can I clarify that the other control site was a tarred road as opposed to the tarred road with the rumble strips on it?

Mr LESTER - That is right. We chose uniformly black, tarred roads for both the control and impact sites. That way we were comparing apples and apples. We had 'before' data for both areas and in that way we are getting a feel for how the road would behave. Undertaking a trial on a gravel road scientifically would not be appropriate because we are building an asphalt road.

Mr BOOTH - Can I confirm that what you have found is that the tarred road on the control sites was elevating vehicle speeds to what you would expect with the whole road were it tarred, and there was no change in the roadkill effectively from tarred to non-tarred? Do you have data on the dirt road roadkill?

Mr LESTER - We have data on the dirt road roadkill and we know where the hotspots are. Section B is dirt but that is one of the main hotspots for roadkill. We have not done any intervention, any test sites on a gravel section. We have picked the hotspots elsewhere on the route and compared what was asphalt before and the roadkill associated with that to what is tarred with various treatments. The treatments were rumble strips but we also created a cross-section - we cleared the vegetation to the same cross-section we are proposing on this road - the road sections looked identical to what we will be building. There was also signage associated with that.

We cannot say definitively what aspects and what the causative factors were around the reduction but clearly reducing the roadside vegetation was a factor. The rumble strips make an audible sound, quite loud in and outside the vehicle, so whether they had an impact on driver behaviour through them slowing - they are generally a bit uncomfortable to drive on the first time - or whether they had an impact on animal behaviour because they made more noise and therefore frightened them, is difficult to say; I suspect it is a combination of all those factors. Pleasingly, the rumble strips worked. They were chosen on the basis of this noise factor - if we can create noise and alert the animals that the vehicles are approaching sooner, they will be more likely to get out of the way sooner.

The vegetation clearance is very important because this road in particular has spots where there is vegetation right up to and intruding on the pavement. Vegetation provides shelter and a food source. If animals are lingering or having a snack right next to the road, a car comes around the corner and frightens them they will tend to run in one or two directions. If it is onto the road, they will be subject to roadkill. By removing

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vegetation from adjacent to the road you are creating a greater clear zone so that animals are not lingering as close to where the vehicles are. You are also creating a bigger space and there is evidence to suggest that wider roads tend to discourage animal movements because they feel exposed on those roads - not from a roadkill perspective but a lot of the roadkill is associated with animals that are hunted by other animals and they do not like to be in open, exposed locations. It has a good effect in that they do not linger on the road.

The trials worked surprisingly well. The massive advantage rumble strips offer for this road and also other roads is that they are relative cheap, simple and low-maintenance. One of the problems with a lot of roadkill mitigation measures, animal crossings and such things is that they can be expensive but also if they are not maintained over time they won't tend to be as effective.

Mr BOOTH - Andrew, do you have any evidence of the potential for brakes becoming ineffective as a result of the rumble strips - say, ABS braking on trucks? Depending on the frequency of the corrugations, on a corrugated road ABS braking, particularly on trucks, is extremely dangerous because the wheel becomes airborne after it comes off the corrugation, which is the same as a rumble strip, it stops turning immediately so therefore the brakes pump off to let it start turning again because that is how the ABS works; it hits the next peak of the corrugation, it locks up and starts braking and becomes airborne, pumps the brakes up again so it can hit the next strip. At the next top of the corrugation the wheel is just spinning freely because the brakes are pumped off with the wheel turn. Have you got any advice on that at all?

Mr LESTER - It is well outside my area of expertise and experience. The only thing is that there are very small groupings of rumble strips - there are lots of five that are 200 millimetres apart and I think they are probably only about 200 millimetres wide so you are talking about a couple of metres at the groupings and then there is a stretch of asphalt. I know that DIER's Traffic Safety Branch certainly reviewed the designs. That is an important factor in the roadkill mitigation with this job and it endeavours to protect wildlife. We do not want to create a situation where we are undermining road safety and that does limit the use of other devices - chicanes and such things - on this particular road.

Mr BOOTH - It might be worthwhile DIER having a look at that perhaps, Andrew, because I know for heavy vehicles in particular they are totally lethal if you get onto a corrugated road if you have ABS brakes and they can be in certain circumstances.

Mr FOWLER - The effect of the rumble strips would be much less than a corrugated road. Corrugations tend to form to suit the resonance of the vehicle which would then upset your brakes. I can understand that, but in this case the rumble strips would not be at that particular frequency and the amplitude of them is not as great. I do not know how truck ABS systems work when you have multiple axles and if it just releases one axle or all of them. We could get some advice from heavy vehicle users and confirm that that is not an issue.

Mr BOOTH - John Lambert has done a lot of work on that and I got advice from him a few years ago with regard to ABS braking on heavy vehicles and it is a serious issue. Anyway, I think it is worth noting.

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Mr FOWLER - Yes, that is something we can investigate.

Mr BROOKS - You mentioned the now completely discredited green front group, the Tarkine National Coalition, made up of a few anti -

Mr BOOTH - Deputy Chair, I would like to put an objection to that comment on the record for *Hansard* that that is completely untrue.

Mr BROOKS - It is not untrue and you know it. I knew you would object.

Mr BOOTH - I just note for the record that that is objectionable and not form part of the record.

Mr BROOKS - It is made up of a few anti-development and anti-jobs campaigners including the economic terrorist Scott Jordan. Whilst they maybe noisy this group of economic vandals -

Mr BOOTH - Point of order, Deputy Chair. I would like to raise a point of order that Mr Brooks has made an unsubstantiated allegation which is completely unparliamentary calling somebody an 'economic terrorist'.

Mr BROOKS - That they are.

Mr BOOTH - It is completely inappropriate and he should withdraw that. It is not part of this scrutiny and it is inappropriate to use that and it should be withdrawn from *Hansard*.

DEPUTY CHAIR - I will rule that. It is probably not a point of order but just modify the language, would you.

Mr BROOKS - Thank you, Deputy Chair. They made a submission and they are now requiring answers to their questions, which is what they do, from past history. Certainly this group is noisy and, in my opinion, should not be given any more consideration as their views are destructive and damaging. I think why would we worry about what this group of modern-day pirates say because they will look at any excuse to object on any development in the so-called Tarkine, and especially in areas that they have built their careers on objecting to. I do not see why we would waste time going and doing specific surveys on their whim.

DEPUTY CHAIR - What is the question?

Mr BROOKS - Why would you do that?

Mr BOOTH - You can't expect the witnesses to answer that sort of -

Mr LESTER - We have undertaken a scientific process in investigating the current levels of roadkill. It is fair to say that the specific trials on this site were something that was suggested by the TNC and actually, in the context, it has turned out to be useful to DIER in gathering some further information to create a case. Also, one of the things with the rumble strips is that it has not been proven elsewhere that they have worked. It has

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offered DIER an opportunity to trial a new treatment, prove it works and therefore it gives DIER another option within its toolkit on this road, where we are using it, and elsewhere. In the totality of the investigations the trials turned out to be a valuable exercise, irrespective of the motivation behind them.

Mr BROOKS - Is that information shared with them?

Mr LESTER - Yes. We have provide a brief presentation to them of the results of the Tarkine Discussion Group six or eight weeks ago and then we met specifically with some of their key members on two occasions last week and presented these results in detail and went through the PER. The PER is not just about roadkill, but it is the critical issue and the issue that the stakeholder group and the federal regulators have focused on the most. That was presented to them last week.

Mr BROOKS - Is that the normal process? If any group or individual wants a survey or study done they will get a couple of meetings with the department or their consultants, they will get the reports fed back to them and the information provided as required, or is this a different circumstance?

Mr LESTER - With a key stakeholder group such as the discussion group, which the department has been engaging with for three years since the project inception, it is certainly the case that members of that group are afforded appropriate briefings, both collectively and individually. The session we had last week with the discussion group was one of a number of sessions we offered to other members of the discussion group. Parks, for example, is a member of that group and they have a regulatory role in this in that they are assessing the RRA. Yesterday I gave another brief update to a member of the discussion group who also works at Parks and Wildlife. It is common in circumstances such as this to engage directly with key representative groups and stakeholder groups, of which the discussion group is one.

Mr BROOKS - Who is on the discussion group?

Mr LESTER - It is made up of members from the Cradle Coast Authority, a couple of the councils - Circular Head, Waratah-Wynyard and Burnie - Forestry Tasmania, Parks and Wildlife, Tarkine Discussion Group, Tourism Tasmania and the tourism association from Circular Head. It is a very broad and representative stakeholder group for the region.

Mr BROOKS - Who formed that group?

Mr LESTER - The Cradle Coast Authority, I think. That group pre-dates this project and was formed, I think, when the tourism strategy for the Tarkine region was initiated, which was 2008, from memory.

Mr BROOKS - How did the TNC become involved?

Mr LESTER - I was not part of the formation of that group.

Mr BROOKS - They were not part of the group, but you now have a request -

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Mr LESTER - No, they are part of the Tarkine Discussion Group - sorry if I failed to mention them.

Mr FOWLER - To further respond to your question, any party that had an interest in a project and wanted to discuss it, was welcome to discuss it with us. They are also part of the group so they used that forum, as well as the occasional individual or smaller group meetings. They have provided useful information that has helped us in coming up with these measures and suggestions and perhaps even prompted us to do more thorough investigation than may have occurred. We have worked up a very thorough suite of measures that are detailed in our PER, which will help the federal minister in his consideration of the project. It has been quite beneficial and so far as providing them with reports, anyone who asks for a copy of the report, it being effectively public information, would receive it.

DEPUTY CHAIR - With any of these sorts of projects there are interest groups who have input. They have historically, and always will, have the democratic right to have their input, so there is nothing untoward with the Tarkine National Coalition being -

Mr BROOKS - Absolutely, and I am not in any way saying they should not. I am more interested in understanding how they came to be involved in this, and whether, given their previous history of making threats against developers, any of threats were made to you.

Mr FOWLER - Nothing threatening; in fact, the opposite perhaps. The issues they seem to be most concerned with are different issues to the construction of a road. They had previously provided the opinion that if we could address the roadkill potential on the project they would not have any significant objection to it. So far we have done a very thorough investigation and monitoring and a put together a comprehensive suite of different measures. We provided the outputs of the roadkill mitigation trials to them and they seem satisfied that what we have is effective. We met with them last week to further discuss that, and the public environment report, and they appeared to be satisfied.

Mr BROOKS - It is surprising they are not here today, but this is their standard approach.

Mr LESTER - We had these trials, and we then looked at the route as a whole and characterised it across a number of risk factors: projected numbers for speed, traffic volume, traffic type, and animal abundance where the hot spots are. From that we got a picture of not only where roadkill is occurring at the moment, but where the risk areas are. It is a slow environment between Tayatea and Kannunah. There is not a great deal of through traffic from Tayatea to Kannunah and it tends to be more characteristically the rain forest-type vegetation through there, but not exclusively. This is not preferred devil habitat, although they do roam widely through various vegetation types. It tells us that the eastern half of this route is very low risk for roadkill and is really about the western half from Kannunah through, and that is where the main mitigation effort has occurred.

What has been highlighted in the standing committee report, and gone through in quite some detail in the public environment report to the federal government, are the various measures that have been implemented, and that are currently proposed for this route. There is vegetation clearance - and we are only talking about moderate clearance. In areas where there is vegetation quite close to the roadside, we are pushing it back a little

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bit. There is improvement of table drains so there is no pooling of water, because water is another resource for animals. We are trying to discourage animals from being on or near the road, without clearing a 10-metre-wide corridor.

Also, implementation of the rumble strips throughout, in the areas we are concerned about, and also the use of light-coloured pavement. The reason light coloured pavement is used is because of the contrast issues associated with going from gravel to asphalt - devils are black and most macropods and other roadkill are dark in colour. By creating a light-coloured pavement you are creating a contrast - the animals are seen earlier by drivers. It is also thought that animals do not like to linger on light-coloured pavement because they feel exposed. It is also not as warm - it does not heat up as much from the sun - so that stops lingering.

They are broadly the measures that are being put on the route, but we may not have got it right. We think we have done a very good job of it but there is a chance we may not have it right. A very important element of the approach is that this route will be monitored weekly for roadkill and that data will be assessed on a quarterly basis, associated with speed. That will tell us if it is working or not, and where it is not working, and we can then look at why it is not working. For example, a new hot spot may emerge once an extra 50 vehicles a day come onto this road. That enables us to gradually adapt our approach, over time, with this road.

Importantly, we continue to gather information on this section of road, so DIER will be able to apply that elsewhere on its road network. That is a very critical part of this; we are putting in measures but the department is not saying, 'We're done with the road kill issue on this road'. That is not the case. They are strongly committed to it, and it will likely be a condition of the permit from the federal government that they have to continue the ongoing monitoring to ensure the measures that are put in place are working as effectively as we have suggested they will.

Mr BOOTH - Which could include progressive speed reductions, and so forth, if necessary?

Mr LESTER - Yes. There is a whole suite of options available. Speed is a critical thing we have looked at and we have highlighted a few options around what could be pulled out of the tool kit. It is hard to say at this stage; we hope no new problems emerge but we do not know what they will be and therefore that is the point of the monitoring. It will tell us where the problem is - we can say that it is a speed issue here and so we need to pull out these various options of informal speed monitoring and formal speed monitoring enforcement - there is a hierarchy, if you like. It may be some other environmental factor where we have to implement the removal of a roadside barrier, for example. There is a suite of options there that can be utilised and the idea being that there is a consistent feedback into the monitoring regime. We try something and weekly monitoring occurs and within three months, if the roadkill numbers have risen - and importantly the numbers we have set are the current roadkill numbers on this road - effectively what the department is saying is, if through sealing of this road roadkill rises above what it is at the moment, then we will do more about it and that is a very, very strong commitment.

Mr BOOTH - That is unusual in an area like this but you don't do that on other roadworks around the state to this level of rigour?

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Mr LESTER - I have not experienced or seen DIER go to this level of rigour associated with fauna. They do lots of different measures around mitigating impacts and offsetting impacts around flora and fauna species but this is quite a unique part of the state in the context of the fauna species and therefore they are applying a unique and very, very robust process to dealing with it, both in the development phase and, really importantly, in the operational phase of the job.

Mr BOOTH - I would like to make the point that I very much appreciated the level of information that you were both able to provide on the trip to us and particularly in regard to these sorts of threatened species and wildlife roadkill issues. It is worthy of congratulations that you have worked so hard to accommodate the real concerns of the community in this regard. I appreciate it very much as a committee member because it does give one confidence when you are looking at projects in areas where there are concerns and they have been apparently rigorously addressed.

Mr FOWLER - Thank you.

DEPUTY CHAIR - I think there was probably a similar level, from memory, on the Cradle Mountain road - I remember two members were not on the committee - from the visitor centre into Ronny Creek. There was quite a lot of work done and, once again, that was a high-impact area.

Mr LESTER - Yes, and that is an interesting one in itself. We have studied that piece of road and the work done in some detail because there was some correspondence of some population studies occurring when they sealed that road, and that is a very, very useful case study actually. That is one of the better pieces of work that has been done around this area. Unfortunately, what they did not have in that particular case was baseline data. It was another case where they saw a problem, fixed it but did not have the foresight, because it was not anticipated as being a problem, to collect the baseline data. It has been a useful backdrop to this in that we could pick up on some of the other good work that they have done but also some of the errors they had noted, certainly in the papers that have been produced off the back of that.

That is my summary and I am happy to take questions on any aspect - roadkill or the broader environmental parts of this job - which I have not covered in a great deal of detail.

DEPUTY CHAIR - Thank you for that comprehensive report, gentlemen. Any further questions?

Mr BROOKS - I would like briefly to go over the information about what the rumble strips do. There is probably a large misunderstanding within the public, or no knowledge at all, of what they are for and the impact they have and what they do. Is there anything that you can do to mitigate that to try to educate the public about what they are and what they are for?

Mr FOWLER - There certainly is. The three entry points at the Arthur River township, Kanunnah bridge and Tayatea bridge, we are proposing to have entry treatments. They are all low-speed areas. We have not designed the signages yet but there will be signs, perhaps saying 'What are these rumble strips? What do they do?' and there might be a

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few key points as to what they do and why they are there. Each area with the rumble strips will have signage treatments similar to what you saw showing an image of a Tasmanian devil and advising that there are threatened species for those who are not aware, dusk-to-dawn speed limits and such things, but that will be covered also on the entry treatment signage. The intention is that a new visitor will pull over, see a sign and read about the area - there will be a map and information on fauna and flora and such things. In time there will be improved interpretative signage at the sites as well. Not at the roadkills sites necessary, but at the tourism stops.

Mr LESTER - The route will be themed. There is a signage strategy being developed around the tourism and wilderness aspects but a critical part of the theme of this route is that it is around the wildlife as well as the wilderness and the rainforest. A very important part of the mitigation strategy is public education. There are only two things you can change with roadkill mitigation: animal behaviour or driver behaviour. It is very difficult to change animal behaviour and is fraught with a number of problems. We have done some elements of both with this to cover both bases, but in changing driver behaviour through signage and light-coloured pavement and a public education program - outside of the signage, there are commitments to education programs and such things. With this road, the main risk of roadkill is not the tourist but likely existing users of the road being able to travel a bit faster. The best impact we can have on those individuals is to initially educate them about the impact of their driving habits, and there are various means available to do that.

With the trial sites, we deliberately did not publicise those or make them overt, apart from users of the road, because we did not want to skew study results. We wanted to stick them in, see what happened, so we could adequately compare them before and after. The difference when we build the road is we are going to be telling every man and his dog what it is about and how they should be driving in this sensitive environment.

Mr BROOKS - You mentioned that sometimes animals cannot get off the road because of the deep trenches. What measures have you put in place to address that?

Mr LESTER - The table drain design on this road is such that it is very trafficable for animals. We are not creating deep table drains around there; there are no real earthworks associated with it. There are some spots where there are steep batters but there is nothing that can be done there. As Andrew mentioned, there is very limited use of roadside fencing or barriers because that is also a problem. In addition to that, at the one bridge that is relatively low - the Rapid River bridge where that is being replaced - that is being elevated for a number of reasons. First, to increase its protection against frequent flooding. Second, it has been designed to allow animals to travel underneath the bridge abutments during normal river flow. A lot of animals traverse rivers but if there is a bridge that is butting against the water level they have to get up and go over the road, so the bridge is being lifted. There has been some thought put into that - minimising roadside barriers and improving the table drain cross-section - so if animals get on the road, they can get off safely or quickly.

Mr BOOTH - As to the environmental measures you are taking with bridgeworks - we looked at that bridge at Rapid River - you described to the committee that, unlike the current bridge which does not allow for animals to progress along the bank, you are making it a bit wider so there is capacity for animals to travel along the banks under the

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bridge rather than coming over the top of it. Is that something you want to talk about? Are you doing that with all the bridgeworks that are proposed?

Mr LESTER - That bridge is being lifted for two reasons. It is for increased flood protection but it has been designed so that normal river flows will mean there is still dry ground between the bridge abutment and the river so animals can traverse along the bank. That is the only bridge where it is an issue. Nelson's Bay, for example, is quite high off that area. That is the main works associated with animal movements with the bridges. Importantly, and I have not discussed it today, with the bridges there are quite significant controls on the construction contractors around the manner in which they conduct themselves at these locations because, in this environment, the rivers are one of the sensitive areas.

There are threatened species present, including the Australian grayling - in certain rivers but not all of them - and also freshwater lobsters - *Astacopsis*. Those locations are critical areas, where there are very tight controls on what they can and cannot do associated with the bridge construction. It is good construction management with regard to silt sedimentation, and minimising, to the greatest extent possible, any impact to the riverbed. There will also be pre-clearance surveys, so in rivers where there is a risk, particularly to fresh water lobsters, there will be surveys prior to any works occurring to clear the area of lobsters. They can viably be relocated a kilometre or two downstream. It was done on Tayatea Bridge project, for example, but they did not find any there. There is a particular individual on the north-west coast who is eminent in the field of catching lobsters who can do pre-clearance surveys and such things.

Mr BOOTH - Todd Walsh?

Mr LESTER - Yes.

Mr BOOTH - He is very good. At the Rapid River Bridge there appeared to be what looked like a ford and presumably that is used at times of low flow. Is that going to remain open in that sense? Wouldn't that then give you the same problem with the grayling and the *Astacopsis* further down stream, if that is used regularly? I imagine it would be a bit of a honey trap for four-wheel drives and stuff.

Mr FOWLER - I don't know if the ford is more of a recent innovation, since the bridge has been damaged, because the bridge, as you know, may be reasonably safe for use by light vehicles but certainly not by heavy vehicles. I expect it might be a fairly recent innovation. I don't know if anyone else knows.

Mr BOOTH - Is it part of the strategy to maintain that and allow it to continue to be used, or will it be effectively closed off so that you don't have that problem, or is it a problem?

Mr FOWLER - I expect it would be useful for a contractor during construction to have a crossing for their equipment. The ford won't be used in the future because the bridge will be immune to a 1-in-20 year flood. It would only be very occasionally that you could not cross the bridge, and you could not use the ford in that weather anyway. To remove what is already there would be disruptive, and it would stir up a lot of silt. You could potentially rehabilitate the area, but we do not have any plan to.

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Mr BOOTH - I am curious because, given the concerns you have expressed with regard to siltation and sedimentation affecting grayling and lobsters, one would have thought that people driving through that river at that point, without using the bridge, would have the same effect in terms of silt?

Mr LESTER - The potential for dislocating sediment during construction activity for a bridge is significant if not managed appropriately. That ford is predominantly rock. It has been built at some stage. It is clean. Rapid River Bridge has been in a sorry state of affairs for quite a few years and I understand that it has been used predominantly by the heavy vehicles going through there. That need won't be there once the bridge is rebuilt. I certainly take the point on the honey trap for four-wheel drivers.

Mr BOOTH - If it was no problem, then there would not be a problem

Mr LESTER - As you would have seen, there are only rocks, basically. The ford is not a high risk factor in the context of that area.

Mr FOWLER - But at the same time we do not want to provide something that might cause injuries or breakdowns either, so it would be very simple to block off access to that ford, rather than trying to remove it and rehabilitate it. Just leave it to rehabilitate itself over time and eliminate the access to it with some large rocks or something.

Mr BOOTH - Yes, it is up to you guys.

Mr FOWLER - It is a good point.

Mr BOOTH - I was not really concerned about people having an underwater experience in their four-wheel drive, it was more whether it is going to have an effect on the environment and those threatened species you spoke of.

DEPUTY CHAIR - Thank you, gentlemen. If there are no further questions, thank you very much for your presentations and we will now ask you if you will pack up your belongings and we will have a short meeting to conclude our deliberations for the morning. Thank you so much.

Mr FOWLER - Thank you.

Mr LESTER - Thank you.

THE WITNESSES WITHDREW.