ROAD SAFETY COMMITTEE

Inquiry into improving safety at level crossings

Melbourne — 5 May 2008

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The CHAIR — Welcome to the public hearings of the Road Safety Committee's inquiry into the safety of level crossings. All evidence taken at this hearing is protected by parliamentary privilege as provided by the Constitution Act 1975 and further subject to the provisions of the Parliamentary Committees Act 2003. However, any comments you make outside of the hearing may not be afforded such privilege.

As you can see, we are recording the evidence, and we will provide a proof version of the Hansard transcript at the earliest opportunity so you can correct it as appropriate. I ask you to state your full name and the organisation that you belong to and proceed with your presentation, then we will ask questions.

Dr WIGGLESWORTH — Thank you, Chair. I have been involved in railway level crossings accidents since 1970 when the then Liberal Minister of Transport, Joe Rafferty, asked me to look into and find out what was wrong with the system in Victoria. When I put in that first report there was a new minister — it was then Steve Crabb — but he implemented, I am delighted to say, the recommendations in that first report.

I appear as an individual. I am now retired. I was thrown out because of my geriatric incapability some years ago. I believe quite strongly that one picture is worth about a million words, so I am trying to reduce the enormous chunk of paper I have thrown to you into something like a small presentation, which is in three parts. Firstly, there is a history which gives some reasons as to why we are in the mess that we are in today, and — believe you me — we are in one heck of a mess. Secondly, there are some critical comments about government — and by 'government' I do not mean the present Labor government, nor do I mean the previous Liberal government; I mean government with a small 'g'. And thirdly, there are some ideas for the future.

Overheads shown.

Dr WIGGLESWORTH — I start the visual presentation at the beginning with Captain Cook first setting foot on the Australian mainland, and for the first 84 years all travel in Australia was by foot, either on a horse, on a camel or on shanks's pony, until in 1854 the first railway train was introduced — that was the line from Melbourne to the Port Melbourne. At that time — I need to repeat with all the force I can — there was no other mechanical form of transport. So when the railways were laid down the standards which they then adopted and which unfortunately are still in place today were adequate for the horse, full stop. They are totally inadequate for our system today. So that by 1900 this was the railway map of Victoria, essentially the same thing as we can see today, except that in recent years some lines have been closed.

But in 1904 this gentleman would wreck the apple cart. Henry Ford produced the first model T. Now motor cars are stupid; they have not got a brain. They do not know that it is wrong to fight trains; they do not know that it is silly to fight trains, so we needed some form of protection, and only 20 years later in 1924 we produced the first form of protection. Chair, that is my first point — 1924; it is even older than I am, and I am getting past my use-by date, and this is a long way past its use-by date. Eighty-four years ago we produced twin alternating flashing lights, and that system is still the basis of our protective technology today. I submit that it is now time that they were superseded by something more akin to today's needs and using today's technology. So now this year we have 2270 railway crossings, or about that number, in Victoria. So we never caught up.

We started off with just railways crossing the dirt tracks and gradually bit by bit we put in some flashing lights and more recently booms, but we still have more than a half of our crossings as passive — they have got no booms, no gates, no lights, no nothing! From a science point of view can people tell the difference? Can they discriminate between active crossings and passive crossings? When we first started, the literature was unanimous — no. Typical was the work of a man called Sanders, who stopped motor cars and asked the driver who had just been through a level crossing, 'Does every level crossing have a device that tells you if a train is coming?'.

Look at the bottom line please, Chair, if you will. Having just been through a crossing with no lights, no booms, no gates, no bells, 15 per cent of drivers said, 'Yes, every level crossing has some form of device', and quite clearly they are wrong. That was in America. What happens in Victoria? I am not dead keen on questionnaire surveys. Very often the respondent will tell what he thinks you would like to hear rather than what their own opinion is. So we went searching and we found what we wanted — here at that time with the Goulburn Valley Highway. Down here at south is Melbourne and up there at north is Shepparton. Here is the railway line — that blue line going down. Here is the Goulburn Valley Highway — and where it crosses the main line there is an active crossing indicated by a red star — where you turn left at Murchison East and come down and go across the spur track which

leads down to Rushworth, used primarily for the wheat train carrying the grain crop down to the silos at Rushworth.

So we thought that if we were able to we could look at the same cohort of drivers as they go through the active crossing and as they go through the flashing crossing. How would we put them on their best behaviour? We borrowed two uniformed policemen and two marked police cars and we parked one at each crossing and made sure that people did the right sort of thing, or at least they thought they were doing the right sort of thing. What we found was this. There is a lot of information on this slide and I am sorry for that, but there is no other way of demonstrating my point. If we look at the left-hand column, this is what people did at the active crossing: about one-third went straight through and did not look in any way, one-third looked in one direction and one-third looked in both directions. We replicated the much larger study that we carried out at Camperdown some years ago when the number was not 254 but 600 or 700: one-third went straight through without looking, one-third looked only to their right as if they were on a roundabout, and one-third looked left and right.

Looking at this group here, who made no head movement at the active crossing, what did they do at the passive crossing? Sixty-two of them showed exactly the same behaviour; so 62 of our cohort looked neither to their left nor to their right, both at active crossings and at passive crossings. Those who looked in one direction only numbered 27, and those who looked in both directions, 28. So here we have a total of 62, and 27 and 28, which adds up to 117. I worked out that 117 people out of 264 — that is, roughly 45 per cent of drivers — exhibited the same behaviour at the two different types of crossing.

Mr LEANE — Was there a give way or stop sign at the passive crossing?

Dr WIGGLESWORTH — Nothing. There was a 'give way' sign, yes, but no 'stop' sign.

Mr LEANE — Okay.

Dr WIGGLESWORTH — The point I am making here is that 40 per cent or thereabouts of the population of Victoria then either did not distinguish between active crossings and passive crossings, or if they did they did not change their behaviour. We had the identical behaviour in both cases.

Of course the next question to ask is: does this matter? Does it matter that people cannot tell the difference? The railway establishment will rise up in its millions and say, 'Of course it matters. Wigglesworth is a heretic, saying it does not matter, that it should not matter at all. Of course it matters'. Why does it matter? 'Because there might be a train coming.' That is exactly my point. I could not give a damn whether it is an active crossing or a passive crossing, whether it is Fitzroy Crossing, whether it is purple or pink or puce, tell me if a train is coming. That is what I want to know. I do not want this information. That is irrelevant. This is what I want to know. That is my primary need, and our present system does not tell us if a train is coming at passive crossings. Instead we have this thing and we are left to guess.

Chair, your committee has got one heck of a task to try to have a radical rethink so that in the future the devices that we use, and those are the ones that are in your terms of reference — that is, existing, new and developing technologies to improve safety at level crossings — are appropriate. My heretic view suggests that the appropriate technologies are those that give warning of an approaching train, not warning of an approaching crossing. And that, I think, is one of the crucial points I hope this committee will feel able to make in its report.

What makes it even worse these days is that there are two new factors: the first is much faster trains, and the second is much longer trucks. so that the time we get from the train arrival until the time when it gets through the crossing is much shorter, because trains are faster; and the truck, instead of being a Ford model T, which is 4 metres long, is now a B-double, which is about 24 or 25 metres long, and from the time of starting from rest that B-double will take 18.6 seconds to traverse, to clear, the crossing. That is a lot of time.

The other point of course is that both are heavier. Injuries are caused by mechanical energy transfer. The more the energy involved, the greater will be the degree of damage. Now we have heavier trucks and we have heavier trains and faster trains and longer trucks. That is a lethal combination, which is precisely why I believe the role of this committee is so crucial.

To illustrate my point, a study that I carried out looking at 100 consecutive crossings in the 1970s showed that of the 85 occasions on which information was available, 3 involved trucks. At the time when this presentation was

prepared, the latest information from the Department of Infrastructure showed that out of the last 23 crashes, 8 involved trucks — that is, 8 out of 23, which in round terms is 30 per cent — 3 out of 8, 30 per cent.

Mr LANGDON — While those figures show an enormous increase in the number of trucks being involved in accidents, they also show the number of accidents dramatically reduced.

Dr WIGGLESWORTH — Show me.

Mr LANGDON — Eighty-five to 23 is a large reduction in accidents.

Dr WIGGLESWORTH — Sure, yes.

Mr LANGDON — While 3 to 8 is a substantial increase in trucks.

Dr WIGGLESWORTH — Yes. Absolutely correct. Let us not confuse the issue. Because of a number of reasons we have reduced the overall total of crashes at level crossings dramatically, enormously; but what we have not done is compensated for the fact that we now have a different population. We now have a population where we have almost wall-to-wall trucks and semitrailers these days.

The CHAIR — But you have to admit that that is further evidence that whatever is happening now is working, because obviously the population for that four-year period was a lot lower than the population for that seven-year period.

Dr WIGGLESWORTH — Correct.

The CHAIR — And so the dramatic reduction in crashes shows that obviously something is working.

Dr WIGGLESWORTH — And in my original submission, Sir, you will see a graph that illustrates that. I produced that graph. It has been working, let us not take that away. But recently, and more recently because of the faster trains and the bigger trucks, the curve is now going back up again, and that is the whole point of what I am hoping to say.

Mr TREZISE — But you have the opportunity also of saying, though, that if you have heavier trucks and more vulnerable trains — that is you do not have a loco — therefore there is more potential for a catastrophic type of accident to occur.

Dr WIGGLESWORTH — Absolutely. I could not agree more.

Let me now look at one particular case. Lismore of course — and Terry is not here — has many attractions from my point of view. Firstly, the legal case is closed, so I am free to comment on it. Secondly, I would like to offer the committee the view that this is the bit that matters down here, as shown on the slide. Here is the road, and that is the load of citrus fruit that the van was carrying. Here is the railway line. Here is another road, and here is a car track linking those two roads. If we look at this schematically we see this here, and the distance from there to there is 248 metres. For what good purpose do we have on the same length of railway line two railway crossings 248 metres apart? Why not one-tenth of the cost to build that tiny bit of road over there and eliminate one threat completely and forever? Let me now talk about the driver of the truck.

Mr TREZISE — But, Eric, if you eliminate one threat — I know the point you are making — are you not also doubling the amount of traffic over the remaining crossing?

Dr WIGGLESWORTH — Of course you are, but that one has got flashing lights on. That one is protected and the other one is not.

Let me now look, if I may, at the driver of the truck. He lived in Wedderburn and he worked for Wheelhouse Fertilizers in Bridgewater on Loddon. Every day he would travel this 32-kilometre stretch of the Calder Highway and he would pass through three railway level crossings, one at the west end of Bridgewater, one at Kurting and one at Glenalbyn. So every day when he went to work he would go through these crossings, all of which are protected by twin alternating flashing lights. If the lights are flashing you give way to trains; if the lights are not flashing, okay, it is safe to go. And he learnt that lesson on his way to work and he would have it reinforced on his way from work day after day and week after week until it was firmly imbued into his system.

On this particular day he was going from Wedderburn right down to Camperdown, and he would have gone through five railway level crossings: one at the top at St Arnaud, the next one at Avoca, the third one at Lexton, the fourth one at Beaufort and the fifth one at Lismore. So he came to the first one at St Arnaud. If the railway lights are flashing, give way to trains. If they are not flashing, it is safe to go. The same at Avoca. The same at Lexton. When he comes to Beaufort if the lights are flashing, give way to trains. If they are not flashing, it is safe to go. At Lismore, if they are not flashing it is safe to go. But the lights were not flashing at Lismore because there were not any at that crossing at that time.

ALCAM, the Australian level crossing assessment model, much vaunted by railway authorities, had not only failed; it had built a booby trap by teaching this man — this unfortunate driver — that if the lights were flashing you give way to trains, and if they are not flashing it is safe to go. And then you put in front of him a level crossing with no flashing lights. There is no greater indictment of ALCAM than its failure to look at the system in a holistic manner rather than using a microscope. It examines that level crossing in minute detail but it does not look at the context. It does not look at the other bits and pieces and ALCAM from that point is wrong.

Mr LANGDON — A question for you on that: any indication of how many disused railway lines that would pass through that road? I use an example: coming from Strathmerton to Cobram there is a railway line, signals on it, no light, the signal is off, it looks passive. Now it was only after going over it, looking down the track and realising a tree was growing out where the track was, did I realise that it was a disused railway line. How many disused railway lines are throughout Victoria that still have the signs up and the tracks on them that give us a false sense of security?

Dr WIGGLESWORTH — I cannot answer your question. I simply do not know.

Mr KOCH — But lots?

Dr WIGGLESWORTH — Quite a lot I would imagine. But if I may, I will come back to your point later — in about 5 minutes time — and answer that question.

The CHAIR — Eric, just on that and on some of the comments that you have made, obviously if you try to have the same argument for the risk on the roads in terms of responsibility of the driver to make sure that they look left and right at a roundabout, or a give way sign or a stop sign, and if you transfer what you have just said to include the rest of the road network, we would then have to get rid of all of the give way signs and put traffic lights up, or the roundabouts or the stop signs.

Dr WIGGLESWORTH — Your question will take about 40 minutes to answer in full so I will give 2 minutes, if I may. I think you are quite right, but I think also that these days when you are driving any sort of vehicle on the road system, when you come to an intersection you know who goes first. Either you have a stop sign or you have a give way or you have traffic lights or you have something and you conform to it. But in our present system at Lismore at that time there was nothing and I am well aware of the fact that it was foggy. I am well aware of the fact that the guy was doing 70 kilometres per hour but just the same he was not given the information that he was told.

Let me just paraphrase it a little bit. Had he been told that there was a train coming because the flashing lights had been installed and were warning him, I do not think we would have had that tragedy. I think that is the difference between the two. If we go on from here and then look and see what happened, what was the reaction after the tragedy at Lismore? The reaction was to put in boom barriers. Boom barriers in the middle of nowhere! Why for heaven's sake? This is what boom barriers are intended for. This is the boom barrier system. This is taken at Shepparton. On the left of the picture is the Shepparton Preserving Company. This is the change of shift and you are driving that white Ford. You come out here and you are looking for a gap in the traffic. You cannot get in front of him. It looks as though the VW is parked.

'What about that guy? Can I get in front of him?'. So a lot of your attention is down there. You are also conscious of this galah with a whacking great candy stripe down the side of his ute. Given half a chance he will roar in front of you and chop you off. So most of your attention is down here, a bit of it up there and none of it is up here, which is where the flashing lights are. And as an aside, Chairman, when you read in the press sometimes, 'the lights were operating but for some reason the driver did not obey them. He failed to give way.', it is this sort of reason. The demands on that driver are primarily governed by other road users and what is left over can be used — if there is

anything left over. This is why in this sort of situation the boom barrier here gives a quite clear, unmistakable message that you stop and you give way to trains. That is why, in my opinion, it was so successful.

This is the Steve Crabb initiative. At the first 91 of those installations, which he was instrumental in putting up, 61 people died before the installation of boom barriers, 2 after. In terms of deaths per 100 crossing-years, which is exactly the point that was made 5 minutes ago, the rate went down from 5.71 to 0.3. It went down by an order of magnitude and, Sir, they do not come any better than that. An order of magnitude is a tremendous improvement. But instead we have boom barriers.

The Deputy Chairman raised the question of the last speaker: what about things that do not failsafe? Let me talk about the difference between flashing lights and flashing lights plus booms in terms of cost. My information, which may or may not be right, Sir, but to the best of my knowledge in round figures the boom barriers will cost $500 000 — half a million, flashing lights will cost about $300 000. So if we have $3 million to spend, we can either put up 10 sets of flashing lights or 6 sets of boom barriers. In one scenario we give some type of protection to 10 crossings; in another we give a slightly better degree of protection to only 6. My philosophy, Sir — the one that I offer to the committee — is that protection in use is better than protection not in use. It follows that protection in use is better than better protection not in use.

Mr Chairman, where is there a study that says in cost-benefit terms we will save more lives by putting up boom barriers at 6 crossings than by putting up 10 sets of flashing lights elsewhere in the country? I am not talking about the urban use of boom barriers. There is no doubt at all that when there are lots and lots of distractions for the drivers, boom barriers are the answer. But out here, in the middle of nowhere, I really do not see why this present advocacy of boom barriers should take precedence over a much larger number of flashing light installations.

Mr KOCH — Eric, in the case of Lismore, your common-sense approach, I believe, would have said, 'Why spend the money on what we see there? Why not do a short road construction and deviation across an existing one?' and we would have pulled one out of there.

Dr WIGGLESWORTH — Sir, my next slide illustrates your point. We are on exactly the same track.

Mr KOCH — The reality is this road was closed, and I am only guesstimating, I go past it quite a bit, but I would have thought for six months or greater while this restoration took place a lot of that travelling traffic had actually by then become accustomed to going into Lismore and down. So I think the point you make is quite valid. That could be one railway crossing that is no longer there, that we do not have a need for.

Dr WIGGLESWORTH — Absolutely, and if I may, you are ahead of me.

Mr KOCH — Sorry.

Dr WIGGLESWORTH — If we go back to this position now, and we look down here — this little bit of road down here — we put a camera here and we take a picture. This is what we see. That is the road, that is the car track that we saw in the beginning. I have driven my car down that road, with a police escort, I would add. There is no hidden mine shaft, there are no booby traps, there are no nasties. There is no reason as far as I can see why the Deputy Chairman's comment should not stand absolutely supported. There is no reason why that crossing should be allowed to continue.

Mr LANGDON — Taking the Deputy Chair's comments — and I do not disagree with them — how much would the road cost compared to installing the lights and the boom barriers?

Dr WIGGLESWORTH — About a tenth of that cost. My guess is — —

Mr LANGDON — The road would be cheaper?

Dr WIGGLESWORTH — Yes. Sealing 248 metres of road is one heck of saving — it is less than half a million dollars. I would say it is better. The strategy of crossing closure seems not to have been encompassed by ALCAM. Take, for example, the Echuca to Toolamba road — sorry the rail track between Echuca and Toolamba. There are 48 level crossings in 41 miles, including two at — is it Burnside or Tatura? I think it is at Tatura where there are two within 150 metres of each other.

Mr WELLER — That would be the town of Tatura?

Dr WIGGLESWORTH — Tatura, that is right. But why not look first and foremost at a program of closing those crossings that are now not really relevant — that we can close without loss of amenity and so we can reduce the number of crossings. That would accord precisely with the Haddon countermeasure, which is the basis of all modern safety thinking — prevent the initial marshalling of the source of the energy. If you do not marshal the energy in the first place, it will not be there to hurt you. In terms of whether we can close this crossing, ALCAM appears not to have recognised that possibility, or if it has it has not been incorporated into anything that I have seen.

Let me go back again just one final time. Instead of pointing the finger at the driver who is going too fast in fog, why not look at modern safety philosophy? Every bit of safety philosophy at the moment says you do not blame the person, you fix the system. Chair, this is a 1-hour lecture to third-year medical students that I have been privileged to give on and off for the last 20 years. I have cut it down from 1 hour to two slides, and you would be very pleased to hear that, I am sure. Two examples — the first is baby aspirin. Twenty years ago you could walk into any chemist shop and ask for a bottle of baby aspirin and you would get the stuff on your left-hand side. You unscrew the lid and out they come.

The dosage of aspirin — if the baby had two, it would be not too happy; if it had four, it would be sick; if it had six, it would die. And just to make sure it happened, the baby aspirin was orange flavoured, so the kiddie would think 'Here are my lollies and I can go for my life'. These days all baby aspirins, if you can still buy them, and they are under a cloud, are in blister packs, so you do not get the child to ingest them. It is the blister pack is on the right-hand side. If a child is able to get through one of them, it will then give up because it is too hard to get to the rest.

Let us also go back to road safety. Look at Australia, if we will please, from 1940 to the turn of the century. From 1940 until 1970 the emphasis was on the nut behind the wheel. We can see how successful that was. Mortality increased from 1560 to 3952 in 1970 when the Royal Australasian College of Surgeons said, 'For heaven's sake, let's change the emphasis'. The college campaigned vigorously and successfully for the introduction of mandatory seatbelts, and since then we have had a variety of treatments that are all science based. There are road treatments, there are random breath tests, the Australian design rules, helmets for bicycles and, and, and. A the point I make is quite simple: if we blame the person, we increase rather than reduce the number of deaths. If we fix the system, we start making improvements.

That philosophy is the one that I advocate with all the strength that I have to give. I have 5 minutes left to me, if that is permissible, to comment on the government reactions post-Kerang. In one sentence, I think it excellent there will be no more stop signs. Rumble strips I think are wrong. The new criminal offence I think is wrong, and the rushing for your life is lethal.

One at a time: stop signs. It must be a temptation for the government to want to put in stop signs right, left and centre, as has been the case in New South Wales. That is wrong. Stop signs increase the number of trucks that will have to stop and then traverse the crossing from rest. And as a consequence the number of persons who are likely to be killed at crossings fitted with stop signs is likely to increase. This is American data from 2007. For the first time, Raub, who is also a member of the American committee on railway crossings, took about 2000 crossings that have been fitted with cross bucks — that is, just the crossed pieces of timber — and have had stop signs installed. The number of crashes went up from 192 to 261. When you adjust for time from 2.1 to 2.6, you have about a 25 per cent increase by adding stop signs — and I applaud that decision. I mention this simply because if somebody comes along and says we ought to put stop signs in at every level crossing, I hope the committee will now say, 'No, that is the wrong way to go'.

Rumble strips: static rumble strips advise the driver of an upcoming level crossing. I do not want to know if there is an upcoming level crossing; I want to know if there is a train coming. Question: do static rumble strips tell me if a train is coming? No, they do not, and accordingly, sir, I think they are wrong. There is to the best of my knowledge and belief no study that says if you put in rumble strips, you will achieve an X per cent reduction at those level crossings. It would be different if we looked at active rumble strips; the ones that were advocated for by the safety institute last week or a week or two back. These rumble at you if a train is coming and do not rumble if it is not. In that sense they give you warning of an approaching train. They would have much greater value, in my view, than the present rumble strips.

Mr LEANE — When that presentation was made, I thought about it, and if you are going to go to that much trouble with the pump and all that, why not just put wigwags there?

Dr WIGGLESWORTH — Because this would be, I would think, about a third of the cost of boom barriers. I would think, and I do not the exact — —

Mr LEANE — I am not talking about booms; I am just talking about flashing — —

Dr WIGGLESWORTH — About flashing lights?

Mr LEANE — Yes, because you would have to go through the signals circuit.

Dr WIGGLESWORTH — Precisely.

Mr LEANE — And that is the costly thing. Maybe you will save a bit of money from the power supply, but looking at increased technology in solar panels, that may trigger the wigwags — have enough energy to that — and might be a better way to look at that. When they gave that presentation last week, I went away thinking: why not just put in some flashing lights rather than — —

Dr WIGGLESWORTH — The point I am making here is quite simple: if you start from the first principles, will static rumble strips work? The answer is probably not. Will active rumble strips work? It is worth a go. So why do we not put some money up for a research project to have a look and see if it can be developed? The man who put that idea forward was Dr George Rechnitzer, and he and I shared adjacent offices at Monash for a couple of years. When he first mooted this idea I gave him a bit of a going over, and he stood up to that very well indeed. If it can be solar powered, and that is another thing one hopes we would do okay, and it can be made to work — I was sceptical as you are sceptical, but he said he can make the darn thing work. That would be exactly the sort of thing that a small research grant would enable him to start and see if it can work. I take your point, but I am talking about the future and the potential rather than the absolute.

What about the next one, entitled 'Trying to beat the train will become an offence in Victoria'? Where is the evidence? On what study is the decision made that trying to beat the train will become an offence? Again, there is a stunning silence.

Let us look at one particular crossing. I know this one very well indeed. The visibility around here before the train goes around the bend is 490 metres. The speed board limit for the train along that length of track is 125 kilometres an hour. The train will cover that distance in 14.1 seconds; while a B-double, from rest, takes 18.6 seconds — the difference is 4.5 seconds. This is Russian roulette. If there is a train coming hidden away 4.5 seconds from that crossing, there will be a collision, and the truck driver can do nothing about it.

Let us go back now to Victoria and the handouts you got this morning. I wrote to the minister and we gave you a handout this morning. On that handout you will see the Elmore–Minto Road, which I think is at the south-western end of Elmore. The only bit you need to look at is the bottom left-hand corner where in red ink you will see the words 'inadequate sight distance'. If you turn the page you will see there are two more crossings. I picked three level crossings at random because of their proximity to the recent crashes. On all three you will see the words 'possible sun glare and inadequate sighting distance'. On a random selection of crossings, three out of three have inadequate sighting distance. That will make the system even worse.

This Russian roulette comment that I made will be reinforced by the message given out in propaganda by the Victorian government, saying 'Don't take risks' or words to that effect — 'Don't risk it'. If I am a truck driver and I am subjected to that bombardment — 'Don't risk it' — I will stop at the crossing, I will look to my right and I will look to my left, and then I will start across. It will take me 18.6 seconds, but I cannot see the train because it is 4.5 seconds out of view.

In my view, Chair, that legislation is wrong and should be repealed. The consequence of it will be that innocent drivers will be punished because they stopped and they looked, they will be fined $3000, they will suffer the loss of 4 demerit points and they will lose their licences. For a truckie who is working hard to feed a wife and children, that is a bit savage particularly for an offence that he did not commit.

While I think that one is stupid, this next one is lethal. These are the advanced yellow flashing lights that will be put in 250 metres ahead of the crossing. They have the same number of lanterns, the same size of lanterns, the same

flash rate. If they are red, it means 'stop'; if they are amber, it means 'beware'. Are these not a possible source of confusion — the same size, the same flash rate? 'No. This is yellow, can't you see?'.

As it happens I can see, because I am not a protanope or a deuteranope. Those 7 per cent of adult males who have red and green colour deficiency — protanopes and deuteranopes — cannot distinguish between reds and greens. This is the chromaticity diagram put out by the international committee on illumination. When this was published the optometrists got at it. What they found was this: here is your protanope — down here with the letter P. Every point along that line he will see not as red or green but a line of equal hue — a particular sort of grey, if you want. Every line along this one down here, he will see it as a different hue.

So if we pick, as we do pick, the red light from here and the green light over here, your protanopes and your deuteranopes will be able to distinguish it. Deuteranopes have the same thing, too. What about the red and the yellow? I have taken the liberty, because this is such a lousy slide, of including it with the handout this morning so you have a printed copy to look at. I ask the committee to look to see whether they think, in their opinion, somebody who is a protanope starting from the point P looking up through the red and the yellow will be able to distinguish between them. In my opinion the answer is no, and in my opinion that legislation is lethal if protanopes or deuteranopes happen to be at risk. That is my opinion, and I have no training in colour vision at all.

Mr LEANE — Is this a degenerative thing? When you go for your driver's licence — —

Dr WIGGLESWORTH — You look at the man in front of you who says, 'This one is red and this one is green', and you cheat, and the police go to it. The man who is full bottle on this is Professor Barry Cole. I declare an interest because I taught in his department for a couple of years. It is a 10-minute tram ride just up the road. He is not only the professor emeritus in optometry, he was also chairman — and I have given his credentials in the handout — of that committee that looked at colour vision. He is the Australian expert.

If the committee thought fit to ask him — and I have spoken with him — and to have the advantage of his authoritative opinion rather than my unauthoritative opinion, I think it would be to the advancement of all and sundry.

My last comment shown on the overhead is, 'How do we do better?' Much of what I have said can be taken as critical, but let me just say this: it happened with Premier Bracks and Minister Kosky. Had it been Premier Baillieu and Minister Mulder I think we would have got pretty much the same sort of mix because the Premier would have turned to the minister and said, 'Look, we have got to respond to this somehow, what do we do?'. And the minister would have turned to the department, and the department would have said, 'This is what we do'.

I am not blaming the department. Where is the research evidence to which they can turn? Where can they get it? What they need to inform the minister is good, hard solid evidence — and at the moment in Victoria there ain't none!

In the wider field of public health the federal government set up a committee to inquire into the efficacy of a National Health and Medical Research Council in 1999. That committee was chaired by a Professor Wills. He pointed out that Australia, with 0.3 per cent of the world's population, produces 2.5 per cent of new medical knowledge — that is, 10 times our pro rata contribution. We are good and this is one of the reasons why life expectancy has increased by 38 per cent both for men and for women in the last 100 years.

The downside of that is you have got me; 100 years ago you could not have had me because I would have been past my use-by date and I would have gone by now. But now here I am sprouting stuff out. Curiosity-driven, investigator-initiated and peer-reviewed research was the foundation and basis of that success. That is where I hope the committee will direct its report, to increased use of curiosity-driven — that is not from the top down, 'I want to know about it', but from the bottom up.

Dr Cairney, off the top of his head, gave the committee a whole series of examples, and here is another set. If you want visual stimuli, why not put in conventional, solar-powered traffic lights? They say, 'Because we cannot do that' — of course we can! To the best of my knowledge it is technically possible to put in solar-powered conventional traffic lights at railway level crossings. If one solar-powered system is not enough, then put in two.

Mr LANGDON — Would you not have the same problem with the yellow and red lights?

Dr WIGGLESWORTH — Yes, exactly the same with red, amber and green.

Mr LANGDON — Would not the problem you have just addressed earlier be prevalent with that?

Dr WIGGLESWORTH — I hear your comment. If one battery-driven, solar-powered system does not work, put in two so that one system can work on Mondays, Wednesdays and Fridays and the other one on Tuesdays, Thursdays and Saturdays. I see no reason why that should not be the basis of a good idea that can be developed by research into an absolutely useful system that will tell you if a train is coming, which is what we are about.

Map navigation systems are now commonplace. You can buy them off the shelf. The RACV will give you a discount, if you remember, and you will put them there. Why cannot they tell you not only if there is a train crossing ahead, but if there is a train coming? They can be programmed. The technology is around. Why not voice-to-voice systems — the transponder, the telephone, so that the train driver can talk to the truck driver and say, 'Hey mate, out of my way!' or words to that effect.

What about the acoustic laser beam? One minute more please? There is now technology that says that you can do with sound what you can do with light. In this room, for example, you can turn all of the lights on and we can flood the room with light or we can put in a tiny searchlight that will throw a tiny beam of light from there to here and leave the rest of the room in darkness. Technology now exists to do exactly the same thing with sound. The train's klaxon at the moment is limited by the fact that it is 360 degrees and it goes over the top as well. Everybody with hearing, including kids on bikes waiting with their bicycles, will be deafened. If you were able to have a tiny beam of sound with no spillover outside the actual beam, that again would enable a train driver to have a weapon. When you travel on the footplate, train driver after train driver says, 'Please give me a weapon. I know I am going to kill that person, and I cannot do anything about it'. Here there is the potential to develop a weapon: active rumble strips. You have had enough of me; I am sure you have.

What I am asking for is quite simple: we want $15 million. I am suggesting that the committee provide $15 million over five years to support curiosity-driven, investigator-initiated, peer-reviewed research to improve safety at railway level crossings in Victoria. At the end of five years that can be reviewed. At the worst we have spent $15 million against $33 million that we thrown at level crossing problems — in my view in the wrong way. At the end of five years, if nothing has happened, then okay, if I am still alive you can banish me to the far distance. If I am still around, you can pat me on the back and say, 'Yes, what has happened is helping us to improve the safety of railway crossings at level crossings in Victoria'. Thank you, Chair, for allowing me to make this presentation.

Mr KOCH — Who would you put in charge of the $15 million? We have regularly heard that we have a duplication of people endeavouring to come up with an outstanding result giving some further safety on these crossings; $15 million is not going to employ everyone. There has to be an overarching body or one responsible authority. Who would you see as being able to take carriage of that responsibility in their own right?

Dr WIGGLESWORTH — I would go to the federal Department of Health and Ageing and look for a recently retired employee of the National Health and Medical Research Council who is versed and skilled in developing the NHMRC research system. Somebody who has those skills and who has that experience and know-how. It would probably cost about $1 million a year to run over and above the amount for research, because you need at least two thoroughly competent administrators plus a small legion of people to provide all the support services. But that is the sort of person that I would go to.

Thank you for that — if I may say so — quite excellent question. Sorry I forgot to say so.

The CHAIR — Thank you very much for your contribution.

Witness withdrew.