ROAD SAFETY COMMITTEE

Inquiry into safety at level crossings

Melbourne—14 April 2008

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Witness

Mr P. McKay, Consultant, Mainco.

Mr KOCH—Thank you very much. On behalf of the Road Safety Committee I would certainly like to welcome you this afternoon and in saying so bring to your attention that the public hearings of the Road Safety Committee is an inquiry into the safety at 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, the Defamation Act 2005 and, where applicable, the provisions of reciprocal legislation of other Australian states and territories. Any comments you make outside the hearing may not be afforded such privilege. Have you received and read the guide for witnesses presenting evidence to the parliamentary committee?

Mr McKAY—I have.

Mr KOCH—Thank you so much. 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 would like to invite you to make a verbal submission and we will ask questions appropriately. Prior to doing that I would like to introduce our committee to you. We have Shaun Leane, Paul Weller, myself as deputy chair, and I apologise for John Eren our chairman who has been called away to another meeting, Terry Mulder and Craig Langdon, our executive officer Alex Douglas, and our Research Officer Laurie Groom. If you would introduce yourself, thank you.

Mr McKAY—My name is Patrick McKay. I have been an engineer with the Victorian Railways, Public Transport Corporation and some other successors since 1972. My early career was in maintenance where I had a lot to do with level crossings. In later years I have been more in the design aspects. I currently am consulting and working through an agency mainly for the organisation that maintains Melbourne's train infrastructure called MainCo. In that capacity I am working on the design of an upgraded tram/train level crossing. Is that sufficient for the introduction?

Mr KOCH—Thank you very much, Patrick. Have you a presentation you would like to continue with?

Mr McKAY—Yes.

Mr KOCH—If you are agreeable, the committee members may ask you a question as we travel through your presentation.

Mr McKAY—Certainly. Yes, interrupt at any time.

Mr KOCH—Thanks so much.

Mr McKAY—I do not have a great lot to add to my submission. I put my submission in to help the committee establish itself and its framework for discussions. I really only have two relatively new ideas in it; the rest is a rehash of the principles of how level crossings should be protected and how they are now. Most of my submission you probably already know, but at least I have put it together in one document for you. It was more of an assistance to you rather than for me to push any particular idea or barrow.

Slides shown.

Mr McKAY—Having re-read my submission, there are probably only three things that need a little bit of elaboration. One of them was—and I shall hand these out if you do not mind. One of them was that idea of having a totally enclosed boom barrier so that it comes down from both sides of the road rather than one side that faces the approaching traffic. That may have some bearing on what you can see on that first diagram for Action 1 where somebody turns out of a side street and then not recognises that the road is eight lanes wide. Because it is so wide, they will turn up the wrong side of the road. That is an instance where the four boom barrier arrangement may be worthwhile for safety purposes. There are drawbacks. Action 2 is, there are other ways around that too. You could prevent the right-hand turn altogether rather than install four boom barriers. The basic reason for not having four boom barriers in most instances is that you probably trap people on the crossing, particularly if there is a roadway not far away on the departure side. The typical Springvale Road arrangement where you have the highway not far away, traffic banks up and someone is inattentive—not

thinking of the people who deliberately cross the railway line thinking they will find a way across, but more the inattentive people who end up on the railway. If four barriers come down, they are trapped, whereas some small percentage of motorists who do get trapped generally wake up enough to do a U-turn then. There is nothing preventing them getting out. I thought I better elaborate on that one.

The second diagram explains a little more the idea of having a slip lane at angle crossings where there is a severe angle to the train line in either direction. The idea was—I thought this was the instance at Kerang when I first heard about it but I see in the subsequent things that the train was coming at the driver. It was coming from the direction he should have seen. I thought when I first read it that it was coming over his shoulder, so that if you do see—when you are approaching a crossing, you have a fairly good view. But if the train is coming from over your shoulder you do have to look around a lot more. If someone is very inattentive and then wakes up at the last minute, 'Oops, there's a train right beside me and he's doing substantial speed,' the idea was that you could have—like they had in former times when brakes were not as good on trucks, a truck run-off. It was generally in very steep country where if the brakes failed they could at least run up the hill opposite on some sort of run-off. The idea was to use that at a crossing which was fairly angled and there is a good chance of inattentiveness causing last second recognition of trains.

Mr MULDER—Patrick, are you aware, have these been used at level crossings anywhere else, run-offs, that you are aware of?

Mr McKAY—No, I am not aware of them having done that. I know it is not something that has been used. There are a few drawbacks to this as well. You might have seen, I have drawn those little boxes on the opposite side because often the railway equipment might be in that very corner. We do find often that there is drainage alongside the road so therefore you would have to stop short of a drain or else put a sand trap in to stop short of a drain. No, this would be a rare circumstances, by the way. I am not saying this is going to be very widely applicable. I can only think of one place at the moment on a major highway where the angle is that great. It is between Bendigo and Inglewood. It is quite a sharp angle, about 30 degrees.

Mr LANGDON—For truck run-offs, how much is there—I am not an expert of truck run-offs by any stretch of the imagination. Is there a required amount you need? On the main highways you often see on the side of the road truck run-offs. There must be a standard. Do your suggestions comply with those standards?

Mr McKAY—No. No, this is completely undeveloped at this stage.

Mr LANGDON—Okay.

Mr McKAY—It is thrown in as an idea that this may be applicable at some highly angled crossings. It would have to be fully designed and go before all the right people.

Mr LANGDON—Right.

Mr McKAY—The third idea that was relatively new in there was the reflectorised strips on the departure side. If a truck is coming up the road, he will see this sign, or he should see that sign. It is generally either a red triangle, a red stop sign, a big “give way to trains” sign—I am talking passive crossings here, not with full protections or lights or anything. He should see that. But he will not see what is on the other side of the railway line because they are not reflectorised. They are only reflectorised on one side. The instance I gave in my submission was in my own experience at Marong before the flashing lights went in, coming up here one night; did not see the train at all. I got to within, I would say pretty close, about 30 or 40 metres from the crossing. When I woke up, there was a train on it. That was because it was a burgundy colour, very dirty and half the train had already crossed the crossing. You could not see the locomotive, it was probably 200 metres further ahead. There was nothing to tell you there was a train on the crossing except that I was extremely fortunate; the town of Marong was only another 500 metres the other side and I saw this light going on, off, on, off. What on earth is that? It was the light of the town shining between the carriages or the wagons of the freight train. I thought the principle might be mentioning at passive crossings that if some reflectorised strips were put on the back of the departure side, that would give that same degree of safety that saved me that night. Headlights would be shining on this side and that would be shining back at the motorist. Therefore if there is a train on the crossing, it should show up as reflected lights coming on and off, except if it is stopped right on

the crossing.

Mr MULDER—Would not we be better to light the train up?

Mr McKAY—That is not a bad idea. The only thing is it is probably a bit of a way off. Having reflectorised strips on the side of the train is the next step. When this occurred I mentioned this to our wagon maintenance people in Bendigo and they started putting reflectorised strips on the trains then, one at either end; not very long—about this long—at either end of the carriage to get that effect. Train washing is too big a job. Then it depends on the colour of the wagon. I put this in the submission as well but a lot of trains are now going to corporate colours which might be dark blue, so we are not getting the same degree of reflection off the wagons now. I do notice, I think it is the interstate rolling stock have reflectorised strips on them but I do not think it is a general policy across all organisations that own rolling stock at the moment. Having them lit, yes, a great idea, but I am not quite sure how and when they could achieve that because there are thousands and thousands of rolling stock, and how would they do that—do they have a light right along the side, only have a light on the ends? It is a good step, yes.

Mr MULDER—Can I ask you, what is the cost of a reflective strip on a wagon?

Mr McKAY—Purely the tape—

Mr MULDER—That is all it is, the tape.

Mr McKAY—As long as it is clean, they adhere. The glues are excellent these days. The material in there, if it is class 1, which is that sort of speckled, octagonal type thing, it would cost you no more—it is about $2 a metre.

Mr MULDER—What about the issue of the longevity of them? How long do they last and do they need to be cleaned regularly?

Mr McKAY—They would have to be cleaned but they would last a long time, yes. I have not got a figure on that but I would be guessing, at least 10 years. That would be a problem on the trains. If it is on posts at a level crossing I do not think it would be as much of a problem because they are not travelling, picking up dirt. They are in a fixed location. The rain would be enough to keep them clean, I would think. If that proves not to be the case, well, yes, they will have to be cleaned as part of maintenance. That should not be too much of a problem really. I would be more worried in a built-up area that they would be subject to graffiti. Someone sees a nice, shiny object and desires to spray it which would cut down its reflectivity.

Mr KOCH—Patrick, you indicated that none of the reflective strips are cleaned at all, it is outside their maintenance regime of the rail companies, is it?

Mr McKAY—That I do not know, I am sorry. I am not a rolling stock person but I would guess that there probably is a regime in the rolling stock companies that they do have to clean it, but it would probably be an operational person who would do that when marshalling wagons or something like that. Freight wagons are not washed at all; passenger carriages are.

Mr KOCH—Freight wagons, especially the flat tops unloaded, and certainly on the interstate routes—and I know I have been confronted by them myself—I would swear there was no reflection on some of them, and I assume they are just dirty. Terry, you have come across those on the long trains out in western Victoria?

Mr MULDER—Yes.

Mr KOCH—I was interested because in your original submission you said one of the measures you would be looking at is improving the visibility of especially freight wagons and I was just interested to know what you might have had in mind there from that point of view.

Mr McKAY—I am a little bit dated here, of course. My experience dates back a few years. I have not

been in this area for a while and I do not deal with the rolling stock people any more and I do not know their obligations under the new franchise agreement either. I am probably the wrong person to ask there about how they are developing that up. I could say though at fixed level crossings there is no reflectorisation on that departure side signs at the moment and that could be undertaken quite readily by the infrastructure companies.

Mr KOCH—Yes. Thank you very much.

Mr LEANE—Patrick, with the train and the carriages every morning, is there a regime where someone checks they are intact? Before they take off is there a regime that checks certain applications of that particular train when it is all hooked up?

Mr McKAY—Again I am a little dated here but if we go back a few years there were two grades of staff that did do things like that. I am struggling to think what they were called now.

Mr LEANE—But there was a regime back then.

Mr McKAY—Yes.

Mr LEANE—You would wonder if it would be a big impost, if there is that sort of check, whether someone walks along with a rag and a ladder and wipes clean the reflective tape on the—

Mr McKAY—Yes, I agree. I do not think it would be a big deal for them either.

Mr LEANE—Is it just a matter of getting a rag and rubbing them clean, or do they need a special application?

Mr McKAY—No, I think it is just water.

Mr LEANE—Right.

Mr McKAY—Particularly the class 1 reflective which is smooth. The older speckled type ones which are like little glass beads in there with a rougher surface, you would probably need a nail brush or something to get them clean.

Mr LEANE—Yes, that is interesting, thanks.

Mr KOCH—Patrick, from the point of view of technologies available at the minute, where do you see the best opportunities to improve safety at railway crossings from an engineering point of view? Does that fall within your bailiwick?

Mr McKAY—Probably not. I do have discussions on this with various people, just to find out what is happening myself, but it is not an area of expertise of mine. Of course the most obvious way is to separate the trains and the road traffic altogether. Wherever there is an opportunity to do that it really should go on somebody's program list. When there was a thing called the Level Crossings Committee in years gone by which was staffed half by railway staff and half by VicRoads, they virtually determined among them what program there should be, mainly for level crossings, but occasionally a grade separation was recommended from that committee as well. They set the priorities then, depending on the volume of traffic and the perceived danger of how quickly it went up the scale.

Mr KOCH—What happened to that committee?

Mr McKAY—I do not know. Again I am a little bit too dated to advise you but I know there is someone around still considering it.

Mr KOCH—The Level Crossing Safety Steering Committee.

Mr McKAY—That sounds like it would be the right body. Opportunities do come up occasionally

and some of them are so obvious, and of course I will have to push one here that has been done and that was Burke Road, Gardiner, when they did the Monash Freeway. If you ever travel around there yourself you know you go down the hill, across the railway, up the hill, over the freeway. It should have been grade separated at the time but VicRoads never had a charter to do that. At a higher level, if there was more coordination between the bodies, so that the programs in both could be adjusted, that would have been so easy and so obvious to do at that stage. Not all are that easy but that was an easy one that we missed. Grade separation number 1 I think is your answer, of course, but it is the most expensive solution as well.

Then coming down the line you start getting into your active protections—your boom barriers and your flashing lights—because they are active they do grab people's attention, something changes. With passive protection nothing changes, they have to recognise themselves via a sign or road markings, 'I'm approaching a crossing, okay, I make the decision to do this.' The decision is not made for them. Of course there are closures too. I see that is now getting a lot more consideration. It is worthwhile. The former railways when they first opened, I think to satisfy landowners, had too many crossings. Over the years a lot of them have been closed but not a big percentage. It is not as if we have shut half of them, it might be five or 10 per cent. There is still an opportunity to close a few more but would have to be the result of a full study. It wouldn't be just pick it off the list.

Mr WELLER—Patrick, what would you think about the technologies that are available now, that the trains can talk to the trucks?

Mr McKAY—I think it is a great idea. Yes. When they first introduced that idea in the Domain tunnels too where there are radio frequencies that could cut across all channels, that really upped safety enormously down there. If a similar thing could be done on level crossings—even if it was only a signal, it did not need to be a worded message. If a particular frequency would come over everybody's car radio, or if future development of car radios and car sat navs would have a dedicated frequency to beep out when you either approach a level crossing or for approaching trains, I think that would be an enormous boon. It is another level of active protection we do not have at the moment.

Mr LEANE—Something I was thinking about on the weekend that with your experience you might be able to answer is, are the booms rated robust enough if they are down and someone does drive into them at a reasonable speed at 60 Ks, are they robust enough to stop? Will you smash into it and stop?

Mr McKAY—No.

Mr LEANE—No.

Mr McKAY—No, you would disintegrate it.

Mr LEANE—You would disintegrate it.

Mr McKAY—Yes. They are very light. They are made out of timber, because often they have to cantilever out very far across the roadway or a very wide road. In fact some of them are articulated. They are too tall. They have a hinge part on the end so that as it closes down it opens out like that.

Mr LEANE—Right.

Mr McKAY—Too long, too heavy.

Mr LEANE—The reason I was thinking that is, some evidence we have been having is that there is an issue with driver behaviour. Drivers are more likely to stop at a red light as in a traffic light set-up with a red, amber and green. Some of the evidence we are having is maybe you need both. I was wondering if the boom does not stop you from going through anyway, you may not need both because you have really the same set-up as far as a red, amber, green. You should stop. No, it is a good answer. That makes sense.

Mr McKAY—Are you suggesting that the railway crossings that have active protection have red, amber, green?

Mr LEANE—No, it is some of the suggestions that have come through this committee and I was thinking about it. Why the suggestion came to this committee was because people seem to obey that signalling system more than they do the current rail system.

Mr McKAY—Yes. I think it is a matter of understanding how the system works. They get frustrated because they do not see a train coming and they are waiting, 'What's going on?' Part of the reason for that is the way that track circuits are designed. A certain distance out is calculated for a certain speed of train. When a train enters that area and shorts the two rails out, that will bring the signals down. If the train is going slower than it was designed the circuit for, of course it will get there a lot slower. That is generally within people's tolerance. What happens though sometimes is that when there are trains approaching from two directions they do not allow a minor change between the two trains. Suppose one train leaves the circuit and the boom is ready to come up and it starts going up and the next train comes in and it starts coming down again straightaway, they cut that out by having what they call an outer approach circuit. If there is a train in that one while there is a train in this one, they hold it down longer.

Mr LEANE—Yes.

Mr McKAY—The boom does not go up when the first train leaves, it goes up when the second train travels all the way in and then leaves the other side.

Mr LEANE—That makes sense, yes.

Mr McKAY—If that one is going slow, they get even more frustrated, particularly if it is a long, slow train, like a freight train is about to pull into somewhere. There is no easy way of educating people in that because it is a pretty difficult concept to understand. Of course if motorists see a train sitting there at a signal too, they will think it has stopped, 'Oh, well, I'm in a hurry, I'll go.

Mr MULDER—Patrick, the industry is stuck with failsafe with all types of mechanisms.

Mr McKAY—Yes.

Mr MULDER—In terms of the 1,430 level crossings that are in the state that only have passive protection, should we be prepared to look at something that perhaps is not failsafe at those crossings, something that is a less costly option?

Mr McKAY—I do not have any objection to that myself. I think there would have to be a public education campaign to go with that. Both non-fail-safe and fail-safe systems give a high level of protection but they also give a high level of confidence. If that confidence is let down in a non-failsafe system there will be all sorts of trouble. There would be litigation and there would be a lack of confidence in it again. If there were outer approach road signals that were not failsafe—a motorist is approaching and you get an advance warning as there are at some road intersections where you have the signs and the double yellow flashing lights when a lights are about to change—motorists would have to be educated in that that is advisory and do not expect to be unfailingly warned if there is a train in the locality. If we could get through that education hurdle, non-fail-safe systems will give a high level of protection to most people most of the time.

Mr KOCH—Patrick, is your own association drawn on by the Department of Infrastructure to assist with rail safety? Do they use your services at all or is it all internal at their end? Do you make a contribution, is what I am coming to?

Mr McKAY—Yes. The people at the DoI who know me—it is all who you know—often ring me up and ask about this or that. Generally they are reliant on their own internal experience and their consultants. 90 per cent of the time they do the job very well; the other 10 per cent, it could have been better but that is the same with all of us.

Mr WELLER—Speak for yourself.

Mr KOCH—No, that is fine. I assumed that your association would be in close contact with DoI.

Mr McKAY—When you say association, do you mean APESMA in this regard?

Mr KOCH—Yes.

Mr McKAY—No, generally not. APESMA is more of an industrial organisation rather than a technical organisation. It is really like a professional engineers union, although we do have branches that do all sorts of things including technical discussions. The expertise, if you are going to ask a technical organisation for input, you would be asking the Rail Technical Society of Australasia [RTSA] which is a subgroup of the Institution of Engineers, if you want an umbrella body to approach for people to make comment. Otherwise you would go to the various industry bodies themselves, to the MainCos and the Connexes and V/Lines for the real on the ground experience. Go up the tree a little bit, you can go to the DoI. If you want a wider net to cast, we do have in Australia and in Melbourne some of the best railway engineers in the world and they are the people down at Monash who originally were the Melbourne research laboratory of BHP. When that shut down of the order of about 10 years ago, the whole body moved holus bolus to the mechanical engineering department of Monash and they consulted out of there under a new title which I cannot think of for the minute. Those fellows are world renowned. There is expertise to draw on if you know where to find it. If you need a central source of information for that, I would say through the RTSA, a body under the umbrella of the Institution of Engineers.

Mr KOCH—Thanks, Patrick. Any questions? Patrick, on behalf of the Road Safety Committee I would certainly like to thank you for joining us this afternoon. We appreciate very much your time.

Mr McKAY—Thank you very much. One other thing, I only have the one copy, there is a whole side of diagrams which might be useful for you if the committee would like to flick through and see. At the start there is some of the original railway diagrams and then there is the Australian Standard diagrams for signs at level crossings.

Ms DOUGLAS—Do you want this back?

Mr McKAY—No, you can have that one.

Mr KOCH—Thanks so much, Patrick.

Witness withdrew.

Hearing suspended.