ROAD SAFETY COMMITTEE

INQUIRY INTO IMPROVING SAFETY AT LEVEL CROSSINGS

Melbourne — 7 April 2008

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Mr B. Hedley, general manager network safety, Connex Melbourne.

The CHAIR — Welcome to the public hearings of the Road Safety Committee's inquiry into safety at level crossings. All evidence taken at this meeting is protected by parliamentary privilege, as provided by the Constitution Act 1975, and is further subject to the provisions of the Parliamentary Committees Act 2003. Having said that, any comments you make outside 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.

If you could state your full name and the organisation you belong to and proceed with your presentation, we will ask questions as we go.

Mr HEDLEY — Certainly. My name is Barry Hedley. I am currently employed with Connex, Melbourne, as general manager, network safety. If I can get some help to get this presentation moving, I will do exactly that.

Mr MULDER — If I can ask, how long have you been with Connex and what did you do before you moved to Connex?

Mr HEDLEY — I have been with Connex for approaching four years. Prior to that I was with the State Rail Authority of New South Wales for almost 27 years, in various capacities. I will actually come to that if I can get the presentation to work. Perhaps we should work manually until we can get the technology working.

Overheads shown.

Mr HEDLEY — Thank you for the opportunity to speak here today. Obviously level crossings are a significant safety issue for Connex and they have been a passion of mine for a very long period of time through my career. As general manager network safety I tend to see the consequences of level crossing accidents too frequently in Melbourne, and, as I say, I am passionate about doing something about it.

About me to start with: 31 years experience in the railway industry. I am a civil engineer, so I have built a lot of level crossings and replaced a lot of level crossings with bridges over the years. I have also had experience in railway operations. For 27 years, as I said, we were in New South Wales, including country and metropolitan, so I have got a reasonably broad experience in level crossings in that state. In Victoria my experience has been focused on metropolitan issues. I am currently a director of the Australasian Railways Association Standards Board, and we are looking at the effectiveness of railway standards nationally, as well as their context within each of the jurisdictions. I am also the nominated rail safety officer under our rail safety accreditation at Connex, which means that under the terms of the legislation, if something goes seriously wrong, I am the one that the courts will generally send to jail. That is part of the reason I have a personal interest.

On level crossing safety general issues, just to set the context: level crossings are intrinsically unsafe; there is no getting around that. Perhaps when the first one was contemplated it was not unsafe, but certainly, given today's environment, they are. If someone were to suggest that we build a level crossing across one of the runways at Tullamarine airport, people would probably laugh, but in fact it would probably be safer than operating level crossings on major highways. Aeroplanes can actually pull up a lot faster than trains and are generally a lot lighter than trains. We would not contemplate that now, but we are historically stuck with a large number of level crossings so we need to get on with it.

The second issue is that trains do not stop quickly. I am sure this has been brought to your attention already. Typically the range of braking accelerations is between 0.7 metres per second squared for a freight train, and 1.1 for one of our contemporary passenger trains. What does that mean? If you look at the graph — I am not too sure if you can actually read the numbers; they are pretty small — the blue line represents a typical freight train braking curve for dry level track, which would indicate that from 100 kilometres per hour, measured on the bottom scale there, we are looking at about 600 metres for a train in the best of conditions to be able to stop. For a passenger train travelling at 100 kilometres per hour we are looking at somewhere a little over 300 metres to stop. As I say, that is in the best of conditions. If you superimpose over those curves wet rails due to weather, you can easily double figures for those aspects. The consequence of that is that trains do not pull up generally within the sighting distances of level crossings, given even the best intentions of the drivers of the trains.

General issues on level crossings: safety levels have improved with increasing automation; there is no risk with that. The provision of active crossing protection, the provision of stop signs and signage has certainly improved the safety levels of level crossings over the years. The difficulty is that over that same period accident rates have increased because of additional traffic on the road and on the rail, and road vehicle size. The increased size of road vehicles has had a significant impact on accidents in recent years.

One of the things that I need to get across very clearly is that level crossings really exist in two quite different environments — a non-urban environment is vastly different from an urban environment. The consequence of

that is that the solutions that may be proposed for one environment may not actually work in the other, or may actually make things worse in the other environment. In my experience solutions to level crossing safety really need to be tailored to the environment that they exist within.

Rural hazards: level crossings are really focused on vehicle speed, vehicle size and their ability to stop within the available distance et cetera. The majority of rural crossings in Victoria are passively protected rather than actively protected — I am not telling you anything you do not already know. Virtually all metropolitan crossings are actively protected with booms. We only have a couple of level crossings — on the Stony Point line, and a few accommodation crossings — that do not have the best available level of current technical protection.

Mr MULDER — If I can just ask a question of you, Barry: we regularly get reports of booms that have come down and stayed down for a long, extended period of time. Is that commonplace? Is that happening a lot? We are always concerned about what this does for the integrity of the safety system and that people then start to ignore it because they think these booms are malfunctioning. What is the story?

Mr HEDLEY — I will come to that a little later. It certainly is something that occurs frequently and we monitor it. On average we probably have six or seven events per week where level crossing gates are closed as a result of other defects in the system. That is by virtue of the fail-safe nature of the equipment. If anything goes wrong — the train breaks down, there is a suicide on the track, for example — and the train has to stop, the gates will be held closed even though the train is actually not approaching the level crossing, but the system is detecting a train or what it thinks is a train on the track. I will come to that issue because it is a very important one.

Metro hazards are largely related to queuing and short stacking. I am not sure whether people have explained those terms. That is sort of railway terminology for traffic that stops on a level crossing because it is part of a traffic queue. Short stacking is where a vehicle will travel to the far side of a level crossing but it is prevented from going further by traffic signals, stop signs et cetera, and the rear of the vehicle is still foul of the tracks on the level crossing. They are our major hazards at level crossings in the metropolitan area.

Our solutions for the metro are unlikely to work in the rural areas, and the rural solutions that have been proposed — a lot of them have been on the drawing boards and have been proposed for many years — they do not really work in a metropolitan environment either. We need to look at tailored solutions, for future technology in particular.

Progressive urban grade separation, I believe, is essential in the long term. I know this is a difficult prospect. I know that it is incredibly expensive for the metropolitan area because the built environment is built up around level crossings and to now remove them or replace them with grade separation is a very difficult process. In Sydney, where I spent a lot of my career, we had 12; in metropolitan Melbourne we have got over 200. It is a very obvious thing for me coming from interstate to see the magnitude of the problem within the Melbourne metropolitan area. Apart from the safety issues, I believe for urban congestion reasons and the environmental impacts of traffic congestion, grade separation eventually is going to need to occur if the city is going to remain vibrant.

You cannot discuss level crossings without discussing the human factors for the non-urban area. One of the most significant issues in my experience is that train speed can be very deceptive. People can view a train approaching from a long distance and feel from their perception that it is actually travelling very slowly. It is a factor of the size of the train relative to its surroundings and the sighting angles et cetera. People who are involved in level crossing accidents almost invariably say after the accident, if they survive, the train was travelling a lot faster than it looked. That is exactly what happens. A train travelling at 110 or 115 kilometres per hour can look as though it is only travelling at 60 because of its size. It certainly closes in on you very quickly.

The risk of collision is perceived to be very low. I read with interest a media article a couple of weeks ago after a recent fatal accident where somebody had had another accident on a nearby level crossing only a few days after. He had remarked to the media that he thought that you would have to be an idiot to be involved in an accident like that one that happened the other day, and yet a couple of days later there he was being involved in the same sort of incident. Fortunately he survived. We have to face the reality that people perceive the risk at level crossings as being very low. I think that is for a range of different reasons.

Road users — and we are nearly all road users — equate train braking capability with cars and trucks that they are familiar with. They are really not well positioned to judge the speed of approaching trains, and they are certainly not equipped to appreciate how long it will take a train to brake. Having been involved in some braking trials on very long trains, it is an experience that really can be quite frightening when you are on board the front of a locomotive with a heavy train behind. The driver applies the brakes and the brakes are doing the best they can, and you do not feel as though you are slowing down. A kilometre later you are still travelling what feels to be the same speed. It is a reality of train brakes and the friction environment that they work in.

A significant proportion of rural level crossing accidents happen with local people. This was certainly the case in New South Wales, and, from what I have seen so far, it seems to be the case in Victoria as well. My experience in New South Wales indicated that they tend to become immune to that hazard. If any of you travel to far north Queensland and you see locations along the Bruce Highway where you have people's homes and at their front gate is a level crossing between their front gate and the Bruce Highway. You would have to think that people who come in and out of those driveways every day of the week would be really fearful, yet there are so many of them that actually fall victim to the level crossings right at the doorstep because they become immune to the hazard or they become used to regular train schedules and they are not there. The train arrives when the schedule says it should not be there, and they are just not paying attention. There is certainly a characteristic of local confidence that a train is not going to be there. On the other hand, people who travel out of their comfort zone tend to pay more attention to level crossings and are less likely to have accidents, in my experience.

Going back to that previous dot point, people cross their local level crossings at similar times all the time. They have habits. They take their kids to school or they go shopping on a Saturday morning or they go to work and come home at similar hours of the day. They become used to the fact that at that particular time there are no trains running. Then when something comes out of the ordinary — either a train that is unscheduled or their travel patterns change — their immunity is gone and they suddenly arrive at a level crossing they may have been crossing for 12 months having never seen a train, and suddenly that is the train that they have always missed because they have been travelling somewhere else at that time.

The local perspective, I believe, came into effect in a recent fatality that we had on the Stony Point line, where a young lady lost her life tragically. She travelled across that level crossing every day on her way to the child-care centre where she worked, but the day in question she was actually travelling at a different time to what she normally travelled. The train that hit her was travelling in the opposite direction to the train she was used to seeing at her normal travel time. No doubt the coroner will consider these aspects, but I really feel those local issues and becoming used to the local patterns have an impact.

The CHAIR — How could we tackle that issue?

Mr HEDLEY — It is a difficult one. I think there is a need to consider a range of solutions. I will come to some of those at the end, if you do not mind, Chairman.

Rural train services are infrequent. The actual probability that you are going to meet a train at a rural level crossing is extremely low. That is one of the biggest dangers, the fact that people rarely see a train so they can make all sorts of assumptions. I have spoken to a number of people involved in level crossings over the years who have said to the investigating police and to the coroners that they thought the line was closed because they had never seen a train there. There are so many closed railway lines around the rural areas that people can easily fall into the trap of believing that a line has been closed, because they never happen to be there at the time a train is coming. That low frequency of train pass-bys is a real hazard for country areas. In the metropolitan area we have exactly the opposite problem: people know the trains come very frequently and their reactions are quite different from those of rural users.

Road speeds are generally high in country areas, and slowing down to stop at a level crossing is actually seen as a bigger hazard than going across the crossing and not stopping. If you are travelling down a highway and you have a large truck on your rear bumper, there is a significant disincentive to actually stop at that stop sign, because you do not know whether the truck behind you is going to do likewise.

There is — I hate to use the term, but I could not think of anything else — a possible herd mentality for traffic travelling in strings, where if all the traffic continues to travel at a constant speed you will tend to follow the car in front, rather than necessarily reacting to your surroundings. I suspect that lot of accidents involving non-compliance at level crossings occur because of this sort of 'I am safe so long as I do what everybody else does' mentality.

Unfortunately, there is very little to discriminate between an active level crossing in the daytime from an inactive one, meaning an actively protected crossing that is not working at the moment because there is no train approaching. I am sure that in the days when the current level crossing technology was developed there were no car stereo systems with ear-damaging noise levels inside the car, so you could hear things that were happening outside; you could hear bells ringing. The low number of cars now that are so quiet inside and the high number of cars that have such good sound systems that mean you cannot hear the bells at level crossings actually negate that original warning process of having bells ringing at crossings.

The CHAIR — But do you know a solution to that problem?

Mr HEDLEY — Again there are some possible solutions to that problem. One is removing the reliance on the bell ringing to start with. In effect, I believe the ringing bells do little these days other than to alert pedestrians near the level crossing and alert the neighbours to the fact that there is another train coming to wake them up in the middle of the night. I really do not think there is a great deal of value in the bells

ringing any more; we need to look at some alternative ways of alerting people.
The traditional wigwag red-light signs have really lost their impact on people, and personally I think we would have better effect by having a combination of the red wigwag lights and standard traffic signals, for a range of reasons. First of all, the green light gives a positive 'proceed' indication, so people are confident they can go across; they provide an amber indication to say something is approaching and you should consider stopping before the lights start to activate; and as to the normal steady red signal, people driving their cars are used to having to stop at a red signal.

The CHAIR — Like the normal traffic light?

Mr HEDLEY — The normal traffic lights.

The CHAIR — Without booms?

Mr HEDLEY — No, I think booms have their place on busy roads, but I think where we have currently standard bells and lights, I think there is an argument to suggest we should combine those with standard traffic lights.

The CHAIR — So that there is some uniformity in terms of the driver perception?

Mr HEDLEY — Precisely.

Mr KOCH — When you say combined, do you mean use one or the other, or actually have both?

Mr HEDLEY — Have both.

Mr KOCH — Is that not more confusing? Does that not push the confusion on further?

Mr HEDLEY — Historically the reason they had red flashing wigwag lights was to actually draw people's attention to the movement of the light, but as traffic has become heavier and the number of distractions has become greater, I think they have actually lost their impact. People actually look for traffic lights rather than level crossing lights. I was horrified when — —

Mr KOCH — Why would you use both? Did you not say a combination of them?

Mr HEDLEY — A combination of both. I would be inclined to keep the red wigwags as a process of identifying the fact, but the way you would do it would be that they would not come into operation until the red traffic light was displayed. There are a few intersections in Melbourne that currently have that arrangement, usually with the traffic light signals set back from the level crossing. In my experience so far in the last three and a half years I have not seen the same sort of queuing problems at those level crossings that I have seen at regular level crossings.

Mr MULDER — Barry, if you are looking to install new facilities out in the country, what are your thoughts on simply having a traffic light arrangement rather than a traffic light and flashing lights, because those combinations would be very expensive?

Mr HEDLEY — I do not know. I think it would be worth studying. Anything that you are going to do to provide active level crossing protection is expensive, no matter what. One of the issues that I come across on a regular basis through my involvement in the rail safety and standards board is the need for national uniformity. If people come from other states and they are used to seeing flashing wigwag red lights, I think it would be potentially dangerous to not have those in one state if all the other states continue to have them. In any case, even if we were to start a program today to install alternative lights, we are still looking at a 25 to 30-year program to do that changeover across Australia, so you are going to have some stage where you have a combination of both sets.
I would have to say also that the wigwags work much better at night, and similarly in the daytime where you have other distractions — you have potential for washing out the lights because of bright sun in the distance et cetera. At night-time wigwags probably work better than the static set of traffic lights.
On the lack of active advance warning signs, we went through a program in New South Wales about 10 years ago, after a number of serious rural road accidents, on actively protected highways — in fact, in a couple of locations on the Newell Highway — where the New South Wales Roads and Traffic Authority went out and installed approach flashing orange lights, which was a good initiative at locations where the visibility of the crossing was interrupted by buildings or curves in the road et cetera. The difficulty that those advance warning systems presented was that they were not generally installed as failsafe mechanisms, so if they failed and the orange flashing lights did not work, a driver was lulled into a false sense of security and assumed the level crossing was clear, came around the bend and then discovered that the crossing was actually activated and their response time was curtailed; so they were less vigilant, in effect, because of the potential for failure of those lights.
What we eventually did was to change the configuration of those approach warning lights and actually link them with the level crossing lights. They were still in the process of developing that when I left New South Wales, so I do not know where they have got to, but again I would favour a solution which was nationally consistent, so that people who were long-distance travellers saw the same sorts of approach warnings whichever jurisdiction they were travelling in.

Mr KOCH — I think having the flashing lights 45–100 metres out — Terry and I crossed one in particular down near Inverleigh — is very, very effective. This one in particular was extremely effective. The railway line is on the back of a crest and they actually activate before the crest and you know exactly what is going on.

Mr HEDLEY — Unfortunately, within New South Wales the road traffic authorities acted locally and unilaterally and about half of them put in flashing lights that were flashing continuously, 24 hours a day; and the other half had them connected to rail crossings — —

Mr KOCH — These are connected to the rail crossings.

Mr HEDLEY — So that they only flashed when a train was approaching. Then of course there is no approach warning on passive level crossings, so the only option they had was to have them flashing all the time. I actually favour the continuously flashing arrangement, although, as with speed bumps, rumble strips and other things, people tend to become immune to them after a while and they observe the warning but do not observe the train.

One of the issues undoubtedly is an overwhelming forest of road signs on highways. I made a trip to Sydney and back over Christmas. It is a pretty long, boring trip. Coming through the last few hours of that journey down the Hume Freeway my daughter was driving, and I was trying to find something useful to do, so I decided I would count how many road signs there were in a single kilometre of the Hume Freeway. I got to 60 road signs in a kilometre of road. That was the highest number that I counted over about — —

The CHAIR — Was that in New South Wales or Victoria?

Mr HEDLEY — That was in Victoria. I hate to think about the poor bugger who has got to actually maintain all those signs, but you start to wonder about the effectiveness of signs if they are so frequent.

Mr KOCH — You do not have to maintain them — if half of them fall down, you are still getting 30.

Mr HEDLEY — It is vastly more than anybody could possibly read travelling at 110 kilometres per hour on that road in the time it takes to travel a kilometre. I suspect around level crossings — and I have seen it here in Melbourne — there is little coordination between road signage. We had an accident a couple of years back on the South Gippsland Highway at a level crossing just out of Dandenong. When we went to look at the road signage there were so many permanent and temporary road signs and people advertising their wares from a local factory and all sorts of things that the level crossing signage just sort of blurred into the maze of signage. Quite apart from the fact that you could not possibly read everything that is exposed to you as you travel down Dandenong Road, any safety message that is included in those signs is watered down at least. I suspect that there is a need to either make the signs extremely obvious by use of highly reflective coatings or tapes and things like that or to incorporate some sort of regulation into road signage around level crossings so that the level crossing signs there are not cluttered amongst all the other signs.

Mr MULDER — McDonalds can do it, but we can't!

Mr HEDLEY — Perhaps we need large red Xs — —

Mr KOCH — Arches or something!

Mr HEDLEY — Yes, the equivalent of golden arches. The other issue there on non-urban level crossings is compliance monitoring enforcement really is no deterrent. One of my pet issues when I was living in Sydney and my children were going through their drivers licence stages was that in the very comprehensive road licence testing regime in New South Wales and the computerised system that selected 40 questions randomly out of 160 there was not a single question about level crossings. Logically a new driver in New South Wales could get their licence without knowing anything at all about how to react at a level crossing. Certainly none of my children knew that it was illegal to go through a level crossing when the lights started to flash until I actually told them about it, because the education process really does not prepare them for that. Sydney perhaps is a little worse than Melbourne because there are so few in Sydney, but nevertheless I think there is a need for young new drivers to be made aware of the issues of level crossings and also the potential enforcement cases.

We recently had a workshop which involved Vic Police where they were asked how many people in the state of Victoria were given tickets for road safety breaches for failing to comply with level crossing signage. It was a ridiculously low number — firstly, because it was not a focus of the enforcement body; and secondly, because the police said, 'How do we enforce it if there is no orange light equivalent? As soon as the red light starts to flash any car which is partway through the crossing has just broken the law. And then even if we do decide to take enforcement action against that driver, how the hell do we get to them, because they are through the crossing, and we are on the other side and we have got to wait for the train to go past. By then they have gone'. Police have not given it a focus because enforcement really is extremely difficult or non-existent, and therefore it is not a deterrent.

The CHAIR — There is camera technology.

Mr HEDLEY — There is, and I will come to that too.

The CHAIR — Right.

Mr HEDLEY — The human issues in the metropolitan area: metropolitan road users are very time sensitive, extremely time sensitive, and I think issues like road rage incidents et cetera just demonstrate how time sensitive they believe they are. As a result of that people know that metropolitan trains are very frequent; there is going to be one along in peak hour every couple of minutes, and they know that if one comes, they are going to be stuck at that level crossing for 45 seconds or a minute, which means they are going to miss the next change of that set of traffic lights just over the hill et cetera. People are more sensitive about their travel time, and they are more sensitive about being stopped at level crossings, so they are more inclined to take risks at active level crossings. All of these are active, so for them that 30 or 40 seconds stopped at a level crossing really is very significant to their travel time.

Road speeds are generally low, which is good, but unfortunately there is also a lot of unexpected stopping, particularly during peak hours where a queue can develop anywhere, on any road, at any time and be quite unexpected. That has an impact particularly with queuing, where you may be travelling at 30 or 40 kilometres per hour, and the car in front will prop without any warning, and you prop behind it and discover yourself on a level crossing — what can you do? You know you are about to cross a level crossing, the traffic all seems to be flowing, so unless you actually keep three or four car spaces between you and the car in front, there is no way that you can stop when the person in front stops clear of a level crossing. Of course, we all know what happens if you leave three or four car spaces in front of you on the highway: it rapidly gets filled by three or four other cars.

Multiple lane changing is also a factor on the urban roads. Because of the number of intersections, people have to actually change lanes frequently to get to where they want to go — to follow a route. Changing lanes at level crossings becomes a big problem, because somebody who has actually left a space in front of them so that they can react to stopping traffic will quickly find that somebody has darted into that gap because they are trying to turn left at the next intersection. We have got a lot of multiple-lane level crossings, where in the country areas that is extremely rare. Lane changing adds to that traffic congestion and queuing issue.

Again, as with the country areas, road users equate train braking with cars and trucks. They expect trains to be able to stop short of vehicles. The tragic triple fatality that we had in 2004, I think, was an example of people believing that a train would stop. The three individuals involved on Furlong Road stayed in their car despite the train approaching, blasting its horn, lights blaring, and did not get out of their car; they sat in there and basically waited for the impact point.

Mr TREZISE — Did they have time to get out?

Mr HEDLEY — They were there for nearly 40 seconds, and they had at least 20 seconds clear sight of the train approaching, even though the train driver could not see their car.

The CHAIR — What age were they?

Mr HEDLEY — The driver, I think, was in his late 40s, and the two ladies who were in the car — one of them was his spouse and the other one was a friend — I think were in their early 40s, so they were not young kids inattentive or busy listening to the radio et cetera. There were other mitigating facts at that level crossing accident; notably that there were police on duty directing traffic, and there is probably a risk that the vehicle drivers in the area thought the police were also controlling the level crossing, which they were not. But the reality I believe is that those people sat there seeing the train approaching and believing it would stop, and it did not. In fact it was still doing something like 90 kilometres per hour when it hit them.

There was recently an accident — and I cannot remember the location — where a van being towed by a four-wheel drive arrived at a level crossing somewhere in the northern suburbs. I cannot remember which level crossing it was. The bells started ringing, and the lights started flashing, and the driver of the four-wheel drive decided to accelerate and get across the crossing with his towed van before the gates came down. The guy in the van unfortunately took the other option and put his brakes on, and the result was the tow rope broke and the van ended up stranded on the level crossing. The train was approaching. They knew a train was approaching and they tried to push the van off the crossing but they could not move it, and so they stood in the middle of the track and waved their arms at the approaching train. It did not work. The train still went through the front of the van and demolished it. They said to the police afterwards that they thought the train would be able to stop, and I think that is a common view held by people who are used to trucks and cars and how quickly they brake. Clearly that is something education is required to change.

Mr KOCH — Isn't there a responsibility on the rail providers to provide an education program?

Mr HEDLEY — Yes.

Mr KOCH — What you are saying, Barry, is not new. It has been going on for years. There is no program, no advertising or alerting the travelling public from the rail providers' point of view — —

Mr HEDLEY — No, that is incorrect.

Mr KOCH — That is so in country Victoria. You might have it in metropolitan areas.

Mr HEDLEY — Connex does not operate in country Victoria.

Mr KOCH — Sorry, not Connex, and neither would I expect it to. But so far as advertising campaigns are concerned, it is usually a shared responsibility between the rail providers — I would have thought.

Mr HEDLEY — There have been a couple of programs over the last few years to align with rail safety week. We have cooperated nationally with the Australasian Railway Association for an education program. But in addition to that we run a schools program for budding new drivers and level crossing users. We have actually targeted primary school kids for level crossing safety through our Connex Tigers in Schools program. We try to encourage kids who are sitting in the back seat of a car to annoy their parents who are driving the car about level crossings. It was a strategy that worked well in the 1970s during the seatbelt campaign where kids were encouraged to tell their parents to belt up. We are trying to do something similar with young school kids with level crossing safety and with road safety generally, as well as trying to impress upon them the dangers of level crossings for pedestrians.

Then we have a program in high schools that we run with high school students who are about to get their licences. Level crossing safety is one of the issues we deal with with them. We are doing some work on that.

Mr KOCH — Can you gauge how effective it is? Is there a control group you do not even talk to?

Mr HEDLEY — No, I would not suggest that it is that scientific. The difficulty with these programs is that they tend to be long-term programs. We are dealing with young kids who will eventually become drivers. We will probably not see the benefits for a few years, and it is very difficult to measure that. You are right; it would probably be a worthwhile exercise at the time that drivers are becoming licensed to ask them what they know about level crossings and whether they were taught anything about level crossings in their school years, just as a test to see how well they remember it.

Mr KOCH — Or run two different programs at the school level? One may be far more effective than the other. If you just run one that is not effective at all, it will probably roll on, and we can say, 'Yes, we have an education program running'. But if you run two or three different ones across the metropolitan area one may be far more effective than another.

Mr HEDLEY — It could be. I am in favour of anything that improves the education of children and adults — —

Mr KOCH — So am I, if it is improving it.

Mr HEDLEY — Yes. Again in the metropolitan area, a lack of active advanced warning, and I would include in that not just the approach flashing orange lights but actually the adoption of approach amber warning lights. Again, possible herd mentality, particularly in slow-speed traffic travelling in queues across level crossings.

Lack of vehicle clear space indication past a crossing: if you are sitting at a level crossing in your car and the boom gate is immediately ahead of you but it is up and there are no trains approaching but clearly traffic is queued on the other side of the crossing, the traffic crawls ahead a half a car length or something like that, at what point do you decide it is safe for you to take your car across the crossing so you will be clear of the rail lines on the other side?

There is nothing really to give a driver that indication. If you are a driver of a very large, long, heavy truck, how long do you wait and, potentially, how many cars dodge around you and move into that space before you proceed onto the crossing? As I said before, short stacking and the back end of a fouled vehicle being hit by a train is pretty common for us, but there is nothing there to indicate — like braking markers on a racing track — that there is 10 metres clear or there is 20 metres clear, or 5 metres clear for that matter. I think there are some potential solutions for that problem to allow people to know that even though there are no trains crossing, because you are in a queue it is now safe for you to travel to the other side; there is space for your car on the other side.

Mr KOCH — Barry, there is an opportunity there to put those two lines on both sides and just paint red that bit of road. Nobody parks on red, irrespective of — —

MR HEDLEY — It is a bit of a problem in a lot of locations because in a lot of the flatter areas of Melbourne the rail line is slightly elevated and the road actually climbs up over the rail line and down the other side. You cannot actually see the road pavement on the other side of the crossing. What we are doing is working with VicRoads to put yellow crosshatch marking on the crossing itself — on a large number of crossings, although not on all crossings — and that will certainly tell somebody whether that bit of road is safe or unsafe. But whether there is actually distance beyond that crosshatched area for their car to fit safely and not encroach after they have crossed is a bit of an issue.

Mr KOCH — Why yellow and not red? We have lots of yellow.

Mr TREZISE — It is more visible for a start.

Mr HEDLEY — It is actually a national road safety standard. I cannot remember where it was first

used. think it was first used in Brisbane, and then it was picked up in Western Australia and in South Australia, and I think we are probably one of the last to adopt it. It is also used in Sydney in road intersections where queuing across a road intersection causes traffic chaos in the middle of the city. They painted yellow crosshatches all over the intersection of Pitt and Elizabeth streets in Sydney and put cameras there to detect anybody who stops on the crosshatches. It did not actually stop people.

Again there is an overwhelming forest of signs on urban roads, and that is even worse because you have all the McDonald's signs and everything else that flashes as well. I believe there is misplaced faith in the system not exposing them to danger, so even when they do get trapped I suspect people think, 'There must be something to protect me. I have been caught. It was not my fault et cetera. Surely I am not going to be run over by a train on this crossing. The system would not allow that to happen'. I think there is a misplaced faith borne out of a lack of understanding of the safety hazards at level crossings.

Let us get down to suggested improvements. I sent a paper across last week, and I apologise for its late arrival, which includes all of these issues. I do not know if you have had an opportunity to read it, but if not if you have a look at it these matters are probably dealt with in more detail in that paper than in this presentation.

No. 1 is improved education. This is metropolitan-specific stuff. I would like to see some computer web simulations made available. By that I mean something whereby kids or adults could sit at their computer and look at a website and experience an approaching train and what it looks like. They could put up the stop sign virtually and see how it appears as it is approaching and how far it goes past before it actually stops: something that would raise people's awareness of the stopping ability of trains and speed perceptions. I do not think that would be terribly difficult to do based on video and computer technology.

I would like to see better dynamic modelling tools for traffic flow in the metropolitan area. We have a situation where a lot of urban planning carried out by councils and a lot of traffic management carried out by councils and other road authorities is based on issues that do not actually involve level crossing safety at all. For example, the positioning of bus stops or the positioning and timing of right-hand-turn arrangements on the far side of level crossings. They are generally done without consideration of what impact that has on queuing on level crossings. There are traffic management tools available that will actually allow you to determine the optimum place or the optimum timing for these sorts of things. I do not think they are actually used in relation to level crossing safety at all, but I would certainly like that to happen.

I would suggest a permanent, uniform, 60-kilometre speed restriction for road traffic approaching, across the state — across Australia I would prefer — to reduce the potential stopping distance of a motorist who is suddenly faced with a vehicle on a level crossing that they were not expecting. We have all seen those road safety ads, which are very effective, showing the impact of reducing speed by just a little bit and how much it reduces the stopping distance. If we were going to take that philosophy on board, the prospect of having vehicles approaching level crossings at high speed knowing that a car is going to struggle to pull up within the warning distance and time, I think a speed restriction would be worthwhile.

Mr WELLER — Is that appropriate for road trains?

Mr HEDLEY — I think it is even more appropriate for road trains than it is for normal traffic. The difficulty, particular in the country areas, is that if you have a differential speed restriction only on a particular class of vehicle then you are actually building in a new hazard by having traffic travelling at a potentially greater speed differential. The B-doubles and B-triples that are now running on the highways certainly do not stop anywhere near as quickly as a conventional truck.

Mr WELLER — But was there not the case where a truck had actually stopped and he could not get across the line — the Ban Ban Springs accident bloke. Is there that — —

Mr HEDLEY — For those sort of areas you would have to have some consideration of the approach rail warning times as well so that you could not have a situation like the one in the Northern Territory where, within the sighting distance, a truck could not clear the level crossing before the train arrived.

The CHAIR — Barry, a lot of the urban areas are now 50 or 60 anyway, so it is probably lower than 60.

Mr HEDLEY — In a lot of places we have still got 70 and 80-kilometre approach speeds to level crossings.

Mr WELLER — In the urban?

Mr HEDLEY — In the urban area on some relatively main roads — 70 in a couple of places, 80 in one that I am aware of — so for the metropolitan 60 would not create a significant impost on traffic time. In the country areas I think it would, but there would be a benefit in having a uniform approach speed for all level crossings in the state, or in the country. It is just a suggestion.

Improved approach warning signs, including active signs: I am in favour of a fixed flashing light approaching level crossings, or the provision of standard traffic lights.

Smart video-driven traffic metering: we had some people speak to us about this 12 months ago. There is video

equipment available now that digitises images and actually determines the speed and size and even type of approaching road traffic. That could be used to drive indications similar to those we have on freeway on ramps to actually indicate to a driver of a car that it is safe for them to cross that level crossing and there is space on the other side. A video system could actually measure the size of the vehicle involved, measure the size of the space on the other side of the level crossing and flash a light to say it is safe to travel.

The CHAIR — What would that sort of system cost, and would that be fully utilising that amount that is required to implement that where there could be other technologies that are much more useful?

Mr HEDLEY — There could be. I would suggest there are probably hundreds of different technologies that could be useful, and out of that potpourri we have got to select those. For particular crossings we know there is a queuing issue. For example, at Springvale Road at Nunawading we have got a significant history of short stacking accidents at that crossing. There is a major road intersection, pedestrian traffic lights and all sorts of other things in close proximity, so there are a lot of things that will cause traffic queuing at a location like that. With that many lanes of traffic and that number of cars a day, it might be something worth considering. I am not suggesting it is something we should apply universally, but applied where there was a significant risk it might be worth trying.

Mr KOCH — What proportion of Connex's budget is dedicated to level crossing safety? What sort of resources is Connex as an entity putting into level crossing safety?

Mr HEDLEY — I could not tell you, I am sorry. When you talk about level crossing safety we have our education program, which is partly level crossing and partly other rail safety issues. We have a large program of maintenance activities, some proportion of which is level crossing safety-related. Effectively all of our signal maintenance is level crossing safety-related, and we spend a lot of money on responses to level crossing safety issues. How we could separate that I am not sure. I could not give you a figure or percentages, I am sorry.

Mr KOCH — Is it likely in the foreseeable future that Connex will have a budget item for level crossing safety, away from signalling and maintenance, dedicated to improving the opportunity of level crossing safety, because I think that is what we are talking about? To be honest with you, I am not worried about your maintenance component, your signage component and what have you. It is all very well for us to sit around and talk about rail safety. If our lead companies who are providing the rail services statewide are not having dedicated resources put to rail safety, to me this whole thing becomes a little bit of a talkfest.

Mr HEDLEY — I take your comments on board. The programs that we have for all of our activities in Melbourne are driven by programs approved by the Department of Infrastructure, and funding obviously is distributed depending on risk. We are required under the Rail Safety Act to prioritise our activities in risk terms. The programs that we have for all level crossing upgrades, for example — which are driven by the Department of Infrastructure and VicTrack largely — are based on an assessment of where the risks are. We could spend a large proportion of our annual budget on level crossing safety, but potentially at the expense of something else. We are required under the Rail Safety Act to do things on the basis of that risk. My feeling is that safety is not the predominant reason you would be improving level crossing operation. The predominant reason would be road traffic congestion and all the consequential safety issues and environmental impacts it creates. That is my view — and I am not too sure whether other people would agree with me — but when you consider the number of people who are killed on the roads in Victoria every year and the small proportion of those people who are killed at level crossings, we are struggling to allocate a large proportion of the state's safety funding simply to level crossings.

Mr MULDER — In relation to the signalling system and its age and the current upgrade of Metrol, will that enhance safety for Connex? Could you give the committee some information on Metrol and how it functions?

Mr HEDLEY — I will start back at the signalling system. The signalling system in the metropolitan area is conventional signalling. It is not state-of-the-art signalling, and a large part of it is quite old. We are working through a program with Department of Infrastructure to progressively replace it. The signalling system provides all the information to level crossings to alert the level crossings warning system that there is a train approaching. It also provides information to our centralised control section where all of our train controllers sit; they can see the location of trains. The extent of that global view of our train control centre is fairly limited. They have a good view of the middle of the Melbourne operation, but the extremities are not exposed at the moment. A project is being undertaken which involves the replacement of our current Metrol computer system and also a project, which we call our dark territories project, which exposes train movements outside of the current horizon to the controllers so they can see trains coming.

That becomes very important for one of the other initiatives, which I was about to touch on — that is, the ability to be able to remotely control level crossings from a central point. At the moment we do not have that capability because the technology is not there, but it is something that would have a big impact on traffic

congestion and also potentially on safety where, due to a signal failure or a train breaking down or something, a lot of level crossing gates are down for safety reasons and they are down for some extended period of time, which encourages people to drive around gates and create all sorts of other safety hazards. If we had the ability to see where all our trains were and remote control those level crossings to actually open them while we are stopping trains, that could solve a lot of problems. But we need the base technology and our signalling and train control systems to support an initiative like that.

Mr MULDER — I understood it was only out as far as Burnley, Clifton Hill, Caulfield and Kensington that the current operator was going to. Is it at a further stage beyond that?

Mr HEDLEY — Yes.

Mr MULDER — Are you talking about your dark area?

Mr HEDLEY — Yes. The dark territories is the next stage.

Mr MULDER — That is the next stage, is it?

Mr HEDLEY — Yes. It is to go outside that area and expose that. That was one of the issues that was raised by Justice McInerney in the Glenbrook inquiry. The signaller involved in that train accident could not actually see the location of the two trains, and it resulted in the collision of the two trains. I will have to go through this with you.

The CHAIR — I am cognisant of the time; we are running over. Could we get a copy of your presentation?

Mr HEDLEY — Certainly. I have some hard copies; I have a soft copy I can leave as well.

The CHAIR — You have another 5 minutes, did you say?

Mr HEDLEY — Five, maximum. The restriction on long vehicles routes in the metropolitan area is important because of the issues I said earlier of short stacking. I would like to see mandatory fenced median strips and the prohibition of lane changing at level crossings. If you had fenced median strips, then people could not dodge around gates, because there would be no way for them to get to the open side of the crossing. A few places in Melbourne have that facility, and the frequency of people dodging around gates is much lower if you have that.

With standard traffic signals with amber indication and cameras, the amber indication is a bit of a technical problem because in a lot of places we do not have enough advanced warning to activate the amber light. But in most places the approaching train triggers a point where a timer starts and then the red lights and bells start flashing sometime after that. By a little bit of manipulation of the circuits we could probably install orange warning lights if they were part of a standard lighting warning system arrangement. I would also like to see cameras at all active level crossings for compliance purposes, but I do not think it is worth doing, and I do not think it is enforceable unless you have got the amber light; otherwise you will not know whether the light started flashing as the car was approaching it or not. With automatic remote testing and remote manual control level crossings, as I was just saying, if the train controller can see that a train has broken down somewhere and can see that five level crossings are affected by that broken-down train, to be able to remotely open those crossings and allow road traffic to go through, I think, improves both road traffic and safety. With improved lighting at crossings, cars are very well lit in the direction they are travelling, but they are not particularly well lit to the side.

The driver of the train approaching the triple fatality vehicle at Furlong Road could not see the car — did not see the car until it virtually hit it — because all the lights on the vehicle faced either forwards or backwards. In the dim early morning hours the train driver could not actually see the car at all. Plus the addition of bright lighting at level crossings has a similar impact to the bright lights at pedestrian crossings; it raises people's attention to the fact that it is potentially a hazardous area. I think that is something worth pursuing.

Removing departure side traffic restrictions — like bus stops, parking in strip shopping areas et cetera — obviously has some downsides, but anything that reduces the amount of queuing on level crossings would be worthwhile. It might be worthwhile considering as a longer term issue dedicated escape lanes for vehicles that find themselves caught on level crossings as somewhere for them to be able to go. Because at the moment in congested traffic they have got cars behind them, they have got cars in front of them, and there is nowhere for them to go. There are a couple of crossings in Melbourne that have dedicated escape lanes, and I think we should consider putting that sort of facility where we can.

Mr KOCH — Are they used only for that purpose, Barry?

Mr HEDLEY — Only for that purpose. They have a cross hatch, 'No standing' etcetera written on them. They provide an avenue of escape that is beyond the congested traffic.

The CHAIR — Or will that just create another avenue a law breaker would use to get across the tracks and bypass traffic?

Mr HEDLEY — Potentially, yes. But again that is part of the education program.

Mr KOCH — It is about enforcement.

Mr HEDLEY — It is about enforcement, yes. If that lane again were associated with a red light camera or something similar, then people who use that could explain themselves. Level crossing consolidation is important in Melbourne. As a Sydneysider, I cannot believe the number of level crossings in Melbourne. Some of them are so little used and so close to other level crossings that I really wonder why the community takes the risk of having level crossings there in the first place. There are parts of Melbourne where there are level crossings less than 100 metres apart. They seem to be there by habit rather than by reason. If the state decides to reduce the hazards of metropolitan level crossings, consolidating transport corridors into grade separations and diverting and closing some of the smaller level crossings would be a positive step to improving the safety.

I will quickly go through non-urban improvements: improved education, as I said before; and restriction of long vehicle routes, especially where short-stacking risks are present, such as locations where you have a main highway running parallel with a rail corridor and side roads coming in at 90 degrees and there is not actually enough space between the highway and the level crossing for a long vehicle to stand. A lot of long vehicle routes have been established without considering that hazard, not just in Victoria but across all of Australia. They also include: permanent uniform 60 kilometre-per-hour speed restrictions, as I said; and improved approach warning signs for country level crossings. I would strongly suggest that give-way signs are confusing and irrelevant on country level crossings and that all level crossings should have stop signs.

The CHAIR — Yes, but that would then prevent or make it very difficult for B-double trucks to come to a total stop and then take off. It takes a while to get to the other side. There are some other risk factors there.

Mr HEDLEY — There certainly are.

The CHAIR — It could just be an articulated one with a trailer.

Mr HEDLEY — Yes. It can be any truck that is slow. The truck that was hit by the V/Line train with the large slab of granite on the back of it, or basalt or whatever it was, was clearly struggling to get across that crossing. You would have to question why a truck like that was actually allowed on that route in the first place.

Mr KOCH — Would you?

Mr HEDLEY — I would, yes, if there is a level crossing there that has that sort of physical attribute. For that slow stopping arrangement you obviously need good visibility in both directions, which means generally a square level crossing rather than a skewed crossing.

Mr KOCH — Many might say, 'Take the train away'.

Mr HEDLEY — Could be. My concern is the safety of the crossing point there, and you either take the truck away or the train away and you make it safe, or you find some alternate warning system to accommodate the risk. Smart, video-driven stop sign enforcement — even if you are not going to put in boom gates, flashing lights et cetera — there is technology available, solar-powered, that can determine whether a truck or car actually stops at a stop sign and if it does not, take a nice happy snap. That is available. It could be done to enforce stop sign abuse.

Improved lighting and visibility at crossings and sighting lines; standard signals again; automatic remote testing again; and one we did in New South Wales, and I am not too sure to what extent it is done in Victoria, is to cover signs on disused or out-of-season lines so that people do not get used to going past signs that they know they have to ignore because there is no wheat this season so there are no trains running et cetera. And that is it.

I appreciate we are short of time. Are there are any other questions anybody has?

Mr MULDER — I would like a hard copy. Do you have a hard copy there, Barry?

Mr HEDLEY — Yes, I have.

The CHAIR — Very good. Thanks very much for your time.

Witness withdrew.