ROAD SAFETY COMMITTEE

Inquiry into safety at level crossings

Melbourne—14 April 2008

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Witnesses

Mr C. Koniditsiotis, Chief Executive, Transport Certification Australia;

Dr C. Karl, Divisional Manger, Research and Development Division, Major Projects, Transport Certification Australia;

Mr J. Baring, National Liaison Manager, Transport Certification Australia.

The CHAIR—Welcome to the public hearings of the Road Safety Committee's inquiry into 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. Having said all that, any comments you make outside of this hearing may not be afforded such privilege. I believe that you have seen and received and read the guide for witnesses presenting evidence to parliamentary committees. We are as you can see recording the evidence and will provide a proof version of *Hansard* transcript at the earliest opportunity. You can correct it as appropriate. Currently the members here today at this public hearing are Shaun Leane, Paul Weller, John Eren the chair, David Koch the deputy chair, and Craig Langdon; our executive officer Alex Douglas, and our research officer is Laurie Groom. If you could state your full name and the organisation that you belong to and proceed with your presentation we will ask questions as we go.

Mr KONIDITSIOTIS—Let me begin by saying, Chris Koniditisiotis, chief executive of Transport Certification Australia. With me today is Dr Charles Karl who is a divisional manager of the Research and Development Division of Major Projects, and Mr John Baring who is our national liaison manager dealing predominantly with government. First of all, let me thank the committee for giving us the opportunity to be here today and present and to supplement our written submission that was made a few months ago. This whole area of investigation is something which is very close to us in that whilst we are not specifically in the rail area per se, we are in the area of safety and how technology in particular underpins and can provide additional benefits.

Slides shown.

The CHAIR—Is your organisation totally funded by government? How are you funded?

Mr KONIDITSIOTIS—I was going to go into that in great detail.

The CHAIR—All right.

Mr KONIDITSIOTIS—I will be talking about part 1 of the presentation which is really about who we are.

The CHAIR—Yes.

Mr KONIDITSIOTIS—The work we do and how we believe that can be of benefit to this inquiry. In part 2 which is more specific, Dr Charles Karl will be presenting on the specifics of its application to rail crossings. Transport Certification Australia was established a few years ago in August 2005. It is a fully owned national government organisation. By national, I do not mean federal. I mean the federal, state and territory governments came together and formed and own Transport Certification Australia. In the case of Victoria, the owner as such is VicRoads. It has a director on the Board and it, along with the other directors from the other states, effectively governs what we do.

The reason we exist is to bring to Australia regulatory level, government use telematic services, in a nutshell. By that I mean, you would have heard a lot of people talking to you about GPS tracking, and this is the equipment that you can buy at Harvey Norman, buy at an airport and plug into your vehicle and do all sorts of things. It is great. But when it comes for the purpose of government use, which is underpinned by legislation and can be admissible as evidence in a courtroom, then that equipment that you buy off the shelf does not quite meet the requirements. TCA's role is to take that and elevate it to the standard where governments can use it and have confidence in using it, that it will deliver the regulatory as opposed to commercial use.

The program is called the Intelligent Access Program. It provides evidentiary standard regulatory telematic solutions for government purposes. We serve as an independent national certification and audit organisation. We are the national certifiers on behalf of all governments for the private sector that brings these boxes and these services for government use. We do not sell the equipment.

Mr KOCH—What is the clear difference between your regulatory and your commercial devices, Chris?

Mr KONIDITSIOTIS—The difference is this: the commercial device has to go through a very detailed test of functional and technical achievement; in other words, everything from environmental testing, robustness to accuracy. But more importantly, the organisation behind it that is providing the service, especially if they are offering a back-office computer service that supports it, has to be certified as well. We are talking about a very detailed certification program that can take up to 10 months before someone can get a guernsey to provide the service and then after that an ongoing auditing program to make sure that they maintain the level of certification that they had reached when they were certified. It is a very detailed program. On top of that there are probity issues that need to be dealt with and also the financial viability of the company to maintain the service.

Mr KOCH—What percentage of those items that are retailed currently fall into those parameters?

Mr KONIDITSIOTIS—The commercial services, none. There is one company which is certified at the moment to provide what we call IAP services and that is a Melbourne based company called Sigtech Pty Ltd. It provides services to about 95 per cent of the taxi industry in Australia. Overseas it does a lot of telematic services for government emergency services. It now is also the company which is certified to provide IAP services. There are eight other organisations, some of which are in that commercial sphere, who are currently applicants and are going through the certification process.

Why do we have this? There are two applications which are effectively happening now. One of them is in the heavy vehicle area. In a nutshell, and I do not want to go into the details about heavy vehicle regulation, but since the late 50s trucks have been getting bigger; wider, higher, heavier; that is as a response to the needs to the community as well. The simple fact is that in the late 50s it was a two-axle Bedford truck. In the 70s we saw the introduction of six-axle articulated vehicles; the 80s saw a B-double. We are now in a position where the type of vehicle is bigger, wider than what the general road network can accommodate.

Mr KOCH—More powerful and faster.

Mr KONIDITSIOTIS—More powerful, faster. Many of the road regulators have moved from what they call restricted access to what we call intelligent access. By that we mean a program—and this program is national, but particularly in Queensland and in New South Wales where access to longer vehicles is provided on the road network on the condition that they are monitored using regulatory based GPS tracking to ensure that they stay on the road that they nominated.

Mr LANGDON—You cannot have a B-triple going down a residential street.

Mr KONIDITSIOTIS—Correct. Or if it does go down, you will know. In other words, you are not dependent on on-road enforcement solely. On-road enforcement is important and no-one is denying that. But with the doubling of the freight task anticipated over the next 10 to 15 years, it is not feasible to expect every corner to have an enforcement officer.

Mr LEANE—Can I ask then, Chris, if the penalty applies if I am a certain size truck and I do go down a residential street, if I am monitored by this system to have done that, does that same penalty apply?

Mr KONIDITSIOTIS—That is an interesting question. Our legislation has left the sanctions regime up to the regulator who is initiating the application. For example, here in Victoria VicRoads is very interested in using this for the monitoring of over dimensional cranes; mobile crane vehicles, to make sure that rather than having a single trip permit you have an annual permit, but you know where you have to go. It is up to the regulator to nominate the sanctions regime surrounding that. IAP is real in that vehicles are now signing up for this. We have about 3½ thousand vehicles that are pre-registered. When you have about 5½ thousand B-doubles in the country, we are talking about a significant number of large vehicles simply having this technology on board for the purposes of accessing the road network.

This is the information that would come out of this application. This is in western Sydney. [Referring to the slide]Let us say the vehicle was supposed to be on the Princes Highway which is the purple coloured road. The equipment monitors every 30 seconds. If the vehicle went off the road, went down Bridge Road and got

back on again, that entire section would be reported to the regulator. Of course, there might be a perfectly legal reason why this occurred: there might have been an accident or a road blockage or a legitimate detour. I wanted to highlight, this is not—we see this whole program as a compliance based program, not an enforcement based program because you have to investigate why that would have occurred. The point I am highlighting here is that this equipment is not provided by TCA or government. It is provided by the private sector who has certified for its usage by governments.

The other application I want to go into was one which has been trialled and on Saturday was publicly tendered in Tasmania. The Tasmanian government spends $65 million a year on provision of a school bus service which, for the size of Tasmania, is quite significant. It is concerned and wants to ensure through this telematics monitoring program that the school buses that have been funded are the ones that are being used and are compliant with the route and timetable that have been assigned by the department there. They are using the same technology to achieve that. Here is another example of a regulated GPS service being provided for the purposes of, in this case, not regulatory compliance but contract management provided by government.

We believe that IAP can be used to deal with rail crossings. But critical to that, like all the other previous applications, is you need to consider not the technology. Whilst I have sat here today and spoke about technology, what I am advocating is, forget the technology. Understand the policy objectives, the underpinning legislation or contract that might be necessary—and I think in this case it would be legislation—the business case; is it financially viable to do this? Then you will find the technology will then fit or not fit. In most cases, there is the technology there to do what you want it to do. The real question is: do you want to do it, hence in this case, finding a critical balance.

In those two previous examples, the benefit far outweighs the cost. That is why you have in the case of the Queensland and New South Wales super B-double, it is a voluntary system. These transport operators are voluntarily putting this technology on board at a cost because the benefits far outweigh the costs. In the case of Tasmania, the existing manually based audit program is a poor relative to continual monitoring that there is no comparison as far as benefits are concerned.

Options as far as rail crossings: you might have seen something similar to this by other presenters. We see a process of passive all the way to active technology. The vertical axis talks about the complexity from a policy and regulatory perspective; that is, pretty simple all the way to fairly complex and never been done before. The solutions vary from an advisory system that says approaching rail crossing, to one which is monitoring and reporting based, all the way to one that takes control of the vehicle away from the driver.

If we look at each one of these, in the case of an advisory system we are talking about passive intervention, a buzzer, a warning light, something that says there is a rail crossing ahead or even something that says there is a rail crossing ahead and there is a train in the vicinity. These are options that can be considered. Importantly in both of these occasions, the driver retains full control of the vehicle on approach to the rail crossing. This is off-the-shelf technology. There is nothing difficult about it. Any of these regulated service providers could do this tomorrow.

Mr LEANE—Can I ask, going back, you said there was a function with the off-the-shelf technology as in your plug-in TomTom. I know Melway in the recent year have introduced their own technology. Did you say that that has to go through your system before it can be—

Mr KONIDITSIOTIS—No. If it is advisory, you can do whatever you like.

Mr LEANE—Right.

Mr KONIDITSIOTIS—There is no regulatory underpinning here. Advisory is no different to you setting in your own vehicle a speed warning device. Do you have it on, do you have it off, is your decision. It is advisory. There are maps out there that have railway crossings and roads over the top and it works well as an advisory system. In fact, this is no different to someone deciding to know where all the speed cameras are. The system tells them where the speed cameras are. There is no regulatory underpinning here. There is no powers or expectations of government apart from a driver wanting to be more compliant and using technology to support that.

The real issue is when you get to monitoring and reporting. That is where you draw the line between what the road user wants and what the regulator expects of the road user. Now, monitoring and reporting is no different to all those applications we saw before where a vehicle's non-compliance is reported to an agency. Again, it is passive because there is choice. It may include the advisory system it features, but a driver retains full control. To give you an example of this, it is very easy in fact to have a system in which if a vehicle approaching the railway line and does not stop, that is reported to the regulator as a compliance based solution. In fact, that is what the technology does now. That is no different to monitoring a truck to make sure it is on the right road or a bus to make sure that it has stopped at the right school bus stop.

Mr KOCH—How is that monitoring taking place, Chris?

Mr KONIDITSIOTIS—That monitoring is taking place—

Mr KOCH—Are you talking about a camera on a railway crossing?

Mr KONIDITSIOTIS—No, it is all through satellites. It is a GPS box, the same box that those trucks have now, in the vehicle. It is monitored. There is a national provider of mapping. You would not be reliant on a commercial provider of mapping. There is the government provider of mapping which is what the government program uses. It is updated every three months to ensure it is maintained. You might be aware that one of the biggest problems with all this is great technology, but the map is three years old and there have been a lot of changes to the road network. When the vehicle approaches the rail crossing, the vehicle is expected in some crossing to stop, in others to slow down. There are certain behaviours expected, and that is what is monitored. If the vehicle does not comply with these things, then a noncompliance report is issued to the regulator. It is pretty simple.

Mr LEANE—Would that be electronically supplied to the regulator?

Mr KONIDITSIOTIS—Correct.

Mr LEANE—Yes.

Mr KONIDITSIOTIS—The systems to do that are established and operational now.

Mr LANGDON—What does the regulator do with the information it receives?

Mr KONIDITSIOTIS—The regulator looks at their risk allocation program and decides what it wants to do with it. It is no different to receiving—the provision of that information is evidentiary in nature. It can be used in a courtroom. It depends on what warning system, warning process or fine structure or what sanctions regime the regulator wants. That is really a case for policy. In some states, when it comes to speeding for example, they define gross speeding and they have a three strikes and you are out regime. Other states do not. I do not think it is our role to comment on what you do with it.

Mr LANGDON—What other states use this technology to fine or warn drivers?

Mr KONIDITSIOTIS—This same technology is being used in New South Wales for heavy crane monitoring and there is a sanction regime which you get fined if you are on the wrong road.

Mr LEANE—How long has that been in place, can I ask?

Mr KONIDITSIOTIS—The trial has been running since 2001.

Mr LEANE—Has the behaviour of the crane drivers changed?

Mr KONIDITSIOTIS—It is a very interesting case in behavioural change. The first six months after implementation there was quite a number of attempts at tampering which were identified. That is the industry bedding down, does this thing work or not. After that whence you realise that you are monitored 24/7, it is

amazing how you start to realise that there is a change. That is why we say that this is—

Mr LANGDON—Culture moves.

Mr KONIDITSIOTIS—Yes. It is a cultural changing compliance system rather than an enforcement system. This is equivalent to having an enforcement officer sitting next to you in the cabin. This is not based on a finite number of enforcement systems.

The CHAIR—How could this technology be utilised in terms of making level crossings safer?

Mr KONIDITSIOTIS—In this case of monitoring and reporting, you could generate an assessment process that when a heavy vehicle approaches a rail crossing, if the rail crossing has a stop sign irrespective of it is controlled or not, that vehicle is expected to stop. If the vehicle does not stop, that is a noncompliance report.

Mr LANGDON—It is all open, to the Herald-Sun reporting 80 K zones to our railway crossings and the vehicle does not do 80 K, you pick that up as well?

Mr KONIDITSIOTIS—Correct. It is pretty simple as that. We would be creating for each rail crossing a zone around it with a set of business rules that identify the expected behaviour or compliant behaviour in that zone and if a vehicle deviates from that a noncompliance is issued.

Mr KOCH—All that technology is sitting there at the minute, Chris?

Mr KONIDITSIOTIS—The technology to do this is sitting at the minute. What is not here at the minute is the business rules associated with matching the behaviour per rail crossing with what is expected of the truck; what you would call a coding up in electronic language of what is expected at that crossing.

The CHAIR—What would it cost to implement that?

Mr KONIDITSIOTIS—If I thought I would get this question I would have brought the answer. Have you some answers?

Mr KARL—(indistinct)

Mr KONIDITSIOTIS—The next level is what we call the control level. As you see, as we go up this plane, the policy issues become more and more complex. In the control one we are talking about active intervention. We are saying you are approaching a rail crossing, you are not adhering to the rules expected of you, and the system takes control. We do not use this at the moment. That is available, but it is only used in an extreme case of vehicle theft where there is—we have had occasions where the vehicle is being followed by a police vehicle and there is communications with the back office, that the police are comfortable that if you did turn off the vehicle, we are turning it off in a controlled environment. We are not turning it off and all of a sudden the vehicle rolls on to the rail crossing and is disabled and it cannot move either way. I am highlighting this because it is there. But it opens up a whole area of driver behaviour which is complex.

The CHAIR—I think the Holden Statesman has that technology and it is for anti-theft purposes.

Mr KONIDITSIOTIS—Correct.

The CHAIR—Obviously it is at the high end of the market which obviously means there is an option that costs a lot more.

Mr KONIDITSIOTIS—It is more expensive. There is a system that one of our applicants has called Intelligent Speed Adaptation which in addition to stopping you can match the maximum speed the vehicle does with the posted speed sign.

The CHAIR—Yes.

Mr KONIDITSIOTIS—If it says 80 on the road, you cannot do more than 80. You can do whatever you like in that car, but it will not do more than 80. Again, this is a complex area because this is an area where the technology is moving far ahead that the policy-makers are really—it is technology where for the first time we are moving control of the vehicle away from the driver. Our whole regulatory framework assumes the driver is in control. I am highlighting is because it is important that you are aware of it, but it is complex. Technology is ready and can be used at an affordable price. There are certified, credited providers that can provide regulatory service solutions. What really is required is what I stressed, the policy issues not the technology issues.

Mr KOCH—What costs are involved with this conversion, Chris?

Mr KONIDITSIOTIS—To fit-out a heavy—it is about a $3,000 cost per year fully operating to have a box fully instrumented in a B-double operating, and that includes the communication and operational costs per year.

Mr KOCH—It is not a one-off cost, it is an ongoing of about $3,000 a year.

Mr KONIDITSIOTIS—Yes. The box costs around $3,000 but it is about $100 to $120 depending on what other services you want, your own commercial services that will cost per month as well. The cost varies depending where you travel. If you are reliant on Telstra [GPRS], that is going to be cheaper than if you are running out in the outback and you are relying on satellite tracking for communications. The ballpark figure is around $3,000 a year which is the cost of the hardware amortised and the full operating costs.

Mr KOCH—If we are talking to a transport company of 300 transports it is a significant cost.

Mr KONIDITSIOTIS—It is a significant cost.

Mr KOCH—Do you see problems with its implementation to our larger operators from that point of view, bearing in mind we have had people on road safety who have had in excess of 2 and 3 thousand transports.

Mr KONIDITSIOTIS—Yes. I think one of the beauties of the program is that this technology is already being implemented now for other purposes. You see, the reason TCA was formed and the IAP program was formed is this whole program is not designed to be a one trick pony. The IAP that I mentioned on those school buses and on the B-double trucks throughout New South Wales and Queensland is the same box, the same service provider but different business rules. There is a marginal cost to add another set of rules that say what does the truck do around railway crossings. What you might find is in fact a lot of vehicles, because of the need for greater access in other states, have the technology already. The issue is, it is a marginal cost to add more business rules which will be done in the back office anyway, not in the box.

Mr LEANE—Chris, on that, you said before that some trucking companies made a commercial decision to embrace the technology.

Mr KONIDITSIOTIS—Correct.

Mr LEANE—Yes.

Mr KONIDITSIOTIS—Correct. The New South Wales government has effectively said in this application, 'We'll give you 62 tonnes with out IAP, or if you want 68 tonnes payload you need IAP. You decide.' What it means is, if you are running from Melbourne to Sydney fully loaded after about 20 one-way trips, you have fully paid that $3,000 commitment in a year. Anything after 20 runs in a year is profit.

Mr LEANE—Right.

Mr KONIDITSIOTIS—Having a B-double which is a quarter of a million dollar investment alone in a prime mover—

Mr LEANE—And what you are carrying.

Mr KONIDITSIOTIS—And what you carry.

Mr LEANE—Yes.

Mr KONIDITSIOTIS—If you are not doing 20 one-way trips a year then—

Mr LEANE—You cannot afford to own it.

Mr KONIDITSIOTIS—That is like having a car but only running it on Monday.

Mr LANGDON—You would want to do 100 really.

Mr KONIDITSIOTIS—Yes. The industry has spoken by its numbers and said, '68 tonnes, that is 5½, 6 tonnes more payload, I can't afford not to have it.'

Mr KOCH—Historically we have seen introductions of levies and licenses over greater weights, and greater advantages in those trip returns. What is that doing to our road network at the end of the day; gets this stuff implemented.

Mr KONIDITSIOTIS—The beauty of this is, in the case of New South Wales and I can only speak for New South Wales here, their whole concern is to ensure that they are managing their weak or vulnerable infrastructure. They do not want these trucks on old timber bridges. The whole aim of the program is to say, 'We'll give you 68 tonnes but you've got to stay on the road we nominate,' which is the road we have upgraded the bridge, upgraded—

Mr KOCH—The principal route.

Mr KONIDITSIOTIS—Yes, the principal route. 'We don't want you on these other roads.' I think it is a very smart way of doing business. Rather than saying no until we have fixed all the bridges, you are saying yes on the bridges that we have fixed, but you are relying on a bit of smart technology to help you do your job.

Mr LEANE—Is this technology up to identifying dry weather only roads, because in my area some of the B-doubles can go down some roads from October till April, but then when you come to the wet time, or when it is supposed to be wet, from April through till the end of September, they cannot go down there because it is not appropriate, they are too heavy for a wet road. Could this system identify that?

Mr KONIDITSIOTIS—That is exactly what it is doing.

Mr LEANE—Right. It would allow them to go down there in the summertime and say in the wintertime, 'You were down there when you shouldn't have been.'

Mr KONIDITSIOTIS—Correct.

Mr LEANE—Yes.

Mr KONIDITSIOTIS—Yes. You can set up your conditions. You could say these roads are available not in summer or winter, but this road is available between 3.00 and 4.00 in the afternoon.

Mr LEANE—All right. Good.

Mr KONIDITSIOTIS—That is how precise it is. Better still, 'You can use this road but you can't use it during school hours.' We have a lot of interest from local government that is saying, 'Yes, I know we've got a supermarket. I know we've got to get the truck in there but I want to do it at night. How do I make sure that I

can stand up in front of my constituents and say it is done at night?' Then you tell them, you want to do it at night and you use this as a means of guaranteeing the response. We would hope everyone would be compliant anyway, but this would provide you that evidence.

The CHAIR—In relation to the intelligent speed adaptation, is Victoria ready to implement that technology or is there infrastructure work that is needed?

Mr KONIDITSIOTIS—The biggest issue with intelligent speed adaptation is mapping and speed updating.

The CHAIR—We are not ready for it?

Mr KONIDITSIOTIS—I do not know. I have not dealt in that area with speed adaptation. We deal more in the area of being able to use the output in court. With intelligent speed adaption, given the updating required, that would always fall in the advisory area until we had more surety that the speed sign was precise with what is posted on the road network. If it says 60, it says 60 electronically, not just 60 on the road. That is one area of complexity. It is not without solutions but at the moment it is an area which means it will always remain advisory. I am going to hand over to Charles now.

Dr KARL—Perhaps if talk a little bit about the technology and if I can leave behind an appreciation of the various components of the technology.

Slides shown.

Dr KARL—I led the team that wrote the IAP specs about five years ago. If you travel in a taxi today and you count the number of boxes that are in the taxi—you have the fare box, you have the EFTPOS machine, you have a navi system, you have the dispatching system, you have an e-TAG, you have a mobile phone—you probably come up to about six or seven stand-alone proprietary boxes. When we looked at IAP in the early days, the idea was to piggyback off a fleet management unit. Bearing in mind what Chris said before, a fleet management unit tracks the heavy vehicles for the purpose of the transport operator. It is monitoring the engine conditions or the freight or the vehicle behaviour in order to say to the driver, 'Look, you shouldn't be speeding,' or whatever.

When we looked at a fleet management unit, we said if we wanted to transform that into a unit that could collect evidentiary data, how much more would we need to write in the specification and try not to make it too much. I think we have succeeded in that sense, if you can imagine a fleet management box which, as Chris mentioned, could cost $3,000, if the additional regulatory specifications were to cost an additional $50 or $100 on top of that, then over a period of time, the suppliers would not be selling two different boxes; there would be one box and it would be a box that could provide the evidentiary data that is required.

At the end of the day what TCA does is, we are a regulator. Whatever a jurisdiction wants to do—if you decide that you want to go out and have a regulatory device in the vehicle, then you need someone to certify that device. In operation you need an authority to go in and ensure that certain quality management practices are in place and that you always have—speed cameras is a good example of where that did not work well.

Chris is correct in saying that policy and legislation guides what you want and that is where you should start off. But normally you start off from there with an understanding of the technology and that is my role. I work very closely with the National Transport Commission or jurisdictions and they think in terms of a regulatory application. Because of my technical background, I talk to them and say, 'Well, you can do this but that's going to cost you a lot of money. Why don't you do it this way? It's going to cost you less.' We are independent as opposed to consultants and we work from the point of view of jurisdictions not suppliers.

I would like to simplify. If you look at the left-hand side. Say you want to run a regulatory application that is access; you want to monitor access or vehicles on our road network. The sensor that is required, or the sensor that we use is a GPS sensor. There is a GPS chip set in the vehicle that provides us with the position data. The position data is transmitted over GSM, our mobile phones, to a back office. All of the software which monitors compliance, the maps and everything, they all reside in the back office. The specifications that we

have for IAP fall into two parts. The first part is the specification for the box that is in the vehicle. The box principally consists of a GPS sensor and a wireless communications device, and all of that is sent into the back office. That is IAP stage one. That is what TCA was set up to do.

In my area I look at all other applications that jurisdictions might be interested in. A tachograph application is an application to track driving hours. It is an electronic logbook or it is a fatigue management tool. You could speculate, what would be the sensor that you would need for a tachograph application. It is vehicle movement and the identity of the driver because you are talking about an electronic based logbook. If you have a sensor like a smart card reader or biometric sensor or whatever and that sensor can be interfaced into the existing in-vehicle unit, then you can use this platform to send the information to the back office and run whatever application you want in the back office; monitoring, compliance to driving hours, compliance to fatigue management scheme. If you look at mass, you would need another sensor, obviously not GPS. GPS gives you location, not driver identity. The sensor that we are looking at, for on-board mass basically, can be generically described as scale; a scale on board a vehicle, a scale above the axles. Provided we are confident about the accuracy of the technologies we use for the scales—and these scales can be connected or interfaced to the box in the vehicle and run any sort of mass application at back office and so on and so on. The technology itself, whatever application you want to run, you have to think of what is the sensor, what is the data that we are going to use. How you provide a solution, I would like to describe it as, you can have everything in the single box and you could call that a stand-alone solution. The box has the processing, the communications, whatever. It does all the work itself. You could describe that in a number of ways: a decentralised system; a thick client; a heavy box in the vehicle does everything stand alone.

At the other end of the spectrum you can have what is called a light box, a thin client. All it does is it basically collects data so that all it has got is a GPS sensor. It is transmitting that information to a back office. The back office can run any application that you want. There are pluses and minuses. Obviously a stand-alone box in the vehicle, an example of that is the tachograph that is used in Europe. That is locked down tight in the vehicle, no change, millions of units. But generally when you think of regulatory applications, regulatory requirements change over time. As you change your requirements then you would need to go back and update whatever you have in that box. Increasingly, industry is going towards a light box or centralised solution where you use the box in the vehicle to collect that information, to send it to the back office where you can run your monitoring, your compliance, your enforcement programs, because it means that if you ever were to update your requirements, it would be one single update rather than trying to work out how you are going to go to the field to update all your boxes.

Those applications that I mentioned to you before, all of this you can think of it in terms of a solution concept; can be a stand-alone box in the vehicle or a light box that transmits the data you run to a back office where you can run an application. IAP is, if you like, at the other end of the spectrum. When you look at railway level crossings, to a large extent it is a variant of an access condition. You can have an exclusion zone, as Chris has talked about, or an inclusion zone which could be a radius of a few kilometres around that level crossing. Within that zone you can then monitor for a number of things—speed and other compliance variants. The other thing that I mention that needs some examination is the coverage. Remember we talked about GSM as being the comms media in the current box.

In areas where you have level crossings outside of the GSM network then one has to think about how we are going to communicate with this box and receive back information. It depends whether or not in this case you want your application to run in real time. The one we run in IAP is we say that the box needs to communicate to the back office once in 24 hours. On that basis you can traverse a certain part of our road network and be out of GSM coverage but we have specified a certain amount of storage capacity in the box, that when it gets back into GSM coverage it transmits all of that information. In terms of compliance to a level crossing that is outside of GSM coverage, you still collect all of that data in the box. In IAP it is 14 days, 10 hours, there should be storage capacity. You are collecting all of that information, getting your GSM coverage, you transmit that information to the back office.

However, you might have another requirement where you may say, 'We want to know instantaneously if it is noncompliant in an area that's outside of GSM coverage.' Now, if that is a requirement by the customer—yourselves—then it means that you would have to equip that box with another form of wireless communication. It could mean DSRC, which is the way we toll our vehicles on CityLink, for example. You

put up a gantry and you have it communicate by DSRC, or you could put in a satellite comms chip in the box. Again it is where we sit down with policy and you say, 'You can have this but it's going to cost you. Are you comfortable to wait 24 hours before you get that information? Anyway, you're still going to have that noncompliant information if that were the case.'

How it can be delivered is, of course as Chris mentioned, through passive warnings, through active warnings and just through back office information. What happens with IAP and the way this is so powerful is that it fits in very well with the whole chain of responsibility that we have been talking about, because you cannot implement chain of responsibility if you do not have visibility on how your vehicles are operating. When you have that visibility then that chain of responsibility works at many different levels, between the owners, the customers and in the end the jurisdictions and enforcement. If the owners and the transport operators and the customers are not aware about the behaviour of their vehicles then they really cannot do anything. This visibility is what is so important with IAP, the continuous monitoring.

One of the things that I mentioned here is some of the signals—not all of the signals—have lights as well. Another way that I have been thinking about how this can be used is provided that we can have that information about the activation of lights or gates at signal crossings, we can then have another level to the noncompliance because we can then go back and compare that with the records that we receive from the vehicles at the time of the activation of the lights. In addition to what Chris mentioned about stop signs or speed zones, there can be another level if we receive some input from the operators, the rail operators, about the activation of their signals. We can then compare with the heavy vehicles as they pass through at that particular time.

Where do we go from here? There needs to be a short list developed of all the candidate options that can be used because we talked about active, passive. There are quite a number of options: where you want it to operate. Do you want it to operate outside of GSM coverage? Those sorts of things. There needs to be a technical assessment, an economic assessment and a discussion with stakeholders, drivers and operators. The cost question: you can read the numbers there as I talk. When IAP was first conceived it was a very small market. It was made for over-dimensional, over-mass vehicles which operate on our network on schedules or permits, maximum 800 vehicles Australia-wide.

When IAP became TCA, New South Wales and Queensland were very interested to apply IAP for HML vehicles which is 10,000—so 800 to 10,000.

Mr KOCH—What sort of vehicles? HML?

Mr KONIDITSIOTIS—Vehicles eligible for higher mass limits. That is the 62 to 68 tonne.

Mr KOCH—Thank you.

Dr KARL—Now, if you look at six axles and above in Australia, we have about 70,000 vehicles at the moment, semitrailers and above, of which about 10,000 are B-doubles and above. About 10,000 out of the 70,000, total about 70,000 vehicles. When you look at a solution for Victoria, Victoria is not an island. Any solution for Victoria has also got to consider interstate vehicles. Often the costs of a scheme for the unequipped fleet is way more expensive than the scheme for the equipped fleet. There is no point in just having Victorian vehicles fitted with this device when interstate vehicles are not, because the scheme that you have to conceive of to deal with all these interstate vehicles—as you pass them on and they are fitted with this Victorian device—is going to be costly.

Anyway, Australia-wide 70,000 vehicles. Chris mentioned it costs about 3,000 for a box. This is on very small numbers that we are talking about, a few thousand. At those sorts of numbers the boxes will drop to about $1,000 each. You are looking at a $70 million capital cost to fit these boxes across the entire fleet of six axles and above. Operating cost, about $5 to $10 a month; about $3½ to $7 million a year.

Mr LANGDON—What does that determine on your operating costs? That is a fair variation. It is 100 per cent $5 to $10 a month. What is the variation?

Dr KARL—Typically the operating cost is something that the transport operator negotiates with the service provider. Chris mentioned the order of a few hundred dollars a month. What happens is, we are not talking about half a dozen boxes, so here is a regulatory box. There is one box. It goes in because the operator wants to monitor his vehicle and driver for a whole range of reasons. On top of that number we have this regulatory application. All it means is, there is nothing additional that goes in the box. The box is the box. It means that—

Mr KOCH—It is the amount the box is used.

Dr KARL—That is right. Yes. Depending if you have a large fleet—that is the end of my presentation. Any questions?

Mr WELLER—VicRoads are a shareholder.

Dr KARL—Yes.

Mr WELLER—What do they think about this proposal? Are they going to install it in the end?

Mr KONIDITSIOTIS—The applications that VicRoads have identified to us to date are more to do with over-dimensional vehicles, cranes—and I might ask John here for—crane vehicles—

Mr WELLER—They haven't considered the B-doubles and the—

Mr BARING—Possibly low-loaders.

Mr KONIDITSIOTIS—Yes.

Mr BARING—To be fair to VicRoads, naturally internally they are exploring how they might be able to best utilise the IAP to deliver benefits to the transport sector, and obviously the community.

Mr KOCH—It is more the over-dimensional stuff.

Mr BARING—Yes. They share their internal thoughts as they evaluate things from time to time, but they are not in a position to roll out their proposed program as yet. They are certainly looking at how best to utilise it.

Mr KONIDITSIOTIS—VicRoads claims that 90 per cent to 98 per cent of the road network already has access available to high mass limit vehicles, which are B-doubles, there is no need—if the vehicle can use the whole network then it is a different situation to New South Wales. New South Wales, it is really only the Newell Highway. If you want to carry 68 tonnes on a B-double you have to be on the Newell Highway and you cannot get off the Newell Highway. Unless you are going from Victoria to Queensland or unless your delivery point is literally on the Newell Highway, you are pretty restricted. There are different dynamics there in play.

Mr KOCH—VicRoads are indicating what percentage of Victorian roads?

Mr KONIDITSIOTIS—About 98 per cent access.

Mr WELLER—Are you sure?

Mr KOCH—That should be a pretty big flag up to this table, I can tell you.

Mr WELLER—Are you sure the Newell Highway is the only road in New South Wales that will take B-doubles?

Mr KONIDITSIOTIS—No, high mass limit B-doubles.

Mr KOCH—Yes, higher mass limit.

Mr KONIDITSIOTIS—Yes. That is a B-double loaded to 68 tonne.

Mr WELLER—Right.

Mr KONIDITSIOTIS—I think there is a little bit of the Stuart Highway as well. With IAP this is now being expanded to effectively every road other than the ones which have bridge issues and infrastructure constraints.

Mr WELLER—Have you spoken to any rail authorities about these proposals? Perhaps not.

Mr BARING—We have not spoken to rail authorities.

Mr KONIDITSIOTIS—We have had some meetings but I have not attended them.

Dr KARL—We had an approach from the Australasian Railway Association in Melbourne last month. I visited their office in Canberra to talk with their chief executive and their deputy to talk about this. From their perspective looking at it nationally, a solution like what I mentioned is a small amount for them to be able to deliver safety nationally. They accept that there is this thing about the rails and the road industry. From a national perspective—and I stress that if you want a telematic solution in Victoria, you cannot have a state solution because you then need another scheme to deal with the interstate vehicles. Really, it is more—

The CHAIR—A national approach.

Dr KARL—It has to be, yes.

Mr KONIDITSIOTIS—When we said there are about 3½ thousand pre-registered vehicles in New South Wales, many of those vehicles are registered in Victoria. They are Victorian vehicles which through operation need to go to New South Wales. This is a national transport industry. It is not, 'I'm registered in New South Wales and I only use New South Wales.' I think there is a significant number of vehicles in Queensland who are registered, pay registration fees in Queensland but need to deliver into New South Wales. With this, we are talking about a lot of Victorian vehicles that will have the gear on anyway. With that 98 per cent, I think it is fair to say it is the 98 per cent of the declared road network that VicRoads is responsible for.

Mr WELLER—Take the local roads out.

Mr LANGDON—Takes the local roads, yes.

Mr LEANE—Where is your main office based?

Mr KONIDITSIOTIS—Down the road in Bourke Street.

Mr LEANE—You are Melbourne based.

Mr KONIDITSIOTIS—Melbourne based, yes.

Mr KOCH—How large is the organisation? What resources have you, Chris?

Mr KONIDITSIOTIS—We are a 25 going to 30 person organisation. We have an annual budget of about $5½ to $6 million a year and rely heavily on our members to do a lot of supplementary work for us because we are effectively delivering a program for them anyway. John works very closely with VicRoads here in Melbourne to ensure that their systems are able to communicate with the service providers from an IT perspective. We do the same in New South Wales. We see the role very much as national. We spend a lot of time in their offices, as we should be. Clearly being based in Melbourne and being Victorians, it is easier to get to VicRoads.

Mr KOCH—What percentage of your resources are devoted to road safety and this new technology?

Mr KONIDITSIOTIS—Really the whole program in a way is aimed at that. When we did the economic analysis to see what the benefits would be, we really saw—let me go back a step. Usually you do these economic analyses and there appears to be a position that says productivity is at one extreme, and safety seems to be on this linear graph all the way down the other end. We do not have that. We have not experienced that here. This program is one of these few programs in which we see as a win-win outcome in that the industry is getting what it wants which is more payload and it is getting it at a slightly increased cost but not one that inhibits it from operating. In return what the regulator is getting is improved safety. I do not divvy up the organisation and say there is a safety program.

Mr KOCH—From a safety point of view there is a contradiction. We are looking at rail level crossing safety. The biggest concern to the rail industry quite obviously these days is the size of the impact and the lost lives. If the only way you can start implementing all this stuff is to load that mass weight, that in itself is causing further problems in relation to rail crossing safety. I am a little bit concerned that that is the only way you see for implementing this type of technology, is to increase the risk at rail safety in some cases if it goes wrong. Recent history is saying now that rail safety is under a lot of pressure, or especially crossing safety is under a lot of pressure (1) where these high masses are involved and (2) where they are hitting trains midsection. Has that been taken directly into account when you are flagging this technology and its implementation?

Mr KONIDITSIOTIS—It is fair to say that the program has its roots from a road transport perspective than a rail perspective, which is the case. When the economic analysis was done there was no explicit consideration that we are having a larger vehicle and for the first time this vehicle is quite competitive impact-wise with a train.

Mr KOCH—More than quite competitive.

Mr KONIDITSIOTIS—Yes. So to answer your question, no, that was not taken into account. Should have been? Probably, yes. What was taken into account was the more road based transport safety issues which were in themselves quite significant—

Mr KOCH—And the viability of getting it introduced.

Mr KONIDITSIOTIS—The issue that road transport regulators had was that at the end the pure economic pressure ends up—you have to introduce it anyway. History dictates that.

Mr KOCH—But we cannot sweep away duty of care on the way past.

Mr KONIDITSIOTIS—No, we cannot.

Mr KOCH—We are seeing that from both sides, whether it is road operator, rail operator. Duty of care is right down the bottom here somewhere.

Mr KONIDITSIOTIS—There is nothing stopping governments taking this and mandating it without any economic benefit. The reform has its origins in the fact that since the late 50s the sizes of trucks have just gotten bigger. In some cases they are safer as well because the turning circles are smaller and so forth, but the tide has been that the demand occurs. There is a case put forward that says, 'I need a bigger truck.' There is an argument that says, 'The road network can't accommodate that.' Two or three years later, the bigger truck appears. There are proposals already on the table now that have super B-doubles envisaged. These are two 40-foot containers on the road network, a quad axle. That is not a triaxle, an axle group of four axles, one which is turning. That has use now only within designated dock areas but the road transport industry is proposing it on the road. Governments are faced with the position of, 'Well, do we say no and say that's it?' That has been done in the past but in time you find that for one means or another that vehicle ends up on the road network, or do we take the opportunity to say, 'Let's impose the conditions on this now that make it safer and consider all transport users as well, including rail, pedestrians and so forth.'

We have a situation where in the last eight years the reform was accepted by all ministers on high mass limit. Victoria has a very widespread HML network; New South Wales has very little. There is a differentiation occurs anyway on a state-by-state basis.

Mr KOCH—We have seen these higher masses introduced away from sprung trucks to airbags, so to encourage the airbags we have lifted the weight to give the brakes to keep the viability there. I would have thought somewhere along the line that TCA has a responsibility in some of this. We have a charter in relation to railway crossing safety. I have to say to you, I am not overawed hearing more gross weight being put on our roads—a couple of grounds, safety, maintenance arose and a few other things. I do not think that is the mechanism to introduce this sort of technology; not against the technology, I think it is fine, and we should be able to use it a lot wider, but I do not believe increasing mass weight is the way to go in the current situation. It has been demonstrated, that is one of our biggest problems, at level crossings.

Mr LEANE—One of the key points of your technology is, is the monitoring and reporting and, as I said, it was interesting to see the train drivers' behaviour, if their behaviour had changed, because they know they are monitored. I would imagine if the B-doubles were monitored and reported on, how they reacted, not only at crossings but obviously all road rules. It would be interesting to see if their behaviour will change over a matter of six months as well.

Mr KONIDITSIOTIS—That is what the future will tell. This same technology, a different regulator, uses it for monitoring commercial fishing where there are million dollar licences. It is a far bigger industry, but the cultural change is there as well, you end up complying. TCA is not a policy-making organisation as well. We are very careful to not critique any owner of the organisation in its decision to use the technology as well. New South Wales has gone down the path of saying no to higher mass limits. It has done that for about eight years. There have been issues with that. It has now said yes under this condition. The same with Queensland, Queensland had very restricted access, it has now said yes under these conditions. Victoria has had a broader view on the program and, as I have said, has a significant part of its road network available without any additional requirements like IAP. That is federation, that is the pattern, the area that we work in.

The message that we want to leave you with is the one that says there will be a number of Victorian vehicles registered in Victoria, operating in Victoria, and a number of interstate vehicles registered in the state, operating in Victoria, that will have this technology anyway. It will still be monitoring. The fact that it is not reporting in Victoria is a policy decision, not a technology decision. That provides at least a point where you can leverage a safety outcome as well.

The CHAIR—Very good. Thank you very much for your time.

Mr KONIDITSIOTIS—Thank you.

Witnesses withdrew.

Hearing suspended.