

**THE LEGISLATIVE COUNCIL SELECT COMMITTEE MET AT ARRB,  
BURWOOD HIGHWAY, SOUTH VERMONT, MELBOURNE ON WEDNESDAY  
28 JANUARY 2009.**

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DISCUSSION WITH **Dr PETER CAIRNEY**, PRINCIPAL RESEARCH SCIENTIST; **Dr TANYA STYLES**, RESEARCH PSYCHOLOGIST; **Mr BLAIR TURNER**, SENIOR RESEARCH SCIENTIST; **Mr JOHN CATCHPOLE**, SENIOR RESEARCH SCIENTIST; **Mr MICHAEL TZIOTIS**, MANAGER, TRANSPORT MANAGEMENT AND SAFETY; **Mr GERARD WALDRON**, MANAGING DIRECTOR; **Mr ANTHONY GERMANCHEV**, TEAM LEADER, HEAVY VEHICLES GROUP; AND **Ms KELLY IMBERGER**, SENIOR RESEARCH SCIENTIST, ARRB.

**CHAIR** (Mr Wing) - Welcome, everyone.

**Mr GERMANCHEV** - I am the team leader of the heavy vehicles group at ARRB. I have a presentation today on our capabilities and the services we offer. What we are about is assessing and benchmarking heavy vehicle safety and on-road performance. We do that through a few means: vehicle testing, which is a service we offer; and vehicle modelling and simulation. We also offer the service of a route assessment. I think some other team members will talk about route assessments, but this is specific to heavy vehicle risk and rollovers. We also offer incident investigation work and crash review work.

This is a slide showing the vehicle testing projects that we work on. We normally have an engineer who has a laptop on his knee. He sits in the passenger seat of the vehicle and we perform a number of stylised manoeuvres on road, but also normal tasks that the vehicle would do in its day-to-day operation. To do vehicle testing we need to do vehicle instrumentation, so at ARRB we have a number of sensors and data acquisition equipment that we fit to the vehicle. This slide shows one of our engineers working on a heavy-duty mining vehicle, fitting sensors to measure roll angles and to improve our understanding of the vehicle performance. It is not always possible to test a vehicle. Sometimes vehicles are only in prototype design when they come to us, so the vehicle hasn't been built yet. Depending on where it is, it might not be cost effective to get a test vehicle. We do a lot of work using vehicle modelling and simulation. So we build a model of the vehicle and simulate its performance. Sometimes we are lucky enough to test and simulate vehicles. So there are two videos here, side by side, testing the vehicle and simulating the vehicle. This vehicle is a truck and trailer Shell tanker with fuel on board and it is performing a lane change manoeuvre. That is one of the stylised manoeuvres. It is recognised for understanding vehicle stability.

I mentioned benchmarking performance before. Those four lines represent four levels of vehicle performance. The closest to the line is level one, which means the highest level of performance, and four is the worst level of performance. Those benchmark levels correspond with the levels set by the National Transport Commission and performance-based standards. If you were able to achieve the highest level then you can get access to the entire road network and then it moves down depending on vehicle performance.

**Ms FORREST** - Is that how you determine whether B-doubles can use a particular road?

**Mr GERMANCHEV** - That is right. So the benchmark for a B-double is line two. So all B-doubles must meet that performance. Having said that, if you can design a B-double capable of being level one then there is no reason why it cannot be given access to all roads in Victoria.

**Ms FORREST** - But does it depend on their load?

**Mr GERMANCHEV** - Yes, their load, the suspension and their length.

**Ms FORREST** - So you have to test each of those different variables?

**Mr GERMANCHEV** - That is right, so a high truck, loaded to the top, would have less performance. Trucks carrying dense product with very low bins perform much better.

That is moving away from focusing on the vehicle to focusing now a little bit more on the road. We are the vehicles team and the other guys work more on the roads, but we use our survey vehicle here. We have a vehicle with lasers fitted to the front and cameras to survey that road section. We then create a model of that road, a model of the vehicle, and simulate the two running together. So the vehicles are now running on an actual road that we have measured. We do this to identify high-risk areas on that road network. It may be a fault due to the high radius of curvature or potholes or rutting or something like that.

Here is an example of picking up rutting using our laser. This is a 3-D model of the data we collected using the lasers. So we are travelling in that direction and the lasers at the front of the truck are collecting information while pointing down. That blue section is the where the deepest rutting occurred. So we put that into our model and see what effect it has on the vehicle. We run it through the computer model and this is our output. There are a lot of outputs that you can get from vehicles, roll angles and so on, but this is the key safety indicator that we focus on. Believe it or not it is the most simple, even though it might not look so simple in that chart. It is the load transfer ratio, which is the load distribution between the left and right wheels. So travelling for the first five kilometres, along this section here, it is basically evenly distributed between the left and the right. So the load transfer is zero. There is a little bit of up and down as it goes over rutting and bumps but it is not until here, where it goes around a bend, that all the load starts to shift to one side and this measures how much it shifts to one side. When it reaches to the top here, which is one, we have wheel lift-off - all the load is carried by one side of the vehicle. So the safe measure for benchmarking, through experience, is 0.6, so 60 per cent of the load should not be transferred across. So when we simulate the performance of the vehicle on the road we can identify the times when it does exceed that benchmark. There are two occasions here where you can see it exceeding 0.6, so the road owners can focus on that section of road or investigate further what the cause might be.

**CHAIR** - So if I am in an accident, can you reconstruct what is likely to have happened?

**Mr GERMANCHEV** - That is a very good question because the next eight slides talk about exactly that. With accident investigation, we do a lot of work for our clients and sometimes they call us after they have had an incident, but we prefer it when they call us before. We have had an incident where sometimes we go out to see a scene like this.

Here is a tanker that has rolled over at a roundabout. The services that we offer for incident investigation use the same tools to understand what happened. We will perform a survey of the area where the rollover occurred - that is a drawing of the roundabout - create the model of both the vehicle and the road and put them together and we can simulate them at different speeds travelling through that roundabout. The first take here is at 40 kph and you can see the vehicle taking a strange path there off to the side of the road. It was identified in the site investigation that that kerb that had broken was crashed into, so that was the path that the vehicle took. So we knew the path, we knew the geometry, we knew the vehicle but we did not know the speed that caused the rollover so that is what we are finding out here.

**Ms FORREST** - Do you ever have truck drivers contact you to say that they have had a near miss on that section of road? They have not had a crash but they might have felt that the truck was not handling as well. Is that sort of proactive -

**Mr GERMANCHEV** - Truck drivers will not put their hand up and say that they had a near miss, they will say it was all under control. Until something goes drastically wrong it does not get reported to us.

**Ms FORREST** - This is a way of enabling that to occur because in all health and safety the simple events are the ones that provide you with the most helpful preventative measures. Is that something you are considering?

**Mr GERMANCHEV** - I think if the company has some reporting structure that allows them to do that or some monitoring. If they have instruments fitted to the vehicle that actually say that they have had a near miss and there is GPS tracking that does it for enforcement purposes to say that they have exceeded the speed limit there but I am quite sure there isn't anything that says you have gone too fast around a bend and there is a warning. If something was implemented like that - and it is not that far away because you can put the two together - there is EBS braking control which gets triggered when you are going too fast around a bend - so if you put that together with the reporting structure you can track those near misses.

**Ms FORREST** - The capacity is not there but it is certainly developing.

**Mr GERMANCHEV** - Yes. I just do not think the market is there but the technology is there.

We are just working up our speeds here in this simulation so now it is 45 and we will go to 50, which is where things start to happen. Over it goes on that kerb, which is as it was identified. Again, we are using that low transfer ratio plot to illustrate what has happened so this is what we will produce in a report to the client. We have five speeds on this chart so it is quite busy but we are seeing the same thing. It is entering the turn at the roundabout and then coming up to that apex, that tight turn, and when it is travelling at the slowest speed of 35, which is that one there, it remains basically below 0.6 so we would say 35 kilometres per hour is a safe speed and then when we increase the speed we have up to 48 where it rolled over and actually fell on its side. You can see at 47 or 46 the wheels have lifted and it has actually come down again and gone around the bend. In that area, 46 to 48, things are risky and you are in the lap of the gods really if you are

travelling at that speed. So we are saying 35, come down nearly 15 kilometres from that rollover speed to be travelling at a safe speed.

**Mr WALDRON** - May I interject? The other thing is the driver does not know.

**Mr GERMANCHEV** - That is right, there is no indicator for him to know how close he was to rollover. He is not aware until he hears some screeching of tyres or a wheel actually lifts off the ground, he does not know where he is in this range or whether he is below the safe levels.

**Ms FORREST** - So you are suggesting in the future that it be fitted to trucks so that they can get more information and more feedback as they are driving?

**Mr GERMANCHEV** - Yes, and education. We have done some work for Readymix where they drive the concrete agitators and the load continues to move so their margin, the 0.6, actually rises and falls as the concrete agitator turns so what they thought was safe for one turn is not safe for the next turn depending on where the concrete agitator was, what fuel level they have and even how dry the mixture is. It all makes a difference. We did a report for them and they built a training video based on that report putting some of these facts into that report because truck drivers have their own theory and they say, 'No, I know what is a safe speed, I have been doing this for years' but if you illustrate the reasons why they need to build in a margin of safety, they accept and understand that.

I have thrown this in here because I have talked about testing on road and testing using simulation, or understanding performance using simulation, but sometimes you cannot test to the point of rollover on road so this is the tilt-deck test where we put a vehicle on this tilt deck and tilt it up until it rolls over, and again there is a benchmark for performance, which is 28 degrees. That is what we are striving to achieve when we do a tilt-deck. You can see the vehicle there on quite an angle.

The question was asked of this client, 'What happens on the road?' So this was the only service we offered for this client originally and they said, 'No, we want to know what happens on the road'. So we built a model - this is an overseas client so they supplied us with data that they had collected and we simulated that performance.

I mentioned the concrete agitator moving - they were concerned about people moving, so you can see that we have modelled people standing on the top deck. They were wondering how many people they could put safely standing on the top deck before the upper deck becomes unsafe and they wanted us to simulate 10 people standing.

This is the geometry supplied by the client - their actual road and a double-decker bus. Those test weights you can see are seated passengers, simulated with the centre of gravity in the main position but the people are live, they are moving, they are free to move. You can see the means of a side flash of acceleration forces acting on them, and they maintain that level. During that manoeuvre we checked the low transfer ratio and reported it to be safe at a certain speed, which is 60 kph.

To finish up, I think there was a question on the load. This is a measure of the static line of the threshold against load, so I have four different bars representing four different loads. Eighteen cubic metres is greater than 13.5 so you would expect the threshold of

the vehicle to be lower, which it is. It means that it would roll over at a lower point and the minimum value - I am talking about static rollover threshold (SRT), so at the point which it would roll over, as you would see on that tilt deck. 0.35g is the 'g' force - that is where they draw the line for the PBS. So that load is unsafe but these three loads are safe. The client actually did not carry dangerous goods but chose the dangerous goods level which is even higher than that - 0.4. So for dangerous good vehicles they must meet that target. So only those two loads. So that load, or anything less basically, is safe for that vehicle. They are the kinds of outputs we can provide to the clients.

**Ms FORREST** - So your clients are some of the big truck companies, and that is a good thing?

**Mr GERMANCHEV**- Yes. Operators like Murray Belbin and Fonterra operate milk tankers.

**Ms FORREST** - You've got sloshing loads too.

**Mr GERMANCHEV**- That chart was done for Brambles, who do a lot of work for mining companies.

**Mr DEAN** - Have any of the log industries asked you to do an assessment of log-truck rollovers and log movements on trucks?

**Mr GERMANCHEV**- Yes, we have done studies. We have not done studies for the whole operation but we have been focusing on heavy vehicle tendencies on individual vehicles. So a client would come up with an innovative logging vehicle, maybe one carrying more logs - that is sometimes perceived as innovative, the one that is more productive for the customer or client - and we will assess that against these benchmarks and say whether it is safe or not.

**Mr DEAN** - The reason I ask that is that there have been a number of log truck rollovers and questions have been asked on the load capabilities and I just wondered what role you had played in it.

**Mr GERMANCHEV**- Elphinstone is a big player in that area and we work closely with them.

**CHAIR** - How do you deal with the question of the loading, whether it has been correctly loaded or tied down in the case of logs?

**Mr GERMANCHEV**- In terms of watching what the operator is doing, we do not get involved in the enforcement, but if they come up with a load strain method we can test that on the tilt deck and a lot of our tilt-deck work is testing load restraint. So if they come up using extra straps or a new strap design or ropes, we can test if that is effective or not, all the way up to the 0.35 or the load restraint guide.

**Ms FORREST** - Are you actually involved in any of the education of the truck drivers or do you provide the information to the companies and that is their role?

**Mr GERMANCHEV**- It is the latter. So far we have been providing information to a transport manager or a safety manager and then they have had the role of sending that information through their company. But we do have the ability to have workshops at ARRB - there are workshops in many areas. There is not a heavy vehicles workshop just yet but if the market were to develop we would be able to offer that training.

**CHAIR** - Have you done many assessments for Tasmanian government departments or agencies?

**Mr GERMANCHEV**- Not recently.

**CHAIR** - So you would not be able to say what the major cause of trucks in Tasmania capsizing in recent years would be?

**Mr GERMANCHEV**- We have not done much work for the Tasmanian Government recently.

**CHAIR** - It happens quite regularly, I think a truck would probably capsize every month. Your services have not been engaged to assess why?

**Mr GERMANCHEV**- No.

**CHAIR** - Would you be available if they did choose that you make an assessment?

**Mr GERMANCHEV**- Yes. I have a strong interest - it is almost a hobbyhorse of mine - that when there is a rollover a team should go out to investigate the cause of the rollover.

**Ms FORREST** - What would be the cost of conducting such an assessment?

**Mr GERMANCHEV**- To do an accident investigation, to have a guy come out to a site and do the reconstruction work, would be around \$15 000-\$25 000, depending on where and how detailed the investigation has to be.

**Mr DEAN** - Where you would do, say, some work for Elphinstone, because DIER contributed financially to this organisation, are you obliged to advise them that you have done this testing for Elphinstone in relation to truck rollover? What is the position there? What responsibility do you have to those people who are funding your organisation?

**Mr GERMANCHEV**- I know that the work that we have done for Elphinstone has recently been through a PBS application and our report, which basically is an assessment against all those measures for one vehicle, the Elphinstone vehicle, goes to this jurisdiction.

**Mr DEAN** - To?

**Mr GERMANCHEV**- To the State Government, where the vehicle will be operated. So if Elphinstone is planning to operate that vehicle in Tasmania -

**Mr DEAN** - It goes to them.

**Mr GERMANCHEV**- Yes.

**Mr WALDRON** - Can I chime in and answer the other half of that question. When you say we are a funded organisation, that is probably an inaccuracy. ARRB's total turnover is about \$35 million; Austroads contributes about \$5 million of that. All of the rest we earn in a commercial environment and Anthony, like all our people doing commercial work, is obliged to sustain the confidentiality with their client unless their client agrees that their information can be made public. He mentioned Readymix earlier. Readymix has been really forthcoming. It is quite embarrassing for them in some ways to have had a whole lot of rollovers, for example, but at the same time they have willingly shared information about what they are doing about it, what the consequences were and all that sort of stuff, and they have made the video available to anyone else who is interested.

**Ms FORREST** - Do you think it is the bigger companies that are willing to undertake that sort of openness and transparency and the two-man operation, the smaller operation, is more difficult to engage?

**Mr WALDRON** - Possibly, but the smaller operators are not going to be our clients anyway because -

**Ms FORREST** - The cost.

**Mr WALDRON** - We are talking about tens of thousands of dollars to do these simulations and that is really beyond them. But you have touched on a thorny point: we would like to be a public-interest organisation where everything we do is public but when 85 per cent of our income is generated in the commercial area, it is difficult to be quite that public. We always do ask our clients for permission and very often they do give us permission to make public the information we have collected. But clearly if they have a commercial confidence about it, for instance if somebody is designing a truck to compete for a tender, information about the design of that truck is not something they want to share with their competitors.

**Mr DEAN** - How much work have you carried out for, say, DIER in the last 12 months?

**Mr GERMANCHEV** - In my team?

**Mr DEAN** - Yes, in your team.

**Mr GERMANCHEV** - Zero.

**Mr DEAN** - Anybody else around the table willing -

**Mr CATCHPOLE** - I am John Catchpole and I am a senior research scientist, a behavioural scientist on the safety team. We have a job for DIER which we will be probably be starting later this week to review a new licence test that has been developed as part of the graduated licensing system in Tasmania. Before that, the last job we did for DIER - or the last one I did - was probably four years ago and I don't know whether anyone else has had one more recent.

**Dr CAIRNEY** - A couple of years ago I was involved in an evaluation of the community road safety partnerships for DIER and, as you would be aware, they evaluated very positively.

**Mr WALDRON** - We do network surveys regularly for DIER in Tasmania. We usually do it over Christmas time so I do not know whether we have done it this last Christmas or not but usually annually we would have one of our survey vehicles on Tasmanian roads.

**Mr DEAN** - A very controversial issue in Tasmania at the present time and it might be difficult for you to answer it - confidentiality or what - in relation to the East Tamar Highway being constructed from Launceston to George Town and a bypass at a place there called Dilston. There is a lot of controversy about the seagull intersections versus roundabouts versus other interchanges. Have you been consulted on that at all?

**Mr WALDRON** - Not that we are aware of.

**CHAIR** - Any further questions?

**Mr GERMANCHEV** - I guess that outlines, through examples, the services and the capability we have in our heavy vehicle team.

**CHAIR** - I think we could use your services in Tasmania to evaluate why we are having so many truck rollovers. Thank you, that has been very interesting and helpful.

**Ms FORREST** - John, you made the comment that you were engaged by DIER to look at the graduated licensing system again in a few weeks time?

**Mr CATCHPOLE** - Yes.

**Ms FORREST** - Is that the only very recently implemented change?

**Mr CATCHPOLE** - In fact we are not engaged to look at the whole of the system, we have been engaged to review one particular test, the L2 test, to go from the L1 licence to the L2 licence. In fact I think the parameters of that are still being finalised now. I expect to receive maybe later this week or next week the details of the test for our review.

**Ms FORREST** - Just to clarify it, are you looking at how it is actually going to be implemented and actioned, as opposed to what the benefits or advantages of it will be?

**Mr CATCHPOLE** - I haven't got the brief from DIER yet but I expect that we will be asked to focus on the theoretical underpinnings of the test, whether it is aiming to assess the right things, and how well it has been designed to actually assess the things that it is intended to assess. I expect we will probably be asked to give some practical advice on any trialling that has been done, the outcomes and how confident the department can feel, based on the results of the trials.

**Ms FORREST** - So you are basically advising on the implementation phase?

**Mr CATCHPOLE** - Yes.



**Ms FORREST** - I was thinking how could you assess it when it has not really happened yet?

**Mr CATCHPOLE** - It is not far off though.

**Ms FORREST** - No, it is not.

**Mr CATCHPOLE** - In a few months time it will be out there.

**Ms FORREST** - Yes, I know.

**Mr TURNER** - Blair Turner, I am a senior research scientist working in the road safety engineering field. I will show a few slides to perhaps generate some discussion but there will also be room for other questions on other topics as we go through.

A lot of the work we do on road safety engineering is funded by Austroads; it is a non-commercial funder for us and DIER does contribute to that funding.

I briefly mention that we have a team that covers engineers, behavioural scientists, economists and a heavy vehicles teams as well, who are involved in other aspects of safety. We are involved in work for Australian and overseas governments and also on commercial scenes in terms of businesses and communities.

In terms of road safety engineering - you have had a tour around the hub already and have seen the data-collection vehicles. I want to particularly make a link between the work I am involved in and what you have seen this morning. One of our major areas of involvement is the area of road safety engineering risk assessment. You would be aware that the traditional approach to road safety is to look at the crash history and the crash locations. What we are seeing now throughout Australia and overseas is that the black spots are starting to decline; the hard ones remain but the easy ones have been treated. That is even the case in countries like Sweden and the Netherlands, where they are in a situation now where they have very few black spots remaining. It is particularly true on rural road networks and in areas of smaller population - lower traffic volumes - so I guess Tasmania would be a good example where perhaps there are fewer black spots remaining now. We are not saying there are no black spots, we are just saying that there are other measures needed to actually address risk on the roads.

In fact I have done an analysis on Victoria and found that only a third of fatal crashes occur in what we define as black spots, and similar research from New Zealand shows the same figure. DIER looked at another analysis which showed that for any fatal crash, there is only a 50:50 chance of there being any crash history before in the previous five-year period.

**Ms FORREST** - That is any crash at all?

**Mr TURNER** - Any crash at all; any that has been recorded.

We really need to step off the black spot program because it is very cost effective but also there is a need to take an alternative approach, and that is one whereby we assist the road network, primarily using those survey vehicles that you saw this morning. We video the road network and determine the different road features on that road and based

on a research program over the last many years here, we know the level of risk associated with different variables on the road - a winding road is obviously more risky than a straight road; a narrow road more risky than a wider road; a road with no shoulder riskier than a road with a shoulder. So based on this data we can estimate the level of risk along an entire route -

**CHAIR** - Sorry to interrupt, but is there a view that a winding road is more risky and, because of that, people take more care and there are fewer accidents than on a straight road?

**Mr TURNER** - Yes, there is a possibility of that - that people recognise certain respectors, and there may well be situations where they know it is extremely risky and they will adjust their behaviour to adapt to that. There are other occasions, though, where they are less aware of the risk. Things like roadside hazards would probably be a very good example of that, where people are not so aware of them.

**CHAIR** - Awareness of it would be an important factor, wouldn't it?

**Mr TURNER** - Exactly, yes. We have been involved in various projects here, and you may have heard of AusRAP, which is underway throughout Australia. We are involved in the international version of that as well, IRAP. There is also a product here as well which we have developed called Netrisk, which essentially assesses the risk on your entire network - regardless of the traffic volumes. If you have high volumes on a road, you will find that crashes do occur fairly regularly. Lower volume roads might be equally risky, but crashes are perhaps less frequent because there is less traffic. But nonetheless you still will have fatal crashes occurring and they will be scattered across the network. So what we are trying to do is highlight locations that are of high risk that may need to be treated as well as those ones with a crash history.

The second type of heavy vehicle safety we have already touched on, and I won't just go into details on that one, but just to say in addition the Austroad scheme has involved a lot of research on this topic looking at heavy vehicle safety on rural roads and more recently this year looking at heavy vehicle safety on urban roads as well. That involves a review of literature about the causation factors, data analysis, including Tasmanian data on that topic, site investigations from around Australia and New Zealand, and quite often workshops and then reports to come up with solutions to those problems.

We are involved in a lot of evaluations of new initiatives, and an example of that is you may well have heard of the wire rope barriers, the way they separate traffic. We have just evaluated the trial in New South Wales which has been widely publicised, and it has been a very effective measure.

**CHAIR** - Better than that the white line that is raised?

**Mr TURNER** - Yes. The white line that is raised, is a sort of audio-tactile centre line, it is quite effective at warning people they are crossing the line, but I think it's too late in some situations. So a wire rope barrier, if it had a centre-of-road width, allows people to actually recover from their error, if it does occur.

We are also involved in the production of national best practice guidelines for the safe systems, and I assume you have heard of a safe systems approach - it is a nationally adopted approach and it is adopted in Tasmania as well whereby we want to design a system that does not result in fatal or serious injuries. We recognise that there are vulnerabilities in humans and precision tolerances above which we will not survive. So we are trying to design a system that caters for the human factor.

The design guidelines we are producing are the Australian guidelines to do with road safety, road design and traffic management and I will mention a few of those shortly. We produce various tools, and I will give some examples of those very briefly, and we did work recently on road and level crossing safety. Peter Cairney may touch on some of that later if you have any questions.

We are currently involved in the ALCAM risk assessment model - the Australian Level Crossing Assessment Model - which is a way, again, to assist risk associated with various level crossings around Australia.

I will not go into detail with any of these, it is really just to spark the areas of interest with you. Crash reduction factors - we have done a lot of work on how effective different road safety treatments are, so how effective are roundabouts, how effective are traffic signals, how effective are various other measures that you can put in place on the road to reduce crashes.

We have done a lot of work looking at road design elements and risks, so things like the road widths with the shoulder, the clear zone - the space next to the road that is clear of objects, how do they impact on safety, what are the implications of having a substandard clear zone, for instance.

We have done a lot of work on rural road safety looking at particularly the three main causes of rural crashes and that is in rural run-off-road crashes, rural head-on crashes and rural intersection crashes and, again, we have looked at crash data from around Australia including Tasmania, reviewing previous literature on the topic dealing with causes, site investigations around Australia and then reporting on possible solutions and treatments that can be used to improve safety in these scenarios.

We have been involved in an area that touches on this interface between maintenance and safety, and a large part of the budget for any State is maintenance for the simple fact it was higher than the budget on safety. If we can perhaps swim part of that budget towards more of a safety focus, we can get a great gain in terms of safety but it is things like the road surface and the maintenance of the road surface and skid resistance, but also things like signs and line-marking maintenance, vegetation maintenance to improve your sight distance and these sorts of issues.

We have provided advice to all jurisdictions including DIER relating to the additional risk associated with deterioration in road assets and the maintenance issue. The final point there is crash database design. This is the construction of databases. Each Australian State has their own database system and we have provided advice on what makes a good database. The good news for Tasmania is they have probably one of the best ones in Australia. It is a very new system and it links very well to other data sources

and is able to produce a lot of good quality information that other States cannot actually do at this stage.

Again, very quickly, we have the last couple of slides on other injury-based projects. We have been heavily involved in a review from Intelligent Transport Systems and variable message signs for road safety - this is the technology side of things and how that might improve safety.

Impact on speed of traffic-calming treatments, particularly on your local road network. How effective are different traffic-calming devices - road humps, road narrowings and these sorts of treatments.

Fatigue is obviously a very big issue around Australia, including in Tasmania as well. We have been looking recently at the ways you can change the road environment to try to address fatigue, right through from the expensive options like provision of rest areas through to provision of these edge lines you can see in the photo at the bottom here, ways to alert people to the fact they may be leaving the road perhaps when they are starting to drift off.

There are a whole series of recommendations from that work and DIER has access to that work now.

**Ms FORREST** - Do you have a definition or a measure of fatigue so that you can say at what point a driver is fatigued? How do you assess it?

**Mr TURNER** - This is not my area in terms of the definitions but a colleague worked on the project as an expert on fatigue. There are a couple of types of fatigue though, there is the sleepiness and falling asleep but there is also fatigue as in physical exhaustion from driving.

**Ms IMBERGER** - I was going to say that we can measure fatigue by certain types of crashes. There is the definition of classifying accidents, which gives all the different crash types. There are a couple of DCAs in that that we would use and it is based on the Australian Transport Safety Bureau definition. Can anyone add to that?

**Mr TZIOTIS** - From an engineering point of view the obvious one is those skid marks from which you can speculate that the driver fell asleep, that that was a cause.

**Ms FORREST** - The other cause could be suicide in that case.

**Mr TZIOTIS** - Absolutely, and the only way you will find that out is following the outcome of the coroner's inquest because that is when the final detail will come out about the person and the state of mind he or she was in. Certainly the absence of skid marks is an indicator. A lot of technologies are being used with the heavy vehicles industry to monitor fatigue, whether fatigue is present or not by a number of tests.

**Dr STYLES** - My name is Tanya Styles and I am a research psychologist. We have done a little bit of work in looking at the kinds of signs that the drivers themselves can use to recognise whether or not they are fatigued, in the form of a little mental checklist that

they can recall to determine themselves whether or not they might need to address the fact that they have been driving too long.

**Mr TURNER** - Certainly there are techniques that the drivers can use to reduce their fatigue and obviously sleeping the night before is the main one. The engineering project itself is looking at once you have gone past that stage, what other ways we can actually alert motorists to the fact they are fatigued or they are leaving the road. We are getting some good recommendations in a report on that topic.

The last one there is a guide to road safety and produced for Austroads, the Australian guidelines relating to road safety and there are a few topics here. Three of these are due shortly. They will be out in the next month or so but the other six parts are actually now complete. It covers such issues as an overview of road safety; a topic on strategy and evaluation; there are dot points here on speed limits; local government and committee road safety is about to be released; road safety in rural and remote areas; there has been an update to the national guidelines on road safety audit; there is a document on road risk assessment and management; an update on the national guidelines on the treatment of crash locations and a guide on roadside hazard management.

**CHAIR** - Are these separate publications?

**Mr TURNER** - They are separate publications.

**CHAIR** - Are they readily available?

**Mr TURNER** - They are. They are available for free to DIER as a member of Austroads. I think to others they have a small charge for these guides.

**Mr TZIOTIS** - I think there is a nominal charge something like \$20 per guide. Generally if you are on a road authority or local government you can download them free of charge. If you wanted to purchase a copy, again you could get a hard copy, but you can download them generally at no cost.

**CHAIR** - Thank you.

**Mr TURNER** - The other guide that relates to road safety has many parts as well. There's a guide to traffic management and a guide to road design and both of those have been managed by ARRB on behalf of Austroads. It is fair to say that the staff in DIER would be very aware of these documents coming through the system now that they are involved in the process and commenting on earlier drafts of these documents.

There are a final couple of slides. There are a couple of new projects. We are aware that roadside safety is one of the major issues throughout Australia and that includes Tasmania so we are looking at ways in the area of roadside safety, providing advice as to how they can improve roadside safety by things like removing hazards or protecting drivers from those hazards. Things like wire rope barriers are very cost effective and have been shown to be a good way to reduce casualties at a fairly low cost. Another issue wrapped up into this one here is the issue of motorcycle safety and barriers. There is a bit of debate about how safe barriers are for motorcyclists and we are currently doing some work on that topic as well. Speed is a major issue, particularly under our safe

systems approach. We have a number of projects on this topic including one on ways to reduce driver speeds on rural roads, different techniques in terms of engineering that can be used to slow motorists down. It covers also in passing things like vehicle technologies and enforcement and driver training as well.

**Ms FORREST** - Are you doing any research into strictly defensive driving courses as opposed to the advanced driving courses in driver education?

**Dr STYLES** - We have done a review of best practice looking at how we can intervene with those people who persist in speeding at high levels. We have basically come up with a recommendation that includes both technological monitoring of their behaviour with a one-on-one counselling component where the results of that in-vehicle monitoring is discussed with them in terms of how they can improve and how their behaviour is improving, so they get feedback as they go and as their driving becomes safer.

**Ms FORREST** - But as far as driver training goes, there is the advanced driving course that teaches advanced skills, which police and other people do, and there is defensive driving that a lot of people do just to learn more about braking and swerving and emergency stopping and that sort of thing. A lot of the research throws them all in the one basket. Is there any research going that you are aware of that specifically looks at them separately?

**Dr CAIRNEY** - Not here, because basically we did that research work 30 years ago so it is not exactly news to us that a lot of the defensive driving course are not particularly effective.

**Mr CATCHPOLE** - Many of those courses have not been evaluated. Those that have generally are not found to be effective for the average 17- to 18-year-old wanting to get a licence. Tanya was talking about courses for recidivist offenders but for the general driving population those courses generally have not been found to be effective.

Driver training can be effective as a road safety measure in fleets. Say Shell or some organisation is running a large fleet of vehicles, driver education within that context can be effective but for the general population generally they are not worth the money that is spent on them. For novice drivers they are often better off just getting more practice with mum and dad or big brother or whoever is teaching them to drive, rather than paying money for commercially offered courses.

**CHAIR** - That is obviously very effective in many cases but mothers and fathers and relatives with the best will in the world would not be conscious of the need to cover a lot of aspects, helpful hints, of how to avoid accidents, what to do in tricky situations. Would that not be of benefit to the majority of novice drivers?

**Mr CATCHPOLE** - Current thinking is that the main benefit for the novice at this stage is just building up of experience, so they are learning for themselves how to deal with various tricky situations that occur on the road. So it is not so much a matter of what your dad or your big brother teaches you, it is a matter of what you learn for yourself while you have the added safety factor of having mum or dad sitting beside you helping out if things get a bit tough.

**CHAIR** - Nothing like experience, I agree with that, but most novice drivers in Tasmania are not required to drive at night in wet conditions, or on gravel surfaces, and would not be told what is the best thing to do in certain types of emergencies. I recognise the value of driving experience. In a previous road safety select committee we had 20 years ago we had Peter Brock and Allan Moffat and they both said much the same. The best way to learn to drive is to perhaps start off getting out in the paddock and just driving around there and getting the feel of the car and relaxing and then having experience on the roads, but they both said that driver education and training is of the utmost importance. I believe that still applies today, but it does not seem to be the view of the people involved in road safety matters such as yourselves.

**Mr CATCHPOLE** - I guess that you are going to get different views from experts in different fields. People like Peter Brock and Allan Moffat were experts in driving on a race track or on a rally track. They mastered very high levels of skill of vehicle control in a controlled environment. On a racetrack all the cars are going in the same direction. There are no intersections. You do not have to deal with the behaviour of untrained drivers; everyone out there is an expert. On the road out here we all have to deal with intersections, with two-directional traffic, with untrained idiots who do strange things in front of you and you have to figure out how to react and how to cope with all that.

**Dr STYLES** - One of the major things that we as behavioural people in road safety have to tackle is the fact that people think they are better drivers than they are. If you teach them a whole set of skills that they think make them better drivers then they can then adjust to that, perhaps adjusting to the fact that the roadside is safe or not. They adjust to the fact that they think they are a better driver or not and that will have implications in putting themselves in more risky situations than they would otherwise.

**Ms FORREST** - John, you made the comment that you think it was not worth the money that was spent in that regard. What if it was part of the parents' responsibility or whoever teaches their child to get the hours up - in Tasmania it is 50 currently - to get the experience in a range of conditions, hopefully, and in that first year afterwards there was a government supported and funded course that all these young people can go through, not to make them think they are bullet-proof and indestructible but to, perhaps, reinforce some of the messages that perhaps need to be as far as attitude goes? Part of these courses are theoretical about attitude. I have done one. I note that you talk about how these people come up behind you and sit right behind and intimidate a lot of young drivers. I have taught three of my kids to drive. We can only go at 80 kph as learners in Tassie, so they sit right behind them and I say, 'Don't look in the rear vision mirror too often if you see them there. You know they are there so just go at your speed and don't be intimidated'. It is intimidating and those sorts of things could help those new drivers to appreciate some of those attitude things so that they don't become one of those people who is right up behind a learner driver. Is there any value in that?

**Mr CATCHPOLE** - There could be. It is difficult to say exactly what would be best taught in such a course after people have a licence. There is a course that operates in the ACT for people who have their licence for, I think, six months. It is called Road Ready Plus, an extension of the Road Ready program that applies up until they get a licence. It is a classroom program and it doesn't involve any on-road practice. I was part of the team that was evaluating it and we couldn't get access to crash data. In terms of offences it was difficult to find out if the program reduced the commission of offences after people

had been through because the kind of drivers who were attracted into the program were those who already had a bad offence record. The way the ACT use to entice people into the program was to say that if you do this program, we will give you a few more demerit points on your limit. So instead of taking away your licence at four or five points, we will give you up to eight. That attracted into the program the right audience.

**Ms FORREST** - People who already had more.

**Mr CATCHPOLE** - But it attracted the people they needed to reach so in that sense it was effective. What I meant was that people who went through the program actually committed more offences than people who did not go through, not because the program was harmful but because of the type of people it attracted. So it is was difficult to know whether the program was beneficial in terms of offence reduction.

**Ms FORREST** - If the major requirement before you actually get onto your full licence is that you have time to take a course you do not just get those people who are gaining too many demerit points at a pace that is going to see them lose their licence, you get everybody.

**Mr CATCHPOLE** - If a government were to mandate a course, then a government would have to be pretty confident that a course would be effective, and that is a very difficult thing to do. The Federal, Victorian and New South Wales governments are jointly sponsoring a study on this very issue right now. As far as I know it has stalled in the sense that they have not been able to yet let the contracts to manage and evaluate the study.

**Ms FORREST** - Is this the one that started about seven years ago?

**Mr CATCHPOLE** - Seven might be an exaggeration but curriculum development probably would have started maybe three years ago. Some former colleagues of ours have been involved in the curriculum development side of things. So the three governments, plus some commercial partners, including, I think, RACV, NRMA, the Federal Chamber of Automotive Industries, between them are spending something like \$10 million on this study. It is not an easy thing: developing a curriculum is a comparatively small part; running a large trial to establish whether this is beneficial is a very big, difficult and expensive undertaking. In a few years hopefully there will be some results from that study that will show whether that particular course was effective or not and might lend some support to what you are arguing for.

Until you have some sort of empirical evidence that it is going to be beneficial, it is probably difficult to ask your community to pay \$200 each, or whatever, for a course if you do not know that it is going to produce benefits.

**Ms FORREST** - But if we do not do the research, we do not have the information to make the decision, so we have to get the research done.

**Mr CATCHPOLE** - And as I said, the three governments are undertaking the study but I believe it has stalled. I have not had any notification that they have awarded the contract to manage and evaluate the study.



**CHAIR** - So Federal Government, the New South Wales Government and the Victorian Government?

**Mr CATCHPOLE** - Yes.

**CHAIR** - Good, thank you. Blair, we have digressed from your presentation and we come back to.

**Mr TURNER** - I wanted to highlight the various projects going on. I know you are interested in perhaps new technologies and techniques that exist and I think one to flag is an extension of the speed camera system whereby it is a point-to-point system - I am not sure if you are aware of this. You pass point A at a set time and at a set distance away is point B, and so therefore you can work out the average speed over that distance.

Rather than booking people at the set location, you are able to tell whether people are speeding over a longer length of road, perhaps 10 kilometres of road. I think that would be particularly useful in an environment like Tasmania where perhaps volumes are lower and there is not the funding to put in lots of speed cameras.

That concept has been extended further in the UK currently where they have networks of operations where it is not from point A to point B, but it covers a whole area, so they can tell when they enter the network and when they leave. If they are going too fast you can obviously tell that and they get a ticket for it.

**CHAIR** - What is that called again, please?

**Mr TURNER** - It is called a point-to-point speed camera system.

**CHAIR** - Thank you.

**Mr TURNER** - The biggest place it has been used is in the UK; there is a product called SPECS which is the main provider in the UK of that product.

My last point is to talk about some of the tools we developed for engineers - and that includes those in DIER and local government engineers. These really try to capture the knowledge and research we have been developing in a ready access format for people to use. One is an example of information about crash problem types and cheap solutions you can use for each of these problems - head-on crashes, what are they about and what can you do? It is ranked in dollar terms from the cheapest option to the most expensive. If you have looked at an option and selected it, you might choose to read more on one of those topics and there are references about where to go next for more information. This is a free web site that is available to everyone around the world. We have done a version of this for developing countries as well.

A second tool you may be aware of is the process of road safety audit. This is where you are looking at the plans for a new road or a change to a road or, once the road has been built, an assessment of the road in terms of safety. An expert team gets together and assesses the design in terms of the safety outcomes. There is a guidance document that has been produced by Austroads, which we have recently updated, that steps you through this whole process. This is again a free web site, which is our version of that guidance

document. It steps you through a series of questions on things to assess in different scenarios. Again, it is very useful for engineers.

**Mr TZIOTIS** - There is something which we did for DIER some time ago, but I believe it is not being used at the moment. They had a certain amount of funding which allowed us to develop a very basic version for them. It is a tool that assists practitioners to identify the most appropriate speed limit arrangement.

**Mr TURNER** - One of the issues we have is consistency of speed limits. One road has one speed limit and a road that looks exactly the same somewhere else has a different speed limit. The intention here is to capture the policy and an application which provides the guidance and steps you through the process. The outcomes are consistent speed limits for that environment type. It is not imposing a policy at all; it captures the current policy or we work with the jurisdiction to develop their policy and then create the software to assist engineers. Whenever they go out to set speed limits, this is the tool they can use. There are a whole series of screens about things such as roadside development, the use of the road in terms of function, the current crash rates and various other measures. More recently, the safe systems approach has been incorporated into the recent addition for WA, which includes the tolerance to speed by motorists. That is pretty much all I wanted to say in terms of the engineering.

**CHAIR** - Does anybody know of the Keys to Drive program - emanating in Tasmania but spreading nationally by a man named Doug Ling, a former traffic engineer with the RACT and who has an interest in road safety?

**Mr CATCHPOLE** - I am not aware of Keys to Drive. There is a Victorian program called 'Keys Please', which is for pre-learner kids in school - education for kids and their parents before they get a learner permit, or around that time. I am not aware of the Keys to Drive program.

**CHAIR** - Rotary International has a program mainly for schoolchildren along the lines that we have been asking you about. That has provided popular and I think effective in Tasmania at least. I think that is being done nationally. Are you familiar with that? They demonstrate with motor vehicles and witches hats the effect of applying brakes at 50 kph, 60 kph, 70 kph so that children can see the effect of that. There are lectures given on road trauma and many other aspects. Is that happening in Victoria in schools?

**Mr CATCHPOLE** - The Keys Please program provides some basic education about driving and road safety. It is worth being aware that these programs don't always have the effect you would expect. Until you evaluate them you can't really know. Some work was done in the United States in the 1970s showing that their high school driver education program appeared to be in some way harmful. Whilst you put together a program which you expect to have all the right elements, which tells the kids the things they need to know, sometimes they can have unexpected effects, such as encouraging the kids to get a licence earlier. The program was ineffective; it didn't make them better drivers in any way. What it did was encourage them to get a licence earlier, and more driving means more crashes. It is often impossible to guess in advance what the effect of a well-intentioned and carefully put-together program will be until you measure it and find out, which is why the Federal Government and other governments are spending so much money on evaluation. The curriculum of the new program has recently been developed

and it has all the right elements. We think it is great but until you measure it we don't know.

**Mr DEAN** - Currently there is a lot of controversy in Tasmania in relation to the mix of people riding bicycles in heavy traffic volume areas. Has your research covered that? Have you looked at that part of it, the mix of bicycles and so on?

**Mr TURNER** - We have touched on that topic indirectly through various projects. Others may be aware of more direct cycle research. With issues such as the installation of roundabouts, for instance, we pick up the fact that it is a particularly dangerous scenario for cyclists, particularly when they are multi-laned roundabouts - two or more lanes. I think it is a complicated environment where perhaps motorists aren't looking for cyclists to be there. There are certainly situations where there is conflict between motorists and cyclists. We have also done a little bit of work on cycle lanes and how effective they may be. I don't have the figures to hand but there are figures in terms of the expected reduction in crashes you might get from installing either on-road or off-road cycle lanes.

**Mr DEAN** - So you looked at cycle lanes, whether they are better off close to the kerb or whether they should be one vehicle out, and all of that?

**Mr TURNER** - They still have a level of detail in terms of the previous studies that have been published, as far as I am aware. They either talk about cycle lanes being on the road, sometimes they will have a width and sometimes they won't even have that, but we know roughly the sorts of widths that are acceptable, based on some of that research. Then similarly the off-road cycle lanes being perhaps safer, and there are obviously various new designs coming through from Europe as well, which we are taking closer looks at in those countries that have higher levels of cycling.

One thing that has recently come to light is that there seems to be a safety in numbers issue that if there are a lot of people walking or cycling in an area, motorists are obviously far more aware of that, so perhaps the safety is increased due to that. It is a very hard one to measure because exposure is increased but awareness is increased as well.

**Mr TZIOTIS** - Certainly a safe system separating the two for all classes of vulnerable users of vehicles is the object of the road safety system. We can provide off-road cycle paths; that would be the ultimate, and the same with pedestrians. Separating them from vehicles is the objective. We have touched on a safe system that is very much based on the human tolerances to serious injury and death, so some thresholds above which if someone is hit or collides, they will be either killed or seriously injured. For pedestrians it is fairly low, it is around about that 40 km per hour. Hit by a car at a greater speed than that, you are more likely to be killed, so if you can get rid of that situation from the beginning for both cyclists and pedestrians, then you are really meeting that objective.

From a road design, traffic management and road safety point of view - a safe system point of view - separating and getting away from the traffic is the ultimate.

**CHAIR** - Anything else before we move on?

**Dr CAIRNEY** - Peter Cairney, Principal Research Scientist. I am going to talk a little bit about our road user behaviour work and capabilities. It is worth mentioning to begin with that we don't have the same sort of stable program for Austroads in this area. We do have a few Austroads projects but the majority of our work in this area is really done in a commercial way doing particular contracts, usually with the various road authorities around the country. VicRoads and RTA and Queensland would probably be our biggest customers, and we do work in a range of areas. We do analyses of crashes and of offence and survey data. One of our big activities is actually evaluating road safety interventions, as you would have heard from John from some of the work he has been talking about. We also have a considerable capacity to go out and collect fuel data both from studies using traffic counters and also from video recordings and very detailed analysis of the behaviour from the video recordings. We use the usual sorts of techniques like focus groups, consultations, surveys, and so on.

We really applied this to a wide range of areas from school education going through vulnerable road users to community road safety, signing and issues related to enforcement. I will just take you quickly through some representative projects, and that will give you an idea of -

**Mr DEAN** - Can I just interrupt. In relation to your analysis of road crashes that you do on data, how frequently are you called to the actual scene of a road crash to observe and take the data yourself and to do it from that rather than looking at data later?

**Dr CAIRNEY** - We do have a group in Sydney that specialises in the crash analysis, and we do mostly expert witness type work, going on scene, reconstructing the crash, using -

**Mr DEAN** - So you would be called in by another private party to do that - a solicitor, or what have you?

**Dr CAIRNEY** - Usually, yes, using the software that was talked about.

**Mr TZIOTIS** - There are two types of onsite investigations we do. One is as Peter has spoken about and that is crash reconstruction. So that is a one-on crash where they go over and measure skid marks and can determine the speed of the vehicle and the angle of impact and all of that to determine who was at fault at that crash. They also seek to identify some of the environmental contributing factors.

Then there is the other side of the investigation which goes and looks at a site where there has been a cluster of crashes and at that investigation they try to identify any recurring aspects associated with the crashes and that will then pinpoint, hopefully, some deficiencies in that particular site which can be corrected, and we do both.

**Mr DEAN** - Do police services call on your services in any of these crash situations?

**Dr CAIRNEY** - I think that would be unusual because they usually have their own investigatory capabilities and they rely on their own accident investigation teams to do that rather than rely on us.

**Mr DEAN** - They do, but that is another issue.

**Dr CAIRNEY** - Most of our accident analysis work would be based on the databases but I think one of the things we have been finding is that there is a great wealth of information in the databases that has not been fully exploited. For example, in most jurisdictions there is a good narrative and diagram section in the accident report form and often in the analysis that is just ignored. We have had quite a lot of success going into that information and really digging through it to answer particular questions about what road users were doing or not doing and that has been really useful. Another source that we have used is coronial reports. We use these to look at intoxicated pedestrians. It is a bit frustrating because often you do not get a yes/no answer out of this process, but there is enough there to build up a picture of what is going on.

The other thing that has really made a tremendous difference recently is the fact that accident locations are now GIS referenced. So, in theory, you know exactly where a crash has occurred and that allows you to match up the crash site with all sorts of other records. For example, you saw the laser profilometers downstairs, we can now match up the crash site with the surface characteristics of the particular site and that is proving to be a very powerful tool.

**Mr TURNER** - It is probably fair to say that the Tasmanian system is one of the best in Australia and they have very good linkages between the data sources. I am not sure though to what extent that is. It is more that interaction between those data sources.

**Dr CAIRNEY** - We would just love a project to test that out.

*Laughter.*

**Dr CAIRNEY** - If we can just move on to talk about some of the specific things we have been doing. In the questions we have already talked about, a lot of the work has been with young drivers and this has mainly been John Catchpole's work. John has helped develop the new VicRoads drive test, on-road assessment for driver licensing. He has also been involved in the revamp of the hazard perception test. I do not know if you are familiar with that. This is a video based test that -

**Ms FORREST** - For the older people is it?

**Dr CAIRNEY** - No, this is for young drivers. This is something you have to do before you -

**Mr CATCHPOLE** - Get the P licence in Victoria. Although it is used, I think, for the L2 licence in Western Australia and it is used for the P2 in New South Wales. So it can be used at different stages.

**Dr CAIRNEY** - It requires the candidates to identify the sources of hazard coming up on the scene, so it quite a complicated test. As John already mentioned, he has been involved with developing the new Tasmanian solo test and with the L2 driving assessment.

**Ms FORREST** - When you say the solo test, what are you referring to?

**Mr CATCHPOLE** - A couple of years ago or four years ago, I think, DIER commissioned the development of a new on-road licence test for people to get a provisional licence in

Tasmania. The newly developed test was not implemented at that time and it has been overtaken by the new graduated licensing system. But the -

**Ms FORREST** - That is the one that sat on the shelf somewhere.

**Mr CATCHPOLE** - It was developed by consultants in Tasmania. It was reviewed by ARRB, perhaps amongst others, and for one reason or another it was not implemented in the form it was originally developed, but elements of that have gone into the L2 test which will be implemented in April this year.

**Dr CAIRNEY** - Also in conjunction with the development of the requirement for supervised driving practice in Victoria, John has done a number of monitor surveys of learner drivers to establish just how much driving experience they actually were getting. I think that was before and after the introduction of any requirement.

**Mr CATCHPOLE** - VicRoads have done only one survey since the introduction of the new requirement and the results have not been analysed yet. These surveys are a series that began in 1999 so they are mainly a history of what has happened in response to the measures that VicRoads and TAC and others have implemented to encourage rather than compel more driving practice. Those encouragement measures seem to have been effective. The average amount of experience that a learner has by the time they go for their probationary licence, as we call it in Victoria, has been increasing year by year in response to things like advertisements on the television paid for by TAC, changes in conditions of the learner permit and so on. Encouragement measures have built the foundation on which the mandatory requirement for 120 hours is built. You could not really whack in a 120-hour requirement unless the community was ready for it and that readiness has been built up over a period of maybe 10 years.

**Dr CAIRNEY** - As well as young drivers we have done a lot of work with pedestrians over the years. One project was a fairly large review undertaken for VicRoads to look at the latest developments in pedestrian safety around the world and applying these to the situation in Victoria. It turns out that probably the biggest thing we could do was reduce vehicle speeds, which they were already working on very effectively at that stage.

With the Safe Routes to Schools program, we did a very extensive evaluation and this involved going out on site and actually observing children and the interactions between vehicles and children. It also involved some survey work to look at teachers' and parents' perceptions of how the programs were working and also involved some crash analysis in the vicinity of schools at school times, all of which pointed towards a very effective program.

Picking up the issue of child pedestrian safety from a rather different point of view, we did some work for the Motor Accidents Authority in New South Wales a few years ago that actually looked at what happened in terms of crashes but not during the journey to and from school. Actually it is about a 50:50 split. Everybody thinks that child safety is the journey to and from school but actually there as many crashes at other times as during school times, so we are able to put together some basic pictures of what was actually happening there.

Motorcycle safety has been another issue for us. To help Victoria develop its next motorcycle safety strategy we did a bit of crash analysis and issue identification. Again that is pretty straightforward crash analysis work.

Another interesting project we have undertaken for VicRoads is to look at motorcyclists' attitude to intelligent transport systems and how the safety related ITS might be accepted by the motorcycling community. As you are no doubt aware the motorcycling community has ruggedly robust views about individualism and the sort of help they are prepared to accept from technology.

**CHAIR** - And wire rope barriers.

**Dr CAIRNEY** - Yes. If somebody could invent some technology that kept them away from wire rope barriers they might come at that but anything else is going to be a very hard sell. We have also done motorcycle safety audit work looking at a particular inner city intersection to see how it could be best suited to the needs of motorcyclists.

**Ms FORREST** - Are you seeing more motorcyclists in recent times with the fuel prices?

**Dr CAIRNEY** - This is an interesting one. The sales figure I believe have gone up but I have seen any recent actual motorcycling use figures. I think it has been a bit disappointing in the way that road authorities in general have handled the issue of motorcycle exposure because the capacity is there to identify motorcycles from the traffic surveys but most of them do not do it.

**Ms FORREST** - They do not count them separately; they just count as a vehicle?

**Dr CAIRNEY** - They could if they wanted to but they do not because all the protocols were set up a long time ago when this was rather difficult to do.

**Mr TZIOTIS** - We are doing a major project now for Austroads on modal shifts where the community is now moving up.

**Dr CAIRNEY** - I was saving that for last. The other thing to say about motorcycling, and I do not know what the picture is like in Tasmania, but if you go down into the CBD in Melbourne now a lot of the footpaths are just littered with parked motorcycles in a way which they were not even four or five years ago. So obviously something has changed a lot

**Ms IMBERGER** - The Federal Chamber of Automotive Industries, the FCAI, keep national data on sales. I was having a look at it the other day and all kinds of sales from motorcycles - scooters in particular, and even some off-road motorcycles and ATVs - are going up and have been going up for five years.

**Ms FORREST** - A lot of them come to Tasmania for a holiday.

**Dr CAIRNEY** - Yes. That is one of the interesting things, just what the safety profile of recreational riding looks like compared to the safety profile of commuter riding. I think that they are going to turn out to be very different.

**Ms IMBERGER** - We do know that recreational riding is a risk factor.

**Ms FORREST** - So do you separate out any figures? Recreational is not just off-road; it included recreational driving on holiday.

**Dr CAIRNEY** - Yes.

**Ms FORREST** - So do you have any way of assessing who is who?

**Dr CAIRNEY** - We can really only do that on the basis of time.

**Ms IMBERGER** - And day of the week.

**Dr CAIRNEY** - Yes. There are certain times when it is going to be mostly commuter motorcycling and times of the week when it is going to be mostly recreational. So that is about the best separation that we can do. Kelly, in fact, has looked at a lot of the issues relating to scooter and moped licensing and training because there is a push from the industry to relax standards. They say that scooters are easy; anybody can drive one so if you have a car licence you will be right. There has been a bit of controversy. I think that is a proposition without any supporting evidence.

**Ms FORREST** - In Tasmania to have a scooter you still have to go for your motorcycle training and licence.

**Dr CAIRNEY** - I think the same would be true in all jurisdictions at the moment but there is pressure to move in other ways.

**Ms IMBERGER** - There could be an argument for your scooter riders then not being able to get a motorcycle licence. They can only ride on a scooter and if they then want to ride on a fully-fledged motorcycle they should go back and do the test and show they can do it on a motorcycle because they do handle differently.

**Ms FORREST** - Somewhat.

**Dr CAIRNEY** - We do not get terribly involved with projects on drink-driving but there are a few significant things that we have done. One is to develop a manual for the global road safety partnership, an international not-for-profit organisation that is focusing on technology transfer to developing countries. So Tanya really bore the brunt of that exercise in getting Australian experts to put together a framework and then bringing in a number of overseas experts from developing countries to provide case studies and to provide their perspective on how they thought things would work.

**Ms FORREST** - So under that sort of area is the issue of the zero blood alcohol levels. There are some countries which do have that, some of them for more cultural or religious reasons perhaps than road safety, but is that something that has been considered by you or anyone in the department at all?

**Mr CATCHPOLE** - We have zero BAC for provisional and probationary licences, which hovers around Australia.



**Dr CAIRNEY** - As you know there is a very steep rise in risk as BAC goes up and the difference between zero and 0.05 is not very much. The argument against zero is that it is just going to take up a lot of police resources dealing with people who aren't really all that much of a risk. So it is much better to concentrate resources at the high end where people really are causing a risk.

**Ms FORREST** - So what you are saying is that there is no real value in dropping it down to 0.02?

**Dr CAIRNEY** - I wouldn't say that. There is, I guess, an unresolved debate there and I think you can argue the case either way.

**Mr CATCHPOLE** - The other factor that has to be thought about is community acceptance and I would not think any communities around Australia are ready for that yet. I think there are moves towards that perhaps in Sweden. I am not sure how low. They may be ready for that but I think it would be rejected here by communities in every State at this stage.

**Dr CAIRNEY** - One of the behaviour projects we have done is an evaluation of Bike Ed and other resources that has involved talking to teachers and other stakeholders, and observation of training in classroom sessions. We conducted a review of road safety education in New Zealand and came up with a set of recommendations for a strategy to improve the provision of road safety education. We developed a checklist of good practice for road safety education in Australia.

One project is preschool education in the ACT. You may be aware there is a lot of interest not just in road safety but also in all sorts of areas in really getting to children at a much earlier age than has been the case. We looked at preschool road safety in the ACT in this context and came up with suggestions of how the program might best be implemented and used.

## **THE DISCUSSION CONCLUDED.**