Motoring DIRECTIONS

The Federal Government has now introduced legislation to implement its vehicle tariff policy, which was covered in the previous issue of *Motoring DIRECTIONS*. In this edition, we present the key findings of economic modelling undertaken for the Industry Commission's automotive industry inquiry. We had also hoped to provide the Government's detailed response to consumer concerns on environment and safety issues, but this has yet to appear.

At our invitation, the Shadow Transport Minister, Lindsay Tanner, has provided an outline of the Federal Opposition's views on road funding and safety mid-term and before the hustle of campaigning later next year. Among the key points he raises are the efforts of the National Road Transport Commission (NRTC) to improve the safety of heavy vehicles, the challenges posed by changing road transport needs and the dramatic developments in technology.

The reforms proposed by the NRTC are explained more fully in a separate article, while our cover story on automated urban vehicles provides an example of how future transport needs might be met as well as the technological developments currently taking place.

I was fortunate to witness another example recently in San Diego, USA, where the world's first automated highway was demonstrated. Utilising a 13km section of Interstate Highway 15, this project showed it is feasible for cars equipped with systems such as collision-avoidance radar to travel 'hand's free' in close formation with complete safety, guided by magnets embedded in the road surface.

While looking forward, we must not forget we have a heritage in our motoring history. Although the safety of old cars is often questioned, this issue is put into perspective by a paper presented by the peak body of Victoria's car clubs and reproduced in this edition.

Lauchlan McIntosh
Executive Director

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Contents

Shadow Minister for Transport, Lindsay Tanner, outlines the -

Federal Opposition's Views on Road Funding and Safety

Federal Government involvement in Australia's road transport system focuses on two primary themes: funding and safety.

Through the *National Highway* and grants to state and local governments, the Federal Government provides around $1.6 billion for roads every year. It has a major role in private road construction through infrastructure bonds.

The Commonwealth is also centrally involved in safety through the National Road Transport Commission (NRTC), the Federal Office of Road Safety (FORS) and the Australian Design Rules (ADRs).

In regard to road funding, if one looks at the 1996-97 Budget and forward estimates, and applies the Government's two per cent per annum inflation forecast, federal spending will have fallen from $1,570 million in 1995/96 to $1,475 million (in 1995-96 prices) by the year 1999-2000. This represents a cut in the aggregate level of federal road funding of six per cent in real terms over four years. Past and future levels of federal road spending are shown in the chart on the opposite page.

Mr Lindsay Tanner

Funding allocation criteria distorted

The introduction of the *Roads of National Importance* category has also distorted the criteria for allocating funding. As a result, *National Highway* funding has dropped from $834 million in the 1995-96 Budget to $697 million in 1997-98.

Labor is committed to the establishment of rational and transparent road funding criteria. The original concept of the *National Highway* has expanded incrementally and it is probably appropriate to legitimise this by including roads of critical economic importance, such as port access roads and ring roads.

The debate about fuel excise in Australia is virtually interminable. The taxes and charges paid by road users can be broken down into three components:

- The money needed to maintain road infrastructure (including administration and a contribution to road law enforcement and safety).
- The money needed to compensate society as a whole for the externalities caused by road use (pollution, noise, road trauma, congestion and so on).
- The remainder, which is effectively a tax on the industry.

The measurement of externalities is still a very imprecise science. This is due to difficulties in gathering data about vehicle movements and characteristics (although new technologies are emerging to help here), and the technical problems in actually valuing and distributing the externalities that are caused.

It should not be assumed, however, that these externalities are small. A recent study estimated that the cost of congestion in Australia's cities can be put at $5.1 billion.

In spite of excise duties, fuel in Australia is still among the cheapest in the developed world. Excise levels have not prevented the road transport industry from attaining world competitive levels of performance and a record share of total freight movement.

The focus in road charging debates is shifting inevitably to electronic charging in view of recent developments in technology. Given that cars and trucks are becoming steadily safer, cleaner and more energy efficient, it is difficult to sustain an argument for increasing the total burden on road users.

Future debates are more likely to focus on the distribution of that burden among different road user categories as our capacity to measure individual contributions to road use costs increases.

The provision of infrastructure such as major road networks is a core business of government.

BOOT (*build own operate transfer*) projects such as Melbourne's *City Link* entail substantial economic inefficiencies. The cost to the community of financing the project is much greater. Most future risks associated with the project are borne by government, not the private developer.

The capacity to charge the beneficiaries of the project in proportion to the actual benefit they derive from it is

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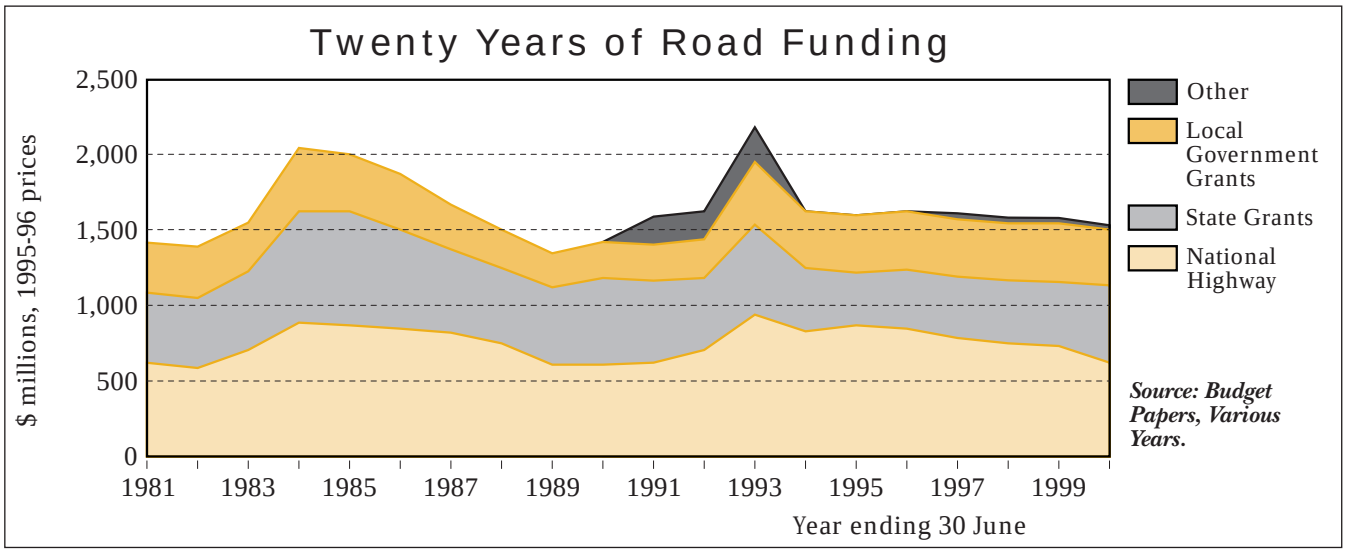

significantly lower, particularly when it is an addition to an existing network. Anti-competitive arrangements are required to force future motorists to use the infrastructure. *BOOT* schemes tend to be characterised by large-scale tax avoidance and substantial windfall gains for investors.

The former Labor Government, acting on advice from the Economic Planning Advisory Council, resolved in late 1995 to eliminate the use of infrastructure bonds for road building. Private provision of infrastructure such as major road networks is driven primarily by the perceived need to beautify state government balance sheets. This approach is economically irrational because it leads to infrastructure which costs more and delivers less.

It does not unlock new sources of funds because infrastructure has always been financed by private investors. It merely changes the intermediation from debt to equity, where the returns to equity are excessive, virtually guaranteed and risk-free.

ABOUT LINDSAY TANNER

Born in Orbost, Victoria, in 1956, Lindsay Tanner has an LLB (Hons), BA (Hons) and MA from the University of Melbourne. He worked as a solicitor from 1982 to 1985 followed by two years as electorate assistant for Senator Barney Cooney.

He became Assistant Secretary of the Federated Clerks' Union (Victorian branch) in 1987 and State Secretary of the Union in 1988. He entered Federal Parliament as the Member for Melbourne in 1993 and was made Shadow Minister for Transport in March, 1996.

He is a former President of the ALP Economics Policy Committee, a member of the Australian Conservation Foundation and co-author of the book *The Politics of Pollution*.

The ongoing NRTC process has delivered new uniform speed limits, driver hours and a range of other measures with respect to the road transport industry. As well as improved operating standards such as those contained in the *Trucksafe* program, these measures have seen the number of fatal crashes involving articulated vehicles fall by around 30 per cent since February, 1994.

A reduction in fatal accident numbers of over 15 per cent in the year to February, 1997, shows these new arrangements are still having a very positive effect and, at the same time, there is still more room for improvement. In total, road trauma appears to be gradually diminishing over time when calibrated against rising levels of road usage.

Labor remains committed to the use of the ADRs to maximise the safety of road users and supports the Government's efforts to require manufacturers to release crash test data.

A recent FORS report showed that about two-thirds of the accidents in urban areas involving heavy vehicles (trucks and buses) were not the fault of the heavy vehicle. However, one-third of accidents involving heavy vehicles are the fault of heavy vehicles, and in many instances, related to driver fatigue.

There are not many other instances in Australian industry where workers are expected to operate complex and dangerous pieces of equipment, which are regularly involved in fatal accidents, for 12 to 14 hours at a time. There are few other instances where the regulations governing use of the equipment are so widely breached. Achieving realistic and safe driving hours should be a paramount objective of government policy in the road transport industry.

There is a case for uniform national enforcement of the uniform national rules being developed by the NRTC and it is necessary to examine the appropriateness of the current level of resources devoted to this task. If we are to

have a truly national system of road laws, all these systems must be co-ordinated to ensure that enforcement takes place at a national level.

Rather than requiring all jurisdictions to use the same systems, we need a set of standards and an arrangement that joins the various state-based systems into a national network. We must look to more than just additional police and transport department inspectors, and look also to the application of emerging intelligent transport technologies.

Truck-scan, a system developed by Telstra Applied Technologies and the CSIRO, has a number of modules for checking compliance of heavy vehicle operators. The system can be used to detect speeding or failure to undertake mandatory rest checks. The *Culway* system was developed for Queensland Transport to assist in road design but is now used to enforce loading requirements at over 150 locations throughout Queensland.

'Australia should embrace intelligent transport systems technology with a passion'

Australia should embrace such intelligent transport systems technology with a passion. The Australian ITS industry is very active and has a number of significant international sales to its credit.

A couple of years ago Prodata was awarded a $69 million contract to supply what was then the world's largest smart card ticketing system for the Hong Kong multi-modal mass transit system. *SCATS*, the traffic control system developed by the NSW Road Transport Authority, has been installed in New Zealand, Singapore, Hong Kong, the Philippines, China, Ireland and the United States.

Promoting such developments is critical to the modernisation of our transport system. ITS offers potential to reduce road freight handling costs, reduce road trauma, and provide more sophisticated and equitable mechanisms for road charging.

Increasing road use, changing needs and dramatic changes in technology are presenting many challenges and opportunities to governments and road regulators.

Past Labor Governments have been characterised by considerable innovation and reform in the road sector, such as the establishment of the *National Highway* system and the National Road Transport Commission. The current Government is doing very little, allowing road funding to shrink and opportunities offered by ITS to languish.

A future Labor Government will rise to meet these challenges and opportunities and deliver substantial benefit for Australian road users.

News Brief

SPARE PARTS MONOPOLY OPPOSED

The Triple A has joined forces with the Australian Consumers' Association (ACA) and National Farmers' Federation (NFF) to press for changes to the Designs Act to prevent vehicle manufacturers from securing monopolies over the supply of spare parts. The existing legislation, which dates back to 1906, allows individual components to be registered, effectively shutting out independent parts suppliers for 16 years.

Vehicle manufacturers have been making increasing use of the Act in the past few years following competition from alternate parts selling at significantly lower prices. Body panels, bumpers, lights and other major components for the Holden Commodore and Ford Falcon are now almost entirely registered.

Owners of these cars will have no choice but to use genuine parts, resulting in higher repair and insurance costs. According to NRMA Parts Manager, Anthony Boddy, an average of $120 in every car insurance premium goes towards paying for repair parts and that figure is likely to escalate.

The Triple A, ACA and NFF are not opposed to the design of the vehicle being protected, but want the Act amended in line with European legislation to remove protection of repair parts known as 'must fit' or 'must match' components after a maximum of three years. The USA, UK and most other countries either exclude spare parts from design protection or limit its use.

The issue was considered during government inquiries in 1995 by the Australian Law Reform Commission, Industry Commission and Bureau of Industry Economics, and all three recommended amendment of the Act to allow competition in the parts market.

Removing parts from design protection has no implications for safety. In many instances, alternate parts are identical to, and made by the same suppliers, as the original components. Allowing parts to be registered not only prevents local component manufacturers from competing in the smash repair parts market, estimated to be worth $2.8 million annually, but allows overseas vehicle manufacturers to import parts into Australia and be protected from competition.

While the issue affects all repairable manufactured items, the greatest impact is on motorists and car insurers since motor vehicles require more spare parts during their life, largely due to road crashes.

In a paper delivered to the Third International Conference of ITS Australia in March, Michel Parent, Director of the PRAXITELE Program at France's INRIA research institute, presented a new concept in automated urban vehicles. Following is an edited version of his address on the development of -

A Dual Mode Personal Rapid Transit System

In all countries, modern or developing, the private automobile is perceived as the most desirable means of transportation for short to medium length trips. It is reasonably inexpensive (at least in developed countries), it is relatively safe (or the drivers do not want to consider it as dangerous), it boosts the ego, it offers a private place for many purposes and it can be used to carry or store large objects.

But what is probably the most important feature of the private automobile is its availability - it can be used at any time to go almost anywhere. An automobile is synonymous with freedom and this is what makes it so desirable.

However, the automobile alone is not efficient enough to move everyone as they wish as soon as the density of movements becomes too large, and this leads to congestion. The solution to this problem of freedom to move in large cities lies in two directions:

1. Discourage the use of the automobile (through cost, congestion or legislation).
2. Offer more efficient options (mass transit, car pool, shared taxis, etc).

More efficient transport nonetheless implies some constraints on individual freedom of movement.

Although mass transportation systems are constantly being improved, more flexible means are needed, in particular at places or times where the demand is too low to justify mass transport. Among these flexible transportation means are taxis, which can be greatly improved with modern information technology techniques, dial-a-ride mini-buses, or shared taxis, and personal rapid transit (PRT).

A new concept is now emerging which may offer the same convenience as the private automobile and at a low cost. It is the self-service car, also called station car if its main purpose is to complement a mass transit system - a single public car used several times during the day by different users. If the vehicles are well adapted to city use - small size, electric engines, controlled speed, etc - the problems of automobiles in cities may be minimised.

This concept is now being developed in France with the PRAXITELE project and should bring two advantages:

- A net reduction in the number of cars and, therefore, parking spaces in a given area.
- A reduction in air, street and noise pollution.

The system should offer a good service for short local trips and very convenient access to mass transportation, which remains the most efficient way to move people when the demand is high.

'The system should offer a good service for short local stops and very convenient access to mass transportation, which remains the most efficient way to move people when demand is high.'

Let us compare the advantages and drawbacks of each of the four systems.

These forms of public transportation, which can be defined by the fact that someone moves you around privately for a fee, can be found in almost any place where the demand is sufficient to justify it.

Taxis: *These are probably one of the oldest forms of individual public transportation available anywhere in the world and are not necessarily linked to the automobile. Indeed, the vehicle can be anything from a horse-driven carriage to pedal-driven contraptions such as rickshaws or the more recent pedicabs (small electric three-wheelers) in New York.*

Taxis face several problems, the most important of which is certainly the demand level. If the demand is not sufficiently dense, each taxi has to cover a much greater distance, which is bad for economics and service time, or make very few trips per day.

The second problem is the demand allocation. If several taxis operate in the same region, which can be good for economics and service, some form of allocation must be made. Until now, this has been done by 'roaming' (the client waits for the first taxi which passes by), queuing (taxis wait in line for customers, for example, at airports or large hotels) or dispatch (the customer calls a central location which is in contact by radio with the taxis).

The main problem with these approaches is that they are probably not optimal in the sense that the taxis are either too numerous or not enough, or not at the right place. All this means that the economics are not very good (taxis wait for customers) or the service is not very good (all taxis are busy or too far away). New computer-based systems using GPS localisation and digital communications may assist in better management.

The third problem is that taxis are not much better for the city than the private automobile - they take as much space on the road, they pollute and they are energy hungry (at least in the majority of cases when they are based on conventional cars).

On the better side, they do not take up as much parking space (one taxi for 10 to 30 trips) and they can be a complement to public transportation.

Dial-A-Ride: *These services were put in place more than 20 years ago to replace bus lines in low density zones or time periods where, at certain times of day, the buses were empty (phantom lines), and it was decided to run them only according to the demand.*

Furthermore, the route can be changed according to the demand so it becomes virtual and with a possibly much higher frequency. Actually, all the routes could be fictional and it would be possible for passengers to go from any place to any place, as with a taxi, but without any guarantee on the trip or the time taken and, of course, not in a private way.

This approach needs good communication between the potential passengers and the bus operators. The problem here lies more with the passengers, who are not necessarily near a phone when they decide on their trip. A solution is smart bus stops where a call button is linked to the management centre.

Another problem is the complexity of the routing. Consider the more complex system of door-to-door (or even station-to-station) travel in a large environment. These problems can now be solved efficiently with current low-cost computer technology.

The main problem, however, remains the cost of running such a system. If the demand is too low it will not pay for the cost of immobilisation of the vehicle and its driver. This is particularly true when the fare for each trip has to be kept very low - in the order of the cost of a bus ticket - and explains why such systems are not commonplace and often reserved for people with reduced mobility.

Personal Rapid Transport: *The concept of PRT is very old with the first experiments taking place in the USA in the 1960s. The ambition of PRT is to offer a public service with the same convenience as the private car and the added advantage of automatic driving through:*

- A large number of stations, even in low density zones, so that one does not have to walk far to get a car.
- Good interconnection between routes so that travel time is minimised.
- Automatic vehicles so that anyone, including children and disabled persons, can use them. This also enables high throughput on the route.
- Small vehicles allowing comfort, privacy, and low operation cost.

The constraint imposed by automatic driving is that it requires a dedicated track completely separated from traffic and pedestrians. This represents the major difficulty of the concept - how to build these dedicated tracks?

The obvious solution is to elevate them, but this is costly and brings lots of resistance from people living nearby. Underground solutions are also very costly and not as pleasant for the users. Tracks at grade level bring the problem of the 'barrier effect' which cannot be accepted all over a city.

Besides the cost of the tracks, there is also the cost of the vehicles and the control systems. Equivalent systems such as France's VAL (automated light rail) show that these costs cannot be underestimated and will bring the cost of each car way above the cost of a standard automobile.

Self-Service Cars: *These date back to the 1970s with many experiments being conducted unsuccessfully, for instance, in Montpellier, (France) and Amsterdam. The concept is based on a fleet of cars available to a set of subscribers in specific 'stations' for use in specific areas.*

At the end of the trip, the car is left in another station. The cars are available 24 hours a day and the fare is based on the time and/or distance.

Recent advances in technology may give a better chance to these systems which are at the planning stage for demonstration in several cities in Europe. In the USA, a similar principle is being tried with 'station cars' which are aimed mostly at the end trip to or from a mass transit system. The technological advances concern:

- The electric car, which is favoured by city officials who want to rid the city of polluting cars.
- Smart card technology, which allows simple access control and billing.
- Positioning of the cars by GPS to keep track of their location.
- Digital communication with mobiles for the management of the cars.

The main advantages of the system are:

- Relatively low investment limited to the acquisition of cars, the installation of the parking and the management centre.

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- Relatively low operation cost since the cars do not cost much when they are waiting.
- Good quality of service as long as the stations are close to the potential demand and the system is properly dimensioned.
- Very good comfort and privacy, close to that obtained with a private automobile without the constraints of ownership.
- Good image for the city and for the user if the cars are electric.

On the other hand, the system has some disadvantages. One needs to have a driver's licence to use the system, so it is not accessible to children and disabled persons, and it does not work economically if the demand is too low or too pendular.

Dual mode self-service cars

One can see from the analysis of existing flexible public transport systems that we have a trade-off between many factors and that no system is far superior to the others. We also can see the difference between systems which require operators constantly (and hence have a high operation cost even when the demand is low) and systems which have a very low operation cost at times when the demand is low.

It is our belief that it is now possible to combine the advantages of self-service cars (mainly low investment and operation cost, high performance and accessibility) with the technology of PRT to move the cars where they are needed, and hence make them more easily available to a larger population. We can also have vehicles which could be much simpler to drive and possibly completely automated on special lines.

Of course, this would be a new type of vehicle which would be quite different from a standard automobile and, at the moment, it would be more realistic to consider that these vehicles would not be in competition with normal automobiles. We think there is considerable potential for a class of low-speed, dual-mode vehicles, particularly if we want to limit the use of the private car to make life much more pleasant in specific areas.

Here are some sites where we want to restrict the usage of conventional automobiles and which would benefit from public transport based on the small vehicles we envision:

- Pedestrian areas in cities (in particular, if we want to extend these areas over several square kilometres) in conjunction with parking and mass transit.
- Tourist resorts where users arrive with mass transport or leave their cars outside the area.
- University campuses.
- Large industrial parks, airports or military bases where we want to control the movement of personnel.
- Large amusement parks for movements between distant areas.
- Large indoor places such as airports or train stations where you need to carry luggage over large distances - also for children and people with reduced mobility.
- Private residential areas where the use of the automobile would be severely restricted.

For each of these sites the principle is the same - a fleet of vehicles owned, maintained and operated by a single operator is available either to anyone or to authorised users through the use of a smart card. The vehicles are available at fixed locations either all the time or on demand.

This is a prototype of a dual mode self-service car that can operate on tracks and roadways.

The operator is responsible for making sure the vehicles are available where and when needed through good management of the fleet. This implies the ability to move empty vehicles from one location to another. To solve this problem, INRIA has developed several techniques to move the empty vehicles:

- Teleoperation from a central location.
- Forming platoons driven by a single operator.
- Complete automation on dedicated tracks.

'The more difficult problem is the crossing of normal traffic, which will be solved through the concept of 'intelligent intersections' with street lights and a vision system to control them.'

We think the last technique is now possible at low to medium speed (up to 20 km/h) even if the track is at grade and not protected. Of course, depending on the density of pedestrians crossing the track, the speed may be affected. The more difficult problem is the crossing of normal traffic, which will be solved through the concept of 'intelligent intersections' with street lights and a vision system to control them.

The basic vehicle is now under construction. Each is controlled through a standard and modular computer system based on the CAN automotive network, which is used to control at least the acceleration and braking, but can do much more. It can control vehicle access and fare collection, and dialogue to the central management of the fleet to locate itself and report any abnormal behaviour of the vehicle.

The computer can also be used to control the movements of the vehicle through electric steering. In particular, we plan to implement a joystick control with computer assistance like those found in modern airplanes (fly by wire).

We will also implement full automatic driving, for example, to form trains of vehicles with only one driver for automatic parking. We can also think of teleoperating a vehicle to move it with no-one on board.

WORLD TOURISM TRENDS IN 1996

According to World Tourism Organisation preliminary revised estimates, total international tourist arrivals world-wide in 1996 were almost 594 million, representing a growth of 5.3 per cent over 1995 while the1995 figure showed an improvement of 3.6 per cent over 1994.

International tourism receipts for 1996 are provisionally estimated at US$425 billion, 6.6 per cent higher than in 1995. The figures are expressed in current US dollars and thus reflect a drop in the value of the US dollar in comparison with other currencies of the main tourism markets of Europe and Asia.

Also, the figures for receipts exclude expenditures for international transport, which were US$60,000 million in 1995.

Preliminary Results – 1996

	Tourist Arrivals (Thousands)		%Change		Tourist Receipts (US$ Million)		%Change	
	1995	1996	96/95	95/94	1995	1996	96/95	95/94
World	**566 384**	**591 864**	**4.5**	**3.6**	**393 278**	**423 022**	**7.6**	**13.1**
Africa	19 045	19 593	2.9	2.7	6 980	7 621	9.2	7.2
Americas	110 768	115 572	4.3	4.1	100 225	106 330	6.1	5.4
East Asia/Pacific	83 189	89 774	7.9	7.9	72 738	82 207	13.0	16.9
Europe	335 378	347 329	3.6	2.1	202 507	214 673	6.0	15.5
Middle East	13 703	15 121	10.3	13.2	7 185	8 243	14.7	32.2
South Asia	4 301	4 475	4.0	9.0	3 643	3 948	8.4	14.6

See pages 21-22 for **International Motoring Facts**

Fully Automated Driving on Dedicated Tracks

In the future we plan to develop fully automated driving on dedicated tracks and hence propose a dual-mode PRT which returns to manual driving outside the tracks. The standardised approach for this control system will allow us to tailor the operation of the fleet of vehicles very precisely to each requirement with a set of standard routines and eventually a few developments.

We firmly believe that the concept of individual public transport is one important solution to make life in urban areas much more pleasant by offering a most convenient transportation means compatible with quality of life (small size, shared vehicle, no pollution, no noise). However, it must be designed very carefully in order to be attractive and safe to use, and at the same time economically acceptable in complement to very efficient mass public transport. Robotics technologies will be used extensively in this vehicle in order to achieve these goals.

SPECIFICATIONS OF BASIC VEHICLE

- Length: 1.9m
- Width: 1.2m
- Height: 1.65 m
- Weight: 300 kg (with batteries)
- Seating capacity: 2 adults
- Cargo space: 2 large suitcases or contents of full shopping cart (with 2 passengers)
- Wheel drive, 4-wheel steering
- Total power: 4 kW
- Inductive charger: 3 kW (6 hours for full recharge)
- Range: 40 km at 20 km/h on flat surface
- Electric braking on each wheel
- Turning radius: 2.5 m
- Maximum speed (horizontal surface): 30 km/h
- Maximum ramp (fully loaded): 20%
- Joystick control
- Collision avoidance (ultra-sound)
- Access control and fare collection through non-contact smart card
- Communication with central control through numeric radio network

SYNTHESIS

	Taxis	**Dial-A-Ride**	**Self-Service**	**PRT**
Investment cost	low	low	moderate	high
Operation cost	high	high	moderate	moderate
Performance*	low to high	low to moderate	high	high
Comfort	high	moderate	high	high
Accessibility**	high	moderate	moderate to high	moderate
Disabled persons	not welcome	special services	not possible	yes
Fare	high	low to medium	medium	medium

* waiting time + travel time
** distance to walk at each end of the trip

In an address to an international conference on road safety and traffic enforcement held in August by the Institute of Transportation Engineers (Australia and New Zealand), the Secretary of the Association of Motoring Clubs, Heather Greaves, gave -

An Historic Perspective on the Safety of Old Vehicles

When experts gather to discuss road safety, the accident risks associated with the use of old cars frequently arises.

In considering legislative moves to improve road safety, Victoria's state level body representing the historic car movement, the AOMC, puts the case for clearly distinguishing between the risk factors associated with the use of old, worn-out, poorly maintained cars and the vehicles belonging to members of the historic car movement. By not making this distinction a significant part of Australia's heritage will be jeopardised and a responsible section of the community will be discriminated against.

Engineering designs and standards have changed during the 100 years of motor vehicle production and will continue to change. This paper reminds us that regardless of the age of a vehicle and the clever life-saving devices included in modern vehicles, it is the driver's attitude and knowledge which are the significant factors in road safety.

Expecting *the vehicle to preserve the driver* should be replaced *by the driver preserving the vehicle*. There is a place on Australian roads for vehicles of all ages provided they are well maintained, driven within their limitations and with due regard to road conditions.

As indicated, it is our belief that driver attitude toward their vehicles is significant, if not essential, to sustaining a decreasing road accident rate. This may seem a far-reaching conclusion. It is based on a minority group of Australian drivers. We'll try to explain it by putting the ownership of an historic vehicle in perspective.

In Australia, historic vehicles are classified into three categories according to their year of manufacture.

Veteran	before 1 January 1919
Vintage	before 1 January 1931
Classic and Historic	broadly over 25 years old*

** In some states it is 20 years and others 30. One state allows some special interest modern vehicles to have an historic classification.*

These categories align with those adopted by the European based Federation of International Vehicle Associations, but FIVA has other categories which split these into sub-groups. The youngest FIVA group is set at 20 years old.

The categories indicate there is an international uniformity mainly based on technological changes, but there are variations between makes and models. Modern vehicles are linked in this chain of uniformity by legislated and industry regulation. In Australia these links are Design Rules even though there is debate about specific equivalencies with overseas rules.

'There is a place on Australian roads for vehicles of all ages provided they are well maintained, driven within their limitations and with due regard to road conditions... driver attitude toward their vehicles is significant, if not essential, in reducing road accidents.'

For most drivers the uniformity continues except that Australia is one of few countries in the world which does not allow opposite-hand-drive vehicles to be fully registered. Some states in Australia allow left-hand-drive vehicles to be registered but with restrictions.

You may see a trend emerging - more regulations, requirements and expectations, but vehicles built before those regulations should not be subjected to them.

The positive side

There is at least one positive side to owning an historic vehicle - a common bond. All owners care for their cars and understand their cars' characteristics and limitations. Let us examine how this care and understanding comes about.

It starts by an individual's desire to maintain the vehicle in a safe, reliable and efficient condition, and it develops into a desire to restore it usually to 'as new' condition. Some owners do the work themselves with advice or help from club members or friends with the appropriate skills, while others pay professional restorers to do the job. Professional restorers are usually specialists and owners must select various restorers for body, engine, suspension, electrical and other work.

Even a person who has a vehicle professionally restored will learn a lot about the vehicle, perhaps not to

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Having spent time and money repairing, restoring or modifying a vehicle, like this classic Riley Drophead, in the pursuit of excellence owners drive carefully and defensively

the same detail as the do-it-yourself restorer, but enough to know its limitations, and when it is driven will treat it with the respect or restraint it deserves. As a simple example, consider the process of replacing shock absorbers. Choosing the right ones will inevitably lead to a discussion about ride and handling.

Having spent time and money repairing, restoring or modifying a vehicle in the pursuit of excellence, owners drive carefully and defensively. They drive to protect the vehicle and their investment.

Enthusiasts, restorers and collectors may not readily realise or appreciate that their driving technique and attitude is significant, they just enjoy driving this vehicle, having put so much effort into getting it back to its original condition or just keeping it on the road. Having put in this effort is the significant difference that sets apart historic vehicle owners from most owners of modern vehicles.

Similar comments can be made about owners of older vehicles that are used every day. These people, too, are preserving their investment. Although it has not been restored to pristine condition in most cases, it will, at least, be mechanically sound and safe to use on a public road. It is important to realise that such vehicles have some positive attributes because they have lasted so long.

Whether an older vehicle is used every day or occasionally as a hobby vehicle it should not be condemned because of its age, presentation or lack of conformity to current regulations. So long as all its systems are well maintained and functioning within their design limits the only impediment to completing a successful journey is the driver's knowledge and his attitude.

We have commented on how the driver of an older vehicle develops an awareness of the vehicle's limits, but how is this translated into safe motoring? To establish the link between driver, vehicle and safe motoring we must present our meaning of safety within the context of vehicles.

Remember that this paper is presenting a point of view from a user perspective rather than that of a designer, manufacturer, law enforcement officer or researcher. A vehicle is considered safe on the road when it is controllable and its components operate within limits specified by the manufacturers of the time, and generally means starting, stopping and handling within those limits.

These days a vehicle is deemed safe for its occupants when it provides protection for them should a collision occur. These requirements are common to vehicles of all ages and will continue to be design criteria for the future.

Passenger protection

Generally, there have been many improvements in the passenger protection aspect of the interior of vehicles through the years. Vehicle controllability has also improved over the years to the point where there is a general perception that you only need to know how to use the brake, accelerator and steering wheel to drive safely.

That may seem a simplification but the manufacturer does not expect the driver to understand the mechanical complexities of the modern car. Owners of historic vehicles have taken the time to become aware of their vehicles' characteristics. Through their involvement with clubs and informal groups of enthusiasts these owners learn more about their vehicles.

It is our contention that all vehicles require the driver to understand the vehicle's limits. Owners of older vehicles, in general, do know their vehicles. From that point of view alone the vehicles should not be prevented from being on the road.

It is sobering and puts the perceived problems into perspective if you contemplate the scenario in 20 years' time when today's vehicles will be older and we may well be discussing the same matters at a similar conference to this one.

Finally, various means of reducing the age of the vehicle fleet have been proposed. It has been mooted that to discourage continued use of older vehicles a range of penalties and conditions might be placed on their use. But many of the people to whom these measures might be applied are the ones who are responsible, knowledgeable, understanding and less likely to be involved in any kind of vehicle accident. Insurance statistics tend to verify this statement.

The AOMC believes that road safety primarily depends on attitude and training:

- Attitude toward other road users and the vehicle.
- Training to drive correctly for the vehicle and conditions.

The fact that historic vehicles are still on the road and are still proudly displayed by their owners is a constant reminder that care, maintenance, and understanding are essential to survival on our roads.

The AOMC believes that vehicles should not be condemned because of their age and, thanks to the work of enthusiasts in our member clubs, motoring history is in safe hands and our future should be too.

In conclusion, we ask you all to remember that when the press talks about 'dirty old cars' they do not generally mean the historic vehicles I have been talking about.

Today's well maintained vehicle could be tomorrow's collectable.

We ask that when any legislation is contemplated careful consideration be given to the wording used so that the continuing growth of the historic fleet is not caught up by the careless use of the word 'old'.

ABOUT THE AOMC

The Association of Motoring Clubs was formed in 1976 and is the state level body for all car clubs in Victoria. The AOMC is a member of the Australian Historic Motoring Federation, which is the national body.

With more than 140 member clubs representing over 30,000 individuals the AOMC is the largest state level group in Australia. Vehicles represented range in age from the early 1900s to current models.

Among the AMOC's membership are clubs for many makes and types of vehicles from Morris Minors to Rolls Royces, motorcycles to military vehicles, and road steamers to Holden Special Vehicles. Multi-marque and district clubs also are members - for example, the Vintage Sports Car Club and Mildura Vintage Vehicles Club.

In the previous issue, Motoring DIRECTIONS reported the Federal Government's decision on post-2000 automotive industry policy, the final recommendations of the Industry Commission and comments on the state of the industry by Federal Chamber of Automotive Industries President, David Morgan. Here, we present the main findings of economic modelling by Monash University's Centre of Policy Studies and IMPACT Project -

Analysing the Effects of Reducing Vehicle Tariffs

The main recommendation of the majority in the Industry Commission's report on the automotive industry was that the tariff on passenger motor vehicles (finished cars and automotive components) should be reduced from 15 per cent in 2001 to five per cent in 2005. That recommendation has been analysed using the MONASH model. The model-based analyses by Econtech and Access Economics have also been reviewed.

The MONASH model results show that a reduction in the tariff from 15 to five per cent would reduce the landed-duty-paid price (ie, the basic price) of imported cars and parts by about 6.6 per cent. This calculation takes account of the fact that tariffs are charged on free-on-board prices and that not all of the imports of cars and parts would be subject to the tariff cut.

The recommended reduction in the tariff would reduce unit costs of Australian manufacturers of cars and parts by about two per cent. This calculation takes account of the use by Australian manufacturers of imported automotive components and of by-law exemptions.

In combination the first two findings imply that the recommended tariff cut would reduce the basic price of imported cars and parts by about 4.5 per cent relative to the basic price (ie, the price received by producers) of domestic cars and parts.

Prime Minister John Howard with Industry, Science & Tourism Minister John Moore, Treasurer Peter Costello, Primary Industries & Energy Minister John Anderson and automotive industry leaders at the announcement of the Government's decision on automotive industry policy. Photograph reproduced by permission of Mirror Australian Telegraph Publications.

Taking account of the operation of wholesale, retail and other margins costs, the recommended reduction in the tariff would reduce the price of imported cars and parts to consumers by about three per cent relative to the price to consumers of domestically produced cars and parts. The imposition of a three per cent competitive disadvantage would reduce output and employment in the domestic cars and parts industry by about six per cent.

In the absence of the recommended tariff cuts the industry's output would be expected to grow at an annual rate of about 2.5 per cent over the period 1996-97 to 2009-10. Thus, even with the recommended tariff cuts, the industry would experience positive growth.

Achieving solid growth

The industry is achieving solid growth in labour productivity. Even without tariff cuts employment in the industry is expected to decline over the period 2001 to 2010. With tariff cuts the average rate of decline up to 2010 is likely to be about one per cent a year. Such a rate of decline can be absorbed by natural mobility without layoffs.

On pessimistic assumptions, the recommended tariff cut would generate a permanent welfare gain of about $75 million a year (1996 prices). In this calculation it is assumed that favourable effects on aggregate employment flowing from the tariff cut are quickly eliminated by increased wage rates and that the tariff cut does not improve efficiency in the cars and parts industry.

In calculating the welfare gain it is recognised that the recommended tariff cut will not only improve the allocation of resources in the Australian economy but will also stimulate investment and capital growth. Extra capital growth must be financed by either reductions in consumption or by increases in foreign liabilities.

Nevertheless, that extra capital growth carries significant welfare gains because of gaps between returns to the owners of capital and the market value of the output that extra capital makes possible. These gaps are caused by both direct and indirect taxes.

In an alternative simulation it is assumed that the industry responds to the recommended tariff cut by reducing its unit costs. This could reflect greater standardisation in product lines with resulting scale economies or more efficient management and labour practices.

Even quite small reductions in unit costs would strongly increase the welfare gain associated with tariff cuts. For example, if the industry achieved a four per cent reduction in unit costs (sufficient to eliminate the competitive advantage bestowed on imports by the recommended tariff cut) then the permanent welfare gain would be about $600 million a year.

Favourable effect

The recommended cut in the tariff on cars and parts would have a favourable effect on almost all other industries, particularly export-oriented manufacturing industries and capital-intensive mining industries.

The recommended tariff cut would increase economic activity in all states and territories except SA and Victoria. In the central simulation these states suffer employment losses of 0.17 per cent and 0.10 per cent.

These may seem surprisingly small numbers. However, it should be remembered that:

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- The competitive disadvantage to the cars and parts industry is only three to four per cent in Australian markets.
- The industry accounts for only about two per cent of employment in SA and about 1.4 per cent of employment in Victoria.
- Simulated loss of employment in the industry is only six per cent.
- Export-oriented industries in SA and Victoria benefit from tariff cuts in the same way as export-oriented industries in the-rest of Australia.

The losses in employment in SA and Victoria associated with the recommended tariff cut would be accommodated by small changes in inter-state migration. No noticeable effect on unemployment in either of these states would be expected.

The recommended tariff cut would make the South Australian and Victorian populations slightly smaller than they otherwise would have been. However, just as it would generate per-capita income gains for people in other states, the tariff cut would generate per-capita income gains for South Australians and Victorians.

> 'The losses in employment in South Australia and Victoria... would be accommodated by small changes in inter-state migration. No noticeable effect on unemployment in either of these states would be expected.'

Model-based analysis

In the course of its inquiry, the Industry Commission received two other model-based analyses, one from Econtech (sponsored by the South Australian Government) and the other from Access Economics (sponsored by Holden's).

Econtech found that implementation of the proposed tariff cut would reduce output of cars and parts by about 24 per cent, reduce employment in the industry by about 27 per cent and increase imports by 31 per cent. The output and import results together imply a reduction in the domestic/import mix of cars and parts in the Australian market of 42 per cent. The Econtech modelling generates these exaggerated estimates for the following reasons:

- ***Econtech*** *does not distinguish between purchasers' and basic prices. The recommended tariff cut would reduce the basic price of imported cars and parts by about 4.5 per cent relative to the basic price of domestic cars and parts. However, the effect on the ratio of import/domestic prices to consumers would be much smaller, about three per cent. By ignoring the role of margins, Econtech has exaggerated the competitive advantage that the recommended tariff cut would bestow on imported cars and parts in the Australian market.*
- ***Econtech*** *does not allow for tariff-induced changes in the composition of demand for automotive products in the Australian market. In the Econtech model, households are the only users of cars. However, automotive products are used not only as consumer goods but also as intermediate inputs and as capital goods. In these various uses there are different import/domestic mixes. Thus, the overall import/domestic ratio in car sales in Australia can be affected by different growth rates in the demands for cars by different users. Because the automotive industry is a particularly heavy user of imported automotive products, a tariff cut induces an import-reducing change in the composition of demand for automotive products. Econtech misses this effect.*
- ***Econtech*** *assumes the import/domestic mix of cars and parts in the Australian market is extremely sensitive to changes in relative prices of the imported and domestic products. It uses an import/domestic substitution elasticity for cars of 10. The use of such a high number is not justified by the available empirical evidence or by convincing theoretical arguments.*

Despite the findings that the recommended tariff cut would produce large reductions in employment and output in the cars and parts industry and a 31 per cent increase in imports, Econtech estimates that the cut would generate a long-run welfare gain of no more than $95 million a year. The welfare gain from tariff cuts in conventional calculations is proportional to the stimulation in imports.

Consequently, the Econtech results are surprising in light of the MONASH result that a long-run welfare gain of $75 million a year would be generated with a much smaller increase in imports (about five per cent). It seems that the Econtech calculation is flawed because it strongly under-estimates the relevant level of imports of cars and parts.

First, it excludes intermediate usage of imported cars and parts.

Second, without convincing justification, it deals with net imports of cars and parts - ie, it deducts exports from imports.

Third, it uses data for 1996 whereas for calculating the long-run effects of the recommended tariff cut a more relevant year is 2010.

The MONASH forecasts suggest that by 2010 imports of cars and parts will be much larger than in 1996 and will account for a higher percentage of GDP.

Econtech expresses the opinion that the recommended cut in the tariff on cars and parts could

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cause serious adjustment problems for the industry and for SA and Victoria. As argued above, Econtech has exaggerated the effects on the industry and consequently the effects on SA and Victoria.

Inadequate framework

In any case, the Econtech framework is inadequate for the analysis of adjustment problems. Its preferred model is static. Because it produces a picture of no growth, it does not envisage the possibility of reductions in employment in the affected industries and regions being accommodated by natural mobility. Nor does it encompass the possibility that cuts in the tariff on cars and parts would reduce adjustment problems in other industries and in non-car-producing regions.

The modelling work by Access provided a much more valuable contribution than that of Econtech. Although important aspects of the Access results are disputed, the study was informative and helpful in the MONASH modelling.

Results exaggerated

The Access results exaggerate the effects of the recommended tariff cut. They indicate that it would reduce both employment and output in the cars and parts industry by about 24 per cent and increase imports of cars and parts by about 18 per cent. However, unlike Econtech's model, the Access model generates a large welfare gain. This is consistent with the Access finding that the recommended tariff cut would cause a large reallocation of resources.

The Access results exaggerate the effects of the recommended tariff cut for several reasons:

- In the Access database it appears that the use of imported cars and parts as intermediate inputs by the cars and parts industry has been under-estimated. This has caused its model to under-state the cost-reducing benefits to the local industry of the recommended tariff cut. This in turn has led to overestimates of the likely reductions in output and employment in the industry and of the likely increase in imports.
- In the Access database it appears that the use of imported cars and parts as an input to investment has been over-stated. This has caused its model to over-state the cost-reducing effect on capital creation of the recommended tariff cut. This in turn has led to over-estimates of the likely stimulatory effects on investment, capital growth and economic welfare.
- With a cut in tariffs, Access assumes that there must be a compensating increase in income taxes. However, it failed to recognise the damping effect of increases in income tax rates on post-tax rates of return on capital. This is another source of over-estimation of the likely stimulatory effects of the recommended tariff cut on investment, capital growth and economic welfare.
- In common with Econtech, Access ignores the role of retail, wholesale and other margins. Thus it exaggerates the competitive advantage in Australian consumer markets that would be given to imports by the recommended tariff cut.

Neither the Access nor Econtech analyses seriously challenges the validity of the majority recommendation in the Industry Commission's report that the tariff on cars and parts should be reduced to five per cent by 2005. Both these modelling efforts contain shortcomings which lead to exaggerated estimates of the adjustments which would be required to accommodate the recommended tariff cut.

Under pessimistic assumptions the MONASH analysis suggests that the recommended cut would generate a small welfare gain with almost no associated adjustment costs. Under less pessimistic assumptions there would be quite large welfare gains but more risk of adjustment problems.

No reason was found to make the tariff on cars and parts an exception to the general rate of five per cent applying to other manufactured goods. Making cars and parts an exception means forgoing benefits of improved resource allocation and enhanced growth. ■

The MONASH analysis found that a reduction in the tariff from 15 to five per cent would reduce the price of imported cars to consumers by a about three per cent relative to the price of domestically produced cars.

The National Road Transport Commission explains proposed reforms aimed at -

Improving the Safety of Australia's trucking industry

Too many motorists, truckies are terrorists on wheels, travelling too close or at reckless speeds, without sleeping from one day to the next. Horrific scenes of tangled trucks reinforce accounts of lawless drivers with no respect for anything but meeting their deadlines, no matter the cost.

This public perception has persisted for decades, yet the reality is very different. Heavy vehicle crashes have been reducing over the last few years and the great majority of truckies are professional, courteous and law-abiding. It's a small percentage of 'cowboys' who tarnish the reputation of the whole industry and dominate the public psyche.

But over recent years a revolution has been under way; the trucking industry has been hard at it to transform its safety and professionalism and to reverse the long-held view about one of Australia's most important industries. The cowboys are being told to clean up their act or get out.

Wide-ranging reforms

Trucking executives have long argued that authorities haven't had the legal muscle to go after reckless transport operators and put them out of business. This will begin to change if wide-ranging reforms by the National Road Transport Commission are approved and implemented by state and territory governments from later this year.

The NRTC is a small independent body which since 1991 has been working with the road transport sector, governments, police, motoring organisations and other groups to develop a new generation of road transport laws to bring profound and lasting changes to the way road transport operates in Australia.

The NRTC's reforms will make Australia's roads safer for the long haul and boost road transport's productivity. Nationally uniform or consistent rules will replace a myriad of local requirements making interstate transport operations easier and more efficient.

Combating speedsters

Despite speed-limiting of trucks, increased fines and more sophisticated enforcement technology, speed surveys have shown that up to four per cent of trucks still travel over 115km/h on the open highway.

In response to an industry initiative to take tough action on speeding trucks to improve its image, the NRTC has developed an approach which plans to combat the problem by targeting vehicle owners as well as drivers. In addition to fining drivers, a rising scale of penalties is proposed to apply to operators of vehicles caught

Vehicles caught travelling at high speeds could be put off the road if the NRTC's proposed reforms are approved.

travelling in excess of 115km/h within a two-year period (see side panel opposite).

If approved by transport ministers later this year, vehicles caught at high speeds could be put off the road which will hit owners hard and make the highways much safer for the truckies themselves and for other drivers.

The speeding policy reflects a major drive to make transport operators - those who run the companies and impose the driving schedules - and even customers, responsible for offences. Often, drivers are the meat in the sandwich and are forced to speed or drive longer hours to meet impossible schedules.

It's a classic 'catch 22'. If drivers refuse, they can face the sack; if they agree, they place themselves and others at risk and can incur fines which they have to pay out of their own pocket.

The NRTC's laws are aimed at getting to the root of the problem by targeting the companies that deliberately operate illegally to gain a competitive advantage over the majority of people in the industry who do the right thing.

And not only could trucks be ordered off the road. Where companies have a track record of speeding or other offences, the NRTC proposes that courts should have the power to kick them out of the industry altogether.

Many believe that if approved, it will only take a few successful and high-profile company prosecutions for the new laws to have a powerful deterrent effect on the ratbag fringe in the industry and on other companies or drivers who consistently operate outside legal limits.

Uniform driving hours

Uniform driving hours laws for truck and bus drivers is another long-awaited reform which will tackle driver fatigue head on. Drivers of vehicles over 12 tonnes will have to comply with uniform set hours along with a new national log book.

Fixed driving hours will not by themselves limit fatigue - one of the biggest killers on the open road - although they will make compliance and enforcement easier. Instead, research has shown that management of a driver's overall schedule of working, resting and sleeping is far more important in keeping drivers alert behind the wheel.

Therefore an optional scheme is planned which will give drivers extra flexibility to manage their hours of driving, other work and rest provided they undergo a medical and sit a specially designed training course on how to manage fatigue symptoms.

Although drivers in WA and the NT will be exempt from set hours (as they are now) they will be able to adopt the more flexible approach. Electronic recording of driving hours is also proposed as a far more secure, efficient and reliable optional method of recording driving hours.

PROPOSED PENALTIES FOR SPEEDING HEAVY VEHICLES

FIRST OFFENCE	vehicles not speed limited will be required to have a limiter fitted
	a written warning will be given for existing speed-limited vehicles
SECOND OFFENCE	operators will be required to demonstrate that limiters are working effectively
THIRD OFFENCE	suspension of vehicle registration for one month
FOURTH OFFENCE	suspension of registration for three months

A much tougher range of penalties is proposed for breaching driving hours laws including stiff fines for companies. If approved by ministers, the new driving laws could begin to be introduced by early 1998.

Other safety reforms

Other reforms are gradually being introduced by states and territories to eliminate multiple licences and to eventually link licence data bases to make the national exchange of demerit points easier so that persistent offenders are removed from the highways much sooner, irrespective where they travel.

A separate package of reforms due for introduction from January 1998 will make transporting dangerous goods by road a lot safer. All those involved will need to be specially trained, drivers and vehicles will need to be licensed and company staff convicted of serious offences could face court fines of up to $500,000 and/or four years imprisonment.

It won't all be big brother regulation though. A major focus is on developing a framework for voluntary accreditation which will reward the good operators who can demonstrate they are meeting vehicle safety, loading and other safety standards. This will go hand-in-hand with the industry's own accreditation programs.

Nevertheless, the cowboys will continue to grab the headlines, but if given the green light, the speeding and other laws will pack a very strong punch and may even deliver the knock-out blow that the industry has long been waiting for.

For more information contact the NRTC -
phone (03) 9321 8444, fax (03) 9326 8964,
e-mail: nrtc@ozonline.com.au
or write to
PO Box 13105, Law Courts, Vic 8010.

Key Motoring Facts

PETROL EXCISE

Commonwealth excise on petrol:
The excise on petrol is adjusted in February and August in line with half-yearly movements in the Consumer Price Index (CPI).

As at 1 September 1997

Leaded petrol.	44.972
Unleaded petrol	42.797
Diesel	42.797

Estimated revenue from Commonwealth excise duty on petroleum products:

	1996-97 revised estimate	**1997-98 estimate**	**Change on 1997-98**
	$m	*$m*	*%*
Leaded Petrol	2328	2081	-10.6
Unleaded Petrol	4047	4404	8.8
Diesel	3970	4131	4.1
Other (a)	145	147	1.0
Total Petroleum Products	10490	10764	2.6
Crude Oil and LPG	10	76	660.0

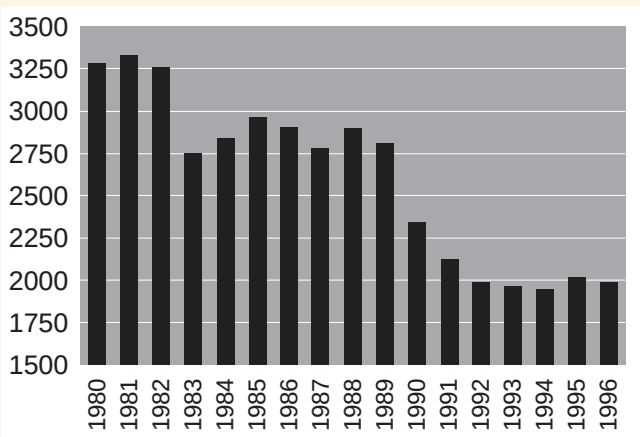
Source: Budget Paper No.1, "Budget Strategy and Outlook 1997-98"

(a) Includes aviation gasoline, aviation turbine fuel, fuel oil, heating oil and kerosene and refunds/drawbacks relating to petroleum products excise.

State Petroleum Franchise Fees:
Petroleum franchise fees are no longer levied by the states or territories. They have been replaced by an 8.1 cents per litre Commonwealth excise.

ROAD FATALITIES

Road fatalities 1980 to 1996:



Road fatalities:

1980	3,272
1985	2,941
1990	2,331
1995	2,017
1996	1,973

Road fatalities year to June 1997	861
Road fatalities year to June 1996	955

Road fatalities by road user group 1996:

Drivers	871
Passengers	501
Pedestrians	349
Motorcycle riders and passengers	193
Bicyclists	58
All road users	1,973

Road fatalities by state/ territory 1996:

New South Wales	585
Victoria	417
Queensland	383
South Australia	181
Western Australia	248
Tasmania	64
Northern Territory	72
Australian Capital Territory	23

Source: Federal Office of Road Safety.

ROAD INJURY

Number of persons hospitalised:

1985	29,248
1990	24,961
1995	22,368
1996	21,639

Number of persons hospitalised by road user group 1996:

Drivers	9,637
Passengers	5,675
Pedestrians	2,740
Motorcycle riders and passengers	2,419
Bicyclists	1,112
All road users	21,639

Hospitalisations per 100,000 population:

1990	146.27
1991	130.34
1992	123.00
1993	122.09
1994	142.08
1995	123.90

Hospitalisations per 10,000 registered vehicles:

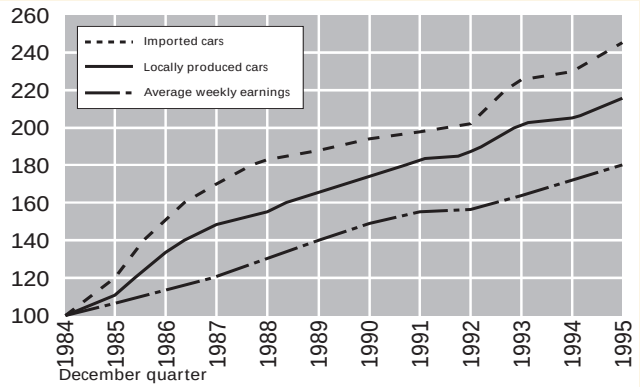
1990	24.76
1991	22.68
1992	20.99
1993	20.67
1994	20.69
1995	20.45

Source: Federal Office of Road Safety.

INDEX OF CAR PRICES

December quarter 1984=100 (excl. Japanese and non-Japanese car prices 1991=100)

	June quarter
Locally produced cars:	
1987	140.7
1992	179.7
1997	219.2
Imported cars (total):	
1987	160.4
1992	194.9
1997	232.2
Japanese	
1992	99.9
1997	118.0
Non-Japanese	
1992	96.0
1997	113.0
Average earnings	
1987	116.6
1992	155.1
1997	185.3
ABS Consumer Price Index - Motor Vehicles	
1987	141.8
1992	177.9
1997	192.0
ABS Consumer Price Index - All Groups	
1987	122.9
1992	159.7
1997	178.8
AAIR Affordability Measure	
1987	80.7
1992	85.5
1997	84.4



Source: Australian Automotive Intelligence, 'Australian Automotive Intelligence Report', August 1997

INTERNATIONAL

Cars on register:

1970	
World	193.5 m
1980	
World	320.5 m
1990	
World	444.9 m
1994	
World	479.5 m
Africa	10.1 m
Asia	72.3 m
North & Central America	171.9 m
South America	21.1 m
Europe	193.8 m
Oceania (Aus, NZ, PNG)	10.4 m

Population per car:

1994	
World	11
Australia	2
Africa	69
Asia	27
North & Central America	3
South America	15
Europe	4
Oceania	3

World distribution of motor vehicles:

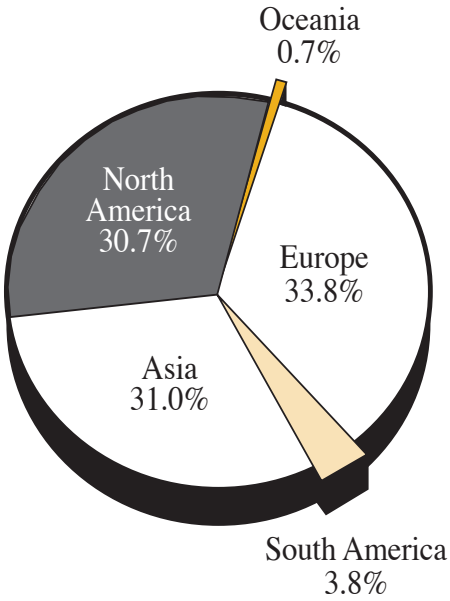
1994	
Private cars	76.23%
Commercial vehicles	23.77%

Source: AIT, "Evolution of Tourism and the Automobile 1997"

World Motor Vehicle Production by Country, 1995

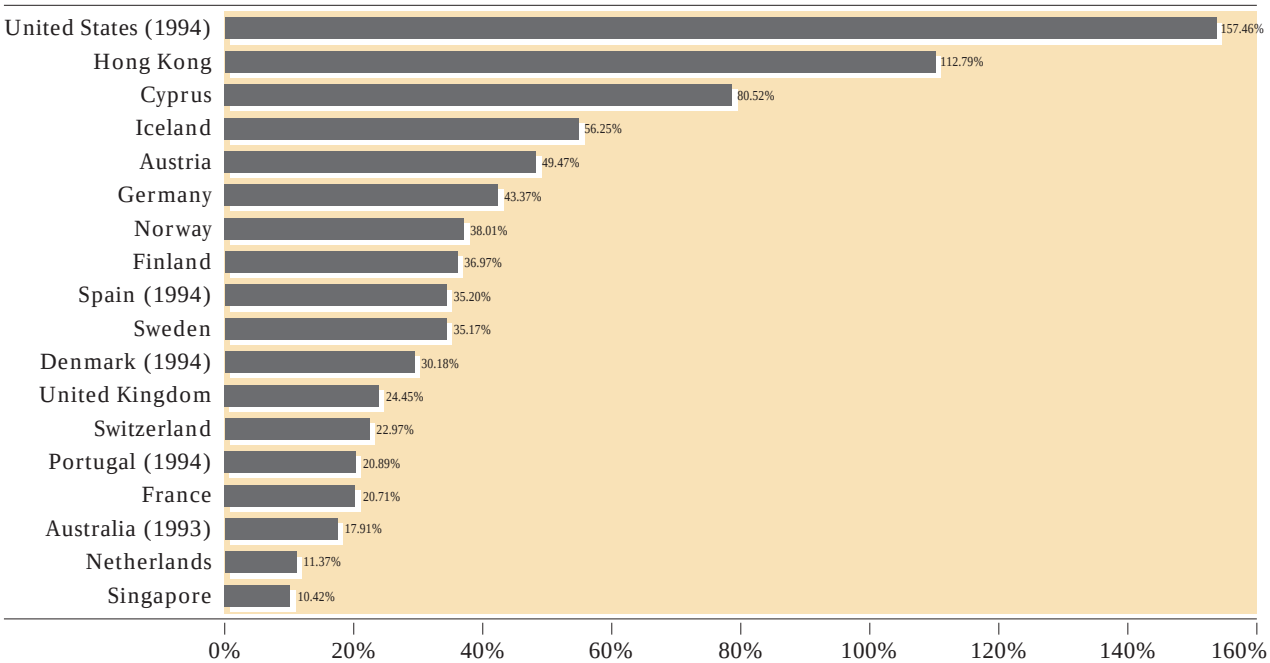
Country	Passenger cars	Commercial vehicles	Total
Argentina	226,504	58,768	285,272
Australia	314,142	29,709	343,851
Austria	43,466	3,217	46,683
Belgium	385,894	81,555	467,449
Brazil	1,296,586	327,555	1,624,141
Canada	1,339,474	1,077,702	2,417,176
China	320,578	1,114,210	1,434,788
Common. of Ind States	890,000	192,000	1,082,000
Czech Republic	189,434	26,589	216,023
France	3,050,929	423,776	3,474,705
Germany	4,360,235	307,129	4,667,364
India	329,879	306,382	636,261
Italy	1,422,359	244,911	1,667,270
Japan	7,610,533	2,585,003	10,195,536
Korea, South	1,985,578	540,822	2,526,400
Malaysia	240,887	5,521	246,408
Mexico	699,312	235,705	935,017
Netherlands	100,434	32,036	132,470
Poland	258,000	5,000	263,000
Spain	1,958,789	374,998	2,333,787
Sweden	387,659	102,483	490,142
Taiwan	282,006	124,474	406,480
Turkey	233,412	49,028	282,440
United Kingdom	1,532,084	233,001	1,765,085
United States	6,350,367	5,634,724	11,985,091
Yugoslavia	7,558	1,753	9,311
Total	**35,816,099**	**14,118,051**	**49,934,150**

World Motor Vehicle Production by Continent 1995



Source: American Automobile Manufacturers Association

Road Expenditure as a Percentage of Road Taxes – 1995



Conferences and Events 1997

October 21-24:
Intelligent Transport Systems 4th Annual World Congress, *Mobility for Everybody*, Berlin (Germany), contact Eef de Ferrante (Exhibition Management), fax + 31 (30) 662-2321, email ferrante@worldaccess.nl

October 21:
Society of Automotive Engineers Australasia *Industry Outlook* conference, Melbourne, contact Angela Mercorella (SAE), phone (03) 9326 7166

October 23-26:
Triple A Fuel Challenge, Canberra, contact Mike Wilson (Triple A), phone (06) 247 7311

November 5-7:
Asia-Pacific Concluding Conference on the OECD *Dynamic Interaction of Vehicle and Infrastructure Experiment*, Melbourne, contact ARRB Transport Research, phone (03) 9881 1555, fax (03) 9887 8104

November 7:
Society of Automotive Engineers Australasia *Annual Automotive Engineering Excellence Awards*, Melbourne, contact Angela Mercorella (SAE), phone (03) 9326 7166

November 14:
9th International Pacific Conference on Automotive Engineering, contact Angela Mercorella (SAE), phone (03) 9326 7166

November 17:
Australian Automobile Association Annual Conference public policy forum, Melbourne, contact Julie Anderson (Triple A), phone (06) 247 7311

Conferences and Events 1998

February 13-14:
7th Biennial Australasian Traffic Education Conference, *Speed, Alcohol, Fatigue, Effects*, University of Queensland, phone (067) 72 3943, fax (067) 71 2679

February 27-March 8:
Melbourne Motor Show, contact VACC, phone (03) 9829 1111

March 29-April 2:
5th International Symposium on Heavy Vehicle Weights and Dimensions, Maroochydore (Qld), contact ARRB Transport Research, phone (03) 9881 1555, fax (03) 9887 8104

April (date to be confirmed):
Road Transport Forum 1998 Australian Trucking Convention, Canberra, contact Kim Bullimore or Kylie Leniham (RTF), phone (06) 247 5832, fax (06) 248 9702

May 3-8:
9th Road Engineering Association of Asia and Australasia Conference, *An International Focus on Roads: Strategies for the Future*, Wellington (New Zealand), contact Fiona Knight (Transit New Zealand), fax + 64 (4) 496-6666

June 4-5:
Australian Institute of Traffic Planning and Management Annual Conference, *Moving Smarter - Challenges in Traffic and Transport*, Sydney, contact Trish (AITPM), phone (02) 9875 2855

September 27-October 1:
FISITA World Automotive Congress, Paris, contact Societe des Ingenieurs de l'Automobile, fax + 33 (1) 47-20-48-73

November 8-12:
Intelligent Transport Systems 5th Annual World Congress, Seoul (Korea), contact Sandra Fitzgerald (ITS America), fax + 1 (202) 484-2902

To include your event in the calendar, please forward the date/s, title/topic, location and contact details to the editor (see page 2 for fax number, postal and e-mail addresses).

THE TRIPLE A ROLE

The Australian Automobile Association was established in 1924 to enable the various motoring clubs and associations to speak with a united voice on issues affecting their members. As the Federal Secretariat of the state and territory motoring organisations, the Triple A co-ordinates their activities in areas of mutual interest. It provides national and international representation for their members and, indirectly, all Australian motorists.

THE TRIPLE A VISION

To maintain world best standards of motoring services.

THE TRIPLE A MISSION

To promote the interests of Australian motorists by influencing public policy and by the efficient use of member organisation services.

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