

EMBARGOED UNTIL 10.00 A.M. WEDNESDAY 6 MAY 1998

**ROAD ENGINEERING ASSOCIATION OF ASIA AND
AUSTRALASIA 1998 CONFERENCE**

**THE NEW ZEALAND ROAD REFORMS:
PROCESS, DECISIONS AND IMPLEMENTATION**

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**WELLINGTON
6 MAY 1998**

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The General Case for a Commercial Structure

The New Zealand Business Roundtable (NZBR) firmly supports continued work on the Roothing Advisory Group's (RAG) recommendation that all roads be put on a commercial basis. This option was also a major focus of CS First Boston's 1993 report for the NZBR on road reform issues.

In the NZBR's view, the case for adopting a commercial structure is becoming more pressing year by year. First, uncertainty about the optimal time to introduce direct billing technologies is reducing. The RAG report was prepared in the knowledge that the technology is now available and is already cost effective for heavy vehicles. Its authors felt confident that it would be commercially viable for all vehicles within 10 years. Second, growing traffic volumes and increasing congestion in Auckland and Wellington are serving to highlight the inadequacies of local authority management of road capacity. It would be hard to find any business group that had any confidence in the ability of the road authorities in Auckland and Wellington to address the congestion problems adequately. Yet if these problems are not addressed the costs to the community will be enormous.

Institutional reform needs to acknowledge that governments currently have multiple interests in the road network. They collect funds from road users and ratepayers, provide network facilities, regulate for land use, safety and the environment, and subsidise buses and, in the case of Wellington, commuter trains. Currently, local authorities do not adequately separate out responsibility for these diverse activities. It is hard to hold any agency accountable for its performance when it has multiple and conflicting roles. This is because the agency may be able to claim with impunity that its lack of performance in any one dimension is justified by the improved performance in another dimension. For example, it might spend less on road capacity enhancements because it desires to reduce its subsidies for buses by forcing more people to use them, or it might do the opposite. In such circumstances, any decision is arguably as good as any other. Accountability is grievously impaired.

The case for putting the provision of roads on to a commercial basis is essentially the same as the case for putting state trading enterprises into a commercial structure and exposing them to competition. As with the State-Owned Enterprise (SOE) reforms more generally, there are powerful reasons for believing that major efficiency gains are likely with clearer objectives and a competitive environment. Such reforms improve accountability by making each agency responsible for the achievement of a single overriding objective. In particular, agencies responsible for the efficient provision of road network facilities can be required to identify and meet road user requirements at least cost, subject to whatever constraints are set by agencies with regulatory responsibilities. A fully commercial, for-profit environment also forces providers to be as sensitive to satisfying user needs as they are to reducing costs. This balance arises because a dollar of extra revenue makes the same contribution to profits as a dollar reduction in costs. When such constraints apply neutrally to providers of competing facilities, the powerful discipline of competition can be applied to commercially structured state providers.

The case for commercialising the provision of roads is strengthened by the development of electronic billing technologies. These new technologies bring with them the potential for much more efficient pricing structures and greater competition in the provision of road network facilities. They will permit a road operator to bill users directly for the costs associated with their use of that operator's roads. The more readily charges for the use of particular roads can be imposed on those using them, the easier it will be for a road operator to determine road users' true preferences when confronted with the costs of services provided.

Current billing technologies are limited because the funds collected from road users through petrol tax, annual vehicle registration fees and road user charges cannot be readily related to their use of particular roads. It is hard to make these charges specific as to location or time. Any provider of part of the network is not able to bill users directly for the use-related costs they impose at any particular time. This reduces the potential for providers to confront users with the costs of meeting their requirements. It also impairs the normal mechanism by which users reveal their preferences to providers as they change their demands in response to changes in charges. In any case, tying a road provider's revenue to the amount of petrol sold does not necessarily give the road provider a good incentive to reduce petrol consumption by easing congestion or making a road less steep.

Furthermore, under current arrangements no entity has a commercial incentive to exploit the new technologies in a timely manner. Doing so will be a major undertaking with significant political and commercial risks. Unless central government takes the initiative in planning for the introduction of these technologies they are unlikely to occur optimally, if at all. Institutional reform is necessary.

Commercialising the provision of the roads will, of course, require providers to earn enough revenue to cover the cost of capital. This is highly desirable in order to curb excessive demands for expansions in road capacity, but it will not be well understood by those who fail to understand that normal profits are a cost, just as the interest paid on debt is a cost.

Commercialising the provision of the roads also raises fears of monopoly pricing. These need to be addressed. Many will see continuing government ownership of the dominant road providers as protection against monopoly pricing. However, government ownership without a commercial structure, competition or transparency can lead to the exploitation of monopoly power through excessive costs, low-return investments and excessive charges for some groups of users in order to cross-subsidise others. Competition and transparent, arms-length arrangements provide a more enduring answer to the problem of government abuse of a monopoly position.

In the transition to a more transparent, commercial structure based on the new billing technologies, interim arrangements are required to channel road user payments to particular providers. Transfund might purchase road services from particular providers, although such an intermediary may not be necessary. The CS First Boston report suggested using shadow pricing as an interim measure for funding commercially-structured providers until direct billing systems were installed. More

transparent arrangements should also see greater clarity in the link between road users and the amounts currently paid to providers in respect of local authority rates, annual licensing fees and petrol taxes.

A commercial structure should see any government subsidies for users of particular roads, such as remote rural roads or tourist highways, made transparent and explicit. The CS First Boston report favoured putting all roads in the network on a commercial basis. The more limited reform of imposing a commercial structure only on the provision of the state highways could complicate the task of introducing new billing technologies in a consistent fashion. It could also create ongoing contractual problems between non-commercial roads owned by local authorities and a commercial state highway system. On the other hand, the report saw two virtues in commercialising the state highway system independently of other roads. One was that monopoly problems are likely to be smaller with state highways. The second was that reform of state highways could be achieved faster. More weight might now be accorded the second point given the advent of an MMP-constrained parliament.

Once commercial operation and the regulatory environment were established for existing roads, the report suggested that private ownership would be likely to lead to additional efficiency gains as long as monopoly costs were not severe.

What Efficiency Gains are Expected?

Efficiency gains from fundamental reforms would be expected from:

- better maintenance decisions;
- better capital expenditure decisions;
- better pricing arrangements;
- less pollution as a result of less congestion and a more efficient approach to controlling pollution; and
- improved accountability for safety.

Each of these is considered in turn.

Maintenance

Currently road maintenance decisions are based on funding arrangements which lack transparency, are not adequately tested against willingness to pay, and are heavily politicised. It appears to be much easier to passively maintain the quality of an existing road than to optimise its quality. Because local road maintenance decisions are not primarily determined by the willingness of local users to pay, the system invites lobbying for excessive levels of maintenance based on the belief that others will be made to pay for any excesses. Fears amongst rural communities that a commercial approach will lead to a downgrading of the quality of many rural roads appear to be based on a perception that other users are cross-subsidising the maintenance of rural roads. No doubt current arrangements do incorporate many cross-subsidies. One of the benefits of a more commercial environment is that any such cross-subsidies should become more transparent. This would make central and local government more accountable for the payment of those cross-subsidies.

In a more commercial framework, we would expect maintenance decisions to be less politicised and more sensitive to local community preferences based on the real cost of resources. A commercial road operator is likely to be much more responsive to the willingness of users to pay for local roads than is the case under current arrangements. Issues of monopoly pricing of maintenance costs should not arise because maintenance contracts can, and commonly are, tendered. The same process could be used to give local communities a choice between more costly, better maintained roads and less costly roads. The maintenance contracts could also run for many years if enough residents wished to have the protection of a long-term fixed-price contract.

In other areas of government production, major efficiency gains have arisen from organisations being able to do a given job at much lower cost. Such gains reflected the bloated staffing levels and poor use of capital which were a feature of state production in other network industries such as telecommunications, postal services, electricity and rail before they were commercialised. However, in the case of road maintenance, the government's policy of requiring councils to put work out to competitive tender may have limited the scope for further efficiency gains from this source.

Capital Expenditure

As with road maintenance decisions, the key efficiency concern is obtaining the optimal quantity and allocation of capital spending rather than ensuring that capital works, once initiated, are undertaken at least cost.

Currently, the absence of a conventional commercial structure means that the total funding for capital expenditures is a political decision. This decision is not based on any sound assessment of the economic benefits of expenditure on the system as a whole. Administratively determined cost-benefit procedures bring more discipline to the selection of specific projects.

The disjuncture between the actual level of capital formation and the apparent optimal level is alarming. Actual investment is being so constrained that a project will only be considered to be eligible for funding if calculated benefits are four times calculated costs. This is a bizarre situation. Any project passes a cost-benefit test if the benefit is no less than the cost. Benefits greater than cost represent a windfall gain. Something is seriously wrong. It could be the level of funding, or the calculated costs and benefits, or both.

Perhaps it is worth spelling out how bizarre this situation is with a simple example. Suppose someone offers to sell you some government bonds for one percent less than their market rate. This amounts to a gift of the one percent element. Buy \$100 million of bonds under this arrangement and immediately sell it for one percent more and you have cleared a million dollars. Why doesn't this happen in the government bond market? The answer is obvious. Competition, arbitrage and the bankruptcy of those who would play Father Christmas will quickly eliminate any such opportunities.

In the private sector, the general presumption is that, unless exceptional circumstances prevail, the benefit from a project will just balance the cost. (Since profit is a cost, such competition means that private investors can only expect to earn a normal profit.) The challenge in business is to search for exceptions to this general presumption. Projects whose expected benefits so much exceed costs that they are virtually assured of windfall gains are treated with great scepticism in the private sector. Their promoters are asked: "What do you know that the world doesn't know already?"

The same scepticism lies behind the old joke about the efficient market theoretician's response to a colleague who points out a \$100 note on the pavement. "It can't be a genuine \$100 note", says the efficient market theoretician, "or someone else would have already picked it up." The joke makes a fair point – academics should not be so dogmatic as to assert that foolish mistakes never occur – but the theory gets its power from the fact that it is uncommon for people to leave money on the pavement for others to grab, except by mistake. An unexploited superior business opportunity is like money on the pavement.

Yet the 4:1 benefit cost ratio that has become the decision rule in roading administration in New Zealand is tantamount to offering a genuine get-rich-quick scheme – assuming the rest of the cost benefit analysis is reliable. Expressed differently, to turn down a genuine, legal opportunity to turn one dollar into four dollars on a fully costed, risk-adjusted basis, is to destroy wealth. It is much worse than taking four one-dollar notes and burning three of them. The mere act of burning paper money does not affect the volume of goods and services available for people to use and enjoy. In contrast, turning down a project that allows four widgets to be produced for the current cost of producing one reduces living standards by depriving someone of the benefit of the resources that could have been released from widget production. While individuals can claim the freedom to destroy their own property in such a manner, it is another thing entirely for those making decisions in business or government to do so without the permission of shareholders or taxpayers.

In the context of a state monopoly road provider it is more plausible that resources could be wasted as a result of the failure to exploit socially profitable projects. There is also evidence of an under-spending bias in the anti-motorist stance taken by some local authorities. Few would want to watch a mid-air collision between two aircraft. But it is scarcely less painful to watch local authorities trying to handle the conflicts between their roles as a provider of road infrastructure for the benefit of paying users, a funder of public transport, a regulator of environmental quality, and a promoter of regional growth. The Wellington Regional Council, in its ideological reaction to privatisation issues, has taken a particularly head-in-the-sand approach. It has stated categorically in the past that it would not permit road capacity to be expanded to cope with peak-period motorist traffic. It funds buses and trains and wants motorists to learn to use them. Its whole policy appears to be based on the utopian premise that individuals' choices are as malleable as the whims of a central planner. Of course, if New Zealanders are like everyone else and greatly value the flexibility of private transport the upshot of the policy will be the sort of traffic gridlock in Wellington that we currently associate with Bangkok.

No doubt responding to the growing traffic problems and the repeated criticisms from organisations like ourselves and the Wellington Regional Chamber of Commerce, the Wellington Regional Council is becoming a little less forthright about its anti-motorist position. But there is little to indicate that its change of heart is anything other than presentational. When pressed to defend its policy, it is prone to retreat behind the proposition that nothing economic can be done to ease the congestion because of the constraints imposed by geography. But this does not explain how geographically constrained cities like New York and Boston can continue to accommodate growth while avoiding severe gridlock. Nor does it explain why the Council is not more actively researching congestion pricing options for the benefit of the region. While local authorities dither over their conflicting roles, a growing number of Aucklanders and Wellingtonians fume.

What might we conclude from this discussion? Current arrangements raise worrying questions about incentives and inadequate information. There has to be a strong suspicion that congestion problems would be less severe in Auckland and Wellington if the critical benefit to cost ratio requirement had not been raised so much in recent years. A more commercial structure should improve incentives and allow investment decisions to be related more closely to willingness to pay and less dependent on centralised guesses about the values to put on human life and travel time.

Better Pricing Arrangements

Currently, road users pay for roads primarily through a use-related petrol tax and road user charges. In addition, those owning vehicles pay an annual vehicle registration fee and most households pay what could be seen as a fixed charge when they pay their local authority rates. Two-tier pricing structures – a charge for use and a charge for access – are quite common elsewhere. They apply, for example, in electricity and telecommunications. Intuitively, a two-tier structure would seem sensible for roads. The Ministry of Transport's Land Transport Pricing Study (LTPS) observed that 40 to 60 percent of road maintenance costs are not use-related. There is a potential efficiency loss if use-related charges are set above the marginal cost of use on an uncongested road since some traffic will be discouraged, leaving the road even more under-utilised. This is why the NZBR questioned the RAG's proposal to replace rates by use-related charges.

In New Zealand route-related charges are rare and congestion charges do not exist. Route-related charges, in the form of toll charges, are much more common in the United States and Europe. They confront particular road users with the costs of a new or enhanced road, bridge or tunnel. Singapore provides perhaps the best known case of the use of congestion charges. New billing technologies promise to make direct charging commercially viable.

The optimal levels for the charges made possible by direct billing technologies cannot be determined with any accuracy under current arrangements. Providers lack the commercial incentives and disciplines which allow optimal prices to emerge. The interim reports of the Land Transport Pricing Study discussed important pricing issues but raised a number of concerns. The most fundamental problem is that efficient

prices can only be discovered spontaneously by competitive market processes. They cannot be satisfactorily discovered by any committee process or by any expert. Even costs are subjective, depending as they do on assessments of how quickly future developments will make existing human and physical capital obsolete. Entrepreneurs who back their visions of future developments in the market place are contesting subjective, competing views concerning future demand and future costs. In the absence of a marketplace contest, government advisers have no means of accurately determining diverse consumer preferences or the lowest achievable costs of supply. Nor would they necessarily be rewarded for doing so. Poor incentives, politically inspired lobbying, and woefully inadequate information about user preferences and current and future costs put impossible hurdles in the way of any central planners seeking to make the best objective decision.

If roads were a public good like national defence, road prices and facilities might have to be determined politically. However, as long as unlicensed drivers and unregistered vehicles can be excluded from the roads readily enough to prevent their numbers from becoming financially significant, roads are not a public good. Present policies are already based on this premise. Indeed, there would be no concern about the possibility of monopolistic pricing of roads if they really were a public good. To the contrary, the concern would be that nothing would be spent on roads because a commercial provider would go bankrupt.

The bias in the Ministry of Transport's first discussion document in the Land Transport Pricing Study towards setting prices on the basis of operating costs plus a return on an administratively determined value for the capital asset was understandable but deeply flawed. It was understandable because this pragmatic approach would be more operational under a centralised structure than the task of determining efficient prices. It was flawed because it is logically absurd to use a value which only makes sense if it is conditional on the prices to be charged being used to justify those prices.

Given the difficulties with centralised price determination, the more recent moves to create an environment where efficient prices can emerge from competitive processes are encouraging. For private goods, competitive markets provide the best system for obtaining efficient prices. This is true of roads. The efficiency of market-determined prices depends in part on how well monopoly problems can be controlled. This point is discussed further below.

Pollution

New technologies continue to make cars more fuel-efficient and therefore less polluting per kilometre travelled. By facilitating congestion pricing, new technologies should also reduce the pollution caused by excessive fuel consumption on clogged roads.

Commercial incentives to ease bottlenecks in a timely manner by capital expenditures would represent a major change from current incentive arrangements – as the Wellington Regional Council example demonstrates.

Finally, governments can consider the issue of optimal pollution taxes generally, as well as any specific measures to discipline those who drive poorly maintained cars that burn fuel excessively.

Safety

New technologies will also continue to make road travel safer. Making road operators directly responsible for all road safety has the potential to produce efficiency gains from better road design and driver and vehicle controls. With commercial structures, government regulation of safety could be less presumptive about what levels of safety road users wish to purchase.

The important point here is that road users will pay something for safer roads, but they also value other attributes such as reduced travel times and lower road user charges. A road safety regulator is not in a good position to determine the optimal amount of safety and could easily adopt an over-zealous approach. There may be no fully satisfactory answer to the problems of inadequate information and imperfect incentives. However, making the road operator take greater responsibility for safety decisions could help.

Liability rules also bear on safety. In a 1996 lecture on New Zealand's accident compensation arrangements, an eminent authority on tort, Professor Richard Epstein of the University of Chicago, proposed that New Zealand consider imposing a controlled form of strict liability on motorists who broke the road code and were involved in an accident which caused personal injury. Of course such motorists are already liable for recovery of damages to property.

Impediments to Reform

There are many impediments to reform. Some of the difficulties are political. Having an MMP-constrained parliament does not help. The main technical issue is the optimal regulation of monopoly.

Political obstacles

The emotive and ideological debate in New Zealand about privatisation, profits and overseas ownership only partly reflects the anti-market prejudices of many journalists, academics and lay people. It also reflects, all too often, a failure by politicians to promote public discussion of the issues. Sometimes they deliberately exclude this issue from the terms of reference of studies of reform options. The RAG, for example, was not permitted to analyse the option of privately owned roads – beyond part ownership by iwi.

But who does the government think it is fooling when it proclaims that private ownership of roads is not an issue? It is hard to pick up an overseas financial

newspaper these days and not find a report of a new private roading project in the developed or developing world. Of course a move to a more commercial approach raises the question of why the Crown should own a commercial activity. The failure to put all options on the table lets the electorate down and puts the public interest at risk. Governments that have failed to present any proper analysis of the ownership issue will be unable to argue the case on its merits. They will therefore look devious. Trust in government, already at a low point, is further undermined. It would be far better to have all options thoroughly analysed and put into the public debate. Politicians would, of course, be free to decide that, at any particular time, there was insufficient public support for proceeding to private ownership if that was assessed as the best option. This might or might not reflect leadership failure, but it would be open and honest position.

At the local government level, most councils seem incapable of sorting out their conflicting roles for themselves. They are predisposed to preserving as large a role for themselves as their funding will permit, and they have difficulty conceiving that they are not the world's best owners or operators of water supplies, electricity distribution, sports stadiums, airports, ports, and roads. Unlike the rest of us, they do not feel obliged to make choices about what they are good at, and leave the rest to others. The few exceptions to these generalisations serve to prove the rule.

There has been abundant evidence for many years that councils are not competent managers of major infrastructural services. Growing road congestion problems in Auckland and Wellington heighten the need for central government measures to force local authorities to focus more heavily on core public good and regulatory activities.

Monopoly Issues

No particular monopoly issues appear to arise with the supply of road maintenance and road construction services. Competitive tenders can readily determine the cost of such services. One option would be to recoup those costs through a use-related fee and a periodic charge to reflect the degree to which maintenance costs are not use-related. Traffic count estimates might be used to assess whether any particular road was being used as a thoroughfare by those not living on its borders. Local (suburban and rural) residents concerned about the level of charges for the maintenance of roads which service their dwellings should be able to readily verify the integrity of the contract tendering process. They should also be able to debate any traffic count numbers that are used to apportion costs to unrelated through traffic.

A local road operator wishing to enhance an existing suburban or rural road will have to evaluate the local community's willingness to pay for the higher future maintenance (and debt servicing) charges. Formal or informal processes could be used.

Monopoly issues in respect of state highways deserve consideration. Even here they do not appear to be severe, at least for longer trips. Many activities can substitute for distance travel along a state highway. Commerce can transport goods by ship, rail, road or air. The road transport organisations are used to debating road user charges

directly with government agencies and should be able to look after themselves in negotiations with any road infrastructure providers.

Individual motorists have a wide range of choices at the margin as to how much they use the state highways. Holidays can be taken close to home or far away. People can drive, fly, or take the bus or train. They can take a touring holiday or camp. Tourists from overseas can fly into Auckland, bus, drive or fly to Rotorua, and end their New Zealand experience by flying to Queenstown – or they can take the time to take a bus tour or travel further by car. These options are close substitutes for most people. More formally, charges on state highways for car users will be constrained by:

- the fact that local roads will commonly be an alternative to the use of state highways and may be owned by a different provider;
- the fact that the expected maintenance costs of a kilometre of state highway will be well known from the maintenance contract tendering process. The number of users would also be reasonably easy to estimate. Transit New Zealand will have to make the argument for its capital charge element very explicit because the level of the charge will be transparent;
- the limits which charges for stretches of roads which do compete for business with local roads will impose on charges for uncontested stretches of state highways;
- the costs of freighting cars by rail or sea and/or moving people by rail or air (this benchmark primarily constrains charges for longer distance travel, but it will also constrain what a state highway operator can charge for short trips since it cannot know which are short-trip vehicles and which are long-trip ones when charging for any particular stretch of road); and
- the benchmarks created by how charge differentials for trucks vary across the state highway system.

Such factors usefully constrain the exercise of monopoly power in the operation of state highways. In an initial structure, central government would directly control prices through its shareholding ministers.

This leads to the issue of local commuter roads, including those parts of state highways that also serve as commuter roads. As CS First Boston noted in its 1993 report, the most severe monopoly issues arise with local commuter and central business district roads. The constraints of space mean that such roads cannot be easily duplicated. While commuters faced with monopoly prices on these roads could relocate their homes or businesses, these changes would take time to take effect.

It is hard to see a major problem with the setting of congestion charges. Because congestion can be so readily observed, charges that are so high as to make a road uncongested at peak periods will surely be immediately challenged.

It is highly desirable on efficiency grounds that congestion charges are levied on busy roads whenever pricing technologies make this economic. This means charging enough to prevent congestion by deterring the marginal peak-time user. In economic terms it means charging according to the marginal user's opportunity cost. Imposing these charges reduces pressures to build additional road capacity prematurely. It reduces the air pollution arising from wasteful petrol consumption. It gives the provider additional revenue. The possibility of deriving such revenue in future will affect the timing of any investment in roads.

Nor should there be a problem in determining the quantum of funding necessary to cover annual maintenance expenditures. This funding might be recovered by a combination of a fixed charge and a use-related charge. The precise combination might depend on the extent to which maintenance expenditures are use-related.

Suppose that an existing use-related charging structure can be expected to be sustained for an additional road and the additional volume of traffic along the road is large enough to allow its annual operating costs to be recovered at the prevailing fees for uncongested roads. To justify building the new road, the commercial road operator would have to assess users' willingness to pay an access fee large enough to cover any gap between the full marginal cost of the new road and expected use-related revenues. The size of this gap would depend in part on how much risk the operator is bearing. The more risk is being borne by road users and households, the lower the gap. In the extreme case of a user-controlled (non-profit) club model, all road enhancements might be debt funded (with the debt guaranteed if necessary by user pledges). Enhancements might then only occur when users voted for the increase in the fixed charge that would be necessary to service the increased debt.

These are quite tricky assessments for a road operator or a road regulator to make. In a normal market situation, a supplier of a facility would be stimulated to build more capacity in a timely manner by the desire to get more revenue from more customers. The firm would be motivated by the thought that if it were tardy about increasing capacity, its competitors might seize the opportunity.

In a pure, unregulated monopoly situation in which a single operator owns all busy commuter roads in a town or city, a profit-maximising monopolist will also be stimulated to build more capacity so as to get more revenue from more users. The welfare concern of course, is that the monopolist might delay the investment, knowing that competitors cannot enter, by pricing above marginal cost and thereby holding back demand.

This problem is not necessarily solved by a non-profit structure, club ownership or local authority ownership. A non-profit structure might defer investment simply because it is balance sheet-constrained. Obtaining significant amounts of new equity is commonly a problem with a non-profit structure in a commercial situation. A related problem could occur with club ownership. Parties within the club may differ in their objectives and their willingness to put in additional equity. Finally, in a commercial structure cash-constrained councils might like to receive monopoly profits. Indeed, this could

give them a further reason for under-investing in local roads. (The current reason is that restricting capacity pleases anti-motorist interest groups.)

Pressures to make timely investments in capacity are likely to be greater if the ownership of roads in a particular urban area is spread across a number of unrelated operators. For example, where some commuter roads into Auckland and Wellington are owned by Transit New Zealand and others by diverse local road operators, some competition as to which operator will build the next increment of capacity may occur. The opposing argument that a single owner of all urban roads can better coordinate capacity-enhancing improvements is valid, but the point is not necessarily conclusive since it depends in part on the quality of the single owner's incentives.

When traffic volumes are growing and the marginal cost of expanding road capacity is high, considerable economic rents could be earned on existing roads. In an efficient market, roads would not be priced differently according to their different costs of supply, just as the produce from fertile farms does not sell for less than the produce from marginal farms. Infra-marginal (low cost) roads would earn economic rents just as fertile farmland is worth more per hectare than marginal farmland. Under-pricing an existing road relative to a new road will distort traffic patterns and deter the construction of the new road.

This example illustrates the difficulties of trying to apply a cost-recovery framework to the regulation of charges on existing roads. Efficient prices set at the margin might be appreciably higher or lower than the prices necessary to recover or service costs on an existing asset.

The level of economic rents which might be earned on an infra-marginal road depends on how low the cost of the road is compared to the marginal cost of additional capacity. As it happens, the marginal cost of new roads usually rises in built-up areas as traffic volumes grow and space is increasingly at a premium. Examples of high marginal costs would be the construction of a harbour bridge or tunnel, overhead or underground motorways, or a ring road through an expensive suburb.

When demand is growing and it is getting ever more costly to expand capacity, the value of existing roads may markedly exceed their depreciated replacement cost, and the revenue derived from them may be well in excess of their administratively assessed stand-alone cost. Conversely, when traffic volumes are falling the value to society of a road may be well below its depreciated replacement cost. In such circumstances, deprivation values should provide a better indication of the value of an existing road to society.

One danger with regulating charges for urban commuter and CBD roads in order to prevent monopoly pricing is that the regulation may also destroy incentives to build new road capacity. For example, any rule which limited revenues from uncongested roads to the average operating cost of those roads could severely inhibit the timely construction of new roads if it implied that investors would not be able to cover total costs in a timely manner.

Regulations which attempt to relate the charge on an existing road to the depreciated replacement cost of that road will mean that such roads are under-priced relative to their opportunity cost. A disincentive to increasing the capacity of a congested system would arise if regulations stopped charges on existing roads from equating to charges on a newer, more expensive road.

It is therefore important that any regulations affecting prices charged on existing roads are not determined only by costs. They need to allow busy roads to earn economic rents when the marginal cost of building additional capacity is rising with the growth in traffic volumes. As in any other market, both supply and demand considerations should determine efficient prices in road operation.

Unfortunately it is likely to be hard for a regulator to distinguish between the supernormal profits that result from rising marginal costs and those that result from monopoly pricing.

From a public policy point of view we need to be particularly careful that well-meaning regulation does not exacerbate the under-investment problem. For the reasons just discussed, there appears to be a real risk that this could occur if economic rents are ignored. Nor is this the only situation in which regulations could stifle the incentive to invest. For example, in the opposite case of increasing returns to scale it may be cheaper per lane to build a four-lane bridge than a two-lane bridge to ease congestion. If regulations are not sensitive to the need for investors to recover costs in increasing-return situations, socially optimal investments could be deterred.

A similar comment applies to the importance of allowing investors to expect that they will be able to recover the costs of sunk investments. Someone who invests in a capital-intensive road should not be regulated in such a way that road revenues can only recover future operating costs with no recovery of capital costs.

Regulations which inhibit timely investment would remove an important benefit from the move to a more commercial structure for busy urban roads. At their worst, the effect could be similar to the current situation in which a local authority like the Wellington Regional Council can make it a policy not to increase peak-time road capacity regardless of the costs to the community.

The discussion illustrates the dangers of using the observed cost of existing roads to regulate charges for those roads. What is required is an environment that allows full congestion pricing and provides incentives for capacity-enhancing investments to take place when the social benefits of additional capacity exceed the costs.

The transition to a commercial structure contemplated in the RAG report preserves government ownership of all roads. In this scenario, the interim regulation of monopoly in respect of urban roads is primarily through continuing government ownership. Governments would therefore retain control of capacity enhancement and pricing decisions. Central government should not leave such decisions to local authorities given their track record to date. Thought must be given to structures that will better provide for timely extensions to capacity at crucial bottlenecks. Proposals for

major new capital works, such as a new harbour bridge in Auckland or a road which provides a better link between State Highway 1 and the Wellington Airport, might be assessed in conjunction with a specific proposal for a charging structure which approval of that capital work would warrant.

Depending on a fuller analysis of these issues, the option of avoiding a situation in which one roading operator owns all the roads in a particular region should perhaps be kept on the table.

Concluding Remarks

The government's initiative in promoting public debate on a commercial approach to roading is a major step forward. But moving from debate to effective decisions will also require considerable political leadership and determination and the active support of those who see the need for fundamental reform. To be successful, change must be well planned and implemented in a methodical and structured manner. A considerable time will elapse between the taking of decisions and their implementation. Land transport problems in New Zealand could get worse before they get better.

The Ministry of Transport has been working hard during the last five years to review current arrangements and effect change. The setting up of Transfund means that Transit New Zealand is no longer responsible for managing the funding of local roads. That should allow it to better focus on the state highways. However, in a commercial setting it is very important that Transfund's presence does not obscure the transmission of information about costs and consumer preferences between road users and the road provider. Transfund certainly cannot hope to know as much about road costs as road operators such as Transit New Zealand, and there is a real risk that it will also know less about what road infrastructure assets best meet the requirements of diverse user groups. That is the weakness of a modified funder/provider split model such as that favoured by the Automobile Association. A funder/provider split only makes sense when users and suppliers cannot deal with each other directly in a normal commercial manner and an intermediary has to be interposed. Clearly this is no longer the case in roading with the technological advances that are taking place.

The NZBR also supported the Ministry of Transport's efforts to bring the Land Transport Pricing Study to a successful conclusion. As noted above, the first reports arising from this study suggested that road prices might be determined on the basis of observed current costs and an administratively determined mark-up on an administratively determined valuation of the existing road network. However, the final report correctly shifted the focus from the centralised determination of efficient prices to questions of incentives and institutional design. Last year's RAG report built on this work in a logical way. It pointed to the need to put in place a proper process for ensuring that the detailed reforms are well-designed and implemented. If reforms along the lines of the report were adopted, New Zealand would be at the leading edge of world developments in roading.

The NZBR was not enthusiastic about the government's third major land transport initiative during this period, the development of a Land Transport Strategy. Essentially

this reflected a central planning approach to roading rather than a commercial one. Political processes are likely to be a poor means for determining either costs or the true preferences of diverse users. What they will attract is the attention of well-organised groups who seek advantages at the expense of others. In a fully commercial model, there should be no ongoing role for a national or regional road transport strategy, just as there is no role for a national or regional telecommunications or energy strategy. Uncertainty about the future evolution of road reform would be reduced if termination dates or conditions were set for current bureaucratic arrangements and for Transfund. Nothing which has occurred in the last five years has led us to modify our views about the desirability of putting roads on a more commercial basis. To the contrary, five more years of watching local authorities under-perform in their core activities and meddle endlessly in extraneous ones has strengthened them. It is pleasing that the government has recognised that they are incapable of handling an infrastructural service as important as roading.

While we favour putting roads on to a commercial basis, central government must also address the problems of continuing local authority ownership, otherwise the benefits from reform could be curtailed. The insensitivity of some councils to user needs and the level of under-investment implied by the current cost benefit calculations point to a risk that ongoing political control will not solve capacity problems even with reformed structures. This is illustrated by the problems in Auckland with water and electricity and those experienced with Crown Health Enterprises under semi-commercial structures.

There are genuine difficulties in designing regulations that address monopoly issues in the pricing of busy urban roads without seriously impairing incentives to invest in additional capacity. These difficulties do not need to delay moves to reform local government, including the separation of local authority road activities from other activities and the formation of LATEs.

We see no intractable difficulties with the pricing of maintenance contracts for established roads that provide access to the road network for residents. Maintenance activities are readily contestable. The capital costs of such roads are typically met by those who purchase new houses in subdivisions, so the funding of new access roads should cause no particular problems either.

As argued above, monopoly problems appear to be manageable in respect of the state highways. Although we do not have strong views about the optimal initial or final degree of aggregation of ownership of parts of the road network, there does not seem to be a case for delaying the commercialisation of the state highway system. This should occur through a structured process of investigation of the issues, public debate about the options, determination of initial governance and regulatory structures, initial billing systems, pricing policies and balance sheets, and phased implementation. If local roads cannot be put into a commercial structure expeditiously for logistical or political reasons, the case is stronger for moving to commercialise the state highways as a first step.