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Submission

To:	Infrastructure Unit	Of:	The Treasury
From:	FAST	Date:	27 September, 2009
Subject:	Facts and Issues – Towards the National Infrastructure Plan		

Executive Summary

1. Base information:

- Infrastructure needs to be defined more clearly, possibly with reference to its unique characteristics such as its relative essentiality, the existence of externalities, and strategic dependence.
- Transport infrastructure considered in the National Infrastructure Plan should be clearly defined from the outset. This should acknowledge the role of vehicles, rights-of-ways, and terminal capacity.
- The distinction between market (rail) and quasi-markets (road) may affect potential substitution between transport modes, particularly at peak times when alternatives to roads have a comparative advantage.

2. Missing issues:

- The essential role of car-parking in the wider road transport system deserves further attention. The negative effects of parking regulations on travel and land use patterns also need to be discussed.
- The existence of externalities, such as emissions to air, water, and soil, which are not currently charged to vehicle users. These externalities are important because they undermine living standards in denser urban areas.
- The opportunity cost of land associated with transport infrastructure, especially as roads and parking. This opportunity cost is considered for rail, which operates as a market, but not for roads.
- The distinction between average and marginal costs and its relationship to infrastructure investment. While road transport may appear cost-effective on average, its marginal costs may be higher than potential alternatives.
- We request that future iterations of the *National Infrastructure Plan* provide more detailed discussion on passenger transport, walking and cycling infrastructure and services.
- The Northern Busway, for example, currently carries approximately 7,000 passengers per hour over the Auckland Harbour Bridge in the morning peak, which is equivalent to all the adjacent motorway lanes combined.

- In this instance, bus infrastructure and services are making a major contribution to regional economic development and efficient utilisation of limited road space, which should be acknowledged.

3. Decision-making:

- There is a need to ensure that the contracting out of infrastructure services is done only where the costs of monitoring are sufficiently small to warrant out-sourcing.
- The relationship between user-charges, property taxes, and externalities needs to be more clearly articulated. While we agree with the intention of internalising costs to users, we question its feasibility.
- Benefit cost analysis of transport projects is not sufficiently consistent or un-biased. There is a need for Treasury to play a greater role in the BCA process, possibly by appointing independent peer-reviews.
- There are a number of issues with BCA as it is currently undertaken that undermine investment in public transport, walking, and cycling. For example, induced traffic is omitted from consideration of road projects.

4. Cross-sectoral issues:

- We suggest that the principles of regulation be applied to various infrastructure sectors to identify the relative strengths and weaknesses of infrastructure regulation.
- We support the need for further analysis of local government finances. We caution, however, that the recent increase may in fact be due to increased responsibilities of local government.
- We feel there is a need for the *National Infrastructure Plan* to directly acknowledge the tensions that exist between central, regional, and local government aspirations.
- Transport investment in New Zealand suffers from a lack of a central transport planning agency and instead has a highly fragmented system of funding infrastructure.

5. Regulatory reform:

- Regulatory reform needs to focus specifically on the negative impacts of minimum parking requirements on urban development and travel choices, particularly with respect to encouraging inefficient use of roads.
- Transport pricing needs to reflect the true cost of people's travel and lifestyle choices. Where this is infeasible, there is prima facie case for government intervention in the form of regulation and/or subsidies.

6. Aspiration:

We suggest that the National Infrastructure Plan outline simple aspirations, such as:

- *Effective:* Delivering infrastructure that enables people and businesses to maximise potential benefits;
- *Efficient:* Delivering infrastructure that ensures people and businesses are able to undertake their activities at minimal economic cost; and
- *Equitable:* Ensuring that the benefits and costs of infrastructure investment are distributed fairly and transparently.

7. Link to economic growth

- We note the *Facts and Issues* paper draws extensively on a series of OECD reports that consider the link between infrastructure investment and economic growth.
- Closer inspection of the OECD report, however, reveals a somewhat more complex picture than is discussed in the *Facts and Issues* paper. FAST is concerned with the selective presentation of the OECD's findings.
- A more complete discussion of the results of the OECD research into the historical impacts of infrastructure investment in New Zealand would note:
 - A significant positive relationship between investment in road infrastructure and economic growth
 - A significant positive relationship between investment in rail infrastructure and economic growth
 - No relationship between investment in motorway infrastructure and economic growth
- The OECD report quoted in the Facts and Issues paper suggests that: "Before undertaking investment in new capacity, it is important to ensure that best use is made of existing infrastructure. User fees and congestion charges can play a key role in ensuring efficient use of scarce infrastructure."
- The findings and recommendation of the OECD report do not support the Government's transport priorities, which have reduced future spending on travel demand management, local roads, and public transport.
- We request that the standards expected of submissions – i.e. that they are evidence based – are also required of future documents associated with the *National Infrastructure Plan*.
- We also question measuring progress in terms of economic growth, particularly in relation to transport infrastructure. The use of transport infrastructure involves a range of unpriced attributes, such as time, which are not accurately captured through measurements of economic activity.

Final Comment

We prefer Government documents that, where possible, provide empirical or other evidence to support the views they express. In addition to repeating verbatim the unfounded and uninformed comments of the Minister of Transport, we are concerned that the *Facts and Issues* paper has:

- Used some references selectively, such as the OECD reports into links between infrastructure investment and economic activity; and
- Avoided reference to a large body of literature that outlines the economic costs of car-parking and externalities

FAST appreciate the opportunity to submit on the *Facts and Issues* paper and is willing to meet with Treasury staff in person to discuss these issues further.

Introduction

1. We support the development of a *National Infrastructure Plan* and appreciate the opportunity to submit feedback on the *Facts and Issues* paper that will ultimately inform the development of this plan.
2. We support the series of initiatives identified for improving New Zealand's infrastructure, namely: A step change in public investment, improved capital asset management, and legislative changes to facilitate infrastructure investment from local government and the private sector. Our submission focuses specifically on the aspects of the *Facts and Issues* paper that relate to transport infrastructure.
3. The definition of infrastructure as "fixed long-lived structures that facilitate the production of goods and services ..." is insufficiently detailed. We consider that infrastructure has several distinct characteristics that can and should be established from the outset. Such a definition would be useful for framing and guiding subsequent discussion and policy development. A more detailed definition of infrastructure might consider the following characteristics:
 - *Essentiality*: Infrastructure plays an essential role in supporting socio-economic activity. Even short periods without access to infrastructure may impact severely on individual living standards and long periods without infrastructure may have serious repercussions for public health, safety, and security. The fact that infrastructure is essential to our way of life means that reliability is a key attribute, more so than other goods and services which can – in times of shortage – be substituted more easily. This also increases the importance of recognising and responding to critical risks, where risks may be technical (such structural failure of the Auckland Harbour Bridge) or socio-economic (such as oil supply constraints). We note that New Zealand's transport system is, through its focus on private vehicle travel, less resilient to these risks.
 - *Externalities*: Infrastructure tends to generate a range of external costs and benefits. We suggest that these externalities create a prima-facie case for Government intervention in the provision and management of transport infrastructure. These externalities require consideration when discussing pricing and policy reforms, particularly those that seek to implement user-pays pricing. This is particularly true of social infrastructure, such as education and health, but also transport infrastructure. Externalities generated by transport can be negative, such as air pollution and noise, or positive, such as agglomeration (which describes the productivity benefits of density). Unresolved tension exists between the preference for user-pays and increased government

involvement in infrastructure investment. We note that none of the announced “Roads of National Significance” would be likely to proceed to construction purely on the basis of user-pays.

- *Strategic dependence:* Physical infrastructure is often part of a wider interconnected network. Ports and airports, for example, are often located in strategically dominant positions at which national and international connections are concentrated. New Zealand’s small size and relative remoteness contributes to fewer, more dominant pieces of infrastructure, which are often at best only weakly competitive. This strategic dependence suggests that government ownership, or at least involvement, may often contribute to more desirable, or at least transparent, outcomes.
4. A robust definition is particularly relevant to transport infrastructure. Transport is an aggregate description for the movement of people and goods, which may be facilitated by various networks and vehicle types. These networks can be either complementary or in competition, depending on the context.
 5. The *Facts and Issues* paper should expand a little more on the implications of different pricing structures being applied to different transport modes. For example, the table of infrastructure sectors covered by the National Infrastructure Plan distinguishes between market, quasi-market, and social services. This table notes that rail operates as a market, while roads operate as quasi-market. As the use of rail and road infrastructure is to some degree substitutable there is a need to articulate how the distinction between market and quasi-market may impact on the relative performance of the two modes. For example, the treatment of roads as a quasi-market recognises the absence of price signals relating to time-of-use and type-of-road. The absence of these price signals to road users is likely to impact on the use of rail infrastructure, particularly at peak times when rail has a comparative travel-time advantage.

Strategic Direction

6. We acknowledge the Government’s apparent focus on economic growth. We are disappointed the Roads of National Significance (“RONS”) are unlikely to contribute to economic growth.
7. We are particularly concerned with the lack of rigour that has been used to select these RONS. As will be discussed and explained in detail in subsequent sections the RONS announced by the Government, especially those located in the Auckland Region, represent an unwise allocation of public resources.

8. We appreciate that the selection of RONS and transport investment lie mainly outside of Treasury's sphere of influence. We suggest there is an urgent need for Treasury to play a much greater role in the economic assessment of transport infrastructure. Inconsistencies are rife and greater transparency is needed across all levels of government and across all transport modes.
9. While our submission is highly critical of the RONS, the focus of our submission is on ways in which the *National Infrastructure Plan* in general, and Treasury in particular, could serve as a catalyst for delivering more positive economic, social and environmental outcomes from Government investment in transport infrastructure.
10. We strongly support the following priorities:
 - *Broadband*: There is huge potential for broadband to enable the free-flow of information. This will improve the information on which consumers can base their purchasing decisions, while also improving the efficiency with which businesses can operate. Broadband may potentially mitigate the "tyranny of distance" encountered by New Zealand businesses. There are also obvious synergies between internet and transport infrastructure, which are in part substitutable.
 - *Relationship between urban form and transport in Auckland [and other key urban centres]*: Sound relationships between urban form and transport are crucial to economic performance. For this reason, FAST supports the Urban Design Protocol. In addition, the Phase 2 reforms of the Resource Management Act include the potential to require improved relationships between urban design, including urban form and transport. Australian research suggests that more compact urban form can deliver benefits of the same magnitude as the macro-economic reforms on the 1980s (SGS, 2006). We suggest, however, that the relationship between transport and urban form is important not just to Auckland but also to other rapidly growing cities and towns, such as Tauranga and Hamilton. We also note the key role played by urban regeneration agencies in cities such as Brisbane for integrating high quality land use and urban design outcomes with investment in transport infrastructure, such as at South Bank.
 - *Efficient use of roads and the way we pay for them*: We strongly support moves to initiate a national debate on more accurate road pricing, with a particular focus on reform that seeks to more accurately charge for time-of-use and type-of-road. We believe that the MOT's last foray into road pricing reforms (via the ARPES study) did not provide adequate space for prolonged and informed public discussion. Such a debate also needs to emphasise, as noted in the *Facts and Issues* paper, that the debate is not "road pricing" versus "no road pricing" but actually "accurate pricing"

versus “blunt pricing.” Framing the debate in this way focuses on whether the benefits of accurate pricing (particularly the time-of-use component) outweigh the additional costs of collection. We also note that opposition to time-of-use road pricing revolves around issues of equity. Little work, however, has been undertaken into the social inequities associated with the status quo: Low income households own older, less-efficient cars and travel less at peak times. Together these factors may mean that the fiscal burden of fuel taxes may fall disproportionately more on low-income households, although further research is required.

Policy Context

11. *Principle 1 – The role of Government:* As mentioned earlier, we consider that the discussion of transport is imprecise and incomplete. While the term “transport” is used, the subsequent commentary relates solely to road transport, without mention of rail, port, or airports, which are obviously unique in many respects. We suggest this discussion needs to be made more precise and possibly supplemented with additional commentary on other relevant types of transport infrastructure.
12. *Principle 2a – Government services:* We acknowledge the potential economic benefits of contracting services out to the private sector where this delivers value for money and measurable performance criteria can be specified. However, measurable performance criteria are a necessary but insufficient criterion for determining whether services are suitable for contracting. Government agencies also need to consider the subsequent cost of monitoring the work undertaken by the private sector against the performance criteria that have been established. Monitoring can, in some instances, incur substantial costs. For example, the costs of monitoring contractors to undertake minor road-works, such as installing traffic signs, is often so expensive (in comparison to the overall spend) as to outweigh the potential efficiencies of private involvement. It is for this reason that Brisbane City Council retains many basic transport functions in-house, which leads we believe to overall efficiency gains. Similarly, monitoring costs mean that bus contractors in Auckland currently “self-report” reliability and performance. Research also demonstrates the market failure created by the previous system of bus contracting, which created an arbitrary distinction between commercial and contracted systems. For this reason we suggest that contracting our transport services requires more detailed discussion than is afforded in the *Facts and Issues* paper.
13. *Principle 2b – User charges:* We suggest that the phrase “Charges shall not exceed the cost of providing the service” requires further clarification. We suggest that user-charges might also seek to internalise negative

externalities, such as emissions to air, water, and soil, where this would contribute to reducing their impact. We recommend adding a caveat to this principle that acknowledges the potential for user charges to internalise the costs of externalities generated in addition to the direct cost of providing infrastructure.

14. *Principle 3 – Funding and Taxation:* While we acknowledge the desirability of property taxes we are unclear of their role in relation to Principle 2b, which expressed a clear preference for user-charges. Indeed, if user-charges were the sole method of funding infrastructure, as is implied by the principle, then there would be no need for additional funding from property taxes. We suggest further details are needed to clarify where user-charges are insufficient and where property taxes, or other models such as PPPs, are a viable alternative source of infrastructure funding. We would also encourage the Government to investigate opportunities to fund infrastructure through issuing public bonds. Such bonds would encourage diversion of investment flows away from property and also provide an avenue through which local “Mum and Dad” investors could be involved in infrastructure investment – possibly contributing to increased public support for major infrastructure projects, and an anti-dote to “NIMBY” type arguments.

15. *Principle 4 – Project Evaluation, Prioritisation, and Decision-Making:* We support this principle insofar as it clearly delineates between economic welfare, social equity, and budget constraints. However, we suggest that further discussion of benefit-costs analysis is required to underline the importance of:

- Establishing robust indicators of economic value: The economic value of investment in transport infrastructure is determined by calculating the travel-time saving derived from increases in capacity. Travel-time savings for all transport users (both now and on the future) are summed together and finally multiplied by a value-of-time (derived from surveys) to determine the social “willingness-to-pay” for the transport investment. Travel-time savings therefore acts as an indicator, or proxy, for the micro-economic value derived from new transport infrastructure. The use of travel-time savings as an indicator of economic value is, however, highly controversial: See for example Metz (2008), Noland (2008), and the U.K. Department for Transport website¹) Alternative indicators, such as land values have – for mainly historical reasons – not been adequately explored. Econometric analysis of land values, for example, has several advantages: 1) Land values reveal actual, rather than stated, socio-economic preferences; 2) They measure the benefits of infrastructure not just to users, but to the wider area; and 3) Land values incorporate a

¹ [Chapter 2 - The Debate about Transport and the Economy.](#)

wide-range of externalities, such as productivity gains and air pollution, which may otherwise be difficult to quantify. We suggest Treasury play a greater role in determining which indicators should be used to assign economic value to transport infrastructure investment.

- Treating substitutable transport modes consistently: Current benefit cost analyses (BCA) of transport projects treat different transport modes inconsistently. This is especially problematic in situations where inconsistent treatment might contribute to the inefficient substitution of one transport mode for another. We also note that, in general, these inconsistencies tend to enhance the economic benefits of road transport projects and detract from the economic benefits of public transport projects. For example:
 - a. *Road Decongestion Benefits*: The decongestion benefits of public transport projects are factored down by 50% to account for the additional demand for vehicle travel that is induced by increased road capacity (Cervero, 2003, Boarnet and Chalermpong, 2002, Cervero, 2002, Goodwin, 1996, Mackie, 1996). In contrast, the decongestion benefits of road projects rarely account for induced demand (NZTA, 2009, Land Transport NZ, 2007). This effectively means that induced vehicle traffic is automatically factored into public transport projects, but is never considered for road transport projects.
 - b. *Treatment of parking*: Economic assessment of transport projects is also inconsistent insofar as it treats the cost of parking. Public transport projects are assigned an economic benefit because of the parking cost savings they are expected to deliver. No economic cost, however, is assigned to the increased demand for parking that follows from greater road capacity. The ability for public transport to reduce parking demand is on one-hand considered as an economic benefit, while the ability for road projects to increase parking demand is not, on the other hand, not considered as an economic cost.
- Avoiding potential bias: There is an inherent “upwards” bias in most BCA. This bias results in costs being under-estimated (even allowing for contingencies) while benefits are over-stated. There are many causes of bias, many of which relate to somewhat prejudiced relationships between the public and private sector. For example, employees of the government agency responsible for commissioning the benefit-cost analysis will often be the same employees who are looking to advance the project. Similarly, the same engineering consultants who undertake the BCA are often interested in seeing particular projects, of which they have specific

knowledge, advance to subsequent stages of development. This is not a failing of BCA in of itself, but more a comment on the risks of poor process management. Our professional experience at the national and local government level has left us with no doubt that the BCA process, at least insofar as it is used to evaluate transport projects, has been severely and irreparably prejudiced. Transport projects are often assigned funding when, upon closer inspection, no BCA has been whatsoever. For this reason, we strongly recommend that extracting more value from public investment in transport infrastructure begin by ensuring that BCA are overseen by an independent government organisation, such as Treasury, which could then commission (possibly from pre-approved and independent suppliers) BCA for different transport projects. This increased degree of separation is crucial to ensuring a fair, un-biased playing field between different transport projects.

Sectoral Analysis

Roads

16. We suggest that the description of the road network as supporting the “delivery of passenger and freight movement services throughout the country” is unnecessarily vague. We recommend that this statement be revised and instead discuss how the road network facilitates mobility which in turn allows people, communities, and businesses to access goods, services, and activities.
17. Transport systems are unique in that they consist of three common components:
 - *Vehicles*: Such as cars, trucks, buses, and trains
 - *Rights-of-ways*: Such as streets, including footpaths, and railways
 - *Terminal capacity*: Such as parking and stabling facilities.
18. The sectoral analysis of road infrastructure is incomplete because it does not discuss terminal capacity for private vehicles, more commonly known as parking. Car-parking is an essential, influential, and expensive component of the transport infrastructure required to support vehicle travel.
19. New Zealand’s cities and towns currently have an over-supply of under-priced parking, which contributes to excessive vehicle travel and highly inefficient use of transport rights-of-ways. The over-supply of under-priced parking is the result of regulations (enforced by local authorities) that force all new developments to provide “sufficient” car-parks so that almost every employee and visitor to the development is able to park for free. Minimum parking requirements deliver direct subsidies to private vehicle users and suppress

urban densities, thereby undermining walking, cycling, and public transport. It also increases costs of development by reducing the floor space that is available for other, more productive purposes. We are aware of a commercial development in Christchurch where complying with local government parking requirements increased the cost of floor-space by approximately 33%. Parking demands could be better managed using pricing and management tools, which would also have positive impacts on the use of roads.

20. We suggest that parking is a) an essential component of the road transport system and b) currently managed in a way that violates the principles underpinning not only the *National Infrastructure Plan* but also the Government's objectives for regulatory reform. We recommend that Treasury consider the role of parking regulations, subsidies, and use of transport infrastructure in more detail (ARC, 2009, Litman, 2009, Donovan, 2009, Genter et al., 2008, Seibert, 2008, Litman, 2006a, Marsden, 2006, Litman, 2006b, Shoup, 2005, Booz Allen Hamilton, 2001, Hensher and King, 2001, Bianco, 2000, Shoup, 1999). In addition, it would be useful for the Phase 2 reforms of the Resource Management Act to include the potential for improved management of parking, through, for example, requiring the removal of minimum parking standards across all urban areas.
21. There is also an opportunity for management of transport infrastructure to provide a bridge to a more energy efficient, sustainable future. FAST recommends that vehicle licensing arrangements could be tailored to encouraged people to purchase more fuel-efficient vehicles, as is done in many international jurisdictions. We emphasise that the benefits of a more efficient vehicle fleet are not only environmental; smaller vehicles also effectively increase the capacity of roads and on-street parking (because they simply take up less road or parking space).
22. We suggest that discussions on road pricing are actually part of a much wider debate on how need to reform transport user charges. This reform can not only encourage more efficient use of infrastructure but also contain/reduce New Zealand's costs in meeting international greenhouse gas emission agreements. The National Infrastructure Plan must provide a comprehensive response to the challenge of the transport sector being New Zealand's fastest growing source of CO2 emissions.

Rail

23. The *Facts and Issues* paper states that there is little evidence to support the contention that road transport does not pay its costs. We strongly dispute this statement, particularly in relation to parking for which a number of references have already been provided. We also refer Treasury to Jakob et al. (2006), which provides a more detailed analysis of the breakdown in internal

and external costs for various transport modes in Auckland. The existence of these externalities is acknowledged in NZTA's Economic Evaluation Manual (Vol. 2), which estimates negative externalities associated with private vehicle use in the order of \$0.10 per kilometre travelled. This equates to approximately 25% of the cost of fuel and is therefore not insignificant. We also note that the recent moves towards allowing heavier trucks on the roads may increase subsidies for heavy road transport. We request the *National Infrastructure Plan* include discussion on this issue, which will have large impacts on the need to upgrade local roads.

24. Road freight is also subsidised insofar as it does not pay the true costs of the lanes and turning radii required to provide for heavy vehicle movements. Previous studies have not considered that heavy vehicles are both wider and longer than standard vehicles and hence require additional road space. For example, while a lane of 3.0m is sufficient to accommodate cars and buses, approximately 3.5m is required to accommodate trucks. Greater turning radii are also needed, leading to significantly larger intersection footprints. These costs have not, as far as we understand, been considered in previous assessments. Nor do road transport vehicles currently pay the costs of their contribution to air pollution, which the most recent studies place at a cost of \$500 - \$1 billion per year (Fisher et al., 2007). We politely request that the *National Infrastructure Plan* include a more nuanced and up-to-date discussion on transport costs and charges. This understanding should be based on evidence – not the unfounded claims of an uninformed Minister of Transport.

Planned Investment

Roads

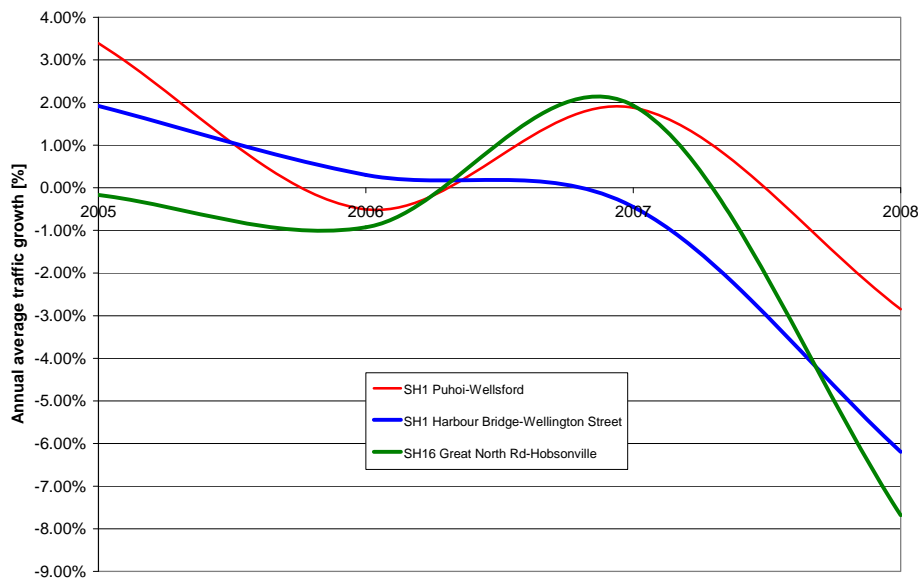
25. The following comments relate specifically to RONS. FAST has grave concerns that the Minister has been poorly advised. Recent decisions on transport priorities, in general, and road funding priorities, in particular, appear to have been made on a unilateral and uninformed basis. It is particularly disappointing to see RONS justified in terms of their contribution to economic growth, when most of the projects have not as yet been the subject of even the most cursory economic assessment. As mentioned previously, we strongly suggest the *National Infrastructure Plan* avoid unfounded rhetoric and instead focus on presenting objective, evidence-based information.
26. The following comments relate to specifically to those RONS which fall within the Auckland Region:
- *Puhoi to Wellsford - SH1*: This section of SH1 carries significantly less traffic than most major arterial roads in Auckland. Traffic growth rates are low – reflecting not so much congestion as the low rate of development in

the surrounding area. Increased road capacity is not expected to “shape” or motivate development in the near future – and if it does, it is likely to undermine urban growth objectives. FAST notes the importance of increased public transport to Auckland CBD to deliver agglomeration benefits, and from the regional growth strategy (Williamson, 2007). With all due respect this RONS project does not even appear to justify the \$100 million cost of initial investigations, let alone the estimated \$2.3 billion construction price tag.

- *Completion of the Auckland Western Ring Route – SH20/16/18:* The completion of the Western Ring Route appears to have become something of a self-fulfilling prophecy, irrespective of economic justifications. While we recognise the importance of wider network efficiencies, these impacts are typically over-stated and often reflect a transference of economic activity, rather than facilitation of economic benefits (Wallis, 2009). The wider benefits and would be better analysed using a variable trip matrix, rather than the cursory Input/Output factors on which current estimates are based.
- *The Auckland Victoria Park bottleneck – SH1:* FAST acknowledges that this section of the motorway struggles to deal with high commuter traffic flows travelling between the North Shore and Newmarket. The development of the \$40 million “Central Connector” bus corridor (which is expected to carry approximately 65,000 passengers each weekday) effectively extends the Northern Busway from its current terminus by Britomart past the University and the Hospital on its way to Newmarket. Linking these key destinations to a high-quality bus corridor may reduce vehicle volumes on the Victoria Park flyover. This project, when combined with the progressive removal of minimum parking requirements in Newmarket and ongoing declines in traffic growth, suggest that additional capacity on this section of SH1 is unnecessary, at least in the short-term to medium-term.

27. The following graph illustrates annual traffic “growth” rates for the sections of state highways related to the three Auckland RONS from 2005 to 2008. This demonstrates how annual traffic growth rates on these sections of the state highway have declined markedly since 2005. Corridors constrained by congestion would illustrate stagnant – not declining – growth rates. Recent fuel price increases certainly accelerated the downwards trend in 2008, a decline which is expected to have been exacerbated by the recent recession. The recent trend towards reduced growth in the use of private vehicles has been mirrored across the Tasman (BTRE, 2009). Trends in all Australian capital cities show that overall vehicle kilometres travelled has stagnated or even declined in most cities since 2004, despite several years of rapid economic development, increasing income, and population growth.

Figure 1: Trends in traffic growth rates on Auckland's State Highway Network 2005-2008



28. Our analysis of traffic growth rates in both New Zealand and Australia (across a wide-range of cities with vastly different land use and transport characteristics) leads us to conclude that, since 2004, both countries have entered a new transport paradigm characterised by a combination of:

- Efficient parking management:* Local government agencies in both Australia and New Zealand are increasingly aware of the huge detrimental impacts of minimum parking regulations (Shoup, 2005, Shoup, 1999). These regulations force developers to provide enough parking to meet the peak demand for free parking. In New Zealand, Wellington City Council is notable for enabling retail and commercial development in its central business district with either no or very little parking (for example, the new BNZ and Telecom buildings, and the Willis St supermarket). The blunt approach of requiring parking has not only suppressed urban productivity, increased business costs, and subsidised vehicle travel, but also artificially lowered urban densities, thereby reducing the attractiveness and effectiveness of alternative transport modes (Donovan, 2009, Seibert, 2008). Most major Australian cities are progressively relaxing and removing minimum parking requirements which should, over time, contribute to substantially lower demand for vehicle travel. Melbourne, Sydney, and Perth have gone further and implemented a levy on commercial parking spaces to fund transportation improvements, which have previously been funded from general rates on property values (Litman, 2006b). We are aware that the Auckland Regional Council (ARC) is researching the potential for applying a similar parking levy in Auckland.

Such levies provide a much more direct mechanism for charging transport costs to users than property taxes, which despite their efficiency send relatively ineffective, or even counter-productive, price signals to transport users. The combination of parking deregulation and parking levies in Australian cities is likely to catalyse an incremental but paradigm shift in awareness of parking costs. Ultimately, these measures will ensure that the price of parking is slowly de-bundled from the costs of goods and services and charged more directly to users. Research clearly demonstrates that parking costs are a major driver of the demand for vehicle travel, suggesting that more efficient parking management will contribute to greatly reduced travel demands.

- *Compact urban development:* Most Australian and larger New Zealand cities have, over the last few decades, implemented policies that support more compact urban development, often complemented by increased investment in public transport (ARC, 1999). This focus on compact development reflects its lower marginal economic costs than development on the urban periphery. The market preference for the latter is less a reflection of socio-economic preferences [or the ongoing, significant transport costs that often face residents of such housing], and more the limitations of current public policies and pricing instruments (Donovan and Genter, 2008, Litman, 2006c). These limitations mean that the actual costs of development, specifically the marginal costs of infrastructure expansion, are difficult if not impossible to charge directly to users. In addition to inaccurate pricing, there has been a general political reluctance to internalise the cost of negative externalities, such as air pollution. For this reason, local government authorities have, as a second best option, relied on relatively blunt land use controls to funnel growth towards more compact development patterns. These controls are likely to have contributed to slower rates of traffic growth than has been observed in previous decades. Australia does however have a significant advantage over New Zealand, and that is the role of state owned urban redevelopment agencies, such as Vic Urban. Such agencies intervene where there is market failure, to play a major role in redeveloping poorly functioning existing urban areas, or new urban areas in preferred locations which the market is reluctant to lead on given the risks involved. These agencies can help improve urban design, including transport connectivity and mobility outcomes, while containing infrastructure capital and operating costs through both location and economies of scale. These redevelopment agencies also mean that the financial risks associated with regeneration and intensification are divided more reasonably between the public and private sectors.

- *Saturated vehicle ownership:* New Zealand's vehicle ownership increased rapidly in the post-war period. Recent research suggests that the elasticity of travel demands with respect to vehicle ownership has been as high as +0.60 (Donovan and Genter, 2008). Now, however, New Zealand has one of the highest rates of vehicle ownership in the world, with approximately 700 vehicles per 1,000 people (MOT, 2008). Once allowances are made for those sections of the population who are unable to drive, such as the young, elderly, and sick, then this equates to approximately one vehicle per adult. The saturated vehicle ownership levels mean that even if vehicle ownership rates continue to increase (which is in itself unlikely) the marginal impact of additional vehicles is likely to be lower than it has been in the past. As a result, the steady growth in demand for vehicle travel that has characterised the previous few decades is unlikely to persist.
- *Demographic shifts:* Finally, and perhaps most importantly, both New Zealand and Australia are entering into a period of reduced workforce participation associated with an ageing population. Evidence and intuition suggest that there is a strong likelihood that these demographic shifts will result in lower growth in travel demands in the future (O'Fallon and Sullivan, 2003). Such demographic shifts may reduce travel demands particularly at peak week-day times, where road capacity is currently most constrained. Investing in additional road capacity, rather than low cost demand management, is relatively high-risk.

Rail

29. Planned investment in rail demonstrates a bias towards the Wellington region. For example, in Auckland, central government is spending \$1.6 billion and local government is spending \$220 million. In Wellington, central government is spending \$550 million and local government is spending only \$40 million. Thus the local contribution to rail investment is proportionately much higher in Auckland. This is particularly inequitable when considering that:

- Wellington has a relatively small population, low population growth, and high incomes as well as a relatively mature rail network. Wellington has also enjoyed historically high-levels of central government support for the development of its rail and trolley bus network. In contrast Auckland has relatively high levels of congestion and a relatively immature, but rapidly growing, rail network.
- Both rail but also bus transport in Auckland is important in terms of reducing levels of road congestion, and enabling road users to have reasonable trip times. While previous PT investment in Auckland has struggled in comparison to investment in Wellington, we note that recent

investments in public transport, such as the Northern Busway and the Core Rail Network Upgrade, have proven extremely successful.

- Auckland's economic potential could be compromised through the lack of appropriate provision of improved public transport into the central business district, and other key centres which could mean Auckland is unable to realise key agglomeration benefits (Williamson, 2007). The same report lends strong support to the benefits of compact urban form for Auckland, and to a compact city being economically superior to a dispersed urban form.
- By 2031, Auckland will have added the 2031 population of Wellington and possibly an extra 20-40,000 people over and above that. Auckland's population and economic future, which is critical to New Zealand as a whole, could be compromised by under-investment in high-quality, high-capacity passenger transport infrastructure.

30. For this reason, we suggest that the *National Infrastructure Plan* also identify criteria for determining appropriate funding splits between regions. This is another reason why centralising BCA for all infrastructure investment within a central government agency, such as the Treasury or the Ministry of Transport, would contribute to more efficient outcomes across the board. While there would be a need for this agency to liaise closely with external government agencies, such as NZTA, it may contribute to a more comparable evaluation of the economic benefits associated with investment in different transport modes and in different regions.

Cross-sectoral Issues

31. We suggest that the principles of regulation be applied to various infrastructure sectors to identify the relative strengths and weaknesses of infrastructure regulation. Our submission has already noted, for example, the impact of minimum parking regulations on the use of road transport infrastructure. Parking regulations would appear to fail most if not all of the principles of good regulation identified in the regulatory review programme and as such be a priority area for regulatory reform. This reform would obviously impact on demand for vehicle travel and hence have implications for future road investment.

32. We support the need for further analysis of local government finances. We caution, however, that the recent increase may in fact be due to increased responsibilities of local government. Financial liability for water-tightness issues associated with the deregulation of the building industry may also cause rates to rise much higher in the medium term. We also note that property rates are a particularly indirect mechanism for funding improvements

to the transport system. Property rates primarily affect centrally located properties, often to the benefit of low-value properties located on the urban periphery. This impact does not reflect the respective travel demands generated by these developments.

33. We feel there is a need for the *National Infrastructure Plan* to directly acknowledge the tensions that exist between central, regional, and local government aspirations. The GPS process has turned transport into a political football that, rather than providing certainty, has introduced instability with every change in central Government. In many respects, it is abrupt changes in central government policy that has undermined investment in transport infrastructure. The GPS funding allocation by activity class (and then by region) appears to be a straight jacket limiting what regional councils can do in their jurisdiction, undermining the role of Regional Transport Committee's and indeed local democracy. The way in which the GPS funding allocation stipulates the regionalised funding for each activity classes is likely to encourage spending in particular areas whether it is needed or not. We suggest an outcomes based process, which includes a hierarchy of interventions, may be a more appropriate way to allocate funding. We note that the key recommendation of the Auckland Transport Strategic Alignment Project (ATSAP) report was to identify: "the need for a significant shift to public transport ... starting immediately" (ATSAP, 2008). The recent stalling of projects to electrify Auckland's rail network and deliver integrated ticketing highlights how politicised transport investment has become, which reduces certainty for both the public and private sectors.
34. Transport investment in New Zealand suffers from a lack of a central transport planning agency and instead has a highly fragmented system of funding infrastructure (eg: NZTA is focused mainly on roading, Treasury determines rail investment, and Ministry of Transport finances shipping). We request that the *National Infrastructure Plan* consider ways in how central government management of transport investment can be simplified.

Infrastructure and Growth

35. The link between infrastructure and growth is an important factor driving the development of the *National Infrastructure Plan*. We note the *Facts and Issues* paper draws extensively on a series of OECD reports that consider the link between infrastructure investment and economic growth.
36. Closer inspection of the OECD report, however, reveals a somewhat more complex picture than is discussed in the *Facts and Issues* paper. FAST is concerned with the selective presentation of the OECD's findings. A more

complete discussion of the results of the OECD research into the historical impacts of infrastructure investment in New Zealand would note:

- A significant positive relationship between investment in road infrastructure and economic growth
- A significant positive relationship between investment in rail infrastructure and economic growth
- No relationship between investment in motorway infrastructure and economic growth

37. Moreover, we note that OECD report quoted in the *Facts and Issues* paper: *“Before undertaking investment in new capacity, it is important to ensure that best use is made of existing infrastructure. User fees and congestion charges can play a key role in ensuring efficient use of scarce infrastructure.”* We strongly support this recommendation and note that it is emphasised in a range of other credible studies. Hyder Consultants note that:

The United Kingdom Government commissioned a detailed study — The Eddington Transport Study — to examine the long-term links between transport investment and economic productivity, growth and stability. For developed economies it was suggested that productivity benefits from transport may be more closely related to the efficiency of the existing transport system, rather than to the total amount of investment. This relationship was particularly likely to be the case where the existing transport system was stretched, as demonstrated through congestion or unreliability, for example. A number of empirical studies have been undertaken to consider the economic benefits from more efficient use of existing infrastructure. Research by Hulten (1996)² showed that effectiveness has a strong impact on growth, with an analysis of data from low to middle income countries showing that a 1% increase in infrastructure effectiveness generates an impact on growth seven times greater than the impact of a 1% increase in the rate of public investment. The implication Hulten gives is that programmes aimed at only at new construction may have a limited effect on economic growth, or may have a perverse effect if they divert resources away from the maintenance and operation of existing infrastructure. Chang (2002) analysed data from seven East Asian economies over the period of 1979–1998, which showed that how efficiently the government manages the existing stock of infrastructure is an important issue — with additional infrastructure investment potentially being of little help in stimulating growth if existing

² Hulten, C. (1996). “Infrastructure capital and economic growth: how well you use it may be more important than how much more you have”. NBER Working Paper Series, Working Paper 5847.

*infrastructure is not being used effectively.*³ Rioja (2003) developed a general equilibrium model and analysed data from seven Latin American countries, showing that the long-run penalty of ineffective infrastructure for those countries is about 40% of steady-state real GDP per capita. Raising the effectiveness of the infrastructure was shown to have positive economic growth effects, and new infrastructure investment could negatively impact on per-capita incomes if effectiveness in the existing network was low. Details of additional empirical studies considering the impact of efficient use of infrastructure are summarised in *The Eddington Transport Study (2006)*⁴ and in *Ministry of Economic Development (2005)*.⁵

38. We also note that the findings and recommendation of the OECD report do not, in general, support the Government's announced transport priorities, which have reduced future spending on travel demand management, local roads, and public transport, with the balance of transport funding shifted towards state highways, primarily motorways. The inaccuracies with which the full findings of the OECD report are discussed in the *Facts and Issues* paper makes us concerned with the veracity of other statements contained therein. We request that the standards expected of submissions – i.e. that they are evidence based – are also required of future documents associated with the *National Infrastructure Plan*.
39. We also question measuring progress in terms of economic growth, particularly in relation to transport infrastructure. The use of transport infrastructure involves a range of unpriced attributes, such as time, which are not accurately captured through measurements of economic activity. Instead we suggest that investment in transport infrastructure be justified in terms of productivity, rather than economic activity. A recent New York Times article summarising a report by Joseph Stiglitz noted "increased driving, which weighs in as a positive within the framework of economic growth, as it requires greater production of gasoline and cars, yet fails to account for the hours of leisure and work time squandered in traffic jams, and the environmental costs of pollutants unleashed on the atmosphere."
40. In future documents, we would like to see further discussion on the opportunity cost of infrastructure, in general, and transport infrastructure, in particular. Transport infrastructure, especially roads and car-parks, have a

³ Wang, E. (2002). "Public infrastructure and economic growth: a new approach applied to East Asian economies". *Journal of Policy Modeling* 24 411–435.

⁴ Department for Transport (2006). "The Eddington Transport Study: Transport's role in sustaining the UK's productivity and competitiveness. Available at <http://www.dft.gov.uk/about/strategy/transportstrategy/eddingtonstudy/>

⁵ Ministry of Economic Development (2005). "Linkages between infrastructure and economic development". Available at http://www.med.govt.nz/templates/MultipageDocumentPage_____9189.aspx.

large physical footprint which reduces the land available for other, potentially more productive uses. This is especially true in urban areas where roads and parking take up large areas of relatively valuable land. While charging the opportunity cost of this asset to users is not necessarily the best course of action, we would like to see more information and debate on the opportunity cost and its implications for future investment. As urban areas develop and land values increase, a case may emerge for reducing the footprint of transport networks.

41. We also suggest the *National Infrastructure Plan* include a greater emphasis on explaining average versus marginal economic costs. Public transport and to a lesser degree walking and cycling, often have lower marginal costs than investment in road based transport, particularly in larger urban areas. This reflects the ability of alternative transport modes to accommodate growth in travel demands that would otherwise require expensive capacity expansions. There needs to be more detailed research and discussion on how average and marginal costs may differ in relation to different transport modes, which may be undertaken by Treasury in conjunction with the MOT. This information is crucial to understanding how future investments in transport infrastructure may contribute, or otherwise, to increased economic growth.
42. We request that future iterations of the *National Infrastructure Plan* provide more detailed discussion on passenger transport, walking and cycling infrastructure and services. The Northern Busway, for example, currently carries approximately 7,000 passengers per hour over the Auckland Harbour Bridge in the morning peak, which is equivalent to all the adjacent motorway lanes combined. In this instance, bus infrastructure and services are making a major contribution to regional economic development and efficient utilisation of limited road space.

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