AUCKLAND TRANSPORT STRATEGY AND FUNDING PROJECT

Joint Officials Group (JOG) Final Report

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EXECUTIVE SUMMARY

Ministers and mayors agreed to establish a Joint Officials Group (JOG) to examine the Auckland region's proposals for a range of funding mechanisms, designed to allow timely implementation of an agreed strategy for the region's transport network.

JOG developed a framework based on the New Zealand Transport Strategy (NZTS) and Regional Land Transport Strategy (RLTS) for assessment of the Auckland package and the status quo, and found them both wanting. The Auckland package is an improvement on the status quo, but requires a better fit with public health, environmental and affordability criteria. It also has a high level of implementation risk.

As a result of this assessment, JOG examined alternative packages to demonstrate the effect of various policy choices. This led to several high-level conclusions:

- Increased levels of travel demand management non-pricing (TDM non-pricing) and public transport are essential to achieve 'minimal' NZTS outcomes, but are not the solution on their own.
- Road pricing is critical to achieving better NZTS outcomes, but faces issues of community acceptance and has a range of social and economic impacts.
- An acceleration in road construction above currently programmed activity is needed.

JOG identified three major interlinked constraints to accelerating the development of transport infrastructure development: “buildability” (the ability of the construction industry to increase capacity), consents and policy, and funding.

- Upon examination of various funding mechanisms, it is clear that funding everything within ten years is very difficult.
- In order to increase the current level of construction activity, changes are needed to provide greater certainty of programme and streamline current consents and policy processes.
- Provided these changes are made, it is possible to double the level of civil construction activity in the region to $400m a year within three years.
- The overall conclusion is that the buildability constraint dominates, but if a 'fund as buildable' approach is adopted, viable funding pathways exist.

JOG’s analysis led to the following three key conclusions:

- TDM non-pricing and public transport initiatives can be agreed, funded and implemented now.
- In-principle decision to proceed with road pricing is needed now, and a final decision to be made at an early stage.
- Some acceleration of roading can begin immediately.

As a result of its analysis, JOG recommends:

a) that steps be taken to establish greater certainty over the expenditure programme required to deliver an integrated transport network.

b) that central government and the Auckland region commit to the implementation of an integrated programme of TDM, stage 1 rail improvements, and an enhanced bus network.

c) that sufficient funding is provided to enable these programmes to be developed and put into action.

d) that the Auckland RLTS be reviewed to ensure adequate provision for these programmes, and that local authorities make provision for the first stages of implementation in their 2004/2005 annual plans.

e) that central government and the Auckland region work together to address implementation issues.

f) that a decision in principle to proceed with road pricing be made immediately.

g) that further work be commissioned on the options for road pricing, including technical feasibility, costs, demand management and revenue potential, social and economic impact assessment, and mitigation.

h) that these investigations be completed with urgency, to allow a final decision as to whether to proceed to be made as soon as possible.

i) that opportunities be explored for early implementation of tolls on new roads.

j) that additional funding be provided to enable acceleration of road building beyond the status quo, and potentially up to the level implied by the buildability constraint.

k) that central and local government work in partnership with the construction industry to tackle skill shortage issues.

l) that positive steps are taken to address issues relating to consents, following from the policy work currently underway by central government.

A. INTRODUCTION

1. This report has been prepared by the Joint Officials Group (JOG) for the Auckland transport strategy and funding project. JOG was established following a May 2003 agreement between ministers and the Auckland Mayoral Forum to examine transport strategy and funding issues in the Auckland region. This process was agreed by Cabinet on 28 July 2003.

2. JOG comprised officials from central government and Auckland local authorities. Its objective was to develop a funding package that enables the timely implementation of an agreed network strategy, having assessed the fit of the Auckland Regional Land Transport Strategy (RLTS) with the New Zealand Transport Strategy (NZTS) and other public policy outcomes. As part of this process, JOG identified and assessed a range of policy options.

3. JOG acknowledges the valuable input of a large number of central and local government officials who contributed to the analysis that underpins this report. Summary reports from each of the work stream groups are appended.

4. The remainder of this report is divided into the following sections:

   B. *Understanding the problem* provides some background to Auckland's transport problems, the strategic response to these problems from the Auckland region, and the associated funding issues. The NZTS and the background to the formation of JOG are also discussed.

   C. *Package evaluation* deals with JOG's evaluation of the RLTS and alternative strategy packages against the objectives of the NZTS and other public policies. A number of high level conclusions from this evaluation are discussed.

   D. *Constraints* examines three factors which are likely to limit the scope and timing of transport system development in Auckland: buildability, consents and policy, and funding.

   E. *Decision framework* identifies the key decisions that are needed, and summarises the implications of alternative decision paths.

   F. *Conclusions* summarises JOG's conclusions and presents a set of high-level recommendations. The implications for the rest of New Zealand are also discussed.

B. UNDERSTANDING THE PROBLEM

5. This section provides some background to Auckland's transport problems, the strategic response to these problems from the Auckland region, and associated funding issues. The NZTS and the background to the formation of JOG are also discussed.

The Auckland transport context[1]

6. Auckland faces a number of transport problems. Traffic congestion has reached significant levels, with estimates placing the annual cost of congestion at approximately $1,000 million.[2] This has negative economic, social and environmental impacts on the region, and also New Zealand as a whole.

7. It is important that any policy initiatives that aim to address this issue also take into account the underlying causes of congestion. For Auckland, the problem is multi-faceted, relating to regional growth, geographical and capacity constraints, and a high reliance on cars.

Regional growth

8. Auckland is the nation's largest and fastest growing region. In 2001, Auckland had a population of approximately 1.2 million, or 31 per cent of the national total. Current population growth averages 1.5 percent a year, significantly higher than the rate for New Zealand as a whole (0.6 per cent). By the year 2021, the region is expected to have a population of approximately 1.6 million.

9. The region is also a significant and growing part of the national economy. One third of New Zealand's businesses are now located in the Auckland region, and a third of the nation's income is generated in the region. Manufacturing and business and financial services are the most important sectors of the Auckland economy. The port and airport play a pivotal role in the regional and national economy, handling almost three quarters of the country's imports, and 40 per cent of exports.[3]

10. As New Zealand's largest urban area, Auckland's development in economic, social and environmental terms is critical to the success of New Zealand. It is essential that Auckland's transport system is developed in a way that contributes to national and regional outcomes.

Patterns of transport development

11. The historic patterns of development in Auckland have fostered a strong reliance on private vehicles as the dominant mode of transport. This can be attributed to a number of factors:

[1] This section draws on information in 2003 Auckland RLTS, Chapter 4: Trends, Impacts and Causes.
[2] A 1997 study (Ernst & Young: Alternative Transport Infrastructure Investments and Economic Development for the Auckland Region, May 1997) estimated the cost of congestion at $755m a year. The NZTS (2002) estimates the current cost of congestion at around $1 billion
[3] Auckland Regional Economic Development Group: The Auckland Region's Economy: A Stock-take Report, November 2001

- Low-density development of the region, with peripheral expansion based on historically good accessibility.

- The dispersed nature of the origins and destinations of trips, particularly for work and educational trips. The central business district has a relatively low and declining share of regional employment, with work trips widely dispersed throughout the region. Educational trips follow a similarly dispersed pattern.

- High and growing levels of car ownership. At almost one car for every two people, Auckland has one of the highest car ownership rates in the world, comparable to the USA, Australia and Canada.

- From the 1960's to the 1980's, Auckland's transport investment was focussed on development of the motorway network, although the network planned at this time was not completed.

- Until recently, there has been very little investment in public transport, with a consequent decline in the use of public transport until the mid-1990's. However, public transport use has increased in recent years, with annual increases of at least 7 per cent since 2000, and 13 per cent in the last year.

Geographical and capacity constraints

12. The Auckland region's geographic characteristics, particularly its harbours and waterways, impose constraints on the transport system. This means that in key locations, transport links are confined to narrow corridors. For many trips, these constraints mean that few alternatives are available, and providing new routes or additional capacity has significant environmental and community costs. Major structures in some key corridors are operating at capacity, and in places where expansion would pose major difficulties.

13. The combination of these factors has meant that Auckland's recent growth has outstripped the capacity of its transport system to cope with demand. The level of transport investment over the past two decades has not been sufficient to keep up with this growth. A number of initiatives have been proposed to address this problem. These are generally aimed at improving capacity, managing existing and projected demand, and completing key links in the network, including the provision of alternative transport options.

14. It has become increasingly apparent that current funding mechanisms are not sufficient to put these initiatives into action and respond to these pressures on the transport system in a timely manner. It is also apparent that simply adding more infrastructure to the transport system is not sufficient to address Auckland's transport problems, and that policies are required to address demand as well as supply. If key decisions are not made today, these problems will worsen, and result in increasingly unacceptable economic, social and environmental outcomes.

Regional strategies

15. The Auckland region's response to these problems is set out in two key strategy documents, the Regional Growth Strategy (RGS) and the Regional Land Transport Strategy (RLTS).

16. The RGS was adopted in 1999. It sets out a path for the management of regional growth over the next 50 years, with an emphasis on containing the extent of peripheral expansion of the region by accommodating higher levels of growth around centres that are well served by the transport system.

17. The current RLTS was adopted in 2003, updating the previous 1999 RLTS. It outlines the transport improvements that will be needed to achieve this overall vision for the region's growth. This includes a number of projects of road construction, passenger transport development, and travel demand management (TDM).

18. The region has also recently completed a Rail Business Plan[4], which sets out the desired pathway for the development of a modern electrified rail system in the region's key corridors. Together with the proposed North Shore Busway, the rail corridors will form a new rapid transit system, which will be the backbone of a public transport system that is aimed at providing fast, frequent and convenient travel between key centres.

19. The RLTS includes an implementation plan that identifies and prioritises the projects that the region has identified as needing to be progressed over the next decade to enable the transport system to function more effectively. The implementation plan highlights a significant funding gap between available funds and the identified programme of works.

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20. As a result of these issues, a joint initiative of the Auckland Regional Land Transport Committee (RLTC) and the Mayoral Forum began in early 2003 to examine options to address the funding gap, and accelerate progress towards implementation of the RLTS. This resulted in a proposal[5], endorsed by the councils of the region, which was presented to ministers and mayors on 30 May 2003.

New Zealand Transport Strategy (NZTS)

21. The NZTS sets the strategic context for transport decision making in New Zealand. The NZTS was published in December 2002, and sets a vision that "by 2010, New Zealand will have an affordable, integrated, safe, responsive, and sustainable transport system".

22. Several major policy initiatives, including the Growth and Innovation Framework and the Sustainable Development Programme of Action, have identified transport as a key element in achieving the economic, social and environmental outcomes desired for New Zealand in the 21st century. The NZTS identifies the contribution transport will make to achieving these outcomes, and sets out five objectives for the transport system:

[4] Auckland Passenger Rail Upgrade Project Business Plan, May 2003 (ARC, ARTNL, Infrastructure Auckland)
[5] Auckland Mayoral Forum Proposal For Funding The Completion Of The Integrated Transport Network For The Auckland Region By 2010, March 2003

- assisting economic development
- assisting safety and personal security
- improving access and mobility
- protecting and promoting public health
- ensuring environmental sustainability.

23. Following enactment of the Land Transport Management Bill 2003, these objectives are now reflected in the statutory obligations of transport agencies.

Joint Officials Group (JOG)

24. At a meeting on 30 May 2003, ministers and mayors agreed to establish JOG to examine the Mayoral Forum proposals and report back on options for future funding arrangements.

25. JOG's objective was "to develop a funding package that enables the timely implementation of an agreed network strategy, having assessed the fit of the RLTS with the NZTS and other public policy outcomes." The objective reflects the need to ensure that any proposals are in line with the government's key policy initiatives in transport and other sectors.

26. JOG was supported by a number of work stream teams, which were charged with examining the detailed issues associated with the Auckland transport strategy and funding project. The work streams each had central and local government representation and covered the following areas:

    - Network completion
    - Travel demand management: non-pricing
    - Travel demand management: pricing
    - Interim funding and debt finance
    - Mitigation and consents
    - Social and economic impacts.

27. The organisations represented on JOG and the work stream teams are listed in Appendix 1. Summary reports from each of the work streams are contained in the separately bound Appendices 2 to 7.

28. Given the relatively short time available for this project, JOG and the work streams relied wherever possible on assembling and interpreting the results of previous work and existing documentation, rather than initiating new investigations. Similarly, the modelling of transport impacts used the existing Auckland Regional Council (ARC) transport model. For the assessment of funding options and cash flow implications, JOG used a model developed for that purpose by Infrastructure Auckland.

29. JOG recognised that a number of the issues examined as part of this project are likely to have a bearing on transport governance in the Auckland region. These issues were outside JOG's terms of reference. We note, however, that governance issues will need to be addressed as part of the implementation of any decisions that are made as a result of this work.

C. PACKAGE EVALUATION

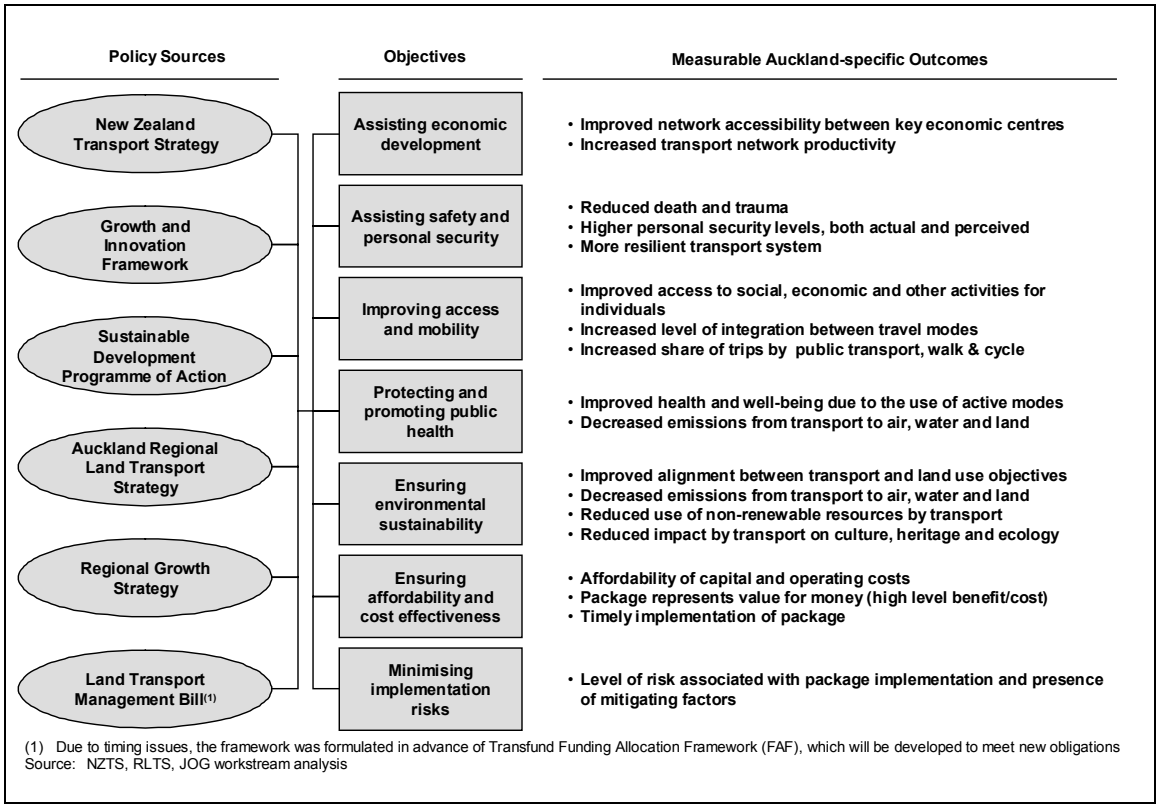
30. This section deals with JOG's evaluation of the RLTS and alternative strategy packages against the objectives of the NZTS and other public policies. A number of high level conclusions from this evaluation are discussed.

Evaluation of the "Auckland package"

31. JOG's initial task was to evaluate the "Auckland package", which was defined to include all of the infrastructure projects in the RLTS, plus stage 1 of the Rail Business Plan.[6] To do this, a set of evaluation criteria was developed and agreed. These are based on key government strategic initiatives (especially the NZTS, but also the Growth and Innovation Framework and the Sustainable Development Programme of Action); and key regional strategies, the RGS and RLTS. In addition, elements of the new land transport management legislation were considered as much as possible.[7]

32. Figure 1 summarises the way in which these policy sources were used to develop a set of measurable Auckland-specific outcomes, which formed the basis of JOG's evaluation. These were grouped under seven objectives, including the five NZTS objectives.

Figure 1: Package assessment framework



(1) Due to timing issues, the framework was formulated in advance of Transfund Funding Allocation Framework (FAF), which will be developed to meet new obligations
Source: NZTS, RLTS, JOG workstream analysis

[6] Because the Rail Business Plan was not completed until after the RLTS, its details are not included in the RLTS. The rail project is included in general terms, however, and the two documents are consistent.

[7] The Land Transport Management Bill was reported back to Parliament towards the end of the JOG process in October 2003, and passed on 6 November 2003.

33. As a first step, the Auckland package was evaluated against the "status quo" option. This option was based on the assumption that transport investment would continue to reflect current policy settings and funding levels, as set out in Transfund's 10 year financial forecast, and Transit's 10 year plan.[8]

34. The outcome of this evaluation is summarised in figure 2. This analysis showed that the status quo option performs poorly against a number of key NZTS objectives. It also falls short of delivering the outcomes expected in the Auckland RLTS in a timely manner. As a result, JOG concluded that the status quo is not an acceptable option for the future.

35. The Auckland package was assessed to be an improvement over the status quo, but was also found wanting against some key criteria, notably public health, environmental sustainability and affordability. It also had a high level of operational risk, due to the scale and pace of infrastructure development envisaged in the Auckland package.

Figure 2: Evaluation of status quo and Auckland package

Objective		Status Quo		Auckland Package(	
Assisting Economic Development		Does not improve perception that Auckland has poor infrastructure. Only marginally addresses poor current access to employment centres	×	Reduced congestion to key areas and improved connections to port/airport which will result in gains to business. Potential improvements in access to employment for lower SEG areas	✓
Assisting Safety & Personal Security		No material improvement in safety	-	No improvement in overall road safety, but relatively improved personal security for PT users, and improvement in system resilience	✓
Improving Access & Mobility		Deterioration in many road users' travel times. Small gains in access through new roads	× ×	Overall improved access using roads and PT with improved travel times	✓
Protecting & Promoting Public Health		Increasing emissions, combined with static walk/cycle mode share	×	Emissions significantly increase, combined with static walk/cycle mode share	× ×
Ensuring Environmental Sustainability	Land Use Alignment	Aims to promote RGS emphasis on intensification. Potential community severance issues	-	Strongly supports RGS emphasis on intensification. Potential community severance issues	✓
	Emissions, Fuel Use, Other Impacts	Increase in emissions and use of non-renewable resources	× ×	Increase in emissions and use of non-renewable resources	× ×
Ensuring Affordability & Cost Effectiveness	Affordability	Affordable under current funding, with no change to regulatory processes required	✓ ✓	Not fundable under current funding arrangements, requires regulatory change	×
	Cost Effectiveness	SQ used as base for B/C analysis	N/A	Incremental benefits over status quo similar to costs	-
Minimising Implementation Risks		No additional risks above today	✓	Cost overruns, environmental consent concerns, skilled labour availability concerns, esp for large road projects	× ×

- = Neutral
✓/ × = Slight positive/ negative contribution
✓✓/ ×× = Medium positive/ negative contribution
✓✓✓/ ××× = Strong positive/ negative contribution

Additional packages evaluated

36. As a result of analysing the status quo and Auckland package, it was concluded that a further set of hypothetical alternative packages should be developed, to demonstrate the effect of various policy choices. These included a mix of TDM non-pricing, public transport, roading investment, and road pricing.[9] Figure 3 summarises the

[8] For a more detailed description of the status quo and Auckland package, refer to the Network Completion Summary Report, Appendix 2

[9] As defined in paragraph 40

main elements of these packages, as well as the status quo and the Auckland package.

Figure 3: Packages evaluated: summary elements

	Roading	Public Transport		TDM non pricing incl. walk and cycle	Road pricing	Total 10 yr Capital & Operating Expenditure
		Rail	Bus, Ferry			
Package A 'Status Quo' (SQ)	Transit 10 Yr Plan + SQ Local Roading(1)	2003 Services	2003 Services (includes interim service improvement for Nth Shore Busway)	Status Quo TDM	-	Capital: $2,539m Operating: $1,243m
Package B 'Auckland Package' (AP)	2011 Roading projects as per the RLTS (with local roading)	Stage I Rail Business Plan	Regional PT Plan	Status Quo TDM	-	Capital: $6,185m-7,185m Operating: $1,,494m
Package C Status Quo roading + Auckland Package PT + TDM	Transit 10 Yr Plan + SQ Local Roading(1)	Stage I Rail Business Plan	Regional PT Plan	School, Business and Tertiary Travel Plans; Increased cycle and pedestrian facilities; ATMS	-	Capital: $3,533m Operating: $1,243m
Package D 'Auckland Package' + TDM	2011 Roading projects as per the RLTS (with local roading)	Stage I Rail Business Plan	Regional PT Plan	School, Business and Tertiary Travel Plans; Increased cycle and pedestrian facilities; ATMS	-	Capital: $6,269m-$7,269m Operating: $1,508m
Package E Status Quo roading + more PT + TDM + road pricing	Transit 10 Yr Plan + SQ Local Roading(1)	Stage II Rail Business Plan (with suitable costs given patronage increases driven by TDM)	Regional PT Plan + additional increase	School, Business and Tertiary Travel Plans; Increased cycle and pedestrian facilities; ATMS	Road pricing (Direct charge for the use of a roading network – including existing roads – which may vary by time of day and location)	Capital: $4,007m-$4,037m Operating: $1,549m
Package F 'Auckland Package' roading + more PT + TDM + road pricing	2011 Roading projects as per the RLTS (with local roading)	Stage II Rail Business Plan (with suitable costs given patronage increases driven by TDM)	Regional PT Plan + additional increase	School, Business and Tertiary Travel Plans; Increased cycle and pedestrian facilities; ATMS	Road pricing (As above)	Capital: $6,743m-$7,813m Operating: $1,613m

(1) Includes proportion of costs associated project commenced but not completed in 10 year timeframe (eg Avondale) Network impacts of these projects not included in benefit assessment Source: Network Completion, TDM Non-Pricing, TDM Pricing Workstream Discussions

37. All of the additional packages included an enhanced level of TDM non-pricing activity, including school, business and household travel plans; walk and cycle facilities; and accelerated development of the Advanced Traffic Management System (ATMS). For more details of these initiatives, see the TDM Non-Pricing Summary Report, Appendix 3.

38. All additional packages also included an increase in public transport provision over the status quo, including provision for the completion of Stage 1 of the Rail Business Plan, and implementation of the Regional Passenger Transport Plan service levels for bus and ferry services.

39. Two packages (D and F) included development of the road network according to the timing set out in the Auckland package. The other packages (C and E) included roading according to the timing identified in the status quo.

40. Finally, two of the packages (E and F) included road pricing as a demand management initiative. Road pricing in the context of this report is defined as any direct charge for the use of roads. This potentially includes existing and new roads, and charges could vary by time of day and location. For the purpose of modelling

the impacts of this initiative, a hypothetical isthmus cordon tolling system was assumed. Other road pricing options were examined by the TDM pricing work stream, and a discussion of their impacts is included in Appendix 4.

41. Results of the evaluation of the additional packages are shown in Figure 4. Note that this high level summary assessment needs to be read in conjunction with the more detailed assessment of packages against the criteria set out in Appendix 2.

Figure 4: Summary of evaluation results

Objective \ Package		Package A	Package B	Package C	Package D	Package E	Package F
Assisting economic development		×	✓	✓	✓ ✓	✓ ✓ ✓	✓ ✓ ✓
Assisting safety and personal security		-	✓	✓	✓	✓ ✓	✓ ✓
Improving access and mobility		× ×	✓	✓ ✓	✓ ✓	✓	✓
Protecting and promoting public health		×	× ×	-	-	✓ ✓	✓ ✓
Ensuring environmental sustainability	Land use alignment	-	✓	✓	✓ ✓	✓ ✓	✓ ✓
	Emissions, fuel use, other impacts	× ×	× ×	× ×	× ×	✓ ✓	✓ ✓
Ensuring affordability and achieving cost effectiveness	Affordability	✓ ✓	×	✓	×	-	×
	Efficiency (B/C)		-	✓ ✓	✓	✓ ✓ ✓	✓ ✓
Minimising implementation risks			× ×	×	× ×	× ×	× × ×

- Generally poor fit with NZTS
- Unacceptable solutions

- Substantial overall improvement on NZTS outcomes except for public health and environmental sustainability

- Very substantial improvement over status quo and Auckland package in most categories, due to introduction of road pricing

- = Neutral
✓/ × = Slight positive/ negative contribution
✓✓/ ×× = Medium positive/ negative contribution
✓✓✓/ ××× = Strong positive/ negative contribution

42. The assessment shows that moving to packages C and D results in a substantial overall improvement over the status quo and Auckland package against most NZTS objectives. This result reflects the positive impact of TDM non-pricing initiatives and public transport improvements on key criteria. In common with the Auckland package, however, the performance of packages C and D against the public health and environmental sustainability objectives still rate relatively low.

43. Road pricing with a demand management focus[10] results in a very substantial improvement over the status quo and Auckland package against almost all evaluation categories. This reflects the impact of road pricing, as modelled, on reducing travel demand and congestion. This leads to positive improvements in the measures for economic development, safety and security, public health and environmental sustainability. It does, however, have social and economic impacts, as discussed below - hence the lower score for access and mobility. Implementation risks increase under these options, and affordability is an issue for package F.

[10] Road pricing obviously has revenue raising potential as well, but was modeled with a demand management focus in order to show NZTS outcomes

Conclusions from package evaluation

44. The evaluation of alternative packages resulted in a number of high-level conclusions that JOG identified as needing to be provided for in future strategy and funding decisions. These are outlined below:

45. In all explored future options, ***increased levels of TDM non-pricing and public transport delivered benefits*** that are considered essential to achieve progress towards NZTS outcomes. These included improvements in access and mobility, particularly for those with limited transport choices, better safety outcomes due to a greater focus on the needs of vulnerable road users, and improved economic development outcomes due to the reduction in congestion arising from mode shift away from private vehicles. JOG concluded that ***TDM non-pricing initiatives and enhanced public transport should form a key part of the policy mix***. These initiatives were not, however, viewed as the solution on their own.

46. JOG concluded that ***road pricing is critical to achieving better NZTS outcomes, especially reducing congestion***. Because of the potential for road pricing to influence the pattern of demand for travel in the region, it offers significant potential to reduce travel times, lower emissions, and increase mode shares for public transport, walking and cycling. Accordingly, it has a strong, positive impact on economic development, public health and environmental outcomes.

47. ***Road pricing also has the potential to deliver significant long-term sustainable revenue streams***. However, the introduction of comprehensive road pricing is approximately four to six years away.[11] This is due in part to the need to address issues of community acceptance before a final decision can be made to proceed with road pricing, and the technical and legal work that will be needed prior to implementation. It also reflects the lead times needed to improve the region's public transport system to the level required for it to be seen as an acceptable alternative to car travel once road pricing is introduced. In particular, the implementation of rail service improvements will take some time, as noted in the Rail Business Plan.

48. JOG also identified the need to address the range of ***social and economic impacts*** that are likely to be associated with road pricing. These will differ according to the specific details of different road pricing options, but under any pricing scenario will need to be carefully managed.[12] Mitigation measures would include enhanced public transport, to offer alternatives for lower socio-economic groups.

49. JOG concluded that ***some acceleration in road construction*** above currently programmed activity is needed. This would deliver the following benefits:

    - Improved travel conditions in key corridors at an earlier stage than is currently programmed

[11] For further detail, refer to the TDM Pricing Summary Report, Appendix 4

[12] These impacts are summarised in Section 6 below, and a more detailed discussion of the scenarios modeled can be found in the Summary Reports of Social and Economic (Appendix 7) and TDM Pricing (Appendix 4).

- Improved system resilience by earlier completion of alternative strategic routes (eg improvements as part of the Western Ring Route) [13]

- Assist in the development of an integrated roading and public transport network at an earlier stage than currently programmed. Many of the public transport improvements, eg busways and bus priority measures, rely on the development of roading infrastructure

- Greater community acceptance of any additional funding mechanisms. Research has shown that acceptance of increased charges is greater when the funds raised are directed towards improvements to the transport system

50. The JOG analysis showed that funding and implementation risks increase with the degree of acceleration, and that there are some constraints on the extent to which activity can be accelerated. It is also important that any decisions on accelerated roading are consistent with any future road pricing decisions. These issues are dealt with in more detail in the next section.

[13] Completion of this route will enable an alternative strategic route to State Highway 1 for north-south travel, and reduce the vulnerability of the existing transport system to incidents in the highly congested State Highway 1 corridor.

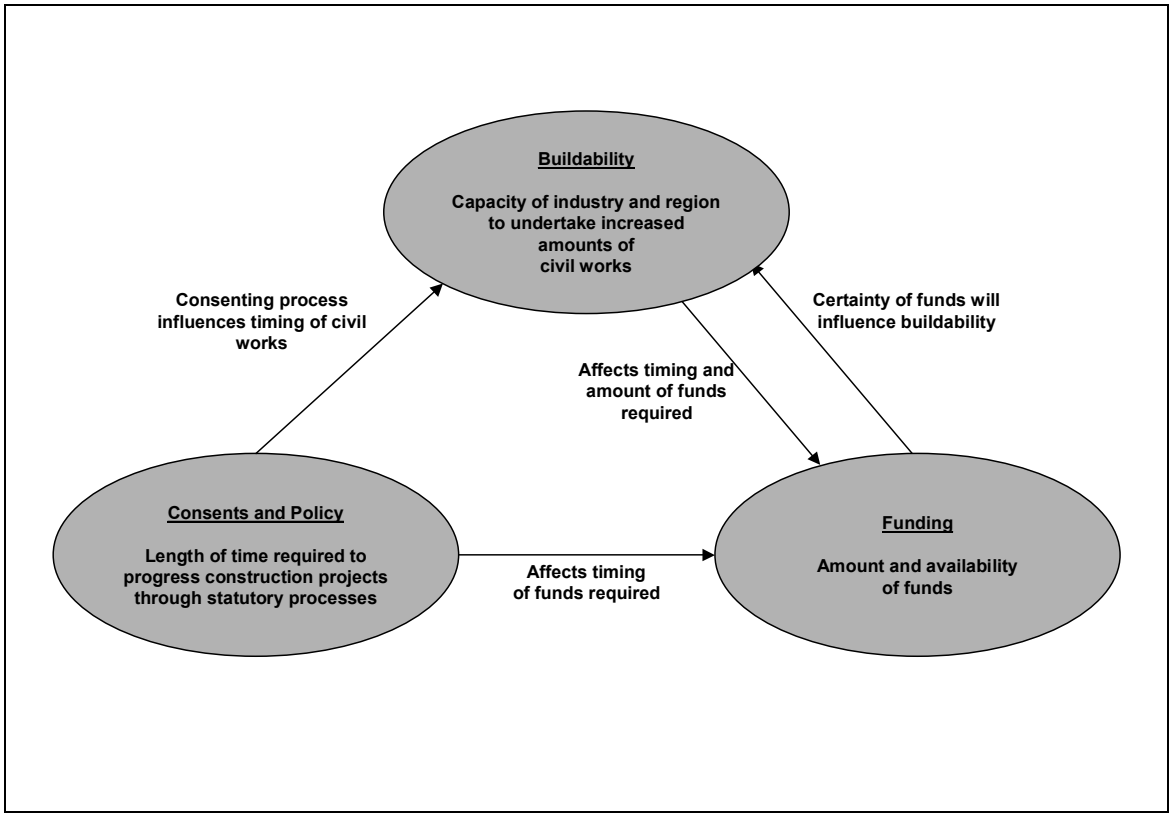
D. CONSTRAINTS

51. This section examines the factors which are likely to limit the scope and timing of transport system development in Auckland.

52. JOG assessed the likely constraints to achieving an accelerated level of transport infrastructure investment in the Auckland region. Three major constraints were identified, and illustrated in Figure 5.

    - "Buildability", relating to the capacity of the civil construction industry to handle a higher level of activity in the Auckland region.
    - Consents and policy, relating to the extent to which statutory processes and policies of transport organisations would impose delays on an accelerated programme.
    - Funding, relating to the potential mechanisms (and combinations of mechanisms) available to fund an accelerated programme, the likely limits to the funds that could be generated from these sources, and the level of activity that this would support.

Figure 5: Three major interlinked constraints



53. When the three constraints are considered in combination, it is apparent that there are limits on the amount of activity that can be accommodated over the next ten years. Of the three, buildability has emerged as potentially the most significant constraint on the achievement of an enhanced programme. The following sections address these issues in more detail.

Buildability

54. The current level of transport-related civil works construction in the Auckland region is approximately $200 million a year. The Auckland package, as described in the RLTS implementation plan, envisages a much higher level of construction activity over the next decade if existing funding constraints were lifted. Concerns have been expressed over the capacity of the construction industry (and road controlling authorities as the clients for this work) to undertake a significant increase in the quantum of work in Auckland; and the possible price premiums that might be required if demand is ramped up too sharply.

55. To address this issue, a workshop involving key New Zealand industry participants was convened by the Network Completion work stream.[14] The purpose of the workshop was to examine the capacity of the New Zealand industry to increase levels of civil works construction in the Auckland region.

56. The workshop concluded that the major constraint on increasing civil construction activity is the availability of specialist labour. Other potential constraints, related to construction materials or equipment, were not considered to be as difficult to overcome. The potential traffic disruption caused by construction activity also needs to be carefully managed. This issue is most acute for projects close to the city centre.

57. Workshop participants considered that it would be possible to double the level of civil works construction to approximately $400 million a year, with a manageable level of risk, within three years. Note that this amount does not include the increased level of non-civil infrastructure activity identified in the packages.[15] It also assumes that the level of activity in the rest of New Zealand is retained at current levels.

58. There were a number of significant caveats to this conclusion, however. The workshop considered that an increase of this magnitude over a three year period would be expected to result in a significant price premium, estimated to be between 20 per cent and 30 per cent. This would equate to an overall cost of approximately $480 to $520 million a year.

59. To double civil works within three years, the workshop stressed the need for industry confidence to commit to the necessary investment. To provide this, three key initiatives were identified as being required:

    - Establish increased certainty of the construction programme.
    - Use more innovative contracting and procurement procedures.
    - Work with the industry to systematically address resource constraints, particularly labour.

[14] For further detail on the workshop process and outcomes, refer to the Network Completion summary report, Appendix 2.

[15] Non-civil infrastructure refers mainly to rail infrastructure (electrification and signaling) and rolling stock. These investments have their own specific delivery constraints, but are not subject to the civil construction limitations identified in the workshop.

60. Of these, the key issue is increased certainty. The workshop indicated that the construction industry has experienced promises of increased activity in the past that have failed to materialise. To provide confidence that the increased level of activity will emerge, it is considered essential that the industry sees a clear commitment to an increased and sustained level of activity (over a period of at least five years) from planning, funding and procurement agencies. This needs to be reinforced with ongoing, sustainable funding being made available for transport infrastructure.

61. The industry will also need to have confidence that projects will not be held up due to consenting and process delays. To overcome this problem, the industry suggested facilitating the programming of multiple projects through their planning and consenting stages, to allow choices if some are delayed through unforeseen circumstances.

62. In addition to these steps, a more collaborative approach to contracting and procurement was suggested. This has the potential to reduce the time and costs associated with the procurement process. Noting the success of the alliancing approach used for the Grafton Gully project, the workshop suggested the following enhancements:

    - Bringing parties in at an earlier stage of the project.
    - Encouraging 'share of savings and risks' models, after client design project procurement.
    - Providing compensation to the industry for tendering process.
    - Developing a strategy to engage the cooperation of utilities.

63. A further suggestion is to move from the present 'just in time' land procurement approach to a pre-emptive land purchase strategy. This approach would demonstrate commitment to the industry, and should also reduce the time required to complete the land acquisition process once consents have been granted.

64. Finally, the need to systematically address the significant shortage of skilled labour in the construction industry was identified. This is also likely to be an issue in the public sector transport institutions involved. Options could include consideration of national and/or regional initiatives, such as immigration policy and apprenticeship programmes.

65. It is JOG's conclusion that going beyond the identified civil construction ceiling of $400 million a year may be possible in the longer term, but a further step change would require significant involvement of new players. This would still require the steps outlined above to be followed, as new players will also require certainty regarding the availability of funding and timing issues in relation to large contracts, and are also likely to be restricted by the availability of domestic labour.

66. ***In view of the buildability constraint, JOG recommends:***

- ***that steps be taken to establish greater certainty over the expenditure programme required to deliver an integrated transport network***
- ***that central and local government work in partnership with the construction industry to tackle skill shortage issues.***

Consents and policy

67. As noted above, the RLTS includes a number of major infrastructure projects, many of which have yet to be granted appropriate resource consents. A review by the Mitigation and Consents work stream concluded that to enable completion of the Auckland package within a ten year time frame, a significant number of projects will need to start the statutory process during the 2004/05 year. The potential for a bottleneck in the consents approval process was seen as a potential constraint to acceleration of the programme. A number of process changes were considered, some of which have the potential to ease the process bottleneck.

68. Based on preliminary estimates of the consenting timeframe, JOG has concluded that the buildability issues discussed above present a more significant constraint on the ability to accelerate the transport programme. It was noted however, that the industry workshop identified certainty in the consents process is one of the steps that would help to provide greater confidence for increasing industry capacity. Consequently, addressing consent processes has the potential to assist in addressing the buildability constraint.

69. Within the time available, JOG was not able to develop a firm view as to the process improvements that would make a significant difference to the consents constraint. We are aware that central government is developing policies to address the broad issues of resource management and consent processes. In this regard, we believe that the outcome of this work should assist in improving timeliness.

70. The following areas are likely to merit further investigation, either as part of current government reviews or as separate investigations:

- Potential for improvements to Resource Management Act (RMA) policy documents, to better align with the RGS and RLTS.
- Potential for greater use of parallel land purchase and consent processes. This would enable a more proactive approach to land acquisition, rather than the current sequential approach.
- Investigation of opportunities to combine in the investigation and design phases of projects, rather than running sequentially.
- Potential for parallel consent processes across organisations and unified decision making through ministerial calling of key projects as matters of national significance. This would require an amendment to the RMA.

- The development of national environmental standards (e.g. noise).

71. The Mitigation and Consents work stream also examined the potential for enhanced mitigation expenditure to reduce the time taken for projects to pass through the consents process. The conclusion was that such an approach would have minimal impact on project timing, because adversely affected parties are unlikely to withdraw from the statutory process as a result of additional mitigation works.

72. ***JOG recommends that positive steps are taken to address issues relating to consents, following from the policy work currently underway by central government.***

Funding

73. An assessment of current transport funding sources, including Transfund's ten-year financial forecast, suggests that approximately $4.2 billion will be available to fund Auckland transport infrastructure projects over the next ten years. This is set out in the following table[16]:

Current Funding Source	Capital Funding ($m)	Operational Funding ($m)
Transfund	2,000	500
Territorial authority rates	300	
ARC rates		600
Infrastructure Auckland	800	
Total	3,100	1,100

74. The total amount of capital expenditure required to complete the full programme of works identified in this report[17] within ten years is between $6.7 billion and $7.8 billion[18]. A further amount of approximately $1.6 billion in additional operating expenditure will also be required over the 10 year period, giving a total expenditure requirement of up to $9.4 billion. Therefore, a significant funding shortfall of around $5.2 billion exists that would need to be bridged if the full programme was to be completed within this period.

75. There are two main methods to pay for this shortfall: PAYGO and debt (or a combination of the two methods). In both cases, funding mechanisms are required, either to provide the capital funding for construction, or to service the debt.

76. JOG has identified a range of funding mechanisms, and assessed them against various criteria to determine their ability to provide a sustained and equitable means of raising revenues. The criteria included fairness, administrative simplicity, revenue potential and efficiency. The mechanisms and their high-level assessment results are set out in figure 6.

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[16] There are some legal and institutional constraints which limit where the money can be applied. Some of these, particularly in relation to Transfund and the ARC, have been relaxed with the recent passage of the Land Transport Management Act, but others remain, such as Infrastructure Auckland's inability to fund operational expenditure, other than in exceptional circumstances.

[17] This would allow for the implementation of all elements of the RLTS, the Rail Business Plan, and the requirements for enhanced TDM non-pricing and public transport initiatives.

[18] The range in capital expenditure reflects the uncertainty surrounding the cost of some projects. For example, current estimates for the Eastern Transport Corridor range from $1.9 to $2.9 billion.

77. This assessment indicated that additional petrol taxes and the potential Crown contribution are the most attractive mechanisms, especially in the short term. However, there are potentially some equity issues associated with raising fuel taxes, especially if the tax is a national one, yet its benefits are perceived to flow mainly to Auckland. Conversely, without extensive price controls and monitoring systems, regional fuel taxes are likely to become de facto national taxes. The amount and timing of any potential Crown capital contribution is uncertain, and has budgetary implications.

78. Revenues from Auckland territorial authorities and the ARC were deemed viable but less attractive due to their smaller revenue-generation potential and greater uncertainty. Rates increases were also considered less equitable than other options because there is a weak linkage between the incidence of rates and the use of the transport system.

Figure 6: Assessment of individual funding mechanisms

Viable Funding Mechanisms	Overall Evaluation	Comments	Assumed Maximum Funding Levels	
			Annual	10 Yr
Auckland TLA Revenue (Rates, Development contribution etc)	✓	Easy to implement but revenue is not linked to road use, likely play a role in funding mitigation measures	$30m pa	$240m
ARC Rates	✓	Additional funding derived from currently projected annual rates increase in ARC LTFS		$290m
Infrastructure Auckland Grants	✓✓✓	Additional funding offered to cover initial debt servicing from Auckland package		$140m
Road pricing	✓✓	Potentially high, sustained revenue flows, high efficiency, and strong inter-generational/ inter-regional equity. Potentially significant social and economic impacts and implementation difficulties. Note that the revenue generation and congestion reduction objectives of road pricing may have conflicting impacts	$165m pa	$830m
Increase in regional petrol tax and RUC	✓✓	High and sustained revenue potential, but significant administration difficulties, including oil companies spreading the tax to rest of NZ. Regional RUC may not be feasible	Similar to national	Up to $1,250m
Increase in national petrol tax and RUC	✓✓✓	High and sustained revenue potential using existing collection structures, but requiring allocation to Auckland	5cpl- $70m pa 10cpl- $140m pa 15cpl- $210m pa	$1,250m
Crown contribution from reduced diversion of petrol tax into consolidated fund	✓✓✓	Similar to Crown contribution from general revenue, but more sustainable revenue potential, and greater intergenerational equity but budgetary implications	5cpl- $60m pa	$490m
Crown capital contribution from general revenue	✓✓	High one-off revenue potential, simple to implement/administer, and efficient, but issues of intergenerational inequity and budgetary implications	n/a	n/a(1)

✓ = Somewhat positive
✓✓ = More positive
✓✓✓ = Very positive

(1) Exact amount not known; funding pathways assume crown capital contribution of $430m as estimated in modelling
Source: Interim Funding Draft Report 28/8/03; Workstream Meeting 11/9/03; TDM Pricing Presentation 23/9/03

79. Road pricing has potentially high and sustainable revenue flows, estimated at a 'high' of $165 million a year for a comprehensive scheme including charges on existing roads, and a 'low' of $20 million a year for a limited scheme focused mainly on new roads. Due to its overall attractiveness – as a tool to manage congestion, contribute to NZTS objectives and raise revenues – JOG focused on analysing the potential impacts of its introduction. These issues are discussed in the conclusions section below.

Unconstrained funding pathways

80. JOG combined the viable funding mechanisms into funding pathways. Each pathway was assessed against the funding requirements associated with completing the full programme within ten years. JOG found that, using all viable mechanisms, with each at its assumed maximum level of contribution, it was still not possible to generate sufficient revenue under a PAYGO pathway to fund the full programme over ten years. A shortfall of up to $2 billion was identified over the ten-year period (this would reduce with any Crown contribution). It was also noted that maximising the contribution from each mechanism had negative implications – less flexibility and higher risk.

81. JOG assumed the following indicative maximum levels of contribution from each mechanism in developing possible funding pathways:

- The level of petrol tax increases progressively over the ten year period, to 15 cents per litre by 2009/10, with 35 per cent of this allocated to the Auckland region.
- Diversion of the equivalent of a 35 per cent share of 5 cents a litre petrol tax from the Crown account to the Auckland region.
- An increase in rate income from the ARC at the levels identified in the ARC Long Term Financial Strategy (LTFS).
- The revenue equivalent to a 5 per cent rate increase across all territorial authorities in the region, funded from local authorities via rates or other mechanisms.
- Road pricing is introduced in 2009, and is successful in raising approximately $165m a year.

82. The use of debt was also explored. There are circumstances where borrowing may be warranted because the benefits of debt outweigh the costs. Some of the factors which should be taken into account when making this judgement include:

- whether borrowing could help to fund significant one-off expenditure or a "hump" of expenditure, where spending will exceed projected PAYGO funding for a limited period of time and where this spending could be repaid from funding in the subsequent period.
- whether the programme or project provides a new income stream.
- whether borrowing would enable the spreading of the cost of projects across time, potentially providing a better alignment of the benefits and costs of a project.

83. While it is technically possible to combine debt finance with PAYGO sources to fund the full programme of work over the ten-year period, this would result in a significant debt overhang of up to $2.4 billion by the end of the decade. This amount exceeds the $1.6 billion shortfall described above because of the additional costs of debt servicing. This debt overhang would impose annual debt servicing costs of up $190 million to be paid beyond 2013.

84. This level of debt servicing could potentially be managed using the funding mechanisms identified above, but only if the level of network development over subsequent years (beyond 2013) could be restricted to a much lower level. However, there will be a need for significant infrastructure funding requirements beyond 2013. For example, an additional harbour crossing is part of the long term planning of the RLTS, with current cost estimates of approximately $3 billion. Further expansion of the rail network would also involve considerable additional investment.

85. JOG concluded that debt is likely to have a place in any Auckland funding package, especially as an aid to smoothing the steep funding profiles of large projects. However, the level of debt is likely to be constrained by the need to service repayments from new funding mechanisms such as road pricing with potentially uncertain revenue flows[19], and the need to maintain sufficient revenues to fund future network development beyond the currently identified programme.

86. JOG has not identified an optimal level of debt. This will be influenced by decisions on the matters outlined above. It is instructive to note that the ongoing debt servicing requirement imposed by completing the full programme in ten years ($190 million a year) exceeds the maximum likely annual revenue from road pricing ($165 million a year). Since road pricing is a likely long-term source of debt-servicing revenues, levels of debt resulting in servicing loads above the expected revenue from road pricing are unlikely to be sustainable.

87. The overall conclusion from this analysis was that completion of the full programme within a ten year timeframe is not affordable, even if the buildability constraint did not exist.

Funding pathways constrained by buildability

88. As noted above, the buildability constraint is likely to be the major factor limiting the ability to complete the full programme within the next ten years, even if funding was available. With this in mind, JOG examined whether funding pathways could be developed to allow construction to be accelerated up to the assumed level of buildability constraint.

89. Several 'fund as buildable' pathways were identified for illustrative purposes. These are illustrated in Figure 7. Note that the amounts shown do not include any price premium that may be incurred as a result of the ramping up of activity, as discussed in the buildability section. Note also that this analysis looks at the total funding requirement, including capital and operating expenditures. No attempt has been made at this stage to allocate the funds between these two elements.

90. Pathway 1 assumes that the full programme is funded on a PAYGO basis, with no need for debt. Under this pathway, all of the identified funding mechanisms contribute, but the level of petrol tax revenue is restricted to Auckland's share of 5 cents per litre, in addition to an equivalent contribution from a diversion of petrol tax from the Crown account. A 'low' level of road pricing revenue ($100 million over the ten year period) is assumed under this pathway.

[19] Note, for example, that the London cordon toll has been successful in reducing congestion, but this is understood to have resulted in toll revenues that are significantly below expectations.

91. Pathway 2 has a similar funding profile, but assumes that the programme uses debt to cover the balance not met by PAYGO sources. Petrol tax increases are limited to Auckland's share of 3 cents per litre, with a 3 cent per litre diversion. This pathway results in a $660m level of closing debt in 2013, which would require an annual debt servicing cost of approximately $50 million a year. In this instance, the relatively low road pricing revenues assumed ($20 million a year) is insufficient to service the debt.

92. Pathway 3 also assumes that the programme is funded through debt, but has no funding from petrol tax or diversion. Therefore, pathway 3 includes a high level of road pricing, generating approximately $830m over the ten year period. Under this pathway, closing debt is $630 million in 2013, requiring an annual servicing cost of $50m, which can be adequately serviced by the high annual road pricing revenues.

Figure 7: Example funding pathways at level close to buildability constraint
(10 year total revenues to fund an additional $4,872 million capital and $1,543 million operating)

Funding Mechanisms	Pathway 1: PAYGO ($m)	Pathway 2: Debt ($m)	Pathway 3: Debt ($m)
Auckland TLA contributions	240	240	240
ARC funding	290	290	290
IA Debt servicing/capex funding	140	140	140
Road pricing	100 (Low)	100 (Low)	830 (High)
Increased national petrol tax	460 (5c/l)	280 (3c/l)	--
Increased RUC	130	70	--
Crown contribution from diversion of petrol tax	490 (5c/l)	290 (3c/l)	--
Crown capital grant	430	430	430
Closing debt at end of 12/13(1)	NA(2)	660	630
Annual debt servicing cost	NA(2)	50 pa	50 pa

(1) Where applicable, debt is calculated on basis of 30-year table loan, term starting from date of draw down, and interest at 7% pa
(2) Bridging finance may be required in some years
Note: All figures shown on a 10-year basis, unless otherwise indicated; numbers rounded to nearest $10m
Source: Regional Funding Model, JOG workstream analysis

93. The conclusion from this analysis was that a range of pathways exist that could be used to fund a level of activity up to the assumed buildability constraint. Because these pathways would not utilise all of the funding mechanisms to the maximum extent, they would provide greater flexibility as to the mix of mechanisms. Therefore, a wider range of pathways than illustrated in Figure 7 is possible. JOG notes, however, that there are risks and implementation issues associated with all of the pathways identified. A key risk is the additional cost that any price premium may add.

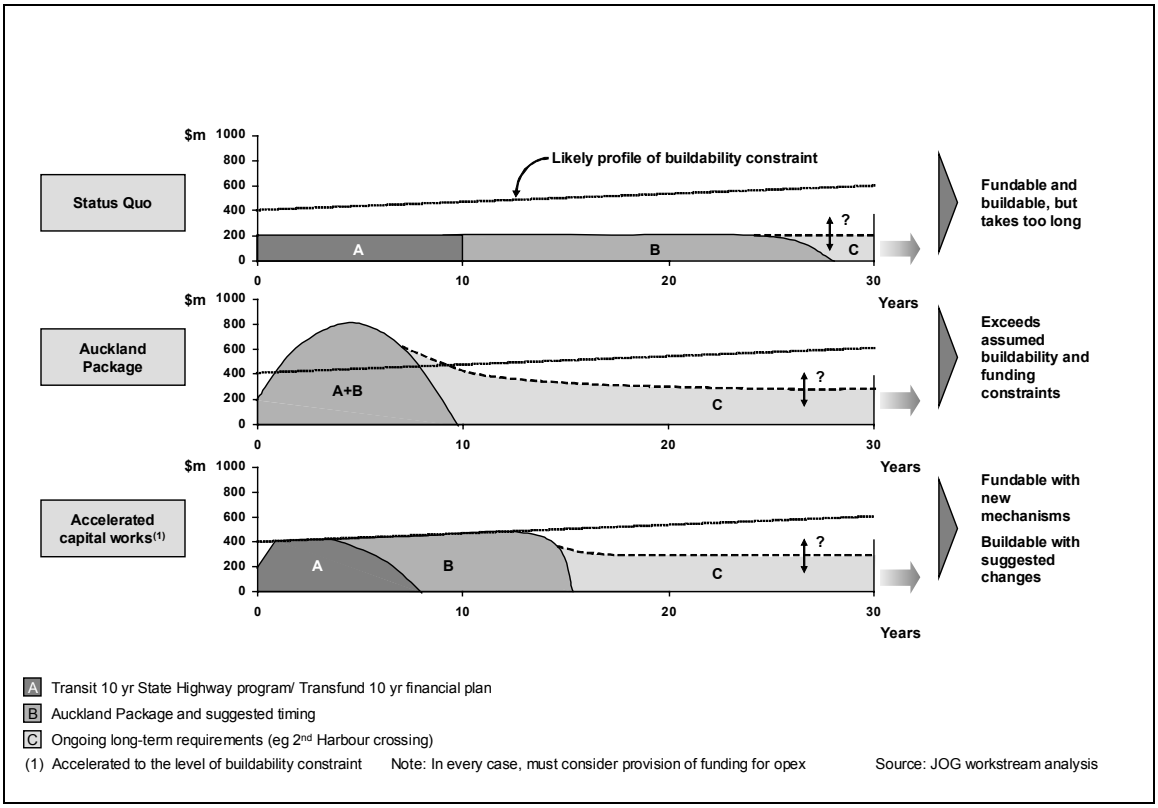
Constraints summary

94. JOG has concluded that immediate work is required to address the buildability constraint. It is also apparent that there are close links between the manner in which the buildability constraint and funding constraints are addressed. By confirming and clearly communicating a sustainable increase in funding arrangements, a key concern of the construction industry (i.e. the certainty of the forward work programme) can be positively addressed. It is anticipated that this will have a significant impact on the willingness of the industry to make the investments necessary to increase capacity.

95. Taking all these factors into account, JOG has concluded that it should be possible to lift the level of activity in Auckland to the levels implied by the buildability constraint, i.e. to approximately $660 million a year ($400 million civil construction plus $100 million passenger transport investment and $160 million operating expenditure). Any price premium associated with the ramp up of construction activity would be additional to this, and could amount to an extra $80 to $120 million a year.

96. This is shown in illustrative form in Figure 8, which compares the civil construction expenditure profile under 3 scenarios: the status quo, the Auckland package, and at a level dictated by the buildability constraint.

Figure 8: Illustrative capital works profile – civil construction



97. Figure 8 shows that under status quo funding arrangements, it is likely to be well over 20 years before the full programme can be completed. It also shows that it is

not possible, given the buildability and funding constraints, to complete the full programme of work within ten years. However, by increasing the level of funding available up to the buildability constraint, it may be feasible to complete the full programme in approximately 15 years.

98. This approach would also enable the region to begin implementation of additional projects beyond the scope of the full programme (eg. additional harbour crossing, further rail expansion etc) within a reasonable timeframe, rather than in the 25-30 years likely under the status quo. This will, however, rely on a significant increase in revenues from a number of sources, and/or the implementation of a comprehensive road pricing system.

E. DECISION FRAMEWORK

99. This section identifies the key decisions that are needed, and summarises the implications of alternative decision paths.

100. Using the emerging conclusions from the work on package evaluation and constraints, JOG developed a decision tree framework to summarise the key decision points that will influence how transport strategy and funding issues are addressed in Auckland. The decision tree is illustrated in Figure 9. It suggests that there are three major decision points that need to be addressed, as follows:

- An agreement on the components of the basic network that can be developed now. These should include enhanced TDM non-pricing, upgraded public transport (including the stage 1 rail upgrade)
- A decision on the use of road pricing. This has implications both for the transport outcomes (reduced congestion, emissions, etc), and for revenue generation.
- A decision on the level of acceleration of the roading programme. This will determine how quickly the benefits of completion of the full programme of works can be achieved, and will also have implications on the level of funding required.

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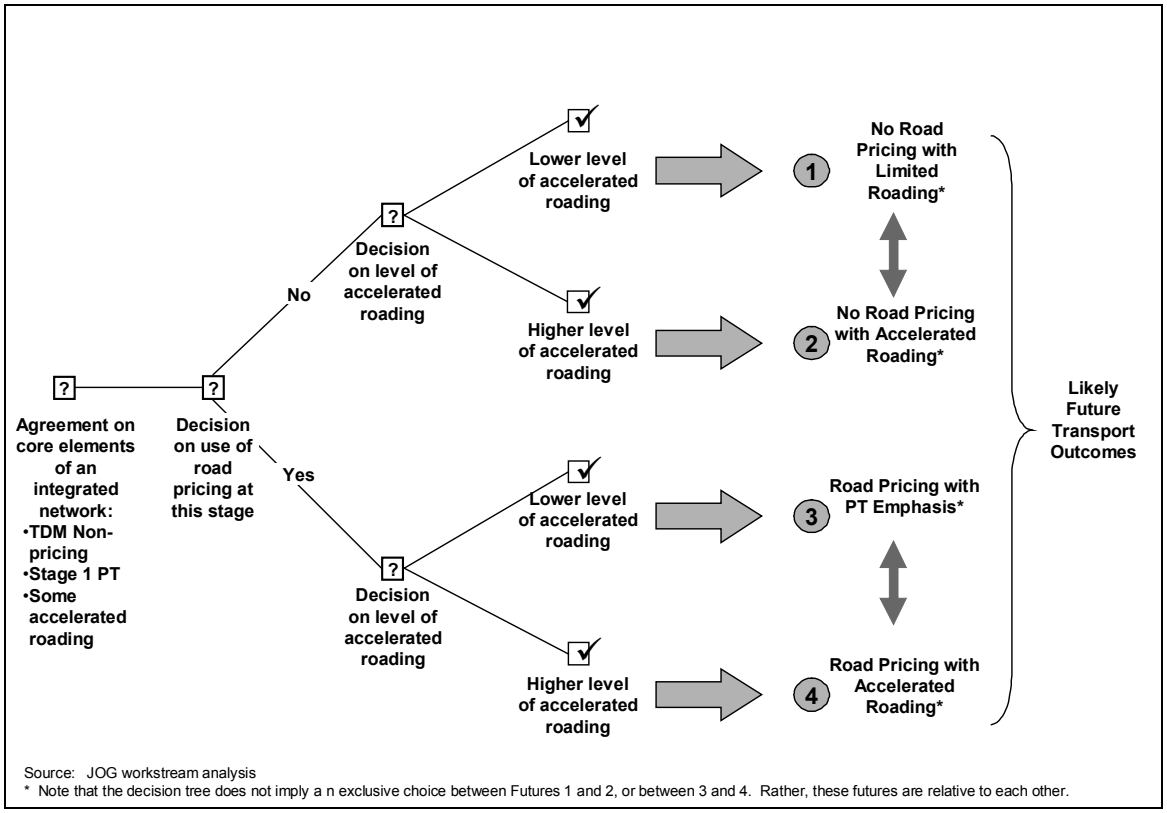
Figure 9: Proposed decision tree



Source: JOG workstream analysis
* Note that the decision tree does not imply a n exclusive choice between Futures 1 and 2, or between 3 and 4. Rather, these futures are relative to each other.

101. Each of these decision points involves decisions on the level and type of funding mechanisms that will be needed. The approach to these decisions will influence the future shape of Auckland's transport system and the likely outcomes arising from it.

102. A summary assessment of the likely futures in 2021 under each of the four paths in the decision tree is shown in Figure 10. It shows that the paths with road pricing with a demand management emphasis tend to result in a better fit with NZTS outcomes, including a greater impact on congestion. Affordability and funding outcomes also differ according to the path taken; those paths that have a higher level of accelerated roading are less affordable, and have less funding flexibility.

Figure 10: Potential shape of Auckland transport in 2021

Characteristics	① No Road Pricing with Limited Roading	② No Road Pricing with Accelerated Roading	③ Road Pricing with PT Emphasis	④ Road Pricing with Accelerated Roading
Transport network • Increase in PT over base level	• Limited(1)	• Limited(1)	• Strong	• Moderate
• Level of roading acceleration	• Low	• Moderate (if funding constrained)	• Moderate	• Strong
• Form and goal of TDM	• TDM Non-pricing to reduce demand	• TDM Non-pricing to reduce demand	• Road pricing to reduce demand, reduce congestion	• Road pricing to generate revenue (less congestion benefits)
Fit with NZTS • Impact on emissions, congestion	• Relatively poor • Increased emissions and congestion	• Relatively poor • Increased emissions, but some congestion benefits from roading	• Strong • Decrease in congestion and emissions	• Moderate • Some impact on congestion
Affordability	• Most affordable	• Most unaffordable	• Affordable	• Somewhat affordable
Type of Funding Options Possible	• Many viable options, including PAYGO	• Restricted options • Lack of road pricing, problems in servicing debt • High fuel taxes and/or very high debt needed	• Many viable options, including PAYGO • More flexibility due to road pricing, lower road spend	• Many viable options, including PAYGO • Lower flexibility despite road pricing, due to higher road spend

(1) Need significantly more PT than under status quo, but less than for 3 and 4
Source: JOG workstream analysis

F. CONCLUSIONS

103. Based on the analysis presented in the previous sections, JOG has reached a number of conclusions that are designed to assist government ministers and elected representatives of the Auckland region in determining the way forward. Taking the three decision points identified above, this section summarises the key conclusions from the analysis and presents a set of high level recommendations. The implications for the rest of New Zealand are also discussed.

TDM non-pricing and public transport initiatives can be agreed, funded and implemented now

104. JOG has concluded that these improvements, as detailed in the Package Evaluation section above, should be advanced under any future strategy package or funding scenario, and implemented at an early stage. This is due to the following factors:

- The initiatives show a good fit with NZTS objectives, and are consistent with both the RLTS and RGS.
- The TDM non-pricing measures are cost-effective, and can potentially have a positive impact on congestion. They can be implemented without significant risk or potential to be burdened with sunk costs in the future if circumstances change or alternative decision paths are followed.
- TDM non-pricing and public transport improvements reinforce each other and are prerequisite to any future move to road pricing, to ensure an alternative is available for those faced with increased costs.
- The change of behaviour associated with TDM and public transport improvements is likely to take some time to establish. An early start on these programmes will allow enough time to encourage users to shift between modes of transport and to demonstrate the benefits of a new approach to providing transport in the region.

105. ***Accordingly, JOG recommends:***

- ***that central government and the Auckland region commit to the implementation of an integrated programme of TDM, stage 1 rail improvements, and an enhanced bus network.***
- ***that sufficient funding is provided so that programmes can be developed and put into action.***
- ***that the Auckland RLTS be reviewed to ensure adequate provision for these programmes, and that local authorities make provision for the first stages of implementation in their 2004/2005 annual plans.***
- ***that central government and the Auckland region work together to address implementation issues.***

A decision in principle to proceed with road pricing is needed now, and a final decision required at an early stage

106. JOG has concluded from the analysis undertaken to date that there is a compelling case for moving to road pricing in the Auckland region. The outcomes of road pricing show a strong fit with NZTS objectives, due to its demand management potential. It also has the potential to generate significant future revenues which can be used to fund transport investment.

107. Because of the impact of road pricing on both the level of demand for transport, and its supply (by virtue of the additional revenue it generates), a decision to proceed with pricing (or not to proceed) is pivotal to other decisions and to the outcomes that will come about. For these reasons, JOG has concluded that a decision on road pricing is needed with some urgency. The following factors are relevant:

    - A decision whether or not to proceed with road pricing will shape the nature of the future network, especially infrastructure investment. Without road pricing, relatively more investment in roading and less investment in public transport is likely to be required to manage future travel demand.

    - The lead time required for putting comprehensive road pricing into place is estimated at four to six years. This includes the introduction of significant additional improvement in public transport, over and above the core components recommended above, if the road pricing system has a demand management focus. This means that ground-work for pricing must be advanced at an early stage, and key issues identified and resolved.

    - The potential revenue from road pricing is significant, and provides an opportunity to contribute to debt servicing in the future. A decision to proceed with road pricing will therefore have a material impact on the level of debt that can be entered into, and the revenues required from other mechanisms in the future.

108. There are, however, a number of constraints that will need to be addressed before any final decisions on road pricing can be made. More detailed consideration needs to be given to a number of technical issues that need to be resolved, including the policy emphasis that lies behind any road pricing initiative. This relates to whether the emphasis should be on demand management or revenue generation. Although it is possible to achieve both, different pricing approaches can achieve quite different results, and have markedly different social and economic impacts. It is essential, therefore, that the policy objectives are clear from the outset.

109. A number of social and economic impacts of road pricing have been identified as part of JOG's analysis. Some of these are significant, and for any scheme to be successfully introduced, these will need to be resolved, managed and/or mitigated.

110. For example, the indicative analysis of cordon tolling showed that it has a large impact on demand management simply because there are no "alternative" free routes (unlike in the case of motorway or new capacity charges). This becomes a problem if the travel needs of low income earners are taken into account, as these users would likely be more severely impacted by a toll that would charge for their daily commute to and from work, or if regular destinations lay on other side of the toll boundary. Low income earners are less likely to be able to switch their mode of transport to avoid paying the toll, are employed in industries that tend to be located in areas not well served by public transport, and cannot adjust the timing of work-related trips to avoid time-related tolls.

111. In addition to the effects on low income earners, a cordon toll has community severance issues that affect all socio economic groups – the division of the city into communities inside the toll boundary, and those outside of it.

112. In view of these conclusions, JOG concluded that more work was needed on the impacts of different types of road pricing tool before any firm decisions on implementation are made. This work will need to consider means to mitigate any negative social and economic impacts. Mitigation measures could include enhanced public transport, to offer alternatives for road users

113. Judging from overseas experience and from attitudinal surveys conducted in New Zealand, there will be opposition to road pricing. Note, however, that this may be mitigated to an extent by directing the additional funds to new land transport infrastructure. It should also be possible to raise public acceptability of pricing by the early implementation of tolling on some new infrastructure, as now permitted under the Land Transport Management Act. This would have the added advantage of generating revenues at an early stage.

114. ***JOG recommends proceeding with road pricing, and to progress this:***

- ***that a decision in principle to proceed with road pricing be made immediately.***
- ***that further work be commissioned on the options for road pricing, including technical feasibility, costs, demand management and revenue potential, social and economic impact assessment, and mitigation.***
- ***that these investigations be completed with urgency, to allow a final decision on whether to proceed to be made as soon as possible.***
- ***that opportunities be explored for early implementation of tolls on new roads.***

Some acceleration of roading can proceed immediately

115. Irrespective of the decision on road pricing, JOG has concluded that acceleration of the region's road construction programme is needed. Although JOG has recommended that a decision in principle to move to road pricing be made now, we are mindful that there are a number of significant public policy issues and risks that will need to be resolved before any final decisions can be taken.

116. If this results in a decision not to proceed with road pricing, or a decision to introduce a pricing system with less impact on demand management, the transport outcomes will not be as positive as envisaged in this analysis. A greater reliance on additional road capacity would be needed in either of these scenarios.

117. Even if a decision is made to proceed with comprehensive road pricing, full implementation will take some time – estimates are four to six years – and the impacts on travel demand cannot be guaranteed. There is, therefore, considerable risk in relying on a road pricing strategy to overcome the lack of capacity in the region's transport network.

118. In view of these risks, JOG has concluded that the current strategic roading programme for the region should be accelerated. This will have the following benefits:

    - The roads in Transit's current 10 year plan are all likely to be required under any future scenario (irrespective of road pricing), and will deliver benefits of reduced congestion in key corridors and improved network resilience at an earlier stage than possible under the status quo.

    - Road improvements will assist in the development of an integrated roading and public transport network (eg busways). These benefits will be felt at an earlier stage than possible under the status quo.

    - Acceleration of the roading programme will promote community acceptance of new funding mechanisms. This is likely to be an important component in any move to a more "user pays" funding approach, as envisaged in the conclusions on funding pathways.

119. JOG has not attempted to determine which roading projects should be brought forward under an accelerated programme. Not only is this beyond JOG's mandate, we note that the new Land Transport Management Act introduces changes to Transfund's obligations, and new requirements for the preparation of the RLTS, including an obligation to consider available funding. These requirements provide a strategic framework and processes to make decisions on timing and sequencing of projects.

120. Given the conclusions in relation to constraints in the previous section, it is concluded that the level of acceleration will be determined by the extent to which funding and buildability constraints can be removed, and ensuring consistency with future decisions on road pricing. A boost in the level of funding for roading would be a major contribution to achieving the greater certainty needed to address the buildability constraint.

121. ***JOG recommends:***

- ***that additional funding be provided to enable the acceleration of road building beyond the Status Quo, and potentially up to the level implied by the buildability constraint***

- ***that central and local government work in partnership with the construction industry to provide greater certainty on the expenditure programme, and to tackle skill shortage issues***

- ***that positive steps are taken to address issues relating to consents, following from the policy work currently underway by central government.***

Implications for the rest of New Zealand

122. In agreeing to the JOG process with Auckland mayors, central government requested that part of the work undertaken involve a consideration of the impacts of any proposals on the rest of New Zealand.

123. Accordingly, JOG has undertaken a high level assessment of the implications of its recommendations for the rest of the country. The following considerations were identified:

- Relieving Auckland's congestion problems will be of direct benefit to the economies and businesses of neighbouring regions, given their high degree of reliance upon the importing or exporting of many of their goods and services from the Auckland region.

- Regions throughout New Zealand would also benefit from some of the proposals to boost land transport funding, such as any fuel excise increase, as the bulk of any such funding would be spent outside the Auckland region.

- As with Auckland, the increased revenue could be used to improve or increase public transport services and facilities, accelerate roading projects, and introduce TDM measures (including the development of demand management plans and walk/cycle alternatives to enable better use of existing networks and services).

- In addition, providing the opportunity to Auckland and central government to further investigate and possibly pilot innovative transport initiatives in the areas of road pricing, as well as the various demand management, non-pricing options and debt options proposed, will be of benefit to any similar initiatives applied elsewhere in New Zealand.

- However, the likely concentration of construction resources in Auckland as the result of any increase in available construction funding may limit the ability to undertake additional work elsewhere, and/or increase the cost of doing so. There are also potential fiscal effects arising from any fuel excise increase, including the flow on impact of benefit payments via CPI adjustments.

- All the impacts mentioned above will need to be taken into account by Auckland local government and central government in arriving at any joint solutions to Auckland's transport problems.