

## Treasury/MOT Report: Auckland Transport: Potential Road Pricing Revenue from New and Existing Roads

---

<b>Date:</b>	18 November 2003	<b>Treasury Priority:</b>	Medium
<b>Security Level:</b>	COMMERCIAL IN-CONFIDENCE	<b>Report No:</b>	T2003/1850

### Action Sought

---

	Action Sought	Deadline
Minister of Finance	<b>Note</b> contents and forward to Minister of Transport	None
Minister of Transport	<b>Note</b> contents	None
Associate Minister of Finance (Hon Trevor Mallard)	None	None
Associate Minister of Finance (Hon David Cunliffe)	None	None

### Contact for Telephone Discussion (if required)

---

Name	Position	Telephone	1st Contact
Roger Toleman	Deputy Secretary, MOT		
Martin Glynn	Senior Adviser, MOT		✓
Rosemary Cook	Principal Advisor, Treasury		
David Black	Senior Analyst, Treasury		✓

**Enclosure: Yes**

18 November 2003

SH-8-8

## **Treasury/MOT Report: Auckland Transport: Potential Road Pricing Revenue from New and Existing Roads**

---

### **Executive Summary**

---

As requested, this paper outlines the revenue generation potential of charging for the use of new roads in the Auckland region.

Transit New Zealand has recently undertaken a preliminary desktop screening of new projects nationally to assess their viability for tolling in accordance with the Land Transport Management Act 2003. Six projects were assessed in the Auckland region: ALPURT B2 (SH1), Mt Roskill (SH20), Hobsonville SH18/16, Manukau extension SH1/20 and Avondale (SH20) and the Manukau Harbour Crossing (SH20). Transit assessed these projects because it considered they were sufficiently developed for a desktop exercise to be undertaken.

Transit's analysis indicates that it is unlikely that any of these roads could generate sufficient toll revenue to fully repay all costs associated with their construction and use within the 35-year concession period allowed for in the Land Transport Management Act 2003. (Costs comprise construction, debt financing, maintenance and operation, ie tolling and traffic management).

The implication of this is that some form of government subsidy is likely to be required to make tolling a viable option.

ALPURT was considered to offer the greatest potential as a toll road. However, Transit's analysis shows that ALPURT would still require a subsidy of \$2.7m per annum for 35 years (or a one-off upfront grant of \$39m) to be viable as a toll road. Assuming this subsidy, toll revenue was expected to cover all other project costs.

Without debt financing, Transit has estimated that by 2010, with ALPURT B2 and Mt Roskill complete, tolling could generate up to \$15m-\$20m per annum (net of toll operating costs). Revenue could increase to between \$40m-\$45m from 2014 when Hobsonville, and Manukau extensions are scheduled to be complete. (This range does not include the Avondale extension and the Manukau Harbour Crossing because work on this project is not yet sufficiently advanced to provide useful information on tolling potential).

Auckland Transport Strategy and Funding project (JOG) officials:

- investigated the potential benefits of introducing a comprehensive road pricing system in Auckland;
- concluded that comprehensive road pricing could generate between \$100m and \$200m net revenue per annum;
- estimated that a comprehensive system would take 4-6 years to introduce; and
- recommended that central and local government agree in principle to the introduction of road pricing and commence a detailed investigation study as soon as possible.

Consequently, there is likely to be a need to ensure any potential charges on new roads (eg 35-year concession agreements) are consistent with medium and long term plans for road pricing in the Auckland region.

## **Recommended Action**

---

We recommend that you:

- a **note** that, based on information received from Transit:
- it is unlikely that tolling revenue from any new roads in Auckland will be sufficient to fully fund their construction costs as debt-financed toll roads;
  - ALPURT B2 is the only new road planned where toll revenue could be expected to make a significant contribution towards the costs of construction; and
  - that tolling new roads could collectively contribute between \$15-20m per annum net revenue for expenditure on Auckland land transport by 2010, rising to \$40m-\$45m per annum from 2014 onwards;
- b **note** that there is a need to ensure that any potential charges on new roads (e.g. 35-year concession agreements) are consistent with medium and long term plans for more comprehensive road pricing in the Auckland region;
- c **note** that the figures in this report should be treated with caution because:
- international and local experience (Tauranga's Route K) indicates that it can be extremely difficult to predict traffic volumes (and therefore revenue) prior to introducing tolls on new roads; and
  - between the early planning stages and the actual completion of a new road there can be significant variations in construction cost estimates.

**Rosemary Cook**  
Principal Advisor  
for Secretary to the Treasury

**Roger Toleman**  
Deputy Secretary  
Ministry of Transport

**Hon Dr Michael Cullen**  
Minister of Finance

**Hon Paul Swain**  
Minister of Transport

## Treasury/MOT Report: Auckland Transport: Potential Road Pricing Revenue from New and Existing Roads

---

### Purpose of Report

---

1. As requested, this paper outlines the revenue generation potential of charging for the use of new roads in Auckland.

### Analysis

---

#### Screening Undertaken by Transit

2. The recently enacted Land Transport Management Bill includes<sup>1</sup> generic provisions allowing for the tolling of new roads (subject to the availability of an alternative route).
3. In anticipation of the Bill's enactment (September 2002), Transit recently undertook a coarse desktop screening to assess the tolling viability of all planned roading construction projects throughout the country.
4. Of the 32 projects examined for Auckland only six were considered worthy of further analysis. These were:
  - ALPURT B2;
  - SH20 Mt Roskill;
  - SH18/16 Hobsonville;
  - SH20 Manukau extension;
  - SH20 Avondale extension; and
  - SH20 Manukau Harbour crossing.
5. The reasons why many projects were excluded from further analysis at this stage include:
  - only State Highways were considered by Transit. Therefore both Penlink and the Eastern corridor were excluded because those projects are being sponsored by a local road controlling authority;
  - the screening was undertaken assuming a Land Transport Management Bill environment. Therefore only new capacity was deemed to be eligible for tolling where an alternative route existed. As such upgrades of existing roads to motorway standards were excluded; and
  - several new lanes on existing roads were excluded as Transit considered these would be difficult to toll at this stage.
6. Of the six projects outlined above that were considered worthy of further analysis, Transit advises that work on the Avondale extension and the Manukau Harbour Crossing is not yet sufficiently advanced to provide useful information on the tolling viability of these projects. (We note that the preferred route for the Avondale extension was only announced in September 2003). Consequently, the preliminary work it has undertaken on tolling both these roads is of limited validity and is not included in this report.

---

<sup>1</sup> In the past specific legislation has been required for each individual road.

## 7. Tolling Potential of New Auckland Roads in the Next 10 Years

Road	Targeted completion date	Construction costs \$	Subsidy required pa (range) over 35 years	Subsidy midpoint (expressed as up front grant)	Projected daily traffic volumes	Potential annual revenue (\$M) from tolls	Up front grant as a % of construction costs
ALPURT B2	2008	145m	\$0.0 -6.3m	\$39m	17,000	19	27
Mt Roskill	2009	139m	Not available	Not available	50,000	7	Not available
Hobsonville SH 18/16	2011	183m	\$0.7- \$7.3m	\$65m	33,000	12	35
Manukau extension SH1/20	2013	145m	\$7.9-\$11.2m	\$108m	14,000	6	74

Notes: Transit have not analysed Mt Roskill to the same extent as the other projects but have indicated that the Manukau extension results are likely to provide an indication of the likely results for Mt Roskill.

Information contained in this table is based on preliminary work undertaken by Transit in September 2002, using assumptions developed in June 2002. Substantial further work will be required, and consequently, the final numbers may be quite different from those in this table.

8. The above information is based on tolls of:

- \$3 for cars and \$7.50 for trucks for ALPURT; and
- between 50c and \$1 for cars and \$2.50 to \$3.00 for trucks for the other new roads.

9. Transit has assumed a wide range of subsidies because of the high level of uncertainty regarding toll revenue projections.

10. Transit's analysis indicates that it is unlikely that any of these roads could generate sufficient toll revenue to fully repay all costs associated with their construction and use within the 35-year concession period allowed for in the Land Transport Management Act.

11. Of the four roads depicted in the table, only ALPURT B2 is likely to be capable of repaying a significant proportion of its construction costs over a 35 year period. Taking the low point of the subsidy range for ALPURT, it is possible that the toll revenue could cover 100% of all ALPURT's costs over this period, but assuming the midpoint of the range is more realistic, toll revenue could be expected to cover 70% of costs.

12. While the above conclusion is not readily evident from the projected revenue information in the table, it needs to be noted that Transit's work to date has assumed that the projects will be debt financed up front (i.e. prior to construction commencement). This means that all debt servicing costs, ongoing road maintenance costs and operational costs will need to be covered (tolling administration, traffic management) before any of the toll revenue is available to start repaying capital.

13. Transit has not provided the detailed workings or assumptions used in the analysis. Neither Treasury nor the Ministry of Transport have undertaken an independent assessment of Transit's modelling.

14. We note that since this work was undertaken Transit has reviewed the indicative construction costs for ALPURT. The new estimate is up to \$250m (compared to \$145m used in the table above). \$40-50m of this difference is accounted for by the set up costs of a tolling system for new roads (i.e. some of these costs could be recovered from other State Highways where tolling is introduced). The remainder of the difference is due to cost escalation and the possible need to meet increased environmental standards.

15. New information on construction costs and tolling revenue can be expected for all of the new roads outlined above at various stages between planning and completion of those roads. This has the potential to impact on the tolling viability of individual roads and underlines the need to treat the figures in this report with caution. However, we do not consider new cost and revenue figures are likely to affect the relative tolling viability of the four individual roads included in the above table.

### **Net Revenue 2010**

16. The information in the table above is derived from modelling based on debt financing by the private sector. It should be noted that public sector debt financing by would be likely to yield different results. Under either of these scenarios the assumption is that any revenue generated would firstly be used to repay debt.
17. However if construction was funded on a pay-go basis, any revenue generated from tolling could potentially be allocated for expenditure on Auckland Land Transport. This would however require legislative change because the Land Transport Management Act 2003 only allows tolling to fund specific roads.
18. Assuming the project completion dates outlined in the table it is possible that:
- \$20m per annum could be generated by 2010 (ALPURT and Mt Roskill); or
  - \$15m per annum if Mt Roskill did not proceed as a tolled road or was delayed by the decision to toll this road.
19. Transit's modelling indicates tolls on Mt Roskill would need to be set at a low level, (eg 50c for cars). This reflects the number of "free" alternative routes available and the relatively limited travel time savings possible from using the new Mt Roskill route. Tolls at this level might not be viable.
20. In addition, Transit advise there is a real possibility that if a decision was taken to toll these roads (particularly Mt Roskill), the projects could be delayed by the need for an Environment Court Hearing. This is because the project originally gained consent as a non-tolled road. The introduction of tolls would mean more traffic would remain on local roads than without tolls and affected parties could therefore elect to seek a hearing.

### **Net Revenue 2014**

21. With the completion of Hobsonville SH18/16 in 2011 and the Manukau extension in 2013, coupled with projected continued traffic growth, Transit advises the \$15m-\$20m per annum estimated net revenue from tolling new roads in 2010 could rise to between \$40 and \$45m per annum by 2014. These figures are net of operating costs. We note that these figures do not include potential revenue from the Avondale extension and the Manukau Harbour crossing because neither of these projects is sufficiently advanced to provide useful information on their tolling viability.

### Why are Revenue Estimates Relatively Limited?

22. There are three key reasons why Auckland roads are likely to have limited potential for tolling:
- traffic volumes on the new roads<sup>2</sup> are likely to be relatively limited by international standards; and
  - the travel time savings on the proposed new roads, compared with the existing alternatives, are generally not significant, so motorists can only be expected to pay relatively low tolls;

### Need for Caution Regarding Revenue Estimates

23. International and local experience indicates that accurately predicting traffic volumes, and consequently revenue, from tolled roads can be extremely difficult. Motorists may give every indication they will behave in a certain way following the introduction of a toll, but then do the opposite once the toll is in place.
24. Route K in Tauranga, which opened in July 2003, is currently the only tolled road in New Zealand. Current traffic counts are just over 2,000<sup>3</sup> vehicles a day compare with initial predictions of 10,000 vehicles (the charges are \$1 for 2 axle vehicles, \$2 for 3 axle vehicles and \$4 for all other vehicles).

### Future Proofing

25. Auckland Transport Strategy and Funding project officials:
- investigated the potential benefits of introducing a comprehensive road pricing system in Auckland;
  - concluded that comprehensive road pricing could generate between \$100m and \$200m net revenue per annum;
  - estimated that a comprehensive system would take 4-6 years to introduce; and
  - recommended that central and local government agree in principle to the introduction of road pricing and commence a detailed investigation study as soon as possible.
26. Consequently, there is likely to be a need to ensure any potential charges on new roads (eg 35-year concession agreements) are consistent with medium and long term plans for road pricing in the Auckland region.
27. At this stage Transit is working on a strategy to put in place free-flow tolling but this has not yet reached the stage of detailed considerations regarding which technology should be used. Transit advises the costs associated with free-flow tolling will need to be spread across a number of projects. Free-flow tolling will mean some form of electronic charging will be necessary.

<sup>2</sup> Transit estimates that all four roads combined can be expected to carry 115,000 vehicles per day by 2014.

<sup>3</sup> Source: Bay of Plenty Times 27 September 2003

28. The revenue generation potential from charging for new roads could mean it could take some time to recover the higher establishment and operating costs associated with electronic tolling options. However, incurring larger costs up front could be seen as a justified longer term investment in terms of "future proofing" the system. This provide for future inter-operability between:

- tolling new roads in Auckland;
- a more comprehensive Auckland road pricing system in Auckland; and
- national initiatives (eg e-RUC).