



## **Ministry of Transport**

Auckland Road Pricing Evaluation  
Economic Impact Assessment

April 2008



Mr Chris Money  
Ministry of Transport  
P O Box 3175  
WELLINGTON

17 April 2008

Dear Chris

We are pleased to present our final report regarding an assessment of the economic impact for business arising from traffic congestion and the potential impacts of two hypothetical road pricing schemes. Our report incorporates, as appropriate, the Ministry's feedback.

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In these respects we draw your attention, and that of any other reader of this draft report, to the disclaimer on page ii of the report.

It has been a pleasure working with the Ministry on this assignment and look forward with interest to future developments in regard to Auckland road pricing.

Yours sincerely



Brian Roche  
Partner



Chris Gould  
Director

## Glossary of Terms

AIAL	Auckland International Airport Limited
ARPES	Auckland Road Pricing Evaluation Study (Final Report March 2006)
CBD	Auckland's Central Business District
Ministry	The Ministry of Transport
NZIER	New Zealand Institute of Economic Research Inc
NRCA	National Road Carriers Association
NZTS	New Zealand Transport Strategy
POAL	Ports of Auckland Limited
RTA	Road Transport Association
RUC	Road User Charges

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This report is issued pursuant to the terms and conditions set out in our Agreement with the Ministry of Transport.

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# 1 Executive Summary

## Introduction

1.1 In 2006, the Ministry of Transport (the Ministry) published the Auckland Road Pricing Evaluation Study (ARPES). That study assessed the effectiveness of five potential road pricing and parking scheme designs and associated outcomes in terms of their capacity to reduce congestion, raise revenues and contribute towards achievement of the New Zealand Transport Strategy (NZTS) objectives.

1.2 Following the release of the ARPES report, submissions were sought. These raised a number of issues in relation to road pricing. In light of this, the Ministry has been undertaking further work to better understand the issues raised by submitters. Of the issues raised, three questions in particular are of most relevance to this report:

- what are the economic impacts of the “do minimum” scenario in which vehicle usage and congestion continues to grow;
- what are the economic impacts of the road pricing schemes on commercial and retail areas; and
- which parts of the Auckland region or groups are more affected than others – who pays and who benefits?

1.3 Reflecting the nature of these questions, it has not been the intention of this report to estimate, in GDP terms, the economic cost of congestion or the possible impacts on the economy of road pricing. There are already many estimates of the economic cost of road congestion. Rather, the intention of this report has been to understand at the individual firm level, the impacts of congestion and the potential impacts of road pricing.

1.4 To this end, two conceptual road pricing schemes<sup>1</sup> have been developed as a basis for further analysis and they are the focus of this report:

- a revenue scheme involving a \$3 charge for vehicles entering or leaving a cordon zone around central Auckland at any time of the day on any day of the year. This scheme focuses on raising revenue; and
- a congestion scheme involving a \$6 charge for vehicles using the road network within the cordon zone between 6.00am and 10.00 am on weekdays (excluding public holidays). This scheme focuses on reducing congestion.

1.5 This report considers the potential economic impact of congestion and the road pricing schemes.

## Report Objectives

1.6 This report is part of a wider body of work being undertaken by the Ministry, the overall purpose of which is to assist with the process of deciding whether the Land Transport Management Act should be amended to allow for the pricing (i.e. charging for the use) of existing roads. The objective of the economic impact assessment (i.e. this

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<sup>1</sup> The schemes are described further chapter three of this report.

report) is to collect, analyse and present information on the potential economic impact of traffic congestion and the revenue and congestion schemes.

1.7 This report should be read in conjunction with a companion report prepared by the New Zealand Institute of Economic Research<sup>2</sup> (NZIER) entitled “Auckland Road Pricing: Desktop Research on Economic Impacts. NZIER’s report reviews a wide body of international literature on road pricing and its impact. That report provides a useful point of reference to compare and contrast some of the findings in this report.

## **Approach**

1.8 In accordance with our terms of reference, we have engaged with firms and industry associations representing businesses, retailers and road carriers in Auckland. We have also engaged with Auckland International Airport Limited (AIAL) and Ports of Auckland Limited (POAL). One or more of three approaches have been used to obtain the perspectives of these groups on congestion and the road pricing schemes; interviews, workshops and surveys. The surveys were distributed through associations representing businesses, retailers and road carriers. In assessing the potential economic impacts, the intention has been to give relatively more emphasis to entities operating in the CBD and Newmarket areas.

1.9 The assessment has concentrated on the impacts that congestion and the road pricing schemes have, or could have, on entity turnover, operating costs, employment costs (and wider labour markets impacts), location, productivity and profitability. It should be noted that the evaluation has relied on information provided to us through the interviews, workshops and surveys. We have not sought to independently verify any of the information provided.

## **Key Findings**

1.10 There have been numerous previous studies of the economic impact of traffic congestion in Auckland. Some of these have estimated the economic cost of congestion to Auckland, and the wider New Zealand economy, to be in the hundreds of millions of dollars.

1.11 While these studies are a useful contribution to the assessment of economic impact, they do not reveal much about the direct impacts on businesses. Accordingly, our focus has been pitched at the entity level to understand better, from the perspective of individual firms, how congestion impacts on them and how this might change under the hypothetical road pricing schemes.

### *Congestion*

1.12 Consistent with the earlier studies, the results of this evaluation confirm that congestion is a major issue for a wide range of enterprises in Auckland. Across the three main groups we engaged with (road carriers, retailers and businesses including POAL and AIAL), it is clear that road carriers are, in aggregate, adversely impacted by congestion. Traffic congestion is significantly reducing their productivity and profitability. Road carriers are increasing their fleet size, extending their hours of operation and bearing increased employment and vehicle-related costs (e.g. fuel) because of

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<sup>2</sup> PricewaterhouseCoopers and NZIER have been jointly commissioned by the Ministry to undertake research and analysis into the economic impacts of road pricing.

congestion. At the same time, almost half (44%) of road carriers indicate that their turnover is reducing because of congestion. Productivity and profitability are reduced accordingly.

1.13 Congestion also affects businesses and retailers, but the impacts are less than those on road carriers. Congestion affects the ability of businesses to engage with their clients. It also impacts on the number of shoppers who, because of congestion, prefer to shop closer to home.

1.14 Because congestion increases the cost of travel, it affects the willingness of people to travel to, or through, congested areas to get to their place of work. We heard anecdotal examples from employers who, because of their location, are finding it harder to attract workers as they are not willing to endure the congested commute (and, in most cases, public transport failed to provide a better alternative).

1.15 Based on the comments above, it might be concluded that all of the impacts of congestion are negative. However, information obtained from our engagement with a range of firms in Auckland clearly indicates that congestion creates winners and losers. A business in one location may lose customers because of congestion, but those customers go elsewhere; other businesses gain. The same appears to be happening in the labour market; some workers will choose to work closer to home. This benefits some businesses, and disadvantages others. The finding that there are likely to be significant redistribution effects is consistent with the findings arising from the work that the NZIER has completed in parallel with our evaluation.

1.16 Several other points regarding congestion were also raised by many of those that we engaged with.

- Congestion is not just limited to the CBD and Newmarket (which, consistent with the terms of reference, are the areas of primary interest). Congestion is Auckland-wide, at least in terms of the motorways and major arterial routes. The findings from the surveys suggest that congestion is in fact perceived to be of greater concern to those located outside of the charging zone than within it.
- Congestion, of itself, is not as major an issue for many entities, particularly businesses and retailers, as perhaps might have been expected. It is, however, the interaction of congestion with other factors that creates major concerns. A good example of this is supermarkets, especially those in residential areas that, because of Resource Management Act or local body requirements, have had to narrow the time window through which deliveries can be accepted. Congestion is making it harder for road carriers to meet these requirements.
- Following from this last point, congestion increases travel times and it can also increase the degree of trip time variability. For time sensitive trips (including, for example, road carrier deliveries to supermarkets) there is some international evidence (discussed more fully in the NZIER report) that reductions in trip time variability are valued more highly than reductions in average trip times. Based on survey results, we have not found support for this even among road carriers for who travel time certainty might be expected to be particularly important.
- The impacts of congestion also need to be seen in the context of Auckland's economic environment. Auckland's economy has been experiencing strong growth – at least twice that of the national average. This has been putting pressure on labour markets, the property market and costs more generally

(employment and occupancy costs are the most significant areas of expenditure for most businesses and retailers in the CBD and Newmarket). To the extent that congestion encourages some workers to find employment closer to home, this is a more viable option for them in a buoyant labour market.

- The availability of (affordable) parking, particularly from the perspective of retailers, is an important consideration. De-congesting roads will not assist retailers if their customers have nowhere to park their cars. To a lesser extent, the availability and price of carparking also impacts on the ability of businesses (and retailers) to attract and retain employees.
- Congestion is not something that, of itself, causes firms to change location, although it is a factor that rates highly alongside other considerations including, for example, other costs of doing business.

### **Comparative Scheme Analysis – Economic Impact**

1.17 Because work on traffic impacts was being undertaken concurrently with this evaluation, we found that the information available to us to explain the schemes, and give a sense of what this might mean for traffic levels, was not sufficient for business, retailers, road carriers and others to enable them to discuss in definitive terms the impacts expected for their business. Further, the various groups found it fairly difficult to consider what the difference in economic impact might be between the two schemes.

1.18 In an effort to address this difficulty, two hypothetical scenarios were developed in discussions with the Ministry; the first involving a 10% reduction in travel times and a second scenario involving a 25% reduction in travel times.<sup>3</sup> Although the scenarios were not explicitly portrayed as representing the revenue and congestion schemes respectively, in the minds of at least some businesses, retailers and others, this link may have been made. The findings which follow need to be read with this in mind.

1.19 The responses from the surveys indicate that there is a significant proportion (between 40% and 50%) of firms that consider the schemes will not have an impact on congestion. Of those firms which do expect an impact, the majority consider that the revenue and congestion schemes will help to reduce traffic congestion. Several points should be noted:

- the strength of the perceived economic impacts, as would be expected, is stronger under the congestion scheme. The revenue scheme is designed to raise revenue and, as the name implies, the congestion scheme is designed to reduce traffic congestion;
- some firms consider that the schemes will actually increase congestion. This result is somewhat counter-intuitive. Those holding this view seem to be suggesting one or other of two possibilities:
  - traffic will be diverted away from the zone and onto other parts of the network that are already congested (thereby worsening congestion in these areas); and

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<sup>3</sup> For example, if a journey from A to B currently takes one hour, the journey time would be reduced to 54 minutes under the first scenario and to 45 minutes under the second scenario.

- an expectation that congestion is increasing anyway and the schemes will, at best, only curb the rate of increase.

1.20 The perceived impacts of the schemes on congestion are summarised in the diagram below. The responses from road carriers, retailers and business are shown separately for comparison.

Perceived impacts of the congestion and revenue schemes - level of road congestion



1.21 Road carriers are the least optimistic in terms of the schemes' ability to reduce congestion. At the other end of the spectrum, businesses expect the largest impact in terms of reducing congestion.

1.22 The key difference between the two schemes is the strength, rather than the direction (i.e. positive or negative), of the impacts (both on congestion and in economic terms). The underlying point, and this was made explicitly by a number of firms, is that the \$3 charge is unlikely to modify behaviours whereas many firms considered that the \$6 charge was at the minimum level that could be expected to modify decisions regarding road use (number, frequency, length, timing and/or mode of journeys).

1.23 The finding that \$3 would be unlikely to modify behaviours is consistent with the intentions behind the revenue scheme. The objective of the revenue scheme is to raise revenue and, accordingly, this scheme seeks to maximise use of the road network rather than reduce traffic levels. Based on discussions with the various groups we engaged with, it is not certain that this point has registered. A lot of comments were made in the context of an objective of reducing congestion; not raising revenue.

1.24 In contrast, the finding that a charge of \$6 is likely to modify behaviour had three main elements:

- this level of charge is likely to put upward pressure on wage rates. Some CBD employers we spoke with indicated that they would expect at least part of the charge to be factored into higher employee remuneration;
- a \$6 charge is likely to cause some traffic diversion around the zone rather than deferring journeys to outside of the charging period (6.00 am -10.00 am); and
- a \$6 charge has the potential to adversely impact on businesses and retailers access to customers (either customers travelling to businesses/retailers or businesses travelling to their clients). The extent to which this eventuates

depends on the level of travel time saving. If the travel time saving is in the order of 25% (i.e. one of the scenarios portrayed), then the overall impact on revenues is expected to be positive; conversely, if the travel time saving is more modest (e.g. 10% as portrayed in the other scenario), then the charge is likely to have an overall negative effect.

1.25 On the assumption that the congestion scheme will have a larger impact in terms of reducing congestion, this scheme is likely to deliver more sizeable productivity gains for road carriers. The scenario of a 25% reduction in travel times could enable road carriers to reduce fleet numbers, cut back on shift and overtime work and save on fuel and other vehicle operating costs.

1.26 From the perspective of retailers and businesses, a significant economic impact is on the ability to attract and retain employees. Based on the survey results, 50% of the businesses in the CDB and Newmarket would benefit in this regard, 33% would expect no change and the rest would find it harder to attract and retain employees.

1.27 In the case of retailers, a slightly higher proportion of respondents to the survey thought it will be harder to attract and retain employees than those who expected it to be easier. The message from this is that reducing congestion is likely to have some impact in terms of where people choose to work. This will benefit some businesses and retailers, but not others.

1.28 A 25% reduction in travel times is also likely to affect turnover. Based on the responses, the impact is likely to affect a higher proportion of businesses (nearly 50%) than retailers (about a third). In both cases, however, the travel time savings result in increases in turnover for some firms and reductions for others.

1.29 A key finding is that the schemes are likely to result in winners and losers and this is more noticeable under the scenario of a 25% reduction in travel times. Some firms will gain customers, others will lose them. Equally, some firms are likely to find it easier to attract employers while others will not.

1.30 Overall, the information obtained from the surveys, interviews and workshops does not provide any evidence that either of the hypothetical road pricing schemes would lead to large and adverse impacts on firms in Auckland. This finding needs to be considered, however, in the context of a buoyant local economy (which has been growing at over twice the average for New Zealand as a whole). By implication, any adverse impacts of the road pricing schemes on firm revenues and customer bases is likely to be more than outweighed by the positive impacts of economic growth.

1.31 This finding is consistent with several of the road pricing schemes that NZIER have reviewed as part of their desktop research. For example, in the context of the London congestion charge, “comparative analyses continue to demonstrate that there have been no significant overall impacts from the original [congestion] scheme on the central London economy... as the economy has performed particularly strongly...with recent retail growth (value of retail sales) in central London at roughly twice the national average”.<sup>4</sup> Similarly, in the case of the road pricing scheme introduced in Stockholm

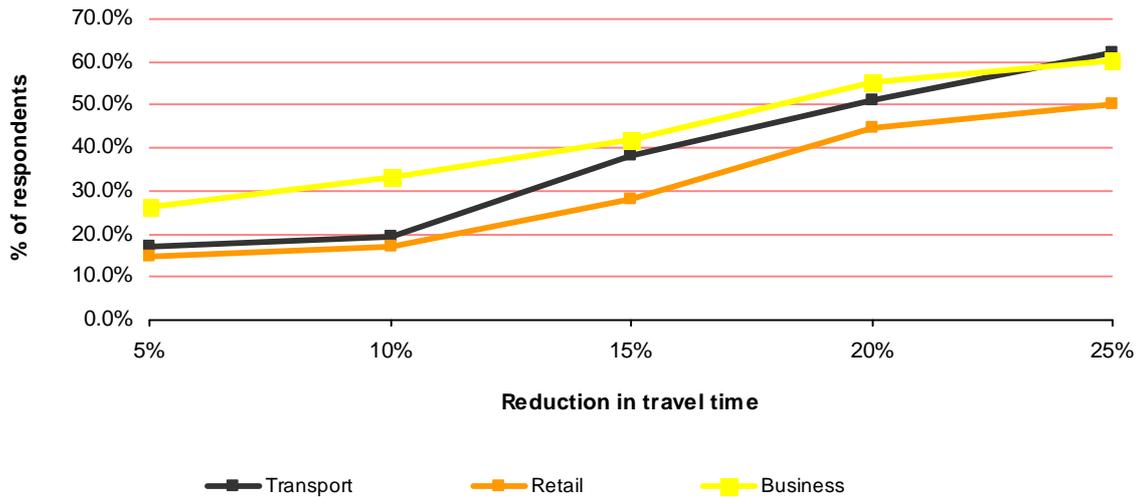
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<sup>4</sup> New Zealand Institute of Economic Research (2008) “Auckland Road Pricing: Desktop Research on Economic Impacts” Draft report to the Ministry of Transport page 74

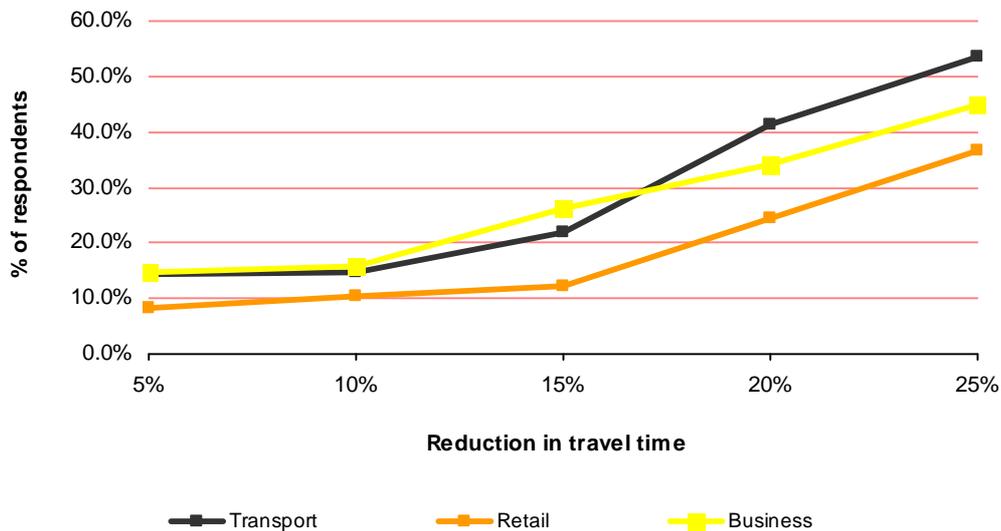
analysis has found that any impacts arising from the congestion charge “are generally outweighed or occluded by general economic growth”.<sup>5</sup>

1.32 A useful way of summarising the net economic impacts of the schemes is to ask what firms would be willing to pay to achieve travel time savings. While the results from the survey are not intended to be robust in a statistical sense, they are nevertheless informative.

**% of respondents who expressed willingness to pay \$3 to achieve a % reduction in average travel time**



**% of respondents who expressed willingness to pay \$6 to achieve a % reduction in average travel time**



<sup>5</sup> Ibid., page 82

1.33 Not surprisingly, firms need a larger reduction in travel times to justify a \$6, as opposed to \$3, charge. However, even with large reductions in travel times (e.g. 25%) there is a large proportion of firms that would not be willing to pay a \$3 or \$6 charge. This is consistent with the findings in this evaluation that:

- for a significant proportion of businesses and retailers, congestion is not a major issue and, accordingly, congestion relief, while welcome, is not a top priority; and
- some firms will benefit from congestion relief while others will be adversely impacted, reflecting the fact that the schemes give rise to redistribution effects.

1.34 Although it was not the purpose of our work to develop views regarding the level of support, or otherwise, for the hypothetical road pricing schemes, many of the entities we engaged with offered opinions on the schemes. In general, the comments reflected those made among the roughly 900 submissions that received in response to the publication of the ARPES report. In particular, during the course of our engagement with a range of entities, comments were made regarding the equity implications of road pricing schemes, the need for and desirability of investing in public transport and concerns regarding the ability of the schemes to fully address the congested state of Auckland's roads. Consistent with submissions in response to the ARPES report, feedback from firms also indicated that their attitude toward the road pricing schemes would depend on where, how and when the revenues generated are spent.

## **Conclusions**

1.35 The key summary points from the economic impact assessment are:

- congestion matters, but it does not affect all firms and it does not affect all firms in the same way;
- redistribution effects arising from congestion are likely to be prevalent;
- productivity impacts arising from congestion are impacting most on road carriers;
- there is a fair degree of scepticism regarding the ability of either scheme to reduce congestion, although there is a view that a \$6 charge is at a level that is likely to modify behaviours;
- the impacts of the congestion scheme are more pronounced than they are for the revenue scheme which is to be expected given the different purposes behind the schemes;
- both schemes will create winners and losers (consistent with the theme of redistribution effects noted above);
- under both schemes, but more so the congestion scheme, more businesses and road carriers than not are likely to find it easier to attract and retain employees. However, for retailers, the picture is more mixed;
- the congestion scheme is also likely to impact on turnover for around a third of retailers, half of businesses and 60% of road carriers. The net impact is likely to be relatively neutral (winners cancel out losers) for businesses and retailers but positive for road carriers;

- overall, there is no evidence that either of the hypothetical road pricing schemes would lead to large and adverse impacts on the economic performance of firms in the CDB and Newmarket areas. This finding is consistent with those in relation to congestion charging schemes in cities like London and Stockholm. A key and common factor is that wider economic conditions tend to outweigh any economic impacts arising from congestion charging schemes;
- the attitude of firms toward the \$3 or \$6 charge will be influenced by the extent to which each scheme reduces traffic congestion. Not surprisingly, travel time savings need to be greater for a \$6 charge;
- road carriers have the greatest willingness to pay to achieve congestion reduction because of the impact congestion is having on their productivity; and
- attitudes toward the schemes will also depend on how, when and where the proceeds are spent.

## 2 Introduction

2.1 In March 2004, Cabinet requested a study investigating the feasibility and desirability of implementing road pricing on existing roads, and parking levies, in Auckland. In response to that request, the Ministry of Transport (the Ministry) published, in March 2006, the Auckland Road Pricing Evaluation Study (ARPES). That study assessed the effectiveness of five potential road pricing and parking scheme designs and associated outcomes in terms of their capacity to reduce congestion, raise revenues and contribute towards achievement of the New Zealand Transport Strategy (NZTS) objectives.

2.2 Following the release of the ARPES report, submissions were sought. An analysis of these was published by the Ministry in February 2007. The submissions raised a number of issues in relation to road pricing. In light of this, the Ministry has been undertaking further work to better understand the issues raised by submitters.

2.3 In this context, two conceptual road pricing schemes<sup>6</sup> have been developed as a basis for further analysis (both schemes are similar to schemes included in the ARPES report).

- A revenue scheme involving a \$3 charge for vehicles entering or leaving a cordon zone around central Auckland at any time of the day on any day of the year. This scheme focuses on raising revenue.
- A congestion scheme involving a \$6 charge for vehicles using the road network within the cordon zone between 6.00am and 10.00 am on weekdays (excluding public holidays). This scheme focuses on reducing congestion.

2.4 The schemes are not road pricing designs for implementation. Rather, the purpose of the schemes is to assist with building an understanding of the costs and benefits of road pricing as they might apply in Auckland.

2.5 This report which considers the economic impact of congestion and the road pricing schemes, is part of a wider work programme that the Ministry is involved with to develop further an understanding of the impacts of road pricing. The other work streams are briefly discussed in the following chapter.

### Terms of Reference

2.6 The overall purpose of the wider body of work that is being undertaken by the Ministry is to help inform decision making regarding the question as to whether the Land Transport Management Act should be amended to allow for the pricing of existing roads and, in this regard, is very much a continuation of the earlier work that culminated in the ARPES report.

2.7 The objective of the economic impact assessment (the focus of this report) is to assemble information on the economic impact of congestion on the local economy and the wider national economy and to identify the effects various attempts to address congestion have had, including, in particular, direct charging for road use.

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<sup>6</sup> The schemes are described further in the following chapter of this report.

2.8 PricewaterhouseCoopers, in conjunction with the New Zealand Institute of Economic Research (NZIER), have been commissioned by the Ministry to undertake this work. The economic impact assessment has been divided into two main parts.

- NZIER have taken responsibility for undertaking desktop research of international literature documenting the experience with congestion and road pricing schemes. NZIER have reported separately to the Ministry.
- PwC has had responsibility for undertaking a series of case studies to consider the economic impacts on a range of commercial and business groups that may be affected by road pricing. The evaluation has been undertaken from the perspective of individual firms, rather than that of the macro-economy.

2.9 The case studies have drawn on the international literature review undertaken by NZIER to:

- assist with identifying the types of impact that are likely to be relevant for consideration in the context of the revenue and congestion schemes;
- formulating some hypotheses as to the likely impact of the revenue and congestion schemes; and
- providing a point of reference against which to compare and contrast the findings emerging from the case studies (and assisting in understanding why different results may be arising).

2.10 It should be noted that PwC has not had any responsibility for the work undertaken by NZIER and vice versa.

2.11 The terms of reference for the case studies have required:

- a consideration of the economic issues businesses currently face as a result of congestion on Auckland's roads in the absence road pricing schemes;
- engagement with various business groups to assess their understanding of road pricing and their perceptions of how a road pricing scheme would impact on the economic issues identified;
- assessing these perceptions against research from overseas (i.e. the literature review undertaken by NZIER); and
- preparing summary statements of the expected positive and negative impacts of road pricing on business groups.

2.12 In summary, the intention of the case studies has been to obtain practical insights regarding congestion and the hypothetical road pricing schemes based on the real world experience of businesses in Auckland. It has not been a requirement of the terms of reference to build an economic model of the Auckland economy and use this to assess impacts with, and without, road pricing schemes. As such, the deliverable expected by the terms of reference is an assessment of possible impact based on perceptions held businesses.

2.13 The terms of reference have prescribed the business groups that are the focus of this work. They are:

- retail businesses (including entertainment and hospitality related) within Auckland's central business district (the CBD) and Newmarket;
- other businesses including professional service firms within the CBD;
- road transport operators (both heavy vehicle long haul transportation as well as localised light vehicle delivery including couriers);
- Ports of Auckland Limited (POAL); and
- Auckland International Airport Limited (AIAL).

## Approach

2.14 Three main mechanisms have been used to engage with the various business groups listed above.

- Interviews have been conducted with POAL and AIAL and with industry organisations identified by the Ministry as representing CBD businesses and Newmarket businesses. These organisations have included Heart of the City, the New Zealand Retailers Association and the Newmarket Business Association. The Auckland Chamber of Commerce was also approached but did not participate directly.
- Workshops have been held with various business groups including members of:
  - the New Zealand Road Transport Association Northern Region;
  - the National Road Carriers Association; and
  - the Retailers Association.
- Surveys have been distributed to retailers, businesses and road transport operators. A total of 76 responses were received from businesses, 138 responses were received from retailers (41 of these are Newmarket based, 34 are from the CBD and the rest are predominantly from the wider Auckland area<sup>7</sup>) and 92 responses were received from road carriers<sup>8</sup>.

2.15 The surveys were distributed by the relevant industry bodies referred to above. PwC did not have any visibility over the identity of firms to which the surveys were sent. Responses were received by way of web-based link on an anonymous basis. The surveys, copies of which are included in Appendix A, have not been designed to provide statistically robust findings regarding the economic impact of the road pricing schemes. Rather, and consistent with the overall role and purpose behind the case studies, they

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<sup>7</sup> Because we did not have access to the databases used to distribute the surveys. We could not limit their distribution to just those retailers located in the CBD and Newmarket.

<sup>8</sup> Throughout this report, we use the term road carriers to refer generically to those who operate light and heavy vehicles for the carriage of freight on a hire and reward basis.

have been used as a cost effective way of gathering views on the possible impacts of the schemes.

2.16 Common to the three methods of engaging with organisations (interviews, workshops and surveys), we have sought to obtain information regarding the impacts of congestion and the road pricing schemes using a consistent framework that is intended to be meaningful to businesses. In brief, this means that the questions and issues for discussion posed via the interviews, workshops and surveys have focused on the following main elements of business activity:

- the implications for business revenues (e.g. size of customer market, geographic spread of customer market, customer demographics);
- labour market implications (e.g. the ability to attract and retain employees, labour force participation, impacts on employment costs, extent of shift work);
- location decisions (e.g. incentives to relocate, relative importance of congestion and road pricing in location decisions compared to other factors);
- productivity (e.g. utilisation of assets, changes to operating practices); and
- profitability (ultimate impact of all of the above on the bottom line).

2.17 In engaging with the various business sectors that are the focus for this assignment, we began by seeking to understand the implications for businesses that stem from existing levels of congestion on Auckland’s roads. This enabled us to establish a point of reference against which the impacts of the revenue and congestion schemes could be assessed and placed into context.

## Report Structure

2.18 Reflecting the points above, and taking into account that this report represents the outputs of one of several workstreams that the Ministry is collating into an omnibus report, we have structured our report as follows.

Chapter 3: Context	Recaps on aspects of the ARPES. The main issues arising from the submissions received in response to the ARPES report are repeated. Various points made by businesses as part of the assessment of economic impact provide further insight regarding some of these issues.  This part of the report also describes, in summary terms, the revenue and congestion schemes.
Chapter 4: Congestion - Current Impacts	The impacts that existing levels of congestion are having on business are discussed in this section. This chapter provides a point of reference against which to compare the impacts of the revenue and congestion schemes.
Chapter 5: The Revenue Scheme – Economic Impacts	The feedback from interviews, workshops and the surveys are collated to describe, from a business perspective, the economic impacts that could arise under a revenue scheme.
Chapter 6: The Congestion Scheme – Economic Impacts	Follows the same format as chapter 5.
Chapter 7: Conclusions and Next Steps	Provides a summary of the key impacts from a business perspective of the revenue and congestion schemes.

## 3 Context

### Auckland Road Pricing Evaluation Study

3.1 The ARPES project's objective was to inform advice to Government on the feasibility and desirability of introducing road pricing on existing roads, and parking levies, in Auckland. Specifically, the objectives were to better understand:<sup>9</sup>

- how the various schemes considered as part of the study would alter patterns of demand for roads;
- the positive and negative social, economic and environmental impacts of the schemes, and the extent to which the negative impacts could be mitigated;
- whether the schemes are technically feasible to implement;
- whether there is a financial business case for each scheme and, assuming there is, how much net revenue might be generated over time;
- whether the schemes are acceptable to the public and, if not, how they might be made acceptable; and
- whether the schemes are consistent with central and regional policies and development strategies.

3.2 Several road pricing schemes were evaluated as part of the study. The generic schemes were:

- a cordon scheme under which vehicles crossing the cordon incurred a charge;
- an area scheme under which vehicles travelling within a defined area, even if passing through, would incur a charge;
- a strategic network charge under which vehicles using motorways and other key arterial routes would be charged;
- a parking levy scheme; and
- a full network charging scheme.

3.3 The revenue and congestion schemes that are the focus for this report share some similarities with the cordon and area schemes considered as part of ARPES. The revenue and congestion schemes are outlined below.

3.4 The ARPES work included an assessment of economic impact. This was undertaken at several levels. At one level, attempts were made to assess the overall impact on the Auckland, and wider New Zealand, economies in gross domestic product terms. To this end, the study assessed the impacts on household expenditure, business expenditure, business profitability and business efficiency. The study focused heavily on the impacts of the schemes on travel times. The analysis led to the conclusion that the

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<sup>9</sup> ARPES Final Report March 2006 p1

road pricing schemes would cause a small negative effect on the business sector although it is important to note that the analysis assumed that there were no suppressed business trips under the no road pricing, but congested roads, scenario. As a result, this means that every pricing scheme results in a net increase in costs to business which outweighs the benefits of time and vehicle cost savings.

3.5 At the economy-wide level, it was concluded that the impacts, both positive and negative, tended to be roughly in balance implying an overall neutral impact.

3.6 In addition to the impacts on the economy, the ARPES work also examined, at a more micro level, the impacts on the Auckland business sector and it is this part of the report which is of closer interest to the focus of the current assignment. The evaluation of business sector impacts assessed the effect on business trip-making behaviour and impacts on business costs. Less direct impacts on business activity and demand were also considered. These areas of focus are very similar to the areas of interest for the current work which, as mentioned in the previous chapter include the impacts on revenue/business demand, labour markets, operating costs, location decisions, productivity and profitability.

3.7 The approach taken in the ARPES work utilised estimates of travel time savings and imputed values of time. This approach is consistent with a wide range of studies undertaken internationally. A disadvantage of this approach is, however, that the results reflect the assumptions made about the value attributed to time savings. There are many techniques for estimating this. A generic disadvantage of relying on imputed values for time savings is that it tends to divorce the analysis and findings from the real world.

3.8 That is the key point of difference between the ARPES work and the approach being undertaken as part of this assignment. By directly engaging with businesses, it has been the aim of this assignment to build on the findings from the ARPES and seek to understand in more depth from the perspective of business, the impacts of road pricing schemes.

## The Schemes

3.9 Both the revenue and congestion schemes involve a cordon that is drawn around central Auckland and includes the CBD and Newmarket and several inner-city suburbs including, among others, Parnell, Remuera, Epsom, Mt Eden, Grey Lynn and Ponsonby. The area that is encircled by the cordon is the same as the area scheme that was described in the ARPES. While the geographic coverage is the same, the way in which the revenue and congestion schemes operate differ in some important respects.

### The Revenue Scheme

3.10 The area scheme is illustrated below. Its key features are:

Times of Operation	24 hours a day
Days of operation	All
Vehicles included	All vehicles are included except buses (which receive a 100% discount). Motor bikes and taxis are included. Non-motorised vehicles (e.g. push bikes are excluded)
Exemptions/Discounts	Apart from buses, no other exemptions or discounts identified, but issue is being considered further. No discounts for resident living within the cordon.

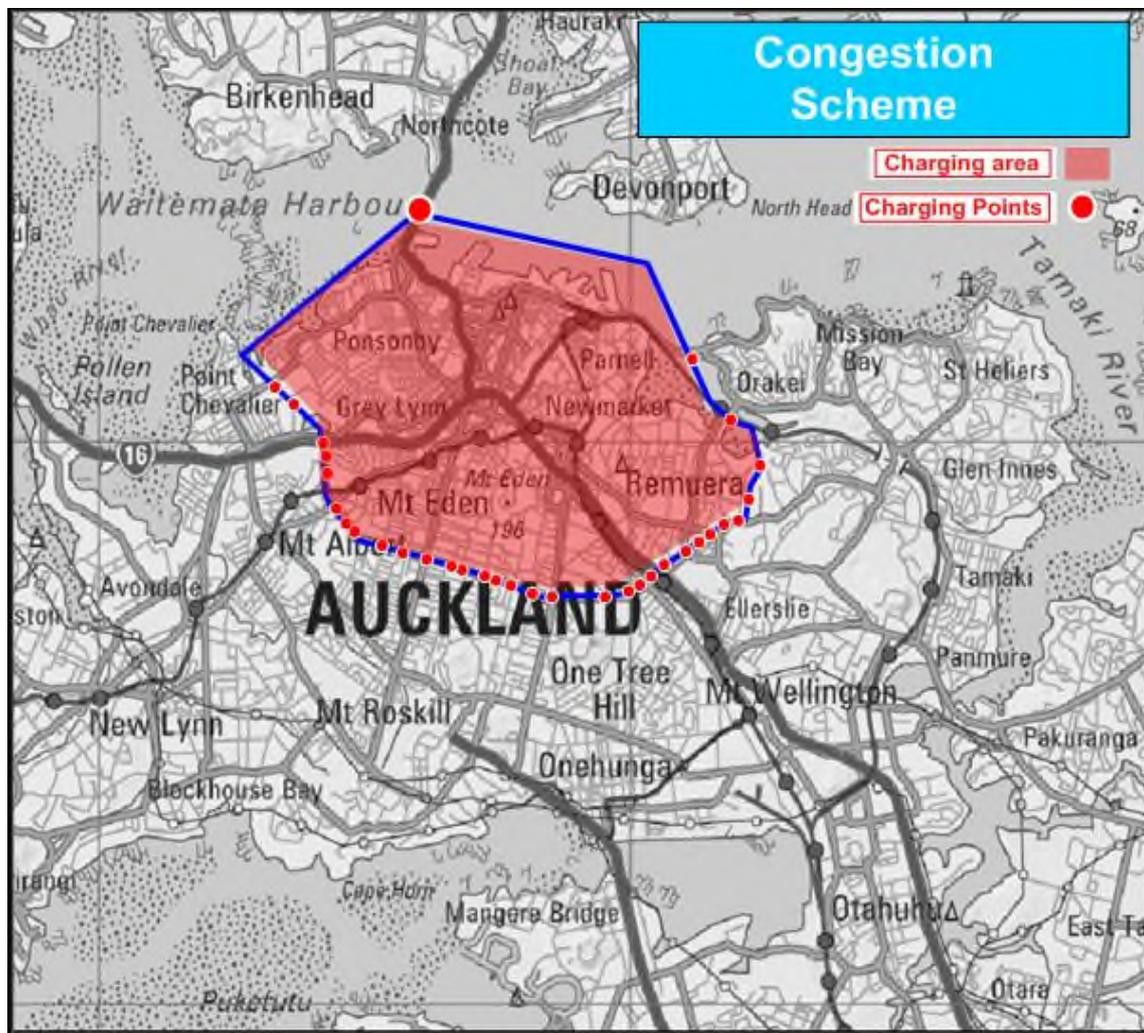
Charge Regime	\$3 per trip within the charging area. This includes journeys into and out of the area but not journeys that begin and end within the area without crossing its boundary.
Maximum charge per day	\$3. This means that once a journey is made that cross the boundary, no further charges would be incurred
Scheme aim	To generate revenue to invest further in Auckland's transport networks while at the same time minimising any diversion impact arising from the introduction of the charge. That is, the objective is not primarily to reduce congestion through pricing vehicles off the road.



3.11 The mechanism by which the \$3 charge would be collected has not been defined for the purposes of assessing impacts on businesses. There is, however, a separate work stream that is examining various collection options. Accordingly, while the diagram below identifies a series of toll points, it should not be assumed that this takes the form of physical toll collection booths.

## Congestion Scheme

3.12 The area covered by the congestion scheme is the same as that for the revenue scheme.



3.13 The characteristics of the congestion scheme are summarised as follows.

Times of Operation	6.00 – 10.00 am only
Days of operation	Business days (Monday-Friday - other than public holidays)
Vehicles included	All vehicles are included except buses (which receive a 100% discount). Motor bikes and taxis are included. Non-motorised vehicles (e.g. push bikes are excluded)
Exemptions/Discounts	Apart from buses, no other exemptions or discounts identified, but issue is being considered further. No discounts for residents living within the cordon

Charge Regime	\$6 per trip within the charging area. This includes journeys into and out of the area <u>and</u> journeys that begin and end within the area without crossing its boundary. This means, for example, that residents living within the area will be charged \$6 if they leave their residence by vehicle at any time between 6.00 am and 10.00 am on weekdays (other than public holidays).
Maximum charge per day	\$6. This means that once a journey is made that enters or is within the area, no further charges would be incurred beyond the initial journey
Scheme aim	The aim of the congestion scheme is to make a meaningful difference to congestion levels. The provision of alternatives (especially public transport, will be important.

## Impacts Arising From the Schemes

3.14 Through a series of interviews, workshops and surveys, we engaged with businesses and retailers located in the CDB and Newmarket areas, road carriers, Ports of Auckland and Auckland International Airport to obtain first hand, their perspectives on the impacts of congestion and their expectations regarding the possible impacts of the hypothetical road pricing schemes.

3.15 The description provided by the Ministry in respect of the schemes was relatively high level reflecting their hypothetical status. In anticipation that the various sector groups noted above would find it difficult to assess the impacts of the hypothetical schemes, two scenarios were presented to the sector groups by way of illustration of the possible impacts on road congestion.

3.16 Under the first of the scenarios, it was assumed, based on discussions with the Ministry, that there would be a 10% reduction in travel times. This level is broadly consistent with the reduction in mean work travel times estimated under the Area scheme as part of the earlier ARPES work.

3.17 Under the second scenario, it was assumed, again based on discussions with the Ministry, that an average 25% reduction in travel times would be achieved. Although this level is beyond that identified in the ARPES work<sup>10</sup>, the discussions with the Ministry concluded that it was appropriate to adopt the 25% figure with a view to obtaining an indication as to whether a large reduction in travel times (and, by implication, congestion), would lead to step changes in business activity and/or mode of operation.

## Issues Arising from ARPES

3.18 Following release of the ARPES report on March 2006, submissions were invited from anyone who had an interest. Over 900 submissions were made from a wide range of individuals and organisations (a summary of these can be found on the Ministry's web-site).

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<sup>10</sup> As part of the ARPES, travel time savings of 17% -18% were estimated in connection with the single and double cordon schemes.

3.19 The submissions raised a number of key issues. Although not identical with the schemes considered in the ARPES, the revenue and congestion schemes are closely related variations. Accordingly, the issues raised in the context of ARPES also need to be considered in the context of the current evaluation of the revenue and congestion schemes. The main issues raised were:

- passenger transport – the need to provide a real and viable alternative in a low density environment, and for this to be in place prior to introduction of road pricing not funded progressively from road pricing revenues;
- provision of a (free) ring road and viable alternative north-south route to SH1;
- impacts on commercial/retail areas, particularly in central Auckland. This is the core focus of the current economic impact assessment;
- affordability and social inequity – charges are regressive, i.e. a single charging structure disadvantages lower income households. There is a separate social impacts evaluation being undertaken contemporaneously with the economic impact assessment;
- exemptions sought for particular groups, particularly motorcycles and taxis but also those considered to be socially disadvantaged/vulnerable (cross-over with revenue treatment);
- treatment of the revenue (hypothecation) – where and how it can be used, including to reduce existing charges such as Fuel Excise Duty and/or Road User Charges;
- road pricing seen as a “last resort” option after all other alternatives exhausted, e.g. staggered education start times, traffic engineering solutions, incentives for freight to move to rail or travel outside peak hours;
- paying for roads twice / charging for roads which are currently a free good;
- need to be clearer about the social/economic impact of the “do minimum” – there are social, economic and environmental impacts associated with the rising vehicle usage and congestion in Auckland notwithstanding any congestion charging response. Chapter 4 of this report includes a discussion of the impact that congestion is currently having on businesses in Auckland; and
- equity from a regional (spatial) and socio-economic group level – i.e. making it clear which parts of the region or groups are more affected than others, who pays and who benefits.

3.20 The objective of the economic impact assessment along with other work streams being undertaken contemporaneously is to provide further insights regarding the issues described above. Some of the issues above are addressed, at least in part, by the further work on assessing the economic impacts, on business, of the revenue and congestion schemes. Equally, however, other workstreams currently underway are also adding further to the Ministry’s understanding of road pricing schemes.

## Other Work Streams

3.21 The economic impact assessment of road pricing schemes is only one of several workstreams that the Ministry has underway to better understand the various issues arising from the original ARPES. In brief, the other workstreams are:

- social (household) impact assessment;
- environmental/health impact assessment;
- technology charging mechanisms;
- mobility exemptions and revenue hypothecation options;
- financial modelling of the revenues and costs associated with the schemes;
- transportation modelling to understand the congestion and other transport impacts of road pricing; and
- options for enhanced passenger transportation specifically to provide meaningful alternatives to those likely to be impacted by the implementation of road pricing in Auckland.

3.22 These workstreams are being undertaken at the same time as the assessment of economic impact. By implication, the findings from the other workstreams have not been available to inform discussions with business. As a result, discussions with businesses and the design of the survey, have had to proceed without clear information regarding:

- what impact the schemes, particularly the congestion scheme, might have in terms of reducing road congestion;
- how much revenue either of the schemes could be expected to raise and, moreover, the extent to which some or all of this is invested in Auckland's transport networks;
- the uses to which additional investment might be directed (e.g. enhancing the road network, investing in additional public transport services etc);
- the means by which charges on road users would be collected; and
- the nature of any exemptions.

3.23 It is important to emphasise, therefore, that via discussions and the survey, businesses have been invited to respond to schemes that are (purposefully) hypothetical and that, at this stage, have unspecified outcomes. Reflecting this, and as a general observation, we note that businesses have found it easier to think about the impacts of congestion (since they can observe this for themselves), but harder to consider the impacts of the road pricing schemes. To assist businesses, we have designed the surveys to include some hypothetical outcomes of the road pricing schemes (in terms of reduction in travel times) and asked businesses to consider what this would imply for their business if such reductions occurred in practice.

3.24 In short, the hypothetical nature of the schemes, the relative lack of specificity regarding their design and operation and the lack of information regarding their

implications for traffic volumes means that the feedback received from businesses be it via survey, interview or workshop, should be seen as illustrative rather than definitive. Inherently, it is difficult to get people to assess the impact of something over which they have no direct experience. Nevertheless, because this assessment of economic impact has relied on direct interaction with a range of businesses, there is more of a real world flavour to the assessed impacts than is possible from theoretical studies that based findings around imputed estimates of the value attributed to travel time savings. In this regard, the current work should be regarded as a useful complement to the earlier ARPES and its findings.

## 4 Congestion – Current Impacts

### Road Carriers

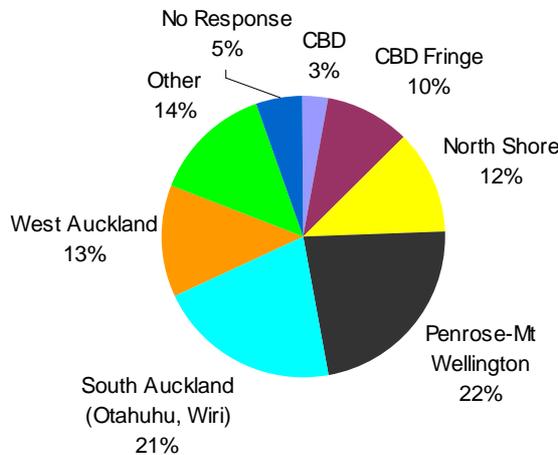
4.1 It has been estimated<sup>11</sup> that approximately 20% of the private vehicles registered in Auckland are involved in the commercial carriage of goods. These vehicles undertake around 500,000 trips in the Auckland regional every working day and carry in excess of 250 million tonnes of freight annually. Heavy vehicles can account for up to 15% of traffic on some of Auckland’s major arterial roads.

4.2 The commercial road transport sector is diverse. To facilitate engagement with the sector, we were assisted by the Road Transport Forum, the Auckland regional office of the New Zealand Road Transport Association (RTA) and the National Road Carriers Association (NRCA).

4.3 Workshops were held with members of the RTA and the NRCA to discuss the impacts of congestion and obtain perspectives on the potential impacts of the hypothetical road pricing schemes. In addition, a survey was sent via these two sector organisations to their members. A total of 92 responses were received from firms operating as road carriers.

4.4 Through the industry organisations, we have been able to engage with a reasonably wide cross-section of the industry ranging from carriers who use light vehicles for courier and local deliveries through to major line-haul operators using heavy vehicles. The diagrams below provide an overview of the composition of survey respondents.

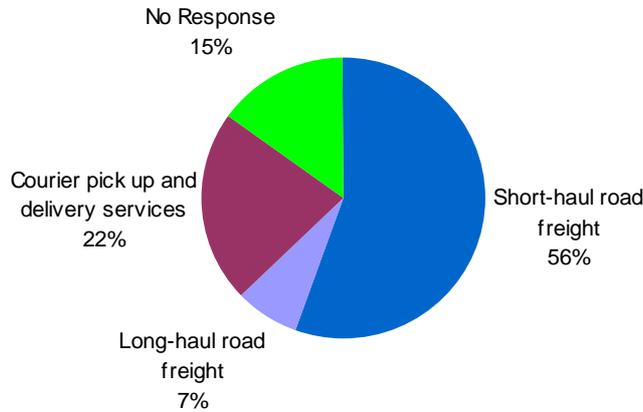
Responses by location



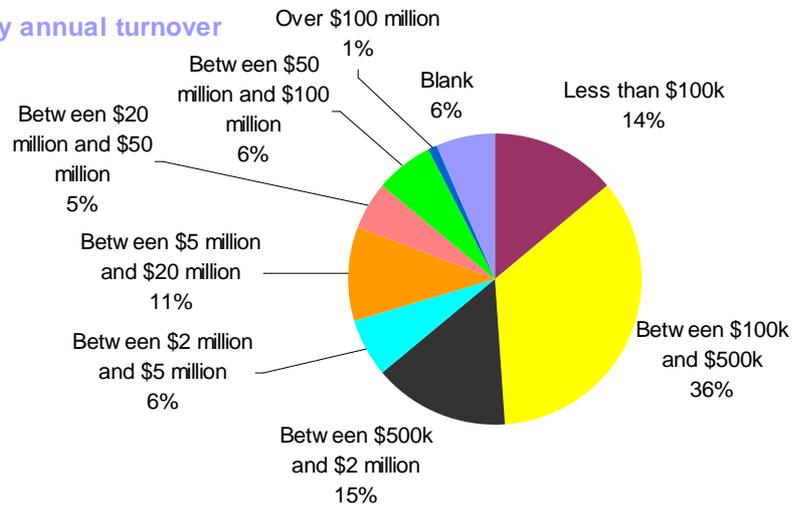
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<sup>11</sup> Auckland Regional Freight Strategy (2006) as reported in “Moving Auckland Freight” a report prepared by Tony Garnier December 2007 for the National Road Carriers Association

### Responses by industry



### Responses by annual turnover



4.5 Feedback provided via the workshops and surveys clearly indicates that road transport carriers are impacted by congestion particularly in terms of productivity and profitability. A total of 81% of survey respondents indicated that they perceived congestion had got somewhat, or significantly, worse over the last three years. The overwhelming majority (91%) thought that congestion would get worse over the next three years (60% thought it would get significantly worse).

## Customers and Revenue

4.6 The geographic distribution of the customer base for road transport carriers is dispersed both in terms of the location of pick-up points as well as customer delivery points. The following distribution is based on the surveys.

Location	Pick-up %	Delivery %
CBD	15	12
Newmarket	4	4
Other areas within charging zone	9	9
Rest of Auckland City	8	12
North Shore	14	15
West Auckland	10	11
South Auckland	30	29
Other	11	8
Total <sup>12</sup>	100	100

4.7 Two points should be noted from the figures above. Firstly, road carriers are travelling to all points within the greater Auckland area which means they have first hand experience of traffic conditions including, in particular, those areas that experience traffic congestion. Secondly, many trips made by road carriers are to, from, or through the charging zone.

4.8 A possible impact of congestion is that it serves to diminish the number, and geographic distribution, of customers because as congestion worsens, it takes longer to get to and from a customer's place of business. The results of the survey appear to suggest that both impacts are felt by only a minority of road carriers.

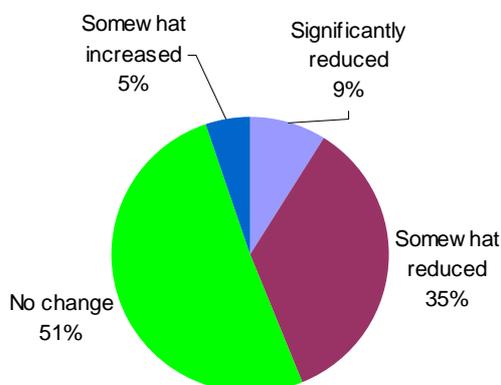
- Approximately 2/3<sup>rd</sup>s of survey responses indicated that congestion has had no impact on the number of their customers. Nearly a ¼ indicated, however, that congestion moderately decreased the number of customers. One example of this was tow truck operators who have a fixed fee and who choose to decline work in certain areas at peak congestion times.
- Nearly 60% of survey responses indicated that congestion has had no impact in terms of the geographic distribution of carriers' customers. Across the balance of the responses, there was a reasonably even split between those (24%) who considered congestion was increasing the geographic spread (e.g. because their customers were deciding to move out of Auckland) and those who indicated the spread was reducing (18%). Some respondents noted that their strategy has been to focus more on customers who have ready access to motorways.

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<sup>12</sup> Numbers may not add due to rounding

4.9 Notwithstanding these results, nearly 44% of survey responses indicated that congestion had reduced their turnover somewhat (35%) or significantly (9%). Most of the other responses (51%) indicated turnover had not been impacted by congestion.

#### Impact of congestion on turnover



4.10 Comments during the course of workshops made the point that the road transport carrier business is highly competitive. Carriers are, in general, very reluctant to lose customers and will seek to work around the challenges posed by congestion rather than lose customers. Congestion reduces the productivity of road carriers and it is this impact that appears to be causing some reduction in turnover rather than the outright loss of customers. This is discussed further below under the heading of productivity.

4.11 Notwithstanding that 44% of respondents believed congestion was reducing turnover, slightly more than half of respondents (55%) thought that congestion was having a moderate or significant influence in terms of increasing prices to customers. This appears to reflect higher operating costs (refer below). At least some of the road carriers charge by the hour implying that increased journey times are being passed onto their customers. Others, even if not charging by the hour, are recalibrating their fees to take account of the time and fuel cost impacts of congestion.

4.12 Congestion increases travel times and it also increases travel time variability. Both effects could be expected to induce road carriers to alter the times for pick up and delivery of goods so as to avoid the worst of traffic congestion. It is clear, however, from the workshops with road carriers that it is customers, rather than road carriers that tend to determine when pick ups and deliveries are made. Some interesting examples were provided of the diversity of factors that can influence customer requirements for delivery times. For example, with respect to supermarkets including, in particular those in residential areas it is factors other than traffic conditions which tend to have the major influence over the timing of deliveries such as:

- resource consent conditions which limit deliveries to within certain hours of the day;
- staff rosters;
- the nature of the product (e.g. delivering newspapers part way through the day is not sensible); and

- the capacity of (un)loading bays.

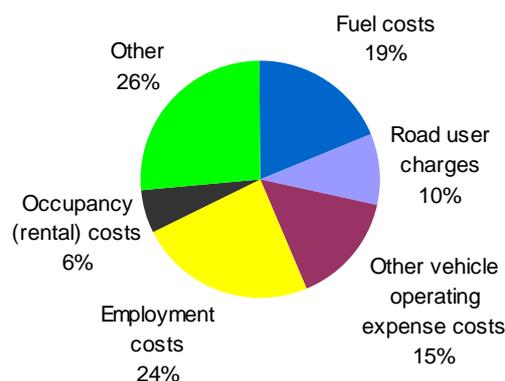
4.13 Similarly, the customers of road carriers have not sought to increase their level of inventory to take into account increased trip times and/or variability. Rather, the onus has been on the carriers to adjust their operations (discussed below) to mitigate the impacts of congestion. At one of the workshops, it was noted that over the last decade or so, inventory levels in supermarkets have tended to decline implying the need for more frequent deliveries. This trend has not changed in the light of increased traffic congestion.

4.14 In short, from the perspective of the customers of road carriers, traffic congestion is something that the carriers have to take into account in meeting customer requirements; it is not something that will cause the customers to alter their requirements.

### Operating Costs

4.15 Not surprisingly, fuel costs are a significant item in the budget of a typical road carrier. Based on feedback from the industry groups, fuel accounts for nearly 20% of total expenditure. Other vehicle operating costs account for about 15% of expenditure and road user charges a further 10%. Labour costs (discussed below) account for nearly a quarter of expenditure.

Major areas of business expenditure



4.16 Congestion contributes to greater fuel use. Of those responding to the survey question, 86% indicated that congestion had contributed to increased fuel expenditure. To put this into context, however, 77% of responses indicated that the price of fuel had had a significant impact on fuel expenditure whereas only 20% said the same about the impacts of congestion (nearly 2/3<sup>rds</sup> thought congestion had had a moderate impact on fuel expenditure).

4.17 Feedback from the workshops indicated that the additional fuel costs were mainly a function of stop-start driving conditions and, to a lesser extent, the result of diversion on to longer, but less congested, routes. Nearly half (47%) of respondents indicated that their expenditure on RUC had also increased which, at least in part, is indicative of having to drive further to avoid congestion.

## Labour Markets

4.18 Unemployment in New Zealand is currently at historically very low levels.<sup>13</sup> This was reflected in comments made during the course of the workshops and in the survey responses.

4.19 Based on the survey responses, employment costs account for around a quarter of overall expenditure. About 3/4<sup>ths</sup> of responses indicated that congestion had increased employment costs. When prompted further to think about other factors influencing employment costs, approximately 70% of responses indicated that the tight labour market had moderately (34%) or significantly (36%) increased employment costs. Taking these factors into account, the proportion of those who thought congestion also added to increased employment costs fell slightly to 62%.

4.20 The impact on employment costs links to the effects on productivity, discussed below. In short, congestion has increased travel times and, as a result, increased the number of vehicles required to carry a given level of goods (notwithstanding some modest increase in the average volume/value of goods transported per journey). More trucks mean more staff and, hence, higher aggregate employment costs. There has also been an increase in operating hours and, as a consequence, greater reliance on overtime and shift work at higher rates of pay.

4.21 Congestion was also having an impact on the ability to attract and retain employees in the road carrier industry. Approximately 34% of responses indicated that congestion was making it somewhat, or significantly, harder to attract and retain employees. Several workshop participants noted that experienced drivers are moving out of Auckland to take up opportunities in regional centres (e.g. Napier/Hastings) or Australia. Although hard to measure, one of the main reasons given for this was the impact of congestion on driver stress and fatigue. Workshop participants also commented that attracting clerical and administrative staff was an issue. Congestion increases the costs of getting to and from work (direct fuel costs and foregone leisure time). In a tight labour market, employees have greater scope to choose employment that is closer to home.

4.22 Somewhat contrary to these views, however, about 22% of responses to the survey indicated that congestion was making it easier to attract and retain employees. Possibly this might be reflecting the incentives created by congestion to work closer to home; that is, as congestion increases the cost of commuting, some employees choose to work closer to home thereby increasing the supply of labour for some employers and reducing it for others.

## Location

4.23 Although responses to the survey indicated that road carriers are located across most parts of the greater Auckland area, the largest concentration is in the Penrose, Mount Wellington and South Auckland areas. Relatively few (about 12%) are located in the cordon area. None of the road carriers participating in the workshops were based within the cordon area.

4.24 Congestion was not regarded by those in the workshops as being a reason to trigger relocation. However, if a firm was considering relocating for other reasons,

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<sup>13</sup> The seasonally adjusted unemployment rate as at December 2007 was equal to 3.4% of the labour force. Source: Statistics New Zealand

congestion would form part of the evaluation criteria. A total of 13% of survey responses indicated that congestion had had some impact on business location (but only one response indicated that this had been a significant factor).

## **Productivity**

4.25 The workshops and survey results clearly point to congestion having an adverse impact on the productivity of road carriers. The increase in trip time and trip time variability is causing road carriers to increase their fleet size and/or their hours of operation in order to continue to meet customer requirements. The survey results indicated that nearly half (48%) of responses had increased their fleet size and 77% had increased their hours of operation (almost no-one had reduced their hours in response to congestion).

4.26 Several workshop participants indicated that they routinely measure average speeds over the routes they use. One example indicated a reduction in average speed from 55km/h 6 years ago to 38.5km/h 12 months ago to 31.8km/h currently.

4.27 A general consensus at one of the workshops is that productivity at night times is roughly double that which is achieved during the day. Data provided by one operator compared actual journey times with those expected under relatively free-flow traffic conditions. That data indicated that the ratio of actual to expected journey times was roughly 2.5:1 for short trips (<10 km) falling to around 1.5:1 for longer journeys (40-100 km) involving trips to the outer reaches of Auckland and beyond. That is, for relatively short journeys that would normally be expected to take, say, 10 minutes, the average was in fact 25 minutes.

4.28 The same data indicated a high degree of variability in travel times. The same 10 minute journey could take anywhere between 10 minutes and 45 minutes. The variability for longer journeys was less. For example, a journey over 50 km that was expected to take, say, 60 minutes, would range from around 60 minutes to around 120 minutes. The longer the journey, the more opportunity for road carriers to travel on less congested roads and, hence, make up for lost time on congested roads.

4.29 The number of deliveries made has not changed, in response to congestion, for nearly half (45%) of respondents. The proportion of responses indicating an increased number of deliveries (25%) was roughly balanced by those indicating a reduction in the number of deliveries (30%). At the same time, 24% of responses indicated an increase in the average volume of deliveries and 16% indicated a reduction. These figures suggest that for the 55% of respondents for whom congestion has affected the number of deliveries, there are slightly more carriers that have responded by increasing the number of deliveries (but reduced loads per delivery) than there are those who have responded by reducing the number of deliveries (but greater volume per delivery).

4.30 In summary, congestion has increased average journey times. This has resulted in:

- needing more vehicles to achieve the same number of deliveries; and/or
- needing more vehicles (and different type of vehicle) to increase the number and frequency of deliveries (but with lighter loads);or

- working longer hours to achieve the same number of deliveries which means more staff and/or more shift work<sup>14</sup>; or
- increasing the average load per delivery which can mean larger vehicles.

### **Profitability**

4.31 Congestion is contributing to increases in fuel, vehicle operating, and labour costs. In some cases, road carriers are able to pass on the higher costs to their customers. Other carriers, however, are having to absorb at least some of the impact. One participant at the workshops indicated that profits had halved over the past five years (although whether this is entirely due to congestion has not been assessed). Several participants at the workshops commented that they thought the cost increases would be borne largely by the carriers. However, the survey results suggest that in the majority of cases (nearly 80%) there is at least some pass-through to customers. This finding is to be expected given that most operators will be experiencing the same sort of cost pressures which means customers do not have the option of switching to a provider that is not facing the increased cost pressures.

4.32 The survey asked road carriers for their views on likely trends in fuel and employment expenditure over the next three years (assuming road pricing is not introduced within that period). All responses expected fuel expenditure to increase with the median increase expected to be in the range of 21%-30%. With respect to labour, just over 75% of responses expected some increase in employment expenditure but the median increase was more modest at between 1% and 10%. Based on discussions with the carriers, at least some of these increases are attributable to expectations that congestion will worsen (60% of responses believing that congestion will significantly worsen).

4.33 In short, therefore, based on the survey results and discussions with road carriers, the outlook for profitability is pessimistic and congestion is a material contributory factor.

### **Concluding Remarks**

4.34 Road carriers have high levels of concern regarding traffic congestion. Motorways and major arterial routes are their preferred routes, but these are heavily congested. Some efforts have been made to avoid the worst of the congestion including bringing forward operating hours and extending night time operations.

4.35 Based on the survey responses, travel time savings appear to be valued more highly than improvements in trip time reliability. Respondents were asked to indicate how much they valued trip time savings compared to reductions in travel time variability. On average, respondents indicated that they would value trip time savings about a third higher than reductions in travel time variability. This result is somewhat counter-intuitive in that it is harder to plan for trip time variability and variability is likely to have greater adverse impact on productivity and the ability to meet customer requirements.

4.36 The finding from the survey also contrasts with some international evidence, referred to in the NZIER report, which suggests that for commercial goods traffic, a reduction in the standard deviation of travel time of a minute is valued 20% higher than a

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<sup>14</sup> Several road carriers have commented that changes in driver hours regulations are constraining the amount of overtime.

one minute reduction in travel time.<sup>15</sup> Other studies, however, have found a large range in the relative value placed on travel time variability implying that it is not possible to draw a consensus view on the issue.<sup>16</sup>

4.37 Most carriers commented that congestion is not just an issue for the area within the charging zone for the revenue and congestion schemes. We comment further on this in following chapters. They also commented that if traffic levels could be reduced to those outside of school and university term, their productivity and profitability would be significantly improved.

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<sup>15</sup> NZIER op. cit., which quoted results from Scottish Executive (2006) "Costs of Congestion: Literature Based Review of Methodologies and Analytical Approaches", Edinburgh

<sup>16</sup> Ibid., page 7

## Retailers

4.38 Statistics New Zealand's business demographic data indicates there are 6,076 retail stores in Auckland City. These stores employed 27,940 staff and in turn are visited by many more shoppers.

4.39 As an indication, the Westfield St Lukes retail mall reported approximately 10 million visitors per annum. Multiplying this figure by several times to reflect the main retail trading areas of the CBD (including "K" Road), Newmarket, St Lukes, Ponsonby, Parnell and Mt Eden within the central area provides an indication of the potential number of visitor trips that is generated by retail activity.

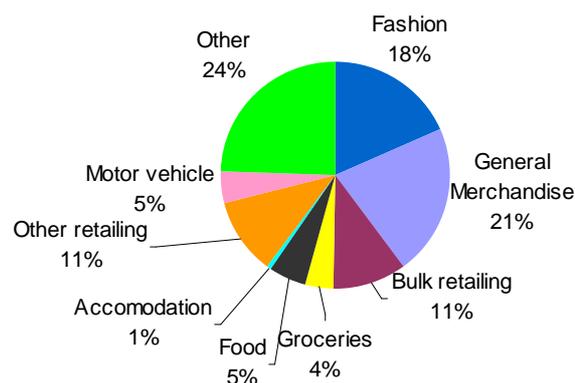
4.40 The central area accounts for the majority of the retail businesses within Auckland City with notable exceptions being Sylvia Park, Onehunga and Eastridge. Other significant retail locations within the Auckland region are Albany, Botany Downs, Manukau, New Lynn, Henderson, Takapuna and Pakuranga.

4.41 To facilitate engagement with the sector, we were assisted by the Retailers Association, Heart of the City and Newmarket Business Association.

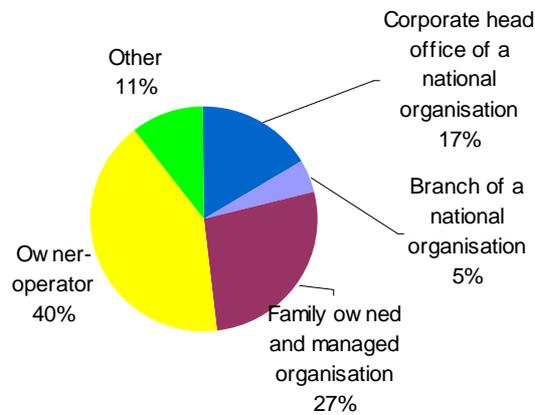
4.42 Workshops were held with members of the Retailers Association to discuss the impacts of congestion and obtain perspectives on the potential impacts of the hypothetical road pricing schemes. A number of interviews were also conducted covering the same topic. In addition, a survey was sent via the sector organisations to their members. A total of 138 responses were received.

4.43 The assistance of industry organisations means that we were able to engage with a reasonably wide cross-section of the industry, ranging from large supermarket operators and major retail chains through to small owner-operators. The diagrams below provide an overview of the composition of survey respondents.

### Responses by general industry categories



### Responses by business structure



4.44 As described below, it is important to note that the CBD, Newmarket and the CBD fringe retail locations like Parnell, Ponsonby and Mt Eden play very different retail roles within the region.

4.45 The CBD retail area primarily caters for workers, students, residents and international tourists. The CBD is still the primary employment location with over 60,000 employees and the highest density of workers. In addition, two large universities, the University of Auckland and Auckland University of Technology are located in the CBD with significant number of university students. The CBD residential population has grown significantly over the last ten years to more than 20,000 residents. By virtue of the fact that it has maximum accessibility with respect to both public and private transport to other parts of the Auckland region, it also has a significant number of higher end retail particularly around the High Street and Chancery areas. A large number of its retail shoppers are in the CBD for reasons other than shopping and this is reflected in the make up of retail shops which is a mixture of mainstream retail clothing chain-stores (with branches in other parts of Auckland), service stores such as chemists and hairdressers, food retailing, high end fashion and duty free/NZ gift stores catering to tourists.

4.46 The Newmarket retail area has a different role to the CBD in that it serves more as a home-ware and fashion precinct that caters to the surrounding, high income demographic residents in the Eastern Suburbs of Auckland, Parnell and Epsom. It is a growing, but still relatively small, employment location compared to the CBD. Accordingly, Newmarket is more of a retail destination for shoppers who travel to Newmarket for the primary purpose of shopping.

4.47 Other retail areas within the charge zone are a combination of boutique fashion destination areas like Ponsonby and Parnell, more “village” type retail areas that caters for the surrounding residential catchment like Mt Eden and a suburban shopping mall like St Lukes which is a mixture of fashion and general merchandise stores.

4.48 The feedback provided via the workshops, interviews and surveys indicates that to some extent, retailers are affected by congestion, particularly in terms of lower turnover and higher logistics and employment costs.

4.49 A total of 83% of survey respondents indicated that they perceived congestion had got somewhat, or significantly worse over the last three years. The majority (75.4%)

thought that congestion would get worse over the next three years (42.9% thought it would get significantly worse).

4.50 A clear theme also came through from the interviews and workshops, reinforced by reference from the retail sector to other work that has been undertaken either by themselves or the local Auckland City Council, is that the availability and cost of parking has a major influence on decisions from shoppers to drive into the central area for shopping. Congestion was thought to be somewhat secondary to this. It was pointed out that the CBD and Newmarket area has offers of two hour free parking for shoppers (in the former case, on weekends in a promotion organised by Heart of the City, in the latter case, all week in the Westfields 277 shopping mall) to attract shoppers.

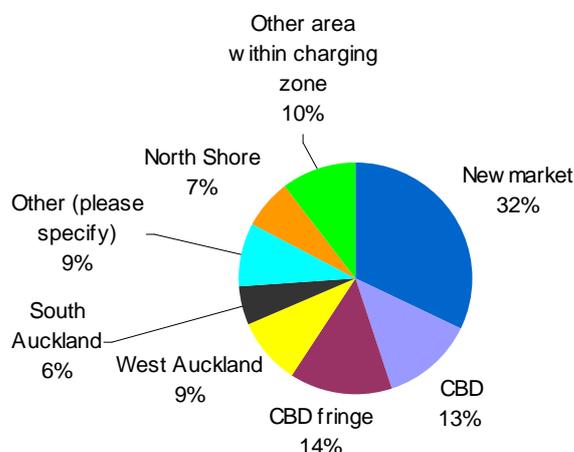
### Customers and Revenue

4.51 In general, retail customer catchments are overwhelmingly local. Most shoppers live within 10 minutes drive of the retail location although there is also a significant pool of customers who are located within 20 minutes drive.

4.52 Central Auckland is a significant employment and education zone. Accordingly, retail businesses within central Auckland cater to a large number of employees and students who may live within the wider Auckland region but work centrally.

4.53 The geographic distribution of the customer base for retailers is dispersed with a slight degree of concentration around central Auckland. The following distribution is based on the surveys.

#### Reponses by location



4.54 One possible impact of congestion is that it discourages shoppers from travelling over long distances into the central Auckland area or, at least, reduces the frequency of shopping trips made to central Auckland.

4.55 The survey results appear to provide partial supports for these possibilities:

- Approximately 24% of survey response indicated that congestion had reduced the number of customers. However, 67% reported no change and this would be consistent with servicing local customers who are less impacted by congestion and/or customers who are in the area for other purposes (e.g. employment). One

example of this was major CBD retailers reporting that over the years, their customers have changed from suburban mothers who now visit less frequently and have been replaced by more frequent visits from workers and university students.

- Approximately 36% of survey response indicated that congestion had reduced the frequency of customer visits.
- Approximately 56% of survey responses indicated that congestion has had no impact in terms of geographic distribution of retailers' customers. Across the balance of responses, there was a reasonably even split between those (25%) that considered congestion was decreasing the geographic spread of their customer base (e.g. customers choosing to avoid congestion by shopping more locally) and those that indicated the spread was increasing (19%). An increase in the geographic distribution of customers could reflect shoppers choosing to travel further to shopping centres that have more convenient access. It could also reflect retailers having to cast the net for customers more widely in response to declining customer numbers.

4.56 Of survey responses, 23% indicated that congestion had reduced their turnover and this proportion was very similar to that reporting that the number of customers had fallen because of congestion. Most of the other respondents (67%) indicated turnover had not been impacted by congestion. The balance of the respondents (10%) reported that congestion had increased turnover.

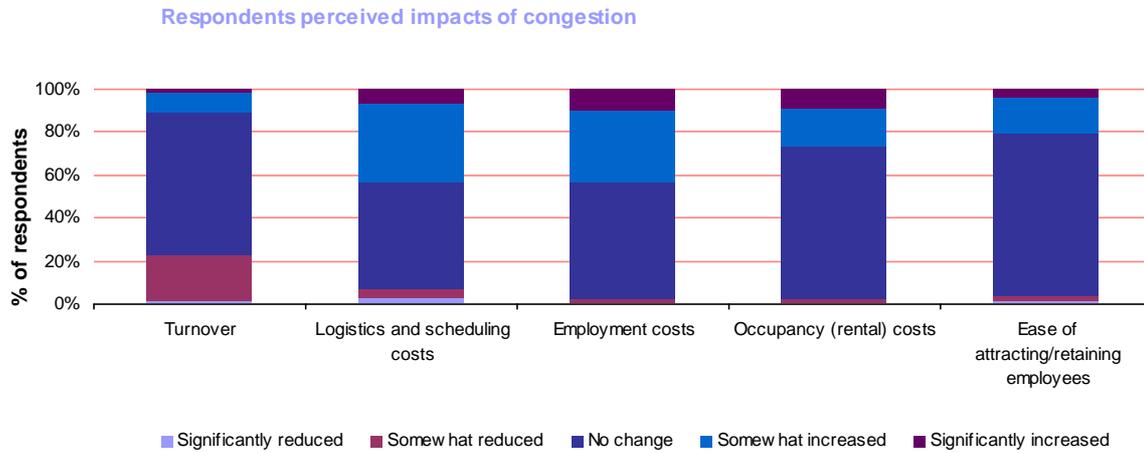
4.57 In response to the impacts of congestion on customers, the following responses were reported by retailers:

- 42% of survey responses indicated that they open up new branch/es to be closer to their customers;
- 73% of survey responses indicated that they supported local retail area promotion of free parking to attract customers;
- 65% of survey responses indicated they improved retail attractiveness by refurbishing their stores or having a better range of products; and.
- 47% of survey responses indicated they increased their operating hours.

### **Operating Costs**

4.58 For retailers, employment and occupancy costs are the two most significant components of their operating expense budgets. Based on feedback from industry groups, employment costs (discussed below in more detail) accounts for about 35% of their total expenditure and occupancy costs accounted for about 18% of their total expenditure. Other significant expenditure components were logistics and scheduling costs accounting for 10% of total expenditure and advertising and promotion costs accounting for 10% of total expenditure. These four categories accounted for 73% of total expenditure.

4.59 Survey responses indicated that congestion has had some impacts on operating costs as illustrated below.



4.60 The impacts on employment costs are discussed further below. Of the other expenditure categories, occupancy costs are the next most significant area of cost. Occupancy costs have had moderate increases over the past 3 years with 31% of survey response reporting no change, 48% reporting changes between 1 and 10% and 12% reporting changes between 11 and 20%.

4.61 However, there is pressure on occupancy costs with larger increases expected over the next 3 years with only 12% expecting no change, 49% expecting changes between 1 and 10% and 25% expecting changes between 11 and 20%.

4.62 These findings need to be seen in the context of what has been a very buoyant property market and in the context of the strong economic growth that Auckland has been experiencing in recent years. These factors have had a stronger influence on occupancy costs growth than congestion:

- 56% of survey response reported tight property market has increased occupancy costs;
- almost as many (47%) survey responses reported business growth has increased occupancy costs; and
- a somewhat lower proportion (27%) of survey responses consider that congestion has led to higher occupancy costs.

4.63 In short, congestion has had an impact, but it is of lesser significance compared to wider economic considerations. The survey result is consistent with property market

reports and practices of yield compression<sup>17</sup> over the past few years and “ratchet rental”<sup>18</sup> and turnover based rental costs.

## Labour Markets

4.64 As noted above, employment costs are the single largest category of operating costs for retailers. Although congestion is considered by about a third of retailers to have increased employment costs, this needs to be seen in the context of other drivers of cost. In particular:

- 73% thought the tight labour market had contributed to increased employment costs;
- 47% thought business growth had increased costs; and
- 36% thought productivity improvements had also contributed to increased costs.

4.65 Congestion ranks, therefore, behind these other factors in terms of impact on employment costs.

4.66 Somewhat curiously, while 21% of survey response indicated that congestion had reduced the ease of attracting/retaining employees, a more significant 31% indicated the reverse; that congestion had increased the ease of attracting/retaining employees. A possible explanation for this is that congestion encourages people to work closer to home (to reduce the costs and stress of commuting). Comments made by the supermarket operators and industry representatives support the view that a large number of their employees lived in close proximity to their place of work.

4.67 The “working closer to home” effect is possibly more important for the retail sector given that it has a higher proportion of part-time shift workers than other industries. This means that any increase in travel costs is a higher proportion of the part-time worker’s income thereby causing this group in particular to seek more local jobs.

4.68 We note that retail employees who work in areas such as the CBD and Newmarket and which have good public and private transport accessibility were less likely to live locally and are more likely to be dispersed quite widely throughout the city/region. For these employees, the “work closer to home” effect is likely to be much less marked.

## Location

4.69 While responses to the survey indicated that retailers are located across most parts of the greater Auckland area, the largest concentration is unsurprisingly within the charging area in central Auckland (64%).

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<sup>17</sup> Referring to the lowering of investment yields sought on retail properties due to a large sum of money both from domestic investors and also Australian superannuation funds looking for an investment home. At the peak of the market, prime retail properties were sold for yields as low as 5%.

<sup>18</sup> Referring to the practice where retail rents increase by the maximum of CPI + 2% or market rent when it is reviewed and also a fixed annual increase, usually again CPI + 2%. There is no provision for retail rents to fall for existing tenants.

4.70 When asked further about the location of their retail outlets (as opposed to their main business location), the geographic spread of retailers broadened with only 48% located in central Auckland. This proportion is closer to data from Statistics New Zealand figures which show that 39% of retail stores in the Auckland region are located in Auckland City. The difference between the Statistics NZ numbers and those arising from the survey may be due to the fact that the survey included several large retailers who tend to locate their businesses more around the central areas.

4.71 Congestion is not a strong influencer in the retailers' location decision. In general, retailers tend to locate where the customers are. This is either in main retail centres like the CBD and Newmarket, or in the regional shopping malls such as St Lukes, Sylvia Park etc. Our observations from analysis previously undertaken by Auckland councils and discussions with retailers, confirm that the main location factors are the likely number of potential customers (measured by foot traffic and retail catchments) followed by the availability and cost of parking. Congestion is very much a second order influencer albeit that to the extent that congestion reduces retail catchments it may have an influence on location decisions.

### **Productivity and Profitability**

4.72 Retailers are mostly worried about the impact of congestion on employment costs and on logistics/scheduling, especially in the case of the higher volume retailers like supermarkets.

4.73 In both cases, congestion has the potential to impact negatively on retailer's operations and profitability. One supermarket interviewee noted that there are small delivery windows. Delivery delays due to travel congestion can disrupt operations and increase costs of in-store labour as most supermarkets rely on frequent restocking from regional distributional centres. If deliveries are not made according to the scheduled time, the staff tasked to undertake the restocking duties will not be gainfully employed during the scheduled delivery time. This would then have a knock-on effect on other staff as they "catch up" on the lost time. More importantly, this could also impact on turnover if the store runs out of stock on certain high turnover items.

4.74 Congestion is causing higher costs in terms of logistics and scheduling, employment and occupancy. Retailers tend to operate on a cost-plus basis where they put a mark-up on their goods. In response to congestion, some retailers have indicated that they will respond by increasing prices so as to defend margins even though this leads to a reduction in turnover. This is consistent with the survey results with nearly a quarter of respondents indicating that congestion has reduced their turnover.

### **Concluding Remarks**

4.75 Retailers believe that congestion will get worse but for at least half of the respondents to the retail survey, congestion is having no impact on their business either in terms of costs or turnover. The factors that weigh more heavily in this regard are wider economic trends such as the tight labour market, the buoyant property market and overall high rates of economic growth. Congestion tends to be of lesser significance behind these factors.

4.76 There are, however, important exceptions to this general perspective. Major retailers such as supermarkets for example, who rely on frequent deliveries as they adopt business practice which does not see a lot of stock stored on-site, have suggested that congestion is an issue for them particularly with deliveries. Consent and local body requirements mean that delivery windows are restricted so as to minimise adverse effects

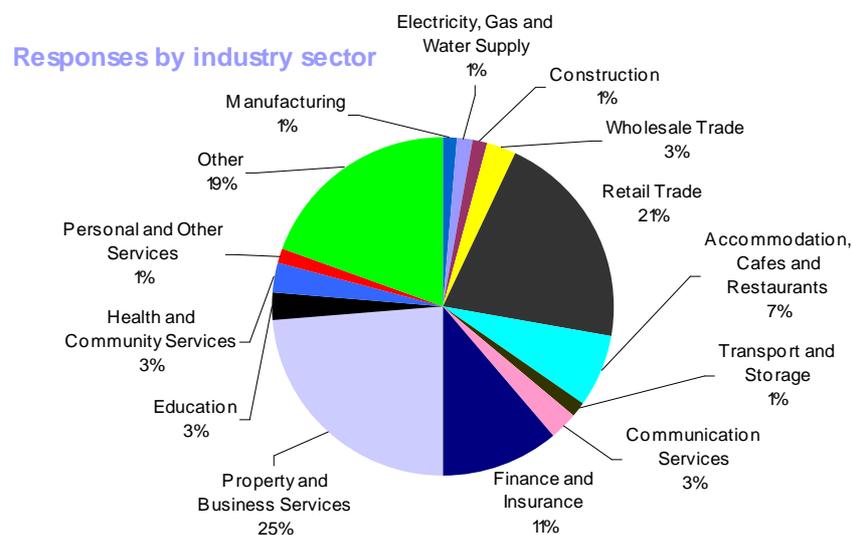
on local communities where the supermarket is based. This means that there is relatively little provision to switch deliveries from congested times to non-congested times. In situations like this, congestion does have a more marked impact, but it is important to note that it is in combination with other aspects of the environment within which retailers operate.

## Businesses

4.77 The terms of reference have required us to engage with businesses located within Auckland's CBD and Newmarket. To do this, and with assistance from the Ministry, approaches were made to the Auckland Chamber of Commerce, "Heart of the City" and the Newmarket Business Association (NBA). "Heart of the City" and the NBA have contributed by facilitating meetings and distributing surveys to their members.

4.78 In addition to these organisations, and with the agreement of the Ministry, we also interviewed Auckland University reflecting the substantial student and staff numbers who travel to and from the CBD campus.

4.79 The survey that was distributed by the Heart of the City and NBA collectively drew 76 responses. These covered a very wide range of business activities as illustrated below.



4.80 As with the surveys that were distributed to retailers and road carriers, we have not had any visibility over the identity of survey respondents. The surveys were distributed by the representative organisations using their databases which remain confidential to them. Moreover, the surveys were completed on an anonymous basis.

4.81 It is important to note that nearly a quarter (24%) of respondents to the business survey provide property and business services.<sup>19</sup> A further 21% are engaged in retail trade. Respondents in these groups may also have been approached to complete the retail survey. We cannot be certain on this, however, given that we do not know the identity of survey respondents. In an attempt to minimise any duplication, the distribution of the business survey, which followed a short time after the retail survey was issued, included a message to the effect that if the recipient had already completed the retail survey, they were not expected, or encouraged, to also complete the business survey.

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<sup>19</sup> Property and business services account for 23% of total city employment. Source: NZIER (2008) Auckland Road Pricing: Desktop Research on Economic Impacts

4.82 Notwithstanding the potential for some duplication, the demographic profile of the respondents to the business survey has some marked differences from the retail survey. In particular, and as intended, almost all respondents to the business survey were located in the CBD (66%) or Newmarket (21%) whereas the comparable figures in the retail survey were 27% and 32% respectively. Moreover, the range of industry sectors represented in the business survey is much wider ranging than, as would be expected, the retail survey. The scale of enterprise, as measured by revenue and number of employees, was also significantly greater in the business survey.

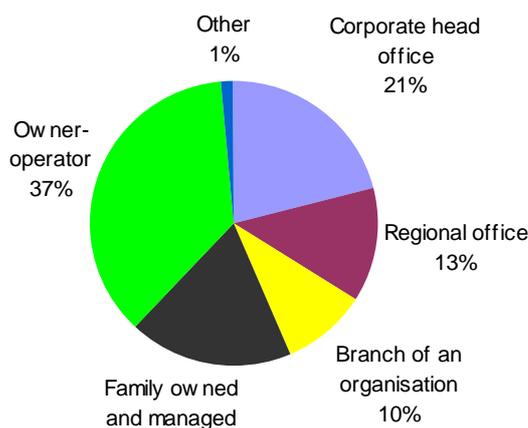
4.83 Although it was not the intention for the surveys to be statistically robust, the breadth of demographic characteristics apparent from the responses to the business survey suggest that a good cross section of the business community has been able to provide perspectives on congestion and the impacts of the hypothetical road pricing schemes.

4.84 Consistent with the responses to the retail and road carrier surveys. The overwhelming majority of businesses consider that congestion has got worse over the last three years (over a third - 35% - indicate significantly worse) and, furthermore, expect congestion to worsen further over the next three years (85% of responses). The responses are broadly similar with those obtained from the retail survey, but are not quite as pessimistic in outlook as the road carriers. The ways in which congestion is impacting on business activity is discussed below.

### Customers and Revenue

4.85 The diversity of industry sectors represented in the business survey also is reflected in the diversity of business structures. The CBD and Newmarket business areas include a wide mix of structures ranging from sole operators through to the head offices of national and international companies. The graph below summarises the different types of organisations that responded to the business survey.

Responses by business structure



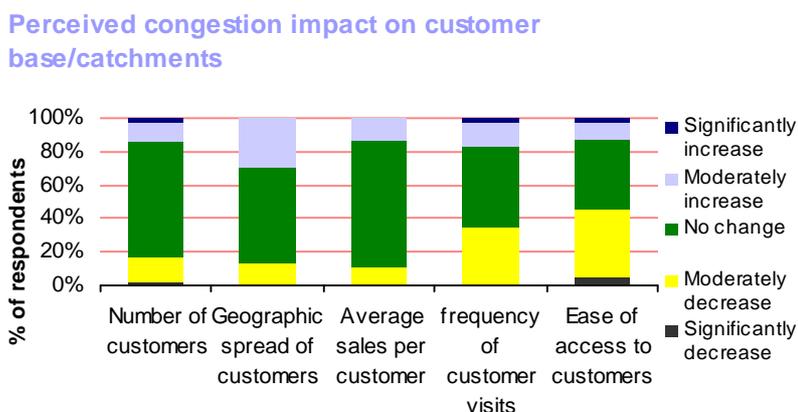
4.86 Reflecting the corporate nature of many of the respondents, not surprisingly, there is a reasonably significant proportion (approximately 22%) of their customers who are not Auckland-based (in contrast, only 11% of customers of businesses responding to the retail survey were located outside of Auckland).

4.87 The wider geographic spread of the customers of respondents to the business survey may account for the relatively high proportion of responses indicating that congestion has no impact on the number of customers (69% of responses) and turnover (79% of responses). Of the three groups that have been the focus for this assignment, businesses generally report the least impact on customers and revenue. The starkest contrast is with the road carriers, 44% of whom indicated that their turnover had reduced as a consequence of congestion (compared to only 15% of business survey respondents).

4.88 In terms of the number of customers, the business survey responses indicate that congestion has a relatively symmetrical impact in terms of either reducing the number of customer (17% of respondents) or increasing the number of customers (15%). The most notable findings are that congestion tends to reduce the frequency of customer visits and make it more difficult for customers to access businesses. Feedback from businesses indicates that they find congestion makes it harder for them to get to their customers. Several businesses commented that because of congestion, they see their clients less often and it is more expensive to see them (because of increased travel times).

4.89 The most frequent point raised in relation to access is the availability of parking (and its cost). In all discussions with businesses, the issue of parking was raised both in the context of access for business customers and in the context of the ability to attract and retain employees. We understand from discussions with various Auckland businesses that the number of car parks in the CBD is reducing and this is having more of an impact on access than congestion.

4.90 The graph below summarises the impacts of congestion on customers.



4.91 Several businesses have observed that there are now several major, and growing, clusters of businesses located outside of the CBD which, in the context, of business-to-business provision of goods and services, means that the geographic area from which customers are being drawn is increasing. Approximately 36% of respondents indicated that their customer base comprises NZ-based businesses.

### Operating Costs

4.92 Employment costs are the single largest item of expenditure for those organisations responding to the businesses survey accounting for about 42% of total cost. We comment on employment costs below. The next largest item is occupancy costs (20%). Business travel costs represented only 5% - 6% of expenditure.

4.93 In general, congestion appears to be having a greater impact on businesses' operating costs than it is on their turnover. Moreover, the impact for businesses appears

to be somewhat greater than it is for retailers. Well over half (62%) of responses indicate that congestion has somewhat (52%) or significantly (10%) increase business travel costs. Slightly over a third of responses (37%) indicate that congestion has also contributed to increased occupancy costs.

4.94 The impact of congestion needs, however, to be seen in context. Approximately 70% of responses indicate that fuel prices have contributed to increased travel expenditure. Business growth was also seen as a factor for 57% of responses. This is a significantly greater proportion than in the case of retailers or road carriers. When fuel prices and business growth are taken into account, the proportion of respondents that consider congestion has contributed to increased business travel expenditure falls slightly to 57%.

4.95 A similar picture emerges for occupancy costs. The tight property market is seen by nearly two thirds of respondents (64%) as contributing to higher occupancy costs. Business growth is also a significant factor for over half of respondents (52%). Taking these other factors into account, congestion is of lesser significance being a factor that contributes to higher occupancy costs for only 28% of respondents.

4.96 The comparison with the responses to the retail survey is interesting in that the pattern of responses is very similar. Congestion is impacting on the operating costs of these sectors but in the case of occupancy costs, the tight property market and business growth have had the more significant impact.

### **Labour Markets**

4.97 The Auckland region employs around 600,000 people but the CBD accounts for only a relatively low share of regional employment (12%).<sup>20</sup> Employment costs represent slightly over 40% of total costs for the organisations responding to the business survey. Congestion is perceived by more than half (56%) of businesses as contributing to higher employment costs. For just over a third (35%) of businesses, congestion is also making it harder to attract employees.

4.98 Consistent with operating costs, congestion is not, however, the main driver of higher employment costs. The tight labour market (77% of respondents), business growth (67% of respondents) and productivity improvements (37% of respondents) all feature more prominently as drivers of higher employment costs. Overall, employment cost increases appear more significant for the business sector than the retail sector (or road carriers). The main difference between the two sectors seems to be the influence of business growth being a more dominant consideration in the business sector than in the retail sector.

4.99 Like the retailers, roughly twice as many businesses consider congestion is making it harder to attract employees than those who consider congestion is making it easier to attract employees. The theme of congestion inducing people to work closer to home is a factor that is raised in discussions with business (and retailers).

4.100 Even though only 17% of business respondents indicated that congestion is making it harder to attract and retain employees, a much higher proportion (59%) report that they are modifying work policies and arrangements to accommodate the effect of congestion. This includes providing options to work from home and vary the hours of work. Comments made by businesses point to some employees opting to start or finish

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<sup>20</sup> NZIER op.cit., page 4

later with others choosing to start or finish earlier. Some businesses have also pointed to examples of employees opting to work longer hours on a fewer number of days. As a result of all of these responses, over a third of businesses (35%) indicate that their hours of operation have increased (earlier and/or later). While significant the flexibility in work hours is somewhat less for businesses than it is for retailers. Nearly half (47%) of retailers report increasing their hours in part at least because of congestion. Businesses, in contrast, are more likely to be in a “9 to 5” mould.

4.101 It is interesting to note also that for a minority of businesses (23%), congestion is one factor causing business to locate closer to their workforce. These responses tended to be provided by smaller businesses. Larger businesses attract their workforce from a wider range of suburbs and for these businesses, relocating to be closer to their workforce does not make a lot of sense.

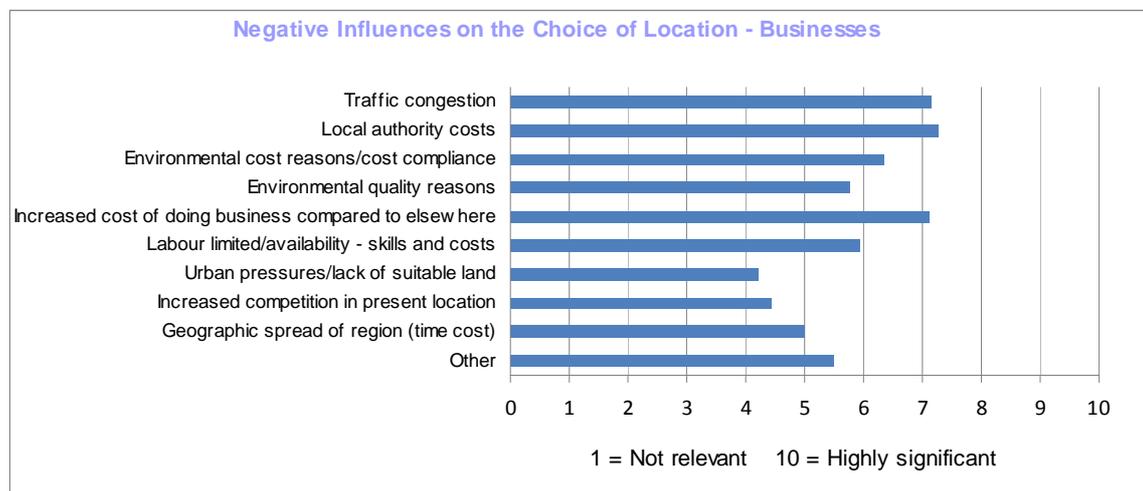
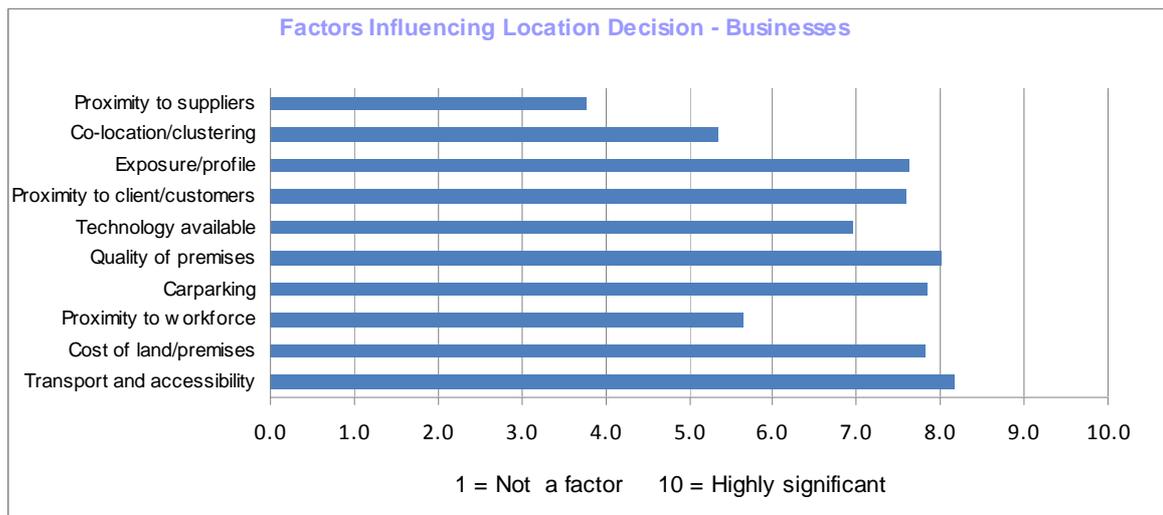
4.102 The final point to note is a comment made by several businesses that congestion is contributing to higher stress levels among staff and an increase in their working day (i.e. including commuting time).

## **Location**

4.103 Congestion does not appear to be having a major influence on business location. For 69% of respondents, it is not an issue. Respondents were asked to indicate whether congestion would spur them to consider re-locating closer to locations with better public transport access and/or motorway access. While congestion was a factor for around a third of respondents, only one of the respondents indicated that they had actually moved their location (to be closer to the motorway). Another indicated that they were looking to move from a fringe CBD location to a southern location so as to avoid congestion.

4.104 We note a comment made by one large corporate organisation that a survey several years ago of its staff indicated that the overwhelming majority (80%) wanted to continue to work in the CBD. Moreover, businesses have indicated that proximity to other businesses is a factor in their location decision. That said, traffic congestion, access to public transport, access to car parks and other land-transport related factors are a part of location decision making. One major corporate business had in the past considered relocating to Newmarket (from the CBD), but had decided against the move and one of the major factors leading to this decision was concerns regarding the amount of cross-town travel that would have resulted from the relocation.

4.105 The survey of businesses asked them to consider a range of factors affecting choice of location as well as a range of factors negatively impacting on locating a business in Auckland. The responses are summarised in the graphs below.



## Productivity

4.106 Responses to the business survey indicate that business growth and the tightness of labour and property markets have had more of a bearing on business than has congestion. Further, productivity improvements have had greater bearing on employment cost increases than has congestion. The picture that emerges from this is one of congestion being a contributor to higher costs, but not necessarily a significant brake on business growth. In contrast with retailers, the impact of congestion on business turnover is less marked (adversely impacting on only 15% of respondents) although congestion is reducing the frequency of businesses' interaction with customers/clients.

4.107 Congestion is having some, albeit relatively limited, impact in terms of how businesses operate. In particular, around a third of business respondents indicate changes to work practices in terms of more flexible working hours. Again, however, the impact is more subdued than it is for the retail sector.

## Profitability

4.108 Although congestion adversely impacts on turnover for only a relatively small proportion (15%) of businesses, congestion has a more widespread effect in terms of business costs. As reported above, congestion has, in the view of respondents, contributed to increases in employment, occupancy, business travel and other costs. The impact needs to be seen in context however. The responses to the survey indicate that congestion is not the dominant contributor to increased costs. The tight labour market, tight property market and general business growth and productivity growth are more significant factors impacting on costs. In this regard, it is important to note that the rate of economic growth (as measured by GDP) for Auckland city has outperformed the economy as a whole.<sup>21</sup>

4.109 In summary, although congestion is adversely impacting on businesses' profitability, other factors are having a greater impact.

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<sup>21</sup> For the year ending March 2006, Auckland City's economy grew by 4.8% compared to a NZ-wide level of 2%. Source: NZIER op. cit., page 5

## Auckland Airport

4.110 Analysis undertaken for Auckland International Airport Limited (AIAL) using 2004 data estimated that 81,000 vehicles travel to or from the airport every day.<sup>22</sup> By 2015, this figure is forecast to increase by a further 73,500 trips per day – an increase of about 90% over 2004 levels.

4.111 In addition to the over 11 million passengers using the airport each year, the airport and other businesses in the surrounding area employ around 14,000 people. Of these, 71% are estimated to travel to /from the airport as the sole occupant of a private vehicle.

4.112 Over 70% of frequent domestic and international travellers who reside in Auckland live on the North Shore or central Auckland suburbs. The majority of these, when travelling to or from the airport, are likely to use roads within the charge zone.

4.113 Traffic congestion is seen by AIAL and its stakeholders as being a major issue. The airport access study undertaken by Beca Infrastructure Limited clearly confirmed that travel time delays and trip time variability are major concerns. The concerns reflect overall congestion on the road network in Auckland rather than concerns regarding the airport per se. The following points summarise the key findings regarding trip times and trip time variability over an 18.6 kilometre route between the CBD and the airport.<sup>23</sup>

Journeys from the Airport to the CBD:

Average time for all journeys	➤ 26 minutes
Minimum and maximum trip duration	➤ 19 – 47 minutes
Morning peak average travel time	➤ 30 minutes
Inter-peak average travel time	➤ 24.5 minutes
Evening peak average travel time	➤ 34 minutes
Evening peak minimum and maximum travel times	➤ 26-47 minutes

Journeys to the Airport from the CBD

Average time for all journeys	➤ 23.5 minutes
Minimum and maximum trip duration	➤ 16.5 – 36.5 minutes
Morning peak average travel time	➤ 27 minutes
Inter-peak average travel time	➤ 22.5 minutes
Evening peak average travel time	➤ 28 minutes
Evening peak minimum and maximum travel times	➤ 24-36.5 minutes

<sup>22</sup> "Improving Surface Access to New Zealand's Gateway (July 2005) A report published by Auckland International Airport Limited based on analysis undertaken by Beca Infrastructure Limited

<sup>23</sup> The analysis was based on monitoring the travel times of the Tourism Holdings Limited Airbus service.

4.114 The analysis highlighted particular bottlenecks on the road network including, in particular, the approaches to Mangere Bridge and the Harbour Bridge/Spaghetti Junction area.

### **Customers and Revenue**

4.115 The impacts on air travellers and other stakeholders (freight companies, emergency services, airlines, and public transport organisations) were evaluated by AIAL via stakeholder interviews. The main findings of their research are repeated below:

- addressing Auckland Airport access concerns was integral with solving or easing region-wide problems in Auckland's transport infrastructure and services;
- surface access is of increasing concern to passengers and the efficient processing of air freight (which tends to be very time sensitive);
- the time and associated costs of getting to the airport for early morning departures dominated many responses;
- the area of greatest concern to freight service operators is being able to provide just in time services for overnight freight services where travelling in Auckland (evening) peak traffic was involved); and
- the lack of a dedicated or channel route from the CBD and central suburbs to the airport (AIAL indicated to us that internationally, passengers prefer to have motorway access linking downtown with the airport .

4.116 To some extent, these issues are having an impact on AIAL's business. While there is no direct evidence that passengers are deciding not to travel because of traffic congestion, AIAL has pointed to situations where businesses are deciding against locating their operations in the airport environs. For reasons of commercial confidentiality, AIAL could not disclose the identity of the businesses involved, but in the Company's view, between six and eight major commercial projects which could have involved locating facilities within the airport environs have not proceeded because of concerns regarding surface access. The Company indicated that in these instances, the businesses concerned have decided to locate in other areas.

4.117 A group that is benefiting from traffic congestion, however, is the airport hotels. Although no hard data has been provided to us, AIAL understand that occupancy rates are high (and higher than averages elsewhere in Auckland). Almost a quarter of Auckland residents who use the airport on a frequent basis live on the North Shore. Anecdotally, AIAL believe that a reasonable proportion of those travelling on early morning flights choose to stay at one of the airport hotels prior to departure.

4.118 From AIAL's perspective, the overarching concern is that the forecast growth in traffic volumes to/from the airport need to be accommodated. The Company does not want surface transportation to be a constraint on its growth.

4.119 The feedback from the stakeholder analysis indicated a general consensus on the need to provide defined airport access routes including completing the construction of the SH20 western ring route. In this regard, the Company notes that while completion of the route is desirable from its perspective, the implications for the Company and users of the airport will depend on how the road and traffic upon it is managed. Completion of the western ring route will provide an alternative to SH1. There is, therefore, a reasonable likelihood that once completed, some traffic that would otherwise use SH1 will, instead,

use SH20. SH20 is, however, already a bottleneck from an airport user's perspective. More traffic would exacerbate this situation. The Company has raised the issue, in light of this, as to whether some form of road pricing would operate on the ring route. The Company has also advocated bringing forward the timetable for investigating the option of doubling the capacity of the Mangere bridge (the Manukau harbour crossing project).

## **Productivity and Employment**

4.120 The concerns regarding the ability to ensure just in time delivery is, according to the stakeholder analysis undertaken by AIAL, resulting in increased fleet size and/or opening of new depots around the region.

4.121 As noted above, the businesses located in the airport environs, including AIAL, employ around 14,000 people. In terms of AIAL's own employees, the Company indicated that they reside all over Auckland. In general, the Company did not perceive traffic congestion was dissuading people from wanting to work at the airport. The Company also made the observation that a significant proportion of staff, particularly those in lower skilled occupations, resided in South Auckland. For them, travel to and from the airport does not generally involve travelling through the worst of Auckland's traffic congestion. Survey's undertaken by AIAL indicate that 71% of a sample of their employees travelled to/from work as the sole occupant of a private motor vehicle. Survey results also indicated that public transport was either not available or was an unrealistic option for many employees. Using a private motor car was seen as being the fastest and most flexible option (85% of employees spent less than half an hour travelling to work).

## **Ports of Auckland**

### **Customers and Revenue**

4.122 Ports of Auckland is the major gateway for New Zealand's international trade. The port is located in downtown Auckland occupying a 55 hectare site of mainly reclaimed land. Approximately 89% of cargo arriving at the port for shipment does so by road (the other 11% by rail)<sup>24</sup>. Given its location, trucks coming to, and leaving from, the port are exposed to traffic congestion.

4.123 Traffic modelling undertaken by Auckland City in late 2004 shows that on some of the major arterial routes (excluding the motorways) in the immediate vicinity of the port, traffic volumes are in excess of 30,000 vehicles a day (and some in excess of 40,000 per day). Heavy vehicles can account for over 10% of these volumes. On the motorway network, it is estimated that port related traffic accounts for less than 2% of total traffic.

4.124 South Auckland generates 85% of all of Auckland's export and import trade and so this area is the predominant destination and origin for port traffic.

4.125 Goods transported by sea are, in general, less time sensitive than those carried by air. On average, goods destined for export are on-wharf for about 2.5 days undertaking clearance processes and awaiting loading. Delays caused by traffic congestion need to be seen in this context. Notwithstanding this point, though, the port company has been implementing several initiatives aimed at improving supply chain efficiencies. Two of these are:

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<sup>24</sup> Ports of Auckland Limited Operational Report 2006 p13

- the introduction of a vehicle booking system (VBS); and
- use of, and further investment in, two inland ports located at East Tamaki and Wiri.

4.126 The VBS has recently started (November 2007) on a trial basis on the Axis Fergusson container terminal . This is the largest of the container terminals with a capacity of 340,000 TEUs<sup>25</sup> and investment underway to increase this by a further 100,000 TEU. Under the VBS, road carriers are able to book time slots of 90 minutes duration within which they can drop-off or collect containers. The VBS is a joint initiative involving Ports of Auckland Limited and road carriers. The aim of the system is to improve the predictability and efficiency of deliveries and up-lifts.

4.127 Although it is relatively early days for the new system, the Company has indicated that between 65% and 70% of trucks are arriving within their booked time slot. The scheme is resulting in a steadier and more consistent flow of container vehicles into and out of the port and minimising the incidence of surges. Avoiding surges assists in increasing overall throughput. Turnaround times for containers, especially at peak times have increased dramatically according to the Company.

4.128 The inland ports are being used as a facility where exports and imports can be stored pending loading onto, and following unloading from, vessels. According to Ports of Auckland, from an exporter's viewpoint this confers advantages in terms of:

- allowing containers to be transported to wharf at off-peak, including night, times;
- minimising port demurrage or container storage charges; and
- allowing for a more orderly container retrieval system at the seaport.

4.129 Similarly for importers, advantages include moving containers from ship to inland port to obtain customs/MAF clearances. The shipment can then be moved to the customers premises without then having to move through central Auckland (and associated traffic congestion).

4.130 An opportunity arising from both the VBS and inland ports is to reduce the extent to which trucks are operating to, or from, the seaport with empty loads. According to Ports of Auckland, only 12% of container trucks used to carry loads both to and from the port. Using the inland ports, and the truck booking system, shuttle trucks can operate between the inland ports and the sea port delivering exports and returning with imports. The proportion of trips with backloads is now, apparently, 60%. The proportion of goods being carried at night has increased to 34%. This is consistent with the comments from road carriers that they have increased their hours of operation including night time operations. The majority of truck movements into and out of the port continues to be between 7.00am and 4.00pm.

4.131 Although the initiatives described above are helping to mitigate some of the impacts of traffic congestion, neither have been implemented just because of congestion. From the Port's perspective, there are wider supply chain issues to consider above and beyond the relatively inconsequential time delays arising from traffic congestion in Auckland. The main group of port customers that are adversely impacted by congestion are the road carriers and the impacts on them have been discussed earlier.

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<sup>25</sup> Twenty-foot equivalent units – a standard measure of container size.

## **Labour Markets**

4.132 We asked the Company whether its employees were affected by traffic congestion. Ports of Auckland Limited employs around 570 FTE staff of which almost half are on shift-work. The port operates 24 hours a day with three shifts being 7.00am - 3.00pm, 3.00pm - 11.00pm and 11.00pm - 7.00am.

4.133 The timing of the shifts means that these workers avoid the worst of traffic congestion. The morning shift arrives at work before the worst of the morning traffic peak and finishes before the worst of the afternoon peak.

4.134 With respect to non-shift staff, POAL's experience, like that of many other businesses in Auckland, has been that staff have tended to bring forward the start of their working day. Overall, the Company did not consider that traffic congestion was a major issue in terms of their ability to attract and retain employees. Although specific figures were not provided, a significant proportion of staff travel to and from the port by car. Parking is available to staff and this probably matters more, than does congestion (or the lack of it), in the minds of employees.

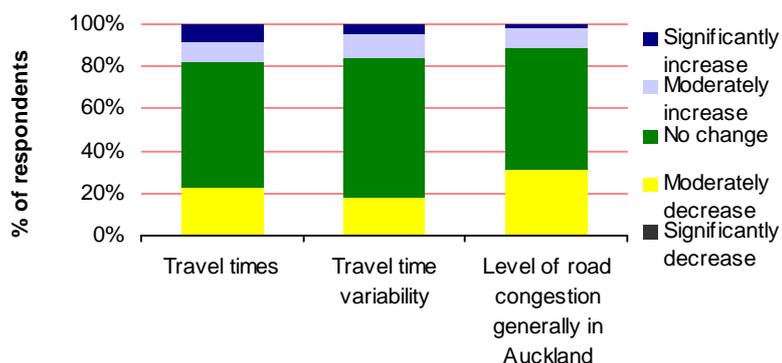
## 5 The Revenue Scheme – Economic Impacts

### Road Carriers

5.1 At the workshops with road carriers, and as part of the survey sent to road carriers, a brief overview of the revenue (and congestion) schemes was provided based on the information supplied to us by the Ministry. The road carriers were asked to consider what the implications for them would be if a revenue (or congestion) scheme was introduced. As part of the survey, scenarios were described in which it was assumed that the schemes would reduce travel times by 10% or 25% either as a result of the effect of road pricing and/or as a result of using the revenues raised to invest in land transport to increase road capacity (either through more investment in roads and/or investment in public transport).

5.2 By way of general reaction to these hypothetical scenarios, the general consensus among those carriers who participated in the workshops organised as part of this project were sceptical that the revenue, or even the congestion, scheme would lead to reductions in travel times of between 10% and 25%. Of those responding to this issue in the survey, 60% thought that the revenue scheme would have no impact on travel times and 66% thought it would have no impact on travel time reliability.

Impacts of the revenue scheme



5.3 Notwithstanding the scepticism regarding the impact of the schemes on congestion, the results from the survey indicate that some road carriers expect road pricing schemes to reduce congestion and, as will be discussed later in this chapter, overall the schemes can be expected to have a positive economic impact for at least some road carriers.

5.4 A minority of survey respondents thought that the revenue scheme might have a moderate impact in terms of reducing travel times (22% of respondents), travel time variability (18%) and overall congestion (31%).

5.5 Although road carriers were not asked to speculate on the amount of traffic reduction, it is worth noting experience from similar schemes in other cities including, for example:<sup>26</sup>

- Stockholm where the congestion charge has reduced vehicle numbers entering the congestion zone by 28%; and
- London where the expectation was that the congestion charge would reduce traffic levels by between 10% and 15% and this has been achieved. Similar reductions have also been achieved with respect to the western extension of the charging zone implemented in early 2007.

5.6 A small proportion of respondents (11%) thought that the revenue scheme might actually increase congestion (and slightly higher proportions thought it might increase travel times and travel time variability). Based on comments in the workshops and channelled through the survey, the reason for the increase is a perception that road pricing will induce vehicle users to by-pass the cordon zone thereby increasing journey distances and, hence, journey times and increasing the level of congestion on those roads outside of the charging zone.

5.7 While traffic diversion caused by the pricing schemes might have these effects, it is not clear why some survey respondents thought that overall levels of congestion would increase as a result. The responses may have reflected general expectations that congestion is a growing problem.

## **Customers and Revenue**

5.8 Traffic congestion is a significant issue for road carriers and, as discussed in chapter 4, congestion is reducing the level of turnover for at least some road carriers. By implication, therefore, it could be expected that if the road pricing schemes assisted in alleviating congestion, there would be a positive impact on the revenues of road carriers.

5.9 In the workshops with road carriers, the general feeling was that the revenue scheme would not reduce traffic volumes. Accordingly, there was little if any expectation that the revenue scheme would impact on the revenues of road carriers. These comments are not surprising given that the objective of the revenue scheme is to raise revenue rather than reduce congestion.

5.10 Notwithstanding this feedback, we were interested to explore further with road carriers the implications for them if road pricing led to a modest reduction in travel times. To this end, the survey asked respondents to consider the impact on their business if the road pricing scheme resulted in a 10% reduction in average trip times.<sup>27</sup> The survey also asked respondents to indicate whether they would be willing to pay \$3 (which is the maximum daily charge under the revenue scheme) to achieve a range of different travel time savings.

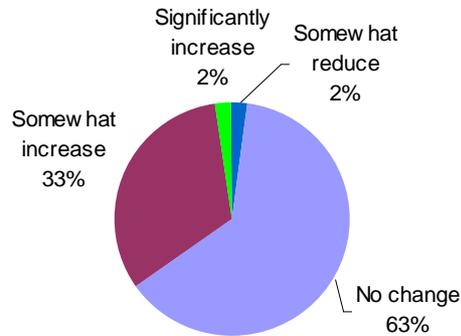
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<sup>26</sup> Refer to NZIER op.cit., Chapter Six for further discussion of the effects of the Stockholm and London schemes

<sup>27</sup> In the context of the survey, references to trip times and travel times were used interchangeably.

5.11 In response to the scenario of a 10% reduction in trip times<sup>28</sup>, 63% of survey respondents indicated that there would be no change in turnover but over a third (35%) indicated they would expect some, or a significant, increase in turnover.

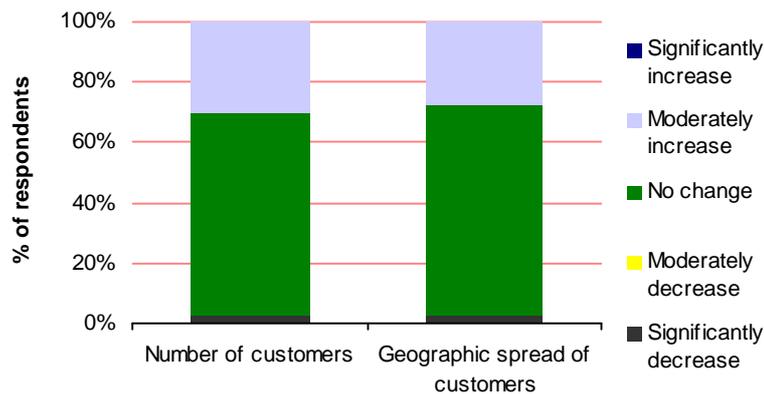
**Impact on turnover of reduction in average trip time by 10% (due to charging scheme)**



5.12 These results seem broadly consistent with responses to the questions regarding the impact of congestion on turnover where approximately 50% indicated no impact and 44% indicated some reduction.

5.13 To probe further the impacts on turnover of the 10% reduction in trip time, the survey also asked road carriers to comment on the number and geographic spread of their customers. The results are shown below.

**Impact of reduction in average trip time by 10%**



5.14 The results are, again, broadly consistent with the responses given to the questions regarding the impact of congestion on the numbers and geographical spread of customers. In particular:

<sup>28</sup> Chapter six considers the scenario of a 25% reduction in trip times.

- 30% of responses indicated the 10% reduction in average trip time would lead to an increase in the number of customers - 26% thought congestion had reduced the number of customers (this result is broadly consistent with the proportion (35%) of responses indicating that turnover would increase); and
- 28% of responses indicated the 10% reduction in trip time would broaden the geographic spread of their customer base – 18% indicated that congestion was limiting the geographic spread of customers.

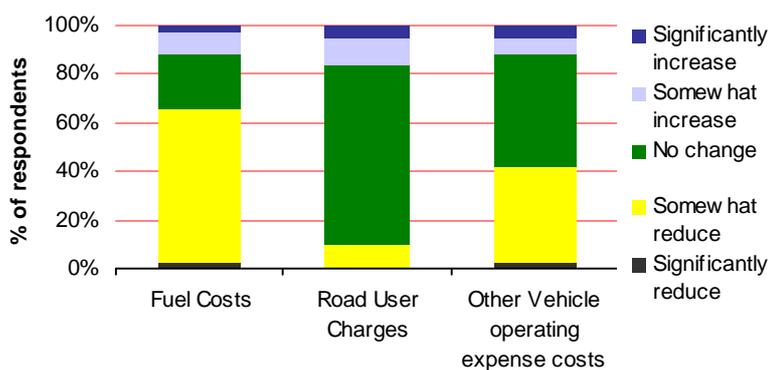
5.15 These findings suggest that to the extent congestion impacts on the number of customers and the geographic spread of road carriers' customer base, a 10% reduction in trip times would, for many road carriers, offset the impacts of congestion. Some caution needs to be exercised, however, with this inference. While alleviating congestion might result in increased revenues and numbers of customers for some road carriers, unless the overall demand for road haulage is increasing, not all carriers could experience an increase in revenue and customer numbers. The gains by some would be at the expense of others.

5.16 The survey also asked road carriers to consider the implications for prices to customers if the road pricing schemes reduced trip times by 10%. Just under 25% of responses indicated that prices would be increased. The logic behind this is not evident from the survey and was not discussed in the workshops. The remaining 75% of respondents indicated that the 10% reduction in trip times would have no impact on customer prices

### Operating Costs

5.17 The impact on operating costs, assuming that average trip times reduce by 10% is shown below.

Impact of reduction in average trip time by 10%



5.18 As is expected, the majority of responses point toward a reduction in fuel costs as a result of having to travel less on congested roads and/or reduce the amount of diversion onto longer, but less congested, routes.

5.19 A small proportion (16%) of responses indicated that expenditure on road user charges would increase under the scenario of a 10% reduction in average trip times. Three factors appear to underpin this finding:

- an expectation by some respondents that turnover and the number of customers will increase as a result of reduced traffic congestion;
- an expectation that the geographic spread of customers will increase; and
- a possibility that some road carriers could seek to avoid the charging scheme by diverting onto roads that skirt the charging zone.

5.20 The proportion of respondents indicating that operating costs would reduce, in light of the reduced trip times, is quite a bit less than the proportion of respondents indicating that operating costs have increased as a result of congestion as summarised below.

	% of respondents who consider costs will fall in light of 10% reduction in trip time	% of respondents who consider costs have risen because of congestion
Fuel	66	86
Road User Charges	10	47
Other Vehicle Operating Costs	42	72

5.21 A conclusion that can be drawn from this is that respondents do not believe that a 10% reduction in trip time would fully alleviate the operating cost impacts currently arising from congestion.

### **Labour Markets**

5.22 In chapter four, we noted that congestion was increasing the demand for labour as a result of increased operating hours and larger vehicle fleets. At the same time, congestion was affecting the supply of labour in terms of making it harder for some road carriers to attract and retain employees.

5.23 In response to the hypothetical scenario of a 10% reduction in trip times, about half of the respondents (51%) indicated they would expect employment costs to fall. This is the same proportion of responses indicating that a 10% reduction in trip times would reduce operating hours. A significant proportion of responses (28%) thought it would be easier to attract and retain employees and most of the others (63%) thought that the reduction in trip times would have no impact on the ability to attract or retain employees.

5.24 Consistent with the finding for operating costs, the assumed 10% reduction in trip times does not appear to have as much beneficial impact compared to the negative impacts that are already occurring because of congestion. In particular, even though 51% of responses indicated that employment costs would fall in light of the reduced trip time, 76% believe congestion has increased employment costs.

### **Location**

5.25 The assumption that trip times would be reduced by 10% has little bearing on business location. Only one respondent thought that the reduction in trip time might have an influence in this regard.

## Productivity

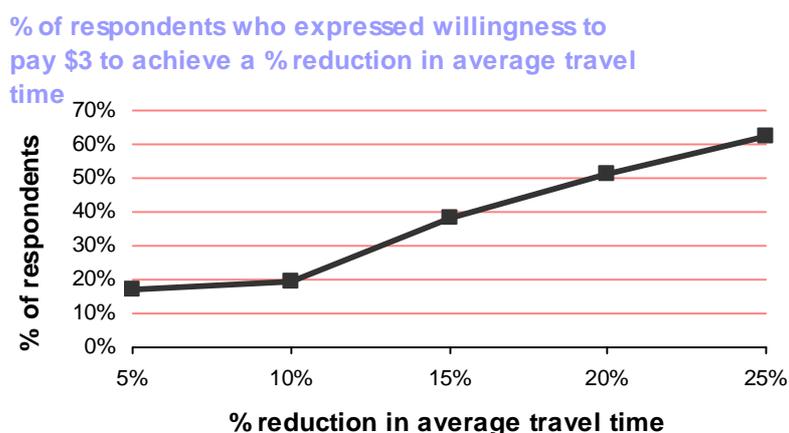
5.26 In chapter four, we commented that congestion appears to be having a significant and adverse impact on the productivity of the road carrier industry in terms of increasing the number of vehicles required and increasing operating hours.

5.27 In response to the hypothetical scenario of a 10% reduction in trip times, nearly a quarter (23%) of respondents indicated that they would reduce their vehicle fleet. However, 11% indicated they would increase their fleet. The reason behind this seems to be an expectation that reduced congestion will lead to a growth in business activity (which, as noted earlier, is an inference that needs to be treated with some caution).

5.28 A total of 51% of responses indicated that operating hours would be reduced in light of a 10% reduction in trip times. This is consistent with 54% of responses indicating that the frequency of deliveries would increase. Reduced hours of operation is likely to lead to fewer staff and/or less reliance on overtime and shift work. These findings are consistent with the 54% of responses indicating that labour costs would fall in light of a 10% reduction in trip times.

5.29 The survey asked road carriers about their willingness to pay to achieve a reduction in trip times on the assumption that if time savings translate into productivity improvements, road carriers would be willing to pay something to achieve this outcome.

5.30 The graph below shows the response given with respect to a \$3 charge.



## Profitability

5.31 Road carriers have commented that congestion is increasing operating costs, reducing productivity and, for some, causing a loss of revenue. Responses to the hypothetical scenario of a 10% reduction in trip times point to some improvement in profitability as a result of:

- lower fuels costs (66% of respondents) which account for about 20% of expenditure;
- reduced other operating costs (42% of respondents) which account for about 14% of expenditure; and
- lower labour costs (51% of respondents) which account for about a quarter of total expenditure.

5.32 Profitability may also be enhanced through growth in revenue reflecting increased numbers of customers (30% of responses) and increased geographical spread of the customer base (28% of responses). This outcome may, as alluded to earlier be more in the nature of a redistribution effect rather than an overall growth in the market for road freight.

### **Concluding Remarks**

5.33 At the workshops, road carriers expressed scepticism that the revenue scheme would reduce traffic congestion. These views are not, however, entirely consistent with the findings emerging from the survey. Although the majority of respondents did not expect the revenue scheme to reduce congestion, about 30% of respondents expected that a revenue scheme would have a moderate impact in terms of reducing congestion.

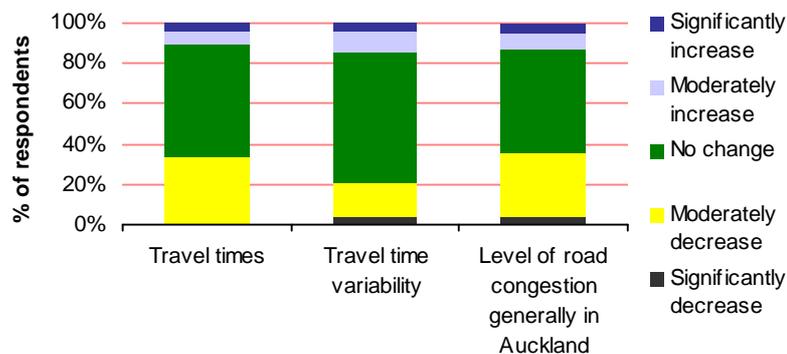
5.34 Respondents were asked to consider the implications of a modest reduction in trip times (as a consequence of reduced congestion). Generally, such reductions would have positive implications for road carriers in terms of enhancing productivity and profitability. Notwithstanding these benefits, road carriers noted that traffic congestion occurs at many points of the road network beyond the area covered by the charge zone. Road carriers were not convinced that charging in one area would reduce congestion in other areas. From their perspective, the priority for congestion relief should be motorways and major arterial routes because these are the types of road favoured by road carriers. The majority of road carriers would be willing to pay \$3 if it meant a reduction in travel times of 20% or more.

## Retailers

5.35 At the workshops with retailers and as part of the survey sent to retailers, a brief overview of the revenue (and congestion) schemes was provided based on the information supplied to us by the Ministry. The retailers were asked to consider what the implications for them would be if a revenue scheme was introduced. To assist with retailers' deliberations, scenarios were described in which it was assumed that the schemes would reduce traffic levels by 10% or 25% either as a result of the effect of road pricing and/or as a result of investing the revenues raised in land transport to increase road capacity (either through more investment in roads and/or investment in public transport).

5.36 A total of 55% of responses thought that the revenue scheme would have no impact on travel times and 64% thought it would have no impact on travel time reliability.

Perceived impacts of the revenue scheme



5.37 A minority of respondents thought that the revenue scheme might reduce travel times (34% of respondents), travel time variability (17%) and overall congestion (32%).

5.38 Conversely, a small number of respondents thought that the revenue scheme might actually increase congestion (12% of respondents), travel times (11%) and travel time variability (15%). Although not clear from the survey responses, it would appear that these responses may have reflected general expectations that congestion is a growing problem. It may also reflect the views among some retailers who expect traffic diversion from the central area to other areas thereby causing an increase in congestion around those other areas.

## Customers and Revenue

5.39 NZIER's report<sup>29</sup> suggests that higher end retail may suffer relatively more under a congestion charge due to a shift in the boundary of viability for retail shops. That is, if travel costs to the central area increase, the catchment area of central area retail shops is reduced. NZIER also reported some evidence of a fall in retail sales within a congestion

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<sup>29</sup> NZIER op. cit., chapter five

charge zone. One disputed report from the London experience suggested a 25% drop in business.

5.40 The retail sector's view appears to suggest that while traffic congestion has some impacts, it is not as significant an issue for retailers compared to other issues like parking and occupancy costs.

5.41 There was a general feeling that the revenue scheme would not reduce traffic volumes. There was, as a result, little if any expectation that the revenue scheme would make it easier for customers to shop within the zone.

5.42 Retailers were asked to consider the impact on their business under a scenario in which average trip times fall by 10%. The 10% reduction was used as a proxy for the revenue scheme's impact. The survey also asked respondents to indicate whether they would be willing to pay \$3 (which is the maximum daily charge under the revenue scheme) to achieve a range of different travel time savings.

5.43 In response to the scenario of a 10% reduction in trip times<sup>30</sup>, 66% of survey respondents indicated that there would be no change in turnover, 11% thought it would increase their turnover but 23% thought it would reduce their turnover.

5.44 Those respondents who indicated that the charging scheme could reduce turnover, appear to be reflecting one or both of two main concerns. The first is that the introduction of a charging scheme will reduce the disposable incomes of customers. The second concern is that the scheme will encourage some shoppers away from the charging zone and toward retailers outside of the zone.

5.45 Any impact on disposable incomes could be expected to reduce overall retail activity. However, if the effect of congestion is to discourage shoppers from travelling into the charge zone (e.g. particularly those shoppers who are not normally travelling into the charge zone for other purposes such as employment), then some retailers will lose turnover while others will experience increased turnover. This type of impact might be more of an issue for retailers at the boundary of the charge zone; for example, St Lukes Foodtown which is on the boundary of the charge zone and has competitors less than four kilometres away.

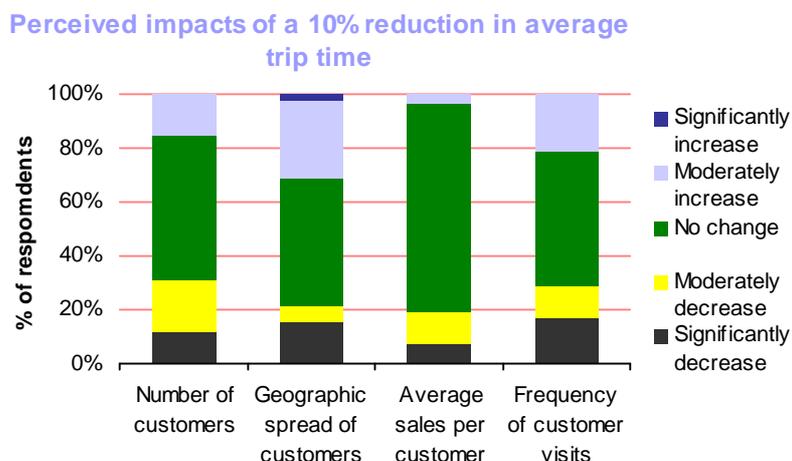
5.46 Retailers who are targeting customers with middle to higher incomes (e.g. over \$70,000), have indicated that a revenue scheme with a charge of \$3 per day (circa \$700 per annum) would be unlikely to be a significant impost. For these customers, any traffic congestion reduction could be positive in that it could create a more pleasing environment to shop in and provide a faster journey to/from the shopping area. This outcome may apply, in particular, to higher income CBD workers and the high income demographic targeted by Newmarket retailers.

5.47 To understand further the impact that a 10% reduction in trip time could have on turnover, we asked retailers to comment on the number of customers and where they come from, average sales and the frequency of customer visits.

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<sup>30</sup> The responses to the scenario of a 25% reduction in traffic is considered in Chapter 6 (which discussed the congestion scheme)

5.48 The results are broadly consistent with the responses given to the questions regarding the impact of congestion and are illustrated below.



5.49 The results from the survey indicate that:

- more retailers thought that trip time savings would reduce customer numbers than increase them (32% reduced compared with 15% increase) and, similarly, more thought that the geographic spread of their customers would increase (31%) than reduce (21%);
- the average sales per customer would decrease (19% of respondents); and
- overall, the frequency of customer visits would decrease (29% decrease compared with 21% increase).

5.50 These findings are broadly consistent with the turnover results and suggest that, on balance, the imposition of a charging scheme could lead to a net reduction in turnover for retailers even if the scheme helped to ease traffic congestion.

5.51 The possibility that the scheme would lead to an overall net reduction in customers and revenue is somewhat at odds with findings from similar schemes in other cities. In London, the congestion charge has had a broadly neutral impact on general economic performance and recent retail growth in central London has been roughly twice the national growth rate.<sup>31</sup> Similarly, in Stockholm, the short-term effect on the retail market of the congestion charge shows only small average effects and any changes were outweighed by general economic growth within relatively short periods (e.g. six months).<sup>32</sup>

5.52 By way of further comment on the survey results, it is important to recall that for the overall majority of retailers (66%), there would no change in turnover and it should also be noted that the results from the survey are based on the number of responses from retailers and have not taken into account the size of their revenues.

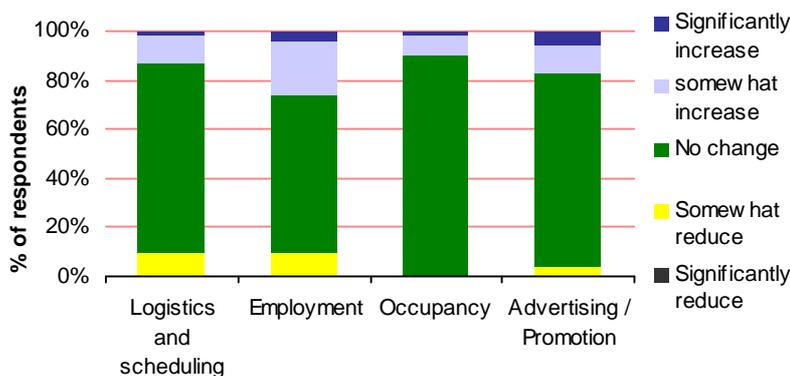
<sup>31</sup> Ibid., page 74

<sup>32</sup> Ibid., page 82

## Operating Costs

5.53 The graph below illustrates the potential impact on operating costs assuming that the revenue scheme reduces average trip times by 10%.

Perceived impact on operating costs of a 10% reduction in average trip time



5.54 The majority of responses do not expect that any changes in operating costs. Of the rest, more retailers expect costs to increase rather than decrease. This is likely to reflect the expectation that suppliers will attempt to pass on the costs of the revenue scheme through price increases.

5.55 The inferred conclusion is that the revenue scheme's net impact is perceived by most retailers to be neutral, with a small minority of retailers expecting that the scheme would increase their operating costs due to an "on-charging" effect from their transport and service suppliers. This is broadly consistent with the findings from the survey of road carriers in which roughly a quarter of carriers indicated that a charging scheme could, if implemented, cause them to increase their prices to customers.

## Labour Markets

5.56 In chapter four, we noted that congestion had an impact on increasing employment costs but other factors were more influential and congestion also made it easier to attract employees.

5.57 In response to the scenario of a 10% reduction in trip times, most retailers (64%) expect there would be no change to employment costs. Of the rest, 26% indicated that they expected employment costs to increase and the balance (10%) expected a reduction in employment costs. These findings are consistent with the comments that were made during workshops and interviews that retail employees typically earned less than \$40,000 per annum and would seek to recover revenue scheme costs from their employers.

5.58 Consistent with the results of congestion impacts, more retailers thought that there would be a reduction in the ease of attracting/retaining employees (28%) compared to an increase (21%). A possible explanation for this is that a reduction in congestion expands the potential choices for workers in terms of the type of work and employment location.

## Location

5.59 The revenue scheme appears to have an impact on business location decision in that a lower proportion of respondents indicated that they would open up new branches to

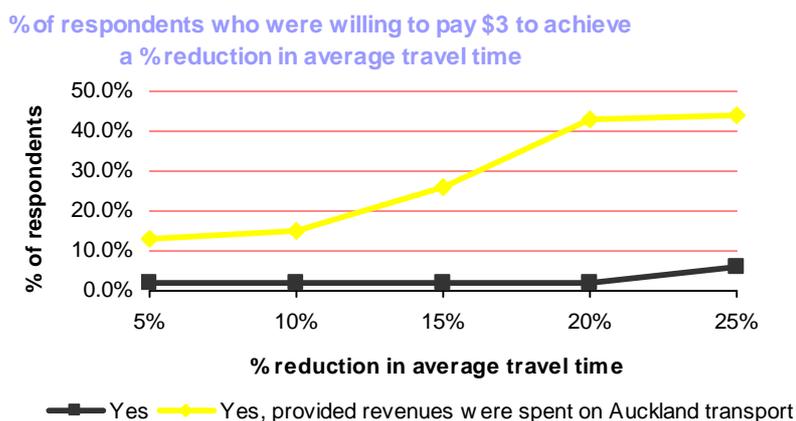
be closer to customers (25%) compared to the proportion that indicated the same response in relation to congestion impacts (42%). This is consistent with the literature and international experience on the effects of road pricing schemes. In particular, Safirova et al (2006) reported modelling that showed retail firms in the charge zone benefited from the lower costs of shopping travel that results from decreased congestion. The NZIER study identified that to the extent that congestion charging frees up road space, this enables more productive activities to expand. In addition, there can be agglomeration benefits from a reduction in commuting time and from increased employment density. Given that a large proportion of central area retailers service local employment and residents, reduced congestion arising out of the charging scheme would lead to reduced need for suburban retail branches to service customers.<sup>33</sup>

## Productivity

5.60 The potential impacts of a revenue scheme appear to be either neutral or mildly positive. In response to a 10% reduction in trip times, the majority (around 70%) of retailers indicated that they would not change their operating hours. This compares to nearly half (46%) who indicated that congestion has caused them to increase operating hours. This suggests that a charging scheme would at least curb the need for any increase in operating hours.

5.61 The prospect of a 10% saving in trip times means less need, compared to the situation of increasing congestion, for retailer support for local retail area promotions and less need to improve the retail attractiveness through store refurbishments (only 31% of respondents considered this would be needed if a charge scheme is introduced whereas roughly twice that proportion - 65% - considered this would be needed if congestion continues to worsen).

5.62 The survey asked retailers about their willingness to pay to achieve a reduction in trip times on the assumption that if time savings translate into productivity improvements, retailers would be willing to pay something to achieve this outcome. The graph below shows the response with respect to a \$3 charge.



<sup>33</sup> Ibid., page 67

5.63 By inference, the revenue scheme impact on productivity is not expected to be significant as 83% of respondents indicated that they were not willing to pay \$3 to achieve a 10% reduction in average travel times. This did not change markedly even for greater trip time savings although willingness to pay did increase significantly if the revenues generated by the scheme were directed toward investment in Auckland transport.

### **Profitability**

5.64 The findings outlined above indicate that the revenue scheme is not expected to have significant impacts either way on the profitability of the majority of retailers as the majority of respondents reported no changes to turnover and costs.

5.65 For those that reported changes, there was an expectation that their employees and suppliers would seek to pass on the costs of the revenue scheme through wage and price increases. There was also an expectation among a minority of retailers that turnover would fall. However, this is in contrast with several comments made during interviews and workshops that the reduction in congestion would be beneficial as any reduction in congestion would make the shopping experience of their customers more pleasant. Many retailers perceived that a \$3 charge would not be a significant issue for their customers.

### **Concluding Remarks**

5.66 At the workshops and interviews, most retailers suggested that they did not perceive congestion to have significant impacts on their business (although there were some exceptions for those retailers where the timing of deliveries was particularly critical).

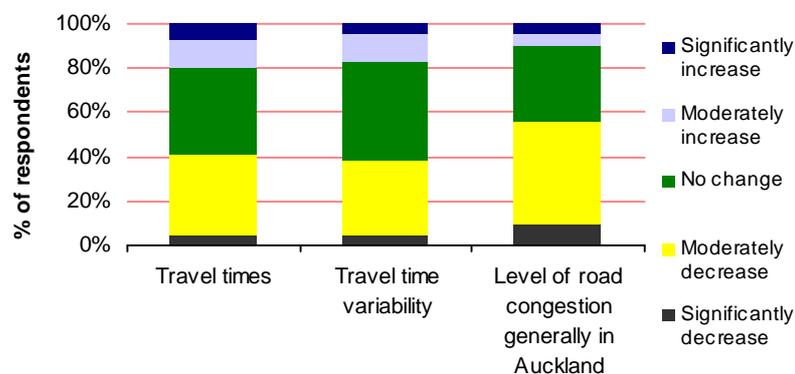
5.67 Most retailers did not believe the revenue scheme would reduce traffic congestion but, to the extent that the scheme did lead to this outcome, retailers expected the benefits of less congested roads to be partially offset by the costs of the revenue schemes on employees, customers and suppliers.

## Businesses

5.68 Consistent with the approach taken with road carriers and retailers, businesses were presented with a summary of the hypothetical revenue scheme and were asked to consider a scenario in which the scheme resulted in a 10% reduction in average trip times.

5.69 Compared to the responses received from the retailers and road carriers, businesses were generally more optimistic about the degree to which the revenue scheme would assist in alleviating congestion. The expected impacts on travel times, travel time variability and road congestion generally are shown below.

Perceived impacts of the revenue scheme



5.70 Most notable among the responses is the proportion (56%) that considers the revenue scheme will reduce congestion generally in Auckland. In contrast, 31% of road carriers and 36% of retailers consider that the revenue scheme would reduce congestion. Some of the comments offered which seek to explain the finding from the business survey include:

- congestion will be shifted to other parts of Auckland; and
- some drivers passing through the charge zone will drive around it instead.

5.71 The comments above appear to be directed more toward traffic that is passing through the zone rather than traffic that is originating or terminating within the zone. Comments were also expressed that the revenue scheme (and \$3 charge) would have no impact on travel patterns and this view tended to be expressed in relation to journeys involving commuter traffic into the CBD. A typical reaction was that CBD employees will still continue to work in the CBD and will seek to incorporate the charge into higher wage demands. Interestingly, none of the respondents explicitly mentioned the option of switching from private motor vehicle to public transport.

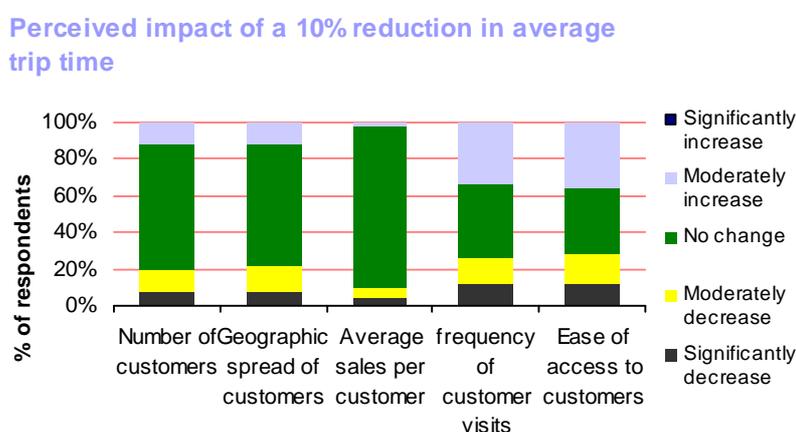
5.72 Respondents to the business survey were also asked to comment on the relative value they place on travel time savings and reductions in trip time variability. The results are fairly consistent with those from the surveys of retailers and road carriers. Businesses value travel time savings more highly than reductions in trip variability; by in the order of a 50% premium.

## Customers and Revenue

5.73 For the majority (64%) of respondents, the 10% trip time saving was not expected to have any impact on turnover. This is a very similar result to that from the retailers survey. The result is, however, slightly unexpected given that retailers had a somewhat more pessimistic view regarding the impact of congestion on turnover. Slightly more businesses (21%) indicated that the reduction in trip times would reduce turnover than increase it (14%). The likely reason behind this is the expectation that some journeys will be diverted to other parts of Auckland (to avoid the \$3 charge) and with that, some loss of business.

5.74 Interestingly, 29% of respondents thought that access to customers would reduce as a result of the assumed 10% trip time saving. This proportion closely matches that (26%) of respondents who consider that the frequency of customer visits would reduce in light of the assumed 10% reduction in trip times. These results seem to be suggesting that the charge for entering the zone will dissuade some businesses located in the zone from visiting their customers and/or dissuade some customers from making the trip into the CBD/Newmarket area. If this interpretation is correct, then it also suggests that at least some respondents do not perceive the 10% reduction in trip times sufficient to offset the charge (be it either \$3 or \$6). It is worth noting that a higher proportion (36%) of respondents considered that a 10% reduction in trip time would improve customer access.

5.75 Somewhat more respondents (21%) indicated that they expected the trip time saving to reduce the geographic base from which customers are drawn than those (12%) who considered it would increase. This is also a slightly odd result in that if trip times are reduced, it could be expected that travel distances would increase. It is possible that the perceived reduction in customer geographic base reflects an expectation that the charge zone will deter some customers from entering the zone. The results from the survey are illustrated below.



## Labour Markets

5.76 Employees of businesses located in the CBD would incur a charge of \$3 per day if travelling to/from work by private vehicle. Two main issues were addressed in discussions with business; first, whether the \$3 charge would have any implications for the ability to attract and retain employees and second whether the charge would put upward pressure on wages and salaries.

5.77 In general, a \$3 charge was not considered to be a likely impediment to attracting employees. There was, however, some expectation that the charge would be a factor in the context of wage negotiations. The survey results back this up to some extent.

5.78 Approximately 26% of respondents indicated they expected a 10% reduction in trip times to make it harder to attract and retain employees and a comparable proportion (29%), thought employment costs would increase. A possible interpretation of this is that employees would not perceive a 10% reduction in trip times as being sufficient to offset the cost of the revenue (or congestion) charge and so would either seek employment outside of the charging zone or seek to have the charge incorporated into increased remuneration.

5.79 The increasing difficulty in recruiting and retaining employees that is foreseen by some respondents is also reflected in the 40% of respondents who indicate that they would be more likely to consider introducing more flexible work policies in response to the charging scheme.

5.80 Over a third of respondents (36%) indicated they expected a reduction in trip times to make it easier to attract employees which is the result that would normally be expected. One possible ramification of this is that if trip times reduce and this spurs more people to travel by car to work, then this may place added pressure on car parking. Many businesses have indicated that car parking is a factor that influences employees in their decision making regarding choice of employer.

## **Location**

5.81 Nearly a third of business survey respondents consider that a 10% reduction in trip times (and by implication, less traffic congestion) would improve the general amenity of their business' location. A somewhat lower proportion (21%) thought the general amenity would deteriorate. This proportion is broadly comparable with the proportion of respondent indicating that the reduction in trip time might increase the likelihood of them deciding to relocate. In particular:

- 28% indicated they would be more likely to locate to somewhere with better public transport access;
- 32% indicated they would be more likely to relocate closer to a motorway; and
- 19% indicated they might be more likely to relocate to be closer to their workforce.

5.82 Although the proportion of business respondents indicating they may consider relocating is significant, the proportion is lower than those who indicated that current congestion levels could cause them to consider relocating. An interpretation that can be put on this is that if businesses are considering relocating because of congestion, a 10% travel time saving may not be sufficient to convince all of them not to relocate.

## **Productivity**

5.83 In chapter four, we noted that business growth in Auckland city was significant and that while congestion was increasing costs, it did not appear to be a significant brake on business growth. Although the results of the survey are mixed, there is a possibility that a road pricing scheme that resulted in only a 10% reduction in trip times could be perceived as being disadvantageous to some businesses. The basis for this is the results from the survey that indicate:

- it will be harder to attract and retain employees (26% of responses) and employment costs will increase (28% of responses) because employees will not be willing to pay a charge to achieve only a 10% reduction in trip times;

- the frequency of contact with customers will diminish (26% of respondents) again because of an unwillingness to pay a charge just to achieve a 10% reduction in trip time; and
- turnover will fall (21% of respondents).

5.84 Equally, however, the 10% reduction in trip times could be advantageous to other businesses. Approximately a third indicated contact with customers would improve and a slightly higher percentage thought that it would also be easier to attract and retain employees. In short, the results are mixed which could be interpreted as indicating that road pricing will create winners and losers.

### Profitability

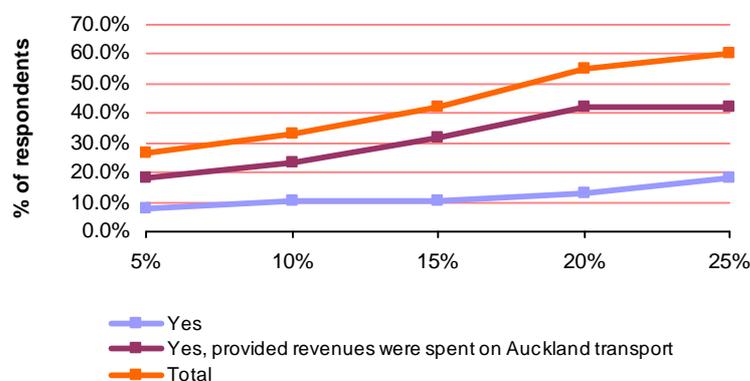
5.85 The survey results also paint a mixed picture in terms of impact on profitability with some businesses signalling a positive impact and others a negative impact. Overall, the survey responses point to a slight net adverse impact on profitability given that:

- a slightly higher proportion of respondents anticipate a reduction in turnover (21%) than those who expect an increase (14%);
- significantly more respondents expect employment costs to increase (28%) than decrease (10%); and
- significantly more respondents expect occupancy costs to increase (12%) than reduce (2%).

5.86 Although a small proportion of overall expenditure, a third of business respondents expect business travel costs to reduce as a result of the 10% reduction in travel times. However, the saving seems to be a function of making fewer visits to clients rather than the saving in journey time.

5.87 Businesses were asked to indicate whether or not they would be prepared to support the revenue scheme's \$3 charge if it led to reductions in average trip time. The results are illustrated below.

% of respondents who expressed willingness to pay \$3 to achieve a % reduction in average travel time



5.88 As the graph indicates, a saving of more than 10% in average travel times would be needed in order to gain support for the \$3 charge.

## Concluding Remarks

5.89 Overall, a charging scheme that reduced average trip times by only 10% could have a slight negative impact on profitability. In this respect, this finding is somewhat more pessimistic than the findings from other cities such as London and Stockholm where, in the context of the retailers survey noted above, the introduction of charging schemes have not generally acted as a brake on economic growth.

### Auckland Airport

5.90 Analysis undertaken for the Airport indicates that over 70% of frequent domestic and international air travellers who reside in Auckland travel from the North Shore or central Auckland suburbs. The majority of these people are likely to travel in the charging zone to get to the airport. In the AIAL's view, a \$3 charge under the revenue scheme is very unlikely to influence their decision whether or not to travel. It is also unlikely to influence whether or not they choose to use public transport to get to/from the airport. A charge of \$3 is a relatively small proportion of a taxi fare to from destinations within the charging zone and, equally, is a relatively small proportion of airport parking charges.

5.91 The airport company is concerned about access to the airport. Any road charging option which assists in this regard would generally be viewed as a positive initiative. However, like the road carriers, the Airport company is somewhat sceptical as to the effect that the revenue scheme might have in terms of reducing congestion on existing bottlenecks that lie outside of the charge zone including, in particular, the approaches to the Mangere bridge and SH20 more generally.

### Ports of Auckland

5.92 The impact on users of the Port was, in the Company's view, likely to be minimal. The overall quantity of goods coming to and leaving from New Zealand would, in all likelihood, not be affected and it is considered unlikely that the revenue charge would cause some shipments to be diverted through other ports. To the extent that the revenue charge assisted in alleviating congestion, either as a direct result of pricing, or as a result of the indirect benefit from the investment in transport infrastructure, such an impact would be positive for the port and its users.

5.93 The Company did not expect that the \$3 revenue charge would have any material impact on its ability to attract and retain employees. Given its location, all employees who travel to work by car would incur the charge. For some lower paid staff, the charge might pose some issues and could be a factor taken into consideration in wage claims.

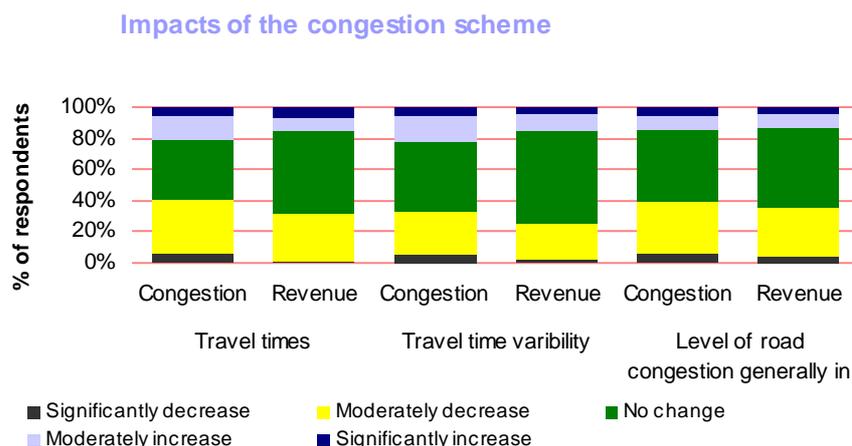
## 6 The Congestion Scheme – Economic Impacts

### Road Carriers

6.1 Much of the discussion with road carriers in the course of the workshops did not explicitly distinguish between the revenue and congestion schemes. The hypothetical nature of the schemes meant it was difficult enough for road carriers to postulate the potential impacts of the schemes let alone focus at the next level in terms of the different impacts between the two schemes.

6.2 To take account of this, the survey was designed so that road carriers were asked to respond to a scenario in which average trip times were reduced by 25%. This figure was suggested by the Ministry.

6.3 The overall response trends are similar to those expressed in relation to the revenue scheme and the hypothetical 10% reduction in travel times (discussed in chapter five), albeit with somewhat increased impact. This is shown in the following graph which asked survey respondents to indicate the impact of the congestion scheme on travel times and travel time variability. The responses in relation to the congestion scheme are shown in comparison with those for the revenue scheme.



6.4 Several points should be noted:

- the proportion of responses that report no impact is lower with respect to the congestion scheme than the revenue scheme;
- a higher proportion of respondents indicate that the congestion scheme will reduce travel times and travel time variability than is the case for the revenue scheme and moreover, the strength of the impact is likely to be greater under the congestion scheme;
- a higher proportion of respondents also indicate that the congestion scheme will result in increased travel times and trip time variability suggesting that the congestion scheme is more likely to induce some road carriers to divert around the charging zone; and

- the congestion scheme is not expected to increase overall levels of congestion anymore than is the revenue scheme (and as indicated in chapter five, it is not obvious why any increase in congestion should be expected other than, possibly, shifting congestion from one area to another).

## Customers and Revenue

6.5 In response to a hypothetical scenario in which average trip times are reduced by 25%, nearly half (47%) of responses indicate that turnover is expected to increase (and few expect it to reduce). Approximately 38% expect the number of their customers to increase and 32% expect to widen the geographic base from which they draw their customers. In short, road carriers clearly expect to be able to travel more quickly and further. The effects are more pronounced in relation to the 25% reduction in trip times than they are in relation to the 10% reduction scenario discussed in chapter five.

6.6 The same caveat that was raised in chapter five also applies here. While road carriers might be able to increase their customer base, in aggregate they will not all be able to do this unless the overall market for road freight is increased. Accordingly, within the results noted above, it is likely that at least to some extent, growth for one road carrier will be at the expense of another carrier. That is, taking into account the overall net impact will be smaller than might otherwise appear to be the case because of redistribution effects.

6.7 When these results are compared with the responses to questions regarding the impact of congestion, there is a general conclusion that a 25% reduction in trip times would in most cases address the revenue-related concerns of road carriers. For example:

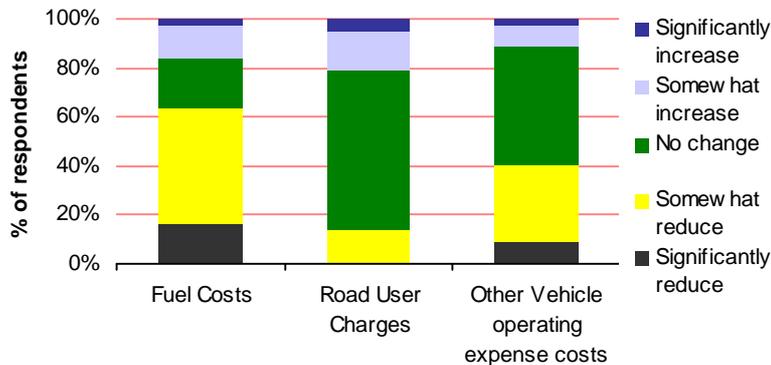
- 26% of respondents thought that congestion had reduced the number of customers and 44% thought it had reduced their turnover; and
- in contrast, 38% and 47% of respondents thought that a 25% reduction in trip times would increase the number of customers and turnover respectively.

6.8 Interestingly, only 12% of responses indicated that a 25% reduction in trip time would result in increased prices for customers. The comparable figure for the 10% reduction in trip time was roughly double (24% of responses). Why prices would increase at all is puzzling. The fact that it is a lesser increase under the 25% trip time reduction scenario might suggest that carriers are expecting to put their prices up for other reasons and the greater the trip time saving, the less likely will be the need to increase customer prices.

## Operating Costs

6.9 The impact on operating costs, assuming that the congestion scheme reduces average trip times by 25% is shown below.

Impact of reduction in average trip time by 25%



6.10 The results follow broadly the same pattern as those in response to the assumed 10% reduction in trip times as evidenced by the following:

- 64% of responses indicate fuel expenditure will fall compared to 66% in the case of the scenario involving a 10% reduction in trip time. However, the proportion of responses indicating a significant reduction in fuel expenditure is 16% compared to just 2% in the case of the 10% scenario); and
- 41% of responses indicate that other vehicle operating costs will fall compared to 66% in the case of the scenario involving a 10% reduction in trip time. However, the proportion of responses indicating a significant reduction is 9% (compared to just 2% for the 10% scenario).

6.11 In short, while roughly the same proportion of road carriers will be impacted, the strength of impact felt would be greater the greater the reduction in travel time savings.

6.12 In contrast with the findings relating to fuel costs and other vehicle operating costs, more responses (21%) indicate that RUC will increase than those who indicate it will fall (14%) as a result of the reduction in trip times. This finding appears to reflect expectations that the number and geographic spread of customers will increase as a result of reduced traffic congestion. It may also be indicating an intention by some road carriers to avoid the charge zone and drive around it, rather than through it.

## Labour Markets

6.13 Nearly half of responses indicate that employment costs are expected to fall in the light of a 25% reduction in trip times. This is more or less the same result as that in relation to the 10% reduction in trip times. The proportion of responses indicating a reduction in operating hours is also very comparable under the 25% scenario (49% of responses) and under the 10% scenario (51% of responses).

6.14 The pattern is, therefore, quite similar to that identified with respect to operating costs. There are two possible interpretations that could be put on this finding:

- one possibility is that a 10% reduction in trip times is sufficient to address most of the adverse productivity effects of congestion; and
- another possibility is that road carriers are sceptical that the road schemes would result in these levels of trip time saving and, as a result, they are not necessarily making a clear distinction between the two scenarios.

6.15 There is no way of knowing which possibility is the more likely.

6.16 Interestingly, the responses to the 25% trip time reduction scenario are more pessimistic than the 10% scenario in terms of the ability to attract and retain employees. Under the 25% scenario, 19% of responses expect it to be harder to attract and retain employees compared to 10% under the 10% trip time reduction scenario.

6.17 Assuming that the respondents associate the 25% reduction in travel time savings with the congestion scheme, the results noted above may be signalling that the \$6 congestion charge will, in their view, create a modest barrier to employment. This is not something that was raised during the workshops and indeed several workshop participants made the point that the bulk of their workforce is located in areas that meant they probably would not have to cross into the charging zone to get to work.

### **Location**

6.18 Almost all respondents (98%) indicated that a 25% reduction in average trip times would have no impact on business location. That is to be expected in the sense that, leaving aside all other considerations, if it takes less time to move around Auckland, choice of location becomes less relevant.

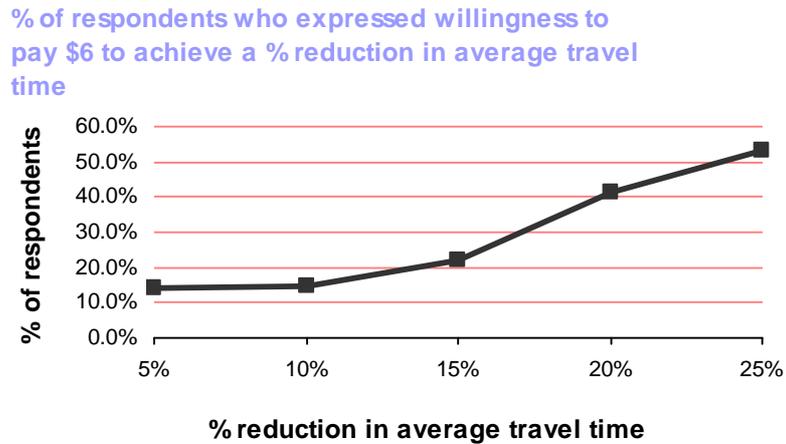
### **Productivity**

6.19 In theory, a road pricing scheme that is aimed at reducing traffic congestion could be expected to have beneficial productivity effects for road carriers. Based on the responses to the scenario of a 25% reduction in trip times, the expected increase in productivity appears to be borne out, but consistent with the preceding sections, the impact is not much different to the responses given in response to the scenario of a 10% reduction in trip times. In brief, the results are (the numbers in brackets refer to the 10% trip time reduction scenario)

- 26% of respondents indicated they would reduce their vehicle fleet (23%);
- 49% would reduce operating hours (51%);
- 60% would increase the number of deliveries (54%); and
- 55% would increase the frequency of deliveries (54%).

6.20 The congestion scheme is aimed at reducing traffic congestion. The preliminary results of traffic modelling undertaken for the Ministry and completed after the workshops were conducted and survey issued suggest that traffic reductions of 15-20% are achievable. Survey respondents were asked to indicate what level of reduction in trip times would be required in order for them to be willing to pay a \$6 charge.

6.21 The results are shown in the graph below.



6.22 Not surprisingly, larger trip time savings are required to warrant a \$6, as opposed to \$3, charge. Specifically:

- a trip time saving of 25% is required to obtain the support of at least 50% of respondents faced with a \$6 charge; and
- a trip time saving of 20% is required to obtain the support of at least 50% of respondents faced with a \$3 charge.

### **Profitability**

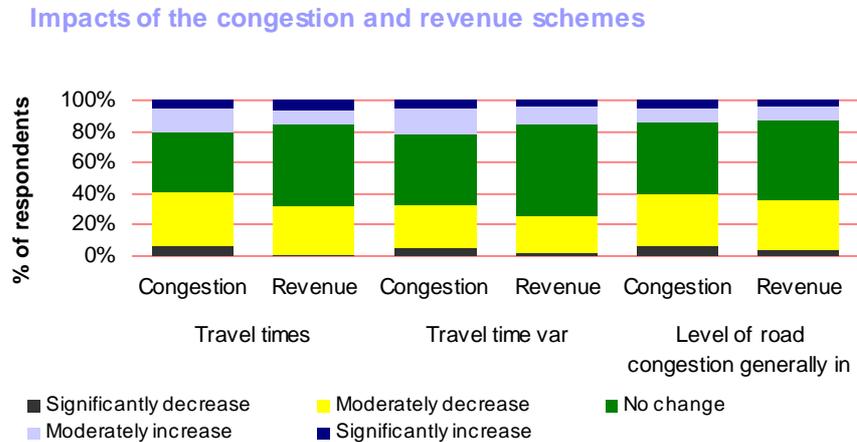
6.23 The assumed 25% reduction in trip times would have, based on the survey results, a positive and more marked impact on the profitability of road compared to the scenario of a 10% reduction in trip times. Specifically, faced with the prospect of a 25% reduction in trip times:

- 47% of responses would expect turnover to increase (13% thought it would reduce);
- 64% would expect fuel costs to reduce;
- 41% would expect other vehicle operating costs to reduce; and
- 48% would expect employment costs to fall.

6.24 The results are consistent with the findings regarding productivity. The results are also consistent with the graph above indicating that a majority of road carriers would be willing to incur a charge of \$6 in order to achieve a 25% saving in travel times. In short, time is money and a major reduction in congestion and travel times would significantly enhance the productivity of road carriers. A cautionary note is, however, warranted. Unless the market for road haulage grows, it is unlikely that a net 34% of road carriers would benefit from increased turnover (47% less 13%). Moreover, the highly competitive nature of road transportation means that costs savings will, at least to some extent, flow through into lower cartage rates. This is still a benefit to New Zealand as a whole, but the full extent of the benefits may be shared between road carriers and their customers.

## Retailers

6.25 The graph below illustrates the potential impact of the congestion and revenue schemes on travel times, travel time variability and congestion generally.



6.26 Two points should be noted:

- approximately half of respondents consider that the revenue scheme will have no impact on congestion (and, hence, travel times and travel time variability); and
- this result is broadly the same as that for the revenue scheme with the exception that under the congestion scheme, a higher proportion (34%) of respondents consider that travel time variability will be reduced (21% thought this would be the case in the context of the revenue scheme).

6.27 Consistent with the results of chapter five, a small proportion of respondents thought that the congestion scheme might actually increase congestion (13%), travel times (15%) and travel time variability (15%). These responses may have reflected general expectations that congestion is a growing problem.

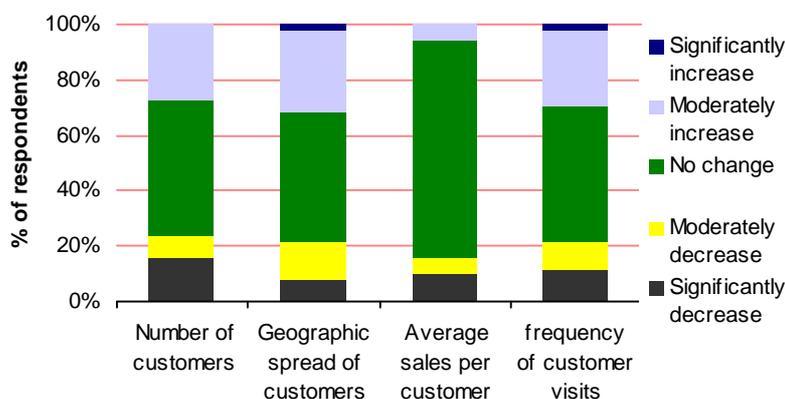
## Customers and Revenue

6.28 In response to the scenario in which average trip times were reduced by 25%, 65% of survey respondents indicated that there would be no change in turnover, 18% thought it would increase their turnover and 18% thought it would reduce their turnover.

6.29 This is an interesting finding because it suggests, in contrast with the responses given in the context of the revenue scheme, that overall, the net impact of the congestion scheme will be neutral in terms of turnover (in contrast, the net effect under the revenue scheme was slightly negative). This suggests that retailers perceive the benefits of a substantial reduction in congestion would outweigh the impacts of the congestion charge. In this respect, these survey results are more consistent with the findings from congestion schemes implemented in other cities.

6.30 To understand in more depth the impact that a 25% reduction in trip time has on turnover, we asked retailers to comment on the number of customers, where customers come from, average sales and the frequency of customer visits.

**Perceived impacts of a 25% reduction in average trip time**



6.31 The results indicate that the congestion scheme would be more positive for retailers compared to the revenue scheme. In particular:

- 28% of retailers thought the number of customers would increase compared to the 11% under the scenario of a 10% reduction in trip times; and
- 30% of retailers indicate the frequency of customer visits would increase compared to 21% under the 20% trip time saving scenario.

6.32 This is consistent with the slightly positive turnover results. On this basis, it could be inferred that while retailers still believe the overall impact would be negligible, at the margin, the congestion scheme would be more positive for both turnover and the number of customer visits.

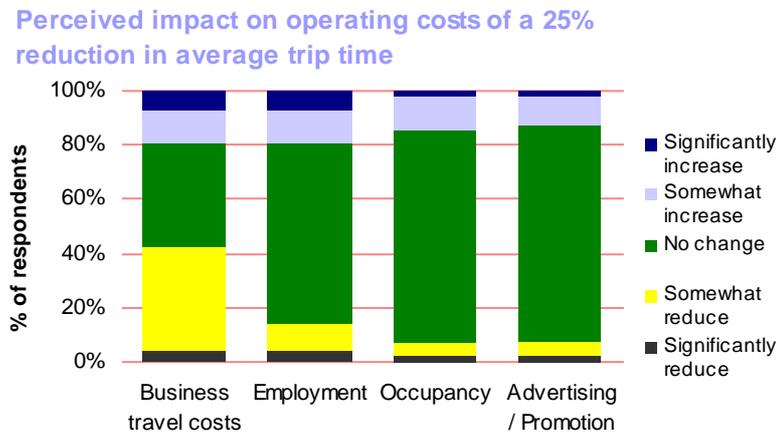
6.33 Supermarket operators reported that they observe their customers scheduling their grocery shopping outside of congested times. This reinforces a general point that not many people go retail shopping before 10 am. Accordingly, a congestion charge for the morning peak-period during weekdays is unlikely to have significant negative impacts on retailers in the short-term.

6.34 Overall, these findings suggest that road pricing schemes that lead to substantial reductions in trip times (and, by implication, congestion) will not result in a flight of customers. Rather, such a scheme will benefit some retailers, disadvantage others, but overall have a relatively neutral impact on total turnover. This is consistent with findings from studies of similar schemes in other cities. Moreover, as discussed in the NZIER report, the lessons from overseas cities suggest that the health of the wider economy will have a much more significant bearing on the economic performance of retailers.<sup>34</sup>

<sup>34</sup> Ibid., chapter six in particular

## Operating Costs

6.35 The impact on operating costs assuming that average trip times are reduced by 25% is shown below.



6.36 Most respondents still expect no change in operating costs but that proportion has dropped markedly with respect to logistics and scheduling costs (65% compared to 77% under the 10% trip time saving scenario) and occupancy costs (82% compared to 91%). Only in the case of advertising/promotion costs does the proportion of respondents indicating no impact remain similar (78% compared to 79%).

6.37 With a 25% reduction in trip times, the proportion of responses indicating a reduction in logistics and scheduling costs is 20% (compared to 9% under the 10% scenario). This is consistent with the findings from the surveys of retailers and road carriers both of which suggest that if substantial reductions in congestion are achieved, there is more likely to be a discernable business response whereas small reductions in congestion is more likely to result in business as usual.

6.38 The increased proportion of responses (15% compared to 9%) indicating that occupancy (rental) costs could increase if a 25% reduction in trip times is achieved also suggests that a substantial impact on congestion is likely to trigger location decisions more so than if the impact on congestion is modest. The results suggest that a substantial reduction in congestion will be perceived as enhancing the ambience and attractiveness of retail areas within the charge zone.

## Labour Markets

6.39 The potential impacts on employment costs arising from a 25% reduction in average trip times are not dissimilar to those indicated in the context of a 10% reduction in trip times. In particular, 67% of respondents would expect no change in employment costs (compared to 64% under the 10% scenario). Of the other respondents, 23% would expect employment costs to increase now (compared to 26%) and 10% would expect employment costs to decrease. Similarly the expectations regarding the ease with which employees could be attracted and retained are very similar under both scenarios and, under both scenarios, there is a reasonably even balance between those who think it would be easier to attract employees and those who think it could become harder, if a charging scheme was implemented.

6.40 Overall, these findings suggest that, if implemented, a congestion scheme that had a substantial impact on traffic congestion would have a relatively neutral impact on labour markets for most retailers. In a minority of cases, higher employment costs would result.

6.41 The congestion scheme involves a \$6 charge compared to \$3 for the revenue scheme. Retailers have indicated that they expect at least some of their employees to seek to recover this cost from their employers. In this regard, the impact on employment costs could have been expected to be more significant under the congestion scheme compared to the revenue scheme. The results of the survey suggest otherwise however. The likely reason for this is that there is a significant proportion of retail employees that work outside the congestion hours and so would not be impacted upon by the congestion charge which operates between 6.00 am and 10.00 am.

### **Location**

6.42 The potential impacts on location are similar to those indicated in the context of the revenue scheme. Some 26% of respondents indicate that they would open up new branches to be closer to customers (compared to 25% in the context of the revenue scheme). The proportion indicating that they would consider setting up new retail outlets is significantly lower than that in response to the situation of continued growth in congestion. As noted in chapter five, this is consistent with the literature and international experience on the effects of road pricing schemes. Congestion increases the cost to customers of travelling to undertake their shopping. Congestion will encourage some customers to switch to more accessible retail locations. A charging scheme which results in less congestion will potentially reverse this outcome.

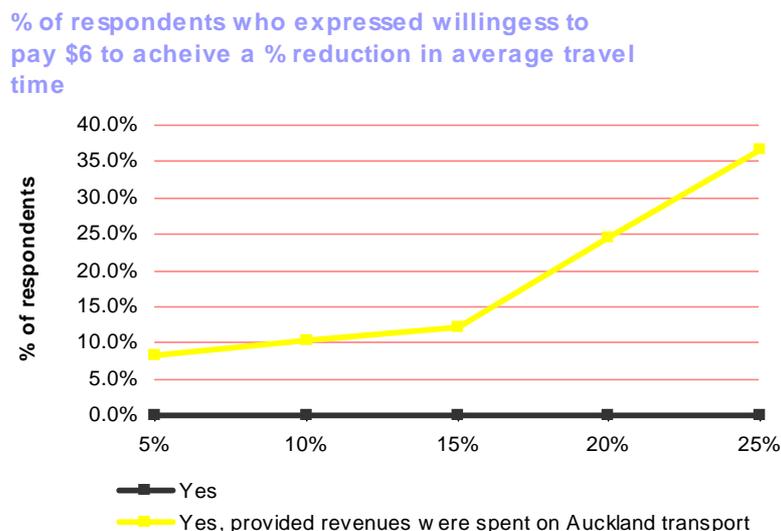
### **Productivity**

6.43 The scenario of a 25% reduction in trip times appears to have, at most, only a marginally greater impact on productivity compared to the scenario of a 10% saving in trip times. Under the 25% scenario:

- fewer retailers (48%) considered there was a need to support local retail area promotion (compared to 54% in 10% scenario); and
- more or less the same proportion of retailers (32%) considered that they would need to improve the attractiveness of their retail outlets through store refurbishments (compared to 31% in the 10% scenario).

6.44 The survey asked retailers about their willingness to pay to achieve a reduction in trip times on the assumption that if travel time savings translate into productivity improvements, retailers would be willing to pay something to achieve this outcome.

6.45 The graph below shows the response with respect to a \$6 charge.



6.46 It is interesting to note that none of the retailers surveyed were willing to support a \$6 charge to achieve reductions in travel times unless the revenues generated were spent on Auckland transport. This suggests that from retailer’s perspective, they are more interested in how the proceeds of the charge are invested than in the impacts on traffic congestion. In turn could be interpreted as indicating that in the first instance, congestion does not generally have a strong adverse impact on retailers and secondly, that schemes aimed at reducing congestion are unlikely to have a strongly positive impact on retailers

6.47 Retailers indicated greater resistance to the \$6 charge compared to the \$3 charge. For example:

- only 10% of respondents indicated that they were willing to pay \$6 to achieve a 10% reduction in travel time whereas nearly double this proportion (17%) would be willing to pay \$3; and
- just over a third of retailers indicate they are unwilling to pay \$6 to achieve a 25% reduction in travel time compared to 50% who have indicated that they would be willing to pay \$3 to achieve the same time saving.

6.48 These observations suggest that retailers perceive any positive effects on productivity arising from reduced congestion are outweighed by the reduction in customers’ disposable incomes as a result of having to pay a \$6 charge. We note, however, that some retailers, in particular those that cater to higher income customers, report that firstly, they do not believe the \$6 charge would be a significant disincentive to their customers and secondly, the \$6 charge would not apply during peak shopping periods on the weekends.

### Profitability

6.49 The results from the survey indicate that the congestion scheme is not expected to have significant impacts on the profitability of the majority of retailers (the majority of respondents reported no changes to turnover and costs). Interestingly, the congestion scheme is expected to have a more neutral impact on retailer turnover than is the revenue scheme.

6.50 A common comment from retailers is that the congestion scheme is likely to have the greatest impact in terms of employment costs as those employees who cannot avoid the congestion charge seek to recover the cost through higher remuneration or, in some cases, decide to seek employment in areas that avoid having to pay the charge.

### **Concluding Remarks**

6.51 A potential reaction to a \$6 charge could be that customers seek to shop in areas where they can avoid the charge or that customer spending reduces because of the need to pay the charge.

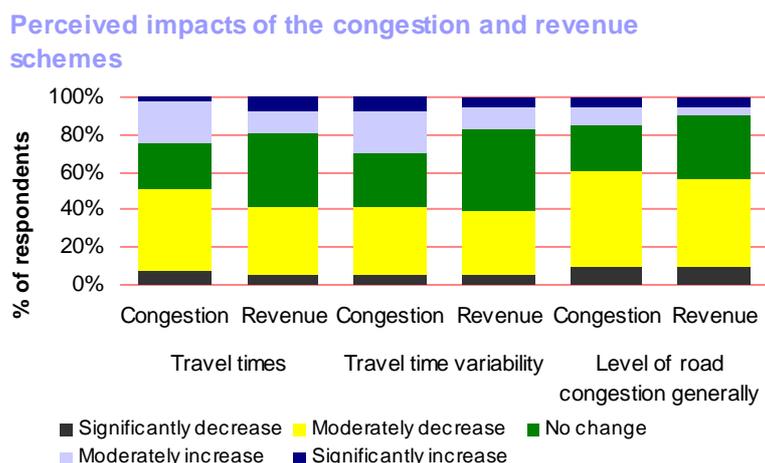
6.52 The general themes that emerge from the results of the survey and discussions with retailers are that:

- some customers may decide to switch from one location to another to do their shopping so as to avoid the charge. This will create winners and losers among retailers, but in aggregate terms, the net effect on retail spending is likely to be relatively neutral;
- customers who shop in the CBD because they are there primarily for employment reasons are likely to continue to shop in the CBD. Employees may seek increases in their remuneration to compensate for having to pay a \$6 charge which, if granted by employers, means the impact on consumer spending might be minimal;
- many retailers in Newmarket are targeting middle and upper income earners. These customers are unlikely to significantly alter their spending patterns in light of the \$6 charge and, for many of these customers, they are unlikely to be shopping during the times that the congestion charge operates;
- the congestion charge is likely to impact on retailers in the form of higher logistics and scheduling costs including as a result of carriers passing on higher costs to their customers;
- cost pressures arise for a variety of other, and more significant, reasons including the tight labour market, increasing productivity and business growth generally; and
- to the extent that retailers are faced with higher costs (including employment costs) there is a perception among at least some retailers that their customers can absorb such increases in the form of higher prices.

6.53 These findings are consistent with the literature and with international experiences. As reported by NZIER, the London and Stockholm schemes, for example, have not adversely impacted on retailers. Economic growth has meant that any short term impact has quickly been overshadowed by wider economic trends. The only cautionary note to make in this regard is that if the congestion charge changes the economics of business location to such an extent that more business and residents choose to locate outside of the zone, then the flow on impact to retailers could be significant as most customers tend to come from within a relatively local zone (say within 3 to 5 kilometres).

## Businesses

6.54 The majority of businesses surveyed believe that the congestion scheme would reduce travel times and congestion in Auckland generally. Moreover, the survey responses indicate that they expect the impact to be greater under the congestion scheme than under the revenue scheme. The comparative results are shown in the graph below.



6.55 Several businesses commented that at \$6, the congestion charge is at a level that, in contrast with the revenue scheme, might encourage road users to consider alternatives (including public transport and deferring journeys). Equally, however, there were businesses who thought that the \$6 charge would encourage traffic to skirt around the charge zone thereby shifting congestion to other parts of the network and some who thought that commuters would continue to utilise their cars and preferred route irrespective of the \$6 charge.

6.56 Compared to the responses from retailers and road carriers, businesses expect the impact of the congestion scheme to be more marked. This is likely to reflect the fact that a high proportion of respondents to the business survey are located in the CBD (and Newmarket) whereas the geographic distribution of responses to the retail and road carrier surveys was wider.

## Customers and Revenue

6.57 Overall, nearly half of businesses expect that a 25% reduction in trip times would impact on revenue, but there is a reasonably even split between those who think it would increase (24%) and those who consider turnover would fall (22%). The picture is however, more positive than the responses given with respect to the scenario of a 10% reduction in travel times. This appears to suggest that if the charging scheme has a substantial impact in terms of reducing travel times, businesses will be better able to gain access to their customers and, equally, customers will find it easier to visit businesses. In particular:

- 44% of respondents considered the frequency of customer visits would increase if trip times fell by 25%. and only 12% thought they would reduce (presumably in response to the road pricing scheme); and

- 56% of respondents thought that the 25% reduction in trip times would make access to customers easier (10% took the alternative view).

6.58 These results are more marked in terms of their impact than the responses indicated in response to the scenario of a 10% reduction in trip times.

6.59 The relatively mixed impact of trip time reduction on turnover is also reflected in relation to questions regarding the impacts on the number of customers and how much they spend. The proportion of respondents that expect the number of customers to increase (22%) is somewhat higher than the proportion (15%) that expects the number of customers to fall. However, 15% of responses indicate that revenue per customer is expected to fall whereas only 5% expect average sales per customer to increase. This appears to suggest that while reduced traffic congestion will enhance access to customers, the charging scheme will adversely impact on the level of expenditure by customers. It needs to be remembered, however, that only a minority of business customers are individuals (as opposed to other businesses) and who would be affected by the charging scheme.

### **Operating Costs**

6.60 With a 25% reduction in trip times, 43% of respondents expect business travel costs to reduce and 19% expect them to increase. The response to this part of the survey is likely to hinge on the number of business trips made since the greater the number of trips, the greater the level of savings that would be expected given that the charging scheme caps the level of charge paid per day.

6.61 More respondents (12%) expect occupancy costs to increase than those (8%) who expect them to decrease. This may be reflecting an expectation that as congestion reduces, the CBD (and Newmarket) becomes a more attractive location for business thereby increasing the demand for office space and property more generally (location impacts are discussed further below). Nearly half (48%) of respondents thought that the reduction in trip times (and, by implication, congestion) would increase the general amenity of their business location.

### **Labour Markets**

6.62 The ability to attract and retain employees was expected to be easier, given a 25% reduction in trip time), for half of the businesses responding to the survey. This suggests that for these businesses at least, they would expect reduced congestion to have a positive impact on the supply of labour. Only 17% thought recruitment and retention would become more difficult.

6.63 A more mixed picture emerges, however, in terms of the impact on employment costs. Of the responses, 19% indicated they expected employment costs to increase while 14% expected them to reduce. There appear to be two factors influencing these results. First, a number of businesses noted that the \$6 congestion charge would probably find its way into the mix of considerations influencing wage demands. At least some employers would expect this to result in higher wages. At the same time, if a reduction in traffic congestion helps to make the CBD (and Newmarket) a more attractive employment destination, then for at least some employers, the pressure to reflect the congestion charge in remuneration may be less. More generally, if lower congestion helps to increase the supply of labour, lower wage increases (compared to what they otherwise might have been) could result.

6.64 In terms of the businesses indicating that less congestion might actually help to reduce labour costs, it is possible that this is a function of changes to business operations in the light of reduced congestion. Approximately 10% of business respondents indicated that their hours of operation would reduce if trip times fell by 25%.

6.65 Several businesses raised the point that a charge of \$6 per day (\$30 per week) is significant, particularly for lower paid employees. While a number of employers indicated that the \$6 charge was at a level to prompt changes in behaviour, they also noted that for many employees they have few, if any, options to avoid the charge. For most businesses, modifying working hours so that employees arrive at work outside of the 6-10 am charging period is not a realistic option. Several employers also made the point that lower paid employees tend to live further away from the CBD and, as a consequence find that private car travel is a much more convenient option than public transport.

### **Location**

6.66 Businesses were asked what impact a 25% reduction in trip times would have in terms of the likelihood of them deciding to relocate their business. As noted in chapter four, congestion was likely to be an issue causing businesses to consider relocation for roughly 30% of all businesses located in the CBD and Newmarket. In light of the hypothetical 25% reduction in trip times, the proportion of businesses that are likely to consider relocating is somewhat less:

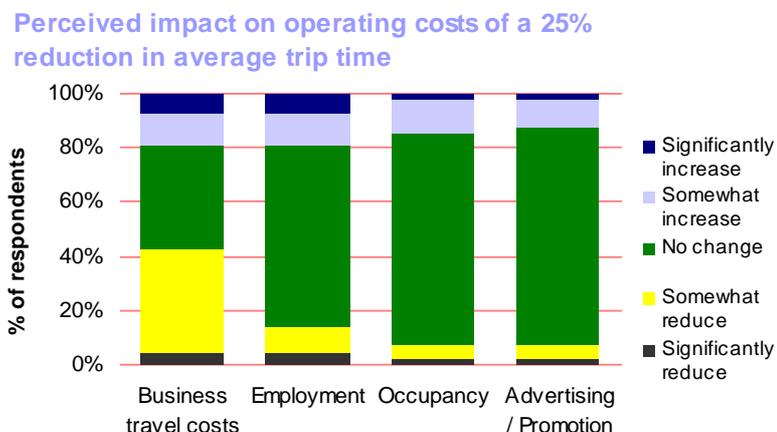
- 22% indicated, in a scenario of much less traffic congestion, they might still be considering the option of relocating to somewhere with better public transport access; and
- the same proportion (22%) indicated they may still consider relocating to somewhere with better motorway access.

6.67 These findings suggest that businesses are more likely to think about relocation when roads are congested than when they are not. However, it is interesting that there is still a significant proportion of firms that might continue to think about relocation even if the charging scheme comes into effect. A possible explanation of this is that either employers want to encourage their staff to use public transport (and the \$6 congestion charge is a further incentive in this regard) and/or businesses want to take advantage of the less crowded roads including, in particular, motorways.

### **Productivity and Profitability**

6.68 The response from businesses to the revenue scheme and scenario of a 10% reduction in travel times painted a rather mixed picture in terms of the impact on business productivity and profitability. Some businesses expected turnover to improve while others expected it to fall. Equally, some businesses expected costs to increase while others thought they would fall. The conclusion that resulted from this was that reducing traffic congestion would create a situation of winners and losers. The net effect was unlikely to be substantial in either direction.

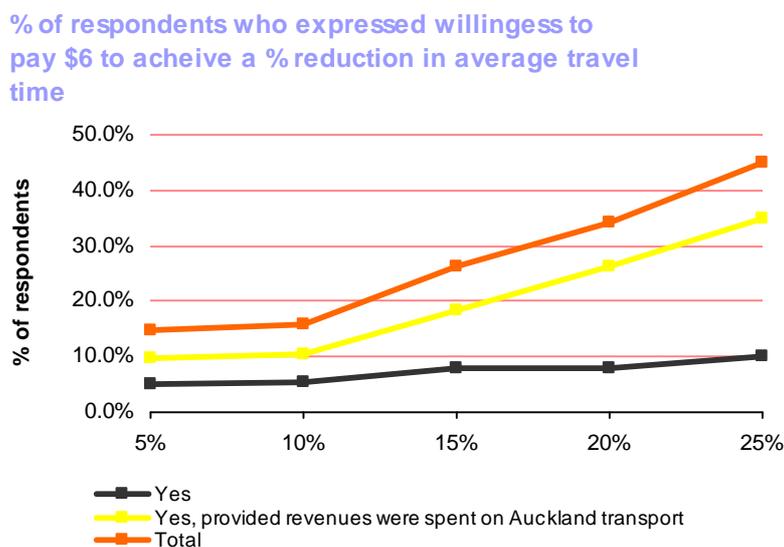
6.69 The potential impacts of a 25% reduction in average trip times on various expenditure categories are shown below.



6.70 Not surprisingly, reduced trip times impact most on business travel costs, but this category of expenditure is a small proportion of overall expenditure. Employment costs are expected to increase for 19% of respondents compared to 14% who think they will fall. For those firms that consider employment costs will increase, this appears to be a response to perceptions that the ability to attract and retain employees will be harder and an expectation that wage pressure will be increased as a result of employees looking for some offset to the congestion charge.

6.71 With respect to turnover, slightly more respondents (24%) believe this will increase than those who expect it to fall (22%). In contrast, there were slightly more “losers” than “winners” under the scenario of a 10% reduction in travel times. This seems to suggest that if businesses, or customers, have to pay a charge to achieve only a 10% reduction in travel time, they will not consider it worth their while and turnover will suffer as a consequence. In contrast, if payment is associated in a 25% reduction in travel times, this is beneficial for businesses and their customers.

6.72 Businesses were asked to indicate whether they would be willing to pay \$6 to achieve reductions in travel times. The results are shown below.



6.73 Not surprisingly, a greater reduction in travel time needs to be achieved in order for businesses to feel that a \$6 charge is warranted.

### Ports of Auckland

6.74 The majority of traffic to and from the port is during normal business hours and the busiest of times is around 10.00 -11.00am. By implication, a significant proportion of trucks entering/leaving the port are likely to incur the \$6 congestion charge. However, to the extent that this leads to significant reductions in motorway based traffic between the CBD and south Auckland, the benefits in terms of enhanced productivity could be expected to outweigh the cost of the congestion charge at least for the majority of road carriers. Consistent with the points made by the road carriers in the context of the workshops with them, Ports of Auckland also made the point that the scheduling of trips to and from the port is influenced by the needs of the customers of road carriers and, in the case of the ports, the timing of ship arrivals and departures. The \$6 congestion charge is unlikely to materially affect these factors.

6.75 As noted in chapter four, POAL operates three shifts a day and roughly half of port personnel are on shift work. The night shift ends, and morning shift begins, at 7.00 am which means that employees in both shifts would incur the \$6 congestion charge if travelling to work by car. Most non-shift employees would also incur the \$6 congestion charge.

6.76 For some employees, this additional cost might be an issue and, accordingly, the Company considered that there was some possibility that employees might factor this into wage negotiations (of itself it would be unlikely to trigger a wage renegotiation). The Company did not consider, however, that the \$6 charge would act as a deterrent to employment with POAL

## 7 Conclusions and Next Steps

7.1 Submissions made in response to the earlier ARPES report raised several issues regarding the implications of road pricing schemes. The purpose of this report has been to obtain information that will assist the Ministry in better understanding these issues.

7.2 Of the issues raised, three questions in particular are of most relevance to this report:

- what are the economic impacts of the “do minimum” scenario in which vehicle usage and congestion continues to grow;
- what are the economic impacts of the road pricing schemes on commercial and retail areas; and
- which parts of the Auckland region or groups are more affected than others – who pays and who benefits?

7.3 The information and perspectives we have obtained through a mix of interviews, workshops and surveys has assisted in shedding further light on these issues.

### Economic Impacts of Congestion

7.4 In terms of the impacts of the “do minimum” scenario, the information and perspectives obtained in this report confirm the findings from various earlier reports that congestion is a major issue for a wide range of enterprises in Auckland. Of the three groups we have engaged with (road carriers, retailers and businesses), the adverse impacts of congestion are felt most strongly by road carriers. Traffic congestion is significantly reducing their productivity and profitability. Road carriers are increasing their fleet size, extending their hours of operation and bearing increased employment and vehicle-related costs (e.g. fuel) because of congestion. At the same time, almost half (44%) of road carriers indicate that their turnover is reducing because of congestion. Productivity and profitability are reduced accordingly.

7.5 Congestion also affects businesses and retailers, but the impacts are less than those on road carriers. Congestion affects the ability of businesses to engage with their clients. It also impacts on the number of shoppers who, because of congestion, prefer to shop closer to home.

7.6 Because congestion increases the cost of travel, it also affects the willingness of people to travel to, or through congested areas, to get to their place of work. We heard anecdotal examples from employers who, because of their location, are finding it harder to attract workers because they are not willing to endure the congested commute (and, in most cases, public transport failed to provide a better alternative).

7.7 Based on feedback from the range of enterprises we engaged with, there is evidence that congestion tends to have greatest impact on the turnover of enterprises and on their ability to attract and retain employees (although in the case of road carriers, the impacts on fuel and other vehicle operating costs are also significant). In short, traffic congestion makes it harder and more costly for people to move about. Firms find customers may choose to shop closer to home or find it harder to get to their clients. Employees may also be dissuaded from undertaking stressful journeys on congested roads. If they are considering switching jobs, they may also favour employers located closer to their place of residence.

7.8 These impacts advantage some firms and disadvantage others. Congestion may discourage shoppers from one part of Auckland, and cause them to switch to another part. The economic impacts of congestion have, therefore, quite a strong redistribution element. These findings are consistent with those found by NZIER from its review of the international literature. In its conclusions regarding the impact of transport costs and congestion on firms, NZIER noted that effects can be either distributive in nature or generative (i.e. leading to increases in the net economic output at the firm, local, regional or national level). Based on its reading of the literature NZIER concluded that distributive effects are likely to significantly outweigh generative effects in most instances.<sup>35</sup>

7.9 From an enterprise perspective congestion of itself may not be the most significant issue or concern. However, when congestion combines with other factors, the impacts can be more significant. A good example of this is supermarkets, particularly those in residential areas which, because of regulatory requirements, find that the time window during which they can receive deliveries is reducing. Congestion is making it harder for road carriers to meet these requirements.

7.10 The economic impacts of congestion also need to be seen in the context of the state of the Auckland economy. In recent years, the Auckland economy has been very buoyant with growth rates around twice that of the national average. This has put pressure on employment costs, property prices and costs generally.

### Economic Impacts of the Revenue and Congestion Schemes

7.11 For the purposes of our work, two hypothetical road pricing schemes were discussed with road carriers, retailers and businesses to gain their perspective regarding possible economic impacts. To assist, two scenarios – one involving a 10% reduction in travel times and the other a 25% reduction in travel times – were also considered.

7.12 Overall, there is an expectation that the revenue and congestion schemes will help to reduce traffic congestion. Several points should be noted:

- the strength of the perceived economic impacts, as would be expected, is stronger under the congestion scheme;
- common to both schemes, there is a reasonably large proportion of firms that believe the schemes will not have any impact on congestion;
- some firms consider that the schemes will increase congestion. This result is somewhat counter-intuitive. Those holding this view seem to be suggesting one or other of two possibilities:
  - traffic will be diverted away from the zone and onto other parts of the network that are already congested; and
  - an expectation that congestion is increasing anyway and the schemes will, at best, only curb the rate of increase.

7.13 The key difference between the two schemes is the strength, rather than the direction (i.e. positive or negative), of the impacts (both on congestion and in economic terms). The underlying point, and this was made explicitly by a number of firms, is that

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<sup>35</sup> Ibid., page 49

the \$3 charge is unlikely to modify behaviours whereas many firms considered that a \$6 charge is the minimum level that could be expected to modify decisions regarding road use (number, frequency, length, timing and/or mode of journeys).

7.14 The finding that \$3 would be unlikely to modify behaviours is consistent with the intentions behind the revenue scheme. The objective of the revenue scheme is to maximise revenue. Accordingly, the scheme aims to maximise use of the road network rather than reduce traffic levels. Based on discussions with the various groups we engaged with, it is not certain that this point has registered. A lot of comments were made in the context of an objective of reducing congestion; not raising revenue.

7.15 In contrast, the finding that a charge of \$6 is likely to modify behaviour had three main elements:

- this level of charge is likely to put upward pressure on wage rates. Some CBD employers we spoke with indicated that they would expect at least part of the charge to be factored into higher employee remuneration;
- a \$6 charge is likely to cause some traffic diversion around the zone rather than deferring journeys to outside of the charging period (6.00 am -10.00 am); and
- a \$6 charge has the potential to adversely impact on businesses and retailers access to customers (either customers travelling to businesses/retailers or businesses travelling to their clients). The extent to which this eventuates depends on the level of travel time saving. If the travel time saving is in the order of 25% (i.e. one of the scenarios portrayed), then the overall impact on revenues is expected to be relatively neutral for retailers and businesses. In contrast, if the travel time saving is more modest (e.g. 10% as portrayed in the other scenario), then the charge is likely to have an overall negative effect. Such impacts can be expected, however, to be quickly outweighed by economic growth.

7.16 On the assumption that the congestion scheme will have a larger impact in terms of reducing congestion, this scheme is likely to deliver more sizeable productivity gains for road carriers. The scenario of a 25% reduction in travel times could enable road carriers to reduce fleet numbers, cut back on shift and overtime work and save on fuel and other vehicle operating costs.

7.17 From the perspective of retailers and businesses, an important potential economic impact arising from the road pricing schemes concerns the ability to attract and retain employees. Based on the survey results, 50% of the businesses in the CBD and Newmarket would benefit in this regard, 33% would expect no change and the remaining minority would find it harder to attract and retain employees. In the case of retailers, a slightly higher proportion of respondents to the survey thought it will be harder to attract and retain employees than those who expected it to be easier. The message from this is that reducing congestion is likely to have some impact in terms of where people choose to work. This will benefit some businesses and retailers, but not others.

7.18 A 25% reduction in travel times is also likely to affect turnover. Based on the responses, the impact is likely to affect a higher proportion of businesses (nearly 50% than retailers (about a third). In both cases, however, the travel time savings result in increases in turnover for some firms and reductions for others. The main conclusion to take from this is that the overall net economic impacts are unlikely to be large, although there are likely to be significant redistribution effects.

7.19 These findings are consistent with international experience as reported by the NZIER in their companion report. Evidence from the London congestion charge tends to support the conclusion that congestion charging is likely to give rise to fairly widespread distributive short term effects. It also provides evidence that in net terms, generative effects are likely to be small and quickly outweighed by wider economic growth assuming that the overarching regional economy is buoyant.<sup>36</sup> Similar conclusions in relation to the retail sector have been reached by studies of the congestion charge implemented in Stockholm.<sup>37</sup>

## Next Steps

7.20 There are two aspects of the engagement with firms which had the effect of limiting, to some extent, the usefulness of the information obtained. If further work is to be undertaken, there is an opportunity to address both of the limitations.

7.21 The first of the limitations concerns the impact of the schemes on traffic levels and patterns. Notwithstanding that the information obtained from road carriers, retailers and businesses has provided added insight to the economic impacts which stem from congestion, and could arise from the road pricing schemes, the extent of analysis has to some extent been limited by the fact that the entities we engaged with did not have good information regarding the possible impacts of the road pricing schemes on congestion. As noted earlier, hypothetical scenarios of possible reductions in trip times were utilised to assist in considering potential economic impacts.

7.22 One of the other work streams undertaken at the same time as this report, has examined the impacts on traffic in the light of the hypothetical road pricing schemes. Utilising this information in discussions with road carriers, retailers and businesses could be helpful if some of the findings in this report were to be explored further. Such information would provide a richer picture of traffic response to road pricing than the relatively arbitrary assumptions of a 10% and 25% reduction in average trip times.

7.23 The second limitation concerns how the revenues generated by the schemes will be used. The intention behind both road pricing schemes is that the revenues generated will be used to invest further in land transport. In discussions with road carriers, retailers and businesses, the issue of where and how the revenues would be spent was raised. The general view expressed among those we engaged with is that how the revenues would be spent could influence the economic impact on firms arising from the schemes.

7.24 In addition to both of these limitations, during the course of interaction with road carriers, retailers and businesses, a number of suggestions were made regarding a broader scope of stakeholders that could be engaged with to obtain their views on the impacts of congestion and the road pricing schemes. These included, for example, Auckland hospital, taxis and educational institutions. The issue of whether the scope should be extended beyond organisations located in the CBD and Newmarket was also raised.

7.25 Notwithstanding these points, the information that has been obtained through discussions and the survey has provided some valuable insights regarding the economic impacts of congestion and the potential impacts of the road pricing schemes.

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<sup>36</sup> Ibid., page 61

<sup>37</sup> Ibid., page 82.

## Appendix: Surveys