

Before a Board of Inquiry  
MacKays to Peka Peka Expressway Proposal

*under:* the Resource Management Act 1991

*in the matter of:* Notice of requirement for designation and resource consent applications by the NZ Transport Agency for the MacKays to Peka Peka Expressway Proposal

*applicant:* **NZ Transport Agency**  
*Requiring Authority*

Statement of evidence of **Michael Copeland** (Economics) for the NZ Transport Agency

Dated: 4 September 2012

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## **STATEMENT OF EVIDENCE OF MICHAEL COPELAND FOR THE NZ TRANSPORT AGENCY**

### **QUALIFICATIONS AND EXPERIENCE**

- 1 My full name is Michael Campbell Copeland.
- 2 I hold a Bachelor of Science degree in mathematics and a Master of Commerce degree in economics. I have over 35 years' experience in the application of economics to various areas of business, including transport economics and resource management matters. A summary of my curriculum vitae is attached as **Annexure A**.
- 3 I am a consulting economist and managing director of Brown, Copeland and Company Limited, a firm of consulting economists which has undertaken a wide range of studies for public and private sector clients in New Zealand and overseas. During the period 1990 to 1994, I was also a member of the Commerce Commission and during the period 2002 to 2008 I was a lay member of the High Court under the Commerce Act. Prior to establishing Brown, Copeland and Company Limited in 1982, I spent six years at the New Zealand Institute of Economic Research and three years at the Confederation of British Industry.
- 4 I have been engaged in a number of areas of road transport economics and my curriculum vitae contains details of some of the assignments related to road transport I have undertaken. With respect to the Resource Management Act 1991 (*RMA*), I have prepared evidence for clients covering a number of projects and policies. A selection of these is listed at the end of my curriculum vitae in **Annexure A**.
- 5 My evidence is given in support of the Notice of Requirement (*NoR*) and applications for resource consent lodged with the Environmental Protection Authority (*EPA*) by the NZ Transport Agency for the construction, maintenance and operation of the MackKays to Peka Peka Expressway Project (*the Project*).
- 6 I am familiar with the area that the Project covers and the State highway and local roading network in the vicinity of the Project.
- 7 I assisted with the preparation of Chapter 29 (Economic Effects) of the Assessment of Environmental Effects (*AEE*) lodged in support of the Project.
- 8 I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Consolidated Practice Note (2011), and I agree to comply with it as if this Inquiry were before the Environment Court. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence

are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

### **SCOPE OF EVIDENCE**

- 9 My evidence will deal with the following:
- 9.1 Background and role;
  - 9.2 Economics and the RMA;
  - 9.3 Project economic assessment;
  - 9.4 Other economic effects;
  - 9.5 Response to submissions;
  - 9.6 Responses to Section 149G(3) Key Issues reports;
  - 9.7 Conclusions.

### **EXECUTIVE SUMMARY**

- 10 The economic wellbeing of people and communities and the efficient use of resources are relevant considerations under the RMA. I consider the Project will enable people and communities to provide for their economic wellbeing and represents an efficient use of resources.
- 11 The NZTA project evaluation procedures and database have been used to assess the efficiency of the Project. These procedures and database are based on international best practice and have been refined over many years on the basis of local and international research and investigation.
- 12 Using the NZTA project evaluation procedures and database, the Project achieves a benefit cost ratio (*BCR*) of 0.93; i.e., less than 1 and therefore the Project does not achieve the Government's target rate of return of 8%. However, I would note that:
- 12.1 The Project is an integral part of the Wellington Northern Corridor RoNS investment package which has a BCR of 1.2;
  - 12.2 The BCR calculated for the Project excludes some important benefits;
  - 12.3 The BCR for the Project has been calculated using a national rather than Wellington regional viewpoint; and

- 12.4 The Project also has greater benefits and significantly lesser costs than the other three route options for the MacKays to Peka Peka Expressway evaluated by NZTA.
- 13 Therefore the Project is consistent with enabling “*people and communities to provide for their ... economic ... well being*”, and having regard to “*the efficient use and development of natural and physical resources*”. This is reflected in NZTA ascribing ‘high’ ratings to the Wellington Northern Corridor RoNS investment package (of which the Project is part) for strategic fit and effectiveness.
- 14 The vast majority of businesses on, or near, the existing State Highway 1 (SH1) are not so dependent on the passing motorized trade that they will be significantly affected by the Project. The Project will potentially have significant negative business redistribution effects for a small number of businesses. However, in my view, the negative business redistribution effects will not be sufficiently significant, when viewed as a whole, to affect the public amenity values of centres bypassed by the Project. Moreover, the removal of traffic from the existing SH1 may provide opportunities for improving amenity values for Waikanae and Paraparaumu town centres.<sup>1</sup>
- 15 During the construction phase of the Project, there will be benefits for Wellington and Kāpiti businesses and residents as a consequence of additional economic activity generated within the region and District.
- 16 During the operational phase of the Project, there will be significant benefits to local Kāpiti traffic as well as benefits to Kāpiti businesses and residents from increased economic activity in the District.
- 17 I have reviewed the submissions raising economic issues and none of the issues raised in submissions alters my view that the Project will enable people and communities to provide for their economic wellbeing and represents an efficient use of resources.

### **BACKGROUND AND ROLE**

- 18 In March 2011, given my experience with transport economics and road transport project evaluation procedures, I was retained by the NZTA to provide assistance with respect to the assessment of economic effects of the Wellington Northern Corridor Road of National Significance (RoNS), part of which is the MacKays to Peka Peka Expressway Project. I have not been involved in the traffic modelling or the calculation of the BCR for the Project.

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<sup>1</sup> See Assessment of Urban Planning and Design Effects, Technical Report 6; Marc Baily; 23 March 2012; appended to the Assessment of Environmental Effects of the MacKays to Peka Peka Expressway Project and the evidence of **Mr Marc Baily**.

- 19 I have met with NZTA staff who are members of the Project team, and the NZTA's planning and transport consultants for the Project. I have reviewed various documents relating to the Project, including:
- 19.1 "Wellington Northern Corridor RoNS Economic Analysis", prepared by Opus International Consultants Limited for the NZTA, 16 November 2009;
  - 19.2 "Wellington Northern Corridor RoNS Detailed Business Case", NZTA, 10 November 2009;
  - 19.3 MacKays Crossing to Peka Peka Expressway Alternative Route Options Report; Volume 1; prepared for the New Zealand Transport Agency by the MacKays to Peka Peka Alliance; April, 2011;
  - 19.4 Assessment of Social Effects, Technical Report 20; Julie Meade Rose; 20 January 2012; appended to the Assessment of Environmental Effects of the MacKays to Peka Peka Expressway Project;
  - 19.5 Assessment of Traffic Effects, Technical Report 32; Beca Infrastructure Ltd; 17 February, 2012; appended to The Assessment of Environmental Effects of the MacKays to Peka Peka Expressway Project; and
  - 19.6 Assessment of Urban Planning and Design Effects, Technical Report 6; Marc Baily; 23 March 2012; appended to the Assessment of Environmental Effects of the MacKays to Peka Peka Expressway Project.
- 20 I have read the evidence of **Mr Andrew Quinn, Mr Noel Nancekivell, Mr Andrew Murray, Mr Craig Nicholson, Mr Marc Baily, Dr David Black** and **Ms Julie Meade Rose**. I have also read submissions lodged on the Project which raise economic issues (and these are addressed later in my evidence).

## **ECONOMICS AND THE RMA**

### **Community Economic Wellbeing**

- 21 Economic considerations are intertwined with the concept of the sustainable management of natural and physical resources, which is embodied in the RMA. In particular, Part 2 section 5(2) refers to enabling "*people and communities to provide for their ... economic ... well being*" as part of the meaning of "*sustainable management*", the promotion of which is the purpose of the RMA.
- 22 As well as indicating the relevance of economic effects in considerations under the RMA, section 5 also refers to "*people and communities*" (emphasis added), which highlights that, in

assessing the impacts of a proposal, it is the impacts on the community and not just the applicant or particular individuals or organisations, that must be taken into account. This is underpinned by the definition of "environment" which also extends to include people and communities.

### **Economic Efficiency**

- 23 Part 2 section 7(b) of the RMA directs that, in achieving the purpose of the Act, all persons "*shall have particular regard to ... the efficient use and development of natural and physical resources*" which includes the concept of economic efficiency.<sup>2</sup> Economic efficiency can be defined as:

the effectiveness of resource allocation in the economy as a whole such that outputs of goods and services fully reflect consumer preferences for these goods and services as well as individual goods and services being produced at minimum cost through appropriate mixes of factor inputs.<sup>3</sup>

- 24 More generally, economic efficiency can be considered in terms of:
- 24.1 Maximising the value of outputs divided by the cost of inputs;
  - 24.2 Maximising the value of outputs for a given cost of inputs;
  - 24.3 Minimising the cost of inputs for a given value of outputs; and
  - 24.4 Minimising waste.

### **Viewpoint for Economic Assessment**

- 25 An essential first step in carrying out an evaluation of the positive and negative economic effects of a project is to define the appropriate viewpoint that is to be adopted. This helps to define which economic effects are relevant to the analysis. Typically a district or wider regional viewpoint is adopted and sometimes a nationwide viewpoint might be considered appropriate.
- 26 For the Expressway Project, the Wellington region is a relevant community of interest, because the economic effects of the Project will largely (but not solely) impact on the residents and businesses in the wider region. Also a narrower Kāpiti Coast District focus is appropriate since the Project is contained within this District and many of the economic effects will impact on local businesses and residents.

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<sup>2</sup> See, for example, in *Marlborough Ridge Ltd v Marlborough District Council* [1998] NZRMA 73 at [86], the Court noted that all aspects of efficiency are "economic" by definition because economics is about the use of resources generally.

<sup>3</sup> Pass, Christopher and Lowes, Bryan, 1993, *Collins Dictionary of Economics* (2<sup>nd</sup> edition), Harper Collins, page 148.

- 27 However, because funding for the Project will be through NZTA, as the central government agency, and because of the scale of the Project, the national economic effects of the Project are also relevant. This is underscored by the Project being part of the Wellington Northern Corridor RoNS, which is included in the Government's portfolio of RoNS.
- 28 Generally with projects considered under the RMA with which I have been involved,<sup>4</sup> the financial or commercial 'business case' analysis undertaken from the viewpoint of the project proposer is considered to be irrelevant. This is because such an analysis is of private costs and benefits, rather than the cost and benefits for "*people and communities*." Relevant in such cases are only the so called 'externalities' – i.e. those side effects of the project which affect third parties other than the buyer and seller.
- 29 In this respect, the 'business case' analysis undertaken by the NZTA in relation to the MacKays to Peka Peka Expressway Project (and other road improvement or alternatives to roading projects) is unusual in that the analysis is undertaken not from its own narrow NZTA perspective but from a broader national perspective with the costs of the Project compared to road user and other benefits. However, I would caution that the NZTA's quantified assessment of the Project's efficiency only in part addresses "*... the efficient use and development of natural and physical resources*" as required under the RMA in that:
- 29.1 Not all costs and benefits are included in the NZTA's quantified assessment; and
- 29.2 The NZTA's quantified assessment is from the national viewpoint. It does not consider the efficiency of the Project from a Wellington or smaller (e.g. Kāpiti Coast District) 'community' viewpoint.
- 30 I consider these factors later in my evidence.

#### **With and Without Analysis**

- 31 I note that, in analysing the economic effects of the Project, it is necessary to compare two forward looking scenarios ('with Project' versus 'without Project'), rather than a 'before' and 'after' comparison. This means the proper baseline for evaluating future economic (and non-economic) effects of the Project are the future volumes of traffic on the network without the Project, not current traffic volumes.

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<sup>4</sup> For example, new supermarkets for Foodstuffs, a new cement plant for Holcim (NZ) Limited, renewal of gold mining resource consents for Oceana Gold (NZ) Ltd and a new power station for Meridian Energy Ltd.



### **Intangible or Non-monetarized Effects**

- 32 In economics, 'intangible' costs and benefits are defined as those which cannot be quantified in monetary terms. For any project, such effects may include amenity effects, landscape effects, ecological effects, Māori cultural and relationship effects and recreational effects. I would note that such effects may be positive or negative – i.e. a benefit or a cost for a particular community of interest.
- 33 Sometimes attempts can be made to estimate monetary values for so called 'intangibles' using techniques such as willingness to pay surveys or inferring values on the basis of differences in property values. However, these techniques are frequently subject to uncertainty and criticism.
- 34 In my opinion, it is generally better to not attempt to estimate monetary values for these effects but to leave them to be part of the overall judgement under s 5 of the RMA. This also avoids the danger of 'double-counting' – i.e. including them within a quantified measure of efficiency and treating them as a separate consideration in the overall judgement under s 5.

## **PROJECT ECONOMIC ASSESSMENT**

### **Conventional Cost Benefit Analysis**

- 35 Conventional cost benefit analysis of road improvement projects involves comparison of project benefits (including vehicle operating cost savings, travel time cost savings, accident cost savings and trip travel time reliability improvements) with project costs (including capital costs and changes in operation and maintenance costs).
- 36 The methods used to estimate the benefits and the costs together with the procedures to adopt for their evaluation are set out in the NZTA's Economic Evaluation Manual (*EEM*)<sup>5</sup> and are based on considerable local and international research. The methods and data have been refined over a number of years. In the 1980s and 1990s, I was personally involved in helping the predecessors to the NZTA<sup>6</sup> establish the procedures and the database to be used. I understand that in the last 10 years these procedures and the database have continued to be refined. They are consistently applied over all road improvement project evaluations and alternatives<sup>7</sup> to roading project evaluations seeking funding from the NZTA. This is done to assist with the prioritisation of alternative

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<sup>5</sup> Previously this document was called the Project Evaluation Manual (PEM). When the procedures were first developed they were contained in a document referred to as Technical Recommendation No. 9 (TR9).

<sup>6</sup> i.e. the National Roads Board, Transit New Zealand and Transfund New Zealand.

<sup>7</sup> For example, public transport projects.

NZTA and local authority projects<sup>8</sup> which are proposed to be funded from the National Land Transport Fund.<sup>9</sup>

- 37 In New Zealand (and overseas), a *discount rate* is used to cover the time value of money and the opportunity cost of funds (i.e. the returns available from alternative road improvement projects, or from other government projects or programmes and/or private sector use of funds). The discount rate used for many years for roading projects and other public sector investment projects was 10%<sup>10</sup>, but in recent years this has been reduced to 8%<sup>11</sup>.
- 38 The benefits of a project are divided by the costs of the project (incorporating a cost of funds (the discount rate) of 8% in real terms – i.e. excluding the effects of inflation) to derive a benefit cost ratio (*BCR*). If the BCR is greater than 1, project benefits exceed project costs and generally this is interpreted as meaning that the use of funds for the project will be an efficient use of resources.
- 39 However, as noted above in my evidence, not all the costs and benefits of a project can be quantified in monetary terms. ‘Intangibles’ will need to be considered outside the quantitative BCR calculation and decision makers will need to ‘trade off’ the BCR against any positive or negative ‘intangible’ effects.
- 40 Finally, in relation to conventional cost benefit analysis, NZTA’s BCR is calculated from the national perspective. It is a measure of national economic efficiency. It does not provide information about the distribution of costs and benefits. However, with respect to the MacKays to Peka Peka Expressway Project and the Wellington Northern Corridor RoNS investment package as a whole, a BCR greater than 1 when calculated from a national perspective will be larger from a Wellington regional perspective. This is because most of the benefits will accrue to Wellington businesses and residents, whereas the costs of the Project will be funded from a national pool of resources.
- 41 For the MacKays to Peka Peka Expressway Project, it is also the case that, from a narrower Kāpiti Coast District perspective, the BCR for the Project will be higher than when calculated from a national perspective. This is because many of the traffic benefits accrue to local traffic rather than “through traffic” (see later in my evidence).

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<sup>8</sup> i.e. those seeking NZTA funding.

<sup>9</sup> The EEM procedures and databases are not used to determine the overall size of the budget for investment in road improvement projects – in other words the analysis is not used to determine the relative priorities of transport and non-transport related projects.

<sup>10</sup> Following a directive from Treasury in 1972.

<sup>11</sup> Upon the recommendation of The Treasury – see EEM, section 2.6, page 2-11.

### **Wider Economic Benefits**

- 42 Conventional cost benefit analysis of transport projects is now being extended to cover increases in productivity (or efficiency) at the regional and national levels that are in addition to the conventionally measured benefits (e.g. savings in vehicle operating costs, travel time and accidents). Conceptually, the inclusion of a number of additional benefits can be justified. For example, there are so called 'agglomeration' benefits. These arise when the productivity and the supply of labour and other resources are enhanced when travel times between points within a district, city or region are reduced and this leads to an effective increase in the density or concentration of business activity. Another wider economic benefit may occur as a result of road improvement projects increasing the level of economic activity in an area and economies of scale leading to increased productivity and economic efficiency.
- 43 I am aware of work that has been done to extend conventional cost benefit analysis to include these wider economic benefits (although I have not carried out any such exercises myself). The NZTA's EEM now includes procedures and data for estimating agglomeration economies. I accept conceptually the possible existence of wider economic benefits but believe the quantification of such benefits in New Zealand (and probably overseas) is not as well developed as conventional cost benefit analysis. Therefore, any estimates of wider economic benefits need to be treated with some caution.

### **BCR Calculation for the Project**

- 44 I have been informed that the latest BCR, based on conventional cost benefit analysis for the MacKays to Peka Peka Expressway Project, is estimated at 0.93.<sup>12</sup> Details about the calculation of this estimate are set out in the evidence of **Mr Nicholson**. No agglomeration benefits or other wider economic benefits are included in the calculation of the Project's estimated BCR.
- 45 Whereas in the past the BCR and a qualitative<sup>13</sup> assessment of any 'intangibles' were the only criteria on which New Zealand road improvement projects were assessed and ranked for funding purposes, I am informed that this assessment of a project's efficiency is now only one of the relevant assessment and ranking criteria, with other criteria relating to 'strategic fit' and 'effectiveness'.
- 46 I am informed that the NZTA has scored the whole of the Wellington Northern Corridor RoNS Project (of which the MacKays to Peka Peka Expressway Project is an integral part) 'high' (H) for strategic fit,

<sup>12</sup> I understand that this BCR has been calculated not incorporating revised (lower) traffic flow forecasts. However the revised traffic flow forecasts have ignored traffic growth which would eventuate from greater residential and business growth facilitated by the Project (see the evidence of **Mr Nicholson** and **Mr Murray**).

<sup>13</sup> Or at least not quantified in money terms.

'high' (H) for effectiveness and 'low' (L) for efficiency; and that this 'HHL' combination gives the Project a 'priority 3' ranking out of 11 possible priority for funding rankings (see the evidence of **Mr Nicholson**).

- 47 I am not personally familiar with the background to the development of the two additional criteria (strategic fit and effectiveness) or how they are measured. However, in part at least, I believe that these other criteria are an attempt to cover costs and benefits which have been excluded from the benefit cost ratio. Whereas from the perspective of economists, an efficiency measure for a project should be all encompassing (even if some costs and benefits of the project are not quantified in monetary terms). However, non-economists do not necessarily use the same framework and hence seek additional criteria to efficiency to describe other effects of a project.
- 48 Therefore, from the point of view of having regard to "... *the efficient use and development of natural and physical resources*", as set out in Part 2, s 7(b) of the RMA, I consider it is necessary to look beyond just the benefit cost ratio estimated for the MacKays to Peka Peka Expressway Project. In this respect, I would note the following:
- 48.1 The latest BCR, including agglomeration benefits for the whole of the Wellington Northern Corridor RoNS investment package, is 1.2.<sup>14 15</sup> This means that the benefits of the whole of the Wellington Northern Corridor RoNS investment package are sufficient to exceed the 8% real (i.e. net of inflation) opportunity cost of funds set by NZTA – i.e. the benefits exceed the costs, including an 8% real cost of capital. Another way of expressing this is that the Wellington Northern Corridor RoNS investment package has an economic internal rate of return (*EIRR*) greater than the Government's hurdle rate of 8%.
- 48.2 Considering only the BCR for the MacKays to Peka Peka Expressway Project in isolation is artificial in that the Project is an integral part of the Wellington Northern Corridor RoNS investment package. Without the MacKays to Peka Peka Expressway Project, the benefits of the Wellington Northern Corridor RoNS investment package will not be realized.

<sup>14</sup> See the evidence of **Mr Nicholson**.

<sup>15</sup> The BCR of 1.2 for the total Wellington Northern Corridor RoNS investment package was estimated before it was decided to not construct an expressway from Otaki to Levin, but to instead make improvements to the existing SH1 between these two centres. This is likely to mean that the BCR for the reformulated RoNS investment package will be higher than 1.2.

- 48.3 The Project has greater benefits and considerably lower costs than the three alternative MacKays to Peka Peka expressway routes evaluated by NZTA. The net present value of benefits is between 4% and 7% higher than for the other three options and the net present value of costs is between 26% and 38% lower than for the other three options.<sup>16</sup>
- 48.4 There are benefits from the Project which have been excluded from the quantitative analysis estimating the BCR for the Project (and the Wellington Northern Corridor RoNS investment package). In particular, no account has been taken in the BCR's estimation of:
- (a) The residual value of the Project at the end of the analysis period. Whilst the Project does not have a residual value in the sense that it cannot be sold or redeployed in other uses, it has a residual value in that at the end of the analysis period it is likely to continue providing a stream of net traffic operating benefits out into the future before major reinvestment is required; and
  - (b) The economic benefits of having an alternative "life-line" route across the Waikanae River in the event of an emergency such as an earthquake.<sup>17 18</sup>
- 48.5 The BCR has been estimated using a national economic viewpoint. However, adopting a narrower Wellington (and Kāpiti Coast) viewpoint, the BCR will be much higher since residents and businesses of Wellington (and Kāpiti Coast District<sup>19</sup>) will receive most of the Project's benefits but pay only a proportionate share of its costs. In fact there is no certainty that, if the Project does not proceed, the funds earmarked for it will be available for road improvement (or other) projects in Wellington (or Kāpiti Coast District). The funds may instead be used for road improvement (or other) projects in Auckland or elsewhere in New Zealand. Therefore, from a Wellington regional (and Kāpiti Coast District)

<sup>16</sup> See MacKays Crossing to Peka Peka Expressway Alternative Route Options Report; Volume 1; prepared for the New Zealand Transport Agency by the MacKays to Peka Peka Alliance; April, 2011 (page 49).

<sup>17</sup> These could be included in the BCR estimate by combining the estimated costs of not having the alternative route and multiplying this by the probability of such an event which would close the existing SH1. If a policy maker was significantly risk averse, it may be more appropriate to assume such an event would occur at least once during the life of the Project and this would significantly increase the BCR.

<sup>18</sup> Personal communication, **Mr Nicholson**.

<sup>19</sup> The assessment of traffic effects identifies that the Expressway will significantly benefit local traffic – i.e. that with an origin and/or destination between MacKays Crossing and Peka Peka (see later in my evidence, Technical Report 32 (Assessment of Traffic Effects), and in the evidence of **Mr Murray**).

perspective, the Project has a much higher BCR since the benefits are significant but the opportunity cost of the funds for Wellington (and Kāpiti Coast) is much lower; and

48.6 The BCR estimate for the MacKays to Peka Peka Expressway Project (and the whole of the Wellington Northern Corridor RoNS) will be refined and reviewed in the future before funding is approved for the Project's construction. Construction funding approval will depend upon the results of the BCR refinement<sup>20</sup> and the Government's other funding requirements. Therefore, it is inappropriate to rely only on the current BCR estimate for the Project to assess the efficient use of resources under the RMA.

49 Having regard to the various factors listed in the previous paragraph, in my opinion the Project is consistent with enabling "*people and communities to provide for their ... economic ... well being*", and having regard to "*the efficient use and development of natural and physical resources*".

## **OTHER ECONOMIC EFFECTS**

### **Business Redistribution Effects**

50 Generally under the RMA, retail or business redistribution effects are not relevant insofar as they impact on individual competitors. Such impacts are only relevant under the RMA to the extent they are of such significance that they threaten the public amenity values (e.g. critical mass, sustainability, vibrancy and vitality, etc.) of city, town or suburban centres.<sup>21</sup>

51 The MacKays to Peka Peka Expressway Project is not an investment by a competitor in retail or other businesses within city, town or suburban centres, but may nonetheless have a negative impact on the economic wellbeing of some Kāpiti District businesses heavily dependent on the passing motorized trade along the existing SH1 alignment.

52 Before considering particular centres that will be 'by-passed' by the new Expressway, there are a number of general comments to be considered:

52.1 From a Kāpiti Coast District viewpoint, the Expressway Project will not reduce the overall level of business activity – indeed the improvements in accessibility to, from and within the

<sup>20</sup> Including the use of up-to-date traffic forecasts with and without the Project.

<sup>21</sup> See *Eldamos Investments Limited v Gisborne District Council* (EnvC W047/2005, 22 May 2005) at paras 217-235; *General Distributors Limited v Waipa District Council* (HC Auckland CIV-2008-404-4857, 19 December 2008) at para 93; and *Discount Brands Limited v Westfield (New Zealand) Limited* [2005] 2 NZLR 597 (SC) at paras 8-17.

District brought about by the Project will be likely to increase the overall level of business activity within the District as a consequence of increased competitiveness for local businesses and an increase in the District's attractiveness to live in or visit. Therefore, any losses in trade for individual businesses will be offset by increases in trade for other businesses.

- 52.2 Business transactions involve transactions between suppliers and consumers. Where consumers change their destination purchasing patterns, there are likely to be benefits to them as well as to the suppliers who gain trade. Such benefits should not be ignored by focussing only on suppliers who lose trade.
- 52.3 Lost sales revenue greatly overstates the "bottom line impact" on business suppliers. It is really only lost profits, which are likely to be considerably less than lost sales revenue, that are the cost impact on suppliers who lose business. Over time, businesses will react to their new business environment to minimise such lost profits by downsizing, changing their offering or by relocating.
- 52.4 Even without the Expressway Project, businesses must address changing business conditions and their future viability is not assured.
- 52.5 Appropriate signage can be put in place to provide some mitigation of the negative impacts on businesses reliant on the passing motorized trade along the existing SH1. In some instances, property purchases by the NZTA will include a component for lost future business profits, and these business owners will therefore be compensated.<sup>22</sup>
- 52.6 Competing businesses between Wellington and north of Otaki will be similarly disadvantaged in that there will be no direct access from SH1 along the length of the motorway (including the Transmission Gully section) and the proposed expressways from MacKays to Peka Peka and from Peka Peka to north of Otaki. Motorists will be forced to leave the motorway or expressways to purchase petrol or food, for example, or for accommodation.
- 52.7 Over time growth in business sales (as a result of population and household growth and increases in real per capita and per household expenditure) will help to offset any reductions in sales for some individual businesses as a consequence of the Expressway Project.

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<sup>22</sup> See the evidence of **Mr Quinn**.

- 53 The suburban and town centres potentially affected with respect to business redistribution effects by the Expressway Project are the clusters of businesses at Raumati Beach Turnoff, Paraparaumu town centre, Lindale and Waikanae town centre.<sup>23</sup>
- 54 At the turnoff to Raumati Beach on the existing SH1 alignment, there are only two businesses which might be considered to have some level of dependency on the passing motorised trade along the existing SH1. These are the chocolate factory and the Prenzels retail outlet. However, these businesses will be relatively easy to access from the Expressway via the turnoffs at Poplar Avenue and Kāpiti Road.
- 55 In the Paraparaumu town centre, it is my opinion that the businesses most significantly affected by the Expressway rerouting through traffic away from the existing SH1 alignment are the two service stations, several fast food outlets and the two motel complexes on the existing SH1. Whilst all of these businesses are located on the existing SH1 alignment and are dependent on the passing motorised trade to varying degrees, competing businesses between Wellington and north of Otaki will be similarly disadvantaged in that there will be no direct access from SH1 along the length of the motorway (including the Transmission Gully section) and the proposed expressways from McKays to Peka Peka and from Peka Peka to north of Otaki. The more numerous other businesses in the Paraparaumu town centre are expected to be affected only to a small or negligible extent.
- 56 Boat City, the petrol station and the Lindale motels, motor park and the Lindale complex on SH1 north of Paraparaumu will not be visible and not as accessible from the new Expressway as they are from existing SH1. The Lindale complex contains 19 businesses including a recording studio, a radio station, a number of retail outlets, attractions, offices and light industries. These businesses are to varying degrees dependent upon the passing motorised trade. The most significantly affected by the rerouting of SH1 along the proposed Expressway are likely to be the petrol station, the motels, the motor park, and five of the retail outlets and two attractions within the Lindale complex. However competing businesses between Wellington and north of Otaki will be similarly disadvantaged in that there will be no direct access from SH1 along the length of the motorway out of Wellington (including the Transmission Gully section) and the proposed expressways from McKays to Peka Peka and from Peka Peka to north of Otaki. The

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<sup>23</sup> Harrison's Garden World and Café near the Peka Peka turn off on SH1 is 150 metres from SH1 and in my opinion therefore less likely to be reliant on passing motorised SH1 traffic. Also the garden centre aspects of the business I expect to be substantially reliant on "destination" visitors rather than the passing motorised trade. Therefore I would expect the loss of trade effects of the new Expressway to be less than for businesses in centres on the existing SH1.



other businesses at Lindale are expected to be affected only to a small or negligible extent.

- 57 In the Waikanae town centre, the businesses to be most significantly affected are two motel complexes, a supermarket (with a fuel retail facility), two service stations and about a dozen restaurants<sup>24</sup>, cafés and takeaway outlets. Whilst all of these businesses are located on the existing SH1 alignment and are dependent on the passing motorised trade to varying degrees, they will be disadvantaged no more than other competing businesses between Wellington and north of Otaki. The many other businesses in the Waikanae town centre are expected to be affected only to a small or negligible extent. Further all of the businesses in the Waikanae town centre will benefit from planned urban growth at north Waikanae.<sup>25</sup>
- 58 In summary, the Expressway Project potentially will have significant negative business redistribution effects for a relatively small number of businesses, but the vast majority of businesses are not so dependent on the passing motorized trade that they will be significantly affected. Therefore from a whole of centres perspective, the business redistribution effects of the new Expressway will not be sufficiently significant to affect the public amenity values of the centres 'by-passed' by the Project. Also even for the limited number of individual businesses that may be significantly affected, the impacts of the Expressway Project will be no greater than for competing businesses along the length of the existing SH1 from Wellington to north of Otaki.
- 59 The Expressway Project will also provide the opportunity for improving the public amenity values of Waikanae and Paraparaumu town centres by removing through traffic on SH1 – see the evidence of **Mr Murray** and **Mr Baily**.

#### **The Benefits from Increased Economic Activity during the Expressway's Construction**

- 60 During the Expressway's anticipated five year construction period (2013-18 inclusive), there will be increased economic activity for the Wellington Region, including the Kāpiti Coast District, as a consequence of the additional expenditure, employment and incomes directly generated by the Expressway's construction and the indirect (or multiplier) expenditure, employment and incomes generated as a consequence of impacts on suppliers of goods and services to the Expressway project and those employed on it.

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<sup>24</sup> Including the restaurant on SH1 to the south of Waikanae town centre.

<sup>25</sup> See Assessment of Urban Planning and Design Effects, Technical Report 6; Marc Baily; 23 March 2012; appended to the Assessment of Environmental Effects of the MacKays to Peka Peka Expressway Project.

- 61 NZTA takes no account of such impacts in its estimation of a project's BCR. This is because, in taking a national viewpoint, the level of economic activity (i.e. expenditure, employment and incomes) is likely to be the same with or without a project – if funds are not utilized on one project they are likely to be utilized on an alternative NZTA project, even if in a different region in New Zealand. However, taking a Wellington regional perspective (or an even narrower perspective such as that of Kāpiti Coast District), there is likely to be increased levels of economic activity as a consequence of the Expressway Project, since without it, the funds earmarked for it are likely to be used elsewhere in New Zealand and not on an alternative road construction project in the Wellington region or Kāpiti Coast District. Local firms will be engaged to provide goods and services to the Project, local residents will be engaged to work on the Project and local firms will in turn provide goods and services to these employees.
- 62 As indicators of levels of economic activity, economic impacts such as increases in business turnover, employment and incomes are not in themselves measures of improvements in economic welfare or economic wellbeing. However, there are economic welfare enhancing benefits associated with increased levels of economic activity. These relate to one or more of:
- 62.1 Increased economies of scale: Businesses and public sector agencies are able to provide increased amounts of outputs with lower unit costs, hence increasing profitability or lowering prices;
- 62.2 Increased competition: Increases in the demand for goods and services allows a greater number of providers of goods and services to enter markets and there are efficiency benefits from increased levels of competition;
- 62.3 Reduced unemployment and underemployment<sup>26</sup> of resources: To the extent resources (including labour) would be otherwise unemployed or underemployed, increases in economic activity can bring efficiency benefits when there is a reduction in unemployment and underemployment. The extent of such gains is of course a function of the extent of underutilised resources within the local economy at the time, and the match of resource requirements of a project and those resources unemployed or underemployed within the local economy; and

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<sup>26</sup> Underemployment differs from unemployment in that resources are employed but not at their maximum worth; e.g. in the case of labour, it can be employed at a higher skill and/or productivity level, reflected in higher wage rates.

62.4 Increased quality of central government provided services:  
Sometimes the quality of services provided by central government (such as education and health care) is a function of population levels and the quality of such services in a community can be increased if increased economic activity maintains or enhances population levels.

63 It is reasonable to assume that any increases in economic activity as a consequence of increased road construction activity in the Kāpiti Coast District from the Expressway Project will give rise to one or more of these four welfare enhancing economic benefits at the regional or narrower district level.

**The Benefits from Increased Economic Activity Once the Expressway is Operational**

64 Improving the accessibility to, from and within the Kāpiti Coast District will increase the attractiveness of the District for business and residential development. Therefore the Expressway Project<sup>27</sup> is likely to result in increased levels of economic activity within the District from greater employment and population growth. As discussed previously in relation to the Expressway Project's construction, increases in levels of economic activity are not in themselves measures of improvements in economic welfare or economic wellbeing. However, there are economic welfare enhancing benefits associated with increased levels of economic activity to the extent that they lead to increased economies of scale, increased competition, reductions in unemployment and underemployment of resources and improvements to services provided by central government.

65 These types of economic benefits arise at the local or district level. However at the wider regional or national level, it is most likely such benefits will only be transfers – i.e. the faster growth in business and residential development within the Kāpiti Coast District will be at the expense of slower growth elsewhere within the region or New Zealand.<sup>28</sup>

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<sup>27</sup> Especially in conjunction with the Transmission Gully Project and other improvements proposed as part of the Wellington Northern Corridor RoNS.

<sup>28</sup> This is with the exception of so-called "agglomeration economies" which refer to the beneficial effects of road improvement projects improving the accessibility within a district, region or country and thereby effectively increasing the density and consequently the economic efficiency of urban centres. In the cost benefit analysis undertaken in accordance with NZTA's EEM procedures, agglomeration economies have only been estimated for the calculation of the BCR for the whole Wellington Northern Corridor RoNS investment package and not for the individual sub-components of the package.

### **Traffic Related Benefits for Local Residents and Businesses**

66 Technical Report 32 assessing the Project's traffic effects<sup>29</sup> states:

The absence of a north-south local arterial, the significant amount of local access from SH1, and the single crossing of the Waikanae River contribute to a significant amount of local traffic on SH1. At the Waikanae River Crossing, only around 30% of traffic on SH1 is "through traffic" (vehicles travelling on SH1 between MacKays Crossing and Peka Peka without starting or stopping their journey in between).

In other words, around 70% of existing traffic on SH1 is local traffic.

67 The Expressway Project will result in faster north-south travel times, as well as improved east-west connectivity at Poplar Avenue, Raumati Road, Rimu Road/ Mazengarb Road and Te Moana Road.<sup>30</sup> This will lead to reductions in vehicle operating costs, travel times and accident costs and improvements in trip time reliability for local residents and business employees (a) making journeys within the District; and (b) making journeys to the south or north of the District. These traffic-related benefits of the Expressway Project are detailed in Technical Report 32<sup>31</sup> to the AEE and the evidence of **Mr Murray**.

68 For local businesses, savings in vehicle operating costs, travel times and accident costs and improvements in trip time reliability will result in increased productivity and improvements in business competitiveness. For local residents, the traffic related benefits of the Expressway Project will provide expenditure savings and the freeing up of time for other productive or leisure activities.

69 It is interesting to note that, whereas some major infrastructure projects give rise to national and regional economic benefits, but localised (or "community") costs, the MacKays to Peka Peka Expressway Project is anticipated to bring significant local economic benefits in addition to national and regional economic benefits.

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<sup>29</sup> Assessment of Traffic Effects, Technical Report 32; Beca Infrastructure Ltd; 17 February, 2012.

<sup>30</sup> There will be slightly increased travel times along Kāpiti Road as a result of traffic signals at the Kāpiti Road interchange with the new Expressway.

<sup>31</sup> Assessment of Traffic Effects; Beca Infrastructure Ltd; 17 February, 2012.

## RESPONSE TO SUBMISSIONS

### Supporting Submissions

- 70 I have read a number of submissions which contain economic reasons in support of the proposed M2PP Expressway Project.<sup>32</sup> These reasons include:
- 70.1 The Project's contribution to future economic and population growth, employment, incomes and economies of scale for Kāpiti, Wellington and New Zealand;
  - 70.2 The expected growth in freight volumes;
  - 70.3 The Expressway is better than the inadequate and dangerous existing SH1 and will provide vehicle operating cost savings, travel time savings, accident cost savings, improvements in trip time reliability and reductions in business costs;
  - 70.4 Reduced vulnerability in the event of a natural disaster or major accident affecting the existing primary highway access route;
  - 70.5 The Project can be built with minimal interruption to traffic flows along the existing SH1;
  - 70.6 The Project (in conjunction with other components of the Wellington Northern Corridor RoNS investment package) will bring Wellington and the Hutt Valley closer to Wellington and in particular improve access to the port, hospital and airport;
  - 70.7 The Project is needed for the benefits of the Transmission Gully and other components of the Wellington Northern Corridor RoNS investment package to be realised;
  - 70.8 The Project will attract trade to Kāpiti businesses including the Southwards Car Museum because of improved road linkages and the removal of through traffic from town centres;

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<sup>32</sup> These include, for example, submissions from G Weaver (EPA Submission no 0003), New Zealand Forest Owners Association (EPA Submission no 0019), J Rapley (EPA Submission no 0043), J & W Huston (EPA Submission no 0080), B Frazer (EPA Submission no 0130), D Jennings (EPA Submission no 0177), M Mountier (EPA Submission no 0199), S & M Pritchard (EPA Submission no 0205), P Canvin (EPA Submission no 0234), W Morrison (EPA Submission no 0250), CentrePort Limited (EPA Submission no 0252), Whanganui Employers Chamber of Commerce (EPA Submission no 0254), P Reedy (EPA Submission no 469), Kapiti Coast Airport (EPA Submission no 0525), Business New Zealand (EPA Submission no 0638), Hutt Valley Chamber of Commerce (EPA Submission no 0655), Kapiti Chamber of Commerce (EPA Submission no 0665), Land Matters Limited (EPA Submission no 0686), and Porirua City Council (EPA Submission no 0694).

- 70.9 Additional jobs will be created for Kāpiti and Wellington during the Project's construction;
- 70.10 The Project will help maintain inter-modal freight competition;
- 70.11 The Project will encourage greater use of Paraparaumu airport and thereby help enhance air services available at the airport; and
- 70.12 The Expressway's construction will be at central government's expense, whereas local road improvements such as the previously proposed Western Link Road (WLR) would be at Kāpiti Coast District Council's expense.
- 71 These views expressed in support of the M2PP Expressway Project are consistent with my own opinion as to the economic benefits of the Project.

### **Opposing Submissions**

- 72 Economic reasons in submissions<sup>33</sup> which I have read and that oppose the M2PP Expressway Project include<sup>34</sup>:
- 72.1 The BCR analysis should include property value effects and "intangible" costs;
- 72.2 The Project will lead to a loss of trade for Kāpiti businesses;
- 72.3 The Project will result in the inappropriate use of fertile land;
- 72.4 El Rancho's economic viability will be threatened during construction and after construction of the Project;
- 72.5 The Project will have negative effects on Kāpiti tourism;

<sup>33</sup> These include, for example, submissions from K Hunter (EPA Submission no 0008), A Hager and B Laird (EPA Submission no 0056), W & G Kennedy (EPA Submission no 0189), C Keno (EPA Submission no 0357), M Cooke-Willis (EPA Submission no 0398), R Mackay (EPA Submission no 0404), K Allan (EPA Submission no 0502), Waikanae Christian Holiday Park (EPA Submission no 0477), A Beechy (EPA Submission no 0490), Save Kapiti Incorporated (EPA Submission no 0505), B Moore (EPA Submission no 0507), Alliance for a Sustainable Kapiti Inc (EPA Submission no 0572), R Childs (EPA Submission no 0603), N Fisher (EPA Submission no 0610), D Cannal (EPA Submission no 0616), Action to Protect and Sustain Our Communities (EPA Submission no 0677), D Saint (EPA Submission no 0710), and J Thornton (EPA Submission no 0711).

<sup>34</sup> Note a number of economic reasons in submissions that oppose the Project are responded to in the evidence of other witnesses for NZTA including **Mr Nicholson** (the accuracy of the BCR analysis, alternative uses of Government funds; the WLR is a better alternative, additional costs to ratepayers from maintaining existing SH1, rail is better than road for freight, rising project costs and business closures due to partial land take); **Mr Murray** (stagnant or falling traffic volumes); **Mr Nicholson** (rising project costs); **Mr Quinn** (rerouting the natural gas pipeline); and **Mr Baily** (pressure for development at or near new interchanges diverting trade from existing town centres).

72.6 Construction jobs created by the Project will only be temporary; and

72.7 The Project will lead to an increase in out of district expenditure.

73 Below, I comment on each of these reasons raised in submissions.

***Property Value Effects and "Intangibles"***

74 A number of properties within the vicinity of the proposed Expressway will be adversely affected by the Project as a consequence of visual, noise, severance and other so-called "intangible" effects. In economics, intangible effects are those which cannot easily be measured in monetary terms. Whilst it may sometimes be possible to estimate property value changes as a consequence of a project such as the M2PP Expressway Project, such property value changes are a reflection of, and not in addition to, the intangible effects. The change in property value effect does not materialize unless and until an owner sells the property. At this point, there is a wealth loss to the seller, but no ongoing environmental effects to be borne by seller. The purchaser of the property gains by having to pay a lesser price for the property but incurs the costs of the ongoing intangible effects.

75 From the perspective of the Kāpiti Coast District or the Wellington region as a whole, these are the costs of the intangible effects as reflected in the reduction in property values but not in addition to the reduction in property values. The intangible effects of the Project are dealt with by other witnesses and their assessment would be double counted if estimates of their monetary value were included in the BCR analysis.

76 For other property owners, the improved accessibility within and to and from the District will exert upward pressure on their property values. However these increases in property values are a reflection of, not in addition to, the traffic related benefits (i.e. savings in vehicle operating, travel time and accident costs and improvements in trip time reliability) already included in the BCR analysis. Therefore property value gains are also excluded from the BCR analysis to ensure no double counting of benefits occurs.

***Loss of Trade for Kāpiti Businesses***

77 An earlier section of my evidence has addressed the business redistribution effects of the Project. Whilst certain types of businesses located on the existing SH1 will lose trade as a result of the Project, I do not believe that the loss of trade will be significant from a centre-wide and district-wide perspective.

***Inappropriate Use of Fertile Land***

- 78 The productivity of land required for the Expressway is incorporated in the cost to NZTA for the purchase of the land. It is therefore internalised into NZTA's decision making process and does not need to be separately considered as an externality at the local, regional or national level.

***El Rancho's Economic Viability***

- 79 I agree that El Rancho is an important economic asset for Waikanae and the Kāpiti Coast District. Matters of compensation will be addressed through the Public Works Act, as covered in the evidence of **Mr Quinn**, whilst proposed mitigation is covered in the evidence of **Mr Schofield**.

***Kāpiti Tourism Impacts***

- 80 Opponents to the Project have argued that visual, noise and other effects of the Project will have a negative effect on tourism businesses in Kāpiti. However, to the extent that the Project (and other components of the Wellington Northern Corridor RoNS investment package) will improve accessibility within and to the Kāpiti Coast District, tourism businesses will benefit. I note that the Kāpiti Coast Chamber of Commerce submission (EPA Submission no 0665) is strongly supportive of the Project.

***Project Construction Jobs Only Temporary***

- 81 The Project's construction will provide additional employment, incomes and expenditure for approximately four years. Whilst only temporary, the additional economic activity will be significant for the local economy and the M2PP Expressway Project's construction may dovetail with the construction of other components of the Wellington Northern Corridor RoNS investment package, lengthening the period of increased construction activity. The Project is also likely to lead to increased economic activity within the Kāpiti Coast District once the project is operational.

***Increased Out of District Spending.***

- 82 Improving the accessibility of Kāpiti Coast residents to other centres such as Wellington City and Palmerston North may lead to increased spending by local residents out of the District. However from the perspective of local residents, greater accessibility and greater choice are benefits. Also improving accessibility to and from the Kāpiti Coast District is likely to lead to increased population, employment, and visitors which will have positive impacts on spending within the local economy. Again I note the strong support for the Project by the Kāpiti Chamber of Commerce.



**RESPONSES TO SECTION 149G(3) KEY ISSUES REPORTS****Agricultural Land/Soils**

- 83 The Section 149G(3) report (pages 7-8, 23) prepared by KCDC raised the Expressway traversing of class 1 soils immediately south of Te Moana Road as an issue. The productivity of land required for the Expressway is incorporated in the cost to NZTA for the purchase of the land. It is therefore internalised into NZTA's decision making process and does not need to be separately considered as an externality at the local, regional or national level.

**Economic Effects on Town Centres**

- 84 The Section 149G(3) report (pages 9, 12) prepared by KCDC raised the economic effects of the Expressway Proposal on the town centres of Paraparaumu and Waikanae and the businesses within these centres that rely on through traffic as an issue. This has already been addressed in paragraphs 50 to 59 of my evidence. The KCDC report also suggests, and I agree, that there may be beneficial effects for the Waikanae Beach community in that it will become more accessible to passing traffic given the proposed location of the Te Moana Road interchange.

**CONCLUSIONS**

- 85 The MacKays to Peka Peka Project is consistent with enabling "*people and communities to provide for their ... economic ... well being*", and having regard to "*the efficient use and development of natural and physical resources*".



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Michael Campbell Copeland  
4 September 2012

**ANNEXURE A - CURRICULUM VITAE OF MICHAEL CAMPBELL  
COPELAND**

**DATE OF BIRTH** 3 October 1950

**NATIONALITY** New Zealand

**EDUCATIONAL** Bachelor of Science (Mathematics) 1971

**QUALIFICATIONS** Master of Commerce (Economics) 1972

**PRESENT POSITIONS**

(Since 1982) Economic Consultant, Brown, Copeland & Co Ltd

(Since 2010) Director, Southern Pastures

(Since 2010) Director, Healthcare New Zealand

**PREVIOUS EXPERIENCE**

1978-82 NZ Institute of Economic Research  
Contracts Manager/Senior Economist

1975-78 Confederation of British Industry  
Industrial Economist

1972-75 NZ Institute of Economic Research  
Research Economist

1990-94 Member, Commerce Commission

2001-06 West Coast Regional Council Trustee, West Coast Development Trust

2002-08 Lay Member of the High Court under the Commerce Act 1986

2003-11 Director, Wellington Rugby Union

## **GEOGRAPHICAL EXPERIENCE**

- New Zealand
- Australia
- Asia (Cambodia, India, Indonesia, Kazakhstan, Malaysia, Nepal, Pakistan, People's Republic of China, Philippines, Tajikistan, Sri Lanka, Uzbekistan, Viet Nam)
- South Pacific (Cook Islands, Fiji, Tokelau, Tonga, Vanuatu, Western Samoa)
- United Kingdom

## **AREAS OF PRIMARY EXPERTISE**

- Agriculture and Resource Use Economics (including Resource Management Act)
- Commercial Law and Economics (including Commerce Act)
- Development Programme Management
- Energy Economics
- Industry Economics
- Transport Economics

## **ROAD TRANSPORT ASSIGNMENTS**

- Providing evidence to the Board of Inquiry in relation to NZTA's Waterview project in Auckland;
- The economist in a team evaluating alternative arterial route upgrades between Nelson City and Richmond;
- The application of NZTA SP9 evaluation procedures for a funding application for public transport improvements in and around Queenstown;
- Engaged by Transit New Zealand to provide advice on procedures and data for evaluating additional economic benefits from safety improvements to the access roads to the Homer Tunnel;
- Three studies for the Ministry of Economic Development investigating the economic benefits associated with road improvement works to maximise further processing opportunities from forestry resources on the East Coast and in Northland. The third study considered the potential role of the existing and planned rail links in Northland and the implications of different locations for future processing options;
- Engaged by Transfund New Zealand to assist with work on Land Transport Pricing Study, review of road user charges and Transfund's project evaluation procedures;
- Examination of the economics from both national and operator viewpoints of replacing the existing Johnsonville-Wellington suburban rail service with an all bus service;
- Commentary for Transit New Zealand on the appropriateness of using property valuation data as a basis for estimating the

- environmental and severance benefits from the construction of the Stoke by-pass;
- A national and international review of procedures to adopt in transportation project appraisal. Conceptual issues relevant to all national viewpoint project evaluations were addressed as well as the data requirements for transportation project assessment;
  - Providing assistance with the preparation of a manual for roading engineers to follow when preparing requests for roading improvement works funding from the National Roads Board for New Zealand (now New Zealand Transport Agency). The manual set out the economic principles to be followed, the worksheets to be completed and the available data on vehicle operating costs, travel time values, accident costs, traffic flow characteristics and cost indices;
  - The examination of the economic issues underlying roading cost allocation procedures and provided guidance as to which costs ought to be recovered by means of road user charges and how roading costs should be spread over different road users. (Two studies in 1986 and 1993);
  - The construction of a comprehensive and consistent road accident costs data base for New Zealand, suitable for the economic analysis of accident reduction projects.
  - Retained (1982-92) as the economic consultant to the Road Research Unit of the National Roads Board/Transit New Zealand. Specific assignments related to:
    - The compilation of an updated road user travel cost database including vehicle operating costs, travel time values and accident costs.
    - A review of alternative procedures for valuing life and recommendations for the approach to be adopted in road accident cost analyses.
    - An analysis of the results of surveys conducted to identify the economic characteristics of traffic flow.
    - A case study (State Highway 73) of the use or risk analysis in the economic evaluation of roading improvements.
    - The preparation of background notes on a number of topics including risk analysis, cost benefit and project selection.
    - A review of the appropriate discount rate to use in Transit New Zealand project evaluations.

#### **RESOURCE MANAGEMENT ACT SPECIFIC PROJECTS**

- The proposed Clifford Bay ferry terminal;
- The proposed pipeline and related facilities to utilise water from the Waikato River for metropolitan Auckland;
- A container terminal expansion by the Ports of Auckland;
- The designation of the Transmission Gully motorway route;
- The proposed Variation No. 8 to the Wellington City District Plan covering height and other controls on development of the airspace above the Wellington railway yards;
- A proposed Town Centre Zone within the Kāpiti Coast District;
- Wellington City Council's heritage preservation policy;
- Solid Energy's proposed West Coast Coal Terminal at Granity;
- The designation of land for a proposed motorway extension in the Hawke's Bay;

- New regional correctional facilities in Northland, South Auckland, Waikato and Otago;
- Proposed controls on wake generation by vessels travelling within the waterways of the Marlborough Sounds;
- Southern Capital's proposed new township at Pegasus Bay, north of Christchurch;
- The imposition of land use restrictions within noise contours surrounding Christchurch International Airport;
- The expansion of the Whangaripo Quarry in Rodney District;
- Holcim's proposed new cement plant near Weston in the Waitaki District;
- McCallum Bros and Sea Tow Limited's appeal before the Environment Court regarding extraction of sand from the Mangawhai-Pakiri embayment north of Auckland;
- The development of the Symonds Hill pit at Winstones' Hunua Quarry;
- A new residential and commercial development by Apple Fields at Belfast on the outskirts of Christchurch;
- The proposed Central Plains irrigation scheme in Canterbury;
- The staging of residential and business development at Silverdale North in the Rodney District;
- The redevelopment of the Johnsonville Shopping Centre;
- A Plan Change enabling the relocation of existing development rights for a residential and commercial development on Mount Cardrona Station in the Queenstown Lakes District;
- A new Pak'nSave supermarket at Rangiora;
- A new milk powder plant for Fonterra at Darfield;
- Designation of land for NZTA's Transmission Gully motorway project in Wellington;
- Assessment of economic effects of a Queenstown Airport Corporation's proposed Notice of Requirement for the designation of additional land for aerodrome purposes;
- Assessment of the retail effects of proposed Plan Change 19 to the Queenstown Lakes District's District Plan.
- Renewal of consents for Oceana Gold (New Zealand) Limited's gold mining operations at Macraes Flat in Otago.