

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 rebuttal evidence of **Craig Nicholson** (Project Management Services Manager, Wellington) on behalf of the NZ Transport Agency

Dated: 25 October 2012

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STATEMENT OF REBUTTAL EVIDENCE OF CRAIG NICHOLSON FOR THE NZ TRANSPORT AGENCY

- 1 My full name is Craig Simon Nicholson.
- 2 I have the qualifications and experience set out at paragraphs 2 to 5 of my statement of evidence in chief, dated 7 September 2012 (*EIC*).
- 3 I confirm that I am authorised to give this evidence on behalf of the NZ Transport Agency (*NZTA*).
- 4 In this statement of rebuttal evidence, I respond to the evidence of:
 - 4.1 Dr Christopher Dearden, (submitter 0261);
 - 4.2 Ms Loretta Pomare, (submitter 0309);
 - 4.3 Mr Kent Duston, on behalf of the Rational Transport Society (submitter 0611);
 - 4.4 Dr Michael Pickford, on behalf of Save Kāpiti Incorporated (submitter 0505);
 - 4.5 Ms Julie Anne Genter, on behalf of Action to Protect and Sustain our Communities (submitter 0677); and
 - 4.6 Mr Don Wignall, on behalf of Kāpiti Coast District Council (submitter 0682).
- 5 Consistent with my *EIC*, I have referred to the MacKays to Peka Peka Expressway Project as "the Project" in this rebuttal evidence.

EXECUTIVE SUMMARY

- 6 I have thoroughly reviewed all of the statements of evidence provided by submitters' witnesses in relation to the issues covered in my *EIC*.
- 7 Dr Pickford's evidence correctly noted that maintenance of the existing State Highway 1 (*SH1*) route would continue after the Project is constructed; a fact that had been overlooked in the benefit to cost ratio (*BCR*) calculations for the Project. Allowing for this would slightly reduce the calculated *BCR* of 0.93 (as reported in paragraph 41 of my *EIC*) to 0.92.
- 8 Apart from that, the submitters witnesses' evidence has not caused me to depart from the opinions I expressed in my *EIC*.

EVIDENCE OF SUBMITTERS

Dr Christopher Dearden (submitter 0261)

- 9 Section 2 of Dr Dearden's evidence discusses, amongst other things, his 'Economic Objections' to the Project. I wish to respond to these aspects of his evidence.
- 10 In paragraph 2.1, Dr Dearden discusses what he describes as "a lack of cogent economic justification" for the Project and asserts that the Government and/or the NZTA have avoided discussing the BCR for the Project. I disagree and note that the BCRs for the Wellington Northern Corridor RoNS and for the Project are discussed in paragraphs 32 to 34 and 38 to 41 of my EIC respectively.
- 11 In paragraphs 2.2 and 2.4, Dr Dearden makes various assertions about both the first¹ and second² versions of the 'SAHA report' that I refer to in paragraphs 77 to 86 of my EIC. At paragraphs 80 to 82 of my EIC, I explain why the BCR of 0.6 that is quoted in Dr Dearden's evidence from the first SAHA report is irrelevant and incorrect.
- 12 In paragraph 2.5, Dr Dearden asserts that the NZTA's economic analyses relate to a cost estimate of \$330 million for the Project. That is incorrect. Paragraphs 38 to 41 of my EIC describe the costs that have been used in the various economic analyses that have been undertaken for the Project since 2009. The latest BCR of 0.93 for the Project relates to the latest cost estimate of \$632.6 million.

Ms Loretta Pomare (submitter 0309)

- 13 Ms Pomare's evidence relates, amongst other things, to her 'economic' objections to the Project, which include the BCR for the project and construction cost increases. I wish to respond to these aspects of her evidence.
- 14 In paragraph 2, Ms Pomare discusses her concerns about the two versions of the 'SAHA report'. Paragraphs 77 to 86 of my EIC address these concerns.
- 15 In paragraph 10, Ms Pomare discusses her concerns about construction cost increases and asserts that the cost may rise to "a figure of at least \$1.2 billion, including inflation". Paragraphs 100 to 105 of my EIC address these concerns.

¹ Saha International Ltd, "**Road of National Significance, Economic Assessments Review**", December 2009. (Unpublished, but released under the Official Information Act 1982, as explained in paragraph 83 of my EIC.)

² Saha International Ltd, "**Road of National Significance, Economic Assessments Review**", July 2010.

**Mr Kent Duston, on behalf of the Rational Transport Society
(submitter 0611)**

- 16 Mr Duston's evidence relates, amongst other things, to various aspects of affordability, including whether the necessary funding is available and whether using funds for this project will result in an inability to carry out higher priority projects. I wish to respond to these aspects of his evidence.
- 17 On page 3, Mr Duston questions whether funding will be available for the Project. I have addressed this issue in paragraphs 22 and 23 of my EIC.
- 18 On page 5, Mr Duston questions whether using funds for this Project will result in an inability to carry out higher priority projects. Examples he cites of projects that he perceives to be of higher priority are reinstatement of the Gisborne railway line, replacement of single lane bridges on state highways, provision of a railway station at Raumati, provision of a safe cycleway and walkway from Petone to Ngauranga, and double tracking and associated improvements to the railway line between Pukerua Bay and Paekakariki.
- 19 As I explained in paragraphs 70 to 76 of my EIC, the Government Policy Statement on Land Transport Funding (*GPS*) sets out the funding ranges for different activity classes within the National Land Transport Programme (*NLTP*). Funding of the Project (which would come from the State highway improvements activity class) would not affect the amount of funding available for public transport improvements (which would come from the public transport activity class) and cannot be diverted to increase the amount of funding available for the public transport activity class. The same applies to the walking and cycling activity class. Therefore, the Project would only "compete" for funding with other State highway improvement projects, not with any of the public transport or walking and cycling projects cited by Mr Duston.
- 20 I understand that the only remaining single lane bridges on the State highway network are on lightly trafficked routes, so the average traffic delays are generally low, despite the inconvenience for travellers of sometimes having to wait for oncoming traffic. In my experience, it would be very unlikely that a single lane bridge replacement project would have as high a funding priority as the Wellington Northern Corridor RoNS.
- 21 I also wish to correct some factual errors in Mr Duston's evidence.
- 22 In the fifth paragraph on page 3, Mr Duston states that "*In the case of the 4 lane expressway proposal north of Peka Peka, the NZTA has recently decided that smaller road improvements will deliver similar benefits, more rapidly, at a lower cost.*" That is incorrect. The section of the Kāpiti Expressway from Peka Peka to north of Ōtaki is still proposed to be a 4 lane expressway. North of that, the NZTA has revised its proposal, primarily because the traffic flows divide

roughly in half at the SH1 / SH57 junction south of Levin, so there is no single "through route" for an expressway to serve. That is not the case for either the MacKays to Peka Peka, or Peka Peka to north of Ōtaki sections of the Kāpiti Expressway.

- 23 In the first paragraph on page 8, Mr Duston states that "*Additional use of the rail network now, by increasing the size of trains, would only require additional rolling stock. The fixed infrastructure is adequate for significant additional use.*" That is incorrect. The trains that currently operate on the Kāpiti line during the commuter peak periods already occupy the full length of the platforms at a number of railway stations. The number of carriages cannot be increased without also extending the railway station platforms. Also, the new 'Matangi' trains require a much more consistent electrical supply than the older trains did. This required Kiwirail to upgrade the rail electrical supply before the 'Matangi' trains entered service, which included the construction of 11 new substations. Increasing the number of carriages would increase the electrical demand further, which I understand would require further upgrades to the electrical supply infrastructure.
- 24 In the second paragraph on page 13, Mr Duston states that "*Car use has been stabilising or declining in the Wellington region in recent years, and the same pattern has been seen in other parts of the country. Evidence was provided to the Transmission Gully hearing on that issue, and agreed in caucusing between experts.*" That is incorrect. I was extensively involved in that hearing and I have no recollection of any such agreement between experts. I have re-read the two traffic and transportation expert witness conferencing statements³ from that hearing and can confirm that neither statement makes any mention of this topic.

Dr Michael Pickford, on behalf of Save Kāpiti Incorporated (submitter 0505)

- 25 I have taken a particular interest in Dr Pickford's evidence, since it closely relates to my own. I note that Dr Pickford's evidence includes, amongst other things, his understanding of the theory and application of BCR analysis, whether or not the Project is a worthwhile investment relative to other projects, and what he perceives to be shortcomings in the NZTA's project funding assessment process. I understand that the Board has regard to economic efficiency under section 7(b) of the RMA. However, I am mindful that a number of points raised by Dr Pickford may not be relevant to decision making under the RMA (for example whether funding should be made available for the Project, or the NZTA's policy for funding priorities).

³ The first statement, dated 9 December 2011, is available at: <http://www.epa.govt.nz/Publications/Witness%20Conferencing%20Statement%201-Traffic%20and%20Transportation%209%20Dec%202011.pdf>.
The second statement, dated 19 December 2011, is available at: <http://www.epa.govt.nz/Publications/Witness%20conferencing%20statement%202-%20Traffic%20and%20Transportation.pdf>.

- 26 The rebuttal evidence of **Mr Michael Copeland** addresses a number of the points raised in Dr Pickford's evidence. My rebuttal evidence addresses the issues that relate to the NZTA policy and calculation of the BCR.

Overview of social cost-benefit analysis

- 27 In general, I agree with much of Dr Pickford's evidence about the theory and application of social cost-benefit analysis in this section of his evidence, but I wish to comment on some elements that I do not agree with.

Counterfactual

- 28 In paragraph 22, Dr Pickford quotes a paragraph from the NZTA's "Economic Evaluation Manual" (EEM) relating to the use of a 'do-minimum' scenario, rather than the 'do nothing' scenario, as the basis for evaluation (i.e. the counterfactual). In paragraph 23, he suggests that the Western Link Road (WLR) would be a more valid counterfactual and states that the EEM acknowledges that the counterfactual can be another, mutually exclusive, project. However, in making this statement, Dr Pickford omits to note that in the same section of the EEM that he quoted from in his paragraph 22,⁴ the paragraph immediately after the one that he quoted states that:

"It is important not to overstate the scope of the do-minimum, ie it shall only include that work which is absolutely essential to preserve a minimum level of service."

- 29 In my opinion, this is an important omission, because the paragraph clarifies that the 'do-minimum' is not intended to be an alternative project, as Dr Pickford suggests.
- 30 To the best of my knowledge, it would be unprecedented in New Zealand for a project such as the WLR, that is estimated to cost well in excess of \$100 million for Stage 1, or approximately \$200 million for the entire length, to be considered to be the 'do minimum' for another project.
- 31 In my experience, the only situations when one mutually exclusive project is considered to be the 'do-minimum' for others, are:

- 31.1 Structural bridge renewal projects (where an existing bridge has collapsed or otherwise failed), in which case there are generally no bridge replacement options that do not include significant construction and/or maintenance costs, so all the feasible bridge renewal options are evaluated and the one with the lowest net present value (NPV) cost is used as the 'do-minimum' for evaluating the others; and

⁴ EEM Section 2.8, sub-heading "The do-minimum", page 2-14.

- 31.2 Large scale road renewal projects (where an existing road or hill slope has failed), in which the cost to reinstate the existing route may be higher than the cost of building a new route, so (again) the option with the lowest NPV cost is used as the 'do-minimum' for evaluating the others.
- 32 I consider it implausible to use the WLR as either the counterfactual or 'do-minimum' for the Project because it is far from certain that the WLR is affordable for the KCDC, as I explained in paragraphs 57 to 64 of my EIC.
- 33 Further to that, I understand that the \$16.8 million that KCDC had originally committed for construction of the WLR in its Long Term Council Community Plan has subsequently been reallocated to other community priorities, so would no longer be available to fund the 'local share' of the WLR project. My understanding is based on the forecast statement of capital expenditure for access and transport within KCDC's annual plan update of its Long Term Plan 2012-2032,⁵ in which the only expenditure budgeted for the WLR is \$16,000 for property renewals.
- 34 Also, as I described in paragraph 55 of my EIC, **Mr Andrew Murray** considered the WLR as an alternative to the Project in his EIC⁶ and concluded that it would not achieve the Project objectives, even in conjunction with minor upgrades to the existing SH1 route.
- 35 In light of these factors, I do not consider it appropriate to consider the WLR as the counterfactual for the Project.
- 36 In paragraph 59, Dr Pickford again proposes the WLR as the relevant counterfactual and then states that "*the WLR's BCR does not include the benefits mentioned in the previous paragraph either...*" (underline added) and that "*the differential in the BCRs of the two projects is likely to remain.*" Those statements are both incorrect, for the following reasons:
- 36.1 The first statement is incorrect because the BCR of 1.8 calculated by Opus for the WLR in 2009 did include trip time reliability benefits, although I acknowledge that those benefits were not a large proportion of the total project benefits.
- 36.2 The second statement is incorrect because the methodology utilised by Beca to calculate the BCR for the project differed from the methodology utilised by Opus to calculate the BCR for the WLR in several ways. The differential in the BCRs would reduce significantly if changes were made to standardise the calculation

⁵ See <http://www.kapiticoast.govt.nz/Documents/Downloads/LTP/Final/2012/LTP-2012-32-Part-Three.pdf>.

⁶ See **Mr Murray's** Statement of Evidence in Chief, paragraphs 200 to 216.

methodology of the two projects (i.e. either the BCR of the Project would increase or the BCR of the WLR would reduce if the same methodology was used for both.)

Maintenance costs

- 37 In paragraph 42, Dr Pickford discusses the maintenance costs for the existing SH1 route in the 'do minimum' scenario and notes that SH1 would continue to be used as a local road, and hence would continue to require maintenance and resealing works. I agree.
- 38 In paragraph 43, Dr Pickford discusses the maintenance costs along the existing SH1 route for the Transmission Gully Project (TGP), which he describes as a "similar situation" and he asserts (in footnote 12) that "The assumption was made that any savings on maintenance costs were too small to measure". Those statements are incorrect. For the TGP, the existing SH1 north of Linden (which is the southern end of the TGP) is a 4-lane, median divided motorway, which will continue to carry in excess of 40,000 vehicles per day after the TGP is opened, so I do not consider that to be a similar situation at all. The assumption made by the economic analyst for the TGP was not that any difference in maintenance costs would be too small to measure, but rather that the maintenance costs were so small in relation to the construction cost that any difference would be immaterial in the BCR calculations (so the maintenance costs could reasonably be ignored).
- 39 In general, the NZTA's experience is that after State highways are revoked and become local roads, the expenditure on them drops very substantially, both in terms of routine maintenance (e.g. litter collection, road sign maintenance, line marking, mowing of roadside grass, etc) and periodic maintenance (e.g. resealing). That is not to say that local authorities maintenance standards are lower, simply that with lower traffic volumes and lower speeds, the maintenance requirements are lower. An obvious example is mowing of roadside grass. On 100 km/h State highways, tractor mowers are usually accompanied by at least two traffic control 'attenuator' trucks in order to minimise the safety risks to both road users and maintenance personnel. Conversely, on 50 or 70 km/h local roads, there is generally no need for 'attenuator' trucks. Therefore, even if the same area is mowed with the same frequency, the cost is substantially different. Another obvious example is resealing. The primary factor in determining the frequency of resealing is the skid resistance level of the road surface, which slowly reduces as vehicles, particularly heavy commercial vehicles (HCVs) (i.e. trucks), drive over it. Reducing the traffic volume, particularly the HCV volume, on a road leads to longer surface life before the minimum acceptable skid resistance level is reached. For example, halving the traffic volume leads to an approximate doubling of the road surface life.

40 At a conservative estimate, I would expect that the level of maintenance expenditure on the existing SH1 route would reduce by at least 50% once it becomes a local road. Allowing for this 50% reduction (as opposed to the 100% reduction that was included in the original BCR calculations, or the nil reduction assumed by Dr Pickford) would slightly reduce the BCR of 0.93 that I reported in paragraph 41 of my EIC to 0.92.

Project costs

41 In paragraph 45, Dr Pickford notes a difference between the project cost used in the BCR analysis (\$560.73 million) and the cost quoted in my EIC (\$575 million), which he perceives to be a discrepancy. It is not a discrepancy. The difference arises from 'sunk costs' that are omitted from the BCR analysis. Sunk costs are costs that have already been committed and/or spent, and which have no salvage or realisable value. For example, investigation and design fees that have already been incurred are sunk costs. Conversely, property purchase costs that have already been incurred are not sunk costs, because properties continue to have a market value (in theory, the same as the purchase amount, although generally in practice, somewhat lower). Therefore, Dr Pickford's adjustments to "correct" for the perceived discrepancies are incorrect.

Project BCR

42 In paragraph 57 and more specifically in paragraph 60 (and also in a number of subsequent paragraphs), Dr Pickford misinterpreted paragraph 46 of my EIC as meaning that I consider the BCR would be no higher than 0.93 and could be lower. That was not my intended meaning, although I acknowledge that I could have expressed myself more clearly, so I can see how he may have interpreted it that way.

43 Paragraph 46 of my EIC was intended to convey that it is unclear to what degree the factors discussed in my preceding paragraphs would offset the likely reduction in benefits arising from the lower rate of traffic growth in the updated traffic models. I was intending that paragraph to express this in a conservative way, by making clear that those factors may only partly offset the reduction (i.e. the BCR could be lower than 0.93), but I also consider it possible that those factors may exactly offset the reduction (i.e. the BCR could be exactly 0.93) or may more than offset the reduction (i.e. the BCR could be higher than 0.93).

Works on the existing SH1

44 Dr Pickford suggests (at his paragraph 61.1) that converting the relevant section of SH1 into a local road is part of the Project, so the cost should be included in the Project cost. That is incorrect. The possible future conversion of the existing SH1 into a local road is not required to mitigate any effects of the Project, and is not considered by the NZTA to be part of the Project; rather it is covered by the NZTA's state highway revocation policy, which was discussed in the EIC of **Mr Andrew Quinn**.

45 Also, the walking and cycling component of the SH1 revitalisation project has a fundable BCR and assessment profile ('HHL') in its own right, so there is no need for the works along SH1 to be considered part of the Project.

Intangible costs

46 In paragraph 61.4, Dr Pickford discusses various intangible costs that he suggests could or should be included in the BCR. I note that several of these (including traffic noise and "fumes") have positive effects along the existing SH1 route as well as negative effects along the Project route. I also note that the cost of all mitigation that is included in the proposed Project is already included in the Project cost estimate.

47 In paragraph 62, Dr Pickford suggests that unless all costs (including wider community and environmental costs) are included in the cost-benefit analysis, they are at risk of being overlooked, understated or ignored. I disagree. The EIC of **Dr James Bentley** and **Mr Robert Schofield** discuss the multi-criteria analysis that was used to assess project options, specifically so that these types of effects would not be overlooked, understated or ignored.

M2PP as Part of the Wellington RoNS

48 In paragraph 73.3, Dr Pickford discusses the BCR of 1.2 for the Wellington Northern Corridor RoNS and suggests that "*this 2009 estimate [of the BCR] of 1.2 will presumably reduce when the lower traffic forecasts discussed above are factored in*". Although it is possible that the overall RoNS BCR of 1.2 will reduce, I actually expect that it is now higher than in 2009, primarily because the BCR for the Transmission Gully project, which is the largest single component of the package, has increased markedly (from 0.6 to 1.0) since that time.

49 In paragraph 73.4, Dr Pickford discusses his view that the sections of the Wellington Northern Corridor RoNS should be treated as stand-alone projects for BCR purposes. As I explained in paragraph 28 of my EIC, for packages of work, such as the Wellington Northern Corridor RoNS package, it is the overall package BCR (not the individual project BCRs) that are used to assess the 'Economic Efficiency' criterion within the funding assessment process used by the NZTA to determine if proposed activities are eligible for funding and, if so, their priority.

BCR threshold of one is too low

50 In paragraph 76, Dr Pickford states that a BCR of less than one "*means that its acceptance would be tantamount to accepting immediately a loss to the national economy, as the benefit is less than the cost in present value terms (i.e., the NPV is negative).*" With respect, I disagree with his logic. Dr Pickford acknowledges (in paragraph 78) that the internal rate of return for the Project is approximately 7.4% (in real terms, i.e. after inflation).

51 I acknowledge that an internal rate of return of 7.4% is lower than the target rate of 8% set by Treasury, but it is still a positive rate of return so is not, in my view, 'a loss' to the economy.

52 In paragraph 79.1, Dr Pickford discusses capital rationing and suggests that the optimal approach to extract maximum benefit from a limited budget is to rank projects according to their BCRs, and to accept those with the highest BCRs until the funding is exhausted. I agree that this approach would be optimal if project BCRs were the only criteria used to determine the NZTA's funding priorities, but they are not, as discussed in paragraphs 24 to 26 of my EIC.

Optimism bias

53 In paragraph 79.2, Dr Pickford discusses the risk of 'optimism bias' and in particular the tendency for project costs to be underestimated. His footnote 28 references a United Kingdom (UK) Treasury report from 2003, related to highway project cost over-runs in the UK. (I note that this is not a report by the New Zealand Treasury and does not relate to New Zealand projects.)

54 The NZTA has recognised the risk of 'optimism bias' for a number of years and published a "*Cost Estimation Manual*" in 2007 that requires NZTA project cost estimates to incorporate risk based analysis of the expected project costs, rather than simple "contingency" allowances (as was generally done previously, which was the method criticised in the UK Treasury report cited by Dr Pickford.) The NZTA's state highway programme is based on the 50th percentile cost estimates for all projects, with the risks of cost over-runs managed on a portfolio basis (i.e. although some projects cost more than their 50th percentile cost, others cost less than their 50th percentile cost.) This approach has worked extremely successfully for a number of years.

Comparison with BCR in the UK

55 In paragraph 80, Dr Pickford notes that he understands that previously in New Zealand, a minimum BCR of four was required for roading projects. This is correct. He also states that in the UK a minimum BCR of two is used. That is also correct.

56 In New Zealand, there has been wide acceptance that the use of a minimum BCR of four (until the mid 2000s) tended to favour low cost projects with a short term focus, at the expense of larger scale projects with a longer term, strategic network development focus. This is because BCR analysis heavily discounts future benefits (and ignores any benefits or residual value beyond the end of the BCR analysis period). Accordingly, the BCR analysis favours "just in time" project delivery, rather than long term strategic development. This realisation was one of the factors that led to the development of the three assessment criteria that the NZTA now uses to determine if proposed activities are eligible for funding and if so, their priority (those criteria were discussed in my EIC).

57 In discussing the use of a minimum BCR of two in the UK, Dr Pickford does not explain that a much lower discount rate of 3.5% or less and a longer analysis period of up to 60 years is used in the UK.⁷

58 A sensitivity analysis of the BCR for the Wellington Northern Corridor RONS showed that the BCR would increase from 1.2 to 2.0 if the discount rate was reduced from 8% to 4% (with the analysis period left unchanged) and paragraph 48 of my EIC explained that the BCR for the Project would be 1.6 (rounded) in the same scenario. Using a longer analysis period would further increase the BCR figures.

BCR ignores opportunity cost of funding

59 In paragraphs 93 to 98, Dr Pickford undertakes an analysis of the opportunity cost of funding the Project, relative to funding other projects that might have higher BCRs and then includes the calculated opportunity cost into what he calls in paragraph 98 a "properly calculated" BCR for the Project.

60 I consider that to be a particularly "contorted" analysis, which appears to be aimed solely at producing the lowest possible BCR. It is certainly difficult to reconcile this analysis with the statement in paragraph 57 of Dr Pickford's evidence that *"In my opinion there would be no justification for departing from the standard approach used in the Economic Evaluation Manual when assessing the BCR of the M2PP project."*

Ms Julie Anne Genter, on behalf of Action to Protect and Sustain Our Communities (submitter 0677)

61 Many of the issues raised in Ms Genter's evidence about transport planning are addressed in the rebuttal evidence of **Mr Murray**. However, there are also some issues that I wish to comment on.

EEM Procedures

62 In paragraphs 10 and 14, Ms Genter asserts that the procedures specified in the NZTA's *EEM* for evaluating the costs and benefits of proposed projects are fundamentally flawed. This appears to be based on a generalisation about a "paradigm shift" and an assertion about the latest research in transport planning and economics.

⁷ See the UK Department for Transport website <http://www.dft.gov.uk/webtag/documents/project-manager/unit2.7.1.php> which states at paragraph 1.9.3 that:

"The [UK Treasury Green Book (GB) "Appraisal and Evaluation in Central Government"] recommends a discount rate of 3.5%. The Department [for Transport] requires this rate to be used to calculate the present value of all future costs and benefits. The GB also recommends that **lower discount rates** (linked to proportional decreases in the projected rate of growth in income) should **be used for discounting costs and benefits arising more than 30 years ahead**. Major transport investment has conventionally been appraised over a period of more than 30 years from the date the project opens or otherwise comes into use... The Department's standard appraisal software... has been amended to use the standard rate of 3.5% for the period up to 30 years from the year of appraisal and the lower rate of 3.0% thereafter..." (emphasis added).

- 63 In relation to Ms Genter's assertion about the latest research, most of the references listed in her evidence are papers that relate to induced traffic effects from new roads (or reduced traffic from removing roads). If Ms Genter believes that these papers somehow undermine the analytical procedures specified in the EEM then, in my view, she is incorrect. The EEM recognises the phenomenon of induced traffic.
- 64 Ms Genter may be unaware of EEM Appendix A11 "Congested networks and induced traffic", which was first incorporated into the "Project Evaluation Manual" (as the EEM was previously titled) in 1998. EEM Appendix A11 provides procedures such as variable trip matrix techniques specifically for addressing induced traffic effects.
- 65 In my experience, the EEM procedures have evolved and broadened substantially over the last two decades, recognising the need for increasingly complex analyses. My understanding is that these changes to the EEM have been made specifically in order to keep track with international research and to ensure the EEM is consistent with international best practice for project evaluation.
- 66 Ms Genter's view about flaws in the EEM contrast with the statement in paragraph 21 of the evidence of Save Kāpiti's economics expert, Dr Pickford, that *"The EEM is the industry standard for carrying out [social cost benefit analysis]. Volume 1 has 685 pages, indicating the degree of detail and sophistication lying behind the cost-benefit evaluations of transport projects."*

Factors leading to traffic growth

- 67 In paragraph 12, Ms Genter states that *"a major factor in traffic growth over the past few decades has been the traditional transport planning approach focussed on increasing the supply of roads to accommodate peak vehicle flows"* and that this *"is a self fulfilling prophecy that has never actually reduced congestion"*.
- 68 I disagree. My understanding is that the major factors in traffic growth in New Zealand have been population growth (particularly in our cities) and increasing affordability (and associated ownership) of motor vehicles, the combination of which has led to the need for improved road infrastructure. As I discussed in paragraph 56 above, the historical reliance on BCR analysis in New Zealand has favoured "just in time" project delivery, rather than long term strategic development. Furthermore, there are many examples of State highway improvement projects that have led to substantial and enduring congestion relief. Obvious examples on SH1 within the Wellington region include the two grade-separated interchanges in Porirua and the one at Newlands. These three interchanges were completed between the late 1980s and the mid 1990s to alleviate severe congestion and delays that existed at that time, and they all continue to provide those same benefits today.

Petrol prices

- 69 In paragraph 13, Ms Genter states that "*petrol prices are at historic highs and may increase even further...*" This statement implies that petrol is less affordable now than it has ever previously been, but it omits to note that petrol prices are only at historic highs in nominal (i.e. current day) terms, not in real (i.e. inflation adjusted) terms. **Annexure A** illustrates the nominal and real retail prices of premium petrol in New Zealand from 1974 to 2011⁸ and shows that in real terms, petrol prices in the later part of the 1970s were at similar levels to the last few years, while prices throughout the first half of the 1980s were higher.
- 70 It is also worth noting that the fuel cost per kilometre travelled is a much more relevant factor than the fuel cost per litre in assessing the affordability of travel. Changes to the New Zealand vehicle fleet over the last 20 to 25 years (since imported used vehicles became more prevalent in the late 1980's) have led to a substantial and continuing trend of improving average vehicle fuel efficiency. This means that the vehicles that are in use now typically use less fuel to travel a certain distance than vehicles that were in use previously. I understand that the Ministry of Transport's vehicle fuel efficiency modelling indicates that the trend of improving fuel efficiency is expected to continue in the future, which could result in the average real cost to travel (measured in \$/km) reducing or staying the same as it is now, even if the real cost of petrol increases.

Mr Don Wignall, on behalf of Kāpiti Coast District Council (submitter 0682)

- 71 Mr Wignall's evidence (paragraphs 5.45 to 5.56) discusses the proposed intersection upgrades on Kāpiti Road. **Mr Murray** responds to the transport planning aspects of Mr Wignall's evidence, but I wish to comment on the funding aspects, notwithstanding that I understand that funding is not a matter relevant to the Board's decision making under the RMA.
- 72 As I noted in paragraph 21.2 of my EIC, the NZTAs 'Planning and Investment' (P&I) group is responsible for managing the NLTF and the National Land Transport Programme (*NLTP*). I have, therefore, discussed this section of Mr Wignall's evidence with relevant staff from the NZTA's P&I group, so I can provide some relevant context that is missing from Mr Wignall's evidence.
- 73 Paragraph 5.48 of Mr Wignall's evidence notes that upgrades to Kāpiti Road intersections are "*included in the Council's forward programme but will be subject to a funding application to NZTA...*". He omits to note, or is unaware, that the NZTA's P&I group has been in discussion with KCDC about this for some time and is

⁸ Data sourced from Ministry of Business, Innovation and Employment (formerly Ministry for Economic Development) website:
<http://www.med.govt.nz/sectors-industries/energy/pdf-docs-library/energy-data-and-modelling/data/prices.xls>.

expecting a funding application to be made by KCDC within the next month or two. This Kāpiti Road intersection upgrade project has been included in the Regional Land Transport Programme by KCDC and has been included in the 2012-2015 NLTP as a “probable” project. It is possible that funding will have been approved (which will change the status in the NLTP from “probable” to “committed”) prior to the end of this Board of Inquiry hearing. If required, I can update the Board on this when I appear at the hearing.

- 74 In Para 5.51 (and in more detail in his Annex F), Mr Wignall discusses his perceptions about uncertainty around local road funding. In my opinion, Mr Wignall’s concerns are unfounded. As I explained in paragraph 19 above and in paragraphs 70 to 76 of my EIC, the GPS sets out the funding ranges for each activity class within the NLTP. State highway projects and local road projects have separate activity classes, so funding for the RoNS (or any other State highway projects) has no impact on the funds available for local road projects. The 2012-2015 NLTP includes increased funding for local road projects relative to the 2009-2012 NLTP, so Mr Wignall is incorrect in saying that *“it is increasingly difficult to obtain matching NZTA funding for local transport projects because of the high priority given to RoNS projects.”*⁹
- 75 I also note that local road projects are subject to the same assessment and funding prioritisation processes as State highway projects, so the fact that the Kāpiti Road upgrades are closely related to the RoNS makes it much more likely to be assessed as having ‘High’ strategic fit than most other local road projects, and therefore more likely to receive funding through the NLTP.



Craig Nicholson
25 October 2012

⁹ See Annex F, third Paragraph of Mr Wignall’s evidence.

ANNEXURE A: 'NOMINAL' AND 'REAL' RETAIL PRICES OF PREMIUM PETROL

