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 **Sharon De Luca** (Marine Ecology) for the NZ Transport Agency

Dated: 24 October 2012

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STATEMENT OF REBUTTAL EVIDENCE OF DR SHARON DE LUCA FOR THE NZ TRANSPORT AGENCY

1 My full name is Sharon Betty De Luca.

2 I have the qualifications and experience set out at paragraphs 2-5 of my evidence in chief, dated 31 August 2012 (*EIC*).

3 I repeat the confirmation given in my EIC that I have read, and agree to comply with, the Code of Conduct for Expert Witnesses (Consolidated Practice Note 2011)

4 I confirm that I am authorised to give this evidence on behalf of the NZ Transport Agency (*NZTA)*.

5 In this statement of rebuttal evidence, I respond to the evidence of:

5.1 **Loretta Pomare** on behalf of herself as an affected resident (submitter number 309);

5.2 **Paula Warren** on behalf of Loretta Pomare;

5.3 **Shona Myers** on behalf of the Kāpiti Coast District Council (KCDC) (submitter number 682); and

5.4 **Brian Handyside** on behalf of Greater Wellington Regional Council (GWRC) (submitter number 684).

6 The fact that this rebuttal statement does not respond to every matter raised in the evidence of submitter witnesses within my area of expertise should not be taken as acceptance of the matters raised. Rather, I rely on my earlier technical report (Technical Report 31), my EIC and this rebuttal statement to set out my opinion on what I consider to be the key marine ecological matters for this hearing.

7 Consistent with my EIC, I have referred to the MacKays to Peka Peka Expressway Project as "the Project" in this rebuttal evidence.

EXECUTIVE SUMMARY

8 I have read all of the relevant statements of evidence provided by submitters in relation to my area of expertise. The issues raised in the submitters' evidence has not caused me to alter or depart from the opinions expressed in my EIC, and I re-confirm the conclusions in my EIC.

EVIDENCE OF SUBMITTERS

Effects on the CMA

9 Ms Pomare states in her evidence (at paragraph 54) that the NZTA reports state that there will be no negative effects from the discharge of sediment from the Project into the Coastal Marine Area (CMA). To clarify, my assessment concluded[1] that there would be insignificant or negligible adverse effects on the marine environment from the construction and operation of the Project. In other words, that the discharge of sediment to the estuaries and stream mouths that has been calculated would have no measureable effects on the marine ecological values. This is primarily due to the high energy nature of the receiving environment along the Kapiti Coast.

Effects on sand dunes

10 The potential adverse effects on sand dunes is raised by Ms Pomare,[2] Ms Myers[3] and Ms Warren.[4] My evidence in chief briefly covered damage to dunes at paragraph 51. To clarify, that paragraph was referring to direct effects on present active foredunes and does not relate to historic or relic dune systems. I confirm my understanding that present active foredunes will not be directly affected by the Project and that any indirect effects from the discharge of sediment and contaminants during the construction and operational phases of the Project will have negligible adverse effects on those foredunes. Mr Evans[5] addresses sand dunes from a landscape point of view.

Sediment generation

11 Mr Handyside claims in his evidence[6] that I understand, incorrectly, that the baseline USLE calculations carried out by Mr Ridley incorporate existing sediment generation discharged to each waterway from other land use activities.[7] I have since clarified this with **Mr Ridley** and it appears that I misinterpreted the information. I now understand that the baseline USLE calculations do not include wider catchment differences or sediment loads from stream bank or bed erosion.[8]

12 Mr Handyside makes a number of statements regarding the sediment generation calculations undertaken by Mr Ridley. At paragraph 28 of his evidence he considers that the 95% sediment control measure efficiency is too high. I note that Mr Ridley

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1 Refer to my EIC, paragraphs 37-48.

2 Pomare evidence, paragraph 66.

3 Myers evidence, paragraphs 47, 53, 55 and 56.

4 Warren evidence, paragraphs 4.1 and 5.23.

5 Refer to Technical Report 7, pages 23, 26-28 and 126-127.

6 Handyside evidence, paragraph 49.

7 Refer to my EIC, paragraph 38.

8 Ridley rebuttal evidence, paragraph 67.

considers 95% efficiency is achievable overall throughout the Project[9] implementation and I rely on Mr Ridley's expertise in this area.

13 Mr Handyside states[10] that the comparative approach taken in the sediment generation calculations is not valid and that effects on the receiving environments (including the marine environment) should be reviewed in order to determine the effect. In his rebuttal evidence, Mr Ridley reiterates that the USLE is a sensible risk assessment tool that provides an appreciation of the percentage increase in sediment yields, on a catchment wide basis, from the Project. My assessment considers this estimated change in sediment generation and change in sediment discharge that reaches the marine environment. I remain confident that given the nature of the receiving environments, the comparative assessment for sediment generation provides sufficient information to robustly assess the potential effects on marine ecological values.

14 I state in my EIC[11] that given the characteristics of the ultimate marine receiving environment (i.e. high energy beaches along the Kapiti Coast) and the small estuaries within the Wharemauku, Waimeha, and Whareroa stream mouths, the adverse effects of the predicted change in sediment discharge to these environments resulting from the Project will be negligible. The Waikanae Stream mouth contains a larger estuary that discharges to the high energy Kapiti Coast. However, the increase in sediment predicted in this catchment is small and is assessed as likely to result in negligible adverse effects on marine ecological values.

15 In his rebuttal evidence, Mr Ridley considers the sediment yield calculations which Mr Handyside undertook on the Wharemauku catchment.[12] Mr Handyside determined that the sediment yield from this catchment is three times larger than the USLE calculation undertaken by Mr Ridley.[13] If Mr Handyside's assessment is taken as appropriate, then the proportion of the Project sediment yield compared to the total catchment sediment yield becomes a very small figure (i.e. less than 2%).[14] If this approach was applied to all catchments within the Project, then the estimated increase in sediment due to the Project would be reduced and the potential adverse effects on marine ecological values similarly reduced further.

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9 Ridley rebuttal evidence, paragraphs 61-61.

10 Handyside evidence, paragraph 50.

11 Refer to paragraphs 37 to 44 in my EIC.

12 Ridley rebuttal evidence, paragraph 70.

13 Handyside evidence, paragraphs 47 and 50.

14 Ridley rebuttal evidence, paragraph 70.

16 **Mr Ridley** provides updated USLE calculations in his rebuttal evidence (Table 1)[15] to incorporate the very fine sand soil fraction and revised slope lengths. The revised calculations show a reduction in the percentage increase in sediment generation from each catchment due to the Project compared to sediment generation from the whole catchment pre-earthworks over a two month period. These reductions in the percentage estimated sediment discharge are as follows[16]:

16.1 Wharemauku Stream – 4.5 to 3.38 tonnes; 9.5% to 6.6%;

16.2 Waikanae River – 3.97 to 2.99 tonnes; 0.4% to 0.3%;

16.3 Ngarara Stream – 6.83 to 5.19 tonnes; 9.8% to 6.5%;

16.4 Waimeha Stream – 0.77 to 0.60 tonnes; 25% to 18.1%.

17 These reductions in sediment generation further support my assessment that potential adverse effects arising from the discharge of construction related sediment to the marine environment will be negligible.

CONCLUSION

18 My rebuttal evidence confirms that my expert opinion regarding effects of the Project on the marine ecological values has not changed after considering the evidence prepared by Mr Ridley regarding sediment generation.

Sharon De Luca
24 October 2012

[15] Ridley rebuttal evidence, paragraph 80.

[16] Page 15, CEMP Appendix H – Erosion and Sediment Control Plan, and Table 1 of Mr Ridley's rebuttal evidence.