Before the Hearings Panel
At Wellington City Council

Under Schedule 1 of the Resource Management Act 1991

In the matter of the Proposed Wellington City District Plan

Statement of supplementary evidence of David Stanley Norman on behalf of Wellington City Council (Economics)

Date: 3 September 2024

INTRODUCTION:

1 My name is David Stanley Norman. I am employed by GHD as Chief Economist for Australia and New Zealand. In this role, I cover a wide range of macro-economic and micro-economic issues including the inevitable trade-offs between outcomes that society would like to achieve and the financial and other constraints that limit what is achievable.

2 I have prepared this statement of evidence on behalf of the Wellington City Council (the **Council**) in respect of technical related matters arising from the submissions and further submissions on the Proposed Wellington City District Plan (the **PDP**).

3 Specifically, this statement of evidence relates to the matters in the Ecosystems and Biodiversity (ECO) chapter.

4 I am authorised to provide this evidence on behalf of the Council.

QUALIFICATIONS AND EXPERIENCE

5 I hold the qualifications of a Bachelor of Arts degree in Economics (2005, University of South Africa) and a Post-graduate diploma in Management (2008, Massey University), as well as a Bachelor of Science in Psychology and Genetics (1999, Stellenbosch University) and a Master of Theological Studies (2023, Reformed Baptist Seminary).

6 I have 17 years of experience in increasingly senior roles as an economist in the private sector (BERL, PwC, Westpac and now GHD), research (the Building Research Association of New Zealand), and in government (Auckland Council). I have led, worked on, or reviewed at least 650 projects over those 17 years.

7 My role immediately prior to joining GHD was as Chief Economist at Auckland Council, a role I held for almost five years. That role included the review of plan change and resource consent economic assessments, in particular to evaluate their robustness and defensibility.

Code of conduct

8 I have read the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note 2023. I have complied with the Code of Conduct in preparing my evidence and will continue to comply with it while giving oral evidence before the Environment Court. My qualifications as an expert are set out above. Except where I state I rely on the evidence of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.

SUMMARY

9 My evidence addresses two points:

9.1 It provides some clarification on analysis referenced in Clause 417 of the Section 42 report prepared by the Council.

9.2 It provides an economic assessment of the **additional** proposal to provide protections on areas of indigenous biodiversity, which the Council has included in its Section 42 report in response to the requirements of the National Policy Statement on Indigenous Biodiversity (NPS-IB).

10 I point out that while Clause 417 of the Council Section 42 report (p.124) is factually correct in stating that under a **high** scenario the Benefit-Cost Ratio (BCR) of establishing SNAs on **rural** land exceeded 2.0, the range of potential outcomes modelled ranges from 0.83 to 2.08. The BCR is unlikely to be below 1.0 but that is a **possibility** given the range of 0.83 to 2.08.

11 My economic assessment of the proposed changes to give effect to Policy 3.16 of the NPS-IB suggests that in all modelled scenarios, including the most optimistic, the costs of implementing the policy in terms of lower real housing capacity, higher compliance costs and land value reductions far outweigh the benefits in terms of a small increase in indigenous biodiversity protected. The **best case BCR is 0.045**, which means around 4.5 cents of value to the community in terms of more protection of biodiversity accrues for every dollar of costs imposed.

INVOLVEMENT WITH THE PROPOSED PLAN

12 I have been involved in the PDP since 2023, when I was asked to consider the economic costs and benefits of incorporating water sensitive design into the PDP. I have since worked with the Council to understand the economic costs and benefits of SNAs on publicly land and on privately-held rural and residential land.

13 Most recently, I have undertaken further work for the Council on the likely benefits and costs of the proposal to protect areas of over 100m^2 of indigenous biodiversity on land in residential areas to comply with the National Policy Statement on Indigenous Biodiversity (NPS-IB).

SCOPE OF EVIDENCE

14 My statement of rebuttal evidence addresses two areas:

14.1 It provides some clarification on analysis referenced in Clause 417 of the Section 42 report prepared by Wellington City Council.

14.2 It provides, in some detail, an economic assessment of the **additional** proposal to provide protections on areas of indigenous biodiversity, which the Council has included in its Section 42 report in response to the requirements of the NPS-IB, Policy 3.16.

CLARIFICATION ON COUNCIL SECTION 42 EVIDENCE IN CLAUSE 417

15 Mr McCutcheon states in Clause 417 of the Council Section 42 report (p.124) that “under a high benefits scenario the benefits of protecting the same areas as SNAs subject to the recommended amendments exceeded a BCR of 2.0. This means the overall benefits were high under that scenario. I would expect that tightening up the policy framework would not result in a BCR falling to less than 1.”

16 I would highlight that the range of potential outcomes modelled ranges from a BCR of 0.83 to 2.08. In other words, the benefits to the community of establishing SNAs on rural land range from 83 cents to

$2.08 per dollar of cost incurred on landowners via land value reduction from more restrictions on their land use.

17 I agree with the Council's conclusion that the BCR is **unlikely** to be below 1.0 but that is a **possibility** given the range of 0.83 to 2.08.

ECONOMIC EVALUATION OF PROVISIONS IN RESPONSE TO NPS-IB

18 The PDP as notified did not include provisions for further protections of indigenous biodiversity outside SNAs. In response to Policy 3.16 of the NPS-IB, the Section 42 report has proposed that where a landowner outside an SNA proposes to remove 100m^2 or more of indigenous biodiversity, a resource consent will be required.

19 The Council asked me to undertake an economic evaluation similar to what I undertook on land proposed for inclusion in SNAs.

Number of properties affected

20 The Council modelling indicates that there are 17,487 parcels of **residential and mixed-use** land in Wellington City with areas of vegetation cover of 100m^2 or more, totalling around 806 hectares of vegetation in total. These parcels are estimated by the Council to have capacity for an additional 25,357 dwellings in the absence of further development restrictions on this land.

21 It is unknown what proportion of these areas of vegetation of over 100m^2 are indigenous versus non-indigenous planting. Council's arboriculture staff estimated that the likely range is between 40% and 70% of planting. Assuming an equal distribution of indigenous and non-indigenous vegetation across parcels, it is likely that 7,000 to 12,200 parcels may be affected by the requirement to seek a resource consent to develop under the proposed policy.

22 **The benefits and costs of the proposed policy grow and shrink in tandem**. If more land is protected, the community derives more benefit from this, but there is a similar increase in costs for affected landowners, and vice versa.

23 Consequently, my sensitivity testing of the model indicated that the exact assumption of what proportion of parcels would be affected is immaterial to the results if one takes a BCR approach where it is the **ratio between benefits and costs that matters**. As my sensitivity analysis later will show, when I tested a wide range of assumptions, results remained within a narrow band of outcomes.

Costs of the proposed policy

24 There are four costs associated with the proposed policy, with three of them able to be included in the BCR. These costs are:

24.1 **Land value reductions** (in dollars) on properties that are not developed either because:

24.1.1 Development there is discouraged. i.e. the landowner opts not to develop because of the extra costs and perceived uncertainty of a resource consent process

24.1.2 The property does not receive resource consent to remove indigenous vegetation.

24.2 **Compliance costs** (in dollars) on properties that proceed to resource consent application, estimated by the Council at around $5,800 per property for an environmental assessment and resource consent fees.

24.3 **Revegetation costs** (in dollars) for properties that are granted resource consent to remove indigenous vegetation on condition that replanting at another location occurs.

24.4 **Fewer houses built** (not in dollars) because development is discouraged or because a developer's resource consent application is rejected on the basis of risk to indigenous biodiversity.

25 As with the share of the 17,487 land parcels that have at least 100m^2 of indigenous vegetation on them, there is uncertainty as to:

25.1 What share of development will be outright discouraged

25.2 What share of properties will have their resource consents rejected

25.3 What share of properties will require replanting of vegetation as a condition of consent.

26 I conducted sensitivity tests using a wide range of possible outcomes for these variables, and as with the assumption about what share of the total properties have indigenous biodiversity cover of over 100m^2, changing the assumptions did not have a huge impact on the BCRs achieved because the benefit and cost streams tend to move in the same direction. i.e. if more biodiversity is protected, costs on private landowners will increase and vice versa. The results of the many sensitivity tests I ran are presented below.

27 The one cost stream that is not included in the BCR does, however, vary sharply depending on the assumptions used. The **number of dwellings that may no longer be delivered on affected properties** varies from around **700 to 15,100** depending on the assumptions adopted.

28 The Base estimate of costs used in the base BCR (re-emphasising that the assumptions do not affect the key message of the analysis dramatically) assumes:

28.1 50% of parcels with over 100m2 of vegetation cover are covered in indigenous vegetation

28.2 10% of parcels that would otherwise be developed are discouraged from being developed

28.3 25% of resource consent applications to remove 100m2 or more of indigenous biodiversity for development are declined

28.4 50% of parcels that receive resource consent to remove vegetation are required to replant to the same level of cover.

29 The graphic below provides a stylistic representation of how these assumptions flow through to benefits and costs.

Figure 1 Stylistic representation of how benefits and costs emerge from the Policy implications

30 This set of assumptions implies the following set of costs, yielding **a total cost of $240 million** including:

30.1 $148 million in lost land value (around $52,200 on average per affected property that does not get developed)

30.2 $45.5 million in compliance costs

30.3 $46.7 million in revegetation costs.

30.4 4,120 fewer dwellings delivered on affected parcels of land.

31 Because of uncertainty over these assumptions, the sensitivity analysis below is important to consider. It demonstrates that regardless of assumptions, the key message is similar.

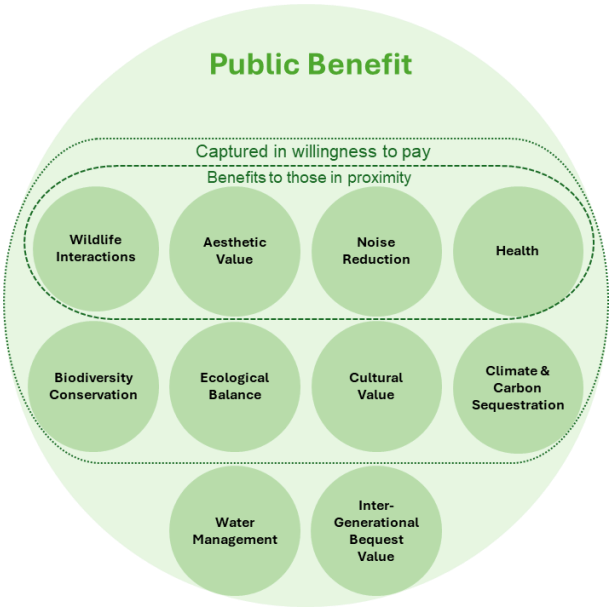
Benefits of the proposed policy

32 The primary benefit of the proposed policy is greater preservation of indigenous biodiversity, with its associated values as set out in Figure 2. If restrictions reduce the amount of development that occurs on affected

sites, **more biodiversity is protected**, and vice versa. Similarly, if resource consents require replanting, biodiversity is protected.

33 In my previous work, which informed my initial Evidence Statement, I explained in detail how we estimated the value of indigenous biodiversity using New Zealand and overseas based studies. A number of benefits, shown in the graphic below, are captured inside people's willingness to pay to protect more green space. These benefits include health benefits, noise reduction, aesthetic value, wildlife interactions, biodiversity conservation, ecological balance, cultural value, and climate and carbon sequestration. This means if we have a reasonable sense of willingness to pay, we can reasonably estimate the benefits the community derives.

Figure 2 Public benefits from increased biodiversity protection



34 Using the same base assumptions as set out under the costs above, the benefits of preserved biodiversity are estimated at $2.7 to $6.9 million (using a lower and higher estimate of willingness to pay to preserve green space, respectively). In this scenario, an estimated 267 hectares, or 3% of existing canopy cover, would be protected on private land.

Base Case BCR

35 The base case costs and benefits yield a **BCR of 0.011 to 0.029**. This means that for every **one dollar** of land value reduction, compliance and

revegetation costs borne by a residential or mixed-use landowner, the proposal would deliver **1.1 cent to 2.9 cents** of public benefit in terms of improved biodiversity and green cover maintenance.

Sensitivity testing

36 As I mentioned previously, the base line analysis relies on several assumptions. The sensitivity testing therefore becomes an important part of the analysis in determining whether changes in key assumptions would result in dramatically different outcomes.

37 The table below provides a wide range of sensitivity test results, including different real discount rates, different assumed share of parcels with indigenous cover exceeding 100m^2, varying assumptions about the share of housing development activity directly discouraged, the share of applicants who have their resource consent application rejected on the basis of risk to biodiversity, and the share of approved resource consent applications requiring replanting.

Figure 3 Sensitivity tests for proposal for 100m^2 trigger point for resource consent

Sensitivity Test results	100m^2 protection	
	High WTP	Low WTP
Base Case scenario	0.029	0.011
Discount rates		
3%	0.029	0.012
6%	0.028	0.011
Indigenous cover		
40%	No impact on BCR	
70%		
Direct housing activity discouraged		
2%	0.030	0.012
40%	0.026	0.010
Resource consents rejected		
5%	0.035	0.014
75%	0.022	0.009
Share of resource consents requiring replacement vegetation		
10%	0.021	0.008
75%	0.031	0.012
Worst Case scenario	0.018	0.007
Best Case scenario	0.045	0.018

38 The BCR varies between the worst-case scenario of 0.007 and the best-case scenario of 0.045. In the best case, for **every one dollar of costs** imposed on landowners, there is a **4.5 cent benefit** to the community through maintenance of more biodiversity**.**

39 **In other words, in all cases, the community benefits of the proposal through increased biodiversity protections are a small fraction of the costs imposed through the policy**.

Further sensitivity testing

40 Given the particularly low BCRs across the base case as well as the various sensitivities run, it was decided that some further sensitivities should be run, with looser restrictions on when a resource consent would be required before removing indigenous vegetation. Rather than just the 100m^2 trigger, triggers of 200m^2 and 300m^2 were tested.

41 These tests naturally reduce the number of potentially affected properties, but also the average number of at-risk potential dwellings per property and therefore the potential land value reduction per property that cannot proceed to development because of risk to biodiversity.

Figure 4 Affected properties and affected potential capacity by trigger point

Area of indigenous cover before requring resource consent	Properties affected	Current dwellings	Extra potential capacity	Implied extra dwellings per property	Estimated land value decline per affected property
100m^2	17,487	20,548	25,357	1.45	$52,223
200m^2	9,619	11,582	19,851	2.06	$74,325
300m^2	5,836	7,143	16,441	2.82	$101,460

42 If the policy is adjusted such that up to 200m^2 of indigenous vegetation can be removed before a resource consent is required, the number of potentially affected properties falls to 9,619, with 19,851 potential additional dwellings at risk, according to Council analysis, or 2.06 new dwellings per parcel.

43 By shifting to a 300m^2 trigger, the number of affected properties falls to 5,836, but the number of potential new dwellings on land where development risk may exist is still 16,441, or 2.82 per parcel.

44 Using the same base case assumptions as for the 100m^2 trigger point yields the following results for the 200m^2 and 300m^2 trigger points:

44.1 **200m^2**: **BCR of 0.013 to 0.032**, reducing development potential by 3,230 dwellings and maintaining 223 hectares (equivalent to 2.5% of Wellington's existing canopy cover)

44.2 **300m^2**: **BCR of 0.013 to 0.034**, reducing development potential by 2,670 dwellings and maintaining 189 hectares (equivalent to 2.1% of Wellington's existing canopy cover)

45 These higher trigger points are subject to the same assumptions as the base case. Running the same sensitivity tests on these different trigger points as were run for the 100m^2 trigger point yields the results below.

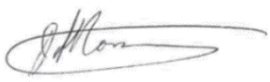
Figure 5 BCRs using 100m^2, 200m^2 and 300m^2 triggers and various sensitivity tests

Sensitivity Test results	100m^2 protection		200m^2 protection		300m^2 protection	
	High WTP	Low WTP	High WTP	Low WTP	High WTP	Low WTP
Base Case scenario	0.029	0.011	0.032	0.013	0.034	0.013
Discount rates						
3%	0.029	0.012	0.032	0.013	0.034	0.014
6%	0.028	0.011	0.031	0.012	0.033	0.013
Indigenous cover						
40%	No impact on BCR					
70%						
Direct housing activity discouraged						
2%	0.030	0.012	0.033	0.013	0.036	0.014
40%	0.026	0.010	0.028	0.011	0.029	0.012
Resource consents rejected						
5%	0.035	0.014	0.039	0.016	0.042	0.017
75%	0.022	0.009	0.024	0.010	0.026	0.010
Share of resource consents requiring replacement vegetation						
10%	0.021	0.008	0.023	0.009	0.025	0.010
75%	0.031	0.012	0.034	0.014	0.036	0.014
Worst Case scenario	0.018	0.007	0.022	0.009	0.025	0.010
Best Case scenario	0.045	0.018	0.051	0.020	0.054	0.022

46 In summary, relaxing the restrictions leads, in the best case, to a **BCR of 0.054** in the case of a 300m^2 trigger point. This implies that **one dollar of cost** yields **5.4 cents** of benefit in terms of the value of improved biodiversity.

47 In summary, even with looser restrictions on development, the estimated benefits derived by the proposal are a small fraction of the likely costs through reduced housing capacity and reduction in land values.

Date: **03/09/2024**



_____