BEFORE AN INDEPENDENT HEARINGS PANEL IN CHRISTCHURCH

TE MAHERE Ā-ROHE I TŪTOHUA MŌ TE TĀONE O ŌTAUTAHI

UNDER	the Resource Management Act 1991 (the **RMA**)
AND	
IN THE MATTER OF	the hearing of submissions on Plan Change 14 (Housing and Business Choice) to the Christchurch District Plan

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STATEMENT OF REBUTTAL EVIDENCE OF SARAH-JANE OLIVER ON BEHALF OF CHRISTCHURCH CITY COUNCIL

Strategic overview and directions, and Qualifying Matters in relation to Airport Noise, City Spine, Lyttelton Port, Railway Lines, Tsunami Management Area

Dated: 9 October 2023

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INTRODUCTION

1. My name is **Sarah-Jane Oliver**. I am employed as the City Planning Team Leader, Strategy and Transformation Group of the Christchurch City Council (**Council**).

2. I prepared a planning officer's report pursuant to section 42A of the Resource Management Act 1991 (**the Act / RMA**) dated 11 August 2023 (**Section 42A Report**), in relation to strategic overview, strategic directions chapter 3, and qualifying matters relating to strategic and city infrastructure, and coastal hazards.

3. I have the qualifications and experience set out at paragraphs 2.1 to 2.11 of my Section 42A Report.

4. I repeat the confirmation given in my Section 42A Report that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023, and that my evidence has been prepared in compliance with that Code.

SCOPE OF REBUTTAL EVIDENCE

5. In preparing this rebuttal statement, I have read and considered the evidence filed on behalf of submitters, as that evidence relates to my Section 42A Report. In this evidence I respond to witnesses addressing the following issues:

   (a) Strategic overview;

   (b) Strategic directions, Chapter 3

   (c) Airport noise qualifying matter;

   (d) Inland port influences overlay qualifying matter;

   (e) Railway setback qualifying matter;

   (f) Electricity transmission corridor and infrastructure qualifying matter;

   (g) City Spine qualifying matter; and

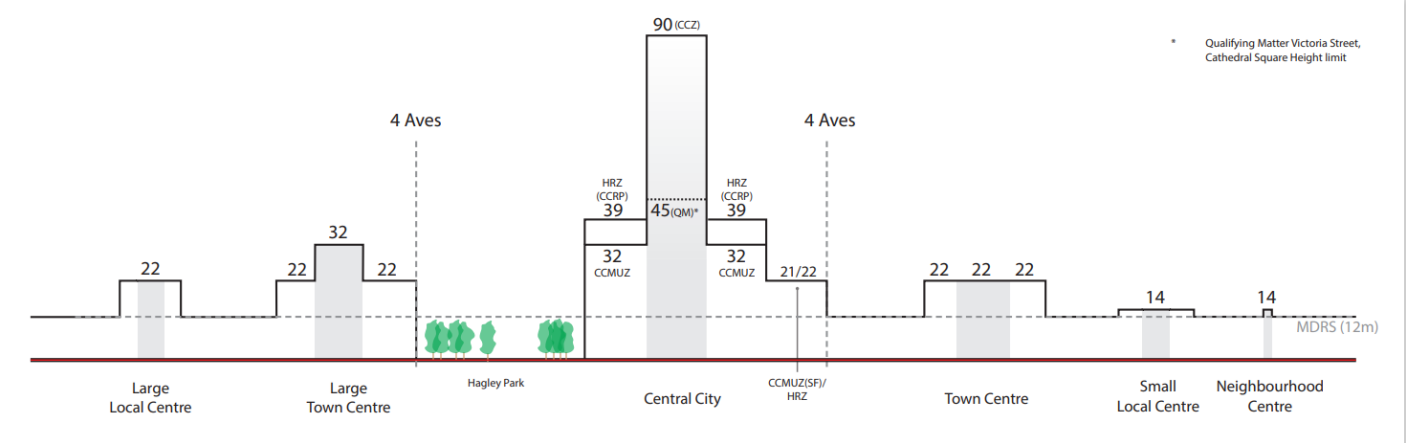
   (h) Tsunami risk management qualifying matter.

6. Where I am relying on the primary evidence or rebuttal evidence of technical witnesses for the Council, I make that clear in this rebuttal evidence.

STRATEGIC OVERVIEW

Overview of urban form and heights

7. At paragraph 3.4 of his evidence-in-chief[1], Mr Clease states that *'..no one planner has provided an integrated overview of the urban form outcomes and associated heights sought through PC14 across both commercial and residential zones*". However, at paragraphs 8.1 to 8.7 of my primary evidence I provide an overview of the heights across the zones for the Amended Proposal. To further assist the panel I have adapted the urban form cross-section from the section 32 report[2]) to represent the Amended Proposal heights (storeys indicated in footnote[3]). Summaries of 'urban form outcomes' are provided for each residential zone under proposed provisions 14.2.1.1 Policy – Housing distribution and density and Policy 15.2.2.1 Policy – role of centres.



NPS-UD Policy 3

8. At paragraph 3.31, Mr Clease comments that Council experts read "*Policy 3 as being separate from, and a potential threat to, the delivery of a well-*

[1] Statement of Evidence of Jonathan Clease on behalf of Kainga Ora, on Centre Hierarchy and Commercial Zone Rules, dated 20 September 2023.
[2] Section 32 evaluation, Part 1, Appendix 2.
[3] Broadly 14m building height provides for a 4-storey building, 22m a 6-storey, 32m a 10-storey, 39m a 12-storey, 45m a 15-16 storey, 50m a 17-storey.

functioning urban environment". This does point to a difference in position between myself and Mr Clease. I have noted the NPS-UD does not require policy 3 outcomes at all costs (i.e. a "**full-intensification**" scenario with no usage of qualifying matters (**QMs**)), but that policy 4 anticipates modification to policy 3 outcomes to the extent necessary to accommodate QMs in an area. The approach I have taken is to consider whether there are outcomes for Ōtautahi Christchurch that are better, more appropriate, than a full-intensification scenario for promoting the sustainable management of natural and physical resources, as informed by higher order planning documents, including NPS-UD policies 3 and 4, and objective 1 and policy 1 which anticipate well-functioning urban environments.

9. The Amended Proposal is signalling a clear direction for the long-term urban form of Ōtautahi Christchurch, and as far as possible incentivising the market in more desired locations. The Amended Proposal does not in my view set a "restrictive rule framework" as Mr Clease suggests at paragraph 3.35 of his evidence. It does set appropriate triggers or thresholds, signalling to the market that development is possible and provided for, but the design and layout will need to be considered.

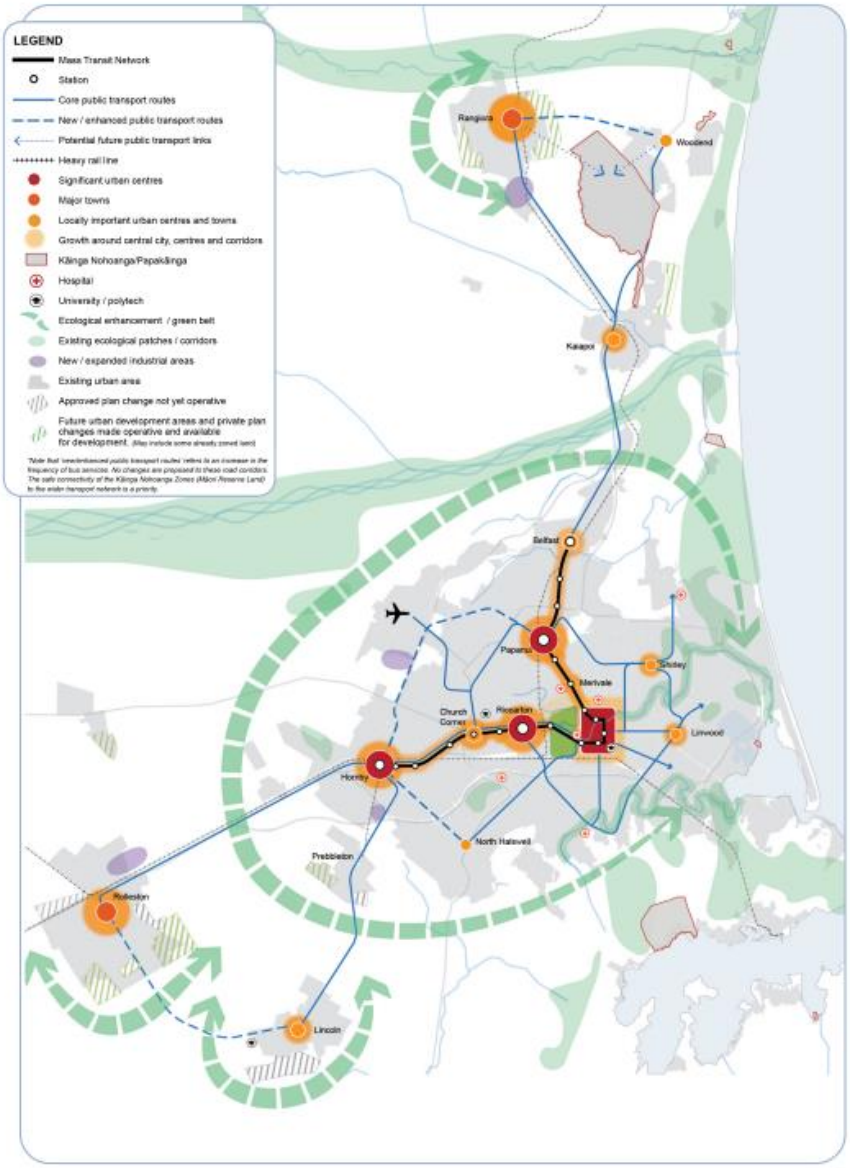
Increase in Christchurch population

10. In paragraph 3.22 Mr Clease refers to the draft Greater Christchurch Spatial Plan (**GCSP**) in support of a preferred approach to accommodate an increase in population of 200,000 people in Christchurch over the next 30 years. However, I consider Mr Clease's reliance on the GCSP to assert a 200,000 population increase in Christchurch is inaccurate.

11. Mr Clease relies on Figure 1 of his evidence in support of a 200,000 population increase. However, Figure 1 only captures a small part of the overall figure, as contained in Map 14 of the GCSP. A full version of Map 14 is below.[4] Map 14 shows the broad locations of capacity (700,000 people) in the Greater Christchurch area, not just Christchurch City.

[4] See GSCP page 79. The GCSP can be downloaded here: https://greaterchristchurch.org.nz/assets/Documents/greaterchristchurch-/Draft-GCSP/Greater-Christchurch-Spatial-Plan.pdf

Map 14: Broad locations of housing and business development capacity (700,000 people)



12. Page 26 of the GCSP also states "…*Greater Christchurch's population will grow from a population of approximately 530,000 to more than 700,000 by 2051. This is around 170,000 more people and 77,000 more households*." Accordingly, there are two points of clarification, the first being that the population growth is estimated at 170,000, not 200,000. Secondly 170,000 is the population growth for the Greater Christchurch area, not just Ōtautahi Christchurch. As mentioned in my section 42A report at paragraph 10.20, the population of Ōtautahi Christchurch is projected to change (increase) by only 58,700 people from June 2022 (389,000 resident population) to 2051 (448,000 resident population) at the medium growth rate.

CHAPTER 3 STRATEGIC DIRECTIONS

13. Mr Phillips planning expert for Carter Group Limited (Submitter 824) responds to my recommended changes to Strategic Direction 3.3.7 (notified numbering 3.3.8) Objective - Urban growth, form and design. Whilst generally supporting my recommended changes he seeks a change to the wording for clause 3.3.7(a)(vi) which I proposed to read *"Ensures the protection and/or maintenance of specific characteristics of qualifying matters."* Mr Phillips has recommended alternative wording that I agree better conveys the way in which the plan seeks to give effect to qualifying matters. I therefore recommend Objective 3.3.7(a)(vi) be amended to read *"~~Ensures~~* ***Recognises and provides for*** *the protection and/or maintenance of specific characteristics of qualifying matters."*

QUALIFYING MATTER AIRPORT NOISE AND UNDERLYING ZONES

14. In regard to this matter, the submitter evidence I have reviewed and respond to includes:

    (a) Mr Millar planning expert for Christchurch International Airport Limited (**CIAL**) submitter #852;

    (b) Ms Hampson economist for CIAL submitter #852;

    (c) Ms Buddle planning expert for Canterbury Regional Council submitter #689;

    (d) Ms Aston planning expert for Miles Premises Limited submitter 883;

    (e) Combined evidence of Mr Barrington Clarke and Mr Gjestland on aircraft noise projections and controls for Miles Premises Limited submitter# 883;

    (f) Ms Heppelthwaite planning expert for Waka Kotahi NZ Transport Agency Limited submitter #805;

    (g) Mr Falconer transport expert for Waka Kotahi NZ Transport Agency Limited submitter #805;

    (h) Mr Chiles acoustic expert for Waka Kotahi NZ Transport Agency Limited submitter #805;

(i) Mr Lindenberg planning expert for Kāinga Ora – Homes and Communities submitter #834; and

(j) Mr Selkirk ventilation expert for Kāinga Ora – Homes and Communities submitter #834.

The Contour

15. In paragraphs 12.67 and 12.68 of my Section 42A Report, I recommended that the Airport Noise QM be based on the Updated 50dBA Ldn Noise Contour Outer Envelope (**Updated 50dBA Contour**) except:

    (a) it only applies to relevant residential zones, commercial and mixed-use zones (noting this includes where these are underlying zones to Specific Purpose zones); and

    (b) it excludes an area notified as High Residential Density Zone located north of Riccarton Road within the area broadly between Otakaro Avon River, Deans Avenue Riccarton Road and Matai Street.

16. However, as I will explain below, I have changed my position due to uncertainty in the expert evidence regarding the appropriate airport noise contour for use as a QM.

17. From my review of the above evidence, it is clear that there are substantive challenges to the application of the Updated 50dBA Contour as the basis for a QM. More specifically, evidence challenges whether the noise modelling assumptions (of CIAL) are appropriate and whether the Updated 50dBA Contour is an appropriate noise control boundary.

18. I agree with Ms Bundle (planning expert for the Canterbury Regional Council) that the correct forum to decide the extent of an airport noise restriction on land use (broadly) is through the CRPS review (paragraph 40). The urban form for this part of the city is contingent on the CRPS airport noise policy review and PC14 is not the forum to evaluate the policy itself.

19. However, I disagree with Ms Bundle that the Airport Noise QM spatial extent should be based on the contour on Map A of the CRPS. The contour on Map A is also in question in the evidence. PC14 is not seeking to evaluate the CRPS airport noise contour policies or Map A (which identifies a contour). However, what PC14 is concerned about is where it is most appropriate to

provide greater intensification, and it remains relevant to consider the most appropriate spatial extent for an airport noise QM in the circumstances.

20. Whilst the NPS-UD directs changes to the District Plan to give effect to Policy 3, there is no great urgency from a practical sense to provide for any greater enablement, particularly for higher density living, as the city does not have a housing capacity sufficiency issue. I understand that the change to the CRPS will be notified in December 2024, with decisions possible by end of 2026. Once a decision on the policy and contour is reached, the District Plan can be changed accordingly (either retaining the status quo zoning in areas confirmed to fall within the contour or upzoning to medium or high density for areas confirmed to fall outside the contour) to align with this new direction.

21. Until a decision is reached, I recommend that the Updated 50dBA Contour is used as the basis for a "Provisional Airport Noise Qualifying Matter" noting that airport noise contours generally will be subject to the CRPS review process. Furthermore, I recommend that the area impacted by the Provisional Airport Noise QM retains the Operative District Plan zoning. This can be revisited via a plan change after decisions on the CRPS confirm any changes to the airport noise policy, Map A and any related provisions.

22. Regarding the Riccarton area, I acknowledge the evidence of Mr Falconer and Ms Heppelthwaite, who reiterate the importance of achieving an enabling building envelope within walkable catchments of potential mass rapid transit stops. I do query whether the indicative locations for potential MRT stops could be revised to better align with less airport noise impacted areas. The benefit of a "Provisional Airport Noise Qualifying Matter" will also be to enable Waka Kotahi and the Council to explore in more detail alternative options, both in terms of optimisation of land-use development and transport improvement opportunities.

Mitigation through mechanical ventilation

23. At paragraphs 3.12 and 4.1, Mr Selkirk, ventilation expert for Kāinga Ora, has provided information regarding the requirements for mechanical ventilation to allow normal activities (i.e. holding a conversation or listening to the television) to continue without interruption during periods of high external noise when all external doors and windows may need to be closed.

24. Mr Selkirk advises (at paragraphs 3.17 to 3.19) that continuous minimum ventilation rates is required to be maintained year-round, as added acoustic insulation and a closed building envelope will increase the thermal insulation properties of the building, effectively trapping more heat within the building, especially during periods of high solar gain. Engineered solutions are possible and buildings can be designed to meet minimum ventilation rates (based on and referenced to established codes such as the NZ Building Code) set to a combined requirement for heating, cooling and ventilation systems, ensuring acceptable levels for noise affected habitable spaces.

25. Whilst this may address achieving a level of tolerance and acceptability of the airport's operations for closed buildings, I consider this does not provide a whole solution in terms of amenity. Multi-storey development (apartments) are likely to have more limited outdoor living spaces with less potential exposure to external noise sources. However, townhouse developments are also reasonably expected to be realised within HRZ areas, which have associated outdoor living spaces, with an expectation they will be useable spaces, especially during summer months. Mechanical ventilation will not provide airport noise mitigation for outdoor living areas.

Application of Restricted Discretionary rules RD34 and RD26

26. The approach with rules RD34 (Residential Suburban and Residential suburban Density Transition Zone) and RD26 (Residential new Neighbourhood Zone) is to make a residential activity except for those permitted or controlled, but also education activities, preschools, health care centres and visitor accommodation, restricted discretionary if under the 50dBA Ldn noise contour and limited notified only to Christchurch International Airport Limited (absent its written approval).

27. Mr Millar, planning expert for CIAL, considers the above approach to be flawed in relation to those properties located between the operative 50dBA Ldn noise contour and the proposed Updated 50dBA Contour being excluded from the application of airport specific restricted discretionary rules RD34 and RD26 (refer to paragraph 74).

28. Mr Millar's position (refer to paragraph 74) is that these rules should apply to all impacted properties under the Updated 50dBA Contour, to align with the CPRS avoidance policy 6.3.5. Whilst I agree with Mr Millar that there may be a planning rationale to apply the restricted discretionary (RD) rules wider and

to manage greater residential intensification than that permitted or controlled, I do not consider PC14 to be the appropriate process to impose the restricted discretionary status and consenting requirement on additional properties that would be captured beneath the Updated 50dBA Contour until a decision is made on the review of CRPS Policy 6.3.5.

29. Notwithstanding this, in my opinion rules RD34 (RS and RSDT) and RD26 (RNN) are overly onerous because they capture some matters of non-compliance that are not likely to increase the extent of noise sensitive activities under the noise contour. If any rules are breached for a residential activity (even to a minor extent) including (for example) outdoor living space, road boundary setbacks, or earthworks, the residential activity is no longer permitted or controlled. The application is then limited notified unless the written approval of the CIAL is obtained. At paragraphs 95 and 96, Mr Millar acknowledges the issue with this rule and I understand that CIAL have advised Council that they only wish to be notified when there are breaches to site density, site coverage, building heights and outdoor living space standards.

30. If rules RD34 and RD26 are to apply in association with the Airport Noise QM, then it is my recommendation that for residential activities it should only be applied to those in breach of site density, site coverage and building heights. I do not consider a breach to outdoor living space (as with breaches to building setbacks and earthworks breaches) is as vital to managing population densities. Furthermore, I consider the rule should only apply when a breach to these standards gives rise to an increase in the number of residential units on the site beyond that which is permitted or controlled.

INLAND PORT INFLUENCES OVERLAY QUALIFYING MATTER

31. Mr Purves, planning expert for the Lyttelton Port Company Limited (**LPC**), submitter #853, identified that my s42A report did not address the LPC's request for an Inland Port Influences Overlay with associated provisions relating to acoustic treatment of habitable spaces of residential units (refer to paragraph 28). I apologise for this oversight.

32. Mr Purves has provided (paragraphs 23 to 27) a comprehensive background to the issue and the importance of Inland Port as strategic infrastructure. I accept that the impact of the proposed QM and associated acoustic provisions proposed will be minimal. The application of additional acoustic

treatment on residential activities that are currently permitted or controlled under the Operative District Plan has the potential to be outside the scope of this plan change under the reasoning provided in the recent *Waikanae* decision I refer to in my section 42A report.[5] However I consider it is appropriate and necessary that should a property be redeveloped to the MDRS levels of greater, that they should be to a standard to avoid additional reverse sensitivity effects arising. Overall, I support in part the relief sought by the LPC, subject to further clarification on its application to status quo development rights.

RAILWAY SETBACK QUALIFYING MATTER

33. Dr Chiles, noise and vibration expert for Kiwirail Holdings Limited (submitter 829), advises that appropriate provisions applying form the edge of the rail designation boundary are required to manage health and amenity effects arising from vibration, but notes that exact design requirements to ensure compliance with appropriate vibration levels depends on site specific factors and the associated costs of implementing any set controls will differ (paragraphs 1.8 and 1.9).

34. Ms Heppelthwaithe, planning expert for Kiwirail Holdings Limited (submitter 829), proposes as a less preferred alternative (to a 60m vibration control area) the introduction of an "Rail vibration alert overlay" (**Alert Overlay**) applying 100m from the rail designation boundary (paragraph 6.15). This would operate as an information tool to alert landowners that vibration effects may be present in this location.

35. I do not have a significant issue with an Alert Overlay in the District Plan with an advice note used to as an information tool, provided it does not lead to any additional administrative costs on Council. However, an alternative is for an alert layer to be incorporated into Land Information Memorandum (**LIM**) and on property files, noting there is an associated process for this to occur.

ELECTRICITY TRANSMISSION CORRIDOR AND INFRASTRUCTURE QUALIFYING MATTER

36. In addition to the existing Operative District Plan setbacks (proposed as QMs), Orion New Zealand Limited (submitter #854) requested the inclusion of new setback requirements for lower voltage lines and provision for

[5] At paragraphs 7.10 to 7.13.

electricity servicing. Mr O'Donnell, Head of Network Delivery at Orion, advises at paragraph 22 that "…*the vast majority of Orion's sub-transmission and distribution network in Christchurch (whether overhead or underground), as well as its ground mounted distribution substations, kiosks and cabinets, are located within the road corridor*".

37. Mr O'Donnell states (paragraph 25) "…*there is an unacceptable risk of inappropriate development and / or activities immediately adjacent to these lines (if not directly beneath them). This can pose both a serious health and safety risk to people, stock and property. It can also significantly impact and constrain (if not prevent entirely) Orion's ability to operate, maintain and upgrade these critical network assets and thereby provide electricity to our region.*"

38. The New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34: 2001) (**the Code**) sets minimum safe electrical clearance requirements for structures and certain activities in relation to overhead electric line installations and support structures. However, at paragraph 40 Mr O'Donnell considers the Code does not always prevent underbuild or encroachment in practice and (at paragraph 49) that the scale and density of PC14 enabled intensification (including 1.5m road boundary and 1m side boundary setbacks) will see non-compliance (with the Code) increase significantly in prevalence and severity.

39. Mr O'Donnell considers that recognising within the District Plan required clearances for 11kV, 400V and 250V lines in PC14 would significantly reduce the likelihood of clearances being overlooked, costs for remediation to be avoided, and allow Orion to work with consent applicants to ensure an engineered solution can be found where one is available (paragraphs 61 and 62).

40. I accept that these are relevant issues to consider with increased intensification and if not well managed increases potential costs to both non-compliant landowners but also Orion. However, Mr O'Donnell does not advice how many properties are potentially impacted by the new proposed setbacks to enable an evaluation for an "other matter" QM under section 77L. I question whether there needs to be a specific rule under the District Plan. As an alternative, the requirements for code compliance could be conveyed through an alert layer on LIMs similar to what I have

recommended as an alternative option for railway vibration matter at paragraph 35 above. Further expert conferencing on the options could be beneficial to determine whether additional information is available to evaluate alternative approaches.

CITY SPINE QUALIFYING MATTER

41. Mr Joll, planning expert for Kāinga Ora (submitter #834), supports deleting the proposed City Spine setback for properties that front roads 20m in width (paragraph 9.1).

42. At paragraph 9.7 Mr Joll references Objective 4 of the NPS-UD stating that the objective directs amenity values will change over time. He also cites the Enabling Act and the baseline for an appropriate level of landscaping. However, Mr Joll does not reference other aspects of the Enabling Act, such as that of qualifying matters and the use of these to address specific characteristics of a site, nor the ability to apply additional standards under section 80E, nor the ability to apply financial contributions. In my opinion, this particular location and the identified site-specific characteristics justify a different approach to the rest of the city in terms of setback specifically designed to ensure land developers consider the design and layout to provide for tree planting along this narrow corridor.

43. Mr Joll states in paragraph 9.10 *"…I have seen no evidence to indicate that the proposed additional controls being sought by Council are efficient or effective as where landscaping is located on private land and is not protected by legal instruments or provisions in a District plan – it can be removed as of right. The setback requirements therefore do nothing to ensure tree canopy is provided along these two corridors."*

44. I agree with Mr Joll that in the case of a fully compliant medium density development, there would be no consent conditions in place to enforce. However most importantly, the buildings would be setback 4m from the road boundary providing the space for larger or a number of smaller trees (refer to CCC Submission #751.19 and Mr Langman's submitter evidence paragraphs 67 to 70 discussing proposed minimum dimensions for tree planting area). Should the tree canopy financial contribution provisions be adopted, then the property owner would be more likely to use that space to plant the required trees. Therefore, I consider the setback is successful in

its intent and will facilitate well-planned and designed development from the outset.

45. Mr Joll has stated that the setback reduces design flexibility and potential building/density yields. He has provided no site specific analysis to support this statement. However, I have provided such analyses in my primary evidence (Appendix J and explained in paragraph 12.116) on the percentage area impacted by the proposed setback (this being minor).

TSUNAMI RISK MANAGEMENT AREA QUALIFYING MATTER

46. Mr Joll expresses concern (at paragraph 6.31) that the extent of the tsunami risk overlay is excessive and not appropriately commensurate to risk. Mr Joll in paragraph 6.33 states *"…It imposes a level of disablement and lost housing and business opportunities for a large part of the City that is completely disproportionate to the level of risk these areas are exposed to. As such the costs of regulation far outweigh the benefits."*

47. Mr Joll considers the one in 100 year event to be more appropriate than the Amended Proposal (1 in 500 year, 1.06m SLR and inundation depths of greater than 0.3m) to adopt (paragraph 6.35) and suggests in paragraph 6.42 that NZCPS Policy 25(f)*…indicates that for tsunami, the key consideration is events with a relatively high 1:100 return period".* At paragraph 6.49, Mr Joll considers that my recommendations *"…appear markedly out of step with the strategic direction set out in the FDS for Christchurch",* and in paragraph 6.54 Mr Joll compares the PC14 proposed approach to Wellington City, Hutt City and Porirua City approaches.

48. With regard to Mr Joll raising a discrepancy with the FDS (draft Greater Christchurch Spatial Plan), I note it was myself who selected the tsunami evacuation zone GIS layer as a basis to prepare some high-level maps for the draft GCSP consultation document, based primarily on publicly available information, namely the Operative District Plan layers. While the draft GCSP has been developed to meet the requirements of a Future Development Strategy, it does not have the same statutory effect as the District Plan. The issue of which GIS layer to depict within the draft GCSP will be addressed as part of the Greater Christchurch Officers report and considered at the forthcoming hearings on submissions to the draft GCSP this October. One option being considered is the exclusion of any tsunami

risk mapping with only the inclusion of a reference to the District Plan and plan changes including PC14 and PC12.

49. In respect of the approaches taken by other Councils, whilst this is of interest, in my view it should not be a major consideration for Ōtautahi Christchurch. The context and options are different for each geographical area in Aotearoa New Zealand, and what is to be determined through this PC14 process, is what level of risk tolerance does this city have for a specified event occurring and whether the impact is considered appropriate for a greater level of intensification over and above what is already provided for under the Operative District Plan. It does not appear Mr Joll has acknowledged the existing level of enablement or considered the ability of landowners to redevelop. He has also appeared to only consider an individual property cost, not the community cost in such an event.

50. Mr Joll in paragraph 6.57 considers *"…the approach adopted by all other coastal Tier 1 Councils of managing risk based on higher return periods is the correct approach for now."* He states that a more refined plan change can be promulgated to reflect a nationally consistent approach following the development of the NPS on Natural Hazards and the Climate Adaptation Act. In effect Mr Joll's approach (in paragraph 6.58) would enable greater intensification to occur in areas where Dr Lane explains in paragraph 32 of her evidence "*…a 41.5% chance that the 1:200-year tsunami inundation is reached or exceeded between now and 2130."*

51. I note that NZCPS policy 24 requires Councils to identify risks "over at least 100 years" while policy 25 requires consideration of areas *…potentially affected by coastal hazards over at least the next 100 years"*. Neither policy specify a limit on an annual exceedance probability (AEP) or return period that reflects a timeframe extending beyond 100 years. In my opinion, these policies anticipate that communities and Council can consider a range of event scenarios, including where their potential impacts and the likelihood that they occur, could extend beyond the next 100 years.

52. I will reiterate, based on Dr Lane's evidence, that the Amended Proposal Tsunami Management Area QM mapped spatial extent is representative of a tsunami event that has a 1 in 5 (20%) chance/likelihood of occurring in the next 100 years. Furthermore, that if 1% AEP/1 in 100-year were used to

delineate the QM, then there is a 34% chance that a larger event than this would occur over that timeframe.

53. At paragraph 6.61, Mr Joll suggests 11 hours provides sufficient time to evacuate from distant source tsunamis. However, Mr Joll does not consider paragraphs 46 and 47 of Dr Lane's evidence which mentions another potential source being the Hikurangi margin, and that a tsunami from that location would only take around 80 minutes to reach Christchurch.

Sarah-Jane Oliver

9 October 2023