

**BEFORE THE INDEPENDENT HEARING COMMISSIONERS  
AT WHANGAREI**

**UNDER** the Resource  
Management Act 1991

**IN THE MATTER** of the Whangarei  
District Proposed  
Urban and Services  
Plan Changes

**AND**  
**IN THE MATTER** of submissions  
provided by Ngā Tai  
Ora – Public Health  
Northland of Northland  
District Health Board

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**STATEMENT OF EVIDENCE OF  
ANIL SHETTY, PUBLIC HEALTH STRATEGIST  
ON BEHALF OF NGĀ TAI ORA – PUBLIC HEALTH NORTHLAND,  
NORTHLAND DISTRICT HEALTH BOARD  
07 NOVEMBER 2019**

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## **1. QUALIFICATIONS AND EXPERIENCE**

- 1.1.** My full name is Anilkumar Shetty. I am a public health professional at Ngā Tai Ora – Public Health Northland, Northland DHB (Public Health Northland), which I joined in 2007 and my designation is Public Health Strategist.
- 1.2.** I hold the academic qualifications of Bachelor of Medicine and Bachelor of Surgery (MBBS) from India and a Master of Public Health from the University of Auckland.
- 1.3.** I have more than 10 years' experience in public health in New Zealand and have been based in Whangarei since 2007. My medical background and New Zealand qualification and experiences provide me with a good understanding of wider determinants of health which includes environmental issues, and their effects on human health, both at an individual and population level.
- 1.4.** As part of my Masters' degree at the University of Auckland I studied courses focusing on the principles of population health and health protection. The course provided me with better understanding of various environmental issues that can impact, positively or negatively, on human health. Along with other key public health topics, how urban planning can impact on health of a community was also taught.
- 1.5.** The course also focused on various legislative, regulatory, and planning tools that can be used to address various adverse environmental health impacts on humans at a population level. Some of them were the Health Act 1956, Resource Management Act 1991 (RMA) and National Environmental Standards (NES). The course also focused on how public health sector can participate in developing better environmental plans at both national, regional and district levels.
- 1.6.** I coordinated the submission on the Whangarei District Proposed "Urban and Services" Plan Changes 82 A&B, 88 A-J, 109 115, 136, 143, 144, 145, 147 & 148 (the Proposed Plan) made by Public Health Northland.
- 1.7.** Unfortunately I will not be able to present my evidence in person due to personal reasons. However, Warren Moetara, Service Manager and/or Gavin de Klerk, Team Leader, Healthy Environments will represent Public Health Northland at the hearing.

- 1.8.** Public Health Northland has an overall statutory role to improve, promote and protect the health of Northlanders. Public Health Northland is one of twelve Public Health Units in New Zealand, and is the only provider of comprehensive, regional public health services in Northland. Public Health Northland employs Medical Officers of Health, Health Protection Officers and Community Development Advisors with the overall aim of maintaining and improving population health in Northland.
- 1.9.** I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and have complied with it in preparing this evidence. Consequently, this evidence expresses my own expert opinion on the relevant issues. It does not necessarily reflect the views of the Northland District Health Board.
- 1.10.** The key documents that I have referred to in preparing my evidence include:
- (a) Whangarei District Council – Proposed Urban Plan Changes
  - (b) Whangarei District Council - s42 Reports
  - (c) Additional relevant documents as referenced throughout the evidence.

## **2. SCOPE OF EVIDENCE**

- 2.1.** My evidence will address the following matters that were raised in Public Health Northland's submissions:
- (a) Definitions
  - (b) Earthworks
  - (c) General Residential and Medium Residential Zone
  - (d) Large Lot Residential Zone
  - (e) Subdivision
  - (f) Transport

### 3. OVERVIEW – PUBLIC HEALTH AND URBAN DESIGN AND PLANNING

- 3.1.** World Health Organisation defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. A number of factors can affect the health of individuals and communities and they are known as determinants of health. Most of the determinants of health lie outside the health system and strongly influence people’s health.<sup>1</sup> They can be categorised broadly into social, cultural, environmental, and economic factors.
- 3.2.** It has been long identified that in order to improve population health status and reduce inequalities it is important to identify and understand the main determinants of health that protect and promote good health.<sup>1</sup>
- 3.3.** In recognition of local government’s major role and functions in our everyday lives in enhancing well-being of their communities, impact on quality of life, and overall health, the four well-beings (social, economic, environmental and cultural) were reinstated into the Local Government Act 2002 in May 2019.<sup>2</sup>
- 3.4.** The Resource Management Act 1991 (RMA 1991), under Section 72 defines that *“The purpose of the preparation, implementation, and administration of district plans is to assist territorial authorities to carry out their functions in order to achieve the purpose of this Act”*. The purpose of the RMA 1991 is to *“promote the sustainable management of natural and physical resources”*. *“sustainable management”* has been further defined as *“.....managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety..”*
- 3.5.** The way a spatial plan is developed can impact on factors such as:
- a) Social exclusion and segregation
  - b) Housing affordability and quality
  - c) Access to community facilities and services, employment, health and social services;

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<sup>1</sup> The Social, Cultural and Economic Determinants of Health in New Zealand: Action to Improve Health - A Report from the National Advisory Committee on Health and Disability (National Health Committee) June 1998. Wellington: National Advisory Committee on Health and Disability, June 1998.

<sup>2</sup> [New Zealand Parliament, Local Government \(Community Well-being\) Amendment Bill, New Zealand Parliament, New Zealand Parliament: Wellington, 2019.](#)

- d) Disparities in environmental hazard exposure
- e) The ability of people to engage in active transport (walking and cycling)
- f) Access to healthy food environments

**3.6.** Therefore Public Health Northland believes that it is important to retain a broad focus on sustainable management of both urban and rural environments, and also recognise connections between land use and quality of life. Careful planning and policy changes at the local level can be most effective in tackling incompatibilities which may arise between land use planning and public health.

## 4. DEFINITIONS

- 4.1. The Proposed Plan under “*Chapter 4 - Definitions*” of the “*Part C – Procedures Statutory Requirements*” includes various definitions of words used in the Proposed Plan.
- 4.2. Public Health Northland submitted to include a definition for *Registered Drinking Water Supply*. Although the term “*Registered Drinking Water Supply*” has not been used anywhere in the Proposed Plan, I believe that its inclusion would be relevant to Public Health Northland’s submissions on the Earthworks chapter (see paragraph 5 - Earthworks). Furthermore, the inclusion of this definition would be consistent with Northland Regional Council’s Proposed Regional Plan.<sup>3</sup> It should be noted that the Proposal Regional Plan is currently being appealed on several issues however, the definition is not subject to any appeals.

### Relief sought

- 4.3. Insert definition – Registered drinking water supply

“Registered drinking water supply:  
has the same meaning as in the Resource Management (National  
Environmental Standards for Sources of Human Drinking Water)  
Regulations 2007.”

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<sup>3</sup> [Northland Regional Council, Proposed Regional Plan for Northland - Appeals Version - 29 July 2019. 2019, Northland Regional Council,; Whangarei.](#)

## 5. EARTHWORKS

- 5.1. The rule EARTH-R1-Subdivision is related to earthwork activity related to subdivision.
- 5.2. This rule makes reference to the potential effects of vegetation clearance, excavation or fill and disposal of stormwater and wastewater, but does not make reference to the potential effects on drinking water.
- 5.3. I do not agree with Mr Burgoyne’s assessment (*Part 9 – Services Plan Changes - s42A Hearing Report, paragraph 506 p.86*) that the protection of sources of drinking-water is the sole responsibility of Northland Regional Council.
- 5.4. The Havelock North Drinking Water Inquiry Stage 2 report clearly recognised that protection of source water is very important and *is easier, cheaper and safer to keep water clean at its source than to try to clean it up later.*
- 5.5. Public Health Northland’s original submission (#207 – 12.1) stated that the Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007 (NES) require consenting authorities to consider the potential adverse effects on the quality of drinking water at abstraction points i.e., the sources. The NES require conditions to be placed on resource consents, ensuring that registered drinking water suppliers are notified of any adverse effects or of any events that may impact the quality of drinking water.
- 5.6. In my opinion it is vital that all consenting authorities in Northland, including District Councils, play an important part in protecting the sources of drinking water and hence it is necessary to have such explicit rules at various levels of planning (regional and district).

### Relief Sought:

- 5.7. Insert under EARTH-R1 - Subdivision:

“Where

Discretion is restricted to:

1. The potential.....

1(b). The potential effects on sources of drinking water for human consumption”

- 5.8. EARTH – REQ1 stipulates the information that is required for applications for earthworks in the District.
- 5.9. Public Health Northland submitted in support of the above clause however, sought further inclusion.
- 5.10. I believe that earthworks for medium to large sized subdivisions could potentially negatively affect sources of drinking water (surface or ground water (bore)). Assessing the potential effects on the sources of drinking water in the vicinity of the proposed earthworks would be crucial to protect the sources of drinking water for human consumption.
- 5.11. Furthermore, as the Council is the drinking-water supplier for most of the urban Whangarei population I believe that it should be also concerned in protecting its drinking-water sources from such activities.

**Relief Sought:**

- 5.12. Insert under EARTH – REQ1.2 – Information Requirement:

“REQ1.2(da) Assessment of the potential effects on registered drinking water suppliers and sources of drinking water for human consumption.”

## 6. GENERAL RESIDENTIAL ZONE AND MEDIUM DENSITY RESIDENTIAL ZONE

- 6.1. The Proposed Plan under General Residential (GRZ) and Medium Residential Zones (MDRZ) Chapters would allow Multi Unit Developments to occur.
- 6.2. Under Definitions Chapter Multi Unit Development has been defined as:  
*“means development of three or more principal residential units on a site within the General Residential and Medium Density Residential Zones.”*
- 6.3. GRZ-REQ1 and MDRZ-REQ1 stipulate the information required to support a resource consent application in regard to Urban Design and Density.
- 6.4. MDRZ’s “Issues” section identifies that *more intensive development has the potential to generate adverse effects on established residential environments.*
- 6.5. Public Health Northland had submitted to include the requirement of social impact assessments to support resource consent applications to develop more than one Multi Unit Developments in GRZ and MDRZ.
- 6.6. I do not agree with Mr Burgoyne’s assessment that inclusion of social impact assessment would add ambiguity to the consent process. He further states that it is unclear what social impact assessment means (Part 6 – Living Zones Proposed Plan Change 881 –Section 42A Hearing Report (page 66, paragraph 385))
- 6.7. Social Impact Assessment (SIA) has been defined by the International Association for Impact Assessment as:  
*“Social Impact Assessment includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of **planned interventions** (policies, programs, **plans**, projects) and any social change processes invoked by those interventions.”<sup>4</sup>*
- 6.8. Social Impact Assessments are usually carried out in close collaboration with community members, as well as other stakeholders and experts. Apart from engagement and collaboration, SIAs would also address other key matters like housing and impacts on local business, health services, educational services, and overall community well-being.

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<sup>4</sup> International Association for Impact Assessment: <https://www.iaia.org/wiki-details.php?ID=23>

- 6.9.** Although, addressing the above mentioned important social issues is a statutory requirement under “*Schedule 4 -Information required in application for resource consent*” of the RMA 1991, social impacts are not systematically (and/or formerly) assessed for larger developments/subdivisions in Whangarei urban areas as highlighted below.
- 6.10.** Recently Housing New Zealand Corporation (HNZ) had applied for resource consent to construct 37 residential units and associated subdivision in Whangarei urban area (Living 1 Environment) known as Maunu (67-87 Puriri Park Road, Whangarei).<sup>5</sup>
- 6.11.** It was estimated by the applicant that the new development would increase the number of residents by 117 or an increase of 8% in the Maunu Census Area Unit (CAU), one of the least deprived areas of Northland.<sup>6</sup> However, Statistics New Zealand’s data showed that the annual increase in population of the CAU was steady at 10-15 people (<1%) since 2009. It is obvious that the sudden increase in the population in this CAU would potentially burden the existing service providers (healthcare, childcare, schools, and other social services).
- 6.12.** Furthermore, HNZ identifies that its tenants are more likely to have complex social needs and might require increased social support.<sup>7</sup> In my opinion it was very important to understand the wider social impacts due to this development not just on the existing residents but also potential HNZ residents. Unfortunately, the Operative District Plan for Whangarei Urban area did not include SIAs as a requirement to support such applications.
- 6.13.** I would like to highlight that this resource consent application attracted huge attention from the surrounding community members. It also compelled the Council to publicly notify the resource consent application. I understand that the hearings have been completed and the community members are eagerly waiting for the decision.
- 6.14.** I believe that if the Council had requested for SIA to support the resource consent application, then most of the concerns expressed by the community members would have been addressed. The SIA would also have assessed the social impacts on HNZ’s future residents.

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<sup>5</sup> [Whangarei District Council: Housing New Zealand Corporation – Resource Consent Application.](#)

<sup>6</sup> Atkinson J, Salmond C, Crampton P. NZDep2013 Index of Deprivation. Wellington: Department of Public Health, University of Otago; 2014.

<sup>7</sup> Housing New Zealand Corporation. Briefing for the incoming Minister of Housing and Urban Development. Wellington: Housing New Zealand Corporation,; 2017

- 6.15.** SIA guidelines are easily available and I think that the Council could approve/endorse one of the guidelines that satisfy its requirements.<sup>8</sup> Public Health Northland would be more than happy to collaborate with the Council in identifying appropriate guidelines/tools.
- 6.16.** Hence, I believe that it is important to include SIAs as a requirement to support larger MDU developments within GRZ and MDRZ Chapters.

**Relief Sought:**

- 6.17.** Insert GRZ-REQ1 (d)

“GRZ-REQ1.1 (d)

A social impact assessment is undertaken as part of the pre-application process with any mitigation/avoidance measures recommended by the experts for more than one Multi Unit Development.”

- 6.18.** Insert MDRZ-REQ1 (d)

“MDRZ-REQ1.1 (d)

A social impact assessment is undertaken as part of the pre-application process with any mitigation/avoidance measures recommended by the experts for more than one Multi Unit Development.”

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<sup>8</sup> [The Department of State Development, M., Infrastructure and Planning., Social Impact Assessment Guideline. 2018, State of Queensland,; Brisbane.](#)

## 7. LARGE LOT RESIDENTIAL ZONE

- 7.1. The Proposed Plan clearly states that the Large Lot Residential Zone (LLRZ) would provide living opportunities in close proximity to Whangarei City and associated amenities. The LLRZ would result in clustered large lot residential enclave developments.
- 7.2. As LLRZs are located in close proximity to Whangarei city, I believe that the LLRZs could potentially encourage urban sprawl. Given the housing and growth pressures in Whangarei urban areas it is more likely to happen during the term of the Proposed Plan.
- 7.3. A very good example of such development in Whangarei is the recent residential subdivision/s known as the Karanui development along Three Mile Bush Road in Kamo. The new subdivision would result in more than 110 residential dwellings being built in close proximity of Whangarei City. Residential lots would be sized between 1780m<sup>2</sup> and 3300m<sup>2</sup>. There was no proposal to connect the new properties to any of the reticulated systems (drinking-water, wastewater or stormwater). The Council's GIS maps (Pipeline Assets) show that the three waters' networks are about 2kms from the boundary of the development.
- 7.4. The applicants geotechnical report mentioned that the proposed subdivision is *"underlain by one of the main Northland aquifers and that this aquifer is in the order of 5m deep."*
- 7.5. As assessed by the applicant's engineers, each residential unit would produce, on average 900 litres of effluent discharged to land from their on-site wastewater system per day. Such effluent contains human pathogens, non-pathogenic microorganisms, antibiotics, pharmaceuticals, illegal drugs and a variety of other household chemicals. My understanding is that the use of on-site wastewater disposal for such large residential lots is intended for dispersed and individual dwellings, not 110 lots all within a larger rural-residential subdivision. I believe that this development would have been efficiently serviced by communal systems or, when available in the future, connecting to Council's reticulated systems.

- 7.6. I am concerned that in the future, the Council might not be able to efficiently reintegrate such un-serviced large, enclave like developments close to Whangarei City into its three waters networks when they are extended and become available to connect.
- 7.7. I would like to reiterate from my submission that it is essential to have clearer objectives and policies that would enable seamless integration of such subdivisions in the future.
- 7.8. In my opinion designating easements for three waters network (similar to utilities like phone, network, power, etc) during subdivision process would be very efficient.

**Relief Sought:**

- 7.9. Amend LLRZ-O6 – Allotment Size:

“Residential allotment sizes are no larger than necessary to provide sufficient area for dwellings, easements to secure connections to reticulated three water systems at the boundary of the allotment, accessory buildings and curtilage.”

## 8. SUBDIVISION

- 8.1. In my opinion subdivision is a convenient time to address infrastructure issues as it can be difficult to re-integrate non-connected (three waters' networks) residential dwellings at a later stage.
- 8.2. Subdivision also provides an ideal opportunity for the Council to require land to be assigned to provide necessary infrastructure in the future.
- 8.3. As described above under paragraph 7 integrating such large developments into three waters' network in the future could be challenging.

### Relief Sought:

- 8.4. Insert SUB-R3.3A

"Every allotment not connected to three waters' networks has easements to secure connections to reticulated three water systems at the boundary of the allotment."

## 9. TRANSPORT

### POLICY - TRA-P11 – Bicycle Parking

- 9.1. The Proposed Plan under the Policy TRA-P11 sets policy directions for the provision of bicycle parking.
- 9.2. Public Health Northland had submitted in support of the policy and also made further submission in support of *Submitter #003* to include amendments to further strengthen Policy TRA-P11.
- 9.3. I acknowledge the amendment of the Policy TRA-P11 to include “*safe and secure*” bicycle parking spaces however, as requested in my further submission (in support of *Submitter #003*) the inclusion of standards such as “*AS2890.3 2015 - Bike Parking Facilities*” are more likely to ensure that the infrastructure provided would be safe, reliable and of good quality.
- 9.4. I acknowledge Mr Burgoyne’s (S42A Hearing Report – Part 9 – Services Plan Changes – Proposed Plan Changes 109, 136 & 147) reasoning behind not referencing to Standards AS2890.3 2015 as they are not publicly available. However, this should not be the reason not to include any guidelines for the design and location of bicycle parking spaces in the urban Whangarei. There are other guidelines that could be referred to in the Proposed Plan (for example *Bicycle Parking Facilities: Guidelines for Design and Installation* or NZTA’s *Cycle parking and planning and design*)<sup>9,10</sup> or the Council could develop Whangarei specific bicycle parking guidelines similar to Queenstown which were being developed in 2009.<sup>11</sup>
- 9.5. I do not support the inclusion of words “*except where not appropriate*” and request them to be deleted. I believe that inclusion of these words creates ambiguity to the intention of the policy.

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<sup>9</sup> [Harry Barber, et al., Bicycle Parking Facilities: Guidelines for Design and Installation. 2016, Austroads Ltd.,: Sydney.](#)

<sup>10</sup> [New Zealand Transport Agency, Cycle parking planning and design: Cycling Network Guidance technical note. 2019, New Zealand Transport Agency,; Wellington](#)

<sup>11</sup> [Queenstown Lakes District Council, Cycle Facilities Guidelines - DRAFT. 2009, Queenstown Lakes District Council,; Queenstown.](#)

## Relief sought

- 9.6. Amend the Policy TRA-P11 – Bicycle Parking as follows:

“To require safe and secure bicycle parking spaces those meet Whangarei District Council approved Bicycle Parking standards and end-of-trip facilities for activities with high numbers of employees, students or residents. ~~except where not appropriate.~~”

## POLICY - TRA-P12 – Charging Stations

- 9.7. The Proposed Plan under the Policy TRA-P12 sets policy directions for the provision of charging stations.
- 9.8. I believe that the policy statement *“To reduce emissions and enhance the sustainability of .....:”* clearly highlights that the intention of TRA-P12 is to support activities that would contribute to reducing emissions in Whangarei urban areas.
- 9.9. Further to this as highlighted in my original submission (#207) the usage of electric bicycles is increasing across all age groups. With the current growth in the older population (Census 2018) across urban Whangarei, I think that the number of people aged > 65 years using electric (mobility) scooters would also be increasing. I believe that providing charging stations for electric bicycles and electric (mobility) scooters is essential to encourage more people being active in our communities.

## Relief Sought

- 9.10. Insert TRA-P12.3 to read as follows:

“Safe and secured electric bicycle and electric scooter (disability) stations in City Centre and Shopping Centre.”

## **10. CONCLUSION**

- 10.1.** As highlighted throughout my evidence, I believe that the Council has the opportunity to include proactive objectives, policies, and rules that would promote and protect public health in Whangarei urban area.
- 10.2.** On behalf of Public Health Northland, I would like to thank the Commissioners for their time and the opportunity to present my evidence on the above mentioned public health issues.



**Anil Shetty**

**07 November 2019**

**IN THE MATTER** of the Resource Management Act 1991

**AND**

**IN THE MATTER** of the Proposed Urban and Services  
Plan Change Package to the Whangarei  
District Plan

**STATEMENT OF EVIDENCE OF STEPHEN GORDON CHILES  
FOR NGĀ TAI ORA - PUBLIC HEALTH NORTHLAND  
IN RELATION TO ENVIRONMENTAL NOISE**

**7 November 2019**

## QUALIFICATIONS AND EXPERIENCE

1. My full name is Dr Stephen Gordon Chiles.
2. I am self-employed as an acoustician through my company Chiles Ltd. I have been employed in acoustics since 1996, as a research officer at the University of Bath, a principal environmental specialist for the NZ Transport Agency, as a consultant for the international firms Arup, WSP, and URS, and for the specialist firms Marshall Day Acoustics and Fleming & Barron.
3. I am subcontracted by Southern Monitoring Services to provide the Environmental Noise Analysis and Advice Service, advising the Ministry of Health and Public Health Services on environmental noise.
4. I have degrees of Doctor of Philosophy in Acoustics from the University of Bath, and Bachelor of Engineering in Electroacoustics from the University of Salford. I am a Chartered Professional Engineer and a Fellow of the UK Institute of Acoustics.
5. I have made acoustics assessments and designs for numerous developments including infrastructure, industrial, commercial, recreational and residential activities. I advised the Ministry of Business, Innovation and Employment regarding draft provisions controlling environmental noise for Clause G6 of the New Zealand Building Code.
6. I am convenor of the New Zealand reference group for "ISO" acoustics standards, an observer of the "IEC" committee for acoustics instrumentation standards, and a member of joint Australian and New Zealand committees for acoustics standards. I was Chair of the 2012 New Zealand acoustics standards review, Chair for the development of the 2010 wind farm noise standard, and a member for the 2008 general environmental noise standards.
7. I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014. This evidence is within my area of expertise except where I state that I am relying on facts or information provided by another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

## SCOPE OF EVIDENCE

8. I have prepared this statement of evidence on behalf of Ngā Tai Ora – Public Health Northland (“Public Health Northland”). The original submission by Public Health Northland was made under its previous name: Public and Population Health Unit of the Northland District Health Board.
9. I advised Public Health Northland with respect to submissions and further submissions it made on the Urban and Services Plan Change Package to the Whangarei District Plan (“WDP”) relating to environmental noise (submitter #207, further submitter #358). This statement of evidence provides independent information relating to acoustics provisions in the WDP, with respect to those submissions.
10. I have been separately engaged by KiwiRail Holdings Ltd and the NZ Transport Agency and have prepared a separate statement of evidence relating to their submissions. There is a common issue between the Public Health Northland submissions and the KiwiRail/Transport Agency submissions with respect to ventilation requirements, which I address in both of my statements of evidence.
11. The Section 42A report recommends accepting some of the Public Health Northland submissions relating to acoustics matters and rejecting others. In my evidence I will focus on those areas where the s42A reports recommend rejection of the Public Health Northland submissions.
12. My evidence will address:
  - a) Sound insulation requirements in the City Centre Zone,
  - b) Mechanical ventilation requirements when windows are required to be closed for sound insulation,
  - c) Sensitive activity in industrial and commercial zones, and
  - d) Noise limits for activity in the hospital zone.

## CITY CENTRE ZONE

13. For the City Centre Zone proposed Policy CC-P6 seeks to "*protect residential amenity by requiring residential units to provide sufficient...noise insulation*". However, for the reasons set out below in my opinion proposed Rule CC-R11 permits residential activity in the City Centre Zone without sufficient noise insulation.
14. There is a requirement for sound insulation of new noise sensitive activities in the City Centre Zone in Rule NAV 6.5. That rule specifies an assumed outdoor sound level and requires buildings to be designed to reduce that outdoor level to an acceptable indoor level. The design indoor sound levels specified in NAV 6.5 are generally consistent with accepted guidelines for the protection of health, such as published by the World Health Organisation<sup>1</sup>. However, in my opinion the design outdoor sound levels are unrealistic, such that in reality the design indoor sound levels will be significantly exceeded, even when NAV 6.5 is satisfied.
15. In relation to sound insulation of bedrooms, the outdoor design level specified in NAV 6.5 is 55 dB, which is a level typical of a suburban residential zone and not a vibrant urban city centre. The proposed policies for the City Centre Zone anticipate a vibrant environment with people and music audible, which would correspond to actual outdoor sound levels significantly higher than 55 dB. In my experience of such environments the outdoor sound levels in the City Centre Zone are likely to routinely exceed 65 dB.
16. The effect of the low (55 dB) external sound levels specified for new building design in NAV 6.5 compared to the actual sound levels that I anticipate (say 65 dB) is that even when there is compliance with the rule, the actual sound levels resulting inside new residential units will significantly exceed the specified internal sound levels and WHO guidelines. Residents would be exposed to sound levels in their homes that would cause sleep disturbance and other adverse health effects.

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<sup>1</sup> World Health Organisation, Guidelines for community noise, 1999

17. Public Health Northland submitted that sound insulation requirements in the City Centre Zone should be increased by 10 dB to address this issue. In Appendix 6 to the s42A report Council's acoustics advisor, Jon Styles, agrees that a greater degree of sound insulation is appropriate in the City Centre Zone, but for reasons of cost he only recommends a 5 dB improvement. Mr Styles does not propose any other method of addressing adverse health effects that would still occur.
18. Despite Mr Styles acknowledging that at least some improvement in the sound insulation standard is warranted, in Part 1 of the s42A report Melissa McGrath recommends rejecting Public Health Northland's submission, citing a lack of evidence. I have provided additional evidence relating to this matter above, and on the basis of Mr Styles' report it is uncontested that an adverse public health issue exists that necessitates control. Ms McGrath does not propose any alternative controls to address this issue.

## **MECHANICAL VENTILATION**

19. Rule NAV 6.5 requires sound insulation for noise sensitive activities in several of the proposed urban zones. In cases where windows are required to be closed for sound insulation, mechanical ventilation is required by NAV 6.5. However, the ventilation specified would not provide thermal comfort for residents.
20. Residents would either have thermal discomfort with windows closed or excessive noise with windows open. As such, the sound insulation requirement is nullified and residents would be exposed to sound at levels that would result in adverse health effects.
21. I have previously investigated this issue for the NZ Transport Agency and commissioned Beca to review ventilation specifications used in association with noise mitigation<sup>2</sup>. This Beca report confirms that Building Code requirements are inadequate

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<sup>2</sup> Beca, Ventilation systems installed for road-traffic noise mitigation, 26 June 2014, <https://nzta.govt.nz/assets/Highways-Information-Portal/Technical-disciplines/Noise-and-vibration/Research-and-information/Other-research/Ventilation-systems-installed-for-road-traffic-noise-mitigation.pdf>

for this purpose, and there is a need for greater air flows, heating and cooling. In my experience, such provisions to provide thermal comfort are common in district plans.

22. Public Health Northland submitted that mechanical ventilation providing thermal comfort should be required so that residents have a genuine choice whether or not to open windows. This allows residents to control indoor sound levels so they can have acceptable conditions at times such as when they are seeking to sleep, rest or concentrate. In his report Mr Styles agrees with this submission. However, in the s42A report Ms McGrath recommends rejecting this submission based on her uncertainty about the need for ventilation and the cost.
23. Based on Mr Styles report, the need for a ventilation requirement to provide thermal comfort is uncontested and is supported by the Beca review.
24. On behalf of the NZ Transport Agency I also commissioned Beca to estimate the costs of treating buildings near state highways<sup>3</sup>. That case study includes consideration of ventilation systems and provides an estimate of costs. On that basis a ventilation system to provide thermal comfort could be in the order of 3% of a new house cost. Acoustically, this cost is not an increase to the cost of a house that could otherwise be built, as without adequate mechanical ventilation noise sensitive activities should not be located in these zones. The inclusion of adequate mechanical ventilation reflects the true cost of building in a compromised acoustic environment.

## **SENSITIVE ACTIVITIES IN INDUSTRIAL AND COMMERCIAL ZONES**

25. Windermere Holdings Ltd (submitter #085) submitted that educational facilities and care centres should be allowed in the Commercial Zone. No controls are proposed in the submission for noise affecting outdoor areas of educational facilities. Given the relatively high permitted daytime noise levels (60 dB) in the Commercial Zone I do not consider this to be an appropriate environment for educational facilities as the WHO guideline level for outdoor areas (55 dB) is likely to be exceeded.

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<sup>3</sup> Beca, New Zealand Transport Agency Building Acoustic Mitigation Case Study, 9 December 2013, <https://nzta.govt.nz/assets/Highways-Information-Portal/Technical-disciplines/Noise-and-vibration/Research-and-information/Other-research/NZ1-8305016-Building-Acoustic-Mitigation-Case-Study.pdf>

26. JB and RM Keith Trustees Ltd (submitter #043) submitted that some residential activity should be allowed in the Light Industrial Zone. This zone has relatively high permitted daytime (65 dB) and night-time (60 dB) noise levels and is generally not suitable for residential activity. The submission makes reference to health and safety concerns, but in terms of environmental noise there would be a public health concern allowing residential development in this zone.

### **NOISE LIMITS FOR ACTIVITY IN THE HOSPITAL ZONE**

27. The Northland District Health Board ("NDHB") (submitter #206) submitted that two noise controls relating to activity in the Hospital Zone should be relaxed. I have discussed those submission with the NDHB and I understand it has reflected on them and will set out amended proposals in its evidence. I understand those amendments would retain the notified noise limits for hospital activity received in residential areas and would not exempt sound of ancillary helicopter movements at the hospital from noise limits. In my opinion, that amended proposal is appropriate for managing environmental noise effects in residential areas near the hospital.

### **CONCLUSIONS**

28. It is uncontested that sound insulation requirements in the notified plan change package for the City Centre Zone are inadequate to protect public health. I recommend that sound insulation requirements in Rule NAV 6.5 should be increased by 10 dB, as set out in the Public Health Northland submission. The s42A report recommends rejection of this submission but no alternative methods are proposed for managing the adverse public health effect.
29. It is uncontested that mechanical ventilation requirements, that are proposed to apply to new buildings containing noise sensitive activities in urban zones, are inadequate for providing thermal comfort for occupants. In my opinion this nullifies the sound insulation requirements in NAV 6.5 and results in an unmitigated public health effect from excess noise exposure inside new buildings. I recommend adoption of the ventilation specification set out in the Public Health Northland submission to address

this issue. The s42A report recommends rejection of this submission but no alternative methods are proposed for managing the adverse public health effect.

30. In my opinion, noise sensitive activities such as education facilities and residential activity should be avoided in 'noisy' Commercial and Light Industrial Zones respectively.
31. I recommend maintenance of noise controls to avoid activities in the Hospital Zone unduly affecting surrounding residential areas. I understand that NDHB will be putting forward amended proposals in its evidence that retain appropriate controls.

**Dr Stephen Chiles**

**7 November 2019**