Tabled 25/11

Before the Proposed Urban and Services Plan Changes for Whangarei District Council Hearings Panel

Under the Resource Management Act 1991 (**RMA**)

In the matter of Plan Change 82 B, 88 A, 88B, 88D, 88E, 88G, 88H, 88I, 109, 115, 136, 143, 148: Whangarei District Plan Changes: Urban and Services

---

Statement of evidence of Graeme Charles Quensell on behalf of Fire and Emergency New Zealand (submitter 165, X340)

Date: 22 November 2019

Introduction

1 My full name is Graeme Charles Quensell. I am an Assistant Area Manager in Fire and Emergency New Zealand's Whangarei-Kaipara Area.

2 I have the following qualifications and professional memberships:

2.1 Post Graduate Diploma in Building Fire Safety and Risk Engineering (Fire Engineer) (Melbourne).

2.2 Companion Fellow of the Institution of Fire Engineers UK (CFIFireE) by examination, and also recognition of my contribution to the fire engineering industry.

2.3 Fellow of the New Zealand Fire Brigades Institute (FNZFBI).

2.4 Past President of the International General Assembly IFE (UK) and past President IFE New Zealand Branch.

3 I have 41 years' operational emergency management experience in Auckland, Northland and Mendocino Rural Fire California.

4 I have been asked to prepare this statement to support Fire and Emergency's submissions on the Whangarei District Plan Changes: Urban and Services.

Executive summary

5 The specific functions and powers of Fire and Emergency are set out in the Fire and Emergency New Zealand Act 2017 (**FENZ Act**). Fire and Emergency is a Crown entity under section 8 of FENZ Act and is the same legal body as the previous New Zealand Fire Service Commission, which was constituted under section 4 of the Fire Service Act 1975.

6 The FENZ Act rearticulates Fire and Emergency's functions, which have widened over time. They are now described in sections 11 (main functions) and 12 (additional functions) of the FENZ Act in terms that are set out in the evidence of Perri Unthank for Fire and Emergency.

7 While the prevention and suppression of fire remains a core activity, it is important to note that Fire and Emergency has a clear statutory mandate to respond to a broad range of emergency situations that affect communities and individuals.

8 The location of fire stations within the community they serve enables the Fire and Emergency to discharge its statutory duties and meet public expectations.

9 Fire stations provide the most effective service if they are located at the centre of a turnout area that takes in the community they serve. The turnout area is described in terms of response times: that is, how soon can an appliance get to the edge of the turn-out area from the fire station.

10 Fire and Emergency is acutely conscious that New Zealand's population is growing and its distribution is changing. Fire and Emergency must develop new fire stations as communities grow and develop, in order to ensure that it can effectively perform its functions.

11 Fire and Emergency specifically designs its individual stations to meet its operational requirements within the particular location, and engages architectural firms to produce the design for new fire stations. As a community facility, fire stations need to fit in with the communities they are part of.

12 The New Zealand Fire Service Fire Fighting Water Suppliers Code of Practice SNZPAS4509:2008 (**Code of Practice**) is the key document setting out the requirements for firefighting water supply in New Zealand.

13 The Code of Practice is deliberately written to provide flexibility as to how firefighting water supplies can be provided.

14 The Code of Practice recognises that adequacy of firefighting water supply includes not only an assessment of the water supply that must be available but also:

14.1 the location, connections, markings and access to fire hydrants to enable water supply to be used; and

14.2 roading widths, surfaces and gradients where hydrants are located also need to support emergency vehicles.

15 The provision of firefighting water supplies is not specifically required by any current building legislation in New Zealand.

16 Recognition of the Code of Practice in district plans bridges that gap and increases the prospect that, when a fire occurs, Fire and Emergency will have access to sufficient water resources to enable it to protect life and property.

Fire and Emergency's role

17 Fire and Emergency is typically called out to more than 75,000 incidents every year. In Whangārei District the annual average call outs is increasing due to population growth and increasing medical call outs. Approximately one third of responses are related to urgent medical response.

18 Fire and Emergency's Statement of Performance Expectations 2019/20[1] sets out a number of 'national service delivery guidelines'. These set targets for responses to various types of

---

[1] Published in accordance with the Crown Entities Act 2004. Available at http://www.fire.org.nz/assets/Documents/Files/Statement-of-Performance-Expectations-2019-2020.pdf.

emergencies, in accordance with Fire and Emergency's functions. The national service delivery guidelines include:

18.1 Career crews arrive at 85% of structure fires and medical emergencies within 8 minutes

18.2 Volunteer crews arrive at 85% of structure fires and medical emergencies within 11 minutes.

18.3 90% of vegetation fires arrived at within 30min.

18.4 Crews with specialist resources arrive at 90% of motor vehicle accidents within 30 minutes and 85% of hazardous substances incidents within 60 minutes.

19 In order to meet these targets, Fire and Emergency must adapt its operations to a national population that is growing and changing in its distribution; in particular it is moving away from rural areas and urban areas are growing rapidly.

20 Typically, fire stations in small to medium towns and rural areas are serviced by a volunteer fire station located in the centre of the local township. These volunteer stations also provide an essential response to the public who live outside of the urban area. Each rural fire station backs up their neighbouring station for larger incidents and for the occasions when volunteer crews are not able to gather enough numbers to make a response, or it is severely delayed. Fire and Emergency needs to be able to change its own facilities and assets in order to meet the changing needs of the communities it serves.

Operational considerations for fire station locations

21 In simple terms, fire stations provide the most effective service if they are located at the centre of a turnout area that takes in the community they serve.

22 The turnout area is described in terms of response times: that is, how soon can an appliance get to the edge of the turn-out area from the fire station.

23 A fire station is strategically placed to meet or exceed the expected service levels in the turn out area it covers. It follows that the ability to locate fire stations in their optimum locations enables the Fire and Emergency to achieve these service levels.

24 The Fire and Emergency is developing a 50-year Station Location and Resourcing Plan. This Plan uses a complex National Risk Resourcing Model (**NRRM**), which relies on various data sources to identify optimum locations for fire stations. The NRRM provides a nationally consistent methodology to determine both fire station placement and the allocation of fire appliances and personnel to those stations.

25 Identification of the optimum locations of fire stations needs to take into account existing station locations, new areas of development or intensification of existing development, and associated demographic shifts. It also considers fire risk, a deprivation index, predicted travel times, topographical data, and local infrastructure characteristics (such as railway lines, bridges etc).

The value of community fire stations

26 While predominantly used by career firefighters and volunteers, fire stations play an important role in the community they serve.

27 For example:

27.1 In a Civil Defence emergency, the station is seen as a base for the community, and in particular for liaison with other emergency services in any natural disaster.

27.2 Fire and Emergency liaises closely with schools to provide fire safety education to their students. Fire stations host open days and school visits.

27.3 Fire and Emergency provides information in relation to smoke alarms and installation, often through community meetings or other events held at stations.

27.4 Fire and Emergency provides community access to fire safety information and advice on electric blankets, stoves, caravans, candles and kitchen fires, automatic fire alarm installations, evacuation procedures and practice.

27.5 Fire and Emergency also uses stations as bases for work with at risk groups within the community for fire safety education and practice.

Building design

28 Each year Fire and Emergency has a capital programme to build, refurbish or maintain buildings within its property portfolio.

29 Fire and Emergency is not a requiring authority under the Resource Management Act 1991 and therefore it must comply with the relevant rules in the district plan for the zone in which it wishes to undertake such work, or otherwise obtain any necessary resource consents. Often district plan rules require certain aspects of design and siting to be taken into account. Fire and Emergency is conscious of meeting these requirements so that new and existing facilities are sited in their optimal locations and in keeping with the surrounding environment, as much as possible.

30 Fire and Emergency specifically designs its individual stations to meet its operational and functional requirements within the particular location and engages architectural firms to produce the

design for new fire stations. As a community facility, fire stations need to fit in with the communities they are part of.

31 Fire stations are often located in prominent sites on main roads providing quick access to arterial routes which allows quicker travel times to emergency incidents. These higher-profile locations ensure the fire station is seen, which provides the public with reassurance that help is nearby in an emergency.

32 New fire stations are designed and constructed to meet the resilience requirements of Building Importance Level 4 (highest) under the building code, to ensure that they can still function after natural disasters and can be utilised as refuge centres if required.

33 While Fire and Emergency takes responsibility to design fire stations that fit within their locality, key operational constraints must be taken into account in the design.

34 Key operational considerations for a fire station include:

34.1 Sufficient height and length of fire appliance parking bays.

34.2 An appliance cleaning area containment system.

34.3 Adequate set back distance from road frontages to minimize traffic disruption when entering the station and to provide maximum visibility for appliance drivers and other road users when leaving the station.

34.4 Office, ablutions (including for decontamination of firefighters), working and living areas to accommodate the staff rostered on duty (generally 4 per appliance).

34.5 Adequate staff parking area.

34.6 Designed to minimise disruption to neighbours from activities on station.

34.7 Some strategically located stations have training towers for height, safety and ladder training. Fire hoses can also be dried on these after use.

Day to day activities at fire stations

Career fire stations

35 The following paragraphs describe the usual operation of a career fire station:

35.1 When responding to an emergency callout the station alarms sound, lights come on and the doors open. The crew dress in their protective clothing and mount the appliance. The appliance leaves the station with flashing lights and siren (as required) to attend the emergency incident and doors close automatically behind them.

35.2 When not attending callouts paid crews carry out a variety of activities from administration to training.

35.3 For a considerable period of the day, career crews are absent from the station attending emergency calls and carrying out risk mitigation work. This work takes the form of fire safety programs in schools, assessing risk in buildings and development of site reports to assist management of emergency incidents at that address, tactical planning and building compliance inspections, fire hydrant flow testing, evacuation procedure compliance and education.

35.4 Career crews change shift at 0800 and 1800 hours each day and although there are no prescribed hours,

evenings are generally used for administration duties and lecture style training.

35.5 Pump testing takes place on site once a week for approximately three minutes on week days only. This involves engaging the pump and pumping approximately $1m^3$ of water out of the holding tank in the engine. Moderate noise is generated during this process.

36 The only career fire station in Whangārei District is Whangārei Station.

Volunteer fire stations

37 The following paragraphs describe the type of activities that take place at a typical volunteer fire station:

37.1 During the day, the fire station is generally quiet, except for administration staff, or the need to respond to an emergency.

37.2 The brigade is notified of an emergency callout by the siren operating at the fire station, as well as the back-up pager system. Members of the brigade will respond to the call. They arrive at the fire station, generally by car, parking on the street adjacent to the station. They proceed into the station and put on their protective gear. They then board either the fire appliance or crew van. The responding crew members leave the station, through the front roller doors of the appliance bay that close on departure. Crews return the vehicles to the station once the callout is complete.

37.3 A volunteer brigade usually trains one evening per week (7pm – 9pm) to maintain a state of operational readiness.

37.4 Due to the variety of emergencies that a brigade responds to, training involves various firefighting exercises both indoors and outdoors.

37.5 Outdoor training generally involves exercises using the fire appliance, the portable pump, the unrolling, rolling and connecting hoses, and spraying water by members of the Brigade. Other exercises include ladder work and motor vehicle accident scene management, rope work, and carrying out breathing apparatus training scenarios.

37.6 The brigade is responsible for ensuring the appliances and equipment used for firefighting are maintained in a state of operational readiness and efficiency. During training evenings, firefighters also carry out routine testing and checking of their equipment to ensure that it is operationally ready to attend an emergency incident.

The Code of Practice

38 The key document setting out the requirements for firefighting water supply in New Zealand is the New Zealand Fire Service Fire Fighting Water Suppliers Code of Practice SNZPAS4509:2008.

39 The Code of Practice was originally published under section 30(3) of the Fire Service Act 1975, which required the National Commander of the (then) New Zealand Fire Service to publish a Code of Practice specifying standards for water supply, volume and pressure required for firefighting. The purpose of the Code of Practice is to provide direction on what constitutes a sufficient supply of water for firefighting. It is intended for use by territorial authorities, water supply authorities, developers and Fire and Emergency. It is continued in force through transitional provisions in the FENZ Act (sections 72 and 73), with a statutory process for the creation of a new code of practice at some stage in the future.

40 The Code of Practice is a publicly available national standard, prepared under the supervision of a Committee of the Standards Council established under the Standards Act 1988.

41 The Code of Practice provides techniques to define a sufficient firefighting water supply, which may vary according to the circumstances. It is based on an assessment of the minimum water supply needed to fight a fire and to limit fire spread according to different buildings' fire hazards. The firefighting water supply required to address a particular fire hazard may be established by the use of tables within the Code of Practice or by calculation. The Code of Practice is deliberately written to provide flexibility as to how firefighting water supplies can be provided, not just in urban areas, but also rural areas.

42 The Code of Practice recognises that adequacy of firefighting water supply includes not only an assessment of the water supply that must be available but also:

42.1 The location, connections, markings and access to fire hydrants to enable water supply to be used.

42.2 Roading widths, surfaces and gradients where hydrants are located also need to support emergency vehicles.

42.3 The time it takes to access a building from the road and the space available for firefighters to undertake firefighting or rescue operations can have a significant impact on what Fire and Emergency is able to achieve.

43 Without adequate emergency vehicle access, firefighters are significantly restricted in the duties they can perform. The ability of fire fighters to get resources to a site and to position them safely and effectively directly impacts on the outcome of the emergency they are attending and therefore the overall impact of the emergency on surrounding properties and communities.

44 The provision of firefighting water supplies is not specifically required by any current building legislation in New Zealand. Firefighting water supply is therefore an issue that is often overlooked during the building, design and commissioning process.

45 Clause C5 of the building code outlines the access requirements for buildings and means for moving water around buildings. However, it does not cover provision of firefighting water to site. Similarly, clause G12 of the building code provides for water supplies serving buildings but does not specify the need for the provision of firefighting water.

46 Recognition of the Code of Practice in district plans bridges that gap and increases the prospect that, when a fire occurs, Fire and Emergency will have access to sufficient water resources to enable it to protect life and property.

47 Overlooking the water supply requirements of Fire and Emergency can be significant and can directly impact on the safety of building occupants and firefighters and poses an unnecessary and unacceptable risk. Inadequate water supply means firefighters will not be able to effectively protect life and property (i.e. it can compromise the ability to enter buildings and structures to perform rescues) limit surrounding exposures or prevent unnecessary losses.

Date: 22 November 2019

G Quensell

.....

Graeme Charles Quensell