

# Network footprint and demand

Final report for Spark New Zealand and Vodafone New Zealand, 5 October 2015

Network Strategies Report Number 35017

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## 0 Executive summary

The Commerce Commission is seeking views on whether the UCLL network footprint correction requires an adjustment to the ‘gap’ between footprint and demand, which after the Commission corrected for vacant sites is 3.6%. The Commission’s proposal is to introduce an adjustment to make demand equal to network connections less 7.5% – corresponding to Statistics New Zealand’s broad estimate of the proportion of empty dwellings – with the aim of ensuring that paying customers are supporting the costs of the connections for unoccupied buildings.

In its proposal, the Commission is attempting to reconcile two sets of data. Given the differing sources of this data, it is not surprising that even after adjusting for vacant sites there may still be a slight mismatch between the data. The proposed adjustment is based on data from Statistics New Zealand. The Commission is seeking to verify – by reference to other data sources – the size of this gap, and if required adjust demand to achieve a target gap. We find that due to definitional issues this data is inappropriate for use in this particular situation.

The size of such a gap must reflect New Zealand characteristics, including local lifestyle and cultural factors coupled with the features of New Zealand fixed line services (such as free local calls). These characteristics are already captured in the Commission’s use of CoreLogic and Chorus data and thus any adjustment should not be necessary.

Given the problems we have identified the proposed 7.5% adjustment would over-estimate the proportion of empty dwellings and buildings (without revenue-earning fixed lines) within the Commission’s network footprint, and would increase the error associated with the resultant estimated prices.

We recommend that the Commission retain a gap of 3.6% without any further adjustment.

## 1 Introduction

The Commerce Commission is seeking views on whether the UCLL network footprint correction requires an adjustment to the ‘gap’ between footprint and demand.<sup>1</sup> Spark New Zealand (Spark) and Vodafone New Zealand (Vodafone) have commissioned Network Strategies Limited to review this proposed adjustment.

The revised draft determination<sup>2</sup> identified a gap between UCLL connections and customers of 171 501 connections or 8.6% of UCLL connections. The Commission states that removing vacant sites from the UCLL network footprint reduces the gap to 3.6%.

Information from Statistics New Zealand on unoccupied dwellings is available from the 2013 Census:

In 2013, 1 in 10 dwellings were unoccupied. Nearly one-quarter were classified as unoccupied because all the occupants were temporarily away at the time of the census, but about three-quarters had no occupants at all.<sup>3</sup>

The Commission therefore proposes to make an adjustment to make demand equal to network connections less 7.5% – corresponding to Statistics New Zealand’s broad estimate of the proportion of empty dwellings – with the aim of ensuring that paying customers are supporting the costs of the connections for unoccupied buildings.

Following this introduction, this report examines:

- unoccupied dwellings (Section 2)
- business premises (Section 3)
- demand (Section 4)
- concluding remarks (Section 5).

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<sup>1</sup> Commerce Commission (2015), *Consultation paper – Network footprint and demand*, 21 September 2015.

<sup>2</sup> Commerce Commission (2015), *Further draft pricing review determination for Chorus’ unbundled copper local loop service*, 2 July 2015.

<sup>3</sup> Statistics New Zealand (2014), *2013 QuickStats about housing*, March 2014, page 6.

Our team has had the benefit of access to confidential information (CI) and restricted information (RI) used in the modelling process. In keeping with our confidentiality undertakings any CI and RI quoted in this report is marked as such with square brackets. Commission CI and RI is marked **CNZCI** and **CNZRI** respectively.

Although this report was commissioned by Spark and Vodafone the views expressed here are entirely our own.

## 2 Unoccupied dwellings

In order to assess whether Statistics New Zealand data on unoccupied dwellings is appropriate for making an adjustment between the UCLL footprint and demand, it is important to understand how this measure is defined.

For census use a dwelling is defined as unoccupied if it is unoccupied at midnight and at all times during the next 12 hours following midnight on the night of the data collection.

Unoccupied dwellings may be classified as ‘empty’ or ‘residents away’.

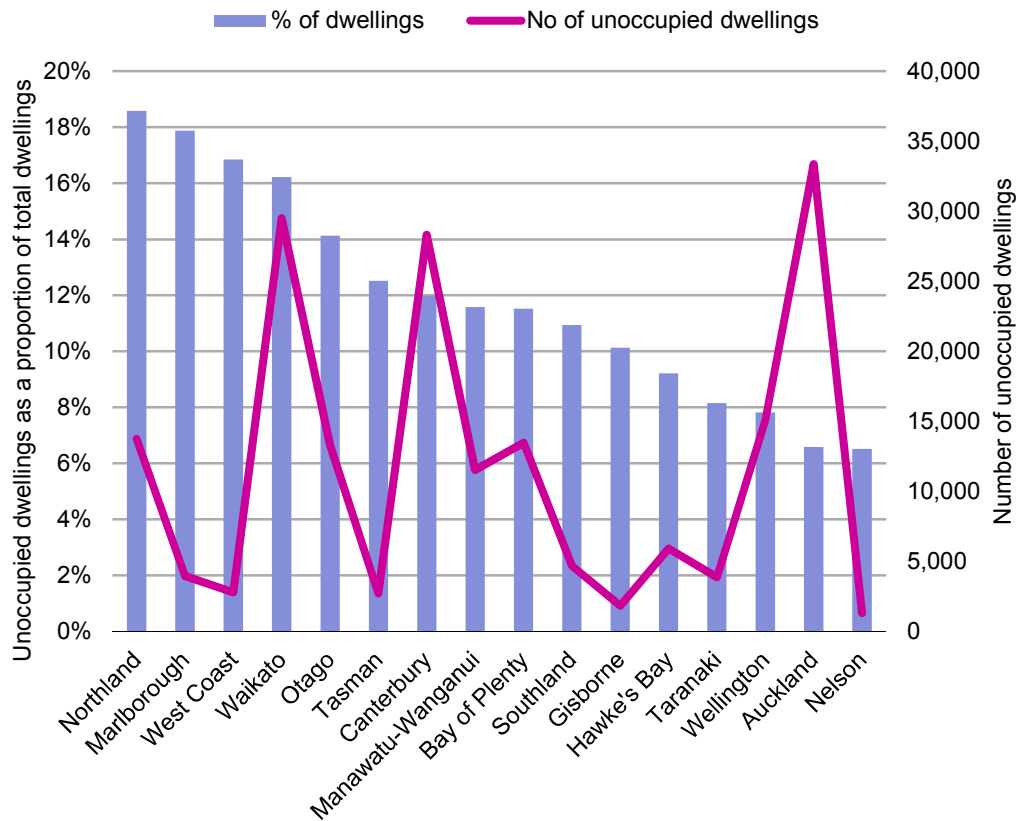
An unoccupied dwelling is classified as ‘empty’ if it clearly had no current occupants and new occupants are not expected to move in on, or before, census night. Unoccupied dwellings that are being repaired or renovated are defined as empty dwellings. Unoccupied baches or holiday homes are also defined as empty dwellings.

A dwelling is classified as having ‘residents away’ where occupants of a dwelling are known to be temporarily away and are not expected to return on, or before, census night.<sup>4</sup>

This definition would tend to suggest that a key driver for unoccupied dwellings would be the number of baches and holiday homes. Geographic variation in dwellings occupancy supports this hypothesis (Exhibit 1).

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<sup>4</sup> Statistics New Zealand (2013), *2013 Census definitions and forms*, November 2013.



**Exhibit 1:** Unoccupied dwellings by regional council area from the 2013 Census [Source: Statistics New Zealand]

Nationally, 10.6% of dwellings were unoccupied in 2013, compared with 9.7% at the two previous censuses in 2006 and 2001. Statistics New Zealand noted that the 2013 Census had the highest rate of unoccupied dwellings in more than a century.

The high rate of unoccupied dwellings in 2013 was largely driven by the increase in unoccupied dwellings in Canterbury. The increase in Canterbury was likely to be a result of the damage to houses caused by the 2010/11 earthquakes. Some of the unoccupied houses would have been uninhabitable, while others may have been vacated for repair.<sup>5</sup>

<sup>5</sup> Statistics New Zealand (2015), *A century of censuses – dwellings and households*, 14 July 2015. Available at <http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/century-censuses-dwellings/unoccupied.aspx>.

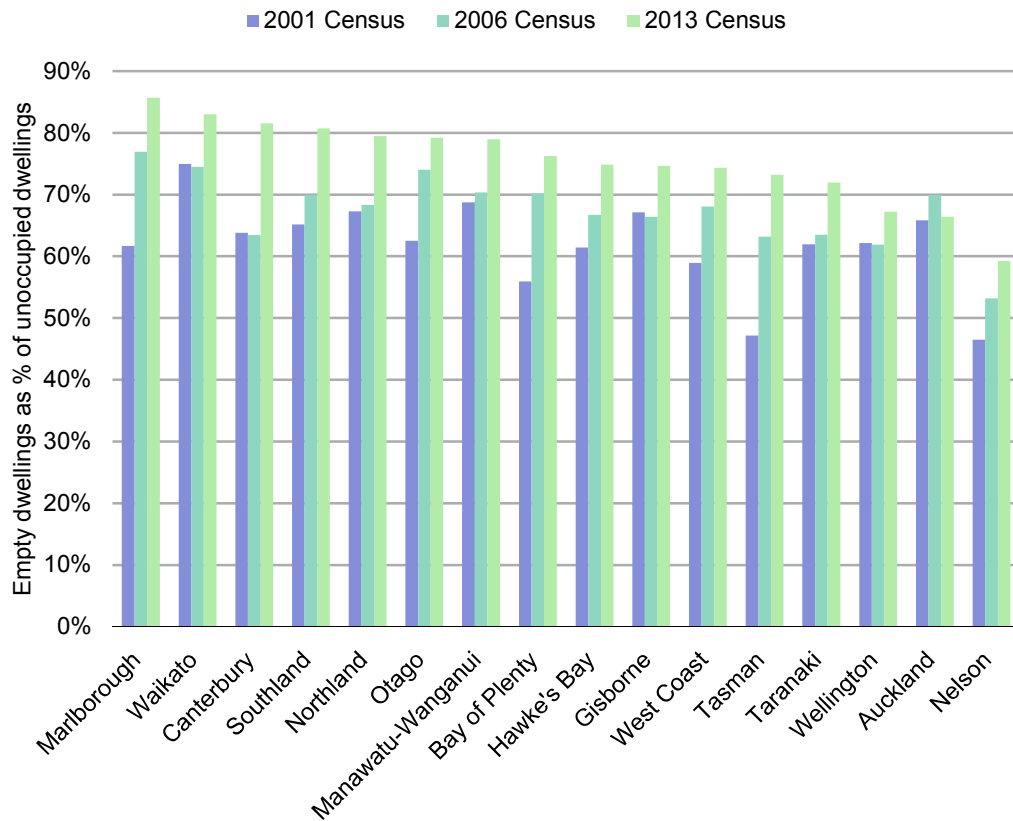
Nonetheless, this suggests that there is an expectation that nationally around 10% of dwellings would normally be unoccupied, however as shown in Exhibit 1 this varies by regional council area, from around 6% in Nelson to over 18% in Northland.

Data from the 2013 Census finds that 76.2% of unoccupied dwellings were classed as 'empty', increasing from 69.2% in 2006 and 65.2% in 2001.<sup>6</sup>

If we examine empty dwellings (as a proportion of unoccupied dwellings), we see those regional council areas with the highest rates – with the exception of earthquake-affected Canterbury – are those in which there is likely to be a large number of baches and holiday homes (Exhibit 2). Furthermore, the Census was conducted on 5 March 2013 – after the traditional holiday season – therefore most baches and holiday homes would have been classified as empty on that date.

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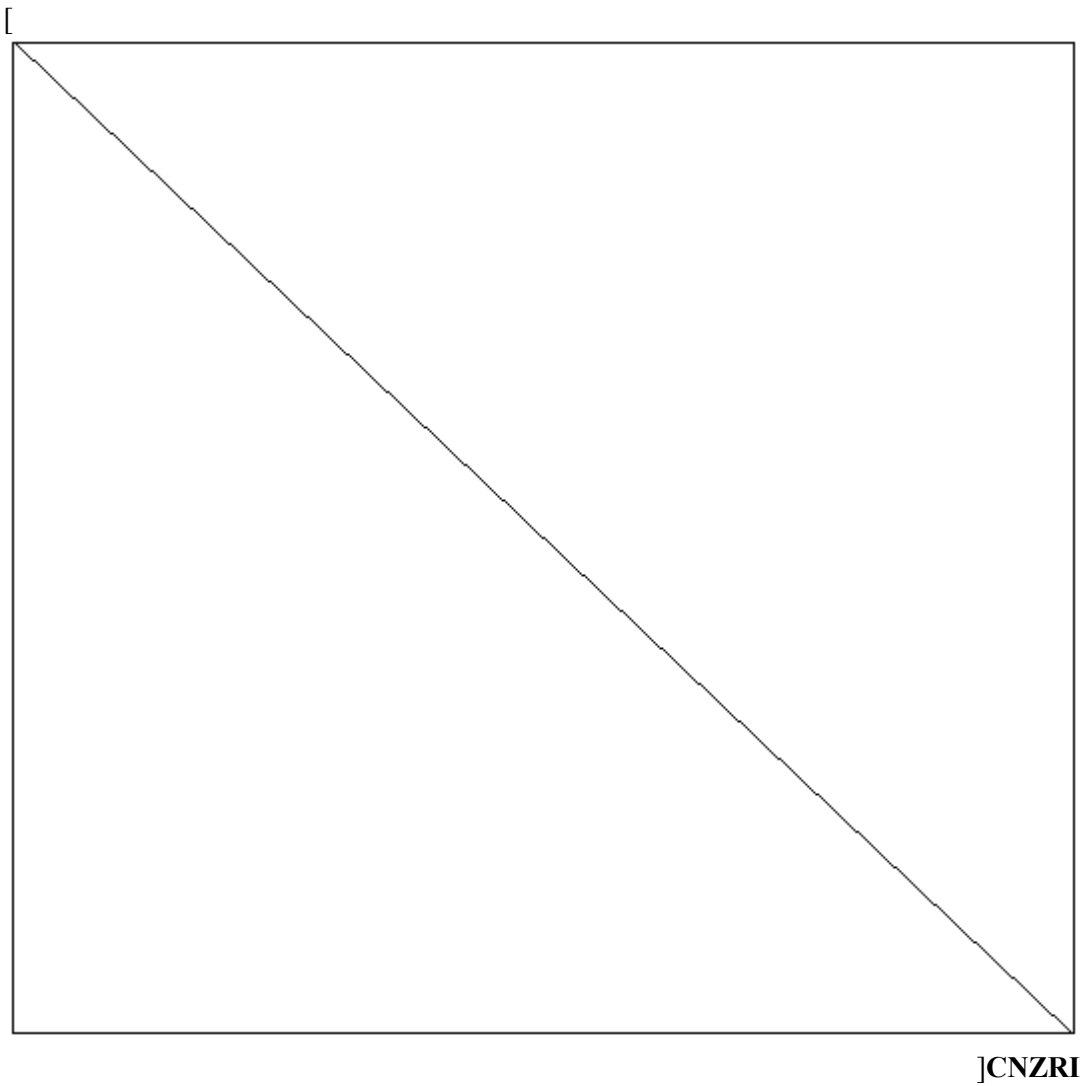
<sup>6</sup> Statistics New Zealand (2015), *Dataset: Occupied dwellings, unoccupied dwellings, and dwellings under construction, 2001, 2006, and 2013 Censuses (RC, TA, AU)*, extracted from NZ.Stat on 28 September 2015.



**Exhibit 2:** Empty dwellings as a proportion of unoccupied dwellings by regional council area – 2001, 2006 and 2013 [Source: Statistics New Zealand]

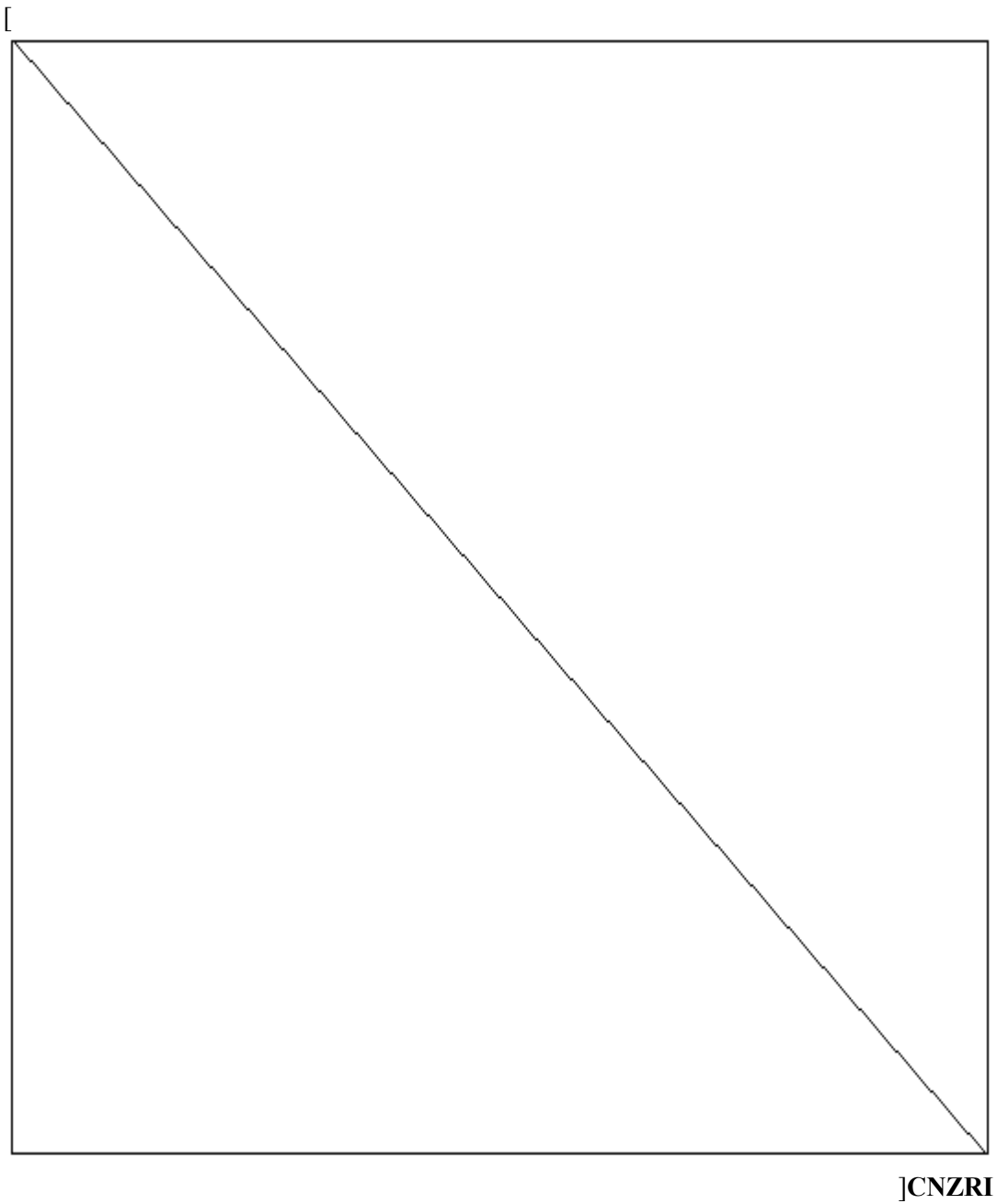
A significant proportion of those baches and holiday homes would most likely never have had a fixed-line telephone service and would be in areas outside the TSO boundary.

As an illustration, we have investigated three examples of typical holiday locations in the Northland region (Exhibits 3 to 5). It is clear that there are a large number of dwellings – very likely to be holiday homes – outside the TSO boundary and are therefore not included in the Commission’s model. If these buildings are baches and holiday homes it is likely that they would have been classed as empty in the census. Hence the census-derived 75% assumption of unoccupied dwellings being empty – which includes these baches and holiday homes outside the TSO areas – is likely to overstate the proportion of dwellings within the TSO boundary – that is, the network footprint – that are empty and without a revenue-earning fixed line.

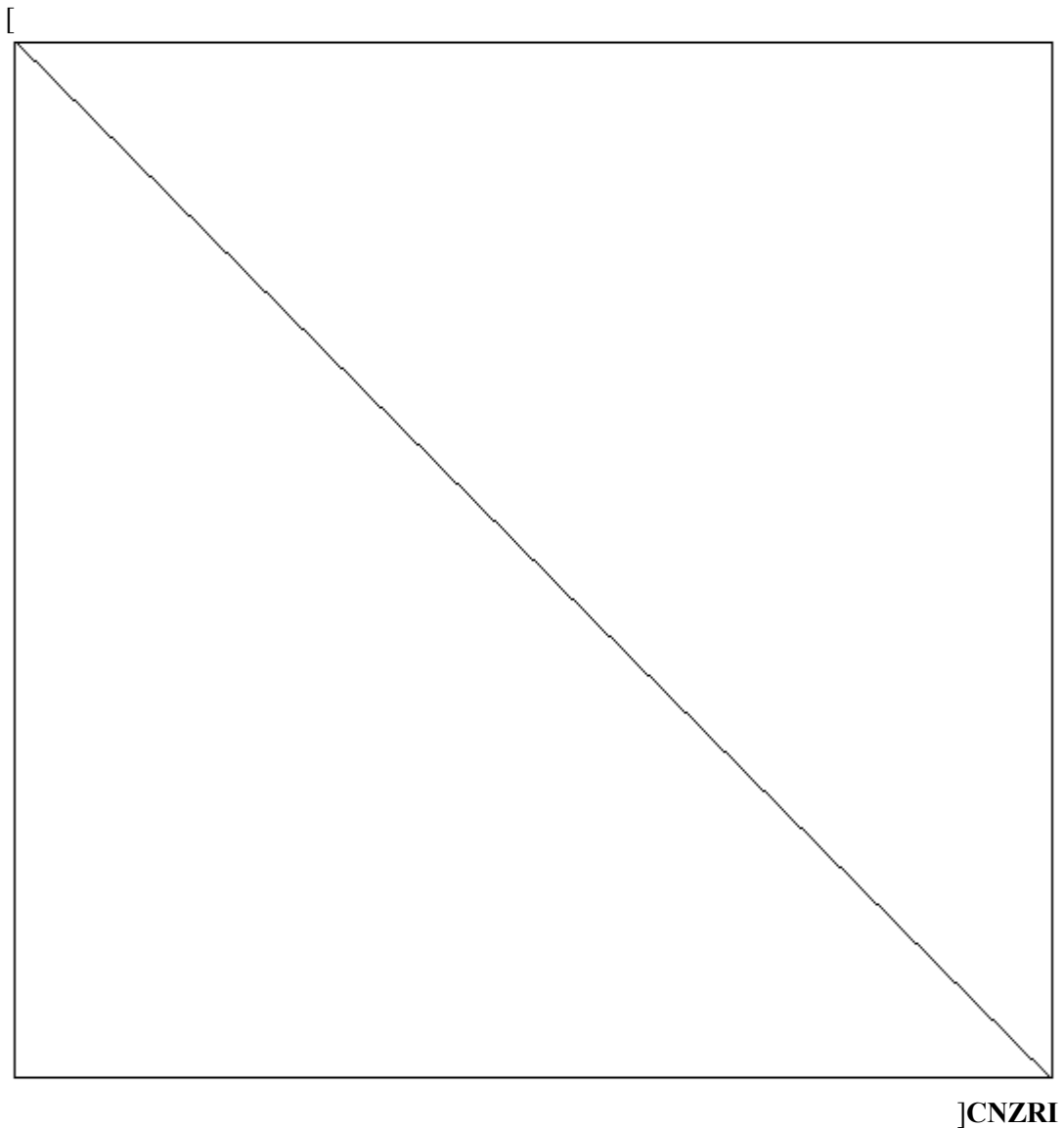


**Exhibit 3:** *Buildings / dwellings locations from the Commission's model – Taupo Bay, Northland [Source: Network Strategies Limited]*





**Exhibit 4:** *Buildings / dwellings location from the Commission's model – Tauranga Bay, Northland [Source: Network Strategies Limited]*



**Exhibit 5:** *Buildings / dwellings location from the Commission's model – Matauri Bay, Northland [Source: Network Strategies Limited]*

It should also be noted that there would be some holiday homes classed as empty by Statistics New Zealand that may have revenue-earning fixed lines. This can easily be verified via a search of properties on one of the various online bach booking services. Such address points therefore must be included within demand.

We therefore conclude that the Commission's proposed adjustment of 7.5% to demand will misrepresent the number of revenue-earning lines within the network footprint. With this adjustment, the Commission is essentially under-estimating the likely demand within the network footprint, and thus inflating the average cost per line.

### 3 Business premises

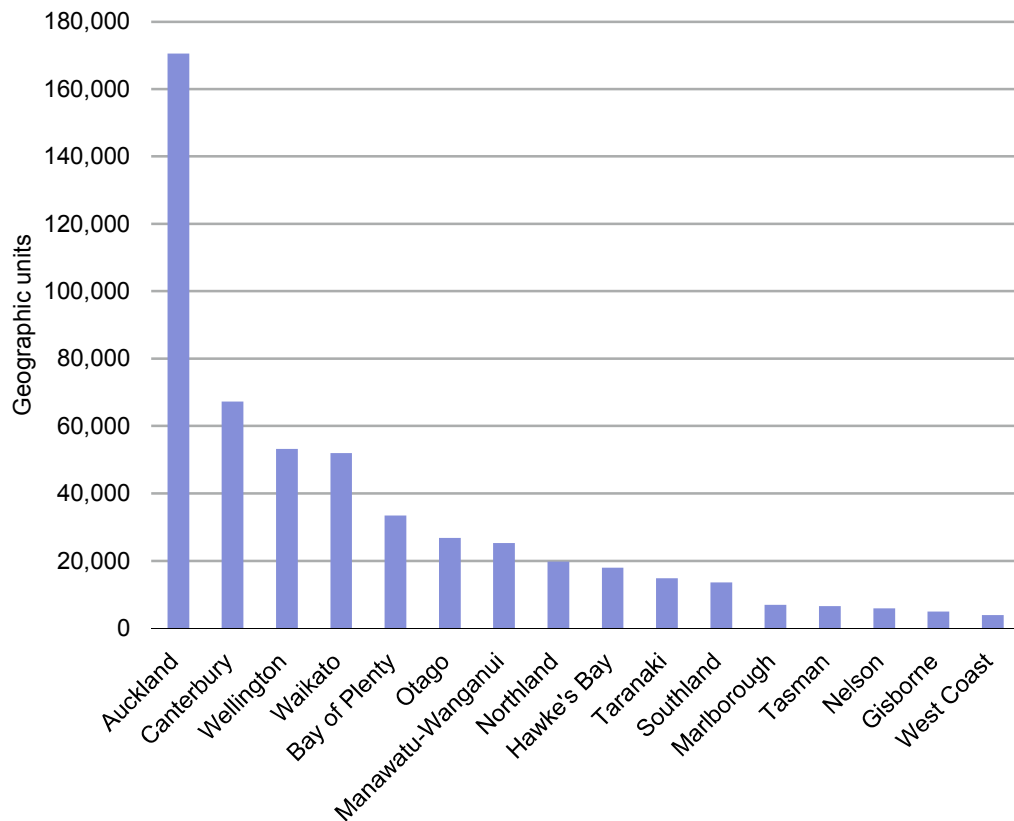
The Commission's model encompasses both residential and business premises. It is therefore essential to assess whether the proposed adjustment to account for unoccupied premises – derived from information on dwellings – is appropriate to apply to business premises as well.

Data from Statistics New Zealand indicates that almost one third of business premises<sup>7</sup> are in Auckland, and 55% of premises are in the Auckland, Wellington and Canterbury regions (Exhibit 6). While a number of small businesses are not included in this data, many such businesses – as well as farms – may operate from dwellings rather than business-specific premises.

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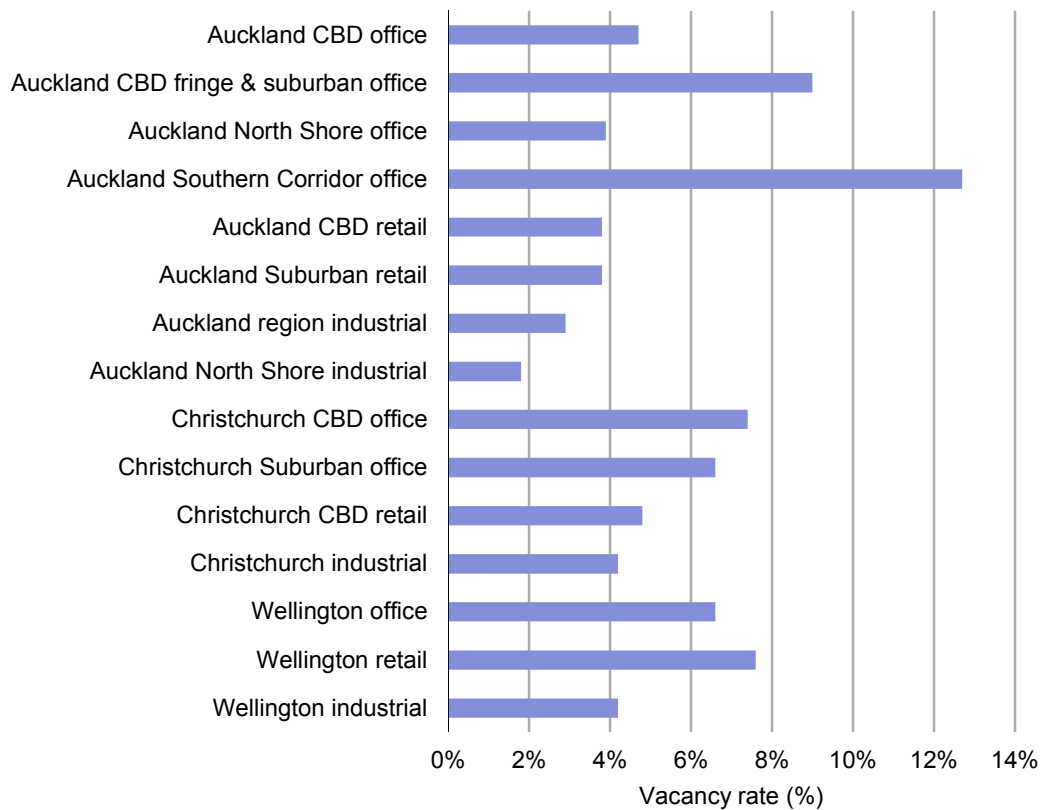
We have used geographic unit counts from Statistics New Zealand business demography tables. Statistics New Zealand notes that 'small' business enterprises may not be included in the counts if they fail to meet the criteria for inclusion. At least one of the following criteria must be met: annual expenses or sales subject to GST of more than \$30,000; 12-month rolling mean employee count of greater than three; part of a group of enterprises; registered for GST and involved in agriculture or forestry; or, over \$40,000 of income recorded in the IR10 annual tax return (this includes some units in residential property leasing and rental).



**Exhibit 6:** Geographic units by regional council area, 2014 [Source: Statistics New Zealand]

We are not aware of any publicly released comprehensive national information on commercial property vacancy rates. Any such information tends to be specific to property sector – offices, retail and industrial – and geographic location. Much of the information available is based on surveys of the commercial districts of the major cities, with very little data on regional areas.

One data source indicates that industrial vacancy rates in Auckland, Wellington and Christchurch are all well below 4.5% (Exhibit 7). Retail vacancy rates are slightly higher, with both Auckland and Christchurch below 5% while Wellington is at 7.6%. Office vacancy rates vary from a low of 3.9% in Auckland's North Shore to 12.7% in Auckland's Southern Corridor.



**Exhibit 7:** Commercial property vacancy rates for selected areas and sectors, H1 2015  
 [Source: JLL]

It should also be noted that many business premises will be located at multi-tenanted locations, and thus the reported commercial property vacancy rates will be higher than the proportion of address points that are vacant.

While it is difficult to extrapolate the information we have collected to obtain a national average, this evidence suggests that the Commission’s 7.5% adjustment may over-estimate the number of vacant business premises.

#### 4 Demand and the gap with UCLL connections

The revised draft determination identified a gap between UCLL connections and customers of 171 501 connections or 8.6% of UCLL connections. These figures are based on a total of 1 823 153 customers which differs from the number of lines used in Commission’s FPP model (Exhibit 8).

<i>Consultation paper – Network footprint and demand</i>	
Customers (3.6% gap)	1 823 153
Customers (7.5% gap)	1 749 882
<i>Number of lines from FPP model (Opex module)</i>	
UCLL	[X].....
xDSL	....
<i>Active lines from FPP model (UBA module)</i>	
Copper connections	....
Fibre connections	....
LFC + HFC connections	....
Total ULL connections (copper+fibre+LFC+HFC)	...] <b>CNZCI</b>

**Exhibit 8: Number of customers and lines [Source: Commerce Commission]**

It is not clear exactly which figures the Commission has adjusted and if these changes have been included already in the model published in July as part of the revised draft determination.

Assuming that the number of customers adjusted by the Commission is the input ‘total ULL connections’ we re-ran the UBA model to see the impact on the final results when assuming a total of 1 749 882 customers. Results with the proposed adjusted demand for a 7.5% gap between the UCLL footprint and demand are around 4% and 3% higher for UCLL and UBA respectively (Exhibit 9).

	<i>FPP model</i>	<i>FPP model with adjusted demand</i>	<i>% difference</i>
<b>UCLL</b>			
National	26.74	27.85	4.15%
Urban	[>...]	....	4.18%
Rural	....	....] <b>CNZCI</b>	0.00%
<b>UBA</b>			
BUBA	37.89	39.00	2.93%
EUBA 40	[>...]	....	2.76%
EUBA 90	....	....	2.72%
EUBA 180	....	....] <b>CNZCI</b>	2.65%

**Exhibit 9:**  
Commission's  
model results –  
monthly rental  
[Source: Network  
Strategies Limited]

## 5 Concluding remarks

In its proposal for making an adjustment, the Commission is attempting to reconcile two sets of data:

- addresses within the network footprint of its model, based on CoreLogic data from April 2014 and excluding dwellings and buildings outside the TSO boundary
- demand for lines within the network footprint of the model, based on information supplied by Chorus.

Given the differing sources of this data, it is not surprising that even after adjusting for vacant sites there may still be a slight mismatch between the data. One valid cause for difference would simply be due to timing. The other reason for a gap would be the presence of dwellings and buildings that do not have revenue-earning fixed lines. The Commission is seeking to verify – by reference to other data sources – the size of this gap, and if required adjust demand to achieve a target gap.

The size of such a gap must reflect New Zealand characteristics, including local lifestyle and cultural factors coupled with the features of New Zealand fixed line services (such as free local calls). These characteristics are already captured in the Commission's use of CoreLogic and Chorus data and thus any adjustment should not be necessary.

The adjustment proposed by the Commission is based on data from Statistics New Zealand. As we have shown, due to definitional issues this data is inappropriate for use in this particular situation:

- bias due to the classification of baches and holiday homes as ‘empty’
- many such empty dwellings would be outside the TSO boundary
- a number of dwellings classed as empty would have a fixed line billed to a customer
- the adjustment would be inappropriate for business premises.

Given these problems the proposed 7.5% adjustment would then over-estimate the proportion of empty dwellings and buildings (without revenue-earning fixed lines) within the Commission’s network footprint, and would increase the error associated with the resultant estimated prices.

We therefore find no justification to increase the gap from 3.6% to 7.5%.