



Māori housing need, stock, and regional population change in Te Tai Tokerau

Dwelling Condition Te Tai Tokerau Component 4

Kay Saville-Smith (CRESA), Nick Brunsdon and Vicki White (BRANZ)

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1. INTRODUCTION

Component 4 of the project, directed to establishing housing need, stock and regional population change in Te Tai Tokerau, is concerned with establishing the stock condition of Māori housing. There are two aspects of stock condition that are of concern. The first is cold, damp housing arising from poor insulation, orientation and heating. Many dwellings exhibit those characteristics even where they are not dilapidated or in need of significant repair. The second aspect of stock condition is dilapidation and significant disrepair. Both of those problems tend to be more apparent in older dwellings, rental dwellings, and rural dwellings in remote communities.

We noted in our proposal that it was unlikely that there would be any robust datasets able to illuminate the prevalence of those characteristics for Māori housing. We have explored whether the most recent BRANZ House Condition Surveys undertaken in 2011 and 2015 respectively have data that could provide at least some basis for estimating stock condition in the Te Tai Tokerau stock occupied by Māori. That review, however, has found two impediments. The first is the very low number of dwellings in Te Tai Tokerau in the sample for the BRANZ House Condition Survey. Fewer than 40 dwellings in the survey's total sample of 560 were in Te Tai Tokerau. The second problem with that data is that there is no 'marker' to identify dwellings occupied by Māori.

We note in the final section that there are opportunities to remedy this situation in the future by funding an extension of the sample in the future House Condition Survey. The latter problem may be partially resolved by a new pilot housing assessment survey, being undertaken at present (2018-19) by BRANZ and MBIE, in collaboration with Statistics New Zealand General Social Survey. The General Social Survey collects ethnicity data. However, the pilot housing assessment survey sample size is likely to still be relatively limited in Te Tai Tokerau. Dedicated funding is required if specific areas or populations are to be represented.

The continued deficit of statistical datasets related to Māori housing in Te Tai Tokerau means returning to the 250 houses surveyed in rural Te Tai Tokerau in 2006 (undertaken as part of a CRESA evaluation of the then Rural Housing Programme). That survey was undertaken in an attempt to establish the number of rural dwellings in areas predominantly Māori or with large proportions of Māori households. Having established that more recent robust data related to

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the condition of the Te Tai Tokerau housing stock is not available, we have reanalysed the 2006 data to:

- Estimate the number of Māori households likely to be living in poor condition stock in Te
 Tai Tokerau; and
- Indicate the costs of bringing that housing stock to an 'as new' condition.

The report is structured as follows:

- Section 2 provides a brief commentary on the 2006 House Condition Survey of Te Tai
 Tokerau rural housing. It describes its method, the BRANZ New Zealand House Condition
 Index and the findings of the 2006 survey.
- Section 3 sets out the methods used to update the cost and stock characteristics from the 2006 dwellings to the housing stock as at the 2013 census and remediation costs.
- Section 4 sets out the findings of the reanalysis set out in Section 3.
- Section 5 comments on opportunities to remedy current deficits in data related to the Māori housing stock in the Te Tai Tokerau and elsewhere.

2. TE TAI TOKERAU HOUSE CONDITION 2006 SURVEY

The 2006 Te Tai Tokerau House Condition Survey was undertaken as part of the evaluation of the Rural Housing Programme implemented by Housing New Zealand for rural housing in Te Tai Tokerau, the East Coast and the Eastern Bay of Plenty. That programme was focused in rural housing because of the high burden of poor housing falling on Māori and Māori communities combined with the high representation of the Māori in those areas.

The 2006 survey was designed to establish an independent measure of the stock condition using the BRANZ House Condition Index. That index allows the condition of the New Zealand housing stock to be monitored over time. The use of the BRANZ House Condition Index allowed the Te Tai Tokerau, the East Coast and the Eastern Bay of Plenty rural stock condition to be compared with the condition of the housing stock in New Zealand as a whole. The 2006 survey was intended to provide a baseline for future measurement of changes in the quality of the housing stock in those areas subsequent to the stock regeneration interventions that were supposed to be implemented under the Te Tai Tokerau, East Coast and Eastern Bay of Plenty Rural Housing Programme.

A total of 452 dwellings were surveyed. Those dwellings were selected through random sampling designed to be representative of all dwellings within the rural housing delivery areas in Te Tai Tokerau, East Coast and Eastern Bay of Plenty. The vast majority of that stock was used by Māori households. Surveying was undertaken in Te Tai Tokerau in February/March 2006.

Sampling and Surveying

A meshblock approach to sampling was developed to ensure that the final sample of dwellings would be appropriately geographically distributed. A meshblock based sample rather than property information from valuation or rates databases was used to ensure caravans and other temporary dwellings were not automatically excluded from the sample. A sample of meshblocks from the three regions was identified using a random number generator. Each meshblock was assigned a number and then a random sample of those numbers was selected.

A set of randomly selected meshblock numbers was forwarded to Quotable Value New Zealand (QVNZ) who provided a list of the road names within, bordering and intersecting each meshblock. A road or roads were randomly selected from each meshblock. Surveyors were provided with a set of streets and instructions as to any boundaries to the randomly selected streets as well as which side of selected streets were to be surveyed. The final selection of individual dwellings was undertaken by surveyors in the field using a random selection rule to eliminate any surveyor bias. There were few incidents of refusal to participate among householders in selected houses. If there was a refusal, surveyors were instructed to continue along the road using the rules until the participant numbers were reached.

Surveying was undertaken by local community-based Māori surveyors after training in the use of a modified BRANZ House Condition Survey focusing on the key areas of house condition. Analysis was undertaken in collaboration with BRANZ to ensure comparability with the national analysis of house condition.

BRANZ House Condition Index

The BRANZ House Condition Index was used to calculate overall dwelling condition over some twenty-five categories. Dwelling condition is assessed against five conditions from HC Score 1 to HC Score 5. Those scores can be applied to components across dwellings or to a

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dwelling as a whole. HC Score 1 defines a component as seriously deficient requiring immediate attention and posing an active health/safety threat. A house with all components at HC Score 1 would pose a health and safety risk. An overall average HC Score 3 or less was deemed to represent a dwelling with immediate need for repair. An analysis of component scores by dwelling scores suggest that about a third or more of the 25 components measured in the survey must fall into the 'poor' or 'serious' category before a dwelling's overall score falls below HC Score 3.

The condition scale for each component is as follows:

- HC Score 5 = Excellent (as new condition)
- HC Score 4 = Good
- HC Score 3 = Moderate
- HC Score 2 = Poor
- HC Score 1 = Serious (requires immediate attention, active health/safety threat)

Houses are then typified according to the average component condition. The rating of the average component condition is as follows:

- Excellent average component HCScore 4.5-5.0
- Very Good average component HCScore 4.0-4.4
- Good average component HCScore 3.5-3.9
- Moderate average component HCScore 3.0-3.4
- Poor average component HCScore 2.5-2.9
- Serious average component HCScore <2.5

An HC Score 3 or less represented a dwelling with immediate need for repair. An analysis of component scores by dwelling scores suggest that about a third or more of the 25 components measured in the BRANZ House Condition Survey must fall into the 'poor' or 'serious' category before a dwelling's overall score falls below HC Score 3.

Table 1 shows average repair cost 2005/6 and 2018 by HC Score.

Table 1: Average Repair Cost for Dwellings with All Components at a Specific House Condition Scale Score (Cost for 140 sqm house to bring to new condition) for 2005/6 and 2018

All Component Score	Average Repair Cost 2005/06 \$	Average Repair Cost 2018 \$
HC Score 1	\$89,704	\$143,727
HC Score 2	\$60,565	\$97,465
HC Score 3	\$9,330	\$14,373
HC Score 4	\$1,083	\$1,437
HC Score 5	\$0	\$0

Findings 2006 Te Tai Tokerau Rural Housing Condition

The 2006 data showed that the proportion of stock in Te Tai Tokerau, the East Coast and Eastern Bay of Plenty rural areas which were in poor or serious condition was 19.7 percent at ± 3.7 percent confidence level, compared to 2.7 percent of the national stock in 2004/5.

Te Tai Tokerau had rural housing in considerably worse condition than the East Coast and the Eastern Bay of Plenty. The condition surveying suggested that 28.8 percent (± 0.7) of Te Tai Tokerau dwellings in the meshblocks sampled (Annex A) required assistance because of poor or serious house condition in 2006. With 16,047 dwellings in the Te Tai Tokerau area to which the rural housing programme was expected to deliver, it was estimated that about 4,621 (± 919) dwellings needed upgrading in 2006. We estimated that for Te Tai Tokerau, the 2006 cost of repairs to an 'as new' condition could range from \$77.6 million to \$122.6 million.

3. TE TAI TOKERAU HOUSE CONDITION UPDATE METHOD

Without further primary research a more precise statement of the stock condition of Māori housing nationally, regionally or in specific rohe is simply beyond the reach of current datasets. To provide some insight into the possible current profile of Te Tai Tokerau stock we have undertaken the following:

- An update of costs to repair to 'as new' to 2018 figures.
- Application of up-dated costs to the condition ratings as recorded in the 2006 survey on an individual component, house-by-house basis.
- Adjusted for results for housing stock size using latest available census data.

Costs of fully replacing 32 building elements, as previously estimated were updated using QV Cost Builder. This unit cost estimator has replaced the previous source of building cost data – Rawlinsons. Costs sourced from QV Cost Builder were updated as of 1st September 2018.

No assumptions have been made about degradation of building elements since 2006. This effectively assumes that Te Tai Tokerau housing stock has had some maintenance, but the incidence of poor and serious condition elements remains similar. This may understate the prevalence of poor stock.

Changes in the quantity and size of Te Tai Tokerau's housing stock since the 2006 survey were adjusted using changes between the 2006 and 2013 census. Changes in housing size were accounted for by:

- Deriving the linear relationship (assuming intercept of zero or zero bedrooms means zero floor area) between number of bedrooms and floor area from the 250 Te Tai Tokerau houses inspected in 2006. This indicated that on average, an increase of one bedroom is associated with an increase in floor area of 44m².
- Estimating the synthetic average floor area of private occupied dwellings in relevant Te Tai Tokerau meshblocks using the number of dwellings by number of bedrooms (1-8+) from 2006 and 2013 census. That analysis indicated that the average dwelling had increased in floor area by 1.64% between 2006 and 2013, based on increases in the number of bedrooms.

If the average new dwelling constructed in Te Tai Tokerau between 2006 and 2013 was larger than the average existing dwelling (as measured by the number of bedrooms), then these new dwellings will be contributing towards the increase in average dwelling size despite being in as-new condition. This means that the adjustment of 1.64% may lead to an over-estimate of the cost to repair poor and serious dwellings. Table 2 and Table 3 below include both unadjusted and adjusted costs.

4. TE TAI TOKERAU HOUSE CONDITION UPDATE

The number of occupied private dwellings in the Te Tai Tokerau meshblocks increased by 6.58% and number 20,997 in 2013. In the Te Hiku rohe meshblocks the number of private occupied dwellings in 2013 is 7,521. Table 2 provides an estimated upgrade cost for Te Tai Tokerau. Table 3 provides an estimated cost for Te Hiku rohe meshblocks. The meshblocks for Te Hiku rohe were supplied by Te Puni Kokiri. Across the 2006 sample, the average cost to bring the surveyed houses to as-new standard increased by 47.3% from 2006 to 2019.

Table 2: Average Repair Cost for Dwellings with All Components at a Specific House Condition Scale Score (Cost for 140 sqm house to bring to new condition) 2018 costs (Te Tai Tokerau meshblocks)

HC Score Category	Incidence	Average repair cost (within condition group)	Estimated dwellings	Total repair cost	Total repair cost – Increased dwelling size 2006-2013
Poor and serious condition (<3.0)	29%	\$ 33,437	6,047	\$ 202 million	\$ 205 million
Serious condition (<2.5)	12%	\$ 40,448	2,604	\$ 105 million	\$ 107 million
Poor condition (2.5-3.0)	16%	\$ 28,137	3,444	\$ 96 million	\$ 98 million

The average cost to bring the 31 surveyed houses in serious condition (HC Score <2.5) to asnew is \$40,448 per serious condition house. Averaged across the total Te Tai Tokerau housing stock of interest this is \$5,016 per dwelling in serious condition or \$107 million in total. The average cost to bring the 41 houses in poor condition (HC Score >=2.5 and <3.0) to 'as new' is \$28,138 per poor condition house. That is around \$98 million in total. To bring all houses in poor and serious condition (HC Score <3.0) to as new condition, the total cost would be around \$205 million.

Table 3: Average Repair Cost for Dwellings with All Components at a Specific House Condition Scale Score (Cost for 140 sqm house to bring to new condition) 2018 costs Te Hiku rohe meshblocks

HC Score Category	Incidence	Average repair cost (within condition group)	Estimated dwellings 2013	Estimated repair cost
Poor and serious condition (<3.0)	29%	\$ 33,437	2,181	\$ 73 million
Serious condition (<2.5)	12%	\$ 40,448	902	\$ 36 million
Poor condition (2.5-3.0)	16%	\$ 28,137	1,203	\$ 33 million

5. GETTING SOUND DATA FOR THE FUTURE

The analysis undertaken here utilises a dataset on the condition of 250 houses surveyed in Te Tai Tokerau in 2006. Whilst more recent data is available in the BRANZ House Condition Survey (HCS) – a national survey undertaken every five years since 1994, most recently in 2015/16 – it could not be used for this study due to the limited sample of Te Tai Tokerau houses (making up fewer than 40 of the total sample of 560).

BRANZ is currently undertaking a review of its House Condition Survey and working with the Ministry of Business, Innovation and Employment (MBIE) and Statistics NZ to pilot a new approach to collecting objective data on the condition of New Zealand houses. This project

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was developed in recognition of changing national data needs and data provision. It provides an opportunity to address some of the challenges with the current HCS process, from participant recruitment through to data collection and sharing.

The pilot housing survey, co-funded by the Building Research Levy and MBIE, includes:

- trialling new survey content (based on the HCS, but condensed to reduce data collection time, and with some amended and new content)
- a new digital survey management and data collection tool
- recruitment of households through the 2018/19 General Social Survey (GSS a national survey of 8000 households, administered by Statistics NZ).

The pilot survey aims to assess up to 800 houses nationwide. The connection to the GSS provides new opportunities and avenues for analysis, with the combination of data from the independent house assessment and GSS data on occupant perceptions and wellbeing. The project runs from April 2018 to March 2020.

The pilot survey will be evaluated to help inform the future direction of the BRANZ HCS. As part of the evaluation, BRANZ will consult with stakeholders to further understand data needs and explore opportunities for broadening the reach and utility of the HCS. This could include, for example, exploring models of cofounding/codesign, enabling flexibility in sampling areas and sizes. An increased sample would be required if there is to be detailed analysis at a regional level, for rohe or for Māori households nationally or regionally.

	ANNEX A	: TE TAI TOKERAU	MESHBLOCKS 2006 Survey
MB 0000100	MB 0003300	MB 0007102	MB 0010102
MB 0000200	MB 0003400	MB 0007201	MB 0010200
MB 0000300	MB 0003500	MB 0007202	MB 0010300
MB 0000400	MB 0003600	MB 0007300	MB 0010400
MB 0000501	MB 0003701	MB 0007400	MB 0010500
MB 0000502	MB 0003702	MB 0007500	MB 0010600
MB 0000600	MB 0003800	MB 0007600	MB 0010700
MB 0000700	MB 0003900	MB 0007700	MB 0010800
MB 0000800	MB 0004000	MB 0007801	MB 0010900
MB 0000900	MB 0004101	MB 0007802	MB 0011000
MB 0001000	MB 0004102	MB 0007900	MB 0011100
MB 0001100	MB 0004103	MB 0008000	MB 0011200
MB 0001201	MB 0004200	MB 0008100	MB 0011300
MB 0001202	MB 0004301	MB 0008200	MB 0011400
MB 0001203	MB 0004302	MB 0008301	MB 0011500
MB 0001204	MB 0004400	MB 0008302	MB 0011600
MB 0001301	MB 0004500	MB 0008401	MB 0011700
MB 0001302	MB 0004600	MB 0008403	MB 0011800
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MB 0001600	MB 0004900	MB 0008502	MB 0012101
MB 0001700	MB 0005000	MB 0008600	MB 0012102
MB 0001800	MB 0005100	MB 0008700	MB 0012103
MB 0001900	MB 0005201	MB 0008800	MB 0012200
MB 0002000	MB 0005202	MB 0008901	MB 0012300
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MB 0002300	MB 0005400	MB 0009001	MB 0012500
MB 0002400	MB 0005500	MB 0009002	MB 0012601
MB 0002500	MB 0005600	MB 0009101	MB 0012602
MB 0002603	MB 0005700	MB 0009102	MB 0012701
MB 0002604	MB 0005800	MB 0009103	MB 0012702
MB 0002605	MB 0005900	MB 0009200	MB 0012800
MB 0002606	MB 0006000	MB 0009300	MB 0017200
MB 0002607	MB 0006100	MB 0009400	MB 0017301
MB 0002608	MB 0006200	MB 0009500	MB 0017302
MB 0002609	MB 0006300	MB 0009600	MB 0017401
MB 0002610	MB 0006400	MB 0009700	MB 0017402
MB 0002611	MB 0006500	MB 0009800	MB 0017500
MB 0002700	MB 0006600	MB 0009900	MB 0017600
MB 0002800	MB 0006700	MB 0010001	MB 0017700
MB 0002900	MB 0006800	MB 0010002	MB 0017800
MB 0003000	MB 0006900	MB 0010003	MB 0017900
MB 0003100	MB 0007000	MB 0010004	MB 0018000
MB 0003200	MB 0007101	MB 0010101	MB 0018100
MB 0018201	MB 0023000	MB 0027400	MB 0032300
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MB 0018203	MB 0023200	MB 0027600	MB 0032501
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MB 0018400	MB 0023400	MB 0027800	MB 0032600
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MB 0018800	MB 0023800	MB 0028200	MB 0033000
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MB 0019500	MB 0024400	MB 0028900	MB 0033700
MB 0019600	MB 0024500	MB 0029000	MB 0033800
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MB 0019802	MB 0024800	MB 0029200	MB 0034101
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MB 0020900	MB 0025900	MB 0030200	MB 0034900
MB 0021000	MB 0026001	MB 0030300	MB 0035000
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MB 0036500	MB 0040502	MB 0047801	MB 0050704
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MB 0036700	MB 0040602	MB 0047901	MB 0050707
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	MB 0046901		
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