



Community Well-being in Avondale and Richmond



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Executive Summary

- This report delves into the long-term impact of the red-zone on neighbouring suburbs, focusing on well-being using a mix of qualitative and quantitative methods.
- Christchurch's earthquake sequence began in 2010, with a devastating quake in 2011 in which 'red-zoning' was used as a managed retreat strategy to address severe damage and hazards.
- The report intends to guide New Zealand communities contemplating managed retreat, improving the understanding of the complexities and implications for future research.
- The research question was: *What effect has red zoning had on community well-being in red-zone adjacent suburbs: Avondale and Richmond?*
- The research focused on individual and community well-being, using an online survey for data collection. A mixed-methods approach was used involving door knocking and online distribution.
- Data analysis involved visualising quantitative data through graphs and identifying patterns in qualitative responses for both suburbs.
- Key Findings
 - Avondale saw improved quality of life post-red zoning; Richmond remained stable.
 - Stress levels decreased for both communities.
 - Avondale's mental health levels declined, Richmond's showed no clear trend.
 - Both suburbs had positive views on increased access to green space.
 - Some believed community well-being improved post-red zoning.
 - Improvements were linked to community events and development.
 - Declines were associated with stress and reduced community engagement.
 - No consistent trend in individual well-being.
- The limitations in the study include bias, time constraints, lack of response, and survey fatigue while unexpected findings revealed positive perspectives on the red-zone.
- The Ōtākaro Living Laboratory Trust (2019) aims to fill a research gap by using this study as a pilot for future research, with conclusions and limitations offering guidance.

1. Introduction

Following the Canterbury 2010/2011 earthquakes, red-zoning, a managed retreat strategy, transformed the Avon/Ōtākaro River corridor, prompting inquiries into its impact on neighbouring suburbs. While previous research is often concentrated on those directly affected by red-zoning, this report employs mixed qualitative and quantitative methods to comprehensively examine its effects on surrounding communities and their well-being. This research intends to facilitate informed discussions, particularly in New Zealand communities facing managed retreat prospects, offering insights into its complexities and potential consequences for neighbouring areas. Additionally, it provides a methodological framework for future studies.

2. Context

2.1 The Canterbury Earthquakes

The Christchurch earthquake sequence commenced from 2010-2011, resulting in extensive damage, loss of life, liquefaction, and flooding issues, particularly along the Avon/Ōtākaro River Corridor (Shrestha, 2022).

In response to widespread destruction, the government enacted a managed retreat strategy (Simons, 2016) which involved categorising houses based on their damage levels. Under the red-zoning mechanism, the Government had the authority to acquire properties in 'red-zoned' areas (Finn & Toomey, 2022). These areas were deemed infeasible for reconstruction due to severe damage, spring tide, flood risks, and vulnerability to future seismic activity (Finn & Toomey, 2022). The government successfully relocated the majority of residents and businesses from the designated red-zone, resulting in substantial vacant land along the river. Despite house removal, infrastructure such as roads remained, creating open areas in front of the houses that weren't designated as red-zones (Finn & Toomey, 2022).

2.2 Managed Retreat

Managed retreat is an approach to mitigate climate change impacts by relocating vulnerable populations and activities from at-risk areas (Moore et al., 2022). This strategy has been employed globally in response to natural disasters. While this report uses managed retreat and red-zoning interchangeably to reference Christchurch's specific response, the concept of managed retreat is evolving into a proactive adaptation strategy to address climate change challenges and the anticipated rise in disaster frequency.

Managed retreat is gaining relevance across New Zealand, driven by the recent flooding in Hawkes Bay due to Cyclone Gabrielle (Harrington et al., 2023; Kerr et al., 2023; Serrao-Neumann et al., 2023). The proposal of a managed retreat scheme has sparked national interest as a means to prevent future damage in this region (Ryan et al., 2022).

As New Zealand considers managed retreat implementation, all stakeholders, including the government, private sector, and the public, should examine the implications of such strategies. By examining specific cases we can gain a deeper understanding to make more informed decisions for the future.

2.3 Research Partner

The Ōtākaro Living Laboratory Trust (2019) aims to establish the Ōtākaro River corridor as a hub for experimentation amidst rapid environmental, cultural, and social changes, guided by the Ōtākaro Avon River Corridor Regeneration Plan (Ōtākaro Living Laboratory Trust, 2019). This report focuses on investigating the impact of red-zoning and managed retreat on neighbouring suburbs, considering factors like property values, demographics, community cohesion, environment, and hazards. The outcomes of this research aim to enhance the hub.

2.4 Research Gap

While extensive research has explored the impact of red-zone greenspace on those directly affected, there's a notable gap in New Zealand's literature concerning the effects of managed retreat mechanisms on those adjacent to it. It's worth mentioning that research highlights the significant influence of green space in relation to a city on public well-being, with open, accessible green spaces promoting community improvement, reconnection with nature, and ecosystem service utilisation (Larson et al., 2016). This research addresses the gap by examining the well-being of existing community members and the influence of red-zone adjacency.

2.5 Research Objective

What effect has red zoning had on community well-being in red-zone adjacent suburbs: Avondale and Richmond?

The identified objective aims to provide information surrounding the impact of managed retreat on community well-being for the following, throughout the report:

- The impacts of managed retreat on comparable suburbs.
- Establish a research framework for evaluating effects on similar communities.

- Opportunities for community engagement and recreation.
- Identify challenges and opportunities posed by natural hazards, climate change, and river floodplains.
- Foster connected and resilient communities.

2.5.1 Specific Research Areas

This report focuses on two specific suburbs. These were chosen due to their proximity to each other, adjacency to the red-zone and comparable differences.

Avondale, in Christchurch east, is 5-6 km from the CBD, bordered by the Ōtākaro/Avon River. The 2010/2011 earthquakes changed the landscape and heightened flood risks despite attempts to bolster defences. Avondale faces a shortage of community facilities, exacerbated by the closure of Avondale School in 2017 and uncertainties surrounding other local schools. The business landscape has also suffered, with fewer shops, reduced diversity, and a struggling local economy. This has affected families' finances, prompting them to seek budgeting advice and food bank assistance due to business closures, job losses, or income reductions.

Comparably, Richmond, situated 4-5km from the CBD, also borders the Ōtākaro/Avon River. Despite suffering severe consequences from the Christchurch earthquakes, Richmond, one of Christchurch's oldest suburbs, has transformed into a diverse, lively community with a promising future. Developments in the area complement community facilitated activities organised by Avebury House, the Richmond Community Garden, and the Red Zone plan facilitated by Regenerate. Avebury House and its surroundings have become a hub for various community gatherings, meetings, fitness groups, and more, open to the public during weekdays and available for special events. The level of connectedness and community engagement along the river corridor was a resounding factor as to why Richmond was chosen as a specific research area, enabling adequate compassion to Avondale due to its differences and similarities.

3. Literature Review

An overview of our literature review points out clear areas in which existing research influenced our project and decision-making process.

The five key areas researched were:

1. Defining well-being.
2. The effect of government responses to hazards and disasters on well-being.

3. The effects of hazards on well-being.
4. The effect of socio-economic factors on well-being.
5. The impacts on physical and mental health following earthquakes.

3.1 Influences on Research

It was clear that a commonly agreed upon definition for well-being was lacking. In relation to community well-being, ambiguity amongst researchers prompted the need to find a decisive definition (McCrea et al., 2014). To combat this, this report utilises the definition provided by Forjaz et al. (2011), outlining community well-being as a snapshot in time. This definition enabled the research to view communities in periods of time, rather than a summation of events and feelings.

The relationships between Government responses and community well-being also acted as significant influences on our research. Hoang and Noy (2023) necessitated the investigation of government responses, inclusive decision-making time and process clarity. This research was of importance, as this is a factor impacting well-being, further guiding how we could carry out our project.

Another aspect within existing literature was how prior studies gathered information. Several researchers, such as Myatt et al. (2003), alongside Wilmsen and Webber (2015), used surveying methodology. Consistent ideas appeared for the reasons why surveys were suggested as being the most effective method to comprehensively gather information (Myatt et al., 2003), as well as providing qualitative data, which proves useful in attempts to understand well-being (Wilmsen & Webber, 2015).

3.2 Survey Creation

The creation of our survey, which was the method of data collection, was primarily guided by prior studies gathered throughout our individual literature reviews. Several authors discussed the benefits of integrating subjective and objective well-being when assessing community well-being (Bramston, 2002; Cummins, 2000; Sirgy, 2018). As a result of this, the research objectives and survey format were aligned with this, incorporating questions regarding both forms of well-being. Furthermore, literature prompted categorisation of community well-being, such as health, housing, and social connections (McCleod, 2018; McCrea et al., 2014; Sung & Phillips, 2018). The existence of the New Zealand Canterbury Earthquake Recovery Authority (CERA) (Nielsen, 2015) surveys guided the creation of our questions, as they provided examples of multiple

questions being asked in simple terms (Nielsen, 2015), of which covered several effects. Similarly, Rowney et al. (2014) promoted the use of asking open ended questions, resulting in survey participants providing broad information about their own experiences.

Pre-existing research continued to guide our survey creation, as Hsu et al. (2002) talked about the importance of including definitions where necessary, as a means of counteracting low levels of literacy or a lack of understanding on behalf of survey participants.

When considering methods of survey distribution, a review of literature again provided guidance on effective methods. Liu et al. (2011) and Lai et al. (2000) chose to only survey particular groups following earthquakes. This resulted in bias towards certain demographics, hence we decided that a randomised distribution of our survey in both Avondale and Richmond would be best, as it would allow for a wide range of respondents.

3.3 Analysis of Results

Existing studies on well-being post natural disasters and earthquakes influenced the analysis of our results. A comparison of our survey results and trends with the NZ CERA (Nielsen, 2015) surveys would be beneficial, as it would provide insight into the similarities and differences amongst well-being at both a community and national level.

Alongside this, results regarding well-being in studies conducted by Rowney et al. (2014) and Potter et al. (2015) influenced our analysis, as they discussed both increases and decreases in certain areas of well-being. This meant we entered our analysis with an expectation of what we might find. However, Shoaf et al. (2002) also commented on the disadvantage of relying on existing results and information, as it is commonplace for record keeping to lack priority during a natural disaster.

4. Methods

4.1 Research Design

The research scope was narrowed to focus on physical, mental, and community well-being. Individual well-being was chosen as a control to compare to previously collected data from the CERA surveys. Community well-being was chosen as the second focus because unlike physical and mental well-being, the research on this aspect of well-being is scarce.

An online survey was designed and distributed for collection of quantitative and qualitative data. The platform chosen for use was Google Forms. The survey is shown in


4.2 Data Collection

Contact was made with community organisations. Researchers met with the Avebury House manager in Richmond, then attended We Are Richmond's August Meeting. The Association posted a survey advertisement, as shown in Figure 1, in the September edition of their monthly newsletter: *Richmond Community News*.

Figure 1


Survey Advertisement

How do you feel about the post-quake neighbourhood?



The GEOG309 Project Group would like to know.

We are a group of geography students enrolled at the University of Canterbury. Currently we're looking into the effects of re-zoning on the wellbeing of surrounding communities, following the 2010/2011 earthquakes. If you wish to help us with our study, please scan the QR code which will take you to our survey link. Or go to: <https://forms.gle/sn4PgDxa2vQQVqUZ8>



Note. This figure is a copy of the survey advertisement and link posted in the September edition of the monthly Richmond Residents and Business Association newsletter.

Contact with Avondale Residents' Association and Avondale Neighbourhood Association was made through email. Contact was also made with the Avondale Neighbours Group Facebook page, where an admin agreed to post the survey advertisement. It was decided to publish the survey in a Facebook page as Facebook can be an excellent tool for recruiting research participants by boosting response with a wider outreach (Pederson & Kurz, 2016).

Survey flyer delivery and door knocking were carried out in both suburbs. Door knocking was chosen as a distribution method as survey responses have been decreasing over time (Sudman & Blair, 1999). The authors suggested ways to increase response is contact with local respondents and mixed modes of distribution. Door knocking and contact with community associations were chosen as they are two effective methods that increase local relationships and therefore response to the survey (Parfitt, 2005). Potential respondents were offered the option of a flyer (Figure 2), where the survey could be completed online, or an in-person interview where researchers would fill out a paper copy. Figures 3 and 4 display the streets targeted during the two periods of door knocking. A flyer was placed in the letterbox if the door was not answered.

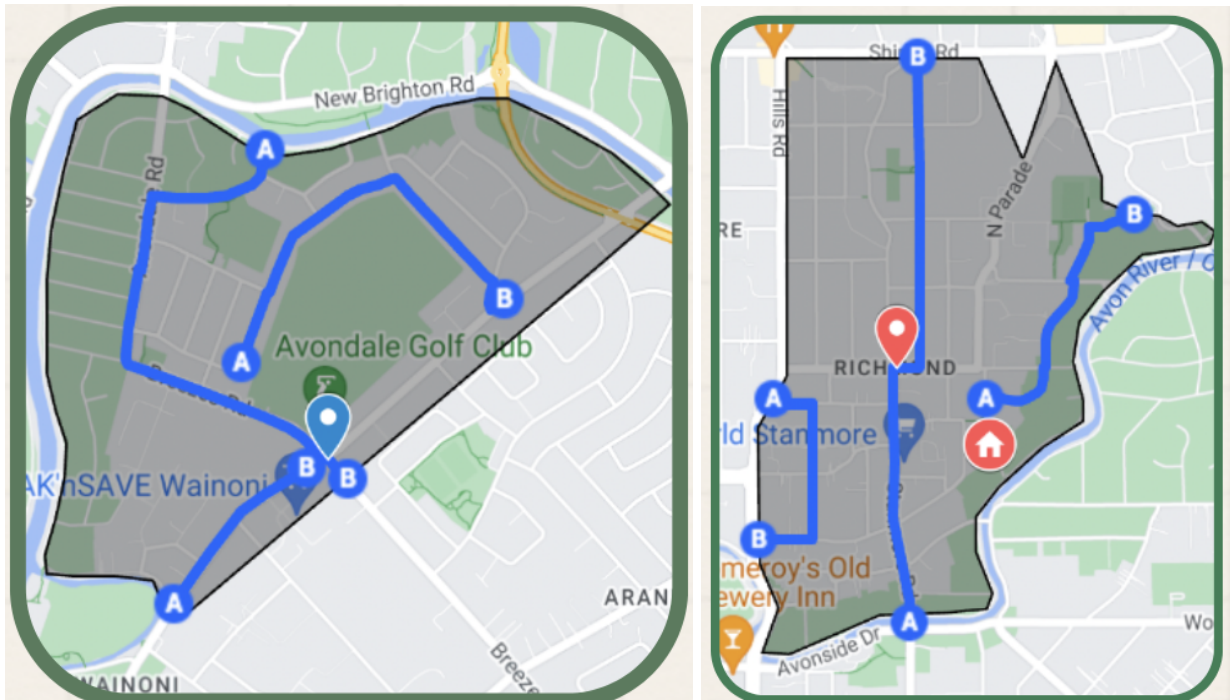
Figure 2 - Survey Flyer



Kia ora! We are a group of geography students enrolled at the University of Canterbury. We are currently looking into the effects of red-zoning on the well-being of surrounding communities following the 2010/2011 earthquakes. If you wish to help us with our study, please scan the QR code, or enter our google forms link online which will take you to our confidential survey (approximately 10 minute), or enter the link below :)
<https://forms.gle/sn4PgDxa2vQQVqUZ8>

Note. Survey flyers distributed to Avondale and Richmond advertising the survey with a QR code which links to the survey form, and a link if preferred.

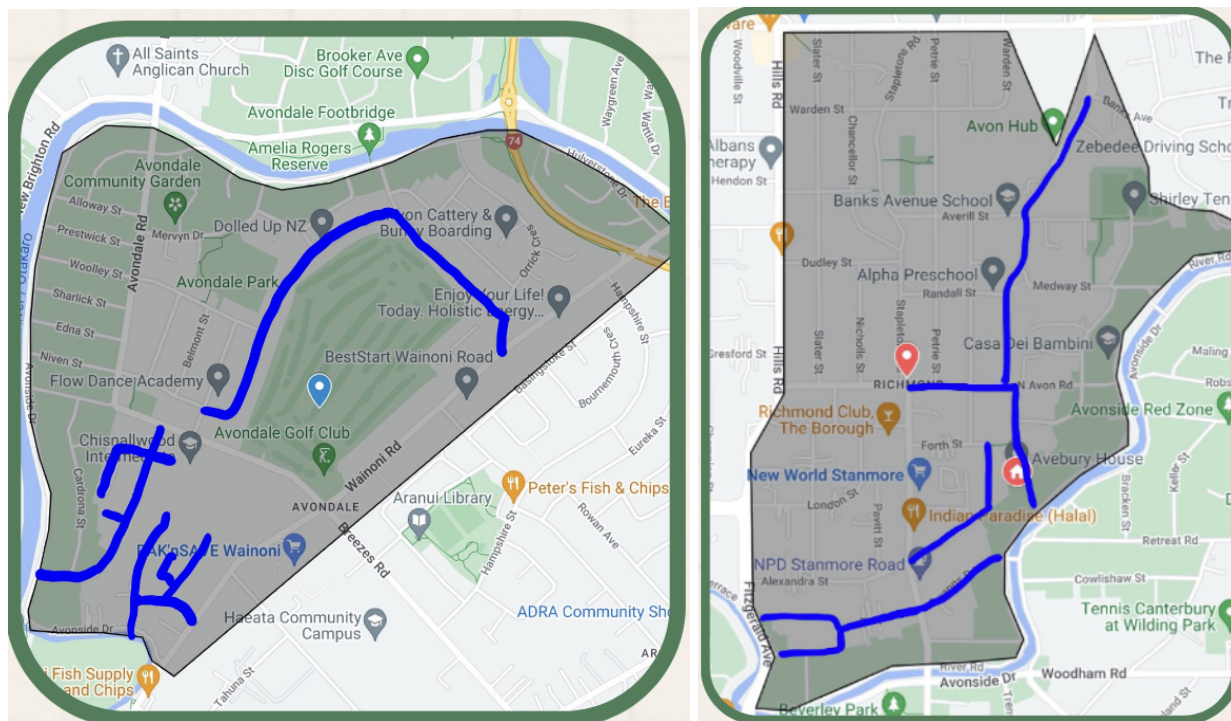
Figure 3 - Survey Distribution Route Part A



Note. Survey distribution routes by door knocking in Avondale and Richmond on 31 August and 1 September.

Figure 4

Survey Distribution Route Part B



Note. Survey distribution routes by door knocking in Avondale and Richmond on 17 September.

Email contact was made with Rehua Marae and Nga Hau E Wha Marae to gather Mana Whenua response. Email contact was also made with Chisnallwood Intermediate School in Avondale, in an attempt to understand their issues in the community in relation to a reduction of their roll.

4.3 Data Analysis

To analyse quantitative data, results were collated and used to create graphs for visualisation. For qualitative data, all answers were read and presence of patterns were identified for each individual suburb, then compared.

5. Results

5.1 Respondent Characteristics

The survey received a total of 29 online responses, and one in-person response. 15 respondents live in Avondale and 15 respondents live in Richmond. Since most questions were voluntary, a number of respondents did not answer some questions. Results will be

compared by percentages of those who responded to each question.

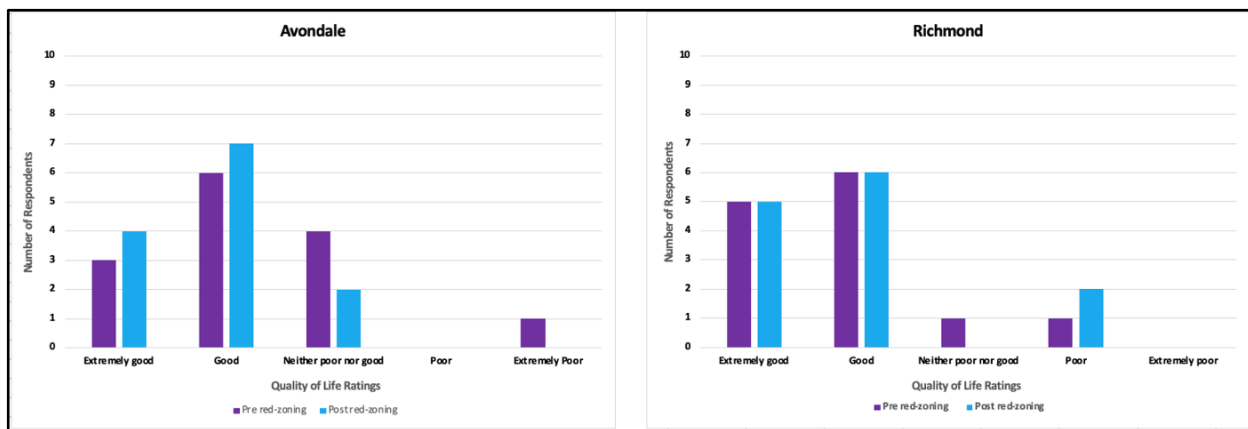
5.2 People - Individual Well-being

In both Richmond and Avondale, 50% of respondents lived in their suburb prior to the earthquakes and have since remained. Common reasons for remaining mentioned ease of property repair, proximity to friends and family, proximity to green space, lack of other financially feasible options, and emotional connections to home.

5.2.1 Quality of Life Levels

Figure 5

Quality of Life Comparisons between Avondale and Richmond Pre and Post Red-Zoning

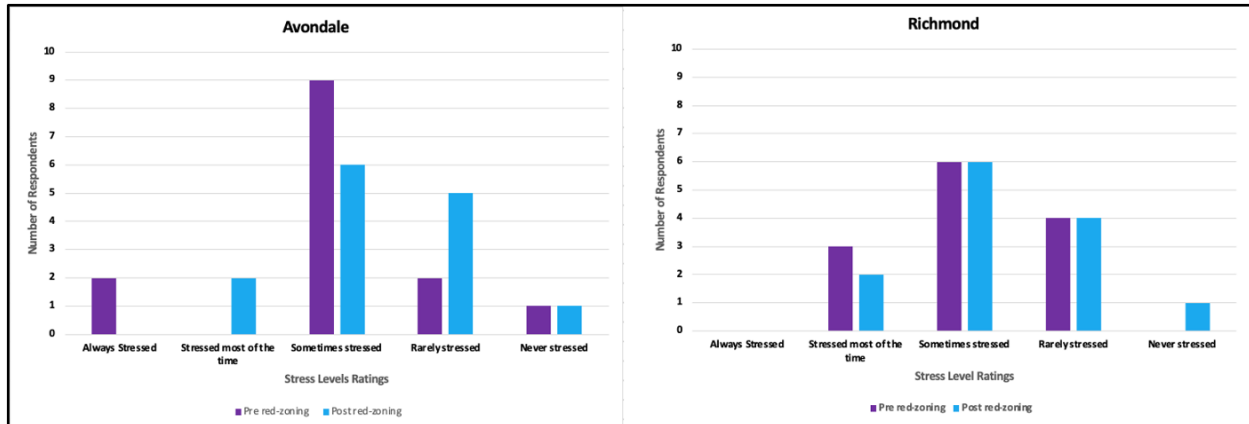


As depicted in Figure 5, it is evident the Avondale community experienced a more pronounced improvement in quality of life post red-zoning compared to Richmond. This improvement is underscored by a notable increase of approximately 14% in the number of respondents reporting either 'good' or 'extremely good' quality of life in Avondale. In contrast, Richmond did not exhibit any enhancements in the 'good' and 'extremely good' categories, suggesting progress for Avondale post earthquakes. While Richmond shows no significant pattern post red-zone, the number of respondents recording 'poor' quality of life levels post red-zoning doubled.

5.2.2 Stress Levels

Figure 6

Stress Level Comparisons between Avondale and Richmond Pre and Post Red-Zoning



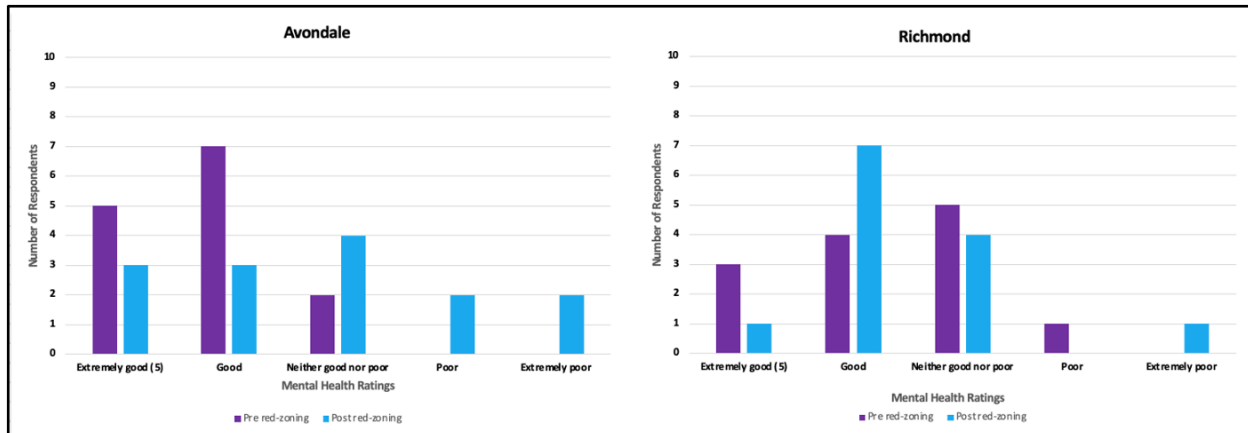
As observed in Figure 6, stress levels in both communities were evenly distributed around higher stress levels ‘always stressed’ and ‘sometimes stressed’ pre-earthquake.

One of the most notable findings is the significant improvement in respondents’ stress levels post red-zoning in both suburbs. This positive shift is evident as stress levels in both communities move towards lower stress categories. In particular, an approximate 20% improvement in ‘rarely stressed’ levels for Avondale and an approximate 7% improvement in ‘never stressed’ levels for Richmond, suggesting a transition away from constant stress post red-zoning across both communities.

5.2.3 Mental Health Levels

Figure 7

Mental Health Level Comparisons between Avondale and Richmond Pre and Post Red-Zoning



As displayed in Figure 7, prior to red-zoning, mental health ratings in Avondale were primarily skewed around the more positive end of the scale. However, post red-zoning, these responses displayed a more even distribution, signifying a decline in overall mental health levels within the Avondale community.

Conversely, Richmond exhibits no distinct overall trend in mental health levels post red-zoning. It is worth noting however, there was an approximate 20% increase in respondents rating their mental health as 'good' in Richmond post red-zoning. As displayed in Figure 7, there was also an increase in 'extremely poor' mental health ratings, resulting in no significant overall trend in the Richmond community.

5.3 Place - Community Well-being

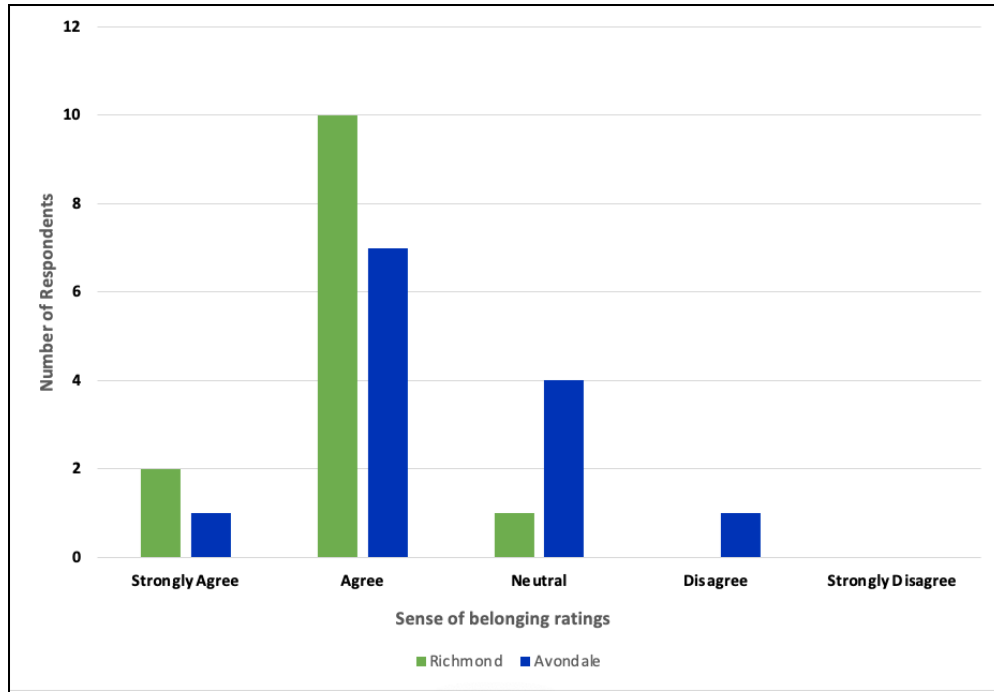
5.3.1 Sense of Belonging

When asked about the statement 'I feel a sense of belonging with others in my community', approximately 90% of Richmond respondents chose Agree or Strongly Agree, compared to approximately 60% in Avondale, shown in Figure 8. Richmond respondents' explanations for agreeing include: friendly people, connections with neighbours, community garden or Avebury House events, proximity to blue and green space as an asset for kids, connections to sports clubs, and a strong sense of community. Avondale respondents' explanations for agreeing include: friendly people, connection to neighbours using the red-zone/green space, safety and comfort at home and in the community, similar income level and again, a strong sense of community. In both

suburbs, those who stated neutral mentioned their lack of friends in the community outside their neighbours, or preferred a smaller social circle. The sole respondent who disagreed lived in Avondale and mentioned that a group of shops existing pre-earthquake have never been rebuilt.

Figure 8

Sense of Belonging in Avondale and Richmond

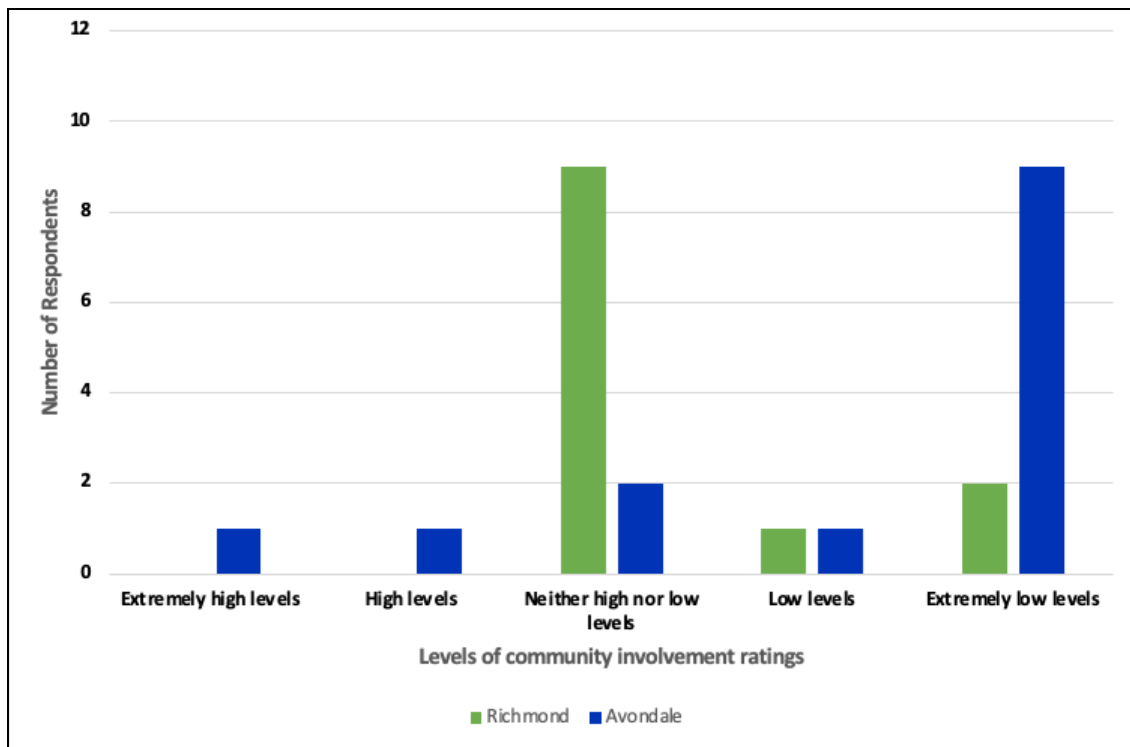


5.3.2 Community Involvement

Respondents were asked to rank their community involvement from 1 to 5, 1 being very involved in your community. Approximately 75% of Richmond respondents have an average or higher (≤ 3) level of community involvement compared to approximately 30% of Avondale respondents as displayed in Figure 9.

Figure 9

Level of Community Involvement in Avondale and Richmond



5.3.3 Changes in Quality of Green Space and Access to Community Facilities

Both suburbs were similarly mostly positively connotated. Most respondents appreciated the increased green space due to red-zone proximity to walkways, cycleways, pedestrian bridges, and natural spaces. Outlying negative responses mentioned increased wetness. Another mentioned increased dust flow into their house from the red-zone, and another claimed new stopbanks were inhibiting established tree growth.

The respondents' perspective of how access to community facilities, services, and buildings has changed since the earthquakes. Responses from both suburbs were similar; they were mostly neutrally connotated and claimed not much had changed. The outliers were primarily comments from Avondale residents, as three respondents identified the loss of a group of shops. Comments from Avondale residents also mentioned the role reduction at Chisnallwood Intermediate School, which puts strain on the suburb's education due to other school closures. Placards outside the school protesting the roll reductions are shown in composite Figure 10.

Figure 10

Placards outside Chisnallwood Intermediate School



Note. Composite figure shows placards protesting roll reductions at Chisnallwood Intermediate School, Avondale.

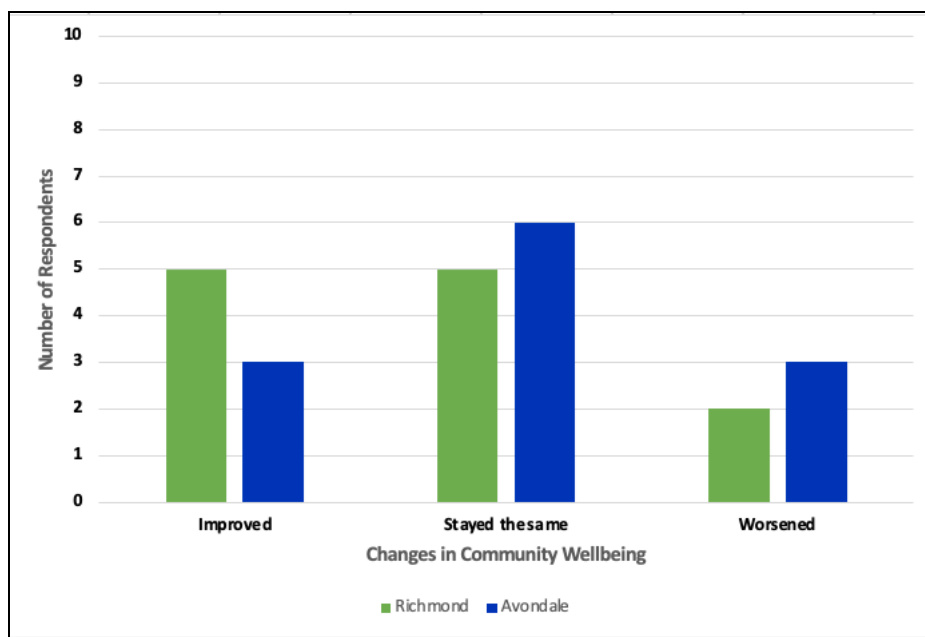
5.3.4 Perceptions of Community Well-being

Since red-zoning, 25% of respondents believe Avondales' community well-being has improved, 50% believe it has stayed the same, and 25% believe it has worsened, as depicted in Figure 11. Of those who identified improvement, reasons included neighbours looking out for one another and increased access to natural environmental amenities. Those that said community well-being has stayed the same commented that people were and still are friendly before and after the earthquakes. One person who has not lived in Christchurch for the last 13 years noticed neighbours attitudes to life have been negatively affected and people aren't as community focused or friendly anymore. Those that identified worsening included reasons such as having independent neighbours, and observing higher stress levels affecting people negatively. One respondent commented on the difficulty of this subjective question and its broad scope.

Since red-zoning, 40% of respondents believe Richmonds' community well-being has improved, 40% believe it has stayed the same, and 20% believe it has worsened. Reasoning includes an increase in community-organised events, neutral perceptions of community well-being, and increased new housing and social housing creating complex demographic issues.

Figure 11

Perceived Changes in Community Well-being Post Red-Zoning in Avondale and Richmond



When prompted for other comments, respondents shared further support for continued red-zone development, enhancing green space and community facilities. Another respondent was proud of where they live and the grassroots community development that has encouraged further public development.

6. Discussion

While notable trends within and between the suburbs of Avondale and Richmond are present, the nature of the survey results and the small sample size suggests the data alone isn't statistically significant enough to conclude any major findings. However, the results, alongside supporting literature, aids the discussion of the project results.

The observed improvements in quality-of-life levels and stress levels across both suburbs can be attributed to the increased exposure to green space, a notion widely alluded to across the literature (Beyer et al., 2014). The expansion of neighbourhood green spaces is linked to the promotion of health-conscious behaviours such as increased physical activity. Furthermore, it is associated with heightened levels of social support, cohesion, and a strengthened sense of community. These factors contribute to mental health, particularly stress reduction (Beyer et al., 2014). The observed trends in improvements depicted in Figures 5 and 6 align with this research, increasing the confidence of the

study.

The benefits of the increased green space exposure is further evidenced by responses in the survey open ended question which suggest the green spaces as a result of the red-zone serve as ‘bumping spaces’ for neighbours, fostering improved community relations and a rise in recreational activities (Banwell & Kingham, 2023).

6.1 Connections to the Ōtākaro Avon River Corridor Regeneration Plan

The Ōtākaro River Corridor Regeneration Plan outlines their goal as being connections between individuals, communities, and nature as a result of the river (Ōtākaro Living Laboratory Trust, 2019).

The results of the research project can be discussed in relation to the Ōtākaro Regeneration Plan (Ōtākaro Living Laboratory Trust, 2019). The research shows individuals in communities adjacent to the redzone feel an enhanced sense of connection with nature. Specific comments from survey results support this, with one respondent stating, “We love the green space (red zone) at the end of the street, [it] reminds us of how good life is”. Majority of the information gathered supports this sentiment, stemming from survey comments that are arguably negative, as participants discuss concerns around development in areas, of which would require the removal of green spaces.

Aligning with the goals of the Ōtākaro Regeneration Plan (Ōtākaro Living Laboratory Trust, 2019), results highlight the red-zone enhancing capability of increasing the sense of belonging amongst adjacent communities. Several survey participants noted that the red-zone is frequently used as a means for interacting with community members; “I have gotten to know my neighbours better by meeting them on walks in the red zone”.

There is a consistent opinion among both suburbs that the red-zone should be further developed for more shared community spaces, which is in line with the objectives of the Ōtākaro Avon River Corridor Regeneration Plan (Ōtākaro Living Laboratory Trust, 2019). The Ōtākaro Regeneration Plan significantly shaped every phase of the project, encouraging that the research outcomes align with the plan's overarching objectives.

6.2 Comparison of Research Findings to CERA Research Findings

Upon comparison of the research results with that of CERA, both similarities and differences became apparent. The majority of Christchurch residents noted feeling

increasingly positive about their lives, and experienced an enhanced sense of community belonging (Nielsen, 2015). These findings align with the results of the survey, as we commented on residents harbouring optimistic perspectives regarding the red-zone. Moreover, this study's results coincided with those of CERA when considering the number of residents still experiencing negative impacts of the earthquakes. There had been a steady decrease in negative feelings in the areas we studied. Similarly, there had been a reduction in residents that regularly felt stressed or troubled. The alignment of this study's results with those of the CERA surveys increases the confidence in this study's research findings, as the information is being substantiated by pre-existing studies.

Alternatively, notable differences are also evident when comparing results of this research with that of CERA. Nielsen (2015) commented that despite an increase in positivity, overall, the residents of Christchurch city are more negatively impacted. This study's results point towards an overwhelming number of individuals being positively impacted. Research carried out by Brown (2023) discusses why this may occur, as surveys done on a smaller scale are able to pick up on experiences at community level, whilst large scale surveys tend to generalise their results.

7. Limitations

Our studies' limitations impacted the accuracy and reliability of the results, and considerations should be made when replicating research or using conclusions for other purposes.

7.1 Survey Question Creation Bias

While constructing the survey, researchers exhibited an inadvertent bias, presuming that residing adjacent to a red-zone would adversely affect well-being. As a result, some questions were negatively connotated. A respondent commented "...this survey had far to[o] many leading questions towards negative experiences..." Future survey construction must ensure questions are phrased neutrally to receive accurate community perspectives.

7.2 Time Constraints

Surveys are excellent for capturing results efficiently however answers can not go into great depth, and there is a possibility of answers being misinterpreted by researchers (Jain, 2021). Time constraints restricted a mixed method approach of surveys and focus groups. Focus groups could have improved qualitative data comprehensiveness and encourage group discussions that can generate diverse perspectives. Future research

should select study areas promptly and prioritise early community outreach to attempt to combat time constraints.

7.3 Lack of Community Response

Community response through We Are Richmond was successful, while email contact was made with two Avondale Community Associations, and neither responded. The number of respondents from both suburbs was even despite this limitation.

Māori has been focused on less in both the response of the disaster and subsequent research (Lambert, 2014). To prevent this from happening in this study, email contact to Nga Hau E Wha Marae and Rehua Marae was made in an attempt to collaborate. However, neither replied and without this contact, only two people of māori descent responded to the survey through the other survey distribution methods.

Attempt was made to contact the Chisnallwood Intermediate School through email, as we perceived the reduction in roll as a community issue. However, no response was received.

The survey received 30 responses, which is acknowledged as a small sample size. Increased collaboration with community associations and groups likely would have increased survey response, and increased the validity of results; however larger samples do not always provide precision (Taherdoost, 2017).

7.4 Christchurch Earthquake Survey Fatigue

Following the earthquakes, people impacted have received many survey requests. Survey fatigue, where rates of refusal rise after extended exposure to surveys (Porter et al., 2004), likely led to the smaller sample size. Some survey questions required participants to recall experiences before the Christchurch earthquake sequence. Respondents commented that it is challenging to remember their lives 13 years ago, with some being unable to respond to the question entirely.

8. Future Research

The Ōtakaro Living Laboratory Trust (2019) identified a significant research gap concerning red-zone adjacent communities and anticipates using this research as a pilot for future research projects. Conclusions and recognised limitations will bring guidance to improve and streamline further endeavours, while adding to a greater data pool. Particular consideration should be taken to increase comprehensive collaboration with the community through early outreach, and a mixed methods approach of surveys and focus groups while acknowledging time constraints.

9. Conclusion

Key findings:

- Neither suburb showed a consistent trend of individual well-being.
- An increase in community facilitated events and groups post-red zoning has led to increased positive perceptions of community well-being in Richmond, and resulting average community engagement.
- In support of this pattern but in reverse, a lack of community-facilitated events and groups in Avondale and the closing of schools and local shops have led to neutral perceptions of community well-being, and less than average community engagement.
- Adjacency to the red-zone is viewed positively due to the green space and community engagement it provides.

The negative connotations that often prevail following a natural disaster resulted in an expectation to find an overwhelming trend that favours a decline in well-being, both at an individual and community level post red-zoning. For the vast majority, findings aligned with those of the CERA survey results, and supported the objectives of the Ōtākaro Regeneration Plan (Ōtākaro Living Laboratory Trust, 2019). This further increases the confidence in the results despite the small sample size.

10. Acknowledgements

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GEOG309 Red Zone Project Survey

This survey is being completed to fulfil course requirements for GEOG309 - Research for Resilient Environments and Communities.

This survey is aiming to collect data to evaluate the community well-being of the Richmond and Avondale suburbs following the impacts of the 2010/11 earthquake sequence and subsequent red zoning. The survey is divided into three sections - Demographics, People, and Place.

We will not be collecting personal information, unless voluntarily given, to ensure your responses are kept confidential. If you are interested in viewing our report at the end of our research please leave your email address at the end for us to keep in contact. We understand some of these topics are personal and have kept most individual responses optional. We really appreciate your responses.

If you have any further questions about this survey or want to provide more of your perspective through interviews and/or focus groups, please contact:

geog309redzoneproject@gmail.com

If you have any problems with this survey and want to seek clarification, please contact:

Simon Kingham - simon.kingham@canterbury.ac.nz (Course Coordinator)

Eric Pawson - eric.pawson@canterbury.ac.nz (Community Partner)

Holly Johnstone - hcj30@uclive.ac.nz (Community Partner)

* Indicates required question

1. What is your age? *

Mark only one oval.

- 18-20 years
- 21-30 years
- 31-40 years
- 41-50 years
- 51-60 years
- 61-70 years
- 71-80 years
- 81-90 years
- 91+ years

2. What is your gender?

Mark only one oval.

- Male
- Female
- Prefer not to answer
- Other: _____

3. Select what best applies to your living situation:

Mark only one oval.

- Married/living with a long-term partner and children
- Married/living with a long-term partner
- Single with children
- Living alone
- Flatting
- Other: _____

4. What is your ethnicity? *

Mark only one oval.

- Māori
- NZ European/Pakeha
- Asian
- Pasifika
- Middle Eastern
- African
- Other: _____

5. Do you reside in Richmond or Avondale? *

Mark only one oval.

Richmond

Avondale

6. Were you living at this address at the time of the 2010/2011 earthquakes? *

Mark only one oval.

Yes

No

7. If you answered yes to the previous question, why did you choose to stay at this address following the earthquakes?

8. If you answered no to the above question, where were you living previously?
(please provide suburb)

9. Why do you choose to live at this address, despite this being a red-zone adjacent area? *

Section 2: People

Aim: Understanding personal well-being.

The World Health Organisation (WHO) defines Quality of Life as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.

10. How would you rate your current quality of life?

Mark only one oval.

- Extremely good
- Good
- Neither good nor poor
- Poor
- Extremely poor

11. What was your overall quality of life before red zoning occurred post 2010/2011 earthquakes?

Mark only one oval.

- Extremely good
- Good
- Neither good nor poor
- Poor
- Extremely poor

12. How would you rate your stress levels day to day?

Mark only one oval.

- Never stressed
- Rarely stressed
- Sometimes stressed
- Stressed most of the time
- Always stressed

13. What were your stress levels like day to day before red zoning occurred post 2010/2011 earthquakes?

Mark only one oval.

- Never stressed
- Rarely stressed
- Sometimes stressed
- Stressed most of the time
- Always stressed

14. Mental health is a state of well-being in which an individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community.

Considering the above definition of mental health and well-being, how would you rank your mental health prior to the 2010/2011 earthquakes and subsequent red zoning?

Mark only one oval.

- 1 2 3 4 5
-
- Extr. | | | | Extremely good
-

15. How would you rank your mental health after the 2010/11 earthquakes and subsequent red zoning?

Mark only one oval.

1 2 3 4 5

Extr Extremely good

16. Did your physical wellbeing suffer following the earthquake sequence and subsequent red zoning e.g., injuries or stress-related illnesses?

17. Is there anything that you want to say that we did not cover in our survey questions, that relates to the well-being of people? Please do not hesitate to write anything, as we want to cover as many experiences as possible.

Section 3: Place

Aim: Understanding environmental and community well-being.

18. How do you feel about this statement: I feel a sense of belonging with others in my community.

Mark only one oval.

- Strongly agree
 Agree
 Neutral
 Disagree
 Strongly disagree

19. Could you elaborate on the reasoning for your answer above, with an example if possible.

20. If you were struggling with an aspect of your well-being (physical, mental, emotional, spiritual), who would you turn to for support? (select all that apply)

Tick all that apply.

- Family
- Friends
- Faith-based group/church community
- Cultural group
- Neighbourhood group (e.g. resident's association, play groups)
- Clubs and societies (e.g. sports clubs, poetry groups, Lions Club)
- Health or social support worker
- Parent networks (e.g. school, pre-school)
- Work colleagues
- Online community (e.g. Facebook/Twitter, forums, online gaming communities)
- Rūnanga
- I would turn to anyone for support
- I would not turn to anyone for support
- I do not have anyone I could turn to support
- Other: _____

21. How would you rank your level of community involvement?

Mark only one oval.

1 2 3 4 5

Low | | | | High levels of involvement

22. How has your quality of housing changed following the 2010/2011 earthquakes and subsequent red-zoning?

Mark only one oval.

- Improved
- Worsened
- Stayed the same

23. How has the quality of your natural environment changed following the 2010/2011 earthquakes and subsequent red-zoning? Such as parks, lakes, walking tracks, rivers, views.

24. How has access to services and buildings changed following the 2010/2011 earthquakes and subsequent red-zoning? Such as recreation, cultural, and community facilities e.g., health services, cafes, libraries, sports centres, and clubrooms for community events.

25. How has community well-being changed following the 2010/2011 earthquakes and subsequent red-zoning?

Mark only one oval.

- Improved
- Worsened
- Stayed the same

26. Could you elaborate on the reasoning for your answer above, with an example if possible.

27. Do you feel that you/your community was ignored after the earthquakes, as the focus was largely directed towards the red zone? Please elaborate.

28. Is there anything that you want to say that we did not cover in our survey questions, that relates to community wellbeing? Please do not hesitate to write anything, as we want to cover as many experiences as possible.

29. Please leave your email below if you wish to receive a final copy of our finished report. Thank you very much for participating!
