The perspectives of silent communities in Christchurch concerning the recovery of social and cultural connections with the city

A case study of Hornby and Northwood

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Executive Summary

- The suburbs of Hornby and Northwood were the central focus of this study. Prior research by ~~given the previous information that had been collected by~~ Te Pūtahi and the Christchurch City Council ~~which gave~~offered ~~us~~ the basis for our research question, ‘‘ ~~‘~~W~~w~~hy have Hornby and Northwood exhibited lower participation in the city centre rebuild and what tactics can be employed to reengage these communities in the future?’’ ~~’~~

- Hornby and Northwood are two suburban settlements located in the ~~south-west~~Southwest and ~~north~~ North outskirts of the Christchurch city district ~~respectfully~~respectively. It had been identified by Te Pūtahi that these two suburbs and one other, ~~, as well as~~ Redwood, ~~had~~ has had lower participation in the decisions and use of the city centre compared to other suburban areas of the Christchurch city district during the city rebuild. While Redwood was identified as silent community~~also identified as a community of isolation~~, we concluded to primarily focus on Hornby and ~~Northwood as we were limited by time and resources.~~Northwood due to time and resource constraints.

- Results showed ~~a~~ similar patterns a~~ a~~cross both communities. Overall, visitation to the city centre has decreased after the 2011 earthquake sequence showing a shift in behaviour. We hypothesize building construction and frequent roadworks have caused accessibility issues when traveling into the city from outer suburbs. ~~We could hypothesis this is because of the reconstruction of the city centre has decreased accessibility to the city, however, our study did not identify the reasons why, so we cannot say conclusively. Other~~Our results show ~~ed~~ that ~~the~~ a primary reason for Hornby and Northwood residents lack participation in the city centre is the result of traffic issues such as detours and road closures due to construction or parking.

- While both communities show different needs for the city centre, both communities identified improved green spaces and opportunities for recreation as incentives that would encourage more frequent visitation to the city~~as a necessity~~. However, we recommend resources first be allocated toward improving infrastructure to increase accessibility.

- There were several limitations for this research. Data were obtained through questionnaires, but ~~as we were limited by the number of participants in our sample~~a lack of participation in previous studies focused our ~~, we approached~~ approach on local community organisations to gain a prototypical ~~get a wider~~ understanding of the views of residents. The sample size we achieved will not provide representative data for the populations of these communities, so it ~~, but we~~ must be acknowledged ~~that~~ the opinions and perspectives of these participants may differ from other residents in ~~individuals in the communities of~~ Hornby and Northwood. ~~Given the timeframe of our study, results were needed to be calculated at a given time meaning there was a set allowance of time for data gathering limiting our ability to reach out towards the wider communities. As O~~our results were drawn from ~~only~~ 53 participants.

These responses are expected to portray the sensibilities of the relevant communities and conclusions extrapolated from results should reflect relevance on the population, however further sampling should be done if representative data is required. ~~we were only able to draw direct results related to the participants in our study. As our sample was too small, we do not have the required number of results to draw comprehensive percentage-based results. With our survey answers~~Finally, ~~participants~~participants' ~~-~~answers varied significantly. necessitating categorization of responses. Individual responses should be reviewed for further detail on individualized recommendations. ~~meaning some answers such as 'sports fields' and 'gardens' were classed as green spaces although they are of different uses for the public.~~

Further research into the behaviour of the communities of Northwood and Hornby is recommended. Public opinions on the city centre have shown that transportation issues such as navigation around the city centre via motor vehicle and parking are the areas of main concern for people visiting the city centre as well as green spaces and public spaces.

Introduction

This research aims to investigate and gain an understanding of the perspectives of underrepresented Christchurch communities in post-earthquake recovery and rebuild processes and is conducted in partnership with Te Pūtahi – the Christchurch Centre for architecture and city-making that places emphasis on creating spaces and opportunities for people to learn and be involved as citizens, neighbours and city activators.

On 22nd February 2011, Christchurch city was devastated by a 6.3 magnitude earthquake that resulted in widespread destruction of buildings and infrastructure and the loss of 186 lives. Following the initial emergency response to the disaster, Christchurch experienced a great deal of individual and community involvement in the planning and processes of recovery and city rebuilding. This is seen as a key element in disaster recovery and urban resilience, for which the city received recognition and praise from international commentators such as the Rockefeller Foundation's 100 Resilient Cities Network, which Christchurch became a member of in 2013 (Rodin, 2014).

The recovery processes in Christchurch also led to a significant demographic and social shift across Christchurch and resulted in some communities not being present in the city's recovery and rebuild, nor having their perspectives represented in any interventions occurring in the city. Initial research conducted by Te Pūtahi in association with the Christchurch City Council has identified the suburbs of Hornby, Northwood and Redwood as the least engaged in discussions and initiatives in the city centre's recovery and rebuild processes (Te Pūtahi, 2017). We aim to investigate two of these silent communities, with Hornby and Northwood being selected for two individual cases studies on the basis that they are the two most distinct groups geographically and demographically, to produce comparisons and contrasts as a greater representative cross-section of the city overall.

Hornby is Christchurch's western-most suburb with 24,000 residents in 2017 living in approximately 8,000 private dwellings. This represents 6.3 per cent of the city's total population. Hornby originated as a separate village from Christchurch where the main railway lines diverged

out to Little River and Southbridge and was absorbed into the city boundaries mainly due to urban sprawl from the Riccarton direction (Wilson, 2014). The suburb in many respects can still be viewed as an independent town operating within a greater urban space; Hornby hosts largescale industry, retail, sports, education and social facilities serving the local population and surrounding suburbs and outlying rural districts. Significantly more than half of its population (14,400) is employed locally within the suburb (CCC, 2018).

Northwood is a relatively recent addition to the greater suburb of Belfast located 8 kilometers north of the Christchurch city centre. The development gained further impetus when suitable land for residential construction became scarce following the 2011 earthquake and plans for residential and commercial development were fast-tracked (CCC, 2014). It comprises approximately 630 medium-density homes, 64 retirement village units, a preschool, two major supermarkets, bulk retail and good access to green spaces and a lake. The development contains ample pedestrian and cyclist accessibility and connections within the development and connects to the city centre via the northern arterial linked to State Highway 1 adjacent to it. The area escaped major physical damage from the earthquakes, but Christchurch City Council (2014) reports social and financial impacts as many residents were employed in parts of the city that were severely damaged.

Literature Review

With little literature directly relating to Northwood and Hornby, international literature and case studies were used to draw comparisons and provide main focal summary points. We decided upon these comparisons as they were the principal findings in previous research that relate to international examples of Northwood and Hornby. The literature focused around some pre-determined hypotheses we thought would be prominent in the answers of our participants.

Inequality Between Socioeconomic Classes

Literature here has focused on the 'few' who have been left out in the city centre. Ideas rose by Baker and Billinge (1982) suggest that when any disaster occurs (such as an earthquake) there will be some communities that are left in dislocation or isolation. They use the case-study of San Francisco from the 1906 earthquake were post-disaster recovery was primarily focused towards the wealthy, building tourism numbers and growing the financial districts. The strong economic development of the San Francisco city centre brought about higher priced land and rent costs soared and as a result, forcing many residents out of the city making them "*outsiders looking in*" (pg. 57). Other literature (Bretherton & Pleace, 2011; Zhang, 2009) both draw on housing issues as the principle reasoning behind city centre connections. Bretherton et al. highlight socio-economic issues in the United Kingdom as people who live in the outer suburban areas of the city decrease their connection to the city centre as many feel too uncomfortable or outcasted from economic development. The main conclusion from their article was communities less frequently visit the city centre do so due to private development nearby. According to their study, 64% of residents responded they do not want to visit the city centre as the developments nearby were more suited to their own economic status. Zhang, (2009) focus on the success stories of how inequality can be addressed. They highlight that communities in Singapore had raised concerns with how the government were focusing funding into tourism and disregarding the need of residents. This uproar led to the much-needed development of the residents' communities. The development of industries in the residential suburbs also allowed for a local injection of income into the community to maintain development (Bromley, Talion and Thomas, 2005).

Tourism and Crowds

Tourism and large crowds are common in the western European and North American cities. Arenas (2012) highlight how in cities within Spain such as Barcelona, Madrid and Valencia's residents do not visit the city centre as they feel it is a "tourist trap" (pg. 73). The businesses and local facilities within the city centre have adapted to make profits from visitors, increasing prices and forcing residents to rely on smaller towns and self-sufficiency. Neuts (2016) also states how residents within cities in western Europe (with a primary focus on Belgium) do not visit the city centre as it is '*an undesirable location or blemish on our city*' (pg 198). He notes how social issues from the tourism development rise such as theft, assaults and scams. Aiesha & Evans (2007) show how both tourism and city centre residents can coincide. They use the case-studies of Manchester and Sheffield where tourists have the option of 'visitor employment' where visitors to the city centre can be employed by businesses and as they are employed during their stay, residents receive benefits such as discounted activities, meals and public transport tickets building stronger connections to the local community. The tourism issue is debated further by Foster, Giles-Corti and Knuiman (2010) who argue that local communities cannot connect to the city centre as the influence of tourism brings high levels of crime forcing an abandonment of connection while authors such as Law (2000) argue that tourism is the soul and lifeblood of the city centre and residents need tourism to 'breathe life in through the alleys and streets' (pg. 124).

Physical Structure of the City Centre

Literature for this section covers a broad spectrum of reasoning such as the geographical layout of the city, economic development and the flow of traffic. In terms of the geographical layout of cities, most western cities are based on 'laissez-faire' development were unplanned and unregulated developments are dictated by economic activity (pg. 134). It is here that city centre properties become expensive and to maintain costs, businesses push prices to reap the rewards of their geographic position. These economic issues create a market where people are forced to either downsize to maintain a city centre lifestyle or move further away. Lassiez-Faire developments tend to connect the city centre to closer areas with regular and multiple forms of transport while outer city residents such as those who share similar geographic locations to

Hornby and Northwood have fewer options and irregular transport patterns (Coates, Johnston & Knox, 1977). Examples of these cities include Montreal, Canada where the city centre is strongly connected through regular bus systems and cheap subways. To get to the outer suburbs by bus, people need to take three buses and for subways, people need to take two lines to the end of their route costing more money and time (Mercier, Carrier, Duarte & Tremblay-Racicot, 2016). While this outline the connections, people have to the city centre (although limited), Strakos and Novak (2015) highlight that some transport options are used for connection to the city centre for settlements outside the city boundary or to connect those who cannot afford private transport but if emotionally they have no need to go to the city then these options are not appropriate.

Psychological Trauma from Disasters

Society will forever be impacted by disasters as by definition, a 'disaster' is a labelled event that impacts on society (Kingston, 2014). People's connections after a disaster depending on the efficiency and success of recovery. For residents, the connection to a city centre is strongly built around safety and trust. In a Sheffield case-study, people were asked to travel to the city centre and to record any difficulties or issues they encountered. Many reported that the construction and poor transport were an issue along with memories from the 'Hillsborough disaster' where 96 people died when the west stand of the Hillsborough stadium collapsed from overcrowding. For many of the respondents, traumatic memories from this event was a strong deterrent for many to visit the city centre (McClimens, Partridge & Sexton, 2014). Other issues around trauma from disasters have included the speed of recovery after a disaster, emotional issues from witnessing little recovery or ignorance of no sense of remembrance from the event (Helms, 2012). It is argued, however, by Najarian et al., (2001) that people should stay away from the city centre after a disaster. In their study, over half of participants recorded poor cognitive function such as memory and speech issues as well as PTSD (post-traumatic stress disorder) symptoms from either observing a disaster in the city centre or from the immediate aftermath such as building collapses or ground movement. A recent report on the effects of the February 2011 earthquake on Christchurch city saw that many of the children who were within the central business district or eastern suburbs still suffer mental health issues, a 60 percent rise compared to 2010. (Hayward, 2016).

Social Connections in Other Locations

Several authors have made identification to social connections that communities possess. Heida and Koudenburg as well as Postmes and Gordijn (2013) state that when people have more frequent connections to a specific area, the connections to other communities diminish. They use the case study of Crescent City, California where a tsunami killed 11 people and destroyed hundreds of buildings and businesses. When construction was finally completed, visitor numbers were still drastically lower than pre-tsunami. This was explained by the 'home and heart' theory where if people have positive connections to closer or more accessible facilities/amenities then there will be a decrease in the needs to explore past this section of the city. An interesting discovery was that even when improvements to public transportation and increased employment opportunities are offered, people will still prefer to stay within their pre-existing communities. This concept is built on by Sack (1997) who explains the idea of people and place where if people have positive experiences with their place (such as Northwood or Hornby) then the need to expand is decreased. Dumitrache and Nae (2013) explain how social connections are built on emotional connections. As many of our participants responded, they do not like how many historical buildings have been demolished and replaced. For them, these were their emotional connections which have been cut entirely. A study by Rahman, Shamsuddin and Ghani (2015) found the five factors that influence social connections to a city centre being attraction of the street, activities, proximity to commute, congestion (both public transport and foot traffic) and familiarity/length of engagement which is a strong issue within our research (Ujang, 2008; 2010).

Methodology

Foundation of Research

The approach to this research was heavily dictated by the limited information available on our directive; preliminary information was given by Te Pūtahi and Christchurch City Council, but both organizations could only offer limited anecdotal information and expressed an interest in further results. The only unambiguous information that was available was a list of communities that have not participated in the central city restructuring process. In the interest of efficiency, we refined our scope to focus on two of these communities – Hornby and Northwood. The decision behind selecting these two communities was dictated around similar attributes such as possessing a local shopping centre for some sufficiency, however, they were located in opposing areas of Christchurch city. Given the minimal background on this situation, our directive consisted of three tasks: reveal the reason(s) behind these communities' silence, identify what obstacles may be perpetuating this silence, and recommend direct action that will help facilitate a relationship between these silent communities and the city centre.

As required for geography research in the twenty-first century, ethical approval was required before collecting of data could commence. Ethical approval is required for all data gathering involving contact with humans especially when involving sensitive topics (such as class or memories). To minimise this, we need to avoid harm to participants, ensure informed consent is given, respect privacy of participants and avoid deception (Sudman, 1998, pg. 73). Our questionnaire was structured in a way that personal or sensitive topics such as income, physical address or names were not required. We explained in our consent form the aims of our research, the reasons behind it and what will happen to the information and who would have access to the data. We included contact information for participants to contact should they have further questions and if people would like to withdraw from the study. While we did include this option, we also express that data withdrawl would need to be completed before the 10th May 2018 as this is when data would be analysed (Robinson, 1998).

Survey Sampling

We sought a comprehensive assessment of the relationship held by Hornby and Northwood with the city centre. Qualitative closed-ended data was required to compare communities and change over time, along with open-ended data in the form of individualized short answer responses to increase our understanding of public perception and desires. The selection of open and closed-ended questions presented both positive and negative effects of our study. Our open-ended questions where little data was previously known allowed our participants to freely answer the question to as much detail as they desired, however, it was more time consuming than a closed question which is why we proposed only eight questions in the entire survey (Gray, 2009). With the intent of working with many participants and producing a report for use by an NGO, we decided a questionnaire would be the most effective and recognizable format of data collection (Cloke, 2004). An eight-question survey was created to satisfy both open and closed-ended requirements (Appendix I). The questions covered frequency of usage, positive qualities of the city centre, obstacles which prevent access to the city, and specific recommendations for the continued improvement of the city centre. Questions alternated between discrete multiple-choice, yes or no, and short answer. Short answer questions included a string of 'alternative responses' to stimulate the respondents' articulation of their thoughts (De Vaus, 2014). The choice to use only two questions in the survey with an 'a, b, c, d' choice format is because we already had a pre-determined understanding of people's behaviour with respect to visiting the city centre (Fink, 2003).

Due to time and resource constraints, our research group elected to survey community leader groups rather than poll the entire population; the allotted timeline made it very unlikely to establish a representative sample size, in addition to the fact that historical efforts to poll these communities have suffered severely from lack of participation (Hay, 2016). The questionnaire was distributed in person to the Hornby Rugby Club and the Northwood Neighborhood Association, popular groups with an active presence in their communities. We attempted to stimulate diversity of gender and age in our initial survey sample by inviting families to participate together (Brymann, 2016). This generated a heterogeneous sample, though it still remained slightly weighted toward adult men for both communities. To increase sample size, the

questionnaire was also digitized using Google Forms and publicized on popular Hornby and Northwood social media pages such as their Facebook pages. We included questions regarding age and gender in the online distribution of the survey to control for variation from the initial demographic, though the number of responses we received did not significantly affect the data saturation (Selm, 2006).

A disclaimer preceding the questionnaire outlined the conditions under which this data would be used. We offered a detailed explanation of which parts of the survey would be released to the public, ensuring the respondent knew anonymity was a dominant concern. We also included instructions on how to redact a response should a respondent require it. By including a description and assurance of anonymity in the disclaimer, we hope our participants felt comfortable voicing their honest opinions and recommendations (Selm, 2006).

Analysis

We established the desired sample size of 50 respondents. Between personally facilitated and online surveys, we received a total of 53 responses (29 Hornby, 24 Northwood). After receiving comparable numbers of data from each community, it was imperative to determine how the two would be analyzed. This degree of data saturation did not allow us to apply our sample as a representation of the populations for each community but would allow for a case study in which a detailed investigation of the small sample could produce theoretical generalizations about the broader issue; in a case study approach, representativeness is not very important (Eyles, 1988). Therefore, the sampled groups were expected to reflect the philosophies and sensibilities of their communities. The later comparative analysis would show a statistical difference between the communities, prompting two separate case studies with individualized recommendations. The richness of responses was also considered, as the participants in this research are complex individuals capable of becoming passionate about multiple issues. Open-ended input was considered comprehensive, and multiple concerns or recommendations presented by one respondent were counted as multiple responses (De Vaus, 2014).

Results

Considering the limited information on our subject matter, we attempted to approach data analysis with a retroactive blind by establishing multiple working hypotheses before categorizing the data. The multiple theory approaches allow for complex interpretation of a social dynamic by comparing multiple combinations of variables at different weights (Eyles, 1988).

Demographic differences

By quantifying the frequency of reported visits preceding and following the earthquake into number of visits per year, we were able to perform t-tests for the comparative equality of means to measure the likeness of Hornby and Northwood at a confidence level of 96% (alpha = 0.06; Table 1).

		Two Sample F-Test for Variance			*t-Test for Equality of Means*		
		F	p	df	t-statistic	Critical value (2-tail)	p
Pre-Quake	*Equal variance assumed*	1.39	0.202	51	-0.5504	1.9235	0.58
	Unequal variance assumed			45	-0.5418	2.0141	0.59
Post-Quake	*Equal variance assumed*	1.99	0.042	51	-2.0799	1.9236	0.04
	Unequal variance assumed			40	-2.0146	1.9357	0.05

Table 1: Results from a suite of t-Tests for Equality of Means performed on survey responses. Analyses were performed for equal variance as well as unequal variance for each comparison to generate more certainty from the results.

Our results showed that before the quake, Hornby respondents visited the city on average 64 times per year, while our Northwood respondents visited on average 83 times per year. This created a t-statistic of -0.54 which does not exceed our calculated critical value of ± 2.01, indicating that the mean and variance of pre-quake visits are similar at a confidence level of 94%. However, post-quake results showed that Hornby respondents frequented the city on average 12.6 times per year opposed to the average 23 visits of Northwood respondents. Average visitation for both suburbs decreased significantly, and the differences of mean and variance

generate a t-statistic of -2.01 which exceeds our calculated critical value of ± 1.935 (p = 0.0506). Therefore, at a confidence level of 94% we reject the null hypothesis that the post-quake means are the same and can assert that these two samples are significantly different from one another; Hornby and Northwood display likeness preceding the earthquake but depart from one another to a statistically significant difference. Our results show these two communities have responded to the Christchurch city centre in different ways following the earthquakes and should be evaluated separately. The needs of each community will likely be different and therefore the response that should be taken to address their respective silence should be catered to the community.

Comparative Usage

Using the same data from the demographic analysis, we were able to provide comparisons of city centre usage pre- and post-quake (Figure 1a).

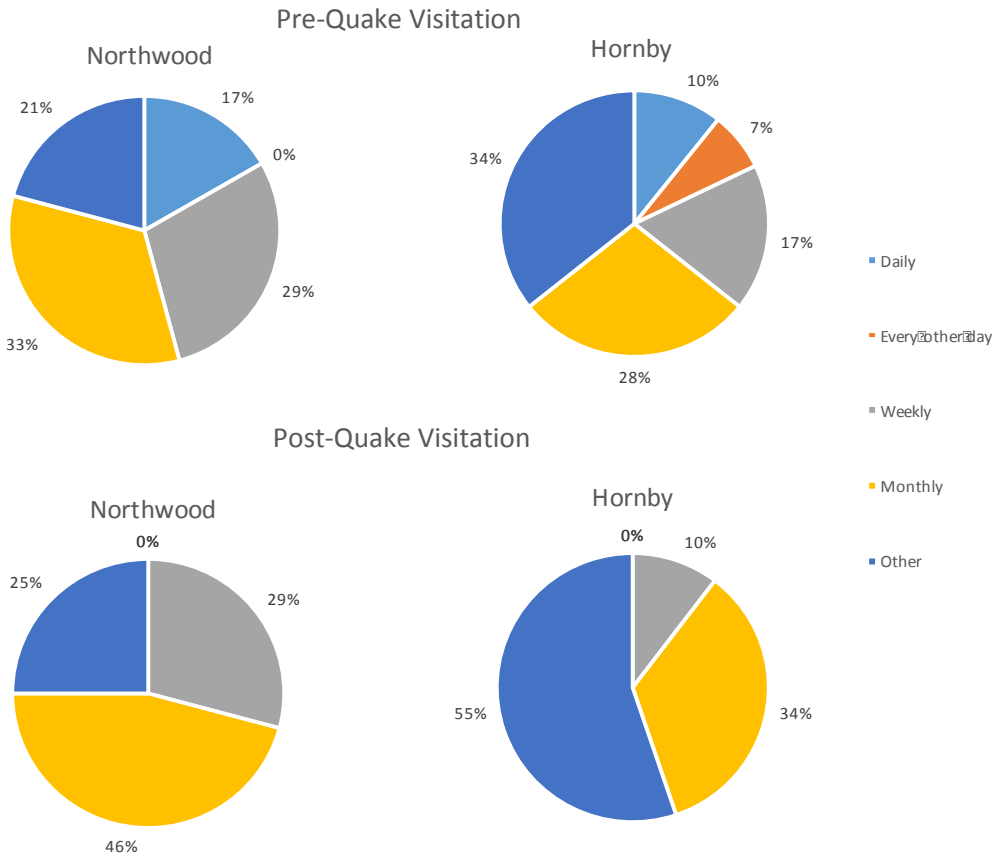

Figure 1a: Frequency of visiting Christchurch city centre preceding the Canterbury Earthquake Sequence and following the events as reported by respondents from Hornby and Northwood.

Our results show that the frequency at which residents of Hornby and Northwood visited the city centre preceding the earthquakes was comparable, though Northwood residents had a slightly higher rate visitation. Following the earthquake, these frequencies dropped noticeably; daily and every other day visits were eliminated while monthly and "Other" responses increased in both neighborhoods. "Other" responses are interpreted as less frequent than once a month given the range of options provided as well as the written input provided on some surveys which were placed under this category.

Changes made by single respondents in visit frequency pre- and post-quake were noted to determine how individuals from each community reacted (Figure 1b). We found that 50% of Northwood respondents did not change their habits, 29% decreased their visits, and 21% increased their visits. However, 52% of Hornby respondents did not change, 45% decreased their visits, and 3% increased their visits, which for this sample size was only one respondent.

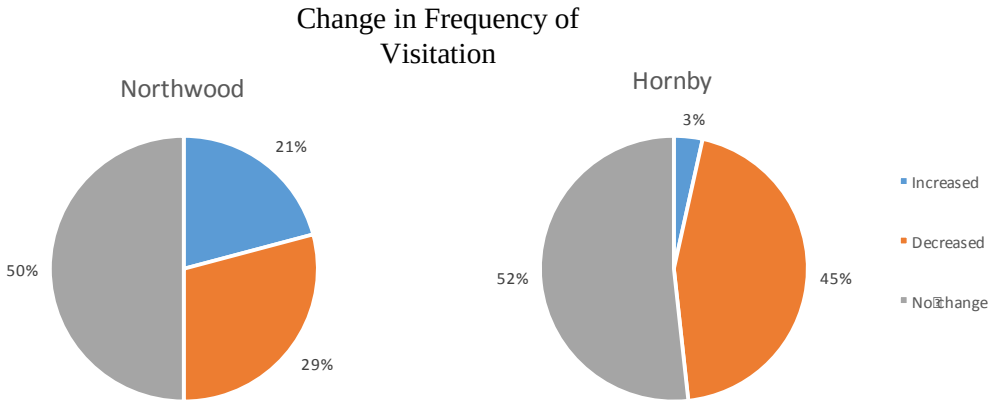

Figure 1b: Differences in visit frequencies reported by single respondents.

Perceived Value

Questions designed to gauge perceived value of the city centre indicate percentage of respondents who believe there are certain amenities found exclusively in the city (Figure 2) and what reasons may bring people from surrounding suburbs to visit the city (Figure 3).

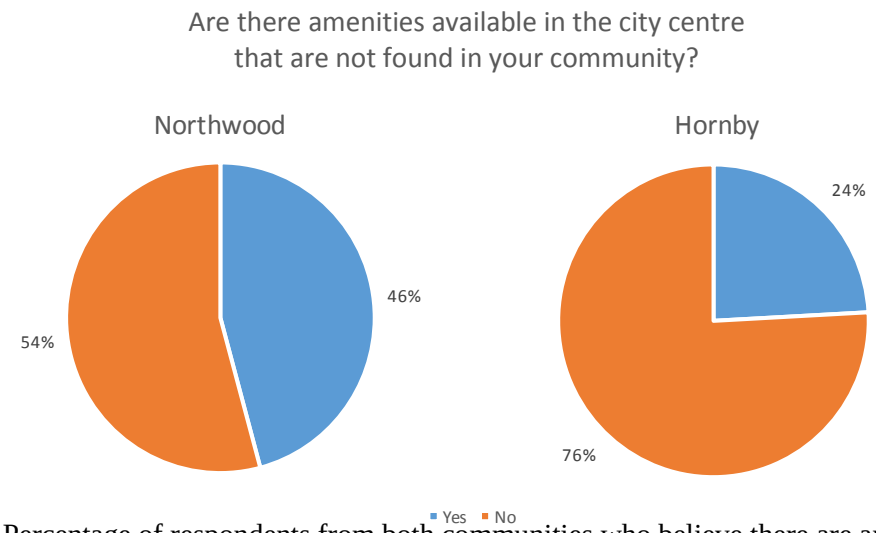

Figure 2: Percentage of respondents from both communities who believe there are amenities of necessity or value found in the city centre that may not be found in their respective communities.

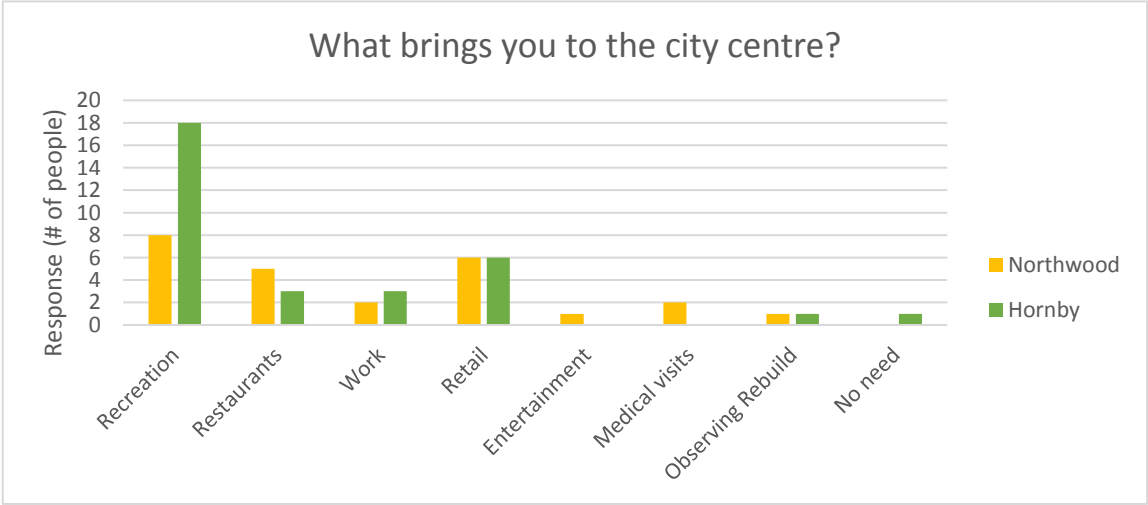

Figure 3: Number of responses indicating reasons which might motivate a visit to the central city.

These results indicate differing perceptions of the central city with commonalities between both communities regarding usage. 76% of Hornby respondents indicated there are not amenities of value in the central city, while 24% indicated there are. Northwood respondents displayed a slighter more positive perspective, with 54% declaring “No” and 46% stating “Yes.” The greatest reason to visit indicated by both communities was recreation, though Hornby expressed a greater interest with 18 responses as opposed to Northwood’s 8 responses. The remaining reasons were reported at marginal levels but shared degree of interest; 6 responses indicated retail was a secondary major interest for both Hornby and Northwood, along with 5 and 3 responses from Northwood and Hornby respectively expressing interest in restaurants.

Limiting Factors

Respondents also identified primary obstacles that limit their access to the central city (Figure 4) and the connection they feel to the city centre (Figure 5).

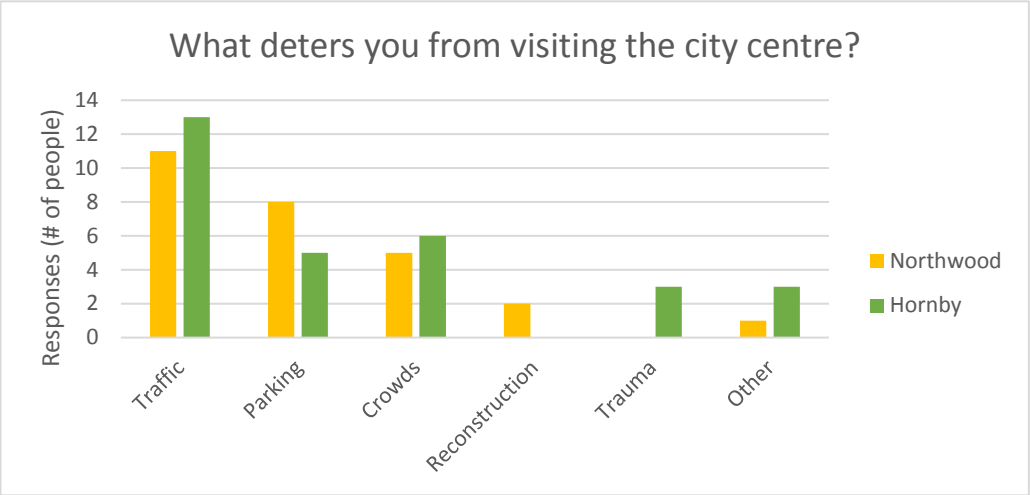

Figure 4: Number of responses indicating reasons which might deter or otherwise impede a visit to the central city.

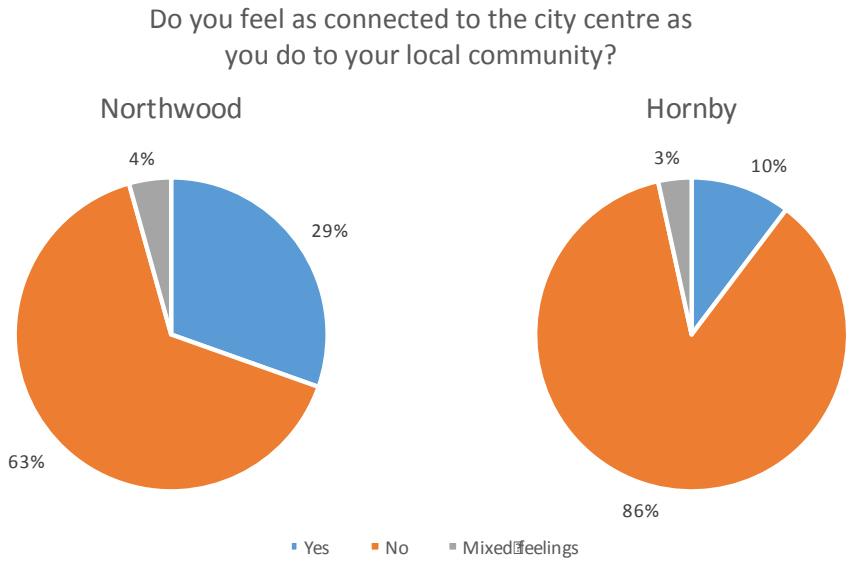

Figure 5: Percentage of respondents from both suburbs indicating whether they feel a comparable or greater connection to the city centre as they do to their own community.

Responses highlight physical obstacles as primary deterrents which dissuade respondents from visiting the central city. Comparable numbers of responses indicate a hierarchy of concerns; 11 and 13 respondents from Northwood and Hornby respectively state that traffic, road construction, and confusing detours prevent them from accessing the city. 5 respondents from Northwood and 6 from Hornby expressed concerns about crowds while a similar amount complained that parking was too difficult to find or too expensive. Smaller quantities of unique responses identified other factors; 2 respondents from Northwood stated they were upset by the new aesthetic of city centre architecture or were displeased with the rate of reconstruction, and 3 respondents from Hornby revealed that memories of traumatic experiences during the earthquake keep them away. When asked whether a connection or feeling of community was felt to the city centre, a majority negative response were received from both suburbs (Figure 5).

Respondent Input

The final question requested open ended feedback on changes that could be made to the city centre which might make it more appealing. The intent was to identify common desires within and across communities to help nucleate recommendations for future development. We were able to compile these responses into 13 categories (Figure 6).

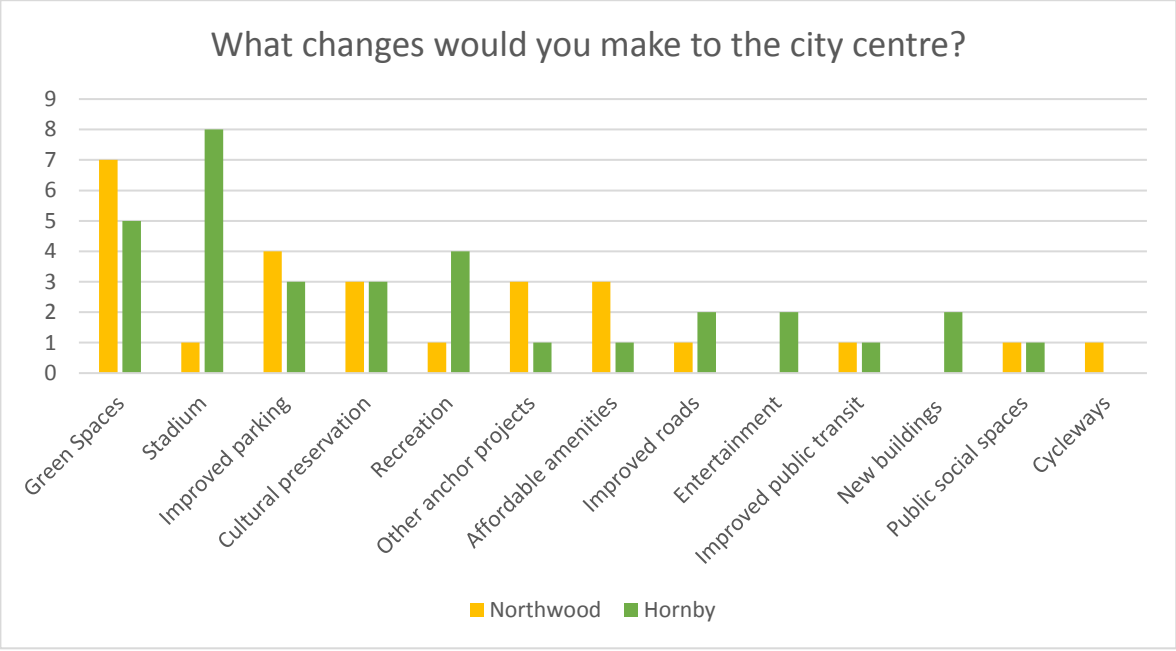

Figure 6: Number of recommendations with comparable themes or intentions produced by respondents from both communities.

The greatest interest was expressed for green spaces consisting of parks, walkways, publically accessible fruit and vegetable plants, and improved landscaping; 7 respondents from Northwood and 5 respondents from Hornby made these recommendations. A disproportionate amount of 8 Hornby respondents expressed interest in the proposed stadium compared to 1 respondent from Northwood. 4 Northwood and 3 Hornby respondents stated that parking should be more accessible and/or less expensive. 3 respondents each from both communities described various cultural projects to preserve either historical Christchurch landmarks or Māori traditions/culture. The second most disproportionate recommendation involved further development of athletic fields and outdoor recreation, written by 1 Northwood respondent and 4 from Hornby. The remaining recommendations reported in pairs or single responses are detailed in the following discussion along with further details on the preceding reported recommendations.

Discussion

We utilized various targeted survey techniques guided by best practice and ethics to investigate why Hornby and Northwood exhibited lower participation in the central city rebuild and what tactics might be employed to re-engage these communities in the future, which offered personalized input from community members with respect to the future of Christchurch city centre. The following discussion elaborates on conclusions that can be drawn from the reported data, in addition to an error analysis of the applied methodology. We explore two selected hypotheses suggested by these data but not specifically addressed in respondent recommendations. These themes include post-disaster trauma and community connectedness to the central city.

Post Earthquake Trauma

Post-traumatic stress was considered as a strong initial hypothesis for the deterrent of community engagement with the city centre. The Hillsborough stadium collapse in Sheffield, England, which killed 96 spectators, served as a referential case study for this hypothesis. Trauma associated with witnessing a disaster is a significant factor in resistance from city residents in reengaging with a physical associated with the trauma (McClimens et al., 2014). The speed of and public inclusion in the recovery and rebuild process also bears markedly on the speed of psychological and emotional reengagement following the event (Najarian, Goenjian, Pelcovitz, Mandel, & Najarian, 2001). However, of the residents who identified as disengaged from the city post-earthquake, only 3 respondents indicated trauma as a reason for the disconnect.

In contrast to the survey results, research from Otago University suggests that a higher number of survey responses should have been expected to identify trauma as a predominant deterrent; research found that Cantabrians who suffered adversely from the earthquakes were 40% more likely to exhibit depression and post-traumatic stress disorder (PTSD) than those who were not exposed to the earthquakes (Otago University, 2014). A parliamentary report on the *Social effects of Canterbury earthquakes* (2014) also observes that psychological recovery from a

disaster can take 5-10 years. Seven years on from the 2011 event has allowed many to move on from the events of the CES, though others may remain heavily affected.
Najarian et al. (2001) also found that if the risk of depression increases as post-disaster recovery processes are delayed and drawn out, as is the case with Christchurch, whereas instances of PTSD develop to a greater extent in the immediate aftermath of the trauma. This supports the notion of a "double blow" that occurs in disaster situations when the shock and immediate impact is followed by a secondary phase of drawn out recovery, including insurance claims, poor roading and lost community connections and facilities (Parliamentary Library, 2014). Research conducted by All Right?, a Christchurch health and well-being initiative led by the Canterbury District Health Board and the Mental Health Foundation of New Zealand, found that these secondary "man-made stressors" can impact individuals more severely than the initial shock and aftermath of a disaster, as they erode well-being over the long term (All Right?, 2017).

However, a key finding in the Otago University research explaining low reported trauma rates also points to a greatly positive evaluation of Christchurch city's urban resilience, statint that "the psychological impact of the quakes could have been worse if community spirit were not so strong." The well-organized supportive response by the Canterbury community "is likely to have acted as a protective factor in mitigating the consequence for those with high levels of exposure to earthquake-related adversity,'' and that "the majority of those facing disasters are resilient and do not develop mental health problems" (Otago University, 2014).

Connection

Our secondary hypothesis regarding community connections references the correlation between the frequency of visitation to communities and the level of emotional connectedness reported by visitors (Heida, 1987; Koudenburg, Postmes, & Gordijn, 2013). Under this hypothesis, catastrophic damage and exclusion zones across Christchurch created physical barriers of entry to the centre, thus decreasing connectedness to the area. Continued physical obstruction by way of road construction and detours further inhibits re-establishing a sense of connection to the city. The relative difference in accessibility to the the city from each community pre- and post-earthquake has further emphasized the event and punctuated these communities' respective responses to the rebuild.

While Hornby and Northwood showed comparable frequency in visiting the city centre pre-earthquake, Hornby showed a significantly greater decrease in city visitations since the earthquakes compared with Northwood as reported by single respondents. Hornby is a highly resilient community with sufficient self-contained resources, whereas Northwood possesses far fewer resources and relies on other communities. More than half of Hornby's population is employed locally and services and retail are abundant. Therefore there is less need for Hornby residents to engage with the city for employment and their basic needs. Northwood, however, has only basic amenities with nearly half (46%) of respondents believing that there are amenities in the city centre not available locally, compared with only a quarter (24%) in Hornby. It appears that once the behaviour of visiting central Christchurch was disrupted for some of our respondents, alternative habits were formed to remain sufficient without access to the city. In the following years until present, these new habits have maintained their practicality, allowing these residents to continue avoiding the city. Northwood residents are more likely to reengage with the city to seek out specific resources that are difficult to find locally, while Hornby's self-contained sufficiency is likely to keep residents local. A comparable situation in Crescent City, California, in which reconstruction of a tsunami-damaged city centre suffered form a significant lack of citizen reengagement, showed that residents had found satisfactory alternatives to their former behaviours elsewhere and maintained them even when old resources were made available again (Koudenburg, Postmes, & Gordijn, 2013).

Besides the overall decrease in visitation to the city centre observed in both communities for different reasons, there was a notable elimination in both communities of their daily and semi-daily visits. For Hornby, the self-sufficient nature of the community and local employment opportunities are the most likely contributing factor to this phenomenon. However, many Northwood residents who made daily visits to the centre for work ceased their visits once they had lost their jobs (CCC, 2014). Until the city centre business community can offer pre-earthquake employment opportunities to attract Northwood residents, visitations rates will likely remain low.

Physical Barriers to Reengagement

The most significant observed hindrance for reengagement with the city centre as reported by respondents is difficulties with traffic and parking. The Christchurch City Council has reported 400 transport projects yet to be completed at a cost of more than $1 billion over a 20-year time frame (CCC, 2014). Media reports and anecdotal accounts of disruptive roadworks and traffic chaos indicate that severity and reach of this issue; while reconstruction of a quake-damaged city will necessarily take time, Canterbury Automobile Association chairman Roy Hughes suggests that the 20-year frame is unreasonable, stating that: "around the world more drastically quake-damaged cities than Christchurch have been effectively remediated in less than a decade" (The Press, 2018). Hughes said that such delays could discourage investment in the city and in some cases force developers to abandon existing plans. Hughes also alludes to the public's perceived overemphasis on cycle and pedestrian routes which has led to parts of the city centre becoming "no-go zones" for anyone reliant on a car. In terms of urban resilience and adapting to future that is less dependent on fossil fuels, this can be viewed positively. Unfortunately, it neglects the fact that Christchurch is the country's most car-dependent city, with 87% of residents using a private motor vehicle as their primary mode of transport (MoT, 2017). A combination of better managed roadworks and a cultural shift in car usage could mitigate these barriers.

Changes

The data interpreted thus far have provided context for the further development of foundational amenities and infrastructure within the city centre. This aspect of the Christchurch rebuild is expected to cause issues for the foreseeable future. However, individualized responses from residents offer background on what types of initiatives and directives are considered meaningful by these communities. The central government, Christchurch City Council and city building and placemaking innovators may use these recommendations to promote and nurture greater suburban connectivity to the central city.

When asked: "What changes would you make to the city centre?", a clear majority in both communities highlighted "green spaces". This may seem unnecessary considering that Hagley

Park encompasses nearly 161 hectares immediately adjacent to the central city. However, respondents had more specific and innovative recommendations to elaborate on this very broad idea. In *The Life and Death of Great American Cities*, Jacobs (1961) explains that parks are conventionally considered "boons conferred on deprived populations of cities" and that the assumption that any expanse of green in an urban space constitutes an asset is flawed. Jacobs explains that parks are in reality deprived and in need of a "boon," or essential quality, conferred on them by planners and users if they are to be a success. The boons proposed for green spaces by survey respondents include walkways, fruit trees, vegetable gardens and fishing on the Avon River, as well as overall better design of existing green features.

Parks are important for sports and recreation in general, and many respondents identified use of the central city as a source of recreation. A disproportionate number of Hornby residents also called for a stadium anchor project to add to this mix. A large proportion of the Hornby survey pool comprised members of the Hornby Rugby Club, who likely have a keen interest in seeing a central city stadium built. This error was not considered in the formation of the survey and the review of these data should bear in mind this implicit bias. Respondents in both communities alluded to other anchor projects, without specifying whether this included the stadium or referred to the stadium specifically. In either case, recreation featured strongly in both communities as an existing reason to visit the city centre along with a familiarity with and desire to pursue existing transitional projects.

There was an equal interest reported by both communities for the preservation of historic buildings and landmarks. Specific recommendations included a 'memory lane' walkway, and places of historic and cultural significance to Māori. Other input supports further development of new post-disaster placemaking initiatives such as Greening the Rubble, Gap Filler and the international Festival of Transitional Architecture (FESTA).

Recommendations

Conclusions made from the two case studies in this report constitute individualized recommendations for each community. However, similar themes of inclusion and accessibility will likely allow for single concerted improvement efforts to maintain relevance for both Hornby and Northwood. To improve accessibility, information on road detours or closures need to be made public before commencing to allow residents time to choose more suitable transport or more suitable routes. Public transport services for Hornby and Northwood residents may also be increased to optimize city accessibility while roadworks continue; community representatives, such as Northwood Residents Association, should be included in conversations with Christchurch City Council, other government organisations, and local organisations to secure said transportation. Increased pedestrian accessibility within the city will also enhance the experience of suburban visitors. Efforts to increase pedestrian access should also be mindful of the possibility of aesthetic and tactile enjoyment for new pathways; a 'walkable city' is both functional and appealing to pedestrian. As Christchurch residents proceed to heal with the city, they will continue to require encouragement and incentive to remain engaged with the city centre. The future of development must maintain a humanizing perspective to understand the fundamental and emotional needs of visitors to the city. Residents express needs for safety and intent; the future iteration of Christchurch must meet the needs of all residents to remain engaging and reconstruct the community which existed before the earthquakes.

Future Research

A larger sample size will be useful for integrating connections between our selected suburbs and the Christchurch city centre. The opinions of residents from neighboring suburbs may provide context as to whether responses from this report are exclusive to the researched communities; a comparison between low participation suburbs (Northwood and Hornby) could be made against higher participation suburbs to identify similarities and differences. Another report should be conducted into the perceptions of residents in silent communities once construction and roadworks have finally terminated within the city centre as we believe through our study, a large percentage of our participants will want to enter the city centre.

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References

Aiesha, R. and Evans, G. (2007). VivaCity: Mixed-use and Urban Tourism. In M. K. Smith (Ed.), *Tourism, Culture and Regeneration* (pp. 35-48). Oxfordshire: CABI.

All Right? (2017). A summary of All Right? Research findings. February 2017. Retrieved from https://allright.org.nz/media/documents/2017_Research_Summary_FINAL.pdf

Arenas, A. (2012). *Barcelona and Madrid: social networks of the Avant-Garde*. Lewisburg: Bucknell University Publishing.

Baker, A. R. and Billinge, M. (1982). *Period and Place: Research Methods in Historical Geography*. New York, NY: Cambridge University Press.

Bretherton, J. and Pleace, N. (2011). A Difficult Mix: Issues in Achieving Socioeconomic Diversity in Deprived UK Neighbourhoods. *Urban Studies, 48*(16), 3433-3447.

Bromley, R. D. F., Talion, A. R. & Thomas, C. J. (2005). City Centre Regeneration through Residential Development: Contributing to Sustainability. *Urban Studies, 42*(13), 2407-2429.

Bryman, A. (2016). *Social research methods* (Fifth ed.). Oxford: Oxford University Press.

CCC, Christchurch City Council. (2014). Community Profile: Shirley-Papanui-Belfast. Retrieved from https://www.ccc.govt.nz/assets/Documents/Culture-Community/Stats-and-facts-on-Christchurch/CommunityProfile-ShirleyPapanui-Belfast.pdf

CCC, Christchurch City Council. (2018). Hornby ward. Retrieved from https://www.ccc.govt.nz/culture-and-community/christchurch/statistics-and-facts/community-profiles/halswell-hornby-riccarton/hornby-ward

Cloke, P. J. (2004). *Practising human geography*. London: SAGE.

Coates, B. E., Johnston, R. J.& Knox, P. L. (1977). *Geography and Inequality*. Oxford: Oxford University Press.

De Vaus, D. A. (2014). *Surveys in social research* (6th ed.). Abingdon, Oxon: Routledge.

Dumitrache, L. & Nae, M. (2013). Urban regeneration and effective connections to place in Bucharest city centre. Annals of the University of Bucharest: *Geography Series, 62*, 187-202.

Eyles, J., & Smith, D. M. (1988). *Qualitative methods in human geography*. Cambridge: Polity.

Fink, A. (2003). *How to Manage, Analyse and Interpret Survey Data*. Thousand Oaks, CA: Sage.

Foster, S., Giles-Corti, B. & Knuiman, M. (2010). Neighbourhood design and fear of crime: A social-ecological examination of the correlates of residents' fear of new suburban housing developments. *Health and Place, 16*(6), 1156-1165.

Gray, D. E. (2009). *Doing Research in the Real World (second edition)*. London: Sage.

Hay, I. (2016). *Qualitative Research Methods in Human Geography (fourth edition*). Don Mills, Ontario: Oxford University Press.

Hayward, M. (2016). *Chch kids are real characters*. Christchurch. The Press.

Heida, H. R. & Gordijn, H. E. (1984). Residential Preferences and Inclination to Move. In H. ter Heide & F. J. Willenkens (Ed.), *Demographic Research and Spatial Policy: The Dutch Experience* (pp. 153-170). London: Academic Press.

Jacobs, J. (1961). The Life and Death of Great American Cities. New York, Random House

Kingston, J. (2014). Minimising risk and the Fukushima nuclear crisis. In P. Bacon & C. Hobson (Ed.), *Human Security and Japan's Triple Disaster: Responding to the 2011 earthquake, tsunami and Fukushima nuclear crisis* (pp. 39-58). Abingdon, Oxon: Routledge.

Koudenburg, N., Postmes, T., & Gordijn, E. H. (2013). Resounding silences: Subtle norm regulation in everyday interactions. *Social Psychology Quarterly, 76*(3), 224-241.

Law, C. M. (2000). Regenerating the City Centre through Leisure and Tourism. *Built Environment, 26*(2), 117-129.

McClimens, A., Partridge, N. & Sexton, E. (2014). How do people with learning disability experience the city centre? A Sheffield case study. *Health & Place, 28*, 14-21.

Mercier, J., Carrier, M., Duarte, F., & Tremblay-Racicot, F. (2016). Policy tools for sustainable transport in three cities of the Americas: Seattle, Montreal and Curitiba. *Transport Policy, 50*. 95-105.

Ministry of Transport. (2017). New Zealand Household Travel Survey 2015-2017. Retrieved from https://www.transport.govt.nz/assets/Uploads/Research/Documents/Household-Travel-Survey-intro-Dec2017.pdf

Najarian, L., Goenjian, A., Pelcovitz, D., Mandel, F., & Najarian, B. (2001). The Effect of Relocation after a Natural Disaster. Journal of traumatic stress. 14. 511-26.

Neuts, B. (2016). An economic approach to crowding in tourist city centres: Evaluating the utility effect on local residents. *Tourism Economics, 22*(5), 1055-1074.

Otago University. (2014). Quakes' impact on substance use and mental health quantified. Retrieved from https://www.otago.ac.nz/news/news/otago075383.html

Parliamentary Library. (2014). Social effects of Canterbury earthquakes. Retrieved from https://www.parliament.nz/resource/en-NZ/00PlibC51211/1462507a5b4f0ead43f71cad583abb45f3be0bcb

Press, The. (2018, 23 February). No end in sight: Hundreds of projects still to go in 'ridiculous' Christchurch roadworks saga. Retrieved from https://www.stuff.co.nz/the-press/business/the-rebuild/101679098/no-end-in-sight-hundreds-of-projects-still-to-go-in-ridiculous-christchurch-roadworks-saga

Rahman, N. A., Shamsuddin, S., & Ghani, I. (2015). What makes people use the street?: Towards a livable urban environment in Kuala Lumpur city centre. *Social and Behavioural Sciences, 170*, 624-632.

Robinson, G. (1998). *Methods and Techniques in Human Geography*. Chichester: John Wiley and Sons.

Rodin, J. (2014). The resilience dividend. New York, Public Affairs.

Sack, R. D. (1997). *Homo Geographicus: A Framework for Action, Awareness, and Moral Concern*. Harrisonburg, VA: John Hopkins University Press.

Selm, M. v., & Jankowski, N. W. (2006). Conducting online surveys. *Quality & Quantity, 40*(3), 435-456.

Strakos, V. & Novak, M. (2015). Satellite boroughs connection. *The International Journal of Transport & Logistics, 15*(1), 1-11.

Te Pūtahi. (2017). Who's missing? Community engagement and participatory design in the use and evolution of place. (Unpublished research).

Ujang, N. (2008). *Place attachment and users perceptions of Kuala Lumpur city centre*: University Putra Malaysia.

Ujang, N. (2010). Place attachment and continuity of urban place identity. *Procedia- Social and Behavioural Sciences, 2*, 62-76.

Wilson, J. (2015). Canterbury places – North and west Christchurch. Te Ara – the Encyclopaedia of New Zealand. Retrieved from http://www.TeAra.govt.nz/en/canterbury-places/page-7

Zhang, W. (2009). Housing, Amenity and Spatial Economic Growth of a Small Open Interregional Economy. In E. P. Hammond, A. D. Noyes and J. T. Nilinghouse (Ed.), *Housing: Socioeconomic, Availability, and Development Issues* (pp. 45-85). New York: Nova Science Publishers.

Appendices

Appendix 1 – Short Questionnaire Used as Sampling Methodology

1) How frequently did you visit the city centre prior to the February 2011 earthquakes?

   Once a day Every other day Once a week Once a month Other

2) How frequently do you visit the city centre currently?

   Once a day Every other day Once a week Once a month Other

3) What would bring you to visiting the city centre?

   Retail Work Restaurants Recreation Other

4) Are there amenities available in the centre city that are not in Hornby/Northwood, and do you have any need for them?

5) Or what other reasons deter you or other people in the community to visit the city centre?

6) Do you feel a connection to the city centre as you do with your local community (for example: memories, sense of belonging, sense of community, place attachment)?

   Yes No Other

   Please explain

7) What is your perspective on the Christchurch city centre?

8) What would you change or suggest to make the city centre more enticing for yourself, friends, family and your community?