emotional infrastructure:

Through time, place and disruption, fostering a culture of care in post-earthquake Christchurch, New Zealand

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Abstract

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This research examines how everyday environments supported healing, grounding, and emotional re-settling for residents of Christchurch, New Zealand, following the 2010 and 2011 earthquakes. It uncovers the ***emotional infrastructure*** of post-earthquake *Ōtautahi*/Christchurch, defined as ***the social and spatial aspects of place that support emotional processing, sense of belonging, and a collective capacity for care***. This conceptual framework is grounded in 16 in-depth qualitative interviews that yielded four key themes: stability, reference, understanding and agency, each emerging from residents' descriptions of their post-earthquake experiences. Together, these four themes assist in the location of self in time and place when disturbance has ruptured attachments and prompted a loss of footing. With application beyond the context of the Christchurch earthquakes, this framework offers insight into processes of "unsettlement" and "re-settlement," and associated emotional needs more broadly. Recognizing that the earthquakes disrupted what could be considered a damaging normal, this research highlights disturbance as a potential opportunity for a re-evaluation of values and priorities, a re-assertion of Indigenous identity, an infusion of creativity and intentionality in city-making, and a sense of shared purpose. Ultimately, this thesis advocates for a process of ***emotional infrastructuring*** that centers on fostering cultures of care, offering insight into the role of design and planning in reconciling the past, welcoming the future, and reframing disturbance as an opportunity for adaptation to a dynamic new normal.


emotional
infrastructure

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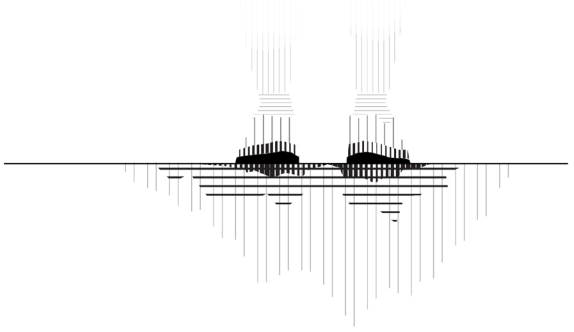
1. PREFACE // a personal connection

Living above a laundromat in Ithaca, New York, I was regularly interrupted by a surge of anxiety as each machine below began its spin cycle, vibrating the floor of my apartment above. This mundane, everyday occurrence brought me back to the familiar shaking of earthquakes and aftershocks that I had experienced in Christchurch, New Zealand, months before, sending my body into high alert for a moment, until my brain could bring me back to the reality of the present. Deeply aware of the vibration under my feet, and still connected to a time when vibration was synonymous with instability, uncertainty and potential danger, the sensory phenomena of my environment was intertwined with my own feelings of comfort, safety, and calm. Noticing this emotional reaction to qualities of my physical environment made me wonder—am I alone? Do others also react this way? What sensory aspects of place can instead bring comfort after a traumatic experience?



1: We first feel architecture with our feet

Bruce Allsopp's (1974) observation that "We first feel architecture with our feet" was particularly resonant for me, as this interface between my body and my environment has played a crucial role in my own experience of place post-earthquake (p. 1). It was here that I began my study: the critical joint between body and place, between people and land.

Days after the devastating 6.3 magnitude earthquake on February 22, 2011, I had spent my 21st birthday with the "Student Army," shoveling the liquefaction that had bubbled to the surface of the streets of Christchurch. The monotone skies that day reflected the somber emotional atmosphere that hung in the air. There was a melancholic beauty in the activity itself—the filling of wheelbarrows with heavy, grey mud, in an assembly line of near-strangers; there was a harmony in the side-by-side effort to slowly reclaim a sense of normalcy and order. In the years since, I have reflected on this moment. Tried to unpack the confusing but undeniable connections between my physical and emotional experiences of place. Tried to sift through ruptured bonds, feelings of instability, lost trust in the earth. Compounded with changing dynamics over time, this already complex seam connecting our physical and emotional relationships with place became more and more intriguing to me. I knew I would be back.

preface

Modern civilization has loosened our contact with the earth, made us less aware of our dependence, which is still entire... But the earth is still under our feet and it is upon the earth that we build architecture... We first feel architecture with our feet.

– Bruce Allsopp (1974) *Towards a Humane Architecture*, p. 1

"What am I supposed to say? What should I tell him? Don't leave me alone in here!" says a young girl to her little brother. They're in an old disconnected telephone booth in Otsuchi Japan, overlooking the Pacific Ocean. It's been five years since the tsunami, and the last time they saw their father. As she cries, she says into the phone: "Dad, I'm so sorry I always used to say you were stinky. What happened to your promise to buy me a violin? Now I'll have to buy one myself. I started tennis in junior high school. I'm not in the top eight. I want to be in the top eight in our last tournament. Please cheer for me." Though it sits in a private garden, the phone is open for anyone to use, and has become a widely adopted source of support for the surrounding community. A repository for memories and a portal to reach lost loved ones, "the wind telephone" is a place of emotional significance and healing, allowing visitors to dial the phone number, the unique signifier of their loved one, and communicate with them as if they were on the other end of the line (Meek, 2016).

As climate change fuels the unsettling forces of disturbance and displacement, there is increasing urgency to create and maintain communities resilient to these forces—communities capable not only of mitigating these hazards, but growing more connected and more caring in their wake. The telephone booth is one example of the many ways in which the built environments of our everyday lives can support processing, healing and re-settling after traumatic disturbance. Through this research, I express the need to better understand these emotional connections with place, in order to identify, value and foster the infrastructure that will support us through upheaval and change.

While social scientists document the psychological, sociological and emotional dimensions of our post-disturbance experience, traditional literature relating to design and planning often focuses on physical dimensions, though some recent frameworks for community resilience have begun to bridge this gap (Freitag, Abramson, Chalana, & Dixon, 2014; Miles, 2015). Still, only a small body of literature attempts to connect the emotional space of disturbance with the design and planning of the built environment. This void reflects a parallel trend in public consciousness; we continue to focus our time, money and attention on physical infrastructure, while overlooking an invisible but equally important dimension: our ***emotional infrastructure***.

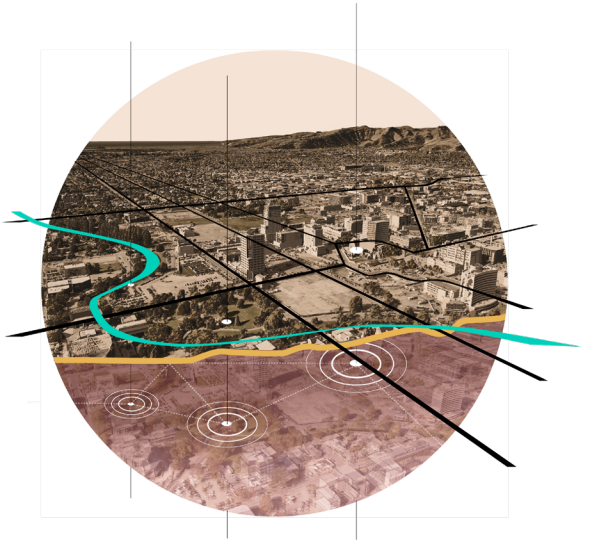
grounding

Everyday activities, familiar patterns of work, schooling and cultural events, memories and heritage values, have all been first dis-placed by the tectonic events, and then progressively re-placed.

—Simon Swaffield (2013) *Place, Culture and Landscape After the Christchurch Earthquake*, p. 23

This project defines emotional infrastructure as: ***the social and spatial aspects of place that support emotional processing, sense of belonging and a collective capacity for care.***

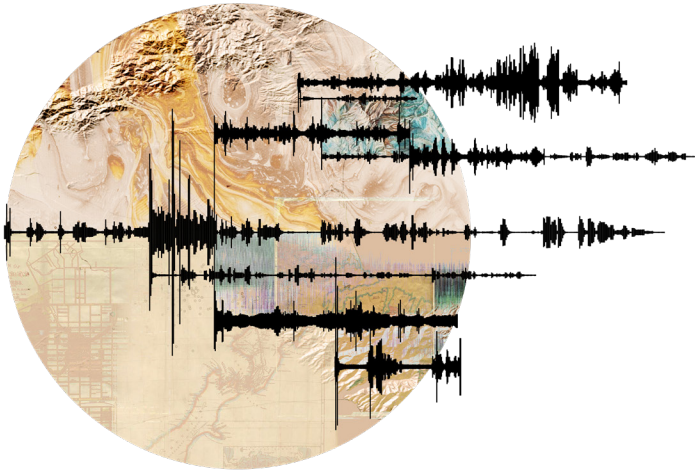
I argue that emotional infrastructure is critical because it helps combat invisibility, vulnerability and uncertainty in the context of place change. Here, ***invisibility*** refers to a bias toward the visible and tangible that has led design and planning to focus heavily on physical infrastructure, while leaving emotion, attachment and meaning on the periphery of decision-making. As a result, in this research I ask: How can we shift our design methods, frameworks and processes to account for these invisible but critical considerations? ***Vulnerability*** refers to oppressive histories, marginalizing systems, and restrictive design and planning processes that have determined who gets a voice in the city and who does not. From global to personal scales, how do we embrace a multiplicity of narratives through time and place to make all feel seen and at home in their city? Finally, ***uncertainty*** refers to more frequent disturbance brought on by climate change, and the associated impacts: losses to physical infrastructure, more climate refugees, and more stress on collective resources. How can we find opportunity in the reality of future disturbance?



invisibility

2: Right: Emotional infrastructure: Why do we need it?

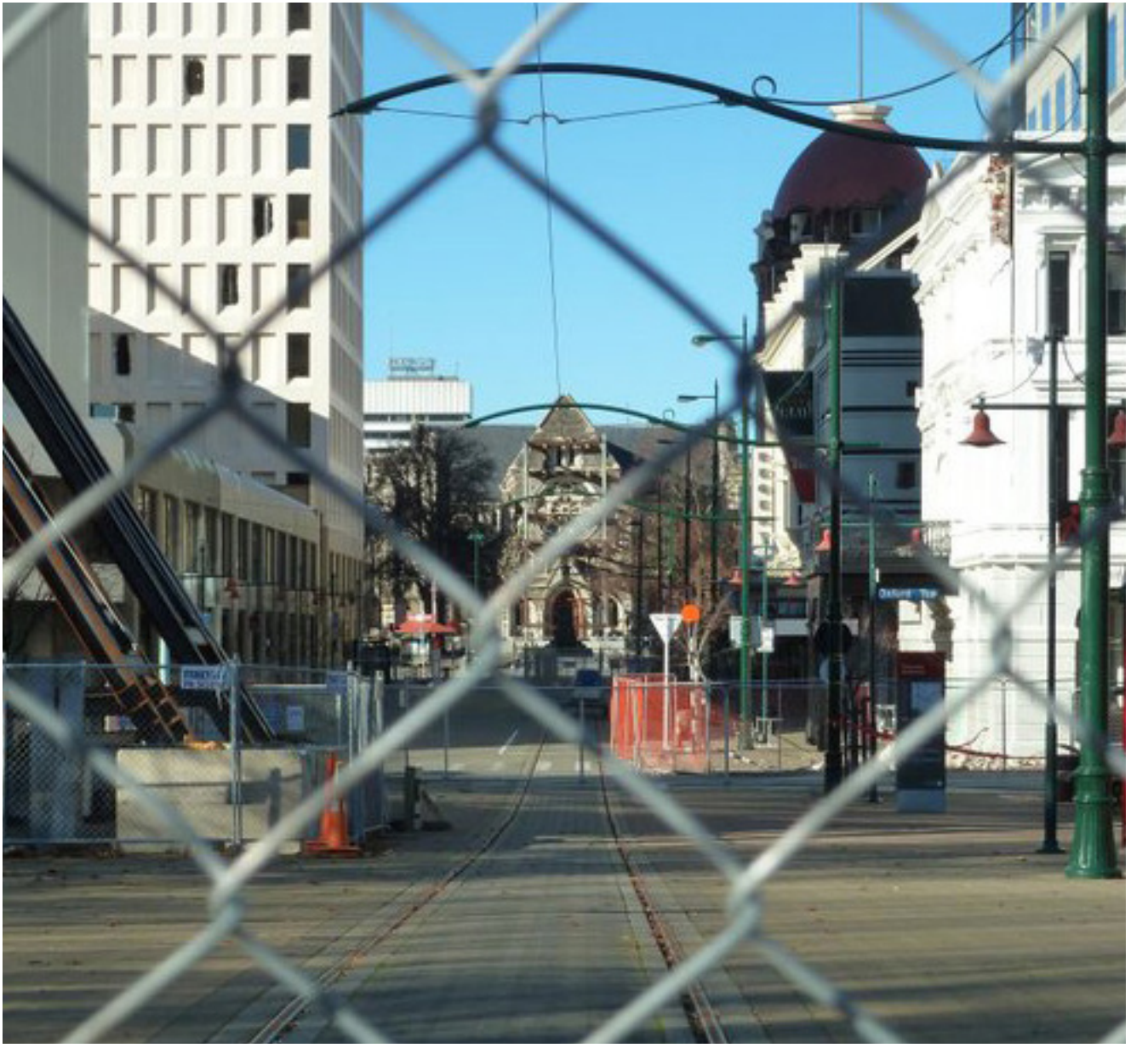
vulnerability



uncertainty

In this qualitative study of emotional infrastructure in the Christchurch context, I explore the role of the built environment in supporting emotional processing and healing after major disruption. In addition to the three overarching questions noted above, this thesis asks: ***How did everyday environments support healing, grounding, and emotional re-settling for residents of Christchurch, New Zealand, in the months and years following the 2010 and 2011 earthquakes?*** After presenting the findings of this study, I explore implications of this research for design and planning in the context of disturbance. ***Can the Christchurch context provide insight into processes of "unsettlement" and "re-settlement" and associated emotional needs more broadly? How can we better understand, value and foster our personal, community and civic emotional infrastructure, to enable adaptation to a dynamic new normal?***

An exploration of these questions requires background on the Christchurch context, as well as more rigorous definition of the language of disturbance: disaster, resilience, recovery, rehabilitation, and emotional infrastructure. Following this clarification and a review of relevant literature, I outline the methods of study, assumptions, and concerns associated with this research. After emotional infrastructure is defined conceptually through research findings, I discuss how it might be fostered in the built environment over time, and how designers and planners might leverage this concept and approach to enhance their work. As a disruption to what many described as an ingenuine, damaging, and oppressive normal, the Christchurch earthquakes also brought an opportunity for a fresh start: a re-evaluation of individual and collective values and priorities; a re-assertion of Indigenous identity, values and culture through formal inclusion in decision-making; an infusion of creativity, innovation, and intentionality in city-making; and a sense of shared purpose. Yet this begs the question: Is an earthquake necessary to disrupt a damaging normal, or can we co-create our own positive disruptions? Can radical investment in reconciliation—seeing and valuing marginalized communities, finally giving preference to buried histories, and releasing power in exchange for partnership—catalyze the growth of long ignored layers of emotional infrastructure, equitably offering support and care through culturally-sensitive processes, plans, designs and naming? The looming likelihood of future disturbance also suggests that, increasingly, climate refugees will be in a similar position of vulnerability and potential marginalization. In adapting to a "new normal" of diversity and disturbance, how can the refugee narrative receive the same care and attention? Ultimately, this thesis argues for intentional preference of marginalized communities in the fostering of emotional infrastructure: in particular, reconciliation and visibility of Indigenous narratives, along with empathy, care, and inclusion of immigrant and refugee narratives, as these groups, in different ways in time and space, have disproportionately borne the burden of "unsettlement." Through the intentional growth of emotional infrastructure, we have the potential to build a collective capacity to care—a culture that reconciles, welcomes and supports diverse communities while nurturing a reciprocal relationship between people and place. This discussion of design with disturbance begins with some background on the disturbance itself: the 2010 and 2011 Christchurch earthquakes.



3: View of the fenced-off Christchurch Cathedral, months after the February 22, 2011 earthquake

The Christchurch Context

The Earthquake Sequence

On September 4, 2010, a 7.1 magnitude earthquake centered on the western suburb of Darfield struck Christchurch, New Zealand, revealing a previously unknown fault (later named the Greendale fault) running through the city. While this initial shake created a great deal of structural damage, no lives were lost. It did, however, lead to ongoing aftershocks throughout the region, one of which was particularly devastating. On February 22, 2011, a 6.3 magnitude earthquake, an aftershock of the Darfield quake six months prior, struck the city of Christchurch around lunch time on a Tuesday, while many were at work in the Central Business District (CBD). With the epicenter of this quake only 15 kilometers below the surface, and centered 10 kilometers from central Christchurch in the nearby town of Lyttleton, the intensity of ground shaking was extreme for an earthquake of its magnitude. In the CBD, the peak ground acceleration, a measurement of the intensity of ground shaking, was over 1.8 g (over 1.8 times the acceleration of gravity), and in some places reached as high as 2.2 g. For reference, in the 7.0 Haiti earthquake, ground shaking was estimated to be 0.5 g. This powerful earthquake in Christchurch brought attention to yet another previously unknown fault, and prompted over 7,300 felt aftershocks within a year (Miles et al., 2014).

Out of the 185 deaths from the February quake, 135 occurred in only two structurally-flawed buildings in the central business district: the CTV (Canterbury Television) and PGC (Pyne Gould Corporation) buildings. Around 1000 buildings were demolished in the earthquake, including 110 out of 220 total buildings of five stories or more, mostly located within the CBD (Miles et al., 2014). Many homes were damaged or destroyed, leading to multi-year struggles between homeowners and insurance companies. Due to landslides, subsidence and liquefaction, areas of the city have been “red zoned,” as the city has banned rebuilding in those areas of highest risk for future disturbance, or where provision of basic infrastructure has been deemed economically unfeasible. The “residential red zone” is a 600-hectare area where approximately 7,000 homes along the Avon River once stood. The city has outlawed new construction, and offered to buy homes from those currently living there. This has been a complex transition, as families grapple with the reality of leaving their longtime homes or staying as their neighbors leave properties around them. As of 2018, there were only 25 privately-

owned properties remaining in the residential red zone, some of which were vacant (Gates, 2018).

Emotional Impacts

In addition to physical injury, the ongoing disruption of the Christchurch earthquakes resulted in serious psychological impacts for residents, including PTSD, fear, stress and anxiety, depression and sleep disturbance (Rowney, Farvid, & Sibley, 2014). Mass injury, death, destruction and proximity to the epicenter of an earthquake have been found to increase likelihood of negative mental health outcomes post-earthquake, with studies finding higher levels of PTSD in those closest to the center of the quake (Shultz et al., 2011; Kiliç & Ulusoy, 2003; Bonanno et al., 2010; Suar, Mandal & Khuntia, 2002 in Rowney, Farvid, & Sibley, 2014). The aftershocks that follow a major earthquake, like those following the February 22nd Christchurch earthquake, bring back memories of the initial shake, inducing fear and anxiety (Bödvarsdóttir & Elklit, 2004; Verela et al., 2008 in Rowney, Farvid, & Sibley, 2014). Surveys of Christchurch residents showed that the rippling effects of the earthquakes resulted in further emotional damage, as people reported distress from aftershocks, loss of facilities, insurance battles, and decisions relating to “damage, repairs and relocation” (Potter, Becker, Johnston,

4: Piles of rubble in the earthquake aftermath

5: Signs of a cul-de-sac in the residential red zone

& Rossiter, 2015, p. 5). While residents reported increased work-related stress as a result of the earthquakes, they also reported positive emotional responses, including: “pride in their ability to cope, increased resilience, a renewed appreciation of life, and a heightened sense of community” (p. 6). The earthquakes also had differential impacts based on demographics. The strong response of Māori communities post-disturbance “emphasized the resilience of Māori cultural values and skills,” something that will be discussed more in later sections (p. 6). Like the wider Christchurch population, refugees reported feeling anxiety, hyper-vigilance and helplessness (p. 6). Groups reporting higher levels of anxiety included: females, couples with children, and older adults.

Recovery

The Canterbury Earthquake Recovery Authority, or CERA, was established in March of 2011 to oversee recovery efforts in Christchurch, and engage the community in determining the direction of Christchurch’s future. With the “Share an Idea” campaign, CERA collected nearly 106,000 ideas from the public that were used to inform the draft Central City Plan (“Share an Idea,” n.d.). In July, the city hosted the 48 Hour Design Challenge at Lincoln University, bringing together urban designers, planners, engineers, architects, landscape architects, and students, for 15 total teams of 7 people. Wanting to rebuild with intentionality, government agencies conducted thorough and extended planning processes as the city remained eerily untouched. With feedback from the design community as well as the wider public, the city produced the Recovery Strategy for Greater Christchurch, Greater Christchurch Transport Statement, Christchurch Central Recovery Plan, and Christchurch City Health and Wellbeing Profile in 2012 (Resilient Greater Christchurch Plan, 2016). Recognizing the need for short-term services and amenities, organizations like Gap Filler, Greening the Rubble and Life in Vacant Spaces emerged, implementing primarily small scale, temporary projects to infuse opportunity into the city again. These temporary projects, like the RE:START shopping mall, were so beloved that communities often worked to keep them going beyond their initially-intended lifespan. Bringing whimsy, activity, and opportunities for interaction into the city fabric provided a refuge from the heavy emotional weight of post-earthquake everyday reality.

photo by: Yutong Hu

6: Temporary projects bringing whimsy into the everyday

Māori, the Indigenous peoples of New Zealand, were praised for the effectiveness and efficiency of their on-the-ground response and recovery efforts after the earthquakes. Sir Mark Solomon, Chairman of the *Te Rūnanga o Ngāi Tahu* Board, and a leader within the *Ngāi Tahu iwi*, or tribe, described the reaction of other local government leaders to the level of commitment and care brought by Māori communities to the recovery process (see Appendix A for a glossary for Māori terms used throughout this thesis). He quotes Gerry Brownlee, Minister of Earthquake Recovery, saying, "I've gone down to the eastern suburbs and just stood around one of the water tankers. What I've heard out there about what Māori have done, has damned well shamed me, it's been that big" (Kenney & Phibbs, 2015, p. 51). Christchurch Mayor Lianne Dalziel echoes: "The Māori response... should be seen as a template for the future, with a door-to-door approach that identified need from a holistic perspective of health and wellbeing—physical, mental and spiritual." This response was guided by the value *aroha nui ki te tangata*, extend love to all people. Communication networks included *iwi* from outside of Christchurch, helping to convey information through texting trees. *Kanohi ki te kanohi*, or face to face engagement, was another Māori cultural practice brought into the recovery context, as people went door to door in

some of the most impacted suburban areas, to learn firsthand about what people needed (p. 51).

Despite the effectiveness of this values-driven approach, Māori are not well represented on disaster response and planning boards, creating "barriers to the inclusion of Māori perspectives, capacity and capability in emergency response initiatives" (Kenney & Phibbs, 2015, p. 52). This is a flaw of citywide planning that should be given serious consideration, as "The knowledge, values and cultural practices embedded within effective Māori disaster frameworks may innovate and enhance formal disaster management strategies and response mechanisms" (p. 46-47). Like our Indigenous communities in the United States, however, "Māori communities are more likely to experience poverty and disadvantage, deprivation is identified as a key underlying risk factor for exposure to hazard events and for the erosion of resilience in the post disaster period" (p. 52). Therefore, while the Māori earthquake response was applauded, it cannot be romanticized, or seen in a vacuum, separate from the marginalization and discrimination that Māori and other people of color have experienced and adapted to, out of necessity, over time. Colonial impacts on Māori Architecture, for instance, produced "an almost subversive creativity in design—designing new ways to cope" (Matunga, 2018, p. 306). Oppressed communities that have persisted despite multi-generational trauma have developed strategies for coping and resilience. Accepting the support and creativity of these communities throughout the response and recovery process must be accompanied with an acknowledgement of the human-inflicted adversity that necessitated the growth of that resilience, and a commitment to righting those wrongs.

Memorialization

Memorialization of the Christchurch earthquakes has taken many forms—from flowers placed in road cones and notes of support stuck in chainlink fences to an international design competition and construction of a formal memorial along the Avon River. Exactly one year after the February 22nd earthquake, a temporary memorial opened by local artist Peter Majendie (Ochsner, 2016). Using 185 empty white painted chairs—each representing a life lost in the earthquake—it provides a solemn reminder of the earthquake's toll. The memorial was originally located on the site of the Oxford Terrace Baptist Church, and then moved to a site across from the former CTV building. Majendie has proposed to make it a permanent memorial, but families of the victims have rejected its chosen

photo by: Yutong Hu

7: Peter Majendie's temporary memorial, accompanied by the statement "this installation is temporary, as is life."

photo by: Yutong Hu

8: Cardboard Cathedral exterior, Shigeru Ban

9: Positive post-earthquake expression and response

photo by: Yutong Hu

10: Cardboard Cathedral interior, Shigeru Ban

location: the CTV site (Matthews, 2017). In 2017, Stuff.co.nz reported on the future uncertainty of this memorial, and online public comments convey the inherent conflict encountered through the process of public memorialization: we all want to remember in our own way. Some comments express love for the memorial, passionately advocating for its permanent place in the public memory of Christchurch, while others ask that they not be forced to regularly confront the trauma of February 22nd—something this memorial asks them to do.

Following the February 22nd Christchurch earthquake, Japanese authorities sent a search and rescue team to Christchurch to aid in search efforts of the collapsed CTV building, where some Japanese students had been attending a language school (Barrie, 2014). The team had to return home due to a devastating earthquake, tsunami, and nuclear emergency in the Tohoku region of Japan on March 11th, less than three weeks after Christchurch's earthquake. Sharing in the traumatic experience of these extreme events, the two regions became connected. Shigeru Ban, a Japanese architect known for his "emergency architecture," offered pro-bono services to design a temporary cathedral for Christchurch, as the city's icon had been severely damaged in the earthquake. Lightweight and made of pre-fabricated components, Ban's "Cardboard Cathedral" as it became known, was designed for quick and simple construction. Although it took longer than expected to construct (almost two

years), the Cardboard Cathedral was the first major civic building constructed during the earthquake rebuilding process; “Ban’s project serves as a reminder not only of the way that Japan and New Zealand were united in loss, but also of the potential that may yet be unlocked in the common task of rebuilding” (Barrie, 2014).

Complex overlapping layers of meaning and memory live on in the two sites where the most loss of life occurred, each named after the building that once stood there: the CTV and PGC sites. After the earthquake, the physical rubble on each site was a heavy reminder of the emotional toll of loss experienced in that place. In clearing a site of its memories, there is the potential to lose authenticity and genuine connection—to repress grieving processes that are fundamental to healing. “Resisting the impulse to beautify the sites, and recognising the need to accommodate sadness and grief, is a means of avoiding a sense of distancing, indifference or erasure. Designing a site to become generically beautiful threatens the loss of its history, its memories, its emotional terrain.” (Bowring, 2017, p. 119). Following the earthquake, there was a push to clean up the rubble—perhaps motivated by desires for a safe urban environment, and perhaps stemming from an expectation of order. The PGC site was cleaned and covered in grass. The CTV site was cleared except for the building foundations and parking lot. Interestingly, the numbered parking spaces here served as links to memories, and the

11: CTV site memories preserved through parking spaces

photo by: Peter Samuels

12: Canterbury Earthquake Memorial

individuals represented by those numbers; one person recalled the everyday event of arriving at work in the morning, nostalgically brought back to a memory of "normal" life. "This most functional of urban spaces became a means of tethering the sites to their place in the city and to their associations and memories," Bowring writes, arguing that leaving sites to be overgrown and taken over by vegetation is not neglect, but a true expression of care (p. 128). Viewing the earthquake as a "reminder of the need for our humility," and a powerful expression of the "potent agency of landscape" highlights the importance of disturbance as a catalyst for re-evaluating the way we design, plan, inhabit and connect with sites of emotion and attachment (p. 123).

Leaving time for public input about how people would like to remember, the city opened an international design competition for a permanent memorial. The memorial site—both banks of the Ōtākaro/Avon River within the center city and adjacent Hagley Park—was chosen for its ease of access combined with its quiet, restorative atmosphere. Out of over 300 entries from around the world, six were shortlisted, and displayed for public feedback. In a documentary video describing this process, the competition judges discuss the range of submission ideas, the challenges, and the weight of responsibility they felt to accommodate the emotional needs of the public with the winning design. While they were looking for a powerful idea, they also acknowledged the need to avoid an idea that is too raw, as to bring back the trauma of the earthquakes rather than healing. They acknowledge that a single memorial cannot possibly accommodate the different ways that each person wants to remember the events—that there must be many ways of memorializing and remembering. At its public opening, the memorial was dedicated: "This is a national place of remembrance. I want to reassure the families that today, as a country, we set aside this place in honor of those you lost, and as a thanks for the service and sacrifice of those who helped. This is also an international memorial. A touchstone for those of other nations who suffered with us and served beside us" ("Oi Manawa: Canterbury Earthquake Memorial," n.d.). From the stone supplier to the civil engineers, many people on the design and construction teams expressed the personal significance of the project to them, and their own feelings of responsibility to do the job justice.

An important part of the Canterbury Earthquake Memorial is the *pounamu*, or greenstone, a gift of

the *Te Rūnanga o Makaawhio* (of the *Ngāi Tahu iwi*), which is located at the memorial's entrance. This stone reflects a Māori tradition of locating *pounamu* at important thresholds: "the ritual of touching the stone connects visitors and locals back to the land and all those who have been there before us" ("Oi Manawa: Canterbury Earthquake Memorial," n.d.). Intended to change with its environment, the stone acts as a connection to time and place. "Sunlight will warm and rain will wash the *pounamu*, and its appearance will change. It will remain a tangible and beautiful reminder of the deep connection between the land and its people" ("Oi Manawa: Canterbury Earthquake Memorial," n.d.). This Indigenous connection between people and land offers one example for understanding how people of varying cultural backgrounds might differentially adapt in the face of these environmental shocks and stresses. When the land under our feet becomes physically and metaphorically unstable, having a strong foundation upon which to place our values and our trust becomes critical.

13: Canterbury Earthquake Memorial *pounamu* (greenstone)

Indigenous History

Present relationships with land are deeply rooted in overlapping political, economic, and cultural layers of history. The native peoples of New Zealand, the Māori, are believed to have first arrived by canoe to the island around 1300 AD from East Polynesia (Irwin & Walrond, 2005). A Māori worldview is founded on the creation of people from the earth—from the separation of the earth mother, Papatūānuku, and sky father, Ranginui. This understood connection between humans and the earth is not restricted to Māori, and many Indigenous cultures have used an understanding of

ecological design to live with the land, rather than from it. This is illustrated through the propagation of plant species by the Yanomami of the Amazon rainforest to increase biodiversity, the improvement of soil and water quality through aquaculture and rice terracing by the Balinese, and the use of oral storytelling to pass down place-based ecological knowledge in the lands of Australian aborigines (Van der Ryn & Cowan, 1995). However, through violence of imperialism, the taking of Indigenous lands, and erasure of culture, Indigenous attachments to place have been repeatedly disrupted. "Indigenous communities share a deep ancestral attachment to their places, communities, lands and territories. This attachment that predates colonisation has weathered the violence of the colonial encounter and continues to deal with colonialism's legacy" (Matunga, 2018, p. 307-308). This legacy of colonial impact on people and place is referenced throughout this study, contributing to discussion of future-oriented resilience and reconciliation.

Further, through processes of colonization, commodification and commercialization, "settling" has also brought a new understanding of land not as our foundation, but as our resource to be exploited. As populations grow and countries rapidly urbanize, land is distilled into its component parts that may be used: timber, agriculture, tourism, energy, and so forth. In commodifying landscapes, we have, over time, lost this inherent connection to the land under our feet, no longer holding responsibility to care for the land that has given us life and continues to support us. Increasingly, more frequent and severe events brought on by climate change threaten personal connections to place. Our continued human contributions to this damaging trajectory indicate a problem that is exacerbated by (mis)understanding of our relationship with the land under our feet and around us. As private industry profits while we collectively share negative impacts like pollution, global warming and sea level rise, we face a critical juncture that requires re-evaluating our worldview as it relates to the land under our feet. The potential effects of climate change, rising prevalence of extreme events, and growing displacement from homelands necessitates a radical re-evaluation of the values, principles and frameworks that underpin the way we live in the world, and the way we develop cities to support those lifestyles.

I begin this research by defining terminology, articulating assumptions, and highlighting the need for researchers to explore emotional relationships between people and place in the context of disturbance and displacement. A review of relevant

literature positions emotional infrastructure within existing research and theory on disaster, resilience, attachment, infrastructure, care, and city-(re)making. I then describe the use of authentic listening as a method, founded on dialogue as a necessary tool for understanding—for not only providing explanation, but revealing the true questions themselves. Outlining how participants were recruited, interviews conducted, and findings interpreted, I argue for the value of intuition in guiding research processes. Learning from the lived experience of Christchurch residents post-earthquake, this research then unpacks what people sought in their social and spatial environments for healing and re-settling after emotional turbulence. Interview findings are then analyzed for common themes, as well as difference, conflict and tension in experience and attachment, to discuss contextual factors that influence subjective meanings of emotional infrastructure. The impacts of worldviews, values, colonizing histories, exclusive processes, caring communities, individual agency, and physical access are all discussed in relation to research findings, to shape a conceptual foundation for emotional infrastructure. Finally, I identify how authentic listening can also inform design and planning processes, fostering emotional infrastructure in the built environment to reconcile colonial legacies, embrace needs for care in the present, and welcome new layers of diversity in the future. Recognizing the potential for disturbance to disrupt a damaging normal, this research urges designers and planners to seize these opportunities for adaptation to an inevitable new normal of diversity and disturbance.

Recognizing the inherent interdisciplinary nature of people/place relationships in the context of disturbance, this research draws from diverse fields of study: from design and planning to environmental psychology to ontology. Beginning with a re-evaluation of traditional "disaster" planning and resilience frameworks, I discuss the work of psychologists, sociologists and geographers in documenting the dynamics of emotion, in both individual and shared contexts. I highlight the importance of scale, with discussion ranging from the planning of entire cities down to the embodied experience of place, referencing the concept of "emotional ecosystems" (Fullilove, 2004) as an existing theoretical framework articulating these interconnected, overlapping relationships. Finally, defining both "care" (Puig de la Bellacasa, 2017) and "infrastructuring" (Dantec & DiSalvo, 2013) based on existing theory, I propose the emotional infrastructure of care as a framework that transcends scales, acknowledges reciprocal relationships between people and place, and offers a useful conceptual foundation for designing with disturbance.

Ditching "Disaster," Defining Disturbance

As images of smoky fires, swirling storms and submerged neighborhoods fill our media, we are bombarded with reminders of mother nature's powerful presence, and the lived realities of anthropogenic climate change. Yet from the safety of our living room screens, it becomes another piece of news, added to the pile, easily forgotten. "Disasters" become a part of our normal lives, both feared and forgotten, while looming at a distance. As the word "disaster" conjures up these apocalyptic scenes, we must ask: what does it truly mean? What is "disaster," and what can we do about it?

A few seminal works have guided the field of disaster planning, beginning with White and Haas's 1975 assessment of natural hazards, and followed up with Disasters by Design (1999). In the latter, editor Thomas Mileti compiles the expertise of 140 researchers into this interdisciplinary document that discusses sustainable development, disaster recovery and mitigation. This "landmark contribution" to the field promotes the importance of sustainable development in the context of natural hazards, laying the foundation for current understanding of design and planning for disaster. (Afedzie & McEntire, 2010). More recently, in 2000, the passing

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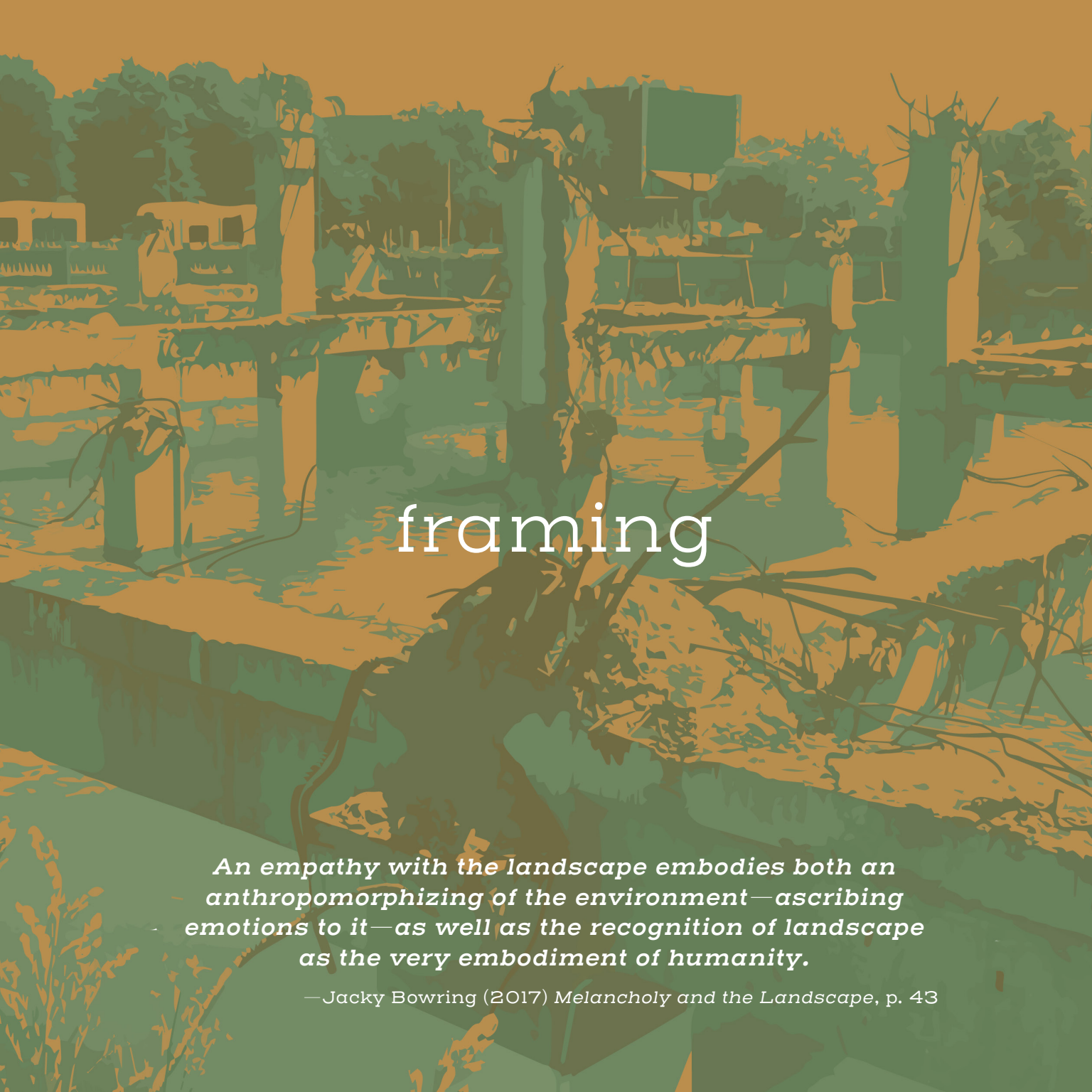


framing

An empathy with the landscape embodies both an anthropomorphizing of the environment—ascribing emotions to it—as well as the recognition of landscape as the very embodiment of humanity.

—Jacky Bowring (2017) *Melancholy and the Landscape*, p. 43

of the Disaster Mitigation Act (DMA) brought hazard mitigation to the forefront, and the language of "disaster" into public consciousness. It used financial incentives to "prevent losses by building more resilient communities" (Schwab, 2010, p. 15). Defined as "sustained actions to reduce or eliminate the long-term risks to people and property from hazards," mitigation implies a potential to proactively diminish negative impacts of an event. It "builds community resilience and community sustainability," thus also suggesting agency, a power to influence impacts of a hazard (Schwab, 2010, p. iii). While the connotation of "disaster" is something that happens to us, "mitigation" offers an avenue through which we ourselves can take control. This concept illuminates the important distinction between the event itself—in hazard mitigation planning known as the "change"—as opposed to the "impacts" on a community.

"Disaster" is a dangerous concept because with it comes connotations of a lack of agency; it seems to conflate change with impact—heavy rains with flooded homes, ground shaking with fallen buildings, tropical storms with lost power. Undeniably, floods, earthquakes, hurricanes and the like have had horrific impacts on communities around the world, but reducing these impacts in the future requires careful distinction between what we can control and what we cannot. Merging change with impacts using the single word "disaster" overlooks our power to control the way we inhabit the world, and therefore obscures our ability to see how we might be able to live with disturbance—how we might even be able to find opportunity in disturbance, using it as a foundation for new growth toward a more desired future. Therefore, for the remainder of this document, "disturbance" will be used in reference to these forces of environmental change.

Integrating the Physical, Social & Emotional

Along with this conflation of change and impact is another tradition of design and planning that limits our thinking in relation to disturbance: a focus on physical infrastructure. As we build walls, dikes and dams to keep the unwanted at bay, we overestimate the power of purely engineered solutions while underestimating the potential of what we already have—the immense collaborative power of people, when connection, ingenuity, community and compassion are harnessed. *Disasters by Design* acknowledges the need for interdisciplinary collaboration, while alluding to the invisible impacts of disturbance within our social and emotional

realms. Yet in the chapter dedicated to the losses, costs and impacts, the economic perspective takes priority, as numbered deaths, injuries and monetary losses are the focus, with only a brief reference to the "hidden cost of trauma" (Mileti, 1999). While this book offered a forward-thinking perspective for its time, these vague allusions to emotional dimensions of disturbance are left as such, never earning the critical consideration they deserve. While some planning frameworks have begun to integrate these invisible considerations, clarification and careful definition is necessary to situate post-earthquake Christchurch in its physical, social and emotional context.

Terms like "recovery, "reconstruction," "rebuilding," and "rehabilitation" hold different meanings in different contexts, and reference distinct post-disturbance priorities. The idea that the city is "capable of being collectively wounded and of responding as such"—a metaphor which implies harm to the collective wellbeing of a particular place, references the need for post-disturbance processes to include a form of emotional healing. (Schneider & Susser, 2003, p. 1). Yet physical, built capital is often the focus of reconstruction and recovery processes, shaping a particular framework for understanding disturbance. Research into social vulnerability, social uncertainty and social capital in the context of rural post-earthquake Azerbaijan illuminated the tendency of those with power to focus on physical recovery before emotional rehabilitation: "Rebuilding of houses and infrastructures was a main precondition for the reconstruction of the other spheres of post-disaster recovery. Delays in the process of rebuilding led to delays in social, psychological, and economic aspects of recovery" (Alipour et al., 2015, p. 700). Emphasizing this distinction between physical reconstruction and emotional rehabilitation, the authors propose that recovery should be prolonged and continuous, and that "rehabilitation should precede reconstruction" (p. 701). This tension regarding recovery is echoed in its description as both a "physical outcome" and a "social process" (Mileti, 1999, p. 230). This research embraces these aspects of recovery and rehabilitation while questioning definitions that reference a return to a "normal" or "pre-disaster" state. For example, recovery is also defined as the "short-term activities to restore vital support systems and long-term activities to return life to normal" (Mileti, 1999, p. 23). This idealization of a pre-disturbance state and setting of an unattainable goal are both counter-productive; post-disturbance processes should be framed instead around adaptation and shaping a desired future, not returning to what was. Even

after communities have shelter, power, and running water, often the emotional work of restoring a sense of place and agency lies ahead; therefore "recovery has no clear end point," and should be defined more by its progression in a positive direction than by a specific outcome (Whittle, Walker, Medd, & Mort, 2012, p. 68). A better definition of recovery focuses on "coping positively with a disaster, progressing toward a situation that has psychosocially and physically changed" (Mooney et al., 2011, p. 27). Distinct from a prior state, recovery is here defined as a complex process "encompassing cultural, psychological, social, economic, and physical... dimensions that are part of the regeneration of a community which has experienced adversity" (2011, p. 28). This research asserts that the process of recovery assumes change and adaptation not toward a pre-disturbance state, but toward greater stability, connection, comfort and support, encompassing political, economic, physical, social, and emotional dimensions. Yet the word "resilience," referenced in the Disaster Mitigation Act, also offers a potential integration of these physical, social and emotional dimensions in the context of design and planning for disturbance.

Resilience

As this research unpacks what it means to design with disturbance, considering emotion and meaning in tandem with physical adaptation, resilience is a key concept underlying the thesis of emotional infrastructure. Though "resilience" has become a buzzword in design and planning recently, it finds its basis in ecology. It was introduced in 1973 by ecologist C.S. Holling, who outlined the concept in comparison to stability, defining it as: "a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables" (Holling, 1973, p. 14). The translation of this concept into socio-spatial contexts has been less rigorous, and acceptance of the word in its ill-defined form has limited the thinking of designers and planners in approaches to designing for disturbance. What makes a place resilient? What makes people resilient?

Unpacking Resilience

While it is generally understood to be a positive quality, the word "resilience" sees many different definitions. Some consider it a "capacity to absorb severe shock and return to a desired state following a disaster" (Godschalk, Rose, Mittler, Porter, & West, 2009). "Resilient by Design," a competition for

innovative design approaches in the San Francisco Bay Area, defines resilience in this context as "the capacity of individuals, communities, institutions, businesses, and systems within the Bay Area to survive, adapt, and grow as the challenges of climate change, natural disasters, and a growing population impact our outdated infrastructure and environment." The competition's founders impress the importance of a multidisciplinary approach, pointing out connections with wealth, social dynamics, housing and justice, and the need for collaboration to generate creative solutions ("Resilient by Design | Bay Area Challenge," 2017). Another definition refers to resilience as the "capacity of a community to absorb change from an event and retain its identity while reorganizing to provide goods and services necessary for quality of life" (Walker & Salt, 2012, as cited in Freitag, Abramson, Chalana, & Dixon, 2014, p. 326). These three definitions from design and planning contain a range of concepts, each focusing on capacity to deal with change: the capacity to absorb shock and return to a desired state (though this "return" can be seen as problematic for the same reasons described earlier regarding "recovery" to a prior state); the capacity to survive, adapt and grow in the face of challenges; and the capacity to absorb change while retaining identity and quality of life. Given this lack of consensus about what the word means, it is clear that more work is necessary to deepen and clarify how we understand resilience in a socio-spatial context, and look for common ground in various definitions and applications. This shortcoming has been articulated and explored in past scholarship. Comparing 25 different scholarly definitions of urban resilience, for example, Meerow, Newell & Stults (2016) propose a definition that addresses the six primary conflicts/tensions they identified: "Urban resilience refers to the ability of an urban system—and all its constituent socio-ecological and socio-technical networks across temporal and spatial scales—to maintain or rapidly return to desired functions in the face of a disturbance, to adapt to change, and to quickly transform systems that limit current or future adaptive capacity" (p. 39). This definition offers perhaps the most useful foundation for enriching our understanding of resilience to bolster its utility as a basis for design and planning with disturbance. Even so, this thesis argues for a greater presence of the emotional when defining resilience.

Community Resilience Planning Frameworks

This thesis presents two planning frameworks, based on an understanding of resilience not as a

capacity to return to a certain state, but as a more nuanced concept shaped by existing assets and identity. These two frameworks, Building Back Better and Whole Community Resilience, bring together the physical, social and emotional to offer a more holistic picture of what it means to plan for resilience.

Building Back Better (BBB) is a framework for resilience that addresses the unique opportunity for improvement presented by disturbance (Miles et al., 2014). In this framework, resilience does not simply refer to an ability to return to a pre-disaster state; instead, it argues for incentivizing planners, designers, utility companies, city authorities, and others to realize opportunities for what could be, rather than replacing what was. Land use planning is identified as "the most important tool for ensuring future seismic safety and promoting BBB" (p. 4). In Christchurch, the city purchased over 5,000 residential properties along the Ōtākaro/Avon River in areas prone to liquefaction and earthquake damage, and then created a flexible new land use designation to apply to this area: the "Special Purpose Zone." This is one potential example of Building Back Better taking on the form of new policies and regulations that facilitate creative land use overlays to grow the adaptive capacity of future development. Another example in the Christchurch context is the Stronger Christchurch Infrastructure Rebuild Team (SCIRT), whose mission was to create "resilient infrastructure that gives people security and confidence in the future of Christchurch" (p. 14). After originally taking a damage-based approach to infrastructure replacement, SCIRT revised their strategy to Build Back Better, adopting a service-based approach instead. In this way, they worked to provide better services efficiently, rather than replacing damaged infrastructure with its functioning equivalent. Miles (2015) builds on this idea, proposing four primary components—well-being, identity, services and capitals, or WISC—as a framework for community resilience. These four components, none of which relate to an entirely physical consideration, acknowledge the importance of the social and the emotional in fostering adaptive capacity and building back better than before.

Whole Community Resilience offers an asset-based approach to community resilience, again promoting resilience as an interdisciplinary concept, shaped by an inventory of community assets, rather than vulnerabilities (Freitag et al., 2014). This framework explicitly addresses the unfortunate tendency to plan for the return to a pre-disturbance state: "Conventional disaster planning views

the mitigation–preparation–response–recovery sequence in linear terms, dependent on an ability to predict events and their impacts, largely to preserve or restore pre-event conditions" (p. 325). This asset-based approach emphasizes the shortcomings of resilience planning that is framed around vulnerability reduction, as perpetuated by the U.S. Federal Emergency Management Agency (FEMA): "Communities increasing their indebtedness in pursuit of bouncing back to a historic normal, replacing lost infrastructure, and complying with higher FEMA standards may be less resilient: less able to recover when these assets are destroyed in future disasters" (p. 334). Here, resilience planning is instead framed around the cultivation of adaptive capacity—the ability to evolve toward a new normal in the face of disturbance. Adaptive capacity is defined as "the ability to respond to a disruption by adjusting to a new normal and to build back better, whereas communities define 'better' according to their cultural and social values as well as principles of sustainability" (Chan et al., 2012; Millennium Ecosystem Assessment, 2005, as cited in Freitag, Abramson, Chalana, & Dixon, 2014, p. 325). Earthquakes, however, offer a particularly challenging context because their characteristics make adaptation difficult: "they are relatively rare, have short warning times and high consequences, and do not occur in well-defined areas" (p. 325). Even so, it is more difficult for communities to plan for adaptive capacity before an earthquake when they focus on vulnerability and the physical impacts of disturbance—when their process "ignores nonmaterial social and cultural capital and values as well as related ecosystem services" (p. 325). Here, the utility of emotional infrastructure as a concept is implied; while discussing a potential disturbance can be intimidating, it becomes dissectible, comprehensible and approachable when framed around emotional well-being. Infrastructure, as well, is something built and maintained over long time scales, making its cultivation achievable rather than daunting.

Building Back Better and Whole Community Resilience help evolve the utility of resilience as a concept by explicitly recognizing the agency of individuals and communities to act in ways supportive of the futures they want, and reinforcing the premise of emotional infrastructure: that the spatial design of our built environments cannot be isolated from the dynamic relationships between people and place that shape identity, wellbeing, social cohesion, place meaning and emotion.

Interdisciplinary, Multi-scalar Evolution of Resilience

The important and complex task of defining resilience begins with recognition of its inherently transdisciplinary nature, as well as the necessary traversing of individual, community, and global scales. Ecologists have framed resilience in relation to ecological systems undergoing environmental change, clinical psychologists have discussed individual resilience to trauma, and planners have developed frameworks for community resilience. Each of these varied forms of resilience is built on a pretense that there are attachments to be disrupted in the first place. Place attachments are active and dynamic components of the intangible web of relationships between people and place that is shaped and supported by emotional infrastructure. Recognizing that place attachments can be both intimately personal and collectively shared suggests the presence of, and need for, personal, community and civic emotional infrastructure. These resilience frameworks support the idea of civic emotional infrastructure; that planning for resilience can bring together collective values, assets and desires for the future to support community adaptation in the context of disturbance and change. However, further discussion is required to understand how other scales of emotional infrastructure might inform a more nuanced approach to resilience. Thus, a deeper understanding of social science research and theory is necessary to build an understanding of emotion, trauma, and attachment, before discussing resilience in the context of individuals, communities and cities experiencing upheaval and change.

Understanding Emotion

Psychologists, sociologists and geographers offer varied perspectives of how individuals and communities experience change to their environments, enriching the way we understand complex dynamics of disturbance. Social science offers a valuable complement to the practical concerns of planners, architects and engineers when considering how we might adapt our built environments over time. Here, we will discuss impacts to individuals and communities, as seen through various social science disciplines, after which we will return to the concept of resilience with a deeper understanding of the attachments, values and impacts implicitly assumed within the concept of resilience.

The Personal

Place attachment, a concept deriving from the field of environmental psychology, provides an important frame for understanding post-disturbance emotional

dynamics. While it was first introduced by Altman and Low (1992) as an affective bond between people and place, the discourse around place attachment has evolved toward a rich plurality of interpretations and understandings. Our attachments to place form a complex relational web of meaning, reflecting the dynamism and multiplicity that underlies our personal, emotional connections to the places of our lives (Manzo, 2003). A misguided reflex assumes attachment to be positive, which tends to "perpetuate a normative approach to place attachments and obscure the crucial distinction between house and home, which uncouples the residence from exclusively positive affect" (Manzo 2014, p. 179). Challenging an apolitical, romanticized notion of place attachment as purely positive, Manzo points out that attachments to place, particularly to the home, "can involve a dynamic tension between phenomena such as belonging and exclusion, and positive and negative affect" (p. 178). This complex relationship to place is embodied in the post-earthquake experience—the simultaneous workings of love, identity and connectedness, alongside and intertwined with fear, trauma and isolation. In the context of post-hurricane Katrina, Morrice (2013) found that evacuees held onto a strong desire to return to New Orleans—relating to "their nostalgic connection to the city and idealistic perception of returning 'home', to a place of safety and familiarity" (p. 38). Again, this research references the pre-disturbance state as an ideal, yet impossible, end point for recovery, the deep intertwining of physical and emotional connections to place, and the tensions encountered as a result of place change. While Manzo discusses place attachment largely in the context of public housing redevelopment, there are useful connections to a post-earthquake context. For example, the importance of stability offered through one's relationship with place (despite how outwardly "distressed" it may appear), as well as the importance of social support networks. Similarly, the post-earthquake context offers "a critical counter-narrative to the rhetoric of distress," as the tragic event also brought with it acts of generosity, supportive participation, playful and creative expressions of place identity, and an awareness of shared experience (p. 182). These behaviors suggest what we know implicitly—that personal place attachments exist within a larger relational context that includes community connections and place attachments.

The Collective

Understanding place attachment in the context of the collective helps identify what emotional infrastructure means at multiple scales, and

articulate how cities and communities can adapt to place change. In the context of community social and emotional connections, "theory on place attachments and meaning... can help us understand how particular preferences, perceptions, and emotional connections to place relate to community social cohesion, organized participation, and community development" (Manzo & Perkins, 2006, p. 336). Three dimensions of place attachment in communities—the cognitive, which includes place identity and community identity; the affective, or one's emotional relationships to people and places; and the behavioral, referring to active responses including participation and neighborly engagement—are all explored through this research (p. 343). Cognitive dimensions suggest how identity may be maintained and strengthened through disturbance, while affective dimensions convey social, spatial, and historical qualities that contribute to place meaning, and behavioral dimensions provide insight into the power of attachment in promoting action on behalf of community. Each has implications for personal, community and civic emotional infrastructure, helping to shape a better understanding of social and spatial qualities that enhance connection and support, and contribute to place meaning. The "Sacred Structure" of Manteo, North Carolina, expands our understanding of community place attachment by mapping places "essential to the community's collective being" (Hester, 2006, p. 120). In this study, Hester mapped places valued by the Manteo community, legitimizing personal connection to place as a foundation for political and spatial decision making; "sacredness raises their native wisdom to a central role in community design discussions" (p. 125). Proposing center, boundary, connectedness and particularness as patterns of sacredness, Hester explicitly connects place attachment with physical design and planning, bridging a disciplinary gap few other researchers have. When identifying the direction and priorities for new development, particularly in a place that has lost much of its built infrastructure as Christchurch has, community level place attachment is critically important; focusing on places and functions that have collective value can establish community identity, social capital and place meaning as stabilizing anchors through unsettling change. Yet the existence of multiple publics, multiple narratives, multiple cities within the same geographic extent implies a need to balance this objective with care and intentionality, as a place may have value for multiple groups, singular importance for one group, or conflicting importance for different groups. Prioritizing community place attachment therefore is inherently political, and requires careful

mediation, and a foundational commitment to equity.

Emotion and Attachment in a Context of Change

Place attachment is more than an emotional bond, but also a process of attaching oneself to place (Devine-Wright, 2014). When places change, this process is naturally interrupted. Building on the idea that one can have both positive and negative emotional responses to place change, "changes to places are necessarily and always disruptive to place attachment," whether positive or negative (2014, p. 169). As our climate changes, we can expect different types of place change; both direct manifestations, like more frequent extreme events, as well as indirect changes via human responses to these events—in the form of mitigating actions and those that facilitate adaptation. The few studies that have related climate change with place attachment have articulated climate change as a disruptor to "place related distinctiveness" and discussed "the ways that climatic changes have impacted upon traditional knowledge and skills (e.g., hunting and gathering of marine mammals), weakening ties to land and sea, and how the managed relocation of such communities will lead to a loss of cultural diversity as well as personal suffering" (Knez, 2005; Adger et al, 2011 as cited in Devine-Wright, 2014, p. 172). While these studies suggest that climate change will precipitate weaker ties between people and place, other studies have found place attachment to be a barrier to climate change adaptation, echoing the assertion that attachment cannot be brushed over as a purely positive, innocuous phenomenon (Devine-Wright, 2014). Further studies using in-depth interviews and longitudinal research designs are encouraged by place attachment scholars to better understand the complex dynamics of these processes, as different models are proposed, critiqued and refined, attempting to organize and convey how these processes work.

Scholars have proposed models to explain dynamics of attachment in the context of place change, and suggested variables influencing individual and collective coping. Linear models ending in an outcome of acceptance ignore non-sequential processing of emotion. Models focusing on the individual ignore the importance of collective coping. In response to these critiques, a five-stage model of: becoming aware, interpreting, evaluating, coping and acting, makes space for both positive and negative responses to change, as well as individual and collective processes (Devine-Wright, 2009). The freedom to experience a range of emotions

has also been identified as an important aspect of individual coping: "While the inevitable narratives of resilience and rebuilding are played out in post-disaster landscapes, making space for sadness is part of attending to wellbeing. The pressure to recover, get over it, move on, is symptomatic of the broader insistence on happiness in Western culture. The counter to this is the recognition, as Karen Till has written, that wounds sometimes need to remain open" (Till, 2005; Bowring, 2017b, p. 170). A study of coping by 135 individuals affected by Hurricane Andrew highlights positive outcomes from opportunities that allow individuals to feel a sense of mastery—especially in situations where they previously felt ineffective—enhancing coping mechanisms, and ultimately decreasing post-disturbance distress (Benight et al., 1999, p. 123-124). The importance of this sense of control is echoed in Dorahy & Kannis-Dymand's (2012) survey of two communities after the Christchurch earthquake, one of which had been affected by the earthquake. Both communities had similar rates of acute stress disorder and symptoms, but the affected community scored higher for depression and anxiety. Their findings reinforce the impact of continuing aftershocks on psychological wellbeing, as lack of control over aftershocks was an important contributor to acute stress, depression and anxiety symptoms. Other studies indirectly suggest this importance of agency and control, as well as the importance of the collective: "community engagement following an earthquake has an important role in an individual's psychosocial recovery as well as the recovery of the community" (Collins, Glavonic, Johan & Johnston, 2011 in (Afifi, Felix & Afifi, 2012 in Rowney, Farvid, & Sibley, 2014). Connections between physical agency and emotional rehabilitation also play a role in attachment, emotional processing and coping: "our data shows that residents are struggling, not only to restore the physical fabric of their homes but also to recreate the very meanings associated with itself and the everyday lives that are bound up with that space" (Whittle et al., 2012, p. 68). This phenomenon was referenced in the opening of this paper, as I articulated a sense of calm that came from shoveling liquefaction alongside strangers immediately after the earthquake. Shoveling, in this case, is not only an example of this physical agency, but reflects a common purpose—it was part of a communal effort to regain order, and move forward together.

This sense of shared purpose—seeing a problem as "our" problem—assists in collective coping (Wlodarczyk et al., 2016). A quantitative study of 540 individuals affected by floods in Colombia and

earthquakes in Chile and Spain sheds light on coping strategies that positively impact posttraumatic growth for both individuals and communities. Collective responses—like communal coping and participation in collective activities—were associated with reduced impact from trauma; The more collectivist countries, Colombia and Chile, displayed higher levels of communal coping and posttraumatic growth. Social psychology theorist Bernard Rimé has helped frame this concept of communal coping in his discussion of the social sharing of emotion (Rimé, 2007, 2009). Such emotions are critical to adaptation following trauma; they afford internal growth and transformation of individuals, but also through sharing, emotions become integral tools of community resilience and adaptation: "common sense, social knowledge, shared assumptions, and social representations" form a culturally-shared foundation from which we may move forward collectively (Rimé, 2009, p. 82). Emotions are integral to human adaptation and growth because "they contribute to expanding, adapting, transforming, and repairing the individual's models, theories, assumptions, and other views of themselves and the world" (Rimé, 2009, p. 81). Yet emotions are also not purely individual—they afford "processes that can enhance social integration and social cohesion within the larger community," helping construct "culturally-shared protection tools, such as common sense, social knowledge, shared assumptions, and social representations" (p. 82). This role for shared emotion in community resilience has critical implications for the design and planning for disturbance. As Bowring (2017b) writes, "The landscape is a potent setting for memory and melancholy. Emotion is both personal and collective; it is a means of finding connections, and expanding the meaningfulness of existence" (p. 170). Sharing emotional experiences has the potential to combat the negative influence of psychological distress that often results from post-disturbance uncertainty (Afifi, Felix & Afifi, 2012 in Rowney, Farvid, & Sibley, 2014). Just as place attachments can be both positive and negative,

15: Messages of communal support post-earthquake

social sharing of emotion can contribute to a positive emotional climate, but can also shape a negative emotional climate when negative emotions are shared (Rimé, 2007, p. 313). Understanding the dynamism of place attachment, the complexity of coping processes, the importance of control, the role of a shared purpose, and the influence of shared emotion grounds emotional infrastructure in existing social science research and theory, particularly in the context of communities dealing with climate change. Having explored collective aspects of attachment and coping, I now return to the idea that emotional infrastructure exists at personal, community and civic scales. To further explore personal emotional infrastructure, as a concept and a process, we must first acknowledge the importance of our intimate, embodied experience of place to the formation of personal identity, meaning, attachments and values.

Embodied Experience of Place

Understanding broad planning frameworks and patterns of emotional attachment and response help to shape a larger context within which emotional infrastructure is situated. And yet, a critical part of emotional infrastructure is overlooked without a discussion of the intimate and personal scale of the individual's embodied experience of place. Although seemingly straightforward and familiar, "place" plays a critical role in the unfolding of life, and therefore deserves exploration and definition. A phenomenological reading of place seeks understanding of the world through everyday lived experience of place—through the sensation, perception and feeling that connects our bodies with the world. Place has been defined from a phenomenological perspective as: "any environmental locus that gathers human experiences, actions, and meaning spatially and temporally" (Seamon, 2018, p. 2). It is not a material concept, divorced from its inhabitants, but is the "normally unnoticed phenomenon of person-or-people-experiencing-place" (p. 13). Experience of place brings together history, meaning, feeling and interpretation; "experience is the totality of means by which we come to know the world: we know the world through sensation (feeling), perception, and conception" (Tuan, 1979, p. 388). In relating to the spaces we occupy, the body is a critical reference point, dating back to primitive times when measurements were founded in relation to the body. "How, phenomenologically, do we describe the lived ways in which selves and world are reciprocally related and mutually interdependent?" David Seamon asks in "Life Takes Place." "How, phenomenologically, do we locate and understand

the complex, multivalent ways in which we, as human beings, are intertwined, intermeshed, entrenched, and submerged in the worlds in which we find ourselves?" (2018, p. 11-12). These questions form much of the philosophical basis for this study of post-earthquake Christchurch, and remain critical throughout this study. Yet our understanding of the world arises out of more than our senses, and we cannot ignore the role of politics and power in shaping our associations with and attachments to place. While phenomenology offers a powerful lens through which to study attachment, emotion and care in a post-earthquake context, where trauma is relived regularly through the sensory experience brought on by continual aftershocks, the politics of place relationships cannot be overlooked.

In particular, discussion of attachment in a changing climate must acknowledge that affected populations are made up of diverse groups of individuals, each impacted and supported in different ways. In framing the emotional infrastructure that may support resilience, recovery and rehabilitation, we must recognize and seek better understanding of differences in vulnerability and opportunity of different groups, based on factors like gender, class and race. Studies have reinforced the presence of inequities in the context of disturbance, from gendered differences in perceived safety at home following floods (Akerkar & Fordham, 2017), to the compounding impacts of race and class on timing of evacuation, sources of emotional support and job security post Hurricane Katrina (Elliott & Pais, 2006). Therefore, it is critical that approaches to design and planning for disturbance reflect the nuance and range of subjective, dynamic and diverse lived experiences of place. We can understand our emotional worlds as deeply rooted in our personal embodied experience of place, while simultaneously interconnected with one another in time and space. This connectedness to one another has been framed as an emotional ecosystem, a useful frame for locating and defining emotional infrastructure.

Emotional Ecosystems

Scholarship from doctors and emotional geographers provides a useful framework for understanding emotional infrastructure in the context of emotion, place and care. Perhaps one of the most useful conceptual frameworks for emotional infrastructure comes from the concept of "emotional ecosystems," which stresses the interconnectedness of our internal and external relationships with place and meaning. In this context, "root shock" is defined as the "traumatic stress reaction to the destruction of all or part of

one's emotional ecosystem" (Fullilove, 2004, p. 11). After a disrupting event, there are impacts that ripple outwards, both internally and externally: "Root shock undermines trust, increases anxiety about letting loved ones out of one's sight, destabilizes relationships, destroys social, emotional and financial resources, and increases the risk for every kind of stress-related disease, from depression to heart attack (2004, p. 12). In a global context, "root shock rips emotional connections in one part of the globe, and sets in motion small changes—jazz musicians in search of a venue, smokers acting out their annoyance—that spread out across the world, shifting the direction of all interpersonal connections" (p. 17). This connectedness through time is echoed through the idea of "emotional topography"—the accumulation of many layers of affect that may constitute a site, particular a site of trauma (Bowring, 2017a). Similarly, geographer Karen Till (2012) describes the "social ecologies" of places made up of meaning, memory, identity, and the physical, social, and everyday aspects of place. Again referencing root shock, she advocates for "memory-work" and a "place-based ethics of care" as the means by which we can create a more just future for wounded places and people. In doing so, Till connects the conceptual frame of emotional ecosystems with the scaffold provided by physical and non-physical infrastructure: "Place-based and collaborative memory-work may also create new forms of governance through what Healey (2006) describes as a needed combination of 'hard infrastructure' that challenges, constrains, and modifies dominant centers of power, with 'soft infrastructure' that develops 'social, intellectual and political capital' based on mutual learning" (p. 200 as cited in Till, 2012, p. 7). These concepts of care are

16: Emotive expression in post-earthquake Christchurch


FOR LEASE


"Oh my darling men!"
Mum rushed into the small cubicle,
Filling it with her relief
She pulled them both towards her
and held them close,
"My darling darlings! My loves!"
RISING TIDE
TOYOTA

interwoven with the physical and non-physical fabric of the city that is shaped through our decisions as designers, planners, and policy makers; "this place-based ethical responsibility, tied to a sense of active citizenship and radical democracy, also demands a new way of understanding urban planning, policy, development agendas and transformation" (p. 13). Emotional infrastructure is thus proposed as a critical interdisciplinary bridge, integrating theory on attachment, embodiment, emotion and care with community resilience planning to offer a framework for designing and planning with disturbance that operates at personal, community and civic scales.

The Emotional Infrastructure of Care

Zooming out to the larger metropolitan, interurban, global context within which our emotional ecosystems are situated, we find ourselves at a point of reckoning—a point where designers and planners must admit that new approaches and frameworks are necessary to address the complex challenges presented by global climate change. The concept of brokenness has been used in reference to the unsustainable state of our urban inhabitation. Brokenness is "not necessarily an obvious condition reducible to built fabric or infrastructure in visible need of repair. It can be equally evident in a failing operational metabolism, social ecology, system of governance and inability to manage a crisis of structural unsustainability" (Fry, 2017, p. 4). Highlighting the extreme scale of unsettlement that looms as a result of anthropogenic climate change, Tony Fry describes the city as an "epicenter of 'unsettlement' and a place of passage," citing that "physically unsettled people: the internally displaced (IDPs), 'climate refugees', and refugees of war" are estimated to reach approximately 200 million by 2050 (p. 36). Recognizing the overwhelming implications of this unsettlement globally (alongside our complete inability to make such a prediction accurately), our current urban design practices centered on walkable streets, transit-oriented development and green stormwater infrastructure seems laughably too little too late. "This situation also exposes just how tenuous our 'grip on the world' actually is and how pathetically misplaced and inadequate 'business-as-usual' forms of urban development and object-based design 'solutions' actually are," writes Fry (p. 41-42). Constructive acceptance of this deficiency highlights the need to "rethink and address how urban design deals with displacement, unplanned growth, and extending a right to the city to all residents—new and old. The spatial logic and function of places should be reinterpreted toward more just outcomes" (Berney,

2019, p. 193). The scale of our global crisis brings into question how we have been approaching the task of city making and re-making, suggesting the desperate need for an approach capable of comprehending both nuance and urgency—of acknowledging our many assets alongside varied facets of brokenness, and our agency as actors within the cities that we make, and that make us. This last point about the reciprocity between the city and its inhabitants is a core assertion of ontological design, which Fry uses to ground his work. He warns that our current frameworks for "livable," "resilient," and "smart" cities "are really not confronting the scale and the complexity of the intellectual challenge of remaking cities to become 'futural' (understood here as constructed environments enabling the advancement of viable futures)" (2017, p. vii). Here, we find ourselves perched precariously on a fulcrum, with the challenge of strategically facing the future or falling into it. We need an approach scaled to the issue itself: "For urban design to address unsettledness at the scale at which it is now present in the world, designers, who are often more comfortable designing small and intimate spaces, need to embrace the metropolitan scale in their work. At the same time, government and its agencies need to promote a vision and support for design" (Berney, 2019, p. 193). Yet these large-scale approaches must be balanced and informed by an understanding of the more intimate personal, community and civic relationships that shape the daily lives of the unsettled. "Caring about people's everyday experiences is key: opposing the 'othering' of people and places should be a fundamental aspiration of contemporary urban design" (p. 190).

The emotional infrastructure of care is thus proposed as a disruptive, inclusive, nuanced and transformative process of city (re)making. This concept is grounded in Joan Tront and Berenice Fisher's (1993) definition of care as: "everything that we do to maintain, continue and repair 'our world' so that we can live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web" (as cited in Bellacasa, 2017, p. 3). Elaborating on care as a "more than human" concept that cannot be reduced to simple stewardship, Bellacasa points out that "a politics of care engages much more than a moral stance; it involves affective, ethical, and hands-on agencies of practical and material consequence" (p. 4). Importantly for the concept of emotional infrastructure, care is multi-dimensional, and can be understood as "concrete work of maintenance,

with ethical and affective implications, and as a vital politics in interdependent worlds," operating within three dimensions: "labor/work, affect/affections, ethics/politics" (p. 5). Just as scholars have argued for attachment to be understood in its all of complexity, care too must be considered critically, taking on "the ongoing, complex, and elusive task of reclaiming care not from its impurities but rather from tendencies to smooth out its asperities—whether by idealizing or denigrating it" (p. 11). Extending the notion of care, or "displacing" it, Bellacasa prompts us to think about what care means in the context of more than human worlds:

> What does caring mean when we go about thinking and living interdependently with beings other than human, in "more than human" worlds? Can we think of care as an obligation that traverses the nature/culture bifurcation without simply reinstating the binaries and moralism of anthropocentric ethics? How can engaging with care help us to think of ethical "obligations" in human-decentered cosmologies? (p. 13).

This connection to care is central to the development of emotional infrastructure; Can a process of caring for place be interrupted, expedited, or cultivated as a result of sudden place change? This question brings us back to the concept of emotional infrastructure, and the complex task of identifying and fostering infrastructure in support of desired collective futures in the context of disturbance. "Desired collective futures" here is not to be understood in the absence of conflict or tension, nor is it asserting a universality of experience and desires for the future. In the context of Christchurch, Matunga (2000) asserts: "Care needs to be taken that Māori people, their special places, names, vegetation, important natural features are not subsumed yet again by the profoundly disempowering, majoritarian common good" (p. 66). Though political, and potentially a source of conflict, this infrastructure is necessary for making our cities futural; "Progressive cities are those that offer collective infrastructure to all residents" (Berney, 2019, p. 197). WISC, a framework for community resilience founded on well-being, identity, services and capitals, defines infrastructure as the combination of capitals and services (Miles, 2015, p. 2). This definition lends itself to the conceptual development of emotional infrastructure, which resides within a malleable, generous, and dynamic space of relation, in which built, social, human, and more than human capitals intersect services like support, love, comfort, and care. Further, the act of infrastructuring is defined by Dantec & DiSalvo (2013) as the "socio-technical mechanisms for constituting and supporting a public" (p. 242). Infrastructuring is discussed in relation to attachments and the formation of publics in the context of participatory design (PD):

> Constituting a public involves discovering and expressing the attachments of a particular group. Infrastructuring, as an activity of PD, is the work, then, of providing the means for discovering and expressing those attachments in order to convey the consequences for an issue and to enroll others in a cause. Moreover, an important aspect of infrastructuring is recognizing that those attachments are dynamic; they will change, often in unanticipated ways (p. 255).

Participatory design, therefore, should center around the formation of publics—creating "conditions in which individuals and groups form as publics to take action in support of their desired futures" (p. 260). Beginning to understand the role of emotional infrastructure as situated within these frameworks can thus inform a new perspective of design and planning for disturbance—one that recognizes the agency of individuals, the power of publics, and the need to support invisible processes that reciprocally connect people and place through cultures of care.

This thesis develops emotional infrastructure as a functional, dynamic, and evolving scaffold to support richer understandings of individual and community resilience, and highlight opportunities for design and planning with future disturbance. Defining emotional infrastructure as the social and spatial aspects of place that support emotional processing, sense of belonging, and a collective capacity for care, this research uses in-depth qualitative interviews to uncover narratives relating to emotional infrastructure in Christchurch, New Zealand, eight years after the disruption of the 2010/2011 earthquakes. This research approach is described in the next chapter.

Using a constructivist worldview, this thesis attempts to unpack the complex connections between emotion and the built environment in the context of post-earthquake Christchurch, New Zealand. How did everyday environments support healing, grounding, and emotional re-settling for residents of Christchurch, New Zealand, in the months and years following the 2010 and 2011 earthquakes? Can the Christchurch context provide insight into processes of "unsettlement" and "re-settlement" and associated emotional needs more broadly? How can we better understand, value and foster our personal and civic emotional infrastructure, to enable adaptation to a dynamic new normal?

The broad research questions asked here require an approach capable of understanding nuance, and making space for the unanticipated. In-depth qualitative interviews of 16 residents afforded this kind of nuanced exploration into common themes in experience, as well as tensions, conflicts and differences. As a social constructivist curious about relationships between our physical environments and emotional wellbeing, I sought to better understand the complexity inherent in our attachments of meaning to objects (people and places). The subject of emotion lends itself to qualitative approaches that capture truths about our relationships through intersubjectivity—shared meanings and common experience. To allow for a nuanced discussion of layered phenomena—from place attachment to fear to the social sharing of emotion—this study sought out narratives of lived experience, through the surfacing and re-telling of personal stories (Creswell, 2014). This study is undertaken primarily as a call to attention, advocating for further study and greater consideration of the "hidden" dimensions of design and planning in an uncertain future. Challenging traditional frameworks for urban design and "resilience," it aims to better understand intangible relationships between people and place, assembling a framework for emotional infrastructure that supports cultures of care.

My Role as Researcher

Having personally experienced the Christchurch earthquake on a semester abroad, my own bias, values, and experience undeniably shape both the foundation for and interpretation of this research. I distinctly remember the unsettling feeling of the constant aftershocks that followed—the internal questioning of whether the shaking would get better or worse. Many nights, I went to sleep with my

listening

This is cathartic for me.
Just this conversation.
Just this—sharing of things.

—Interview participant

backpack packed, ready to evacuate if necessary. That panic remained even when I had safely returned home from New Zealand and was living in an apartment above a laundromat in Ithaca, New York. Thus, I must admit, I can readily express the kinds of environments that brought me both comfort and discomfort following the earthquake. However, through an intentional focus on authentic listening—based in a genuine desire to illuminate the diversity, contradiction, and messiness of the subject—I aim to open my research to the rich and valuable experiences of others, regardless of how they align with my own.

Research Ethics

Ethical considerations were central to this research from the start, particularly in relation to engagement with the Indigenous peoples of *Ōtautahi*/Christchurch. "Research is not an innocent or distant academic exercise but an activity that has something at stake and that occurs in a set of political and social conditions," warns Linda Tuhiwai Smith powerfully in *Decolonizing Methodologies* (2012, p. 5). Recognizing this, I questioned my position, as an Anglo-American researcher, living across the world, engaging communities that have been marginalized in ways I could never understand. What right did I have to ask, let alone re-tell, anything relating to Māori culture? Yet, I did have a personal connection to the Christchurch earthquake, and to begin to explore the emotional infrastructure of Christchurch without considering a Māori perspective—to ignore their trauma, histories and desires for the future—presents an ethical conundrum. I weighed these considerations, recognizing the ways in which Indigenous peoples have been further colonized and oppressed through research, alongside the importance of inclusion and representation of their voices when the subject has implications for the future development of their lands. This tension led me to seek out Indigenous voices, while re-thinking how I would conduct this research as a two-way exchange: "Complications in place attachments arise in already complex circumstance—for example, in impoverished communities, often communities of color. This points to the need to broaden our perspective in approaching this phenomenon both in terms of how we conceptualize it and who we include in research" (Manzo, 2014, p. 187). How can I, as a white American, adapt to systems and worldviews of Indigenous cultures, as Indigenous cultures have been forced to do for centuries? How can I act as a partner, and elevate voices rather than appropriating them? How can this project contribute to the self-determination of Indigenous peoples? I started

addressing these questions by educating myself in *tikanga Māori* (The Māori way of doing things), and basic words in *te reo Māori* (Māori language). I learned the importance of detailed introduction—introduction that grounds me in the place I grew up (my *tūrangawaewae*, or "place to stand") and in time, through my *whakapapa* (genealogy). To do this, I made personalized greeting cards for each interviewee with photos of the canoe I made with my father in high school. The photos connected me to the places of my childhood, and to my family, as my father made a similar canoe when he was young, then made one with my older brother, and finally with me. I used this canoe to illustrate how these connections with family and place have traveled with me to Seattle, Washington, where the canoe in my garage continues to connect me with my home. As each person, through interviews, inevitably shared intimate, personal information with me, I presented these cards to express gratitude for that openness, and reciprocally share some personal information about myself. As I will discuss, my methods for collecting information attempted to elevate voices through authentic listening and reciprocal participation, treating interviewees as partners and collaborators in research ideas, and sharing openly developments, thoughts, conceptualizations, and themes that emerged from other conversations if they were relevant to the topic at hand. In communicating research findings, again, I attempted to elevate the voices of participants by communicating through the voices of those who were interviewed, ultimately presenting findings through a 20-minute video (Appendix B). I tried to use this research as an opportunity to identify how Indigenous residents connect with people and place, cope with trauma, and find identity and belonging through relationships. By communicating these findings and impressing the importance of designing for a living, evolving culture, I hope to echo and support the need for Indigenous representation and involvement in processes of city making.

In shaping emotional infrastructure conceptually, I started with recognition that each person and each community has loved places, attachments, and treasured connections to history and identity that are culturally significant. And Indigenous peoples, in having their land taken, have had their emotional infrastructure threatened in atrocious, unthinkable ways for generations. This feeling of being shaken from the comfort of one's place, as is felt through the experience of an earthquake, is something Indigenous peoples have been forced to experience over and over again through imperialism and prioritization of Western ways of living and

FRAMING

literature review

Matters of Care // Puig de la Bellacasa
Infrastructuring // Dantec & DiSalvo
Root Shock / Emotional Ecosystems // Fullilove
Place Attachment // Manzo & Devine-Wright
Decolonizing Methodologies // Tuhiwai-Smith
Melancholy & the Landscape // Bowring
Resilience // Meerow
Unsettlement // Berney
Metrofitting // Fry

research questions

1. How did everyday environments support healing, grounding, and emotional re-settling for residents of Christchurch, New Zealand in the months and years following the 2010 and 2011 earthquakes?

2. Can the Christchurch context provide insight into processes of "unsettlement"/"re-settlement" and associated emotional needs more broadly?

3. How can we better understand, value, and foster our personal and civic emotional infrastructure, to enable adaptation to a dynamic new normal?

Research norms, customs, personal awareness building

GROUNDING

17: Research process diagram

interviews

Networking, emailing, scheduling interviews

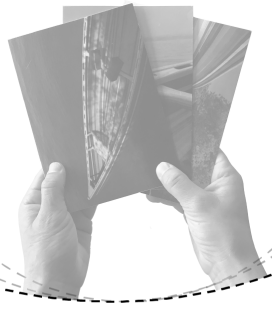
Transcription

Method: “Authentic Listening”

16 in-person, open-ended interviews
Audio recorded

Email follow-up, continued co-development of ideas

Koha: gift, exchange knowledge / personalized cards referencing my Tūrangawaewae



PŪRĀKAU (STORYTELLING)

video

Oral storytelling tradition
Intended to elevate interviewee voices

writing

Written as prompt, question, challenge
Intended to catalyze re-think & further research

FINDING

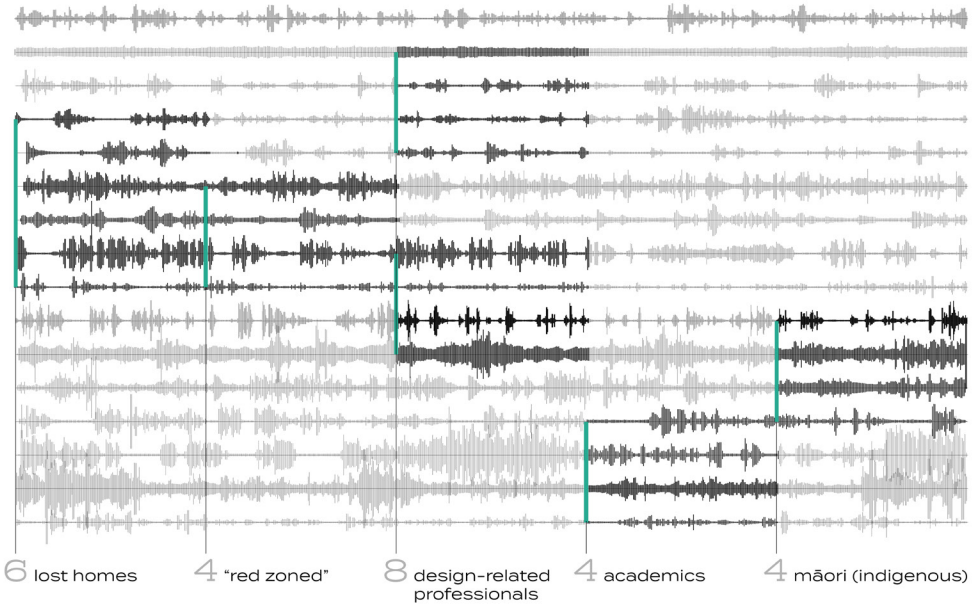
knowing. This project aims to recognize these intangible losses suffered by Indigenous peoples, and advocate for a new way of understanding design and planning so that each community, particularly Indigenous communities and others marginalized by imperialism, has power of self-determination—has the ability to shape, mend, and nurture the everyday relationships between people and place that offer emotional support. Speaking, in particular, to an audience of designers and planners with power to shape the built environments in which diverse individuals live, we have a responsibility to recognize and advocate for the emotional infrastructure of communities whose voices have been silenced. Ignorance allows western designers to perpetuate the marginalization of cultures they do not see and meanings they do not seek to know. If we never ask these questions truly preparing to respect and value the answers, how are we to learn our own biases that allow us to continue overlooking colonial histories and further oppressing communities of color? It is critical that designers and planners understand the passive ways in which seemingly small decisions can reinforce racist, colonial, oppressive systems; "Racism against Māori in the city has not just been about people but an even more insidious privileging of colonial institutions, culture, places, sites, names, icons, even biota" (Matunga, 2000, p. 68). Therefore, I take an ethical stance that an investigation into the emotional infrastructure of Christchurch must consider both the social and spatial aspects of place that are supportive, as well as those aspects that disempower, erase, or marginalize, in order to better understand how cities can reconcile colonial histories, embrace diversity in the present, and invest in co-creating a future city that celebrates diversity in the face of uncertainty.

Participant Selection

All participants were residents of Christchurch or surrounding suburbs, and were adults 18 or older recruited via social networks. Initial connections were made within academic and design communities, through network-building of Christchurch connections for a range of academic endeavors. Generally, contact was first made in-person. In an attempt to connect with those who genuinely wanted to participate, I used intuition to decipher whether the person appeared willing to talk about their emotional experiences, and reached out via email after meeting in-person to explain my study, ask if they would be interested, obtain consent, and coordinate next steps. I used snowball sampling to further recruit interview participants. Having heard that Christchurch residents are "over researched," now eight years

18: Opposite: Participant demographics using audio waveforms

16
people total



~30
hours of audio

after the earthquake, I relied heavily on relationship building to determine who to ask to participate, how to ask them, and ultimately how to engage in conversation. Through deliberate inclusion of Māori leaders, researchers and advocates who were interested in the topic, I sought to understand, co-process, and share information that may be useful in design and planning for and with Indigenous communities, in support of their emotional needs. I sought participants from diverse backgrounds with a range of expertise, recruiting 16 total participants, of which 4 were Māori, 5 were women, 6 had lost homes, 4 were "red zoned," 8 were professionals in fields relating to design and planning, and 4 were academics. By interviewing only interested volunteers with whom personal connection was easy, I selected for participants with perspectives that aligned with my topic of study; therefore, findings from this study should be understood within the context of this bias.

Interviewing Procedure

This study used in-depth, open-ended, face-to-face interviews as a means to collect people's stories of their lived experience of the earthquakes and the aftermath. All participants were given background about the study, including my personal experience of the earthquake and interest in qualities of emotionally supportive places post-disturbance, and the aim of the research to inform design and planning to better support emotional needs in the context of future disturbance. Recognizing the emotional energy required to discuss trauma, I made the desire to only speak with those who wanted to share their perspectives explicit. I reinforced the voluntary nature of participation throughout the interviews, when the subject matter suggested any associated tension, conflict, or trauma. Interviews were audio recorded, with permission granted by all participants, and conducted in locations chosen by the interviewee. Wanting to quiet personal biases and acknowledge blind spots, the focus of interviews was on authentic listening to details that informants found important about the topic of study. For this reason, interview structure was intentionally open-ended, beginning only with a brief background of the research focus, and a broad first question. For example: "So how long have you lived in Christchurch?"

While interviews were deliberately unstructured, common topics included: what environmental factors were sought after the earthquakes, what the interviewee loved about Christchurch, how Christchurch had changed as a result of the earthquakes, and the ways in which community

and place had supported (and continue to support) emotional wellbeing in times of upheaval and change. I shared openly about my own experiences when relevant, and approached interviews as informal conversation and open dialogue where I worked to know the person, establish trust, and share in the vulnerability of exchanging personal narratives. The degree of my own participation was, again, guided by intuition and limited by time constraints in some situations. In an attempt to share back information, themes from prior interviews and other subjects that were being processed as part of the research were openly discussed during interviews. This conscious decision was made, at the expense of potentially influencing the data, in order to treat interviews as a partnership, as a two-way conversation from which each of us could learn. As one informant pointed out, in *te reo* Māori, *koha* is often translated to mean "gift," when really there is a reciprocal nature to it—an incentive to give and to receive. Knowledge, he reminded, is a *koha*. This reciprocity and feedback was a critical goal of interviews. I openly shared personal stories and opinions as well, in an effort to take on personal vulnerability, cede power and reduce gatekeeping of knowledge. Further, recognizing the emotional subject matter, I committed to listening until I had confirmed that the interviewee had said all they wanted to say. Because of this, interviews averaged around two hours long, including un-recorded conversation, ranging from about 45 minutes to three and a half hours. At the end of the conversation, I gave each informant the same gift: three personalized cards displaying images of a canoe that I handmade with my father. Explaining my *tūrangawaewae* ("place to stand") and *whakapapa* (genealogy), these cards were a personal way to humanize, de-sterilize, and show gratitude for each informant's gift of time, sharing of personal narratives, and expenditure of emotional energy.

19: Left: Personalized cards exchanged for interview participation

Data Analysis Procedure

Once all interviews were completed, they were transcribed, and narrative responses were coded based on relevant and/or shared themes using Atlas.ti software for qualitative data analysis. "Open-coding" was used to label statements based on an associated theme, and themes were then merged, compared, and re-organized, as four meta-themes emerged as larger categories for social and spatial qualities sought by residents post-disturbance. These meta-themes were: stability, reference, understanding and agency. While much of the data included implications for process as well, other themes were organized temporally, to explain the earthquake experience, post-disturbance ripples, and the disruption of a damaging normal. Collectively, commonalities, surprises and contradictory information informed a descriptive understanding of emotional infrastructure within the Christchurch context, as these four meta-themes offered a framework for defining emotional infrastructure, while temporally organized themes describe the experience and process of designing with disturbance.

Communicating Findings

Once interviews were complete and narratives analyzed for common themes, a diagram and summary were sent to interviewees before information was shared with others, inviting their feedback, corrections or clarifications if they chose to share it, as "the challenge is always to demystify, to decolonize" (Smith, 2012, p. 17). "Reporting back" and sharing the knowledge learned through research—not only the information itself, but the theories that informed it—was a priority, to ensure that this research was not another colonial project of taking, but one of exchange (p. 16). Feeling a powerful sense of responsibility to the people of Christchurch, intuition guided much of the "data collection" phase of this research, as I committed to a process and deliverable that reflects respect, thoughtfulness, professionalism, and most of all, empathy. Highlighting a history of oral tradition, and a desire to elevate the voices of those who shared their perspectives, stories and thoughts, findings were communicated through video, using the voices of informants (with their permission). Not only intended to pay respect to informants, this form of communication was also the most effective in translating the findings to others in an accessible, engaging and moving way: "Research shows that the human memory is story based, not data based,

and that stories are fundamental to how people learn and organize what they know" (Schank, 1995 as cited in Mang & Reed, 2012, p. 10). Recognizing the implications for emotional infrastructure as both a design outcome and an inclusive, reciprocal and caring design process, communication of findings began with development of emotional infrastructure as a concept—what it is—and then explored it as a process—how design and planning can foster it in the built environment. The next chapter details these findings, beginning with a description of experience and impacts, then defining emotional infrastructure through the four meta-themes, and finally describing how interviews can inform processes of design and planning with disturbance, to support diverse emotional needs in an uncertain future.

5. FINDING // from the voices of Christchurch

This chapter discusses findings from 16 interviews with Christchurch residents, eight years after the devastating shake-up of the 2010 and 2011 earthquakes, which changed the city of Christchurch dramatically: people were killed, reference points were lost, and longstanding attachments to place and community were abruptly interrupted. Nearly 80 percent of the buildings in the central business district were destroyed or demolished. And yet, simultaneously, the disturbance of the earthquake brought to the surface exciting potentials for the future. Out of the things that remained were the natural features: the Ōtākaro/Avon River, Hagley Park & the Botanic Gardens, the Port Hills; and the grid pattern, a legacy of colonial expansion imposed onto what once was swampland. With fewer buildings to block the view, the Port Hills were brought back into the picture, visible from the central city and offering a visual landmark and grounding reference. Politically, the earthquakes also changed the city, formally solidifying a place for Ngai Tahu, the largest of the local *iwi* (tribes), in the rebuilding process. Yet, as reinforced time and again through interviews, concepts of emotional infrastructure focusing solely on the earthquakes miss the larger picture; issues with the invisibility of marginalized groups in the city, the weight of unresolved insurance conflicts nearly a decade later, frustration with political processes of city-making, and the recognition of human behaviors that jeopardize critical natural systems were some of many legitimate concerns raised.

Beginning with a discussion of the visceral, multi-sensory embodied experience of the earthquakes, this chapter first unpacks the ***Earthquake Experience***—the immediate experiences and changes described by informants: a loss of footing, the importance of one's role as caretaker, and behaviors shared by many as a result of the dramatic quakes. Secondly, I discuss the ***Post-disturbance Ripples***—the impact on the city, lack of access as a disconnecting force, the loss of immediate post-earthquake connection, and examples of social capital and collective capacity at work. The following section discusses ***The Structure of Emotional Infrastructure***, addressing the research question: How did everyday environments support healing, grounding, and emotional re-settling for residents of Christchurch, New Zealand, in the months and years following the 2010 and 2011 earthquakes? From all 16 interviews, the broader theme of locating oneself in time and place emerged, within which four sub-themes can be deciphered: seeking stability; seeking reference/framework; seeking knowledge/perspective; and seeking agency.

Graphic to right made from photo by: Yutong Hu

finding

It just really, really gave me that feeling of being just a tiny, teensy weensy, miniscule drop in an ocean, in time and space. Because this was just a thing that happens with the land, and we're just very unlucky, or lucky, to witness that in this space and time.

—Interview participant

These themes are presented as the facets making up emotional infrastructure in the Christchurch context. Consistencies, tensions, and nuance within each theme offers further insight into emotional infrastructure as a generalizable concept, and how designers and planners might foster it in the built environment.

The Earthquake Experience

In an event like an earthquake, where one is literally and metaphorically shaken, the experience of the event itself has significant implications for residual impacts to behavior, attachment, memory, stability, and more. In discussing the experience of the 2010 and 2011 earthquakes, interviewees highlighted the difference between knowing something is expected, or likely, and actually experiencing it. As one informant noted, "Usually we get a good wallop every 600 years or so, and that's about now. And you know, everybody nods sagely and writes it down in their book. And then in the middle of the night when it does come I just remember hanging on to the door frame thinking, 'Well, the 600 years is up.'" Another person echoed: "We realized we were vulnerable. We're not invincible."

Loss of Footing

Many respondents referenced the unsettling nature of the ground shaking under their feet, and the resulting loss of footing accompanied by a realization that the land is not benign or its stability taken for granted. One person recalled: "I felt like the earth had been woken up. And it was living and breathing and it was trying to turn back into a swamp." She continued, "I think it's almost that the land became humanized in a way. Because you always see it as such a static thing. It's always there." The instability of the ground—the very thing that we often think of as a solid foundation—was discussed repeatedly, along with its lasting impacts:

> There's something profoundly upsetting... when the ground moves under your feet... When you kind of talk about things being 'rock solid' or your 'feet are on the ground,' you know, they're all saying that's there, that's what we reference ourselves to. And when that's unstable, that's profoundly upsetting.

Compounded with a loss of the familiar, the instability of ground was discussed as a catalyst in changing personal relationships with place:

> So all those things that make you familiar with a place were lost. And then it became, to the point where you couldn't even trust the ground between, beneath your feet. And that's what aftershocks did to you after a while, is you just totally lost confidence in the earth to be where it should be. Then you lose that sense of comfort, security you've got.

20: Walking through a broken city, weeks after the February 2011 earthquake

The unsettling nature of this change was made poignant, as interviewees described their first time back in the central city after it had been cordoned or closed off. People talked about the emotional nature of experiencing a broken city—one they once knew, suddenly in an entirely different state:

> The landmarks are gone, they're kind of, you know, the places that you value, that you loved are gone... the experience of walking through a broken city is profoundly challenging. And I don't know I'm not sure I can put it into—it's visceral. It's an emotional, it's not a rational kind of understanding. When you walk through crushed buildings and smashed places, particularly places that you knew and loved, or had some relationship with... there's a grief that you have to come to terms with... It's much more than a rational thing. It's about emotional connections with place that had meaning.

Many people discussed the irrationality and unpredictability of both aftershocks and their own responses to them. One person remembered the feeling of nausea from the rush of adrenaline that accompanied each big aftershock. Another discussed how he might feel emotionally unphased by

aftershocks for some time, and then one particular shock would produce a more intense response: "no rhyme or reason, you could be anywhere. But for whatever reason, one would just trigger that emotion." In some cases, these responses were manifest through behaviors, and often shared behaviors resulting from common experience.

Shared Behaviors

The earthquake and aftershocks elicited certain behavioral responses from residents, adding to a sense of shared experience. In particular, mutual caretaking emerged as a common theme, through which residents (re)established a sense of stability. Many respondents expressed the immediate importance of their role as caretaker following the earthquakes. Whether caring for family, employees, or neighbors, respondents mentioned a common response was to check in on everyone—to make sure that people they cared about were safe: "I think probably the most important thing is family;" "prioritizing the people around you;" "my first priority was not to my family, it was to my people in the company." One person described how people even broke rules to care for one another: "there were bus drivers that just kept on driving the buses until such time as they were empty of diesel to take people backwards and forwards. They broke all the rules because that was their humanity." Or perhaps, the rules changed as the earthquake brought with it new norms for how people should treat one another—rooted in a renewed or deeper sense of empathy. Another person talked about how, even when driving, people were more sensitized to one another, making space and yielding in a way that showed care and patience.

Other shared behaviors, in addition to mutual caretaking, resulted from the fear and uncertainty the earthquakes instilled. For example, people described not wanting to enter heavy, dark, or tall buildings where they could not see out. Once inside, there was a desire not to go too far, a behavior one resident called "positioning for exit," which helped him identify people from Christchurch when he noticed the behavior elsewhere. Other behaviors resulting from this looming sense of uncertainty, that things could go wrong at any time, manifest in general preparedness: keeping gas tanks full, phones charged, and, in the case of one respondent's young daughter, carrying stuffed animals around in a backpack at all times, in case there was an emergency.

Broken Barriers

Many people referenced the breakdown and

subsequent re-establishment of barriers throughout the city. One interviewee described how the earthquake disrupted socio-economic divisions that had been reinforced over time by the superiority associated with certain older private schools among the well-to-do:

> For a short time there was an amazing bridge in this city, which... was developed out of an old model of the class system in England. So... at the top are the well-to-do and the wealthy who came, and they paid a big enough passage to get here to pay for the laborer who's also coming to this new colony, British colony, but with no resources. So that paid for their ticket, that family's ticket... and they had then the opportunity to work off their ticket when they settled in New Zealand. But... what that did was really settle and maintained a class system very strong. Now that class system is not nearly so tangible, not nearly so direct now, but nonetheless there's always the joke amongst local people in Christchurch. Is that Christchurch is probably the only city where the well-to-do will shake your hands and say, 'How do you do and what school did you go to?'

I was surprised by how many people mentioned this exact phenomenon and question. People referenced how the earthquakes changed the first question when meeting a new acquaintance from "What school did you go to?" to "Are you okay? Do you need anything?" In particular, interviewees mentioned this as a general difference between the east and west sides of the city, with the west side generally well-to-do and less impacted by the earthquakes. "It didn't last very long," remembered one respondent. "Once things settled down a bit, we went back. We went back and those of us who lived in the east mourned that. Because it was like a brother or a sister or somebody got in touch." She continued, "But that particular kind of drama just cast its net over everyone and drew them together. And those of us who knew the history of the city could really, it really was an extraordinary social phenomenon." Another person reiterated this influence of the earthquake on a class divide: "It broke down some unusual barriers." Beyond these immediate emotional, behavioral and social changes, the earthquake's domino effect sent waves of change, directly and indirectly, through Christchurch and its residents.

Post-Disturbance Ripples

In the following months and years, the rippling impacts of the earthquakes were described through physical changes in the city, dynamic attachments to places, and the formation and breakdown of social relationships. The magnitude of this physical change was evident in the extreme loss of reference points, and many described the grid pattern of the streets and the green infrastructure as some of the only physical features remaining of the city they

remembered. People expressed how, with the trees and the river still intact, it still felt like Christchurch despite all the destruction. Some mentioned that, given the loss of buildings, the Port Hills became more visible, more present from the city. Their importance as an anchor was a common thread in the interviews, highlighting the earthquake's potential to increase connection and make positive change in the city fabric. Some ripples, thus, brought improvements that, given prior built form, would have been nearly impossible to afford in the absence of major disruption. These examples—connection to the Port Hills, and the role of green infrastructure—suggest that some aspects of Christchurch's identity as a garden city may have been strengthened as a result of the earthquake.

Ripples were also evident in the changing of social relationships post-earthquake. While many people looked back fondly on the time after the earthquakes as a special moment when the city experienced a surge in unity, care, and compassion, many people discussed the breakdown of this "honeymoon period of strength" that eventually unfolded over time. One person summarized powerfully: "We always said that the earthquakes brought the communities together, and then the recovery processes broke them up again." Another person echoed: "the earthquake itself wasn't the issue. It was the nature of the rebuild process, the governance of the rebuild, that made me sort of back off from the city." These disconnecting forces were discussed by many, and often those who had more local community capacity established prior to the earthquakes were able to maintain connection through this challenging period. Those communities or neighbors who were able to successfully maintain connection generally had connecting rituals or practices in place pre-earthquake. For example, if a community had set up a digital venue for connection prior to the earthquakes, they were generally better equipped to stay in touch and support one another through change—even displacement. One person mentioned already having emails and phone numbers from setting up social get-togethers pre-earthquake, so it was easy to stay connected and check-in with people post-earthquake. Another mentioned having scheduled shared meals with neighbors; "we were doing that before the earthquake but it meant, come the earthquake, it was just seamless... it revealed how important those things were." These organizational systems, as well as communal values, were also in place for many Māori communities living in the east. While they were recognized for their response to the earthquake, for their ability to organize on the ground and check-in on people

21: Opposite: Map of Christchurch


N
Residential
Red Zone
Hagley Park
CBD Cordon
Port
Hills
0 mi
0.5 mi
1 mi

door to door, Māori respondents expressed that this was not specific to the earthquake, but quite simply a "way of life." One person, who had lived along the river in the residential red zone, and was relocated when the government bought their land, echoed the importance of this established everyday form of care and support:

> And in that one block over the years we'd established a remarkable community of people looking to secure the well-being of the other people on the street. Through no nosy intrusion or overwhelming overbearing connection. Just the notion of being there and being available—being friendly. Keeping those, the doors open as it were. And that really works in a crisis.

This immediate importance of neighbors was a common thread throughout interviews, although it was often accompanied by acknowledgement of the inability of governmental systems to offer the necessary support post-earthquake: "That's where resilience happens—at that neighborhood level I reckon. You know, there's nobody else." Thus, while the earthquake itself prompted ground-up community organizing, checking in and looking after one another, the government-organized recovery and rebuild processes were less successful in making people feel heard, involved and supported. One person explained that the potential source of this shortcoming had to do with government wanting control as there was "so much money at stake" and the "reinsurers were getting very shaky and worried about the amount of money that they were being obliged to pour in." He added that this "hasn't left a lot of place for I think a bottom-up led rebuild... A lot of the discussion has been fighting about insurance rather than about reinventing the city." As he alludes, the impacts of insurance on Christchurch and its communities permeated everyday life in physical, social and emotional ways post-earthquake.

The fact that Christchurch was well-insured was a major talking point in interviews, and actually exacerbated physical loss, and disincentivized re-investment in the central city. One respondent explained the role of insurance in leading to the demise of the city's built infrastructure—that nearly 80 percent of the buildings in the central city were demolished, not because it was structurally necessary, but because insurance companies incentivized owners to demolish rather than repair. If an owner showed that it was less expensive to rebuild entirely than to repair, they received a lump sum of money from the insurance company, which they had the freedom to invest however they chose. This meant that many developers took their insurance settlement elsewhere, to invest

in a less risky context, bringing investment out of the central city and slowing the process of city (re)making. In doing so, insurance companies contributed to further destruction, beyond what the earthquake had already destroyed, increasing the physical and emotional toll of the earthquakes and their aftermath. One interviewee described the irony of this tension: "So you've got these economic drivers pushing more and more demolition and destruction... yet the economic—the emotional thing is saying, 'try and save some of the bits that we really love,' you know." The role of insurance in demolition, rebuilding, grieving and mental anxiety is worthy of further attention and study. Not only did it have the impact of further destruction in the central city, but legal battles over personal insurance claims were often cited as lingering wounds and stresses, still open for many, eight years post-earthquake.

Christchurch residents were required to insure both their homes and the land under them, resulting in widespread, multi-year conflicts with bankrupt insurance companies after the earthquakes damaged homes and land, and surfaced land vulnerabilities, impacting property values. These conflicts prolonged emotional grieving processes, and contributed to greater emotional and financial stress when lawyers were required to reach a settlement. Multiple people discussed the role of personal insurance battles over homes or land as even more emotionally taxing than the earthquake itself. Even eight years post-earthquake, some interviewees mentioned that their insurance claims were still unresolved. One person highlighted the inequity in these battles, as those who did not have the money or the legal guidance to take issues to court for long periods were exploited by insurance companies. One interviewee pointed out that Māori, in particular, were often in this position of disempowerment.

One of the critical post-earthquake ripples that residents experienced was a sense of disconnection from meaningful places based on loss of physical access to certain areas of the city. In both the residential red zone and the central business district (CBD), a lack of access led to disconnection. One person described the residential red zone, where they had once lived: "Increasingly, as people moved out and communities just dissolved, it became a no-go area right through the heart of the east. And that meant that people became very disconnected from the river, very disconnected from each other and the old communities that were there." In addition to this "red zone," all or parts of the CBD were cordoned off from the public for 800 days, about two and half

years, after the earthquakes. “I think I’m not that atypical in not feeling a strong connection to the center of town,” explained one interviewee. Beyond the obvious physical impacts of limited access, the cordon created emotional distance between people and places that were once important and familiar; once people were finally able to re-enter the central city, they often felt like strangers, finding it challenging to remember what had been and connect with what was there now. The cordon also discouraged businesses to open in the central city because there was no market; people couldn’t access the central city to make business viable. One person reflected on this:

> In retrospect I still think that’s one of the most more damaging things that we did, was the cordon. It meant that nothing happened in the central city for that time. In spite of the fact, you know the theory was, it was going to enable efficient clearance of buildings and people would get back in and start building straight away. But nothing like that happened... Why would you rebuild if there was nobody there?

This lack of business meant there was a lack of investment and activity for a long period, which increased significance of the places that did remain—that were accessible and familiar: The Botanic Gardens, Hagley Park, The Arts Centre. One respondent quoted another woman she had heard describing her relationship with the Botanic Gardens: “Everywhere of my childhood in the city has gone. And the only place that I can show my son... where I spent my childhood, is here.” Multiple people referenced the gardens and Hagley Park as some of the only accessible areas in the central city post-earthquake, making these places even more significant. While many comments referenced this loss of history or historical connection to meaningful places from the past, discussions of post-earthquake destruction, demolition and access suggest the importance of opportunities for connection—both to preserved familiar places and to new places—through the transitional periods of recovery and reconstruction.

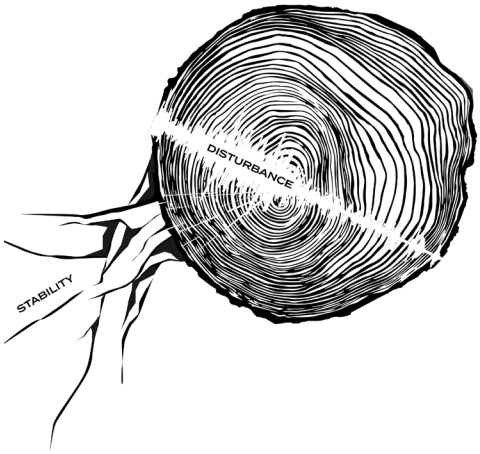
The rise of temporary, transitional places was a ripple of the earthquakes that provided an outlet for creativity and a window into exciting possibilities for a new future city. Given the dramatic disconnect that resulted from loss of buildings, important places and physical access, people described the shocking feeling of finally entering a dramatically different city after so much time apart. One person expressed the importance of “reconnecting with the city and in a way that was very gentle” through whimsical, temporary initiatives undertaken by organizations like Gap Filler, Life in Vacant Spaces,

and Greening the Rubble. These initiatives afforded new connections to be made, making use of the openings the earthquakes created to infuse new forms of activity and engagement into urban spaces. Transitional projects included a shopping mall made of shipping containers, a dance floor, palette pavilion and more, each providing an opportunity for community members to take ownership in creating the city they wanted to see. “So people could actually start playing on some of these spaces, and actually saying ‘This is what we want to see. Why don’t we do this?’ Which is kind of a really, again, something you don’t see in normal cities,” said one interviewee, pointing out the opportunities that emerge when an extreme event prompts changes in land ownership, bringing new possibility through increased public involvement. Importantly, these places provided opportunities to escape the heavy emotional weight of grieving the earthquakes, and allowed residents time and space to engage in lighthearted collaboration, activity and play. With an understanding of the earthquake experience and its rippling impacts to people and place, I continue to present and unpack this research in the context of emotional infrastructure.

The Structure of Emotional Infrastructure

This next section discusses findings that help establish what emotional infrastructure is in the Christchurch context, further describing it as a concept through example. Returning to the definition of emotional infrastructure as the social and spatial aspects of place that support emotional processing, sense of belonging and a collective capacity for care, the following findings are presented to support and clarify this definition, and provide real, tangible examples to illustrate how emotional infrastructure impacts life in both everyday and extreme circumstances. These examples respond to the research question: How did everyday environments support healing, grounding and emotional re-settling for Christchurch residents in the months and years following the 2010 and 2011 earthquakes? Interviews repeatedly stressed the need to look at the wider context of the situation; that "post-earthquake" emotion and attachment cannot be isolated from larger societal issues. One respondent articulated: "You asked me to come and tell you post-quake... So I'm also telling you there's a social crisis here, and we need to be aware of it. In a very ordinary neighborly way." Therefore, the themes and subthemes explored below approach the concept of "disturbance" broadly, considering the earthquakes and aftershocks in tandem with the related effects of displacement, colonialism, conflict and trauma.

Analysis of post-disturbance desires for certain social and spatial characteristics brought one primary theme to the front: people were looking to locate self in time and place. Given the physically and emotionally unsettling nature of the earthquakes, people expressed, either directly or indirectly, the desire to locate themselves—to find their footing, trust their foundation, feel like they belonged, see their identity and history reflected in their environment, understand their place within larger social frameworks and geologic processes, express their desires and have control over their city's future. This larger idea was expressed through four major themes—four ways that residents attempted to locate self in time and place: seeking stability; seeking reference/framework; seeking knowledge/perspective; seeking agency/expression. These four themes are presented as the four facets making up the structure of emotional infrastructure.



1. Seeking Stability

Stability, the first of the four major themes, was in most cases the most immediate facet of emotional infrastructure sought after the earthquakes. The need for stability first arose through an expressed recognition of instability and vulnerability. Interviewees then discussed how they sought stability in the people and places around them: they highlighted how connections with neighbors brought comfort and support; how stabilizing infrastructure became objects and places of attachment and connection, and how familiar places and experiences were stabilizing constants amidst dramatic change. These social and spatial aspects of the post-earthquake experience can offer further insight into what it might mean to design and plan to afford stability into the future.

Recognition of Uncertainty

Before discussing how residents sought stability through particular relationships and environments, it is important to highlight that the earthquake brought with it a greater recognition of how quickly things can change, and that the future is fundamentally uncertain. Related to the loss of footing and recognition of vulnerability already discussed, this uncertainty elevated emotional unsettlement and anxiety, prompting people to seek stability—to find steadying elements to grasp onto. A recognition of environmental uncertainty was expressed through changing understandings of land and natural process; one person described how the earthquakes made her "very aware of the thin sort of scab that covers this planet... that's managed to cool and we've settled on it. And we've, in a very short time, we've managed to, looks like, ruin it. And so there's always that realization, that this presence, this possibility is here all the time." The ominous, looming presence of this uncertainty was described by others. "It changes your perspective," echoed one person, elaborating that she was left with a sense that "things aren't permanent, and that things can go very wrong at any time."

22: Above: Conceptual Diagram—Stability

Another person articulated how the earthquakes brought with them an increasing awareness of other environmental hazards, further contributing to feelings of uncertainty: "where we live has become more significant. And I guess I'm also more aware of it's vulnerability, particularly vulnerable to the fires. It's also becoming a more uncertain environment." This comment ties two related concepts—vulnerability and uncertainty—together, implying that recognition of vulnerability leads to greater mental awareness and acknowledgement of uncertainty. One respondent, who had lived in the residential red zone, described how the only art hanging in their current house was a charcoal drawing of their old home. Their other art was still stored or leaning up against walls. Despite living in this "new home" for five years, they had still not hung their art, suggesting both a nostalgia and sense of loss, along with a hesitancy or unwillingness to invest in a place because of the reality that things could change at any moment. This suggests a connection between recognition of uncertainty and loss of trust in one's environment. In this emotional state of unsettlement, people looked to the people and places around them for stability.

Immediate Connection / Disruption to Normal Boundaries

In the time after the earthquake, people described an immediate stability found through connections with their neighbors, which in some cases was strengthened by the inaccessibility of one's own home or family. Many looked back fondly on this time of close connection with neighbors. As one participant noted: "In order to cope, there was the immediate relationship with the neighbors." Another reiterated, "When you go through traumatic things with other people... it brings you closer." She described not being able to get in touch with her husband after the major aftershocks, and the importance of "being able to turn to neighbors in support in those instances." One particular aftershock wedged the doors of her home shut so she wasn't able to get back in; "I was like, 'Right, I'm just going to go out and hang out with one of the neighbors.'" Another person highlighted the degree to which people came together across the city, despite what might have been perceived as barriers under more typical day-to-day circumstances:

> For a period, there were no barriers between us. Age made no difference. Race, gender, it all disappeared. Even when it came to driving the car, people were very attentive to their neighbor. They made space and allowed you to come in when the road was blocked. That wasn't normal behavior. We were sort of sensitized to each other, and it reminded me of

> how a community might have felt when they were at war. I mean, our parents spoke with some affection about the war years, and I thought how could they? And then you realize, it's because for a time we were together.

This phenomenon was also echoed within a neighborhood of the residential red zone:

> I think the first thing that I noticed in the earthquake was immediately our tightness of the neighborhood shrunk to the size of the ones you knew and were aware of. So, it was really only about 40 households that went, 'Right, let's look after each other.'... And we were very, very fortunate. We had a huge mix of people in the area. From very wealthy, high socio-economic, to extremely poor. Tell you—an earthquake makes no damn difference. You don't stand there going, 'How long—' You're too busy worrying about how they are. And that was a good thing. That leveled the playing field to humanity and not to what you've got.

This immediate post-earthquake period was defined by heightened connection, dissolved barriers, and collaborative reconstruction of islands of stability within a sea of uncertainty. As neighbors checked in and took care of one another, the physical infrastructure that offered stabilization took on new meaning.

Stabilizing Elements as Objects of Attachment / Sites for Connection

One of the most interesting common themes that informants mentioned, when doing the post-earthquake work of restabilizing, related to survival infrastructure; wells, "port-a-loos," generators and gas grills were each described by different people as objects of attachment or sites for connection with their neighbors. In addition to fulfilling very basic physical needs, these elements of survival infrastructure accrued a social and emotional gravity, as places or objects around which communities would gather, connect, and care for one another. One interviewee remembered:

> It's that kind of that kind of basic level of stuff. So there's a there's a gathering together... of, you know, looking after each other... How do you survive? How do you get water? Where's the nearest well? We were really lucky there was a well actually just down the road. An artesian well, a private one on somebody's property. And they just kind of stuck a pipe out the front gate and people would turn up there with water containers... and you know, and it became like the village well. You'd arrive there, and you'd talk to people. You'd find out what was going on.

He reflected; "Wells meant a lot to me for a while... this kind of, availability of water, that was pretty kind of special. Emotional kind of attachment to those. The one, the local one closed down a while ago. It was kind of sad to see it go." Another

respondent fondly remembered the community connection that came from using a shared outdoor toilet;

> Funny, it was just like, that was a time and a place thing and it was almost like, you know, you get used to something so quickly... seeing port-a-loos dotted every 100 meters down the road. And people make them their own... They became part of a group of five or six houses and they became owned. And there were books that were left out, they were decorated...

Reminiscing about the lost reminder of a time and place of extreme connection, she reflected on her surprising emotional reaction to the removal of the toilets: "I remember that distinct feeling of loss when they were all taken away." Others described how one location became the center for a group of neighbors because it provided both practical survival infrastructure as well as emotional support. For example, one respondent mentioned how his family members had worked with adjacent neighbors to reshape their neighborhood around sharing resources and gathering together: "They pulled down fences. They shared generators across the backyard, they, you know. They redesigned their neighborhood to cope." Another person described how a similar site of connection was established in Retreat Reserve, a small triangular park of grass, framed by mature trees:

> Retreat Reserve... became the village hub by default, because there was nowhere else for that community to gather... That's where they located about six big enormous container-sized generators that powered all of the Avonside suburb after the earthquakes... It was also a place where the community could meet each other and share their experiences and get solace from each other and know they weren't alone in trying to deal with this. And it helped them cope with that, and work out where to from here.

Objects and sites of connection ranged from larger-scale infrastructure managed by government, like these generators, to a single person's barbecue grill. One interviewee brought up the comfort and stability her neighbor would offer through his gas grill that was able to boil faster than anyone else's on the block.

> He would call out so that you could hear in a quiet moment up and down the street: 'I've boiled water if anyone wants coffee or tea'... I remember the warmth of that. The feeling of being connected to that voice, and that we could just go in there with our mugs. And you'd sit about for a bit and somebody else might do that as well. And there was consistent inquiry as to how people were... Do they have the basic needs for their survival at that time?

These examples suggest that needs for both physical and emotional stability can be met simultaneously, and there is an opportunity for designers and planners to consider how basic survival infrastructure intersects with centers of social

capital to provide stabilizing sites of connection after disturbance.

Familiar / Normal / Ritual as Source of Comfort

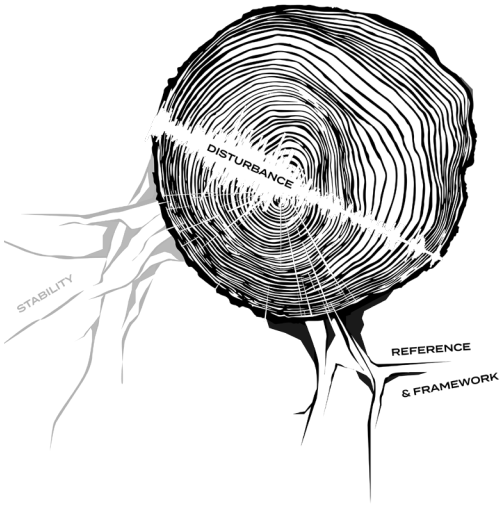
While the disturbance of the earthquake brought out the significance of new places and relationships, many people expressed finding stability in familiar places, ongoing rituals, and experiences that gave a sense of normality to an unusual and challenging time. One person said, "I began to appreciate just going for a little walk along, you know the same place on the hill, you know, every week." Both the Art Gallery and the Arts Centre were commonly referenced in interviews as comforting places because they served as reminders of stability; both through the preservation of their built form in the city and the fundamental "normality" of viewing art, especially when recent challenges have necessitated a shift of focus toward simply fulfilling basic needs. One person described the re-opening of the Art Gallery as a sign of the recovery of the city, that it had "started to regain its mojo." People talked about the escape they experienced by simply going to a different city, a "functioning" city; "It was going places where everything was normal," explained one interviewee. Another person similarly described a trip to Auckland after the earthquake, and how normal it felt; "And that's what we craved for, was just to go down the street and have a coffee. And that was an eye-opener for me. So the rest of New Zealand really didn't understand. They had no idea what Christchurch was going through. And then we had to fly back into it." Many echoed this desire for normality: "Everything's changed around you but you're trying to live a normal life." They talked about finding luxury in the little reminders of normal immediately after the earthquake—using a flush toilet, having a hot shower.

In addition to providing stability, reminders of normality also emerged as catalysts for emotional response—only once people were reminded of what had once been normal did they release repressed emotion about the loss, grief and hardship brought by the earthquakes. One person described the emotion that came to him upon hearing familiar singing: "up until that point I had had no emotion at all... there was enormous comfort in that familiar of these beautiful songs that resonate through our New Zealand culture." In particular, many people described a delayed emotional response; when they were removed from the earthquakes in some way, and reflecting on them from that position, they were suddenly struck with emotion. "The time I got the most emotional about the whole thing was about

two years after the event when I was giving a lecture in Copenhagen. Just talking about the earthquake, describing the aftershocks and things... in a different context when you explain it, when you articulate it to other people," he explained, describing the power of confronting the earthquakes by re-telling the details to others. One person experienced the same phenomenon when viewing an exhibit in Napier, a city on the North Island of New Zealand, about the 1931 earthquake there. She mentioned that it was in Napier, while perusing the exhibit, that she first cried about the Christchurch earthquakes. Another interviewee described the emotional response that came from a visit to the library post-earthquake, highlighting the juxtaposition between life post-earthquake and the "luxuries" of "normal" life:

> The first time I cried was when I when I went into the library after it reopened. And I just walked in and I started crying... And this was about a month after the earthquakes, and I hadn't released any emotion. And when I looked back on it, I thought well, the reason I cried was that going to the library is pure indulgence... that was such a luxury to have the choice to do whatever I wanted. And not to have to think about 'Where am I going to get a shower from?' And 'Is my daughter using the outdoor toilet the way she's meant to?' You know... That survival stuff. Yeah that... surprised me that that was my, 'Oh, there's some normality. I'm just going to the library to get a book to read.'

Yet as one respondent pointed out, it is dangerous to idealize the familiar: "The notion of comfortability can be linked to the places that were there pre-earthquake. Which are, actually, what I would define as colonial space. So to what extent am I... locked into that as what now makes me comfortable? Because it's the familiar." Through these comments, it becomes clear that relationships with the familiar are complex, layered, and interwoven with history, emotion and meaning. These mixed responses describe a richness to our relationships with people and place over time, and suggest a need to be critical of reflexes to simply rebuild or replace what existed prior to a disturbance.



23: Above: Conceptual Diagram—Reference

2. Seeking Reference/Framework

In addition to stability, interviewees expressed a desire for a frame of reference post-disturbance that would assist in grounding, placing, and rooting them in their context after experiencing unsettlement from it. Though all four facets of emotional infrastructure—stability, reference, understanding and agency—are interrelated, and stability was the most immediate facet sought, reference was perhaps the most prevalent in discussion, and most informed the overall theme of locating self in time and place. Interviewees discussed how needs for reference emerged, and were either fulfilled or not, through their post-disturbance experience: how relationships with others helped locate themselves as part of a larger group; how placement within their environmental context was impacted by reference points in the landscape; how the earthquake became a shared reference point for different groups to create common ground; how native and non-native vegetation impacted the reflection of one's ecological identity in the landscape, and how lost reference points necessitated the use of imagination to see one's self represented in their environment. Each of these themes highlights the inseparability of one's social and spatial reference points and their personal identity.

One of Many

After experiencing a trauma as a city, many interviewees referenced feelings of support that came from knowing that they were not alone—that they were experiencing hardship together with others in their city. They were part of a larger whole. This feeling of being "one of many" was described by different people in different ways, as an important part of emotional well-being post-earthquake. One person recalled the choreography of moving along a shared path along the edge of Hagley Park; "I love feeling like I'm part of a sea of people going about their business, and we're moving at different speeds, and we're moving with care and attention to each other." Another

person described how, amidst so much change and disruption, they found comfort in that the "people remained constant... just knowing they're there, really." While this consistency was likely a comfort for others as well, there were also many people who did lose friends, family members and co-workers. Others too experienced changes in relationships with people and places, with high rates of divorce after the earthquake. Some described the experience of going through these kinds of personal hardships in the aftermath of the earthquakes, and how that loss was made easier simply through knowledge of the larger context: "Everybody's life was different. Everybody was sort of thankful for what you had, and thankful for your friends and your family and the things that you could value. And I didn't feel lonely. I didn't feel on my own. I didn't feel like I was going through a trauma on my own because everybody was going through something." Another person echoed this same thought, describing how she had comforted someone in her life who was going through a divorce: "You don't need to talk. You just need to know that I'm just another of the many who are with you on this." What she suggests here is a form of support discussed by many: silent sharing of space. One interviewee described the way he supported his daughter, who had lost a number of friends and co-workers in the earthquake. "For my daughter and I, I'm just around her. I don't have to talk to her. She could sit in here and read a book and she's happy. To be around me. So we don't, we don't necessarily have to talk, but it's just a presence." Another person described the support his landlord had offered his wife after the

24: "One of many" observed at the Christchurch Botanic Gardens

earthquake: "He would just sit there in silence with her. And if she wanted to talk, he'd listen. But he never initiated the conversation. He would just come and have a cup of tea and sit." This silent sharing of space perhaps conveys an understanding without requiring anything in return, without asking for information, energy, discussion. These findings underscore the powerful implications of silence as a material in design of the built environment. Bowring (2017b) reiterates this potential, describing the role of silence in memorialization: "The silence created an aural hole into which memories, grief and empathy could flow... some of the most powerful landscape gestures are not spatial but acoustic" (p. 85). This silent sharing of space described by interviewees helps frame an understanding of one's position in the world in relation to those around them; it helps communicate that they are supported. While people clearly located themselves in relation to other people, the earthquakes also prompted a changing understanding of one's place within their environment, in time and space.

Locating Self in Land / Time / Environment

A disruption so rooted in environmental change understandably brings forward truths about land, water, and natural processes that are easily ignored when their impacts are not felt—as if moving the center of focus from ourselves as individuals, where we often concentrate our everyday attention, to center on the larger context of the city, region, and world. Interviewees described how the earthquakes changed their understanding of their place in the world, how they were reminded of the layers in time and space that place them exactly where they are.

> It just really, really gave me that feeling of being just a tiny teensy weensy miniscule drop in an ocean, in time and space. Because this was just a thing that happens with the land and we're just very unlucky or lucky to witness that in this space and time. So I... felt that awe of nature as well as it being incredibly sad that we lost lots of things. But I just remember being so overcome that I burst into tears, and it was because of awe, rather than because, it was probably attached to sadness as well, but it was awe-some. Awe-ful.

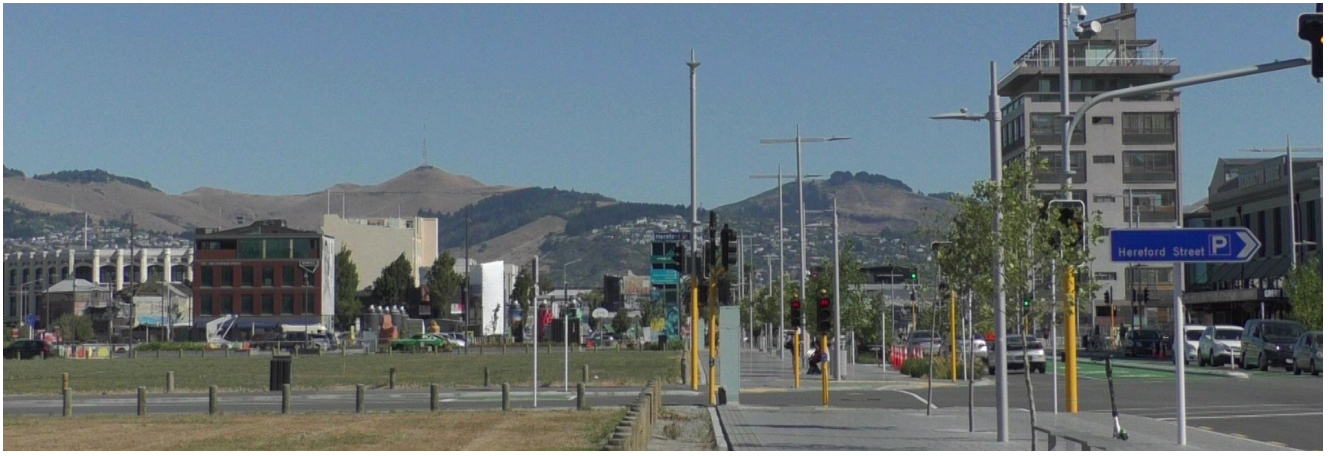
Another person echoed this placement in time; "So on a big timeline I come back to something: that that land is now closer to what it used to be because it was originally swampy country." He elaborated:

> I'm aware of the rhythms of the world and I find that is also very comforting... And it would be disconnecting to think aw, I just—the world revolves around human beings. It's very satisfying for me to know I'm part of something bigger... When you want to become settled, you know, I go through a patch of my life where I'm not so happy... the source of my comfort is always to go back and to say, well—what connects me? So in being connected to my family,

> my place. And if you're feeling miserable it's easy to go and sit beside a big river, or under a big tree and have the sense of something that's more powerful than I am. To realize that my thing is just a little thing, this tree will be here long after me.

Tides, mist, horizon, seasons, breeze—all of these ephemeral signs of larger cycles were mentioned as comforting. One interviewee described: "River's tidal, moves in and out. It's water, moving water, living by water, and how we love it." Another person who had lived along the river in the residential red zone described the significance of tides and seasons in sustaining the "living link" of the neighborhood: the river. "Always within a few days every year, the same things would happen. So your whole seasonality, your living cycle was around the environment you lived in. And it's very very good for the soul. Very good for the heart. Bloody hard to reinvent when you're uplifted and told, 'go and live somewhere else.'" This sense of belonging, and locating oneself in the land was echoed by many. One person described, "There's a fresh realization of, or a deeper sense of belonging to this land."

People also mentioned changes as a result of the earthquakes that further strengthened these feelings of rootedness and reference to the land: "The big thing that I love about the city now is the fact that we've lost so many high rise buildings we can actually see one of the pinnacles of our town, which is the Port Hills." Using these physical reference points to locate oneself is a common practice in Māori culture. One interviewee described this



25: Strengthened relationship with the Port Hills from the city

process:

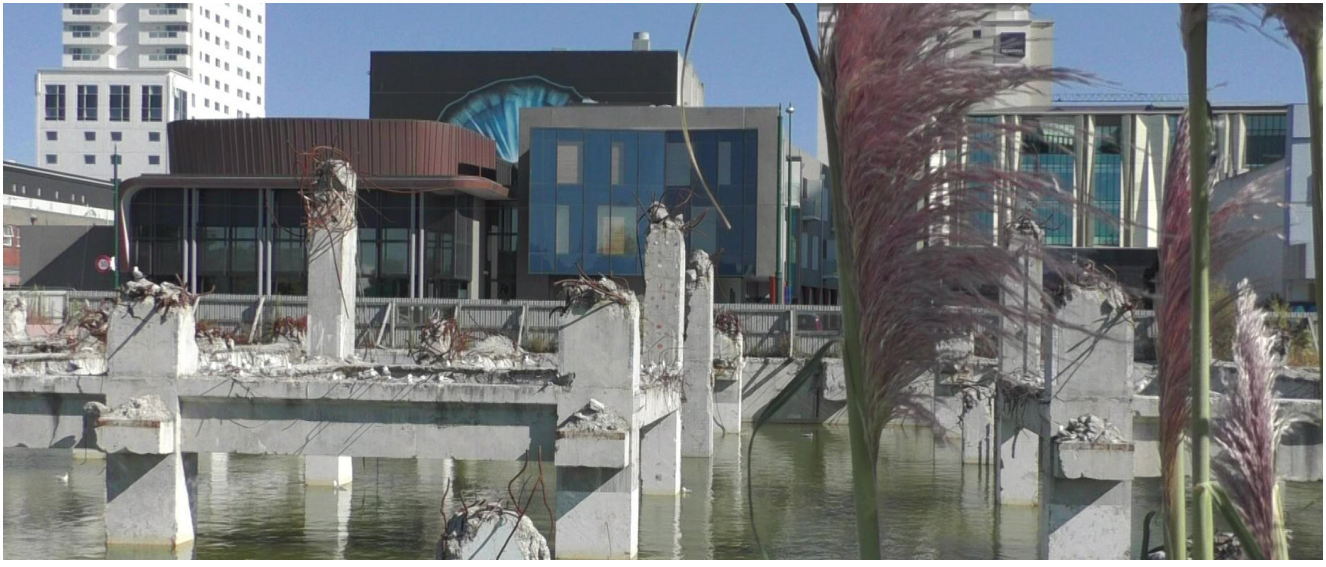
> For Māori, you know, when we introduce ourselves, for instance, we recite what we call our '*Pepeha*'... and what we're doing is we're locating ourselves in the place. So we're saying, you know, this is my mountain. This is my river... It's spatial, historical, ancestral, the whole lot. But what we're doing is we're identifying who we are, and what brings us to this particular spot... And it's about locating ourselves. So Māori do that all the time... And it's about identifying who they are. Cause who they are is not only defined by their history and their ancestry... but by their place in the environment.

Through this quote, it becomes obvious how important these reference points are, as they are intricately tied to identity. As multiple people pointed out, one's name and job are the last things introduced to describe them in Māori culture; first come natural features that locate them in their environment, along with family ties that locate them in time to their ancestors. Understanding the importance of place, then, suggests how unsettling it would be to have the landmarks one associates with self and home destroyed, covered up, or ignored.

26: The Christchurch Cathedral sits on what was once a Māori *urupa*/cemetary

27: The Ōtākaro/Avon River, a place of multilple meanings

28: The powerful and persistent landscape of Gobley Head



29: Urban nature, thriving amongst built ruins

Earthquake as Shared Reference Point

As articulated by multiple Māori interviewees, the earthquakes provided insight for *Pākehā*, white New Zealanders, to understand the unsettling colonial impact experienced by Māori when their lands were occupied and reference points destroyed. One person explained: "with the earthquakes, our European brothers and sisters learned, because they lost some of their heritage or their familiar." Another person echoed this: "The citizens of Christchurch are dealing with their loss. And there's a trauma that goes with loss. They're dealing with that. But our people have been dealing with that for generations... Now, do you know, now do you know what it feels like Christchurch? *Now do you know what it feels like?*" (emphasis added). He articulated the implications of this newfound awareness and reference, acknowledging that it has changed the ways in which Māori are involved in city-making, but that reconciliation has not been the driving force behind this change:

> Trauma creates a bond, doesn't it... And in a way it also creates a sense of elevated consciousness, I think. That can then provide a platform for really working together, really working together. So the thing is, it hasn't been around, 'Okay, we need to reconcile our colonial history.' That hasn't been the driving force behind it. But the force, the force behind it has been—say we call it a traumatic event—that has connected a lot of disparate people, and a lot of disparate communities with their own narrative of the city.

One *Pākehā* interviewee articulated this phenomenon as well: "It actually helped us reconnect with local *iwi*. We can understand their grievances of the past." Referencing a statement made by his colleague, he pointed out: "*Mana whenua* [the people of the land] were the original Red Zoners because they were cast out to drain the land and then not compensated appropriately." This shared reference point is a critical way to connect frameworks for understanding our social, spatial and political environments, helping to build empathy, understanding and common ground between groups. In this context, it is critical to also educate ourselves about the ways in which history, culture and worldview impact understandings of self. One Māori interviewee powerfully frames the earthquake based on his worldview

> It's really a system and a community that has been affected, more so than the environment really, in my mind. Because the environment is always such a dynamic space anyway—space and place. Is it damaged? Has something gone wrong with it? In my mind, it has not. I suppose if you're looking at it from the Māori perspective, if you've got *Papatūānuku* [Mother Earth] and you've got *Rūaumoko* [God of Earthquakes], it's just growing pains. It's just tension.

This cultural and historical context, extending back long before the 2010 and 2011 earthquakes, is critical for understanding emotional dynamics in the present. The impacts of colonization have been passed down through generations, and live on through the built form, names, and importantly, the vegetation of the city.

Ecological Identity (Native / Non-Native)

One widely articulated theme was the tension between native and non-native vegetation in Christchurch. New Zealand does not have native predatory land mammals because of how early the island separated from the land mass of Gondwanaland. This seemingly small characteristic has shaped the adaptations of native flora and fauna, making New Zealand natives, in some circumstances, more fragile than introduced species that have adapted to different climatic conditions and a wider range of other flora and fauna. One person explains: "we're very impacted by island biogeography... we're really black and white about native and everything else." Another interviewee puts this in the context of colonization: "This being a colony, people came, and they were desperate to remember England. So they just bulldozed, as it were, chopped down, sawed down, all the native flora wherever they lived. And put in anything that they could from England. And that that kind of connection with English and European flora, as opposed to native flora, is still a bone of contention." One interviewee expressed the internal tension she still feels as a result, given personal connections to the English garden traditions of her ancestors, but also understanding the importance of native flora:

> So immediately following the earthquakes, there was a movement—a very green movement and a very local movement—that we'll chop down all the introduced flora and all the avenues of English trees, European trees, in the east zone. Plant it with natives. Unfortunately, I felt that was their gut response. And our gut response was, at that stage—we'd lost everything, we want to protect it. Don't cut down what we haven't lost because that's all we've got left. But gradually over time, I find myself, when I'm not being challenged, I can actually get to that feeling of wanting restoration. And restoration goes back further than when my forbearers came here.

Another person, reflecting on her heritage as a 5th generation *Pākehā* New Zealander, highlighted the need to understand that both native and non-native vegetation are sources of attachment and identity for people: "Of course we should save natives because it's who we are. But it doesn't mean that we should dismiss everything else, because that is actually the history of other people as well." She added that native plants are promoted for both functional and symbolic reasons, and that often the two arguments

30: Non-native Poplar Crescent along the Ōtākaro/Avon River

31: Newly planted native vegetation adjacent Poplar Crescent

get conflated. Another respondent articulated the tensions that have surrounded the native/non-native debate in the city's rebuild process:

> I've seen the term 'Econazi' referring to people who want to have native plants. And even what they've done in the City Centre is a huge compromise... Even street trees. You know, bloody Canadian Maples or something. I mean, it's like really? You're not shading any houses. Why couldn't you put up Evergreen New Zealand trees?

The symbolism of non-native vegetation is critical, in the New Zealand context, where its island identity is so intertwined with its ecology. For some, the symbolism of non-native vegetation can be equated with that of colonial statues. One Māori interviewee describes: "I hate going to the botanic gardens. Because once again, it's all laid out in front of me, you know all the all the vegetation from England... I don't feel as though I'm in *Aotearoa* [New Zealand] at all." He also recounted the joy of finding a native glade deep in the Botanic Gardens—a reflection of the place he knew—his own identity. These debates bring forward the intertwining of emotion and ecology that grounds an understanding of reciprocal relationships between people and place. Therefore, "Ecological restoration in the city should not be separated from the social and cultural restoration of the human communities that inhabit the city, particularly those who have been most disenfranchised by it. If it is, questions then need to be raised about the limits being placed on the definition of ecology" (Matunga, 2000, p. 70). Understanding our emotional ecosystems within this social and cultural context highlights the challenge presented when disturbance impacts aspects of place that once reflected personal or collective identity.

Lost Reference Points, Imagination to See Self in the City

Reference points assist with legibility; they help us locate ourselves in a place. Because reference points are informed by our personal and cultural histories, unique objects, landmarks and places are significant for different individuals. When these reference points are lost, we are forced to use our imaginations to remember what was there, and maintain those connections to self-identity through memory. This underscores a responsibility to consider, reflect and acknowledge memory and identity through design of reference points in the built environment, especially given the reality of future disturbance and increasing cultural diversity. Yet this process of restoring reference takes time, and requires judgment to prioritize what is worthy of reference in the built environment; "Everyday activity can be quickly replaced. Replacing identity and memories is a slower process. Cities are

repositories of both collective and individual memory, and their buildings and spaces may be significant as the location of important events or functions, or as examples of particular periods in social history and culture... Taken together, the layered urban mosaic and its biophysical fabric is one of the richest records of memory and identity in contemporary culture" (Swaffield, 2013, p. 8-9). In interviews, the concern of lost reference points was brought up in different ways: "where's your point of referral;" "it's touchstones and trigger points;" "it's about losing personal references." People talked about age as a factor influencing the impact of lost references, with young children better able to adapt this loss: "We moved to a new house. That's just normal. They don't have anything to compare that with. They're not like us, and in a way they're much less upset about losing the city... So they don't have that experience of place that necessarily gives them a really strong attachment." Another parent re-iterated this: "They don't have enough memory to sort of really remember what the city was like... They don't really remember any of the old. It's of no consequence to them. It's gone." Whereas for older individuals, the thick layers of memories that relate to places within the city make that loss even more emotionally disruptive. One interviewee described how his mother never wanted to go back into the city after the earthquake, and when he finally took her, "it was too much for her to comprehend that the city that she'd known for all her life was gone." With respect to this longstanding, layered memory of a place, the influence of change and loss for Indigenous peoples becomes more clearly understandable—with this context, it is easy to see how intergenerational memory and oral histories could build deep connections with ancestral places, and lack of acknowledgement of, or interruption to, these attachments could have an extreme emotional toll.

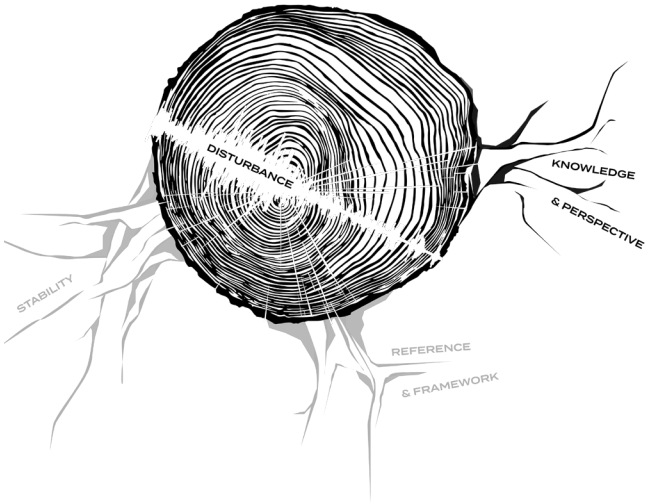
Multiple Indigenous interviewees reflected on the need for Indigenous people to use their imagination to see significant places that they know existed, through intergenerational histories, but have been covered up and paved over. "If you don't have the physical reference points to guide you, you can use your imagination," explained one person, discussing this phenomenon in the context of living memory:

> We have to relegate or lodge in our memory bank, don't we, things that are no longer there. But what happens when all these reference points are going, but not only have they—either you've been removed, or it's been flattened, and another layer is being continually imposed over the top of it. But you then have to rely on your memory bank, that for many Indigenous people, including Māori and Ngai Tahu in the city, it's now multi-layered, multi-generational.

He described the vision of an Indigenous person, walking through a city and seeing a completely different place: "If you got an Indigenous person, they can walk around the city, but they see a different city, you know? So it's like... multiple meanings, multiple narratives, multiple cities." Another Māori interviewee elaborated on this idea, pointing out the need to understand our histories within the context of daily life at the time:

> But even we're constrained in our thinking sometimes because we get the map of the *Pa* [fortified village] that some European archaeologist drew—you know, that's the first time they were ever mapped. And that's our impression of the *Pa*—is this map of the archaeological features, rather than seeing it as being a living place. Like, I mean you've got to imagine yourself living there... Realizing how our people moved through the landscape's important... Today we drive cars and bikes and stuff, and go faster, but when you're slower... the whole world's different.

Many of these comments allude to an uprooting experienced through the loss of reference points, whether from imposition of layers of colonial history over time, or the demolishing of the built fabric of a city—triggered by an earthquake, and propelled by destructive insurance incentives. Understanding the many ways people seek reference from their social and spatial environments, along with the intimate ties between reference, identity and belonging, designers and planners should consider their role in consciously and intentionally affording culturally-nuanced opportunities for reference throughout the city and over time. Related to reference, residents also looked for opportunities to learn about hazards and grow their understanding of risk as a result of the earthquakes.



3. Seeking Knowledge / Perspective

While stability and reference were sought to regain footing and locate self in place, interviewees also discussed wanting to make sense of the earthquakes—to better understand what had happened and why it happened, and provide insight into how they might reduce the risk of future damage and trauma. This understanding was articulated in two parts: seeking knowledge of natural context and processes, and a resulting shift in perception of hazards, values and risks that came from changes in awareness. For some, this combination of new knowledge with a change in perspective brought a new, and still not entirely rational, understanding of one's location within a larger context of time and place. This often helped shape a better understanding of what one could and could not control—with the potential to lower future risk if acted upon.

Desire to Learn About Natural Context / Risk

In order to regain a sense of control or certainty, people discussed the desire to understand earthquakes, why they happen, and what actions would reduce their future impacts. Having a clearer picture of what one can and cannot control has the potential to bring a sense of calm, and a commitment to leveraging one's influence to positively impact their own safety or future. As one interviewee recalled:

> Everybody wanted to understand earthquakes... So they did articles in the news... To understand what an earthquake's about and why they happen, you had to learn about earthquakes. So the local university had some lectures. This is probably nine months or twelve months afterwards. And they were turning away 500 people because people wanted to go and sit and listen to the expert talk about earthquakes. So everybody studied earthquakes and understood that they're random, there's no rhyme or reason, we might get virtually, they said two years of aftershocks, and it was virtually to the day of two years. So it went shake shake shake shake for two years, and then it virtually just died away.

Here, one participant references the fundamental

32: Above: Conceptual Diagram—Understanding

challenge of earthquakes: that they are nearly impossible to predict in advance. While early warning systems are being developed, tested and active in a few locations, these can only provide residents seconds to a few minutes of notice prior to an earthquake, using sensors to detect P-waves before the more destructive S-waves begin ("Earthquake Early Warning," n.d.). On the scale of multiple years, decades and centuries, experts can also predict larger windows of time in which earthquakes are more likely to occur based on prior records and patterns. These patterns enable seismologists to predict the rate at which aftershocks will likely diminish, for example, as referenced in the quote above. While this understanding of earthquakes is useful, there are few action items for the average person to take away—knowing about the earthquakes themselves does not open up options for individuals to exert control. Yet, as referenced in the beginning of this thesis, there is a distinction between the "change," the ground shaking, and the social and spatial "impacts" of an earthquake. While we cannot control the change itself, there are ways communities can influence an earthquake's impact. This possibility is at the root of these expressed desires for understanding. One interviewee discussed the emotionally comforting nature of knowledge in this context; knowing that buildings were constructed using technologies intended for earthquake stresses gave her a "scientific basis for safety." This quote also suggests that comparing future events to past experiences can bolster a sense of certainty and familiarity, reducing stress by taking on a different perspective or frame of reference:

> I don't feel uncomfortable in Christchurch at all. I guess I know now as well that the buildings here, there's such a high standard in terms of earthquake strength that there's that kind of scientific basis for safety, perhaps. I understand that if and when the Alpine Fault goes, it will feel much the same here as—I can't remember which earthquake, the 7.1 or the 6.3—but also knowing that the buildings are now built to withstand it, though probably really when it comes down to it, the place I feel safest is at home.

This last comment gets at an important conflict—the tension between the rational and irrational, between knowledge and emotional attachment. Another informant articulated this same tension, comparing the risk of two beachfront locations in Christchurch, Sumner and New Brighton, both east-facing, low lying, coastal suburbs:

> Sumner... I've seen the tsunami drawings there, and you know, it's just a nightmare. The wave comes in and it kind of rattles around inside and everything on the valley floor is destroyed... So it has changed my perception of some places, and my comfortableness with them. Not entirely rationally, I mean, you know, arguably New Brighton and places like that are just as bad as Sumner, but somehow it's

the enclosed character of Sumner that worries me.

He also mentioned the impact of the earthquakes on feelings of safety in other cities, particularly Wellington, on the North Island of New Zealand, which is built on a known fault line, with a major earthquake predicted to occur there.

> I actually feel uncomfortable walking through the streets now because of the masonry buildings, which I know in a big earthquake are likely to topple... I know a lot of them are not reinforced or up to code... I know what a disaster Wellington will be if there's a big quake. You know, and I don't want to be there. Which is interesting, because it's a city I really love.

These quotes show that knowledge can contribute to both comfort and discomfort, and can shift one's perception of risk, and frame how they understand their own ability to control that risk. At the same time, interviews pointed to a complex and common tension between rational understanding and emotional attachment. This tension guided shifts in perspectives of hazards and values as a result of the earthquakes.

33: The "enclosed character" of Sumner

Shift in Perception of Values and Hazards

Among the many impacts of the earthquake was a re-evaluation—one that involved critical consideration of one's own values, a renewed appreciation for our human role in present vulnerability, and a changing perception of hazards and vulnerability. One person described how the earthquake catalyzed a critical reconsideration of what was personally important:

> This was an experience that changed the direction for a lot of people and if there was a shake up and a shake down, what was of value to that person tended to rise to the surface. So if you were in a good relationship, you became aware of how valuable that is. So a deeper appreciation of what's awesome. And what's not good for me? I'm out of here... Our outlooks are not the same.

While this phenomenon certainly had many impacts on interpersonal relationships, it also greatly changed the way people understood hazards, vulnerability and responsibility. Considering this, one interviewee remarked, "yeah, I guess it's a perception of hazard that I didn't have before. So there's a different perception of landscape." Many people discussed a changing awareness of environmental context post-earthquake, and interestingly, water quality topped the list of concerns. One person referenced a survey conducted after the earthquake to understand what the public thought was most needed:

> The two highest rating things were quality of drinking water and quality of environmental water—you know, rivers and lakes and things. And that's not the same in Auckland or Wellington. That's something, I don't know why it is, we're really passionate... Partly because we have this amazing water—we had this amazing water supply. Artesian water, it just tasted so beautiful. And everybody in Christchurch just really loved it. It just came straight out of the ground into our taps. You know, not treated at all.

Another person described a campaign to bring more awareness to this gift of local artesian drinking water:

> They did a project where they harvested the water and put it in bottles and took it around and just gave it to people and said, 'Do you know, this is artesian water? It's very special. It's from Christchurch and it should never be sold'... They kind of went around with a cart and gave away this free water. But they also told the story of, you know, the fact that we still have natural springs in the city, and how important they are for us to look after, and how important it is to keep clean.

Others discussed river quality; "having learned more about what makes the waterways healthier, and what to do to make the waterways healthier, has made me more connected to the river." Another interviewee reiterated this, emphasizing the human impact on these water systems:

> I think that people are beginning to realize that what we are as a city is at the expense of the environment. And still is, in terms of water quality and stuff like that. Even since the earthquake there's, nationally, there's been a lot more awareness of issues around river water quality and things like that. And people are beginning to see the connection between that and how they live in the suburbs because it's all interrelated... We took so much for granted we actually needed a big shake-up to actually re-appreciate some of the things that we do do. And now the risk of some of the farming nitrates and what not which are draining into aquifers, into the Waimakariri [River] and everything else. So it's a new appreciation of what the issues actually are.

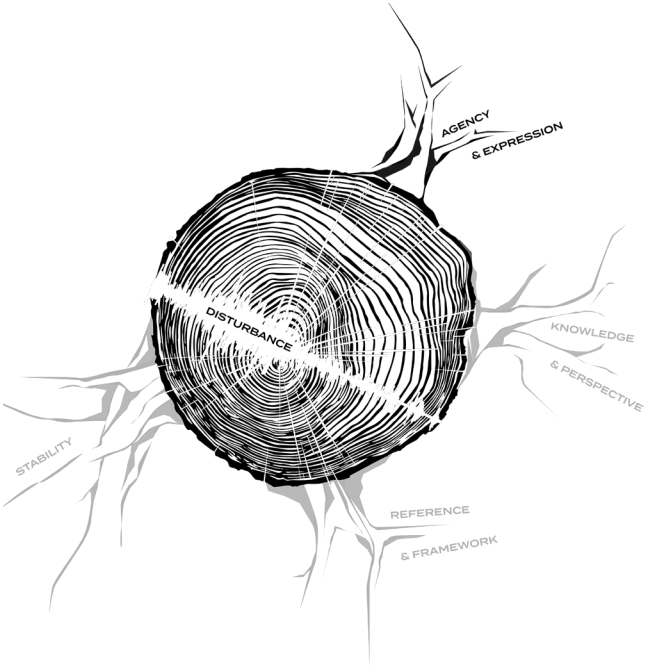
Broadening the context to the larger region, the Canterbury Plains, another person articulated these water quality issues, while echoing this acknowledgment that public awareness is still limited:

> The rain falls in the mountains, the snow melts and things, and it all comes down the braided rivers and goes into those aquifers... The issue really is when it starts to affect our water supplies, not if. So, we've kind of still got the disconnect happening... we want to... internationally supply dairy to the rest of the world and it's fantastic, but actually we're kind of poisoning our own backyard at the same time... We're creating, you know, a land use that is not appropriate for the land... As much as anything, I think it is when it starts to affect people that they notice it.

Another interviewee, who had lived along the river in the residential red zone, discussed this larger context as well, connecting surface conditions to the water systems and underground layers that influence land vulnerability. Describing the human actions over time leading to that vulnerability in Christchurch, she pointed out the need for design and planning to better acknowledge and respond to these invisible conditions.

> We know now how vulnerable the land is next to a water system. It's weakened and it's easy prey to big damage and therefore trauma for the people living there. Especially trauma in this city because in the development of this city, or any city, you cover up the waterways. You drain the swamp, you cover up the waterways, and you plant houses all over them... And I was very aware, also because of my own geographical interest and historical interest, that from the Botanic Gardens out to the sea had been subterranean. Under the sea. And we had a very different land base than the people in the northwest, or people in the north of the city. They had a base that was... remarkably solid because it's got some places more than a mile deep of gravel—of pebble, of rock—and all these underground rivers. Whereas on this side, this is where the sea, gradually over millennia, retreated. And we've got swamps... It's very very vulnerable. And through that vulnerable there has been the usual dollop of ignorance from people in what you might call the surface industries—that is, building houses and selling houses, with no knowledge of where it would be really suitable to live. And planners includingly. Planners also have a great facility for overlooking the important underground effect.

As described, the earthquake prompted a re-evaluation of personal values, while also changing the way that people perceived their environment, and understood their place as actors within it. These comments first acknowledge that we, as humans, play a role in influencing these environmental systems—for better or for worse. Past actions have led to present issues with water quality and land vulnerability. The comments also suggest recognition of our own agency to change our behaviors, and ways of life. One person explicitly suggests the importance of this agency as the city considers its future direction: "like changing the way we live. So, not living on such vulnerable land." This sense of agency and control over the direction of the city's future is the final facet of emotional infrastructure to be explored.



4. Seeking Agency

While it is no surprise that people sought agency and a sense of control after the earthquakes, the different ways in which people found that agency may inform design and planning for empowerment in the context of uncertainty and change. Respondents expressed taking control over their uncertain environments, recounting unique strategies for not letting earthquakes and aftershocks dominate them. While individuals found different ways of creating this agency, many people also talked about the impacts associated with a lack of agency. In particular, interviewees discussed processes associated with the governance of the recovery and rebuild, with emotional responses

34: Above: Conceptual Diagram—Agency

deeply connected to their agency (or lack thereof) in the direction of the city's future. As the final facet of emotional infrastructure, this desire for a sense of agency and control can be understood as another way that residents looked for an active means to locate self in time and place, taking initiative to create space for themselves, articulate who they are, and how they would like to see the city reflect their history, preferences and identity.

Control / Power in Relation to Land / Water

To avoid feeling helpless, Christchurch residents developed methods for standing up to powerful disrupting forces including, but not limited to, the earthquakes. Through expression, creation, cooperation, guardianship and leadership, interviewees exerted their own control over their environments. One person described how she found power in swearing at the earthquakes and aftershocks when she felt them coming: "As soon as I heard that rumble, the beginnings, I started to swear loudly at the earthquake. And it rose in a crescendo as the earthquake did... Like a person-to-person response. 'Don't you dare shout, don't you dare attack me.'" As her way of exercising power and not sinking into the role of a victim, she described the importance of having a dialogue with the earthquake rather than letting it dominate. "Talk to it as a force. From your own force." Others discussed finding their agency—exerting their control—in very different ways. For example, one person described the empowerment his wife felt in the immediate aftermath of the earthquake from checking in on those around her:

> I said to her, 'What I want you to do is leave the house and go knock on our neighbor's door. And when you've checked on them, go knock on the next door.' And find something to do that is an act as opposed to sitting there. She was in her office at home and everything collapsed around her, so she was in a high state of anxiety and panic. So she did that, and she just felt mobilized after that. Grounded, in control, moving forward.

Taking control as a form of healing and calming was something many people described—whether it came in the form of feeding other people, helping deconstruct dangerous chimneys, or shoveling liquefaction. In addition to these collective initiatives, people also described personal strategies they had developed for exerting control in a productive, restorative way:

> The relief I got was actually playing with clay. Which is still soil, you know like, stuff from the earth. So I always have this, almost a metaphor for this, for my earthquake. It's playing in the mud—feeling quite stuck in the mud, but, you know creating stuff... getting back into my, into the garden here. It connects you with the earth. So I was trying to do that all the way through.

Another person described finding agency after disturbance through interaction with his environment, this time referring to the disruption and resulting impacts of colonization, including the degradation of the Ōtākaro/Avon river. He talked about paddling the river and monitoring its water quality; exercising agency by protecting the river, and having a relationship with it.

> Paddling's a good outlet for that. Because I can still go to the places where we'd gather food, or still watch our food gathering places, like the river. Even though I'm not gathering the food, but I can keep an eye on it. And maybe, over time I feel that it's healthy enough that I could do that. Because of all the other stuff we're doing. It's a good measure. I do environmental monitoring too, so I've set up monitoring tools. So that's another way that I've learned that we can interact with our landscape and our environment, caring about the food gathering aspects, and all the other things—our heritage sites and stuff. But not actually utilizing them in the way they were, but having a relationship with them.

One professor described feeling connected to his employer, the university, because of his part in guiding its rebuilding processes post-earthquake: "And so being part of the rebuilding of the uni has made me feel, kind of get closer to colleagues and feel more committed to this place." He articulated that this opportunity to lead within the university had given him "a sense of place" there. Others discussed this same feeling of connection in the context of the city's rebuild processes, while some expressed the inverse—that a lack of agency can lead to feelings of disconnection and disempowerment.

Lack of Agency

While people talked about the importance of finding personal agency post-earthquake, many also expressed that being displaced, feeling burdened by commitments, and feeling powerless or excluded from important processes were negative aspects of their post-earthquake experience. One mother explained, "Having kids, yeah, for me, made it harder. You just don't know if you're safe. And then of course if you have property, you can't pick up and go... So I felt quite stuck." These commitments, in some ways, acted as restrictions or limitations to the control that one could exert post-earthquake. While having children and owning property are, in many cases, chosen restrictions, participants also noted restrictions that were not by choice, for example, ways in which the influence of insurance companies led to feelings of disempowerment and lack of agency. One person remarked on the difference between individual and collective power in the context of Indigenous peoples dealing with post-earthquake insurance claims, highlighting the lack of agency held by Indigenous individuals:

> Ngai Tahu is quite commercially well-regarded and probably has quite a lot of *mana* [authority] within the business community, so when I'm working for the *hapū* [sub-tribe], *iwi* [tribe], pretty much whatever you say, you get. Within reason. We didn't get everything we wanted, but certainly you do feel listened to and respected. And you feel like you can make quite a lot of progress. Then as an individual... dealing with the insurers, not dealing as a collective, you're really, really vulnerable.. definitely power in the collective... Even some really significant *kaumātua* [elders], like old people that I know of, really powerful people within the *iwi*, and even within government, are dealing with the EQC [Earthquake Commission]. They just got absolutely walked over. No power as individuals.

Complementing earlier themes suggesting the importance of communal support and seeing oneself as one of many, this comment highlights the power that comes with collective action, while also stressing the disempowerment felt by individuals, particularly those in marginalized communities forced to act within systems they had no voice in shaping. This lack of agency, resulting from interactions with insurance companies, was also discussed in relation to the post-earthquake governmental response. As mentioned earlier, one person articulated a common theme, that the earthquake was not the source of his frustration; "It was the nature of the rebuild process, the governance of the rebuild, that made me sort of back off from the city." Another person echoed this sentiment, pointing out why the government might have been motivated to reduce community participation in the rebuild:

> After the quakes, the recovery and rebuild phase has not been a really inclusive one... because there was so much money at stake, because New Zealand is well insured and the reinsurers were getting very shaky and worried about the amount of money that they were being obliged to pour in, the government took close control of it. And worked with, big finance really. And that hasn't left a lot of place for I think a bottom-up led rebuild.

For designers and planners, understanding these governmental motivations can inform clear, pro-active strategic proposals for local engagement and action. Those who were displaced as a result of the earthquakes—who lost homes, or lived in the residential red zone and had their property bought out and cleared by the government—also expressed a desire to stay connected, and to see something made of their grief and disempowerment. One person, who had lived along the river in the red zone, expressed: "It's hard to lose what you've lived with for so long, but then you realize that it's actually given back the city a massive asset. I think the city will either really make something of it, or it'll just turn to custard." Out of the four people I interviewed who had lived in the residential red zone, three were heavily involved in coordinating, communicating

and acting on behalf of a vision for the future of the area. Reflecting on what had once had there, all three suggested that this personal investment of time and energy was beneficial for them—that taking action felt good. Another person, who lost their home but did not live in the red zone, mentioned the healing nature of staying connected to other aspects of their home—the neighborhood public spaces:

> It was very important to connect with people in the parks and in the spaces that were close to where we lived because we couldn't live here any longer. But the landscape was really, really key. Still, we wanted to be in this valley. We wanted to be feel home... We didn't want to disconnect ourselves any further from what we didn't have anymore.

This idea has implications for design and planning, reminding that access to public space, especially in areas that have been heavily impacted by disturbance, is critical for maintaining social connections to neighbors and emotional attachments to neighborhood places. Providing opportunities for members of an impacted community to have agency or control over public space, particularly if they have been displaced from their homes, is one way to foster emotional wellbeing in a context of unsettlement. While multiple interviewees from the residential red zone were able to create these opportunities for themselves, designers and planners should consider their role as facilitators post-disturbance, looking for ways to cede power and share in the task of envisioning and rebuilding. One person, who had been involved in the rebuild process, offered a perspective of the larger context, and the role of transitional projects in providing this sense of agency—offering an avenue through which people could shape the public space in their city.

> After the earthquake was a period of emergency response... fixing problems and making things safe. Kind of getting the basic services back on. And then there's a gap. You know, and in Christchurch, it was probably five years until the first permanent, big permanent development started opening up... And in that period, you know, there was a huge amount of work happening. Lots of planning, lots of design, funding... but nobody could see it... And that transitional stuff... they were the projects that people saw on the ground... and what was amazing is they could participate in it.

As a more "bottom-up" initiative, these transitional projects let the general public articulate what spaces and programs were needed, and provided space for collaborative action toward a common goal. This agency to influence Christchurch's future was mentioned by many, and the excitement of collaboratively and creatively shaping a new city together was evident in many of conversations.

City as Process, Agency in the Direction of the Future

The shake-up of the earthquake brought with it an opportunity for a fresh start, making residents hopeful for a say in the evolution toward a better Christchurch. As referenced earlier, those who did have this agency were grateful for the emotional return on their investment of long hours, hard work, and emotional energy, which was physically reflected in projects throughout the city. As mentioned, there were others who were frustrated by their lack of agency in shaping the future they wanted to see. Yet generally, there was optimism about the future of the city, as interviewees consistently described the post-earthquake Christchurch as a more exciting place with a bright future, and echoed the sense of shared purpose that arose in the aftermath of the earthquakes.

For many, the temporary, transitory, dynamic nature of the city was represented through the dramatic change brought on by the earthquakes. One person described: "I like what we are becoming. I still see it as a process. I don't think we're there." She highlighted the potential for human agency to influence the city:

> It was quite static, whereas now I see that it's evolving. And it probably will evolve for as long as there's people living here. Because people make up the city. They're so important. The city was, you know, the buildings were totally removed. I think we all learned that the community and the people are more... important than the buildings. And that the public spaces are really, really important.

She talked about the newly developed public space being "less institutional" than it was previously, largely due to the incorporation of *Tikanga* Māori. Others described the new Christchurch as "more vibrant," a place that is "reinventing itself." Describing a new project along the river called "Riverlution," one interviewee talked about its potential legacy as a collaborative project, and the lasting importance of co-developing ideas with community:

> That whole thing is an example, I think, of people trying to reinvent a new identity and start to have a new connection with the land on this place. So its place-making which is new and innovative. And a lot of it is about small ideas that different groups have had, and then connecting the dots and making it a bigger package, if you like. But that all gives further weight to that identity and that sense of ownership, and I think possibly it will give it more permanence.

Another person articulated the kind of bottom up, collaborative agency that has driven projects like Riverlution:

> The experience of coming through the earthquakes and the recovery period has taught us that we can

shape community in positive ways; a sense of, kind of, agency. And we can do good things... and the way we live in the city isn't inevitable. It was smashed, and it's being rebuilt, and there's tensions around the rebuild, but it's a malleable space and it can be, lots of people can have a stake in that—can have some role in that.

For those who were heavily involved in the rebuild process, the earthquake created a deep sense of investment and connection, suggesting the power of collaborative city-making and a sense of communal ownership and involvement:

35: Juxtaposition of old and new, and the makings of a vibrant future Christchurch

> I put so much of myself into you know, trying to make it a better place... there's an intimate relationship with it. The trials and tribulations and the, you know, just the experience of making a new place, you know forging a new place...They're really strong, powerful experiences. Yeah Christchurch isn't going to leave me in a hurry.

Another person echoed this strengthened connection as a result of the earthquakes:

> I love it because it's given me a purpose beyond what I'd normally have. I mean, I was working for a national tertiary education provider... doing the student management databases. I can't see myself still doing that now. I'd have probably retired. In fact that's what I'd be doing. But doing this earthquake work, this regeneration of the city work is something that I feel very passionate about and I'm well beyond retirement age but I'm not going to retire. I'm going to keep doing it until I can't anymore.

This sense of purpose was articulated over and over again, as people described having an emotional stake in their work.

> But then with work colleagues, there was certainly that sense of a shared experience... Especially that first winter after the earthquake, I'd be quite regularly working until midnight. A lot of people were. And that sense that it just had to be done. It had to be dealt with. I guess we knew it wasn't going to go on forever... I mean nobody wants to work 'till midnight, but people weren't complaining about it in the way that they might do. Now I think, 'Oh my God. This sucks. My boss is awful.' But then it was like, 'No, we just have to get that done.' That sense of a shared purpose, I suppose.

And again:

> We had a strong purpose. Often in our work, we don't quite know why we're doing it. But this purpose was very clear. A strong, community-centered, and it wasn't selfish—it was bigger than all of us. So it was a noble purpose, so for that, in that respect it's been—this was my version of the war that my parents went off and fought. That's how I like to think of it anyways. It wasn't an act of aggression, but nevertheless, it was a time when the community all came together.

The rise of this common purpose as a motivation for collective action was a hugely positive effect of the earthquakes, and suggests the opportunities presented by disturbance, which will be further unpacked in the following chapter. Can we design to promote this sense of shared purpose? Can designers and planners leverage this motivation through inclusive processes of city re-making post-disturbance? With better understanding of the four facets of emotional infrastructure—stability, reference, understanding and agency—I now transition from describing what emotional infrastructure is to unpacking the process of fostering it in the built environment.

Emotional Infrastructuring as Process

Founded on previous discussions of emotional infrastructure as a concept, this section describes emotional infrastructuring as a process. Drawing from phenomena that emerged as a result of the Christchurch earthquakes, I make a case for how design and planning might begin reconciling the past, embracing the present, and welcoming a future of diversity and disturbance. Beginning with ***Disrupting a Damaging Normal***, I detail how the earthquake's disturbance enabled local Māori to carve out space and visibility in the city. This section discusses the opportunity presented by disturbance, and the critical nature of valuing and making visible multiple narratives—in particular those that have been paved over, marginalized, and rejected by settler culture. Interviewee observations highlight an echoed dissatisfaction with old narratives for the city, and a widely-held desire for something new. By disrupting the status quo, the earthquakes also prompt a ***Collective Re-think of the City's Course***, bringing attention to existing assets and enabling critical consideration of the city's direction. Synthesizing critiques, aspirations, suggestions, and questions from both Māori and *Pākehā* participants, the next section of this chapter proposes ***Cultures of Reciprocal Care*** as a shared hope for the future.

While I draw on the stories of all informants, I focus on Māori concepts of care, including *kaitiakitanga* (stewardship) and *manaakitanga* (hospitality) to consider nuanced, inclusive design strategies for supporting a living, evolving culture. The concept of "Indigenous oases," proposed by one informant and supported by others, offers insight into how emotional infrastructure may be constructed within a Māori cultural context, although the logic of culturally-specific spaces linked throughout the city may be extended, to offer a framework for overlapping networks of emotional infrastructure catering to the needs, memories and identities of different groups. These concepts are also discussed through a culture of care exhibited in the relationships and stories recounted by those who lived along the river in the residential red zone. Finally, building on discussions of these existing cultures of care, along with the expressed importance of reciprocating care, the chapter concludes with a consideration of life going forward in Christchurch via ***A New Normal***. Focusing on increasing cultural diversity due to climate change, I present dreams for the future expressed by interviewees, the role of design and planning in supporting those dreams, and ultimately, argue for the need to embrace diversity and disturbance as a new normal.

36: Opposite: Disrupting a Damaging Normal—visualization of the city as multiple layered narratives

It's never just been one city... I mean, that's Christchurch, but it's also Ōtautahi.
There's another name for it... but at this stage, we only see the dominant city.
We've actually got a drill in a bit... See the different cities within.

Disrupting a Damaging Normal

In deciphering important takeaways from this research, it is worth unpacking not only how emotional infrastructure can be conceptualized and defined, but also what this research means for design and planning—how emotional infrastructure can be fostered through time, in the built environment. To this end, it is important to recognize that change can unfold slowly through incremental, intentional steps, but it can also occur in a dramatic instant, through an extreme event. The positive outcomes of this dramatic change are worth noting when articulating how the Christchurch context might inform processes for design with disturbance into the future. One resounding theme that emerged in conversation with participants in relation to the idea of the city as a process was the rejection of an old, conservative, colonizing narrative for the city:

> It's never been just one city. I mean, there's a statement about power. It's never just been one city... I mean, that's Christchurch, but it's also *Ōtautahi*. There's another name for it. You know, there are multiple cities, but at this stage, we only see the dominant city. We've actually got a drill in a bit... See the different cities within.

Repeatedly, different interviewees echoed this same sentiment—that their view of the city is in conflict with a dominant yet outdated perspective of Christchurch as a purely "English" city.

> I'm less invested in what you might call some of the bigger narratives about the city... the dominant narrative is quite a conservative one. Kind of owned by the richer suburbs at this end of town... and if you can date your ancestry back to the first four ships of the Anglican settlement, you've got a particular claim to be part of the Christchurch establishment. But most of Christchurch doesn't have much connection with that, and doesn't really buy into that story of the founding of Christchurch. A lot of people are not English in ancestry, a lot of people aren't Anglican in orientation.

Another person echoed this, adding that recent change in the city has brought a new perspective:

> It was this conservative city... heart was dying, and the punks were rebelling, and the, you know, there was quite a lot of tension between... the Old Guard and the old school values and alternative ways of doing stuff and now it's a lot more... I don't know, people are here listening, maybe.

Multiple interviewees brought up the increased presence of local Māori, or *tangata whenua* (people of the land), and their role in the city's evolution. *Mana whenua*, in the quote below, refers to the authority carried by local *iwi* over the Christchurch area:

> I think Christchurch is reinventing itself in terms of its place in New Zealand. It was always seen as the very white middle class English Garden City, and I think that is being re-defined right now as well. And

> that's because of that assertion of *mana whenua* as well. Being recognized as a key stakeholder, people beginning to acknowledge that this place is more than an English heritage—a much deeper heritage than that.

Another interviewee echoed the importance of this inclusion, while also acknowledging that the work of reconciliation is not complete:

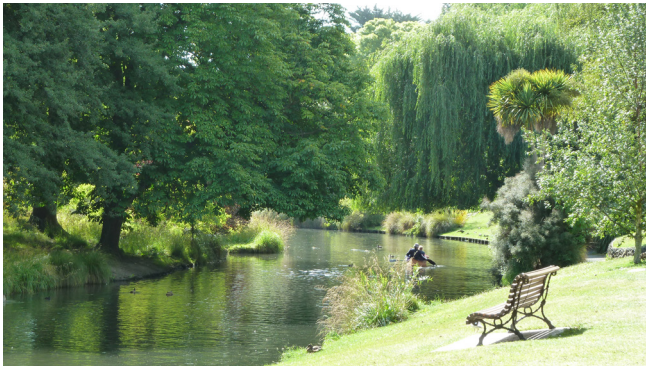
> We were a very British city. And probably still are. But we musn't forget our *tangata whenua*, 'cause they gave us a lot more. And they had a lot taken off them too.

Questioning whether the inclusion of Māori narratives in the city is truly legible to the general public, another person referenced recent projects in the central city that have been part of a larger re-assertion of Indigenous identity throughout Christchurch:

> All these Ngai Tahu features... have been built into the new city center. You know, so when you walk along the Avon River, you've got all the *whāriki* (mats) and those sorts of things. You know, [I wonder] whether the general public actually understands the why, and starts to see the city as something—as more than an English city. Which is, you know, how Christchurch was always perceived—the most English city in in New Zealand.

The earthquakes, in tandem with a well-invested treaty settlement, opened up space in the city for re-assertion of the Indigenous narrative—in particular, for Ngai Tahu, the largest of the local *iwi*, to have

38: Colonial statues overlooking everyday life in Victoria Square


37: Christchurch, the English Garden City?

a formal role in the governance of the rebuild. One Ngai Tahu interviewee summarized: "the earthquakes have... accelerated the presence of us back in the city." Another person explained in more depth:

> The stories and the art and the statues and the architecture—that reflected one narrative, and that didn't include the narrative of *mana whenua*. As you probably know Māori, Indigenous people here, over the last, mid-90's, the *iwi*s, the tribes, started to settle. And they've grown stronger and stronger economically since that period, and they continue to grow. Now they have an economic clout and they were able to leverage that with the rebuilds, and make sure that the stories were inserted in the rebuild. Yeah, that was a really positive thing.

This re-assertion of Indigenous power was part of a larger shift that occurred as a result of the earthquakes. As an enormous disruption to the "normal" Christchurch—what was described as "conservative," "English" and "institutional"—the earthquakes prompted a re-think, and provided an opportunity to re-imagine what the city could be.

Collective Re-think of the City's Course

In addition to disrupting a stale, inequitable, damaging normal, the earthquakes led to another positive outcome: a fresh start—an opportunity to re-think how the city was developing, for whom it was built, and what could be done to improve its future for its inhabitants. One interviewee described how the earthquakes made space for thinking differently about the city: "It's almost like that gap, that chink, that's created has meant that the more creative—or the things that generally were sitting under the surface and weren't given much space, have been allowed to percolate through." Another interviewee agreed, "The disturbance, disruption... What that does is it forces that forces a re-think." The opportunity for a fresh start was echoed: "What did the earthquakes bring about? And really, it is resetting the timeline isn't it, actually." People talked about how this dramatic shift changed the ways in which people understood their relationships to others around them: "Sometimes you have to drop a bomb or give people a jolt to break the patterns. And it's while we're feeling vulnerable that community suddenly makes sense." This quote connects the opportunity presented by the earthquakes with the pivotal role of community relationships in dealing with adversity. Connecting to a larger and critical

theme about the notion of care, another interviewee highlights the need to look after one another, carried in the concept of *manaakitanga*, as a central lesson from the earthquakes:

> Necessity dictates that you actually may revert back to something that you know is right, and maybe that's what—the opportunity the earthquakes has provided, is to remind people actually—what is right... You know, what are the values that everyone holds true? And that it's about care. And it's attached to sort of *Manaaki*, that hospitality to one another.

Here, care is offered as the link—the essential ingredient in the process of emotional infrastructuring. While this terminology is proposed as part of this research, the process is not new to the Christchurch context; there are numerous existing cultures of care in the city already.

Cultures of Reciprocal Care

To discuss care and how it relates to processes of design and planning, it is first critical to establish that care is understood, exhibited and fostered in many different ways. Care is also a temporally dynamic concept, as extreme events may prompt deeper relationships and a shared purpose, while return to the rhythm of everyday life may bring distance, apathy or insularity. Cultures of care exist within Christchurch, many of which have grown slowly, through long established ethics, traditions, and relationships of trust, centering around actions for collective benefit—actions that serve a larger purpose. For example, those who lived along the river in the residential red zone described intimate connections with the people and the place, and a common purpose that revolved around the neighborhood's anchor: the river. "We saw ourselves as caretakers of the river," explained one person. Another elaborated on the deep, reciprocal emotional bonds they had developed with neighbors over time: "Where we had lived was absolutely peppered with people who we connected with and we cared about, and they cared about us." She continued, articulating the power and importance of this kind of connection:

> Remember that that's how we survive. That we know one another. And that we would go, as we say, go to bat for one another in a crisis... We're living on this very little planet that we've just about torn apart and it's very important for us to learn how to be together. You know, and we have to do that by talking to one another. We cannot do it passing someone holding onto a screen. Can't do that. You have to meet someone's eyes and ask them how they are.

Many people brought up the importance of exchange in this mutual caretaking—in caring for others and being cared for; one interviewee reflected on the conversation we were having. "This is cathartic

for me," she said. "Just this conversation. Just this sharing of things." Another person described his personal experience in Toastmasters, recounting how it was an important venue for this kind of expression and exchange, particularly for emotional stories relating to the earthquakes. "For a lot of people, they've got it closed in... It's getting them to talk... getting it out of the head, out there. And so for me, that's therapeutic." Another interviewee echoed the healing nature of being able to "exchange ideas as human beings," describing it as "a gift we give each other." When discussing the intention for this research to be a resource for Christchurch while also offering insight for other communities, one Māori interviewee referenced the reciprocal nature of the word *koha*, which is often translated to mean "gift" in English: "It just holds so true to the concept of *Mana* [authority, prestige—a concept supporting Māori leadership]. And even the idea that information is a *koha*. And the idea of *koha* – people think, isn't it just a gift? No, it's not. It's actually, there's responsibility on both parts; the reason you're giving it and the reason why you're taking it."

The reciprocity referenced above connects to other concepts of care that are specific to Māori. I will attempt to communicate relevant aspects of this care that were brought up through interviews, primarily through the words of those I interviewed, although my *Pākehā* interpretations are intended to highlight the importance of the topic, and the need to seek out research and writing by Māori scholars, specifically relating to *manaakitanga*, *kaitiakitanga* and *mahinga kai*. Because knowledge and information are deeply intertwined with power and self-determination, I would argue that sharing knowledge can be understood as yet another form of care. In the quote above, the reciprocation referenced through the concept of a *koha* is also an essential component of care. While it is often expressed in this way between people, it is less common to acknowledge the many ways in which people and place can mutually give and receive care. Interviewees discussed how these practices of place-based care are culturally dependent, and how Māori *tikanga* tend to support a more reciprocal form of this relationship. One person highlighted the importance of food in shaping an understanding of this critical interconnection:

> Going back in the day, obviously it wasn't a transactional relationship; it was a relationship with the land. So that's where the *kaitiakitanga* came about. I understood if I didn't actually look after my *kai* [food], it won't look after me. Whereas now, because it's a transactional relationship, where actually, I can buy my *kai*, I need to look after the dollar. Then suddenly my whole relationship with

> the land changes. It's how I use it as a resource, compared to how I actually be a part of it.

Care is therefore closely intertwined with the concepts of *kaitiakitanga* and *manaakitanga*. Historically, one way of gaining *mana*, or respect, was through *manaakitanga*, where one would welcome guests by feeding them with their abundant resource—the food that is of that place. In doing so, the hosts would show that they were good *kaitiaki*, or stewards, of that land or food source. In this context, the encouraged behavior was care—for people, and for place. While most modern-day Māori do not practice *manaakitanga* and *kaitiakitanga* in this same way, care is still deeply embedded into the everyday experiences described by the people I interviewed. One Māori interviewee offered more perspective, explaining how his own views influence the way he relates to the world.

> There's lots of ways of knowing the earth and the world and how things came to be. And I just like to think they can all coexist, because... the most important thing is, what are you doing about that? What does it mean to you? And to me it means that I can talk to the landscape and our species... I can have a relationship with them... And I just think that's helpful in a resource management, environmental management design sense. Because you're respecting—it's not just all about you, or humans... In our traditions, in the Māori tradition, we're the youngest siblings of most of the things in nature. We're the last thing to be created, not the first.

39: Above: Cultures of reciprocal care between people and place

Another person described that a Māori way of life, at least for some communities living in the east, is already a culture of care—that, like the communities on River Road, many Māori people on the east side of Christchurch had already established a caring community prior to the disturbance of the earthquakes.

> Māori are more communal anyway, so when a natural disaster happens it was just something that they, sort of, just already do. If they go out and catch fish, it's not just for their own home unit, they'll go and give it around the *whānau* [extended family] or to the neighbors. That sort of stuff. It's already a way of life anyway. So when the earthquakes kicked in, it wasn't really... I guess it was just on a more urgent and bigger scale, but it wasn't too different to the way life normally is anyway.

These particular examples of existing cultures of care, not-coincidentally, also facilitated well-organized, collaborative, efficient, community-driven emergency response post-earthquake. The communities along river road in the residential red zone, and the Māori communities in the east, were among some of the hardest hit in the earthquakes. This pre-established collective capacity for care could adapt to the circumstances, easily transitioning between the everyday and the extreme.

As mentioned previously, one cannot dissociate this community resilience from the adversity, oppression and racism that has necessitated its development in many cases. This research suggests that a central function of emotional infrastructure is helping to locate self in time and place—nurturing feelings of belonging, care, empathy, and inclusion, while reinforcing and validating diverse identities. Therefore, to design and plan for resilience requires addressing present inequity, power structures, and the lasting impacts of colonialism that determine the ability of different groups to find stability, reference, understanding and agency in their environments. Recognizing the layers that continuously accrue in place over time, I highlight the need to reconcile buried layers, embrace what is, and welcome the richness of the layers that are to come. Reconciliation, thus focuses on design and planning that preferences buried histories, supporting Indigenous peoples and the narratives that have been ignored, erased and colonized.

Reconciling Forward

As many Māori interviewees suggested, reconciliation is rooted in past trauma, marginalization and erasure, but requires a forward-looking perspective to understand present impacts and the implications for future generations. In the context of design and planning, reconciliation involves designing for a living, evolving culture

that is internally diverse and contradictory, and understood within the context of a multiplicity of meanings and narratives. This recognition of diversity within Indigeneity is critical to overcome western-imposed images of "authenticity" with respect to Indigeneity: "At the heart of such a view of authenticity is a belief that indigenous cultures cannot change, cannot recreate themselves and still claim to be indigenous. Nor can they be complicated, internally diverse or contradictory. Only the West has that privilege" (Smith, 2012, p. 77). Accordingly, reconciliatory design is informed through authentic engagement, shared processes, face-to-face relationships, and clear acknowledgement of injustice, tension, evolution and contradiction.

Māori interviewees, through conversation, suggested many ways in which an Indigenous emotional infrastructure may be fostered in design and planning. The importance of language was stressed. "I just attach myself to the name," explained one interviewee as he processed the importance of *Tūranga*, Christchurch's new central library, being named "landing place" in *te reo* Māori. "It's the symbolism of the city agreeing... Christchurch, the English Garden City. So in the most, one of the most conservative English, Victorian whatever places, you've now got the civic building given, called a Māori name." Others discussed places they felt were significant Māori places, highlighting connections to history, multi-sensory qualities and materiality as important factors. One interviewee recalled working for a Māori mental health provider in the city, and bringing clients to a small, intentionally-designed outdoor oasis, tucked in an alley between chainlink fences and auto dealers. He described the experiential qualities of the place that enhanced connection:

> It was a really diverse, like, you felt like putting your toes in the gravel, for instance. The bordering of the plantings. They did have some information up about them too. It's like being able to see here, you've got some herbs here, but then you had a bit of an explanation so even if you weren't fully aware, you could relate back to them. I suppose what the whole environment really was providing was permission given—to anyone who may connect back, relate back to it... And having permission, compared to actually fighting for it I suppose.

He explained the healing importance of that one little place, particularly for his Māori clients, emphasizing the importance of the large *pounamu*:

> Often we would go down there and the first thing they would do, they would just be holding the *pounamu*. And then we would be just talking and they would be just raving on about how this is just amazing... All the ills in the world that had been bad to them were just coming out. But by the time they finished they actually felt centered and they moved on. I suppose where I was going with that, maybe

40: Design language of existing Indigenous Oases

> that's an example of being able to incorporate wellness into landscape from a Māori perspective.

Elaborating further about the significance of the *pounamu*, he connects multi-sensory experience with materiality, time and memory:

> The tactileness of the *pounamu* is amazing. I love it when it's wet. And it's cold when you initially touch it, but then it warms up. But it's more about, I suppose, connecting to the *Mauri* of it, the life force.... A trigger to draw a past memory that you want to... that you bring to life again. I think that's especially, like for me, it's like water and the greenstone that brings me back to maybe holidays with my parents, or weekends with my parents at the beach, and things like with the water.... So as soon as you kind of feel it and reflect on it and you give it life again, it's got its life force back then. So it's touchstones and trigger points.

Another interviewee articulated the potential of this culturally-specific design, using the phrase "Indigenous oases." He articulated the need to connect these places in time and space—both to reference important histories, and to physically link oases so that they can be experienced together.

> You choose these oases because they might have significant meaning, you know, pre-European times. It might have been a resting place. Yeah, might have been an area that our ancestors fished... And then I know that when I walk through that city, I can follow this path, you know, and it makes me feel as though I'm here... What we're doing is, we are creating, in spatial terms, sites of meaning... and we're trying to link them all together and to some kind of coherent narrative... I would feel good in the city. Because it means that I can I can take the Indigenous narrative of that city, and I can walk through it.

When discussing this idea of Indigenous oases with another interviewee, he added that for him, another oasis "literally would be being able to look into the clear water." This alludes to the idea that designing for a living and evolving culture transcends physical design of sites, encompassing actions, policies, processes and ways of life. Another Māori participant stressed the importance of place for Māori, particularly proximity to natural features—a value rooted in cultural practices that include *mahinga kai*, a concept translating to "food gathering," but encompassing making, management and more:

> A lot of Māori live out east, or by natural features. So we live by the river, which is not a random thing. It's because [my husband] uses it for *mahinga kai*, which is like traditional food gathering practices. His people, based on the past, used it as a transport route, so that was particularly attractive when we found this property because it had that cultural connection. Likewise, out east... I suppose the natural inclination would be to think that Māori are generally poorer, so Māori are living in the poorer areas, which, there is some truth in that. But for them it was the beach and the cockles, seaweed, various resources that they could get from there. And connecting them with *Tangaroa*, the Māori gods, as well... It also connected them to their childhoods, spending time there collecting *kaimoana* [seafood], things like that.

To reconcile forward—to nurture Indigenous oases—to support Māori emotional infrastructure in *Ōtautahi*/Christchurch for present and future generations, one person offered a wide variety of potential actions. Although not all are explicitly spatial, each suggestion has implications for design and planning. She listed:

> I reckon artworks, all that sort of stuff, they're good. Like those visual markers that indicate dual histories. Access and respect of the places that are *mahinga kai* sites, I think that's really important. Making sure those sites are looked after and respected, and asking those people that practice it what they need. 'Are these sites good? Does the council need to do anything to protect them better? Have you got good access to it?' All that sort of stuff. So I reckon that's ... Even though I don't practice *mahinga kai* myself, knowing that other people in the family do gives you a sense of connection yourself. And then in times of disasters those skills are really valuable. Being able to go and do stuff yourself. Get what you need from the local environment... Learning *Te Reo* is free. So all of those things enhance connection to place... Just getting those eyes, those Indigenous eyes, on something as it's being developed. And allowing that opportunity for Indigenous people to develop things or be part of something that's being developed, yeah, certainly changes a lot.

While incorporation of Māori art is a widely used strategy in physical design, the other proposed ideas relate as much or more to design process, and the need for Indigenous involvement in those processes. These ideas also suggest the need for non-Indigenous people to educate ourselves—to invest in understanding culture and language in order to even know which questions to ask. These informed questions, like the ones offered in the quotation above, then begin to suggest, more specifically and spatially, what design for Indigenous cultures may look like—how culturally-nuanced design and process can support equity, identity and capacity across scales and groups. These questions help break down the daunting, enormous task of reconciling forward into smaller, more defined, actionable steps. And importantly, these steps must be taken with, rather than for, Indigenous peoples. In reference to "rewriting and rerighting our position in history," Linda Tuhiwai Smith explains: "Indigenous peoples want to tell our own stories, write our own versions, in our own ways, for our own purposes" (2012, p. 29). Hirini Matunga (2018) echoes this in the context of design and planning:

> Māori architecture, like other design and planning interdisciplines, is at its core, both a process and an outcome. By that, I mean a process of 'doing architecture' with (not just for) Māori communities and an outcome whereby Māori cultural values and principles ultimately materialise in spatial, structural form. Either way, Māori architecture has always been a means of 'framing, space' and if needs be, 'retrofitting and re-purposing this space' to facilitate the ontological purpose of being and living 'as Māori' (p. 306).

Therefore, reconciling forward entails not only changing our built environments to reflect Indigenous identities, histories and ways of life, but also altering associated processes to empower Indigenous people to shape their own places into the future. Similarly, in the wake of increasingly frequent disturbance as a result of climate change, the task of accommodating waves of new immigrants and refugees is equally complex and critical.

41: Reconciling forward as language, engagement, education, and acknowledgment of layers of history and culture

42: Expressions of care at the University of Canterbury's Humanities Department

A New Normal

While our future is fundamentally uncertain, global climate change promises that we will increasingly face more disturbance, making our cities more culturally diverse than ever, as populations are forced to relocate. In the context of this new normal of diversity and disturbance, designers and planners need to be look farther ahead, identifying how built environments can welcome this change. Interviews highlighted the importance of welcoming other cultures: "I love the fact that we can change. Because we're such a different city than we were. So many more new immigrants in Christchurch, and they're not all from England... Yeah, I love that there's more diversity, and more acceptance too of that diversity." Another person powerfully outlined waves of change in Christchurch's population over time, associated tensions, and the need to embrace this trend toward a more diverse future city:

> You know, we've got Māori. Europeans, which included English, French, American... We've had Polynesian people come here from Samoa and Tonga, and the islands of Rarotonga because of colonial policies there as well... But you know, early days of that, that was quite negative. Māori were quite anti about Samoans being here, and it was quite bad actually. And everyone was, you know, they were treated badly. Then we've had Asians.... I mean, the Chinese have actually been here since the 1860s in the gold rushes, but you know, Japanese more recently. Korean. Everything... Somalian refugees. Everything. We've got everything here. And so does every country. So what does that mean? Well, that's cool. That's good. You just got to handle it, I reckon. And you just—you just got to know your history. And, you know, just be able to tell everyone that's coming what the real story is. But unfortunately, in most of our colonial western societies we haven't done that. We've only told the European story. Forgot the—you know, ignored the first one, told European story, and tried to hold that. Hold the line. Against immigrants, against everything. Well just—get over it, eh. That's what I reckon. What's to be afraid of? It's not going to stop. And with climate change, it's probably going to get worse. The islands of the Pacific. They're going to come. And good on them, I want them to come. It'd be cool, actually. New Zealand would be a bit browner. It's alright with me. Might not be alright with a lot of people, but it's alright with me.

Like much of this discussion about emotional infrastructure, this powerful statement about the implications of diversity as a new normal for the city prompts a return to concepts of identity and belonging. Interviews have suggested that, when unsettled, people seek to locate self in time and place through stability, reference, understanding and agency, and that emotional infrastructure therefore helps us establish our own identity in a place, our roots. Many people talked about this tension—about the journey that is understanding one's own identity and place, within a layered, changing context. How do we know that we belong somewhere? One *Pākehā* interviewee remarked on his personal journey confronting this question:

> I left here at the point when New Zealand was questioning its relationship between—its biculturalism if you like. And I had a sense that—I was *Pākehā*, maybe I shouldn't be in New Zealand, because it didn't belong to us. And I should go back to where I came from. So I tried that out, and I enjoyed it for a while, but I had an enormous sense of needing to come back here, that increased over those 19 years. And there were many aspects of my childhood here that I couldn't get anywhere else. And so I resolved those things around culture and things like that, and established really strong relationships with Māori people of my own age here. I came back and understood the cultural a lot more, and my place in it. And that I had a place here.

Another person echoed this sentiment: "I'm a 5th generation New Zealander, you know. I don't have another home. This is my home... You know, I went home to England in my 20s and I didn't feel at all like I belonged there. I had no connection to that place." She continued, suggesting that time spent in a place is not the only factor in shaping belonging and concepts of home:

> New Zealand doesn't even go back to a thousand years, so in terms of belonging, if you're going to have a, you know, a sense of—how long do you actually have to have been in a place? Tens of thousands of years? In which case none of us are even on the score board yet.

Pākehā and Māori people alike talked about questioning themselves—their identity—and the struggles and self-doubt that accompanies the question of who belongs in a place. And again, a critical reference point resurfaces—a reference point often used when locating one's self: what is "normal."

> My generation and before that, many of them sort of shunned away from their Indigenous side.... There were periods where it was embarrassing to be Indigenous. So they embraced their other side. But probably partly because it wasn't the norm. And, especially when you're young, you want to be cool, you want to fit in with what's normal. So if—what is normal is other cultures, you're going to be less likely I think to have those feelings of embarrassment or shame pop up. Because they're just normal.

In a society where diversity is truly viewed as "normal," is "otherness" eradicated entirely? Can reconciliation and inclusion guide a culturally-nuanced form of design and planning that celebrates diversity? And recognizing the presence of contested meanings and overlapping of significant sites, as a profession, can we intentionally and explicitly reflect a multiplicity of narratives in the same space? One Māori interviewee asserted the need to lean into contested places as concentrations of care:

> That shouldn't be a source of anxiety, it should be a source of celebration. The more the better in my opinion, and you just got to look at that. You got to look at the layers, and we have multiple names for places based on different layers of history and tradition. And yes, they can be a source of conflict of course, between peoples, between different tribes and stuff, but it shouldn't be. It just means

> that more people care, you know. If you really think about it, it just means that more people care. So make them care. About the same thing, hopefully.

Another interviewee similarly highlighted a desire to see the representation of a wide range of cultures in the physical design of the city, through "those opportunities I guess for people to share a little bit of their culture... There's a lot of festivals that allow the expression through food and dance but not necessarily something that's publicly embraced in public space. Left behind in public space." Recognizing that designing for a future of diversity and disturbance requires a framework, one person asked how landscape architecture can provide the tools for dealing with these conflicts, differences and opportunities:

> The is danger is, if I'm forced to think about that in only one sense, and it's your sense, I mean that's power at play, isn't it. Rather than—okay, we see different things. We see the same tree, but... we'll see different things even though we're looking at exactly the same picture. So the thing is, how can landscape theory comprehend that multiplicity? The multiplicity of lenses, the multiplicity of narratives and therefore construct a series of methods for mediating all that. Because I think that's what it really needs to come down to—is the methodological tools for mediating through all this. And not pretending that we only see that tree as one thing. Because we don't.

This need for a new framework—a re-theorizing of landscape architecture around a new normal of diversity and disturbance—is the challenge that first prompted the idea of emotional infrastructure. It is a challenge supported by the three arguments for emotional infrastructure that grounded this research: the inadequacy of our design processes to account for invisible considerations, the need to address vulnerability through the inclusion of multiple narratives, and the need to embrace uncertainty to find opportunity in adapting to a dynamic new normal. By outlining the four dimensions of emotional infrastructure in the context of "unsettlement" in Christchurch—stability, reference, understanding and agency—this research proposes a new framework for design and planning that is capable of nuance and adaptation through time and space. Advocating for the need to further disrupt the damaging normals of our everyday lives and environments, this thesis proposes a process for fostering emotional infrastructure in the built environment that is founded on reconciling the past, embracing the present, and welcoming a diverse new normal. It offers reconciling forward as a method for culturally-nuanced, forward-thinking design that intentionally and unapologetically preferences the marginalized, particularly those Indigenous cultures that have been systematically oppressed through generations. It also promotes inclusion of refugee and immigrant populations through layered public space that reflects multiple

narratives. Suggesting a link between diversity, disturbance, care, and resilience, it prompts the question: “If biodiversity in ecosystems makes them resilient to disturbance, could diversity in urban systems serve a similar purpose?” (Montenegro, 2010, p. 70). Ultimately, this thesis argues that reciprocal care is at the heart of emotional infrastructuring. It redefines resilience, operationalizing empathy to promote a reconciling forward, and laying the foundation for establishing a new, more inclusive “normal.”

43: Rolleston Ave Memorial Flower Wall
Remembering the victims of the March 15, 2019 terror attacks


DIVERSITY IS BEAUTY
WE LOVE YOU
R.I.P
OUR THOUGHTS

6. CONCLUSION // re-defining resilience with reciprocal care

This thesis argues for a continued discourse to explore the richness of "resilience," a concept derived from ecology that is still being explored within the context of city making and re-making. At the outset, this study called for a more rigorous definition of the word—a richer definition that can inform and guide what it means to design and plan for resilience. One critique of prior approaches and terminology centers around the passive stripping of agency by using terminology like "disaster," which conflates the change itself with its impact on people and place. In order to better understand how we can adapt—how individuals, communities, cities and regions can learn to live with disturbance—we must have clear separation between what we can and cannot control. We need to better define what our desired goal really is in response to place change; we need to first know more fully what resilience is before it can be fostered through design and planning. And because we design cities and they design us, the central thesis of ontological design, it is critical to acknowledge the multi-directional, reciprocal qualities inherent in the concept of resilience—the mutual ways in which people and place act on one another. Because experience, attachment, meaning and identity operate at a range of scales, it is also critical that we understand the layers, tensions and hierarchies of our emotional ecosystems—the interdependent personal, community and civic relationships that link people, place and time. Out of the definitions of resilience presented earlier, one definition references a "return to a desired state," while another describes it as a capacity to "survive, adapt and grow," while a third focuses on the maintenance of identity and quality of life at a community scale. The final definition presents the most comprehensive depiction of urban resilience, describing it as "the ability of an urban system—and all its constituent socio-ecological and socio-technical networks across temporal and spatial scales—to maintain or rapidly return to desired functions in the face of a disturbance, to adapt to change, and to quickly transform systems that limit current or future adaptive capacity" (Meerow et al., 2016, p. 39). While this definition offers a valuable grounding for understanding resilience of ecological systems, I argue that further conceptual development is needed to refine and operationalize resilience for use in design and planning. In doing this, I believe the role of mutually reinforcing relationships between people and place must be made explicit.

Therefore, in the context of design and planning, this thesis proposes yet another definition of resilience: ***the capacity to foster a multi-scalar ecosystem of reciprocal care between people***

conclusion

Is an earthquake necessary to disrupt a damaging normal, or can we co-create our own positive disruptions?

and place, through the everyday and the extreme, in support of a dynamic new normal. Further operationalizing this definition, emotional infrastructure defines what support of a dynamic new normal means, while a culture of reciprocal care guides how resilience may be fostered in the built environment. Emotional infrastructure offers the multi-scalar link; it connects the personal, community and civic, offering both an intimate and holistic understanding of connections, attachments, memories and meanings.

This research has defined emotional infrastructure as: the social and spatial aspects of place that support emotional processing, sense of belonging and a collective capacity for care. As a concept, it has been unpacked, explored and contextually grounded in post-earthquake Christchurch. Analysis of personal narratives gathered in this research has illuminated the importance of the location of self in time and place, a function critical to the cultivation and maintenance of identity. As places change, both incrementally and abruptly, it is important to foster these connections that enable people to (re)attach to people and place, and to form place-based personal, community and civic identities and connections. Acknowledging that a new normal of diversity and disturbance makes difficult the maintenance of connection, narratives from Christchurch add another layer to this understanding, as the earthquakes also provided an opportunity for new, stronger connections to be made. Learning from Christchurch, and people's desires for stability, reference, understanding and agency in the context of upheaval and change, we can begin to ask new questions of our design and planning work. How does this place afford stability among neighbors? How can Indigenous peoples see themselves in this work? Who is involved in visioning, making and naming this, and what does that mean? By offering a definition of resilience that encompasses the personal, community and civic—reflecting the intimate and holistic nature of emotional infrastructure—I assert that listening, layering, intuiting and empathizing all have a place in designing for resilience.

While this study in no way intends to act as design guidelines or even propose a "toolkit" for resilience, implications for spatial design and planning exist within the nuances of the themes—stability, reference, understanding and agency—and findings within each theme. For example, the finding within ***stability*** that stabilizing elements, like wells, port-a-loos, generators and gas barbecue grills, became objects of attachment and sites for connection

post-earthquake suggests a potential to evaluate city-wide emergency preparedness, by considering social and emotional connections to place in tandem with fulfillment of basic physical needs. By overlaying locations of this kind of critical survival infrastructure with centers of social capital—like schools, cultural community centers, and grocery stores—one could potentially identify areas where further investment is necessary, or sites with high potential to fulfill physical, social and emotional needs in both everyday and extreme circumstances.

A finding within ***reference*** suggests that people find grounding, connection and comfort by seeing themselves as one of many, and that this reference helps locate self within a larger community. Within this context, many people described the silent support that came from simply sharing space with others. In terms of physical design, this sense may be reinforced or articulated through visual cues and design that does not necessitate direct interaction, but allows one to see others doing what they are doing, and thus affording a sense of common experience and connection through shared space.

As a third example, within ***understanding***, people sought further knowledge about their natural context and related geologic processes as a way of locating where they fit and identifying what they could control. This finding underscores the importance of educating through design—the need to communicate risk, hazard, and associated actions one can take. While elements like signage certainly contribute to this cause, it is worth considering how design and planning can support associated programming and events; for example, designing spaces for these events in locations where impacts may be most easily visualized and understood.

One final example within ***agency*** relates to ways in which interviewees expressed themselves and exerted control in times of emotional upheaval. Many looked for ways to help as a means of achieving a sense of purpose. Are there ways in which designed places can suggest opportunities for productive interaction—communicating how people may exert agency in support of a common purpose, whether it relates to growing food, maintaining access, or building infrastructure? Can this kind of instruction help support communal needs, while affording agency in everyday scenarios where emotional unsettlement may derive from intimate personal trauma, or collective hardship?

These are only some examples of the many implications and suggestions held within the

finer grains of this research. Believing strongly in the importance of intentionality, and sensitivity to cultural context and multiple narratives, this research can lead to many interpretations, conclusions, questions and implications for testing through further design and research. Recognizing the different scales and contexts within which emotional infrastructure is defined, public involvement is critical to the process of emotional infrastructuring. Incorporation of these concepts into planning practices therefore involves a formalized phase of community engagement that aims to grow understanding of local emotional infrastructure through dialogue between planners, designers, and the diverse individuals and groups that they serve. My hope is that this work is seen as an invitation to try, test, wonder, challenge and collaborate. I hope the information presented can inform not only design and planning outcomes, but equally, inclusive and authentic processes of city life and city building. I hope the nuance offered through in-depth interviews suggests the critical role of exchange, and the need to seek out people's lived experience of place when conducting "site" analysis. I hope it prompts a re-evaluation of the comparative value of GIS mapping and layering of "objective" data from behind a screen with the richness of understanding gained through authentic listening. Here, authentic listening is offered as a methodology for identifying the critical questions that should inform design. In quieting personal interests and priorities, and honestly listening for the questions and concerns proposed by those closest to the place or subject, a deeper, richer, and more layered understanding of context can be built—one that does not attempt to simplify or de-politicize, but that seeks to understand, analyze and honestly convey multiple narratives, meanings, tensions, injustices, needs, dreams, and desires. Ultimately, I hope this study conveys the importance of establishing trust, listening to intuition and feeling, acknowledging misunderstandings and biases, highlighting a multiplicity of lenses, narratives and interpretations, and celebrating the diverse, unique, often conflicting ways we reciprocally relate to the world and one another. Recognizing the role of disruption in these relationships, I hope this prompts more thinking about the myriad of ways disturbance holds opportunity. As described, the Christchurch earthquakes disrupted an ingenuine, damaging, and oppressive normal, bringing an opportunity for a fresh start: a re-evaluation of individual and collective values and priorities; a re-assertion of Indigenous identity, values and culture through formal inclusion in decision-making; an infusion of creativity, innovation, and intentionality in city-

making; and a sense of shared purpose.

Yet the earthquakes also brought pain, trauma, heartbreak and destruction. This begs the obvious question: is an earthquake necessary to disrupt a damaging normal, or can we co-create our own positive disruptions? This research urges designers and planners to consider the opportunity and responsibility for design and planning to reconcile the past, embrace the present, and find opportunity in adapting to a dynamic new normal. Can radical investment in reconciliation—seeing and valuing marginalized communities, finally giving preference to buried histories, and releasing power in exchange for partnership—catalyze the growth of long ignored layers of emotional infrastructure? The looming likelihood of future disturbance also suggests that, increasingly, climate refugees will be in a similar position of vulnerability and potential marginalization. In adapting to a "new normal" of diversity and disturbance, can the refugee narrative receive the same care and attention?

Ultimately, this thesis argues for intentional preference of marginalized communities in the fostering of emotional infrastructure: in particular, reconciliation and visibility of Indigenous narratives, along with empathy, care, and inclusion of immigrant/refugee narratives, as these groups, in different ways in time and space, have disproportionately borne the burden of "unsettlement." I have argued for a need to more explicitly and widely embrace emotion as a central consideration in design and planning for resilience. Through the intentional growth of emotional infrastructure, we have the potential to build a collective capacity to care—a culture that reconciles, welcomes and supports diverse communities while nurturing a reciprocal relationship between people and place.

7. REFLECTION // processing, feelings & gratitude

Upon reflection, the greatest challenge of this research was centered around processing my ethical place as a non-local researcher studying a deeply personal and emotional subject. Returning to Christchurch after experiencing the 2011 earthquake nearly eight years prior, I felt the luxury I had, being able to escape the emotional weight of ongoing aftershocks, insurance battles, and the sometimes demoralizing realities of post-earthquake everyday life. I was deeply aware that people in Christchurch had been living with this memory, processing it, talking about it, and working to move past it for the past eight years, and there was fatigue around the subject for some. Given this context, I questioned whether I would only be asking for the time and energy of those I interviewed, or whether my work could truly give back to those people, as I hoped it would.

I was drawn to qualitative interviewing as a method because I find satisfaction and value in intimate, personal connection—even with strangers. I like making other people feel heard, and I like listening. I like talking about emotional observations that are sometimes challenging to put into words. From casual interactions around Christchurch in my first week back in 2019, I found that some people did want to talk about their experiences with me. In fact, they were extremely open about personal challenges relating to the earthquakes, perhaps because so much time had passed, or perhaps because it felt good to say feelings out loud to an impartial listener removed from their everyday life. I did my best to recognize this distinction between those who wanted to talk and those who didn't, seeking out only people who wanted to share their perspectives with me. Yet I also tried to balance this with an intentional pursuit of diverse voices, as I hoped to acknowledge and elevate the multiple narratives that exist within the city. Ultimately, intuition was the cornerstone of my research methodology. If it didn't feel right, I re-thought it. I chose to intentionally preference the wellbeing of Christchurch—its people and places—over any rigid, fixed line of questioning. I approached interviews as conversations, where I worked to cede my power as researcher, share in the vulnerability of personal storytelling, and listen closely and honestly to what each person wanted to tell me. Because I was prompting a mental return to the depths of traumatic memories for some, I listened until they were completely done articulating what they wanted, recognizing that I also owed it to them not leave them down there. Afterwards, I continued to talk, ask, listen, and bring them back up to lighter conversation, focusing on positive aspects of the present and future. This dedication

reflection

Not a natural disaster but a human inflicted one that was created out of an absence of empathy, compassion and inclusivity but can only be resolved through a reinclusion of those very same qualities. Both recoveries—earthquake and terrorism are now on similar trajectories.

—Interview participant

to a complete emotional trajectory meant that interviews averaged about two hours in length, with one interview lasting three and a half hours. Many of these conversations felt so natural, meaningful and genuine that describing them with the word "interview" de-personalizes them, and feels wrong. Some were so powerful that transcribing the interviews brought me to tears. And even now, I feel a deep sense of gratitude for the different ways people let me into their lives and their memories.

On March 15th 2019, I took the ferry back to the South Island, having left for two weeks on the North Island after conducting interviews in Christchurch. There, I heard about the devastating terrorist attacks at two mosques in Christchurch earlier that day. The shocking heartbreak of these events brought a wave of stunned mourning over the city that I could feel from a few hours north. Disbelief. And a sense of déjà vu. There was an eerie familiarity to the broadcasting of the horrific news—I felt like I had seen it before. Watching the death toll of the earthquakes unfold on February 22nd 2011 was hauntingly similar to what I was witnessing eight years later. Again, I was anxiously hoping that the numbers would stop increasing. Again, I sat in silence, as images of pain, fear and panic filled the screen. Although this tragedy was different—it was intentional, calculated, hateful. Feeling a need to reach out to those I knew in Christchurch, I wrote an email to the people I had interviewed, expressing my own heartache, anger, support, and commitment to stand up to hate, even in the form of microaggressions, that I observed in my everyday life. The responses that I got back made me feel even more connected to the people on the other end—feel an even deeper sense of care and empathy for those who had opened their doors and trusted me. I felt an even greater resolve to make this project worthy of their investment. One person, in response to my email, referenced this link between my research and the collective recovery from both the earthquakes and terrorist attacks:

> This tragedy is rocking Christchurch to its very core in a way very different to the earthquakes. Not a natural disaster but a human inflicted one that was created out of an absence of empathy, compassion and inclusivity but can only be resolved through a reinclusion of those very same qualities. Both recoveries—earthquake and terrorism are now on similar trajectories. Take care, Laura. Who would ever have thought we'd be talking about two tragedies two recoveries—one place/space? But as you and I both know they are connected because ultimately they are both about the same qualities needed.

As I returned home and continued processing these ideas and conceptualizing my research, I saw the many ways that I could reciprocally give back to

the community that had given to me. Some things, I had already done. Interviews themselves were a way of giving back, by listening, sharing, and processing with those I interviewed, making them a partner in this research. I could continue to co-develop ideas with them, as I ended up doing, by emailing diagrammatic frameworks of ideas and inviting feedback, corrections and clarifications from interviewees. Also, in transcribing the interviews, I realized that I could elevate their powerful, articulate, thoughtful voices by making a video using the audio from interviews (Appendix B). In this way, I could use the written product to communicate to designers and planners, advocating for new approaches, priorities, questions and processes, while also communicating in a way that is collaborative, accessible, and reflective of the diverse and authentic processes that this research encourages. In the end, I hope that this project embodies the practice of reciprocal care. I hope it benefits post-earthquake Christchurch while offering a potential framework for pre-disturbance resilience elsewhere. That it informs landscape theory as well as practice. And that it prompts just as much feeling as it does thought.

44: Expressions of love, loss, solidarity and resolve as Christchurch mourns the March 15, 2019 terror attacks

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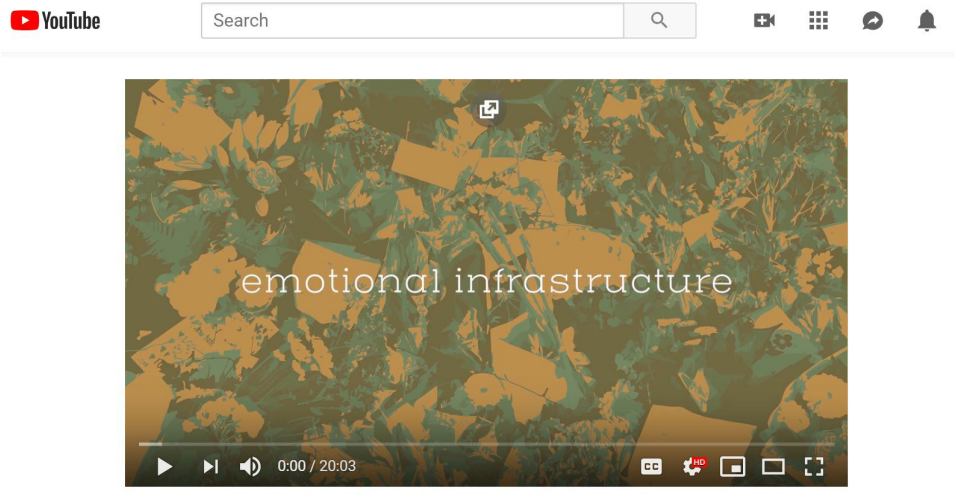
APPENDIX A // glossary of Māori terminology

Aotearoa: New Zealand
Ōtautahi: Christchurch
Māori: An Indigenous person of *Aotearoa*/New Zealand
Pākehā: New Zealander of European descent
Iwi: Extended kinship group / tribe / large group of people descended from a common ancestor and associated with a distinct territory
Hapū: Kinship group / subtribe / a number of related *hapū* usually shared adjacent territories forming a looser tribal federation (*iwi*)
Whānau: Extended family / family group / familiar term to address a number of people
Tikanga Māori: Correct / right / the Māori way of doing things
Te Reo Māori: Māori Language
Whakapapa: Genealogy / lineage / descent
Tūrangawaewae: Place where one has the right to stand / place where one has rights of residence and belonging through kinship and *whakapapa*
Kaitiakitanga: Guardianship / stewardship
Manaakitanga: Hospitality / the process of showing respect, generosity and care for others
Mahinga kai: Food gathering, food gathering place
Koha: Gift, present, offering, donation, contribution - especially one maintaining social relationships and has connotations of reciprocity
Pounamu: Greenstone
Mauri: Life force
Mana: Prestige, authority, control, power, influence, status, spiritual power, charisma
Mana whenua: Authority over land or territory
Tangata whenua: Local people / Indigenous people
Kaumātua: Elder, a person of status within the *whānau*

APPENDIX B // linked video



45: Watch the emotional infrastructure video on YouTube to hear firsthand from the voices of Christchurch

46: Scan QR code to view video


Christian Prayer said for The Dead
Eternal rest grant unto you
May the Perpetual light shine
upon you
May you rest in Peace
AMEN