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Building Back Better: Learning from the Christchurch Rebuild

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Abstract

Rarely does a city find the opportunity to comprehensively reinvent itself. Following a spate of devastating earthquakes in 2010–11, the city of Christchurch in New Zealand has been presented with just that. With the city thrown into physical and emotional turmoil, the rebuild has been slow to gain traction. Indeed, many people still live in houses that remain unrepaired. Seeing the enormous opportunity, the local council quickly launched into a process of planning the shape of the new city. International experts were consulted, as were local residents and others. The Share an Idea campaign, an intensive public consultation, generated more than 100,000 ideas for how the city could be rebuilt better and these became the basis for the aspirational draft city plan. This plan was then taken by the government minister through a top-down refinement to create the Recovery Plan or Blueprint.

The paper discusses key attributes of the Blueprint along with the context for its development and implementation over time. The slow speed with which the recovery has unfolded in the central area can be attributed to lack of certainty for investors, many of whom have chosen to take their funds elsewhere, a receptive environment in surrounding suburbs that enabled business activity to continue and expand, difficulties with insurance settlements and continued residential development around the fringes of the city. The paper concludes with comments about leadership, emphasizing the importance that accurate and consistent communication with all parties plays in a successful recovery.

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1. Introduction

It is an awkward thing to acknowledge, but natural disasters can create opportunity as well as heartbreak.

Philp [1]

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This paper reviews the efforts to rebuild the city of Christchurch, New Zealand following a devastating series of earthquakes that struck during 2010-11 and which led to large swathes of buildings and infrastructure being destroyed. It discusses progress made toward realising the opportunity that the quote addresses, the opportunity to build a new and improved version of Christchurch. Over the past five years the city and its citizens have been pushing ahead making progress on the rebuild but, as can be expected, the process has not been easy and the outcomes have not always been equitable. Many remain living in houses that were severely damaged and not yet repaired, while others are enjoying the rewards of being able to rebuild on sites made available through the expansive demolitions that have taken place to prepare the ground from the new and improved city.

The circumstances surrounding the Christchurch earthquakes are now well rehearsed in a number of academic and media publications [2-4]. The first earthquake struck in September of 2010 and caused Cantabrians to wake up to the risk their forefathers had brought on them by situating the city on what is effectively a drained swamp. Although centred 40km away, this quake caused some soil liquefaction and extensive damage to a number of the city's unreinforced masonry (URM) buildings. The knockout punch was delivered in the form of a 6.3 magnitude earthquake on the 22nd of February 2011, which took 185 lives and reduced many parts of the city to rubble [2, 4]. Throughout the city, but particularly in eastern areas, the ground again turned liquid, causing buildings to settle unevenly and creating havoc throughout the roading network. This was the defining event, with ground accelerations recorded at one and a half times that of gravity leading to structural loadings of up to twice the levels specified in the New Zealand Building Code. The cumulative effect of these, and the many thousands more earthquakes that have been recorded since then, has been to render the central city as one large demolition site. Some 1,500 commercial buildings have had to be demolished, with many older, heritage buildings amongst them. Unquestionably the architectural character of the city has been forever changed and there are now few structures that can help link people with the city's past [5]. Christchurch's earlier sense of place has been severely damaged. As can also be expected, the events also affected people's mental and emotional wellbeing. The city's Missioner and others have noted the widespread feelings of powerlessness, depression, lack of hope and anger as residents have had to deal with housing shortages, bureaucratic red tape and poor communications from government leaders and their insurers [3, 6].

There are significant gaps in knowledge about post-disaster recovery. This research takes the form of a case study, seeking to shed light on the complexities, politics and process of disaster recovery, thereby providing a useful contribution to the knowledge base [7]. Some observations about other recent recovery efforts can help frame the international context for Christchurch's road to recovery. Within ten months of the 1995 quake that shook Kobe, Japan the city had opened a temporary container port, helping to ensure much needed capital would continue to flow through the city to stimulate the recovery effort. Even with this early achievement, three years after the event 45% of low-income families were still living in temporary accommodation [8]. In China, the government planned a three year process [later revised to two years] to recover Wenchuan after a quake levelled that city in 2008. The scale of the challenge and also the efforts to reconstruct were indeed staggering. Already by the end of the first year, more than half the overall budget for the reconstruction of Wenchuan had been spent [9]. The largest area of spending, nearly 39% of the total, was in the area of house reconstruction. These two recent precedents are indeed impressive and set a high standard for speed of recovery. However, it can also be noted that both examples are taken from Asian countries, where society generally does not question centralised authority or efforts taken to advance the greater good.

In their study of nine recovery processes, Olshansky & Johnson et al [10] found that the timeframes in which certain recovery activities take place can be predicted. In the first year, residents can expect temporary accommodation of people and business activities to be provided and preparation for the rebuilding effort to be made. They note that it in the second year significant rebuilding occurs with only those sites or areas considered difficult delayed beyond that point. It is clear that the rebuilding of Christchurch has not unfold at the speed of Kobe or Wenchuan. The effectiveness of recovery processes can be considered in terms of speed and of quality [7, 10]; the interesting question with Christchurch is whether the opportunity presented by these earthquakes can be parlayed into an improved built environment.

2. The context for recovery

Following the February quake, it became clear that a significant and concerted effort would be needed to reinstate the city. As in most other countries that are struck unexpectedly by disaster events, New Zealand had no standing strategy for recovery [11, 12]. Perhaps this was just as well, because each recovery must be responsive to the local conditions and other contextual circumstances [13]. The government quickly passed emergency legislation and set up the Canterbury Earthquake Recovery Authority (CERA) to lead the recovery effort once the emergency response and relief efforts had been completed. While the government also committed at that time to contributing NZ\$5.5 billion toward the rebuild, the majority of this amount would be allocated to land remediation and purchasing of properties in areas determined to be unfit for rebuilding [2]. This fund has been called on to rebuild state owned assets and essential infrastructure. In all other respects, the government has expected this recovery process to be market led. Neither central nor local governments are resourced or incentivized to contribute funding to recover and develop projects on private land, as often happens in other countries following a disaster. To meet the cost of rebuilding the many thousands of privately owned properties it was anticipated that insurance funds would become available [3]. New Zealand has one of the highest rates of insurance cover of any country [14]. However, with reconstruction so heavily dependent on funding from insurers, the availability of funds from this source has been a key factor affecting the progress and effectiveness of the recovery.

The circumstances Christchurch finds itself in present an opportunity for renewal that could help the city regain the reputation it enjoyed for having a high quality built environment. Rather than reinstatement of pre-earthquake conditions, the goal of the recovery has been to build the city back to better than it was before 4 September 2010 [15]. This was certainly evident in the ambitious Draft City Plan [16] and in the Christchurch Central Recovery Plan (CCRP) that was finally adopted [15]. When explaining the background to the revolutionary changes to the spatial layout of Lisbon following a major earthquake in 1755, Mullin [17] observed that the new city plan “rejected past values and forms in order that the city would reflect the most modern thought possible”. Have the earthquakes of 2010-11 enabled Christchurch to reshape its form in such a progressive manner? While the ambition is there, the outcomes of other recent recovery processes suggest that significant change to the physical dimensions of a city is difficult to achieve. The historic evolution of any city reflects the deep-seated habits as well as the desires of its inhabitants and the political and administrative environments generally resist change [18].

The Resource Management Act (RMA) provides the legislative context for development of the built environment. The RMA is a liberal framework for management of the country’s resources and despite recent changes that have increased reference to design matters the Act is still largely focused on the biophysical realm [19]. The RMA is outcomes-focused and proposals that are in conflict with the local planning policies need only demonstrate that negative effects are slight and therefore acceptable, or that appropriate mitigation can be put in place. In addition, the country has a strong heritage of protecting the property rights of individual land owners [20]. While the Canterbury Earthquake Recovery Act takes precedence over all other legislation, giving it the strength to defend the integrity of the Recovery Plan, it is also a temporary measure. The Recovery Act expired recently after and its intended implementation period of five years came to an end. It remains to be seen whether the integrity of the Recovery Plan can be maintained in New Zealand’s liberal planning regulation context.

Cantabrians and New Zealanders have generally been very responsive to the needs of others following the earthquakes, yet it remains to be seen how willing they are to work collectively in support of the reconstruction effort beyond this. Aspects of the national culture may work against full implementation of the ambitious plan, as it will come under pressure by individuals who consider their own opportunities to be compromised by the Recovery Plan. Sitting behind this concern is the notion that New Zealand, like many other new world countries, is predicated on individual freedoms and responsibilities [19]. Indeed, Hofstede identified New Zealand as a highly individualistic culture, with the results of his study ranking the country third highest internationally [21]. People are prone to self-reliance and to take initiative to improve their own prospects. Coupled with this characteristic is the relatively short term view that people take, particularly where there is opportunity for a quick benefit to be gained. Plans to improve the quality of the city’s built environment are predicated on circumstances that will require some people to relinquish the development rights they have enjoyed prior to the earthquakes and on which the property values at the time were set. Others have been required to give up their homes and relocate, often at significant financial cost.

Situations like these test the ability of people to act collectively to improve the quality of the recovery. The strongly individual national culture may well limit the extent to which people are willing to support the collective good, as it is outlined in the Recovery Plan.

2.1. Land Issues

Stability of the land on which Christchurch is built is a fundamental consideration in the reconstruction process [22]. Given the extent of damage caused by liquefaction of the soil and the risks of building on what was once swampland, it is surprising that there has not been more debate about whether to rebuild the city in its current location. Large parts of Kobe were relocated after the 1995 earthquake in order to improve future prospects for the city. Comfort, Birkland et al. [23] and Diefendorf [24] both questioned the wisdom of rebuilding New Orleans in the same location following Hurricane Katrina. Even though Dikmen [13] noted difficulties arising with relocation of residential areas during recovery, including loss of social and cultural networks and support systems, Diefendorf argued that the only rational way forward would have been to rebuild New Orleans in a less risky location. However, he went on to explain that most cities are rebuilt in their original locations, reflecting the significant investment these cities have in the infrastructure below ground and above. The capital web, the largely horizontal infrastructure systems comprising open spaces, roads and footpaths as well as the below ground infrastructure are just the publicly owned investment that would have to be reconstituted should the city have shifted location and the cost of this would have been crippling [18]. Moreover, diversity of land ownership would only create significant legal matters to resolve before the rebuilding could get under way.

In Christchurch, as for any long established city, one compelling reason to rebuild in the current location is the large number of cultural institutions located in the traditional centre. While many of these could be relocated, their co-location in the centre and the relationship between each and to their particular settings help generate a sense of history, which in turn informs Christchurch's special sense of place [5, 25]. There is a strong cohesion between the important cultural buildings and spaces in the city, and it would be difficult to replicate that in another setting or in dispersed locations in the smaller western suburban areas. Simply put then, for economic and cultural reasons and despite difficulties with land stability, the city has been unable to consider shifting or abandoning the central city.

That it has been decided to rebuild Christchurch on the existing foundations pays a compliment to the building industry that it will be able to design and construct around the uncertainties of nature. The industry was quick to explain that so many buildings, including many newer ones, had failed because the risks had not been recognised. Since then, there have been significant changes in the structural loading standards and building regulations, not just for the Canterbury region but also through other parts of the country recognizing the risk made obvious by the quakes. In addition, the land remains prone to liquefy, a condition that can be difficult to predict and to design for. Interestingly, liquefaction affected residential and small scale buildings in suburban areas more than it did buildings in the central area. This reflects the level of applied professional expertise applied to the design and construction of central area buildings and bodes well for the future.

3. The Blueprint for recovery and change

On July 31 2012 urban design and planning hit prime time in New Zealand when the Government and the Christchurch Central Development Unit (CCDU) went on the evening television news shows to release the long awaited Christchurch Central Recovery Plan. The recovery plan is based largely on the so called Blueprint, developed by an international multidisciplinary consortium of architects, landscape architects and planners. Although the Blueprint was famously developed in 100 days, the overall plan for reconstructing the city centre took more than a year and followed a process that included widespread public consultation, economic modelling and professional design expertise. The foundations for the plan lay in consultation conducted by the Christchurch City Council and input from Gehl Architects, who had also been involved with the city prior to the earthquakes [4]. In addition to guiding the activities of CERA during its five-year existence, it was envisaged that the Blueprint's principles and urban form proposals would be embedded into the city's planning instruments.

3.1. Key features of the plan

Two key features of the plan are its compactness and the amount of open green space that is provided for. The Christchurch City Council recommended an increased influence of the Avon River on the spatial character of the city when it delivered the Draft City Plan to the Minister just before the end of 2011. The Recovery Plan reinforced this green corridor and added to it by ‘declaiming’ several blocks along the eastern and southern edges of the central

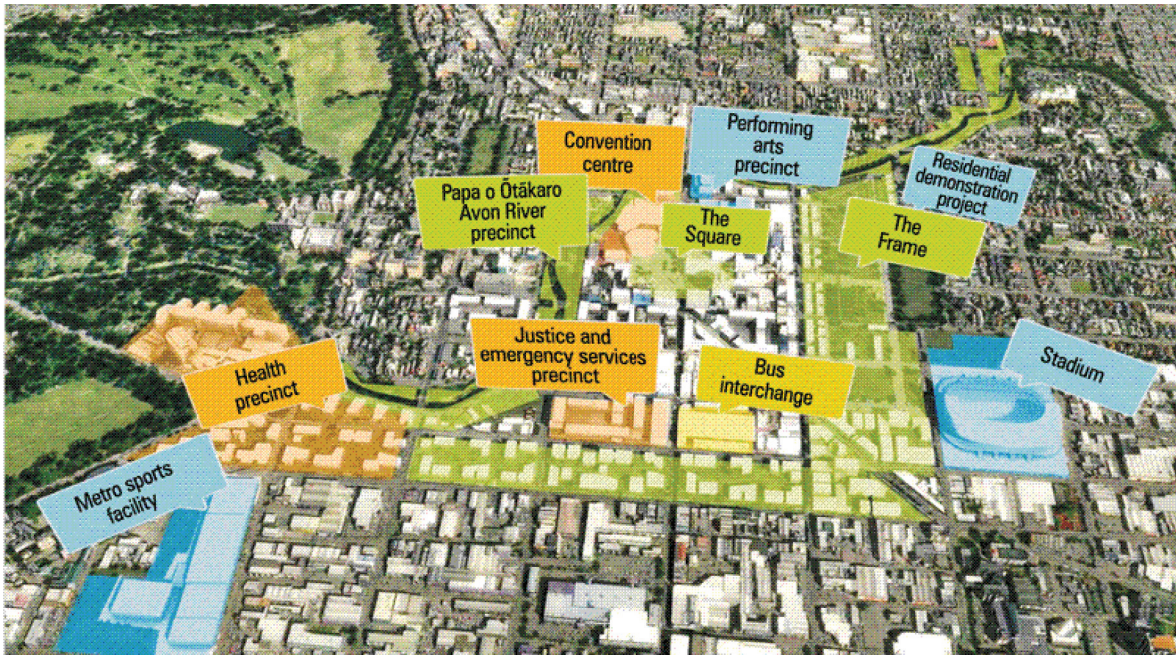


Figure 1: A view of the Christchurch Central Recovery Plan from above, with the key anchor projects indicated. A green frame is prescribed for the eastern and southern edges of the CBD.

Source: Rebuild Christchurch

area. Together, the green spaces create a ‘frame’ around a more compact central area. Indeed, the area contained within the frame is a mere 13 blocks in total. In plan this is a truly walkable area with plenty of opportunity to seek relief and recreation in the adjoining green areas.

The frame responds to the motivations of the plan, which are to limit the size of the urban core and provide additional green open space, but it is not entirely without controversy. In a city where Latimer Square, which is incorporated into the eastern leg of the frame, had presented a formidable barrier to walking, there are concerns the frame will only serve to further isolate the city centre from the struggling areas in the east. While the six blocks of the eastern leg of the frame does not rival the area of Central Park, there also isn’t yet a substantial population in Christchurch, and there may be insufficient numbers to properly activate the spaces. Public spaces need people to be safe and to appear safe [18]. However, in the long run, it is likely the frame will be treated as a form of land-bank [3]. As development within the core business area reaches its potential, the government landowner can decide whether to release parts of the frame for development as a relief valve.

New buildings in the central area will be limited to around seven storeys height with heights stepping down progressively out from the core to four storeys around the perimeter. In addition to enhancing amenity levels people in the street are able to enjoy, the prescribed heights are explained in relation to the height of the Anglican Cathedral, whose traditional prominence at the centre of the city the authors sought to protect. While the deference in height is now somewhat moot, with the Church having declared its intentions to demolish the building, there is no doubt the lower heights will lead to a better street environment. The maximum height prescriptions are one of the

most important features of the whole recovery plan, not only because of the positive environment that will result at street level but that it sends a clear message that the plan is about the common good more than it is about private interests.

Curiously, the plan revolves around specialist precincts including those dedicated to health services, convention centre, justice and innovation. These precincts seem to have found their way into the plan during the process of locating the anchor projects and the perceived need to reinforce these activities with other similar uses. Precinct planning is a curiosity of the Modernist approach to land use management and its application to the Christchurch rebuild should raise alarm bells. Precinct planning, or zoning, has largely been discredited because it promotes a land-use monoculture that could leave different parts of the city extremely quiet at times [3]. The proposed stadium is certainly vulnerable to being a dead environment, although this could be sidestepped by incorporating other activities into the perimeter of the building. Several of the proposed anchor projects, such as the convention centre and stadium, are conceived at scales that serve national rather than local agendas. Substantial funding for these facilities will need to be provided locally, which risks shackling the economy for at least a generation [26]. The physical scale of these projects in the city centre conflicts with the permeable, walkable scale envisaged elsewhere in the plan. Indeed, the physical scale of several early privately funded developments can also be questioned. These developments, undertaken on aggregated sites that enable economies of scale that are sufficiently attractive to developers, are of a very coarse grain. At street level, and despite clever façade designs, this is problematic to the pedestrian experience [27, 28].



Figure 2: The scale and grain of new development conflicts with Christchurch's historic patterns.



Figure 3: In addition to being large, new development in the city has adopted a new structural 'stoutness'.

The issue of transport is addressed only marginally in the Recovery Plan, where the location for the new bus interchange that is now open for business was the only reference [3]. Earlier, the Draft City Plan made recommendations for a light rail system to be established between the city centre and the airport. There was no mention of this in the Blueprint and clearly its authors (perhaps under instruction from a government intent on building highways) were willing to see this exciting idea wither. While civic leaders have appeared keen to increase the uptake of public transport, relatively few people in the city currently make use of these services. Even before the earthquakes, bus ridership was very low in Christchurch. One way to enhance the attractiveness of public transport is to make driving less so and limiting car parking throughout the city could certainly help achieve this. The Recovery Plan abolished the earlier requirements for car parking for new development and instead placed limits on the number of cars a development could provide. These are certainly steps in the right direction.

Housing is a key issue to be addressed in any disaster recovery process [14] however it appears to have received very little attention in the plans for Christchurch's recovery. The government sees no role for itself in providing

housing and the Recovery Plan covers only a very small part of the overall city. While the plan anticipates that people will live in the central area, only a few projects around the edges have so far emerged and it is unclear how private developers will be incentivized to add to this total in the future. The failure of a particularly high profile residential development to go forward because of it could not be made feasible is sure to cause risk averse developers to remain standoffish. Identified as a housing demonstration project in the Recovery Plan, this project attracted attention through an international competition. It was meant to act as a catalyst for further high quality, higher density residential development around it. Entries to the *Breathe* design/build competition were prepared by developer-led teams to ensure financial viability. After nearly four years of uncertainty it is likely the project has been abandoned with no result.

While the actual numbers of units the project would have provided are small in the context of the overall need, the case highlights the difficulties of creating housing where demand is largely being met by greenfield development around the edges of the city. Pressures to build outward were certainly strong prior to 2010 and in the aftermath of the earthquakes this has only increased in pace, encouraged by a government keen to be seen to be enabling toward development [26, 29]. Not only do these practices compromise other stated intentions, such as creating better public transport infrastructure and adding vitality to the city centre, development around the edges attracts investment that could otherwise be directed to the more difficult brownfield projects within walking distance to the city centre. The effects of this are compounded by a current crisis around housing supply and affordability at national scale [30].

3.2. Economic issues

While the central and eastern areas of the city were most severely affected, many of the city's businesses were able to continue by relocating into less affected suburban areas. The ability to absorb business activities, which helps improve the city's resilience, may be the one positive consequence of the growth of suburban areas prior to the events [26]. However, for business activity to remain in suburban areas at the expense of a vital central area is not in the city's medium and long term interests. However, economists have argued that the limitations the Recovery Plan places on development through a smaller area on which to build and lower height limits will make projects in the central area less affordable to business [3, 31]. While the community, through the early consultation processes, expressed a strong desire for lower height buildings it is in no one's interests for there to be no development. The economics of developing in these circumstances will likely be played out in planning processes.

Construction costs and availability of finance are significant issues confronting landowners contemplating a rebuild. Insurance payouts are widely considered to be the fastest and most equitable means of funding reconstruction [32]; however, in the case of Christchurch, insurance has proven to be a handbrake limiting people's efforts to repair and build. While insurers were acting responsibly following the first big quake, many retracted their efforts in the wake of the tremors that followed. Claims made after the first event have largely been paid out, but later claims appear stuck as the insurers, reinsurers and the government, under the banner of the Earthquake Commission (EQC), argue respective liabilities [33]. Insurance is provided in New Zealand, as it is throughout the world, within an international context of risk spreading. The majority of claims funding have had to be sourced from outside the country, and it is with these reinsurers that New Zealand businesses hold little sway. Indeed, government ministers were compelled to travel to meet with international underwriters in an effort to free up much needed capital in the form of payouts.

This, like other recoveries throughout history, has presented an opportunity to build back better, and in particular to improve the chances that the built environment will be strong and resilient enough to mitigate against future disasters. Several strategies were evident in the government planning and regulatory responses, each one creating further economic hardship for those affected. One strategy was to retreat from areas known to be vulnerable in future events. Large tracts of residential land were declared unfit to build upon and acquired from their owners by the government. The compulsory acquisition of these properties at prices set by their 2007 valuations, left these owners scrambling to be able to afford other properties in the city. In other cases, the strategy has been to build to resist nature's forces. Changes to the structural parts of the New Zealand Building Code were swiftly initiated through a process of discovering weaknesses with current requirements and then research around how best to deal with the particular seismic conditions including tendency of the land to liquefy [3]. This has naturally led to higher

construction costs for new projects and for many of the repairs not being done through normal insurance channels. For those being done through settlements, it is frustrating that insurers have been unwilling to allow for betterment, even when property owners have been willing to pay the differential costs themselves. Insurers have argued that their only obligation is to rebuild like with like, relying on previous building consent information where it has been available to do so. Resistance to allow changes and improvements stems from insurers' concerns that this would make cost allocation between the parties contentious and that it would extend planning and decision-making timeframes if not construction.

Where property owners did manage to extract insurance settlements, there is evidence that many have taken their funds to invest in new opportunities outside Christchurch in order to maintain their income streams [34]. Even before the earthquakes, Christchurch was considered a marginal investment location because of diminishing returns in the central city. In that sense, some owners will have enjoyed a salvation windfall as a consequence of the quakes [31]. Property investment is a long term proposition, and once capital has flown to new centres, it is difficult to attract the funds back. There is genuine fear that otherwise willing developers will not be able to secure finance for their activities if the market of long term property investors is not there. The NZ Property Council has warned that the recovery will continue to be delayed if developers cannot operate successfully in the city [34].

Matters of on-going and new insurance cover remain problematic, further restricting progress. Understandably, investors have been unwilling to lend money to projects that cannot obtain insurance cover once they are completed. New Zealand, despite the constant threat of seismic activity, has traditionally been seen as a place of low reinsurance risk, meaning that cover has been both affordable and easy to obtain. With a number of other disaster events occurring worldwide in the period 2004–06, the insurance industry was hard hit and the industry's policies and pricing structures were changed to regain profitability [35]. The Canterbury events have caused a backlash toward New Zealand and the insurance industry is now hesitant toward insuring new buildings in the region.

3.3. *Process and governance*

Olshansky, Johnson et al. have completed one of the few comprehensive studies of recovery processes. Based on their analyses of the Northridge [1994] and Kobe [1995] recoveries, they found leadership to be a key factor affecting success [10]. Effective leaders know the local terrain and are able to respond accordingly. Plans for recovery following the first quake in September 2010 were being quickly and confidently progressed by local government officials. However, following the February 2011 quake, central government quickly established CERA when it became clear that existing resources at local government level would be inadequate to address the enormous task ahead [4].

In the original structure, CERA would look after the surrounding areas while the city council would plan for and manage the rebuilding efforts in the central area, now represented in the Blueprint document. While the CERA role was overarching, it also recognised the benefits of working with local expertise, if only in order to get through the magnitude of work in a timely fashion. The Draft City Plan, on which the Blueprint was based, was drafted by council officers, who consulted widely, listened to public input and involved international expertise. The highlight of this process was the *Share an Idea* campaign, which generated more than 100,000 recommendations for how the public would like to see the city reconfigured [4]. This consultation was also the catalyst for ideas such as lower central area building heights and green (environmental) initiatives that found their way into the Draft City Plan. However, this division of responsibilities also led to poor coordination between the different plans, both in terms of philosophy and tangible proposals [36]. CERA continued to push for residential development around the city's ever expanding periphery, an objective that conflicted with the council's plan for a more compact and vibrant city centre, supported by walkable housing. The proposed light rail system that was configured across notional boundaries of responsibility found its way only into the council plan.

Following the consultative process that led to the Draft City Plan, CERA finalized it and relaunched it as the Recovery Plan through a top down exercise conducted behind closed doors. This bureaucratic process continues to attract considerable negative criticism [3, 26]. Subsequent research has found that the state (CERA) was incapable and unwilling to effectively engage a public that had expressed willingness to be involved [37]. Criticism only increased from there as CERA got on with making the tough decisions.

Swaffield [26] was more cynical when he discussed the power accorded to CERA and the lack of local engagement they exhibited in deploying it. He suggested that the centralized form of decision-making is a manifestation of government attempting more broadly to claw decision-making and control of development back from local government. For more than a century and until economic liberalism spread to New Zealand in the 1980s and 90s, the country had been closely managed by central government. However, the progressive devolution of responsibilities to local government over a 25-year period led to circumstances that frustrated the government soon after it took office in 2008. Independence meant that local governments were unable or unwilling to see the big picture, which in turn slowed or refused approvals for key development projects and inability to halt environmental degradation. In response, the current government elected in 2008 has been making changes to return power to itself. The earthquakes simply gave Wellington the chance to return power more quickly to itself under the guise of a rebuild.

Public perceptions of the way the recovery has to date been managed are very poor, with Simons finding that up to 80% of the people living in Christchurch hold a negative view [37]. Reasons for this are many and are likely to reference a person's experiences of dealing with their own circumstances. Survey respondents noted that CERA and the government have failed to consult on any, let alone key, decisions during their tenure and that they could not be trusted. Simons notes that official communications about the speed and quality of the recovery have often conflicted with the experiences of local residents. While the recovery has been characterized in media and NGO reports as being very slow, the government's own accounts of progress have been very different. CERA's communications appear to have been directed to those living outside the city in attempts to encourage investment and other forms of patronage to Christchurch and perhaps naïve attempts to placate residents. Appropriate and accurate communication is seen to be a key factor in successful recovery processes [10], a fact that seems to have bypassed the government leading to negative public perceptions overall.

4. Conclusions

The findings of this research tend to confirm the observations of Olshansky & Johnson et al, who made a study of international recovery processes that had been undertaken over the past 50 years [10]. Overlaid onto Olshansky & Johnson et al's findings, this investigation of the ongoing recovery in Christchurch has confirmed that

- Recovery is a process without a clear endpoint and recovery activities are eventually merged with business as usual. While we are not yet at this point with Christchurch's recovery, there are signs that housing supply has now reached that stage of the process. It is clear that housing supply and affordability in Christchurch are now being influenced by the same issues that these markets in other cities are facing. Longer term concerns remain around the reconstitution of the central city despite the government's commitment to completing the key anchor projects of the Blueprint.
- Negative trends that existed before the disaster continued to worsen during the recovery. The recovery has provided a convenient rationale for the city to continue to expand around its periphery, which in turn has placed considerable pressures on roading infrastructure by private commuters. These processes have been enabled by government leadership focused on short term benefits at the expense of longer term gains in social and environmental sustainability. Linked to this has been the difficulty to encourage growth in public transport ridership. These negative trends have continued despite abundant opportunity for housing to be developed closer to the city centre.
- The rate at which households and businesses recover following the quakes is linked strongly to their socioeconomic status before the disaster. Those living on the city's more affluent western suburbs were affected initially by the quakes far less than those living to the east. Since then, money and other resources have flowed much more freely in the west which has seen these areas return quickly to pre-earthquake conditions, whereas those living in the poorer central and eastern suburbs continue to battle toward recovery with far fewer resources to call upon.

With the increased power and responsibility given to CERA following the February 2011 earthquake, the recovery process has followed a strongly bureaucratic process. Although the Draft City Plan had been prepared in an open, consultative manner by local government, subsequent development and implementation by central

government actors has been top-down in nature. The government's approach to recovery has been to create an economic environment in which private funding would fill in the blanks between the key anchor projects. Although government funding has been dependable, it has largely targeted infrastructure repairs and purchases of land unfit to be built upon going forward. Traction is now being made on several anchor projects which in turn has seen a start on private development, some five years after the events. Like the anchor projects, most private developments are significant in scale, largely to enable them to be viable to investors. It is clear the city will be very different in character to its previous incarnation.

The process has been difficult for residents. While insured at high levels, Christchurch residents and building owners have found claim settlement to be frustrating. Once the scale of damage became apparent, insurers became reluctant to settle claims. A high proportion of settlements have been disputed as inadequate and the opportunity to build back better has been frustrated at residential scale by insurers' unwillingness to allow improvements to be made when rebuilding. A further source of frustration for residents has been poor communication between residents and those managing the rebuild. Two-way communication has been limited in nature, largely by government agencies that have been more eager to tell positive stories about recovery to national and international audiences that they have been to keep residents informed. It would be fair to say that local residents have been collateral damage so far during this recovery as leaders have sought to curry favour with local and international investors in order to help drive it.

As CERA is wound down, as repairs to the urban infrastructure are completed and as privately funded projects begin to fill the spaces between the anchor projects, Christchurch's future physical character has begun to emerge. Given that decisions that have and will influence this character have been made by so few people over such a short period of time it will be interesting to see how local residents feel about it. One can only hope that the people of Christchurch get the better city they deserve.

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