

EXIT AND TRANSITION OF RECOVERY-REBUILD SPECIFIC ORGANISATIONS: A CASE STUDY OF SCIRT

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Disclaimer – All these conference papers have been submitted as partial fulfilment for the project requirement for the BE(Hon) degree. Although they have been assessed, no errors or factual information have been corrected or checked.

Abstract

With disaster management becoming increasingly important, it's essential that its approach is continually reflected upon and improved. The recovery management of the large-scale devastation that occurred in the Canterbury region of New Zealand, following the earthquakes of September 2010 and February 2011, has served as a platform by which many have sought to increase the understanding of disaster management and its different phases. This study aims to add to the existing body of knowledge on post-disaster recovery through a case study of the Stronger Christchurch Infrastructure Rebuild Team (SCIRT). With Christchurch and SCIRT, a recovery-rebuild specific organisation, currently going through a change in phase from short-term to long-term recovery, it has provided a unique opportunity to study how the impact of SCIRT's dissolution will affect the organisations involved and the continuing recovery effort. The findings highlighted three important areas of consideration: the timing of this transition, the management of the remaining work and the impact to the businesses and its employees. Importantly, the study suggests that companies are not concerned with SCIRT ending but how the Christchurch City Council will manage the remaining work.

1. Introduction

A common means of approach to disaster management is through its four phases; mitigation, preparedness, response and recovery (Rubin, 1991). Since the development of this approach, these four phases have been developed and expanded through large degrees of research. Concepts such as "Build Back Better" (Mannakkara, & Wilkinson, 2014) have been introduced to develop and reshape disaster management into a modern concept of building resilience (Ingram, Franco, Rio, & Khazai, 2006). While these new concepts have been developed and provide vast improvement to the existing approach, the recovery phase of disaster management remains the most inefficient and poorly managed as resource management, information sharing and decision making continues to be a struggle (Mannakkara, & Wilkinson, 2013). Further to this, there appears to be a significant lack of understanding how a change in phase from short and medium-term to long-term recovery impacts both those involved in the recovery effort and the community, as well as the ongoing recovery effort. This includes the continuation of recovery work and the development of lessons learnt from the recovery efforts to be passed back into the initial phases of disaster management. This is essential to ensure a more circular approach to disaster management, where phases influence one another.

The recovery management of the relatively recent devastation that occurred in the Canterbury region of New Zealand, as a result of the earthquakes from September 2010 and February 2011, has served as a platform by which many have sought to increase the understanding of disaster management in its different phases (Brudson, Seville, & Wilkinson, 2013; Brudson, Seville, & Wilkinson, 2014). Moreover, the Stronger Christchurch Infrastructure Rebuild Team (SCIRT), a recovery-rebuild specific organisation that was established to manage the recovery to the large-scale damage of lateral infrastructure (roading and water infrastructure), has been the focus of a number of case studies (Brudson, Seville, & Wilkinson, 2013; Brudson, Seville, & Wilkinson, 2014). Through their research Brudson et al. (2014) recognised the need and importance of understanding recover-rebuild specific organisation's exit and transition strategies and highlight this area as a current research gap. This research paper attempts to add to the existing body of knowledge on post-disaster recovery, as it continues to look to Christchurch and SCIRT as a means by which to increase the understanding of the impact that changes in phase have. With Christchurch currently going through a change in phase from short-term to long-term recovery, it was a unique opportunity that this transition be investigated for two important reasons 1) to increase the understanding of the recovery phase and to develop lessons learnt as a

means by which to further develop the circular approach to disaster management and 2) to increase the understanding of the implications that a change in disaster management phase brings to those involved in the recovery effort and the community.

The aim of this project was to investigate the exit and transition of rebuild-recovery specific organisations, through a case study of SCIRT.

1.1. Literature Review

This review aimed to establish an understanding of the Canterbury Earthquakes, Canterbury's approach to the recovery of its lateral infrastructure through the establishment of a recovery-rebuild specific organisation and the significance of this.

1.1.1. *The Canterbury Earthquakes*

Canterbury, a region within the South Island of New Zealand, experienced two major earthquakes in September 2010 and February 2011. Both earthquakes lead to a great deal of destruction for the country's second largest city: Christchurch.

The earthquakes lead to a significant amount of damage, with the February earthquake resulting in the most widespread devastation. Devastation that resulted in the loss of one-hundred and eighty-five lives, destruction of businesses and homes, as well as liquefaction, loss of utilities and structural damage across the greater Christchurch area (GeoNet, 2016). Lateral infrastructure saw damage to more than 530km of wastewater pipes, 140 bridges and culverts, 140 retaining walls and more than 1.38 million square meters of road (SCIRT, 2011). The large-scale damage resulted in drastic action needed from both the local Canterbury Regional Council and the New Zealand central government. Due to damage to lateral infrastructure being so significant, a recovery-rebuild specific organisation, SCIRT, was established (SCIRT, 2011).

1.1.2. *Disaster Recovery in New Zealand*

Following the events of the September 4th 2010 earthquake, The Canterbury Earthquake Response and Recovery Bill was passed (Johnson, & Mamula-Seadon, 2014). With this bill came the establishment of The Canterbury Earthquake Recovery Commission (CERC) who were responsible for coordination between the local authorities and the central government (Johnson, & Mamula-Seadon, 2014). CERC was comprised of the three majors from the affected districts, four central government representatives and an independent chair (Johnson, & Mamula-Seadon, 2014).

The New Zealand government declared a state of national emergency, for the first time in history, on February 22nd 2011, following the second major earthquake (Ministry

of Civil Defence & Emergency Management, 2013). With the large-scale devastation that had occurred and the lack of action from CERC in the previous months, a change in governance was required - leading to the appointment of The Canterbury Earthquake Recovery Authority (CERA) (Johnson, & Mamula-Seadon, 2014). The authority saw the appointment of more senior central government representatives as an active body in managing the rebuild (Johnson, & Mamula-Seadon, 2014).

In this change of governance, the simultaneous dissolution of CERC and appointment of CERA, there is evidence for a significant transition strategy used during the recovery of the Canterbury earthquakes. The transition strategy served as a means to achieve what was necessary at the time - to better manage the disaster relief of Christchurch following such large destruction. This transition strategy was effectively allowed for by a change in governance (Johnson, & Mamula-Seadon, 2014). Further evidence of important transition strategies were seen nine weeks following the February 22nd 2011 earthquake, operations were formally transitioned from response to recovery (Pedroso, et al., 2015). This transition was made through Civil Defence granting full authority to CERA to lead the recovery policy and planning (Pedroso, et al., 2015).

1.1.3. *SCIRT*

SCIRT consists of an alliance between privately owned and government organisations (SCIRT, 2016). The recovery-specific organisation was established as a means to effectively rebuild and recover the lateral infrastructure of Christchurch (Pedroso, et al., 2015). The team was set up as an innovative alliance structure that would bring collaboration from the client, consultant and the contractor (Chang-Richards, & Wilkinson, 2014)

The non-governmental portion of SCIRT consists of a group of non-owner participants: Fulton Hogan, Downer, Fletcher, City Care and McConnell Dowell (SCIRT, 2016) - a group of some of New Zealand's most prominent contractors. The government portion of SCIRT, or owner participants, consisted of CERA, Christchurch City Council and The New Zealand Transport Agency (NZTA). Since the dissolution of CERA on April 18th 2016, The Department of the Prime Minister and Cabinet Group: Greater Christchurch Group has taken its role (SCIRT, 2016).

Through the rebuild of this horizontal infrastructure SCIRT was, and still is, responsible for the delivery of all asset assessments, scope definition, conceptual and detailed design as well as construction (Chang-Richards, & Wilkinson, 2014).

1.1.4. *The Disestablishment of CERA*

CERA was disestablished on April 18th 2016 (CERA, 2016). Its disestablishment came as the central government actively transitioned from leading the recovery in Christchurch to establishing a more long-term recovery phase, led by local agencies (CERA, 2016).

CERA explains on its website (CERA, 2016) that some functions of the organisation have wound down and are no longer needed, while others have been actively transitioned to other central and local government agencies. The agencies to which responsibility has been shifted are to include; The Ministry of Health and Canterbury District Health Board, Land Information New Zealand, Ministry of Business, Innovation and Employment, Ōtākaro Limited, Regenerate Christchurch and the Greater Christchurch Group in the Department of the Prime Minister and Cabinet. Of particular significance in this case is the transition in responsibility of the following (CERA, 2016):

- *Regenerate Christchurch* is to take responsibility for the long-term development of Christchurch central city, residential red zones, New Brighton and all other zones requiring regeneration.
- *The Greater Christchurch Group in the Department of the Prime Minister and Cabinet* are to take responsibility for all policy, planning and legal support in all recovery and regeneration of Canterbury.

The disestablishment of CERA shows an active transition and exit strategy to effectively manage the remaining long-term recovery of Christchurch. However, it does stand to question whether or not the timing of such a transition and exit strategy was appropriate as the dissolution date was set under the initial Act that established it (New Zealand Parliament, 2011).

1.2. Objectives

Although SCIRT is very specific organisation within the recovery effort, its large responsibility of effectively managing the recovery of lateral infrastructure (SCIRT, 2011) means that its existence and actions has a significantly large impact on the recovery of Christchurch as a whole. Subsequently, its upcoming dissolution is likely to have a noteworthy impact that should be considered.

The research objectives are:

- To understand successes and downfalls of SCIRT and how these lessons will be preserved for future use.
- To understand the unique alliance model and why it was or was not successful.
- To understand how the remaining work will be managed.

- To understand the significance in the timing of the dissolution of SCIRT.
- To understand the implications of SCIRT's dissolution for the companies, their employees and resources.

The first two objectives have been addressed in a separate paper titled *The Investigation and Preservation of Lessons Learnt from SCIRT* by Charlotte Fisher-Vercoe. The remaining three objectives will be addressed in this paper.

2. Methodology

2.1. Literature Review

Firstly, a literature review was completed to develop a full understanding of Christchurch and its current phase in recovery, its approach to disaster management through the establishment of SCIRT and the significance of a recovery-rebuild specific organisation and its transitions.

2.2. Research Design

A qualitative case study method was used for this research. This method was the most effective way to gain a full insight into the complex concepts addressed in this study (Mayhew, & Morehouse, 1994). Furthermore, a qualitative case study allowed for the understanding of a phenomenon in its real world environment as well as completing an evaluation (Yin, 2012) of SCIRT to understand the transition of a recovery-rebuild specific organisation and the impact it has on the associated organisations and the community from the perspectives of the participants chosen in the study.

2.3. Data Collection

Data collection included document analysis and administering semi-structured interviews with members of SCIRT. Semi-structured interviews were deemed the most appropriate way in which to collect the qualitative data required to address the objectives of the research.

2.3.1. *Document Analysis*

Document analysis was completed through the evaluation of relevant research and other documents. Documents include disaster relief progress reports, organisation reports, disaster management policy, government policies, evaluations by the Auditor General and legislative documents. This was useful not only to further refine the research questions initially, but also to verify some of the data collected through the semi-structured interviews.

2.3.2. Semi-Structured Interviews

Table 1: Table of Interviewees

Interview Code	Organisation
P1	Fulton Hogan
P2	Fletcher Construction
P3	McConnell Dowell
P4	Christchurch City Council
P5-P8	SCIRT

A series of eight semi-structured interviews were completed in Christchurch July 2016. Each interview was approximately one hour long and consisted of 26 open-ended questions that were developed from the research objectives. These questions were further refined through the interview process. The semi-structured nature of the interviews provided the opportunity for participants to elaborate on the questions and provide a wide range of information that they felt were relevant to the study.

Interviewees were selected through their position within the organisation to ensure they had sufficient knowledge of the upcoming exit or transition. Each participant was given a Participant Information Sheet and was required to sign a Participant Consent Form before the interview took place. Four representatives from SCIRT management were selected as a result. Their role was directly related to the transition strategy as well as representing all five delivery teams of the construction companies and/or the three owner participants. In addition, four participants from the associated contracting and owner organisations were also selected (see Table 1). The interview questions addressed the successes and downfalls of the SCIRT system and alliance, as well as the timing of SCIRT's dissolution, management of remaining work and the management of staff and resources.

Initially, representatives from each of the eight organisations (i.e. CERA, Christchurch City Council, NZTA, City Care, Downer, Fletcher, Fulton Hogan and McConnell Dowell) were sought for the interviews. However, because of availability and current presence of each organisation within SCIRT, only three delivery team representatives took part. Questions asked in each interview were the same and information provided by the interviewees proved to be consistent. The data collected through the interviews were deemed to be reliable because of the consistency in response between interview participants and with data collected through document analysis. In addition, SCIRT representatives provided feedback from each of the organisation's eight participant's perspectives because of their close involvement with the other organisations in their day-to-day operations.

2.4. Data Analysis

Interviews were transcribed where recordings of the interviews allowed. Data collected was then sorted using a coding method that allowed for constant comparative analysis (Maykut & Morehouse, 1994). Coding was based on key themes from the research objectives. From the key themes the data was further analysed to identify subthemes. The coding method allowed key consistencies and trends to be identified (Maykut & Morehouse, 1994) so that discussions and conclusions could be drawn.

3. Results

From the data analysis key themes surrounding the timing of the dissolution, the management of the remaining work and the impact on the companies and their staff was identified. Importantly, concept surrounding each organisations investment within SCIRT was also identified.

Document analysis from the Auditor-General's (2016) review of SCIRT showed that a Transition Implementation Plan was developed by SCIRT. The plan was developed to effectively manage the handover of assets and information to the Christchurch City Council, as it takes on responsibility for the remaining work upon SCIRT's dissolution. In addition, the Implementation Plan also addressed the passing on of SCIRT's legacy (Auditor-General, 2016); this is addressed in the other paper of this set. The transition process includes the development of the Council's systems and skills to ensure it has the capacity to deliver and maintain the city's assets (Auditor General, 2016).

3.1. Investment from Businesses

It was identified that all construction companies "very heavily" (P1-P4) invested in SCIRT and its establishment. Investment was through both assigning staff to work within the organisation of SCIRT and separate construction company delivery teams.

Companies not only required investment of a large amount of delivery staff and resources, but also of senior management. P5 specifically identified that all teams had to invest heavily: "teams had to pull senior staff and personal to ensure a project team to meet demands." Arguably, some companies had to invest to a more extreme degree, as it required a shift in part of the business from the North Island to the South Island. P2 identified that "Fletcher had no business within the South Island before SCIRT".

Fulton Hogan, a company whose main base is in Canterbury, identified that it had a relatively easy job of resourcing SCIRT due to it having strong influence within the region (P5). However, in addition to SCIRT

and the investment Fulton Hogan made in resourcing the recovery-rebuild specific organisation, the company identified that it also invested in the recovery effort as a whole: *“There was a whole heap of emergency works outside of SCIRT rebuild, which meant Fulton Hogan brought in and mobilised crews from Nelson, Central Otago and Dunedin etcetera.”*

Participant P3 specifically identified that each delivery team required a significant amount of people both in the form of engineers and other office staff, as well as ground staff: *“Each team would carry out approximately \$90 million worth of work per year. For this you need at least 60 staff in the delivery team and about 500 in the onsite workforce.”*

Overall it was identified that each delivery team heavily invested in SCIRT and so its progress, dissolution or transition will impact each of the non-owner participant’s businesses to some degree.

3.2. Timing

Before the interviews took place document analysis showed that CERA, an owner participant and a government recovery specific organisation in its own right, dissolved or transitioned in April this year (CERA, 2016). CERA transitioned to form the Greater Christchurch Group in the Department of the Prime Minister and Cabinet. The interviews were then used to identify the significance of CERA and SCIRT’s dissolution, as well as the impact that CERA’s transition had on SCIRT.

3.2.1. CERA

CERA was disestablished on April 18th 2016, a date that was set on its creation (CERA, 2016). Its disestablishment came as the central government actively transitioned from leading the recovery in Christchurch to establishing a more long-term recovery phase, led by local agencies (CERA, 2016).

All participants, P1-P8, agreed that the timing of CERA’s transition was appropriate due to it effectively being a downsizing and a change in name. Representatives of CERA on the SCIRT board have remained the same as the organisation transitioned to act under its new name. Furthermore, participants (P3, P6 and P7) agreed that their transition shows a clear change in phase in recovery efforts. With a participant identifying: *“yes it was an appropriate time... it brings change.”*

All participants also agreed that CERA’s disestablishment had very little impact on the continual functioning of SCIRT. It was consistently concluded by participants that this was because CERA representation had remained the same as well as funding and scope decisions being settled before CERA underwent their

transition. Participant P6 stated: *“Most of the people in the new entity are the ones we interacted with in the old, so the particular impact on SCIRT has been minor”*

3.2.2. SCIRT

All parties, participants P1-P8, agreed that it’s an appropriate time for SCIRT to come to an end in December this year (2016). Reasoning for this conclusion included CERA reaching its completion date in April, that the defined scope of work will be complete by the set date, and that the city, its people and those working on the rebuild are ready and in need for a change of phase.

Participants P1-P3 and P5-P8 identified that SCIRT’s defined scope of work will be complete in December this year. SCIRT’s scope of work was defined early on, along with its dissolution date for December 2016. There was a clear trend showing teams accepted the defined scope and worked to achieve this scope in the defined timeframe. The participants’ views were all consistent with participant P7 who stated: *“We’ve had the date 31st December 2016 as THE date and so we have focused our schedule of works... we do enough each month to get it done. And so from that point of view, it seems like a natural close.”*

Participants P1, P2 and P4-P8 all agreed that the end of SCIRT is important as it shows a clear change in phase from short-term to long-term recovery. Participants identified that this is important as it allows for a change and improvement to the recovery effort and that the people involved in the recovery, as well as the community, need a change (P5). *“I think it’s a very good time for a new phase... we need a bit of a fresh come through”*. Participant P6 added to this: *“...most of us are exhausted... its time to take a break and do something different.”*

3.3. Forward Workload and Remaining Work

Both document analysis and information provided through the interviews identified that while SCIRT’s defined scope of work is complete, there is still a significant amount of work remaining in regard to the lateral infrastructure. SCIRT was tasked with repairing lateral infrastructure; ensuring that the assets are in a usable state, not fully replacing or ensuring its long-term lifespan. The Christchurch City Council is set to take on the remaining work. Whether or not the Council has the capacity to effectively manage this work remains to be determined. Participant P5 explicitly identified this: *“Because the Council has a significant works programme over the next ten years and probably need some assistance in terms of peak delivery... we are talking about, them delivering, roughly speaking, \$450million per year... they (the Council) can maybe deal with \$300 million”*

These participants revealed that because there is uncertainty in the Council's capacity to effectively manage this large scope of work, there is a possibility for a SCIRT 2.0. The possible organisation would consist of a smaller version of SCIRT and would handle the excess workload from the council. Participants showed varying degrees of knowledge in regard to this current proposal being considered by the Council. Participants P3, P5 and P7-P8 revealed to have the greatest amount of knowledge for this potential transition mechanism. A common trend that arose when trying to further understand the possible establishment of SCIRT 2.0 can be summarised through a statement by P5: *"Its pretty much what we have here (SCIRT) but on a much smaller basis, to pick up the excess \$150 million a year and try and give them (the Council) another mechanism for a delivery of works in an effective and efficient manner."*

There was a common theme in the contractors' views that it is not the end of SCIRT that is the concern for them, the companies are used to projects reaching and end. More specifically, large construction companies commonly experience fluctuations in workload due to large tender projects either being successful or rejected. Participants P2, P3 and P5-P8 all shared similar views with P1 who commented with regard to SCIRT's completion: *"...that's just project work and what the business is use to"*. Participant P5 expanded on this during his interview: *"... its very sort of boom and bust, its either feast or famine"*.

The concern shared by the contractors (P1-P3 and P5) however was the potential of a big gap construction ready work. In other words, as SCIRT has been coming to its end, so has the construction work. Because little new work has been considered at the design phase, as SCIRT approaches its completion there will be some length in time before projects undergo detailed design and are ready for construction. As identified there is still a large portion of work that needs to be completed, but concern for companies is the timing of this work and the potential of a large gap in workload as the recovery transitions from short-term to long-term.

Quite notably, P2 identified that if the company sees no workload within the area it will be forced to withdraw: *"If we don't pick up any work we will be forced to pack up and head back north."*

In contrast, Fulton Hogan, who showed a strong presence in the area before the earthquake, identified that they have secured a large project with NZTA. P1 and P5 both identified that while this is significant and aids in managing the transition workload it may not prove to be sufficient. Both of these participants, in addition to the other six, identified that where there is insufficient

workload companies will be forced to let go of a significant number of employees (P5): *"...we are going to have a lot of staff we wont know what to do with... and ultimately we might be forced to let them go"*

3.4. Managing People and Resources

Further to companies identifying that with a lack of work they will be forced to let go of a number of people, participants P2 and P3 identified that a number of employees are resigning of their own account. More specifically, as SCIRT has been coming to an end and companies have no upcoming work in Christchurch for staff, employees have naturally been leaving. This includes staff either being moved to different parts of their home organisation or leaving the industry within New Zealand. Participant P2 was particularly concerned about this: *"As they see working coming to an end they are leaving, going overseas."*

Resources used by SCIRT, for the most part, belong to specific delivery teams. As a result, the remaining portion of their business will absorb the resources and systems that belong to the specific construction company. Assets and systems owned by SCIRT will be returned to the appropriate owner participant; NZTA or Christchurch City Council. Participant P5 explained: *"It was decided that each of the five delivery teams would use their own resources and systems... and they will take those with them when SCIRT ends."*

4. Discussion

Ultimately, it's important to understand the impact and consequences that the findings have for the community, the organisations and the long-term recovery as a whole.

4.1. Investment from Businesses

Before addressing the significance of the timing for SCIRT's dissolution, the remaining work and the management of employees and resources it's important to consider the degree of investment that was required from the non-owner participants. Understanding the required investment from these businesses will ultimately help to clarify how these businesses are impacted by SCIRT's dissolution.

Most significantly, the findings revealed that a large portion of people and resources was invested by each of the delivery teams. What needs to be recognised from this is the large number of people who are dependent on their respective companies to find them other employment as SCIRT comes to an end. In other words, a large initial investment by these companies now results in the need for the development of a large exit or transition strategy. These companies are dependent on new projects so that staff and resources may be transitioned and absorbed by new work.

The relative severity of impact for this transition or exit to the five construction companies is likely to be linked to the relative degree of risk that was involved when they first decided to 'invest' in SCIRT. Organisations such as Fletcher, who had no initial presence within the South Island is likely to have a different transition approach than Fulton Hogan, who had an existing strong standing within the Canterbury region. The outcome for Fletcher, who's 'risk' would have been significantly higher when transitioning a team into SCIRT, could potentially see one of two most noteworthy outcomes. Firstly, as SCIRT comes to an end and the organisation secures no work in the area it would be forced to withdraw from Christchurch. Now, while the consequence would have been considered for the business and the benefits would have outweighed the cost when the decision was made, it is important to consider whether or not there would be an impact for Christchurch and its economy. As a second possible outcome, it is likely that Fletcher could secure work within the region and SCIRT would therefore have acted as a vehicle by which the company could expand and grow. Both of these potential outcomes are likely to impact Christchurch, its contracting market and the economy.

4.2. Timing

4.2.1. CERA

The timing of CERA's transition is important due to it acting as a key indicator for a change in recovery phase from short-term to long-term. Recovery from a large-scale disaster not only requires physical recovery to the damaged environment but also recovery of the community. This change in physical recovery phase is often very important as it shows progress to those involved in the recovery efforts and the community (Frame, Redlinch, & Nicoll, 2013). Moreover, it allows the community to move away from the event of the disaster and move towards life in their new city; thereby facilitating community recovery.

It's important to highlight the relatively small impact that CERA's transition had on SCIRT. With a significant change occurring to an owner participant of the organisation, it was expected that there would be some degree of impact. However, the lack of impact is in itself important to note. The findings showed that the impact was effectively managed due to representation remaining the same and due to their scope of work within the recovery-rebuild specific organisation being essentially complete before the transition occurred. These points are important for future transitions and recovery efforts, both in Christchurch and on a larger scale globally.

CERA's role as an owner participant within SCIRT was related to defining scopes of work and securing funding.

Both of these elements are essential to the functioning of SCIRT and its delivery teams. As noted, CERA's dissolution date was set in its establishment. With a known dissolution date from the outset, it would have been surprising if issues surrounding scope and funding were not resolved prior to its dissolution. Nonetheless, it is important to highlight its significance in effectively minimising the ongoing work of SCIRT. Further to this, with representation remaining the same any issues could effectively be resolved following its dissolution. It would be fair to conclude that the low level impact to SCIRT proves the effective transition of the organisation. Argument can definitely be made that if representation had changed, even with issues surrounding scope and funding mostly resolved, the impact would have been different. In an ever-changing environment following a disaster event consistency in the depended upon parties, such as the all important government recovery specific organisation, is essential not only for the community but for those involved in the recovery effort.

4.2.2. SCIRT

The timing of SCIRT's dissolution is controlled by the completion of its defined scope of work. Similar to CERA, SCIRT was established with an end date agreed. Having defined the scope of work and the date by which it had to be completed by, delivery teams were able to effectively manage work so that the overall goal of having work completed by December 2016 could be achieved. This is quite notable as large-scale devastation such as that experienced within the Canterbury region, results in extensive damage that is somewhat unimaginable initially. Despite this, the delivery teams will have the work finished by December this year.

Ultimately the timing of SCIRT's dissolution will have a relatively minimal direct impact on the community and the recovery efforts as a whole, due to their defined scope of work being completed in time. However the likely position of impact that needs to be considered is the management of the remaining work that lies outside of its scope. How the council will manage this work and whether or not they will continue on the success of SCIRT.

With such a large portion of work remaining it brings to question whether or not this is an appropriate time for SCIRT to be ending. As with CERA ending, the end of SCIRT is important, as it is a clear indicator for those involved as a change in recovery phase from short-term to long-term. While the success of SCIRT is apparent, it is clear that a change is needed to those working on the recovery effort. Effectively, the teams of these organisations are part of the Christchurch community, and as with the rest of the community they need to share progress. The conclusion of SCIRT will bring this progress as a sense of achievement. Therefore, irrelevant

of the amount of work remaining, the people of SCIRT need to experience progress. Second to that, the change will bring about an opportunity for improvement; to take the best elements of SCIRT and move forward.

The significance of the timing for SCIRT's dissolution is related to a change in physical recovery from short-term to long-term but arguably, the more important aspect, is the change in community recovery.

4.3. Forward Workload and Remaining Work

Understanding the significance of SCIRT's scope of work is essential to understanding the large amount of work remaining. With the Council set to take on this remaining work a fair judgement on their capacity with no bias is essential. It would be undermining the progress made in Christchurch if management of the upcoming work were not effective. Whether this is through the aid of a smaller recovery-rebuild specific organisation or another entity, the goal is to manage the transition so as not to affect the long-term recovery of the city and its people. However, it calls into question that with the success that SCIRT has shown, would it not be a lost opportunity if the Council did not utilise the opportunity presented to them by this contracting alliance? A smaller similar organisation could likely be a means to minimise the effects of the upcoming transition in both allowing further development of the councils systems, as the organisations work together, as well as a means by which to minimising the effects of a gap in work for the contractors during the transition.

From the findings it's clear that a gap in construction ready work is likely to have some significant consequences for Christchurch and its long-term recovery effort. As from figures 1 a and b it is clear that a more gradual approach to the workload is required in order to secure the continual presence of these construction companies to the rebuild. If a second peak was to occur, it is likely that with a large transition gap, the construction industry within Christchurch would not be ready for this second 'boom'. Companies such as Fletcher identified that if work runs dry in the area they will be forced to withdraw from Christchurch. Others, such as Fulton Hogan, commented that they would be forced to let go of a number of people. Both of these possibilities will have devastating consequences for Christchurch and its rebuild efforts. If the companies withdraw from the area, the long-term rebuild is likely to be significantly affected, the impact on the local community is likely to be detrimental and ultimately employees who are the community of Christchurch will face further challenges. It is therefore essential to close this gap in work by ensuring a sufficient number of projects are well into the design phase already, or to get there as soon as possible. It is important to acknowledge that construction companies have again and again been

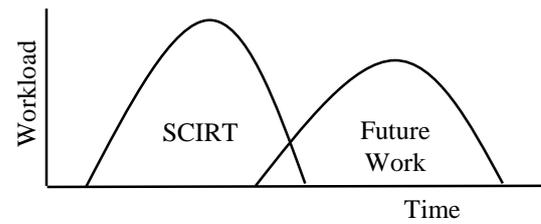


Figure 1(a): *The current expected workload over time shows a significant gap in work through the transition period. Further after the transition period it shows an expected peak in workload.*

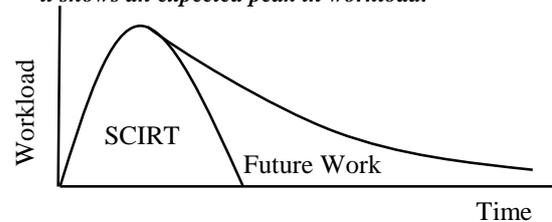


Figure 1(b): *The workload over time that should be achieved to ensure minimal impact to the construction industry and the long-term recovery.*

recognised as essential to a disaster recovery effort (Wilkinson, & Chang-Richards, 2014). This clearly shows the need for the client and government agencies such as Christchurch City Council and NZTA to take action in managing this gap to ensure there is no long term follow on effects from this transition.

4.4. Managing People

The natural exiting of people from the Christchurch industry has made work for the construction companies easier at this stage. Rather than having to find a large number of people employment elsewhere within the business, only a small team requires relocation. While the current job market both nationally and international has capacity to absorb these people, it is important to consider how a saturated job market under different global economic conditions would cope. It is likely that if this had occurred a number of years ago, under a global recession, the outcome would have been significantly different. This is important to consider because the complexity of the employees lies in their families and lives outside of work. They are ultimately the community of Christchurch who need employment to pay mortgages and care for a family. This again shows the need for a more gradual shift in workload in order to secure employment for a large number of individuals. Furthermore, this is important as the construction industry within a disaster recovery directly impacts the local economy.

While people leaving naturally are easier for companies to manage at this stage, it is important to consider a more long-term outlook. The concern here is; the detrimental effect on the rebuild efforts. A significant amount of time, money and resources went into up skilling individuals to

ensure their capability and the company's capacity to effectively manage a recovery effort. If these people's expertise are not secured it is likely that the resourcing issues experienced at the start of the recovery effort will be relived (Brudson, Seville, & Wilkinson, 2013) and ultimately the long-term recovery would suffer.

5. Conclusions

The timing of SCIRT's dissolution holds significance as it provides an opportunity to change recovery phase from short-term to long-term, both for the physical and community recovery.

Even with a significant amount of work remaining it is clear that this transition is occurring at an appropriate time. However, the key implications that need to be considered are the potential for a gap in construction ready work and what impact this will have. It is likely that if the upcoming transition is not effectively managed by the client, the New Zealand government agencies, there are likely to be some detrimental effects to the long-term recovery effort as people and companies will withdraw from the area.

5.1. Further Research

While this research has provided some insight to the upcoming transition and the impact it will hold it is essential the implications to the recovery effort and the community be measured moving forward. This research has only begun to address the current research gap. It's essential that this research be continued so that future disaster recovery efforts can benefit. Further to this, it is recommended that the research be carried out over a longer period of time and with all eight associated SCIRT organisations (i.e. CERA, Christchurch City Council, NZTA, City Care, Downer, Fletcher, Fulton Hogan and McConnell Dowell) so that the implications on the long-term recovery can fully be understood.

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Appendix: Interview Questions Sorted to Research Aims

<p>Was communication effectively maintained with the community throughout the rebuild? How? Will this be continued?</p> <p>Will resources specifically developed as a result of the rebuild be available for future use? How will these resources be used to better future disaster management?</p> <p>Who will manage the intellectual property/shared resources established by SCIRT?</p>	<p>Success and Downfalls</p>
<p>From the involvement within SCIRT were there any particular lessons learnt regarding the alliance model? And how could these be addressed to improve the alliance model and its systems?</p> <p>Are the lessons learnt from the alliance relationship been preserved and implemented within your company as whole? If so how?</p> <p>How can the alliance model be improved for disaster recovery and also construction projects nation wide?</p> <p>Did the alliance improve the sharing of knowledge between the organisations, what impact did this have?</p> <p>Was SCIRT a successful way of managing recovery? Why/why not?</p> <p>Has involvement with SCIRT had large impact on the remaining parts of your organisation? Explain.</p> <p>If another disaster were to happen, how could SCIRT or a similar organisation be improved?</p>	<p>Alliance Model</p>
<p>CERA, an owner participant of SCIRT, dissolved in April, how has that impacted the ongoing work of SCIRT? How has CERA's portion of work been managed since?</p> <p>Would you say most of the work for CERA had been completed at the time of its dissolution?</p> <p>Is it an appropriate time for SCIRT to be dissolving? Please explain.</p>	<p>Timing</p>
<p>How heavily did your organisation invest in SCIRT?</p> <p>What do you see for the future of SCIRT and what do you predict for its transition/exit?</p> <p>Has there been a change in work level as the recovery shifts from being short term to long term? If so how is your company dealing managing this?</p> <p>Who will take over the remaining responsibility for lateral infrastructure?</p> <p>How will the remaining work be managed?</p> <p>In your opinion, is this an effective means by which to manage the remaining work? Why/why not?</p> <p>Who will take responsibility and liability for the work that has been completed under SCIRT?</p>	<p>Remaining Work</p>
<p>Were any specific resources or systems developed for the recovery?</p> <p>How will staff and resources, be managed by your company?</p>	<p>People & Resources</p>